Changing the Paradigm for Materials Design

Through CALPHAD Based Software

Technology is moving materials design to a better paradigm, computational materials software.

- **Predict** what phases form as a function of composition and temperature
- **Reduce** costly, time-consuming experiments
- **Base decisions** on scientifically supported predictions and data
- **Shorten** development time and accelerate materials development while reducing risk
- **Improve** the quality and consistency of your products through deeper understanding of your materials and processes

Visit us at booth #1001
Welcome to TMS2017!
It is my honor to welcome you to the TMS 2017 Annual Meeting & Exhibition (TMS2017), which marks the 146th annual meeting of our society. Every annual meeting has special offerings, and TMS2017 is no exception. Summarized below are some of the many new and exciting features to explore at TMS2017.

Opening Plenary Session: Global Energy 2025
I highly encourage you to join your TMS colleagues for the inaugural annual meeting Opening Plenary Session on Sunday evening. The event begins at 5:00 p.m. with the President’s Welcoming Reception that will allow you to meet with colleagues—both old and new—before the keynote presentations begin at 6:00 p.m. This year’s theme is Global Energy 2025, and the three invited speakers will provide perspectives from the United States, China, and Europe on energy and sustainability.

Two Co-Located Meetings: One International Event
TMS2017 is pleased to welcome two co-located international meetings: the 3rd Pan American Materials Congress and Energy Materials 2017. The 3rd Pan American Materials Congress was planned in cooperation with nine partner societies from the Americas. Energy Materials 2017 has been organized jointly by TMS and the Chinese Society for Metals. Co-locating these events with TMS2017 gives you not only broader opportunities for technical updates, but also greater opportunities to network with diverse colleagues from around the world.

New Faces in the Crowd
TMS2017 had some of the highest pre-registration numbers in recent TMS history. I suspect that means that quite a few of you are new to the annual meeting as well. If so, please visit the TMS Member Welcome Center to acquire your first-time attendee packet, which includes useful tips for how best to navigate the meeting and a small gift from TMS. And remember, if you registered for the meeting as a nonmember, your registration includes membership in TMS for the remainder of 2017. Please visit the TMS Member Welcome Center, located in the Ballroom 6 lobby, to learn more about us and your membership benefits.

Not a First-Time Attendee?
Then maybe you can lend the expertise you’ve gained at previous TMS meetings to some of our newer participants. You’ll be able to recognize them by the blue “First-Time Attendee” ribbons attached to their badges. If you see any of these ribbons, be sure to introduce yourself to the person wearing it and offer your assistance and collegiality.

Whether you’ve been to one or many TMS meetings, whether you’ve traveled a few minutes or many hours to get here, we’re glad you’ve joined us, and we hope you find TMS2017 to be a truly valuable and enjoyable experience.

Sincerely,

Stanley M. Howard
2016 TMS President

Be sure to review the TMS2017 program schedule carefully since there are significant changes compared to previous TMS annual meetings. The new Opening Plenary Session event takes place on Sunday evening, the TMS-AIME Awards Ceremony and Banquet is now Wednesday evening, and Thursday offers a full day of session programming.
TMS2017 HOTELS AND VENUES

1. San Diego Marriott Hotel & Marina
2. Best Western Plus Bayside Inn
3. Embassy Suites San Diego Bay
4. Hilton Gaslamp
5. Omni San Diego Hotel
6. Palomar
7. Porto Vista
8. Westin San Diego
9. Wyndham San Diego Bayside
BE PREPARED
The chances of an emergency situation occurring at the TMS 2017 Annual Meeting & Exhibition (TMS2017) are quite small. However, being prepared to react effectively in case of an incident is the most critical step in ensuring the health and safety of yourself and those around you.

KNOW YOUR SURROUNDINGS
Please take a few moments to review the maps of the TMS2017 facilities printed in your program. When you enter these buildings, familiarize yourself with the exits and the stairs leading to those exits. In case of evacuation, the elevators and escalators in both the San Diego Convention Center and the San Diego Marriott Marquis & Marina will cease to operate. When you arrive at your session or event location, look for the emergency exits that are in closest proximity to you.

EMERGENCY PHONE NUMBERS
If you are in the San Diego Convention Center and have an emergency, contact the convention center’s Security Department by dialing extension 5911 from any of the white courtesy phones located throughout the facility or by calling (619) 525-5911 from a cell phone. If you are located in the Marriott Marquis Hotel, contact hotel security by dialing extension 53 from any house phone or 911 if calling from a cell phone.

ALARMS AND EMERGENCY INSTRUCTIONS
If an alarm or strobe light is activated in the San Diego Convention Center, remain calm and listen for an announcement over the public address system with instructions. The announcement will be repeated until the convention center’s emergency response team has determined that the situation is “all clear” or that an “evacuation” or “lock down” needs to take place.

If instructed to evacuate, follow the instructions given over the public address system to exit the building.

In the event of a lock down, shelter in place and await further instructions over the public address system or by security personnel.

EARTHQUAKE SAFETY
As soon as an earthquake begins, drop to the floor and find protection under a table or other furniture. Stay clear of windows. Hold on and protect your face and head from flying debris. If outdoors, quickly move away from buildings, poles, and overhead wires to avoid falling objects. After the shaking stops, remain calm and be alert to aftershocks. If you are in the San Diego Convention Center, remain where you are until you receive instructions from convention center security or police personnel.

MEDICAL EMERGENCIES
First aid services are available in the San Diego Convention Center in Box Office A of the registration area. The hours of operation are as follows:

- Sunday, February 26: Noon. to 8:00 p.m.
- Monday, February 27: 8:00 a.m. to 5:00 p.m.
- Tuesday, February 28: 8:00 a.m. to 5:00 p.m.
- Wednesday, March 1: 8:00 a.m. to 5:00 p.m.
- Thursday, March 2: 8:00 a.m. to 2:00 p.m.

The convention center also has 14 automatic external defibrillators (AEDs) located throughout the facility, on every level, that can be used in case of sudden cardiac arrest.

If you or someone near you is experiencing a serious medical emergency, and you are located in the convention center, dial extension 5911 from any of the white courtesy phones located throughout the facility or call (619) 525-5911 from a cell phone. Outside of the convention center, dial 911 from a cell phone. Be prepared to calmly provide details about your specific location and the nature of the medical emergency.

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<tr>
<td>Opening Plenary Session</td>
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SGL LANCELOT® for in-situ profile measurements

SGL Group – The Carbon Company, together with the leading aluminum smelting technology providers developed a tool to measure cathode surfaces and side ledge profile of the smelting pot in operational conditions.

SGL LANCELOT® and its unique features allow high precision measurements inside melting aluminum bath. Surface analysis is used for wear measurement of cathodes to check its performance as well to find indicators of potential failure. Side ledge analysis gives instant feedback about impact of process parameters changes on ledge thickness.

Cathodes
SGL CFL CE GmbH
www.sglgroup.com/cathodes

For further details please contact lancelot@sglgroup.com
REGISTRATION
All attendees and meeting participants (presenters, exhibitors, etc.) must register for the meeting. Badges must be worn for admission to technical sessions, the exhibition hall, social functions, and other events. Your full-meeting registration badge provides you access to:
• All technical sessions, including the technical programming of the 3rd Pan American Materials Congress, Energy Materials 2017, and all TMS2017 sessions
• A three-day pass to the TMS2017 Exhibition
• President’s Welcoming Reception and Opening Plenary Session on Sunday evening
• Exhibit Hall Opening Reception on Monday
• Exhibit Hall Happy Hour on Tuesday
• Admission to the awards ceremony portion of the 2017 TMS–AIME Awards Banquet on Wednesday
• General Poster Sessions and Receptions
• TMS Materials Bowl Competition
• Technical Division Student Poster displays
• Admission to select social and networking events
• Online access to the complete collection of TMS2017 proceedings publications

TICKETS FOR EVENTS
Certain receptions, luncheons, and other activities at TMS2017 require attendees to purchase a ticket in order to attend. If you purchased tickets in advance for one of these events, your ticket will be attached to your name badge. If you would like to add a ticketed event to your registration, please inquire at the registration area.

NOTE ABOUT TIME
All times printed in this program refer to Pacific Standard Time.

NOTICE REGARDING TECHNICAL PROGRAM CANCELLATIONS
Changing the times of presentations is disruptive to the program and may cause delegates to miss valuable presentations. We have asked symposium organizers and session chairs not to adjust presentation times in the event that a speaker is unable to deliver his or her talk due to international travel and/or visa issues resulting in late cancellation or “no show.”

WIFI INTERNET ACCESS
Complimentary WiFi internet access is available in Hall B1 of the convention center. (This area is reserved for Presenters’ Coffee from 7:00 a.m. to 8:00 a.m. daily, but will be open to all attendees after 8:00 a.m. each day.) WiFi access is also available in the lobby outside of the exhibit hall at the convention center and in the main lobby of the Marriott Marquis & Marina. No password is needed for access.

BUSINESS CENTERS
There is a full-service FedEx Kinkos in the San Diego Convention Center on the ground level outside of Halls C & D. FedEx is open on Sunday from 9:00 a.m. to 5:00 p.m. and Monday through Friday from 8:00 a.m. to 5:00 p.m. For more information on available services, please visit local.fedex.com/ca/san-diego/office-1324/. There is a full-service UPS Store in the San Diego Marriott Marquis and Marina in the South Tower. The UPS Store is open on Sunday from 7:00 a.m. to 5:00 p.m. and Monday through Friday from 7:00 a.m. to 8:00 p.m. For more information on available services, please visit theupsstore.com and specify store number 6200 or contact (619) 230-8940 or store6200@theupsstore.com.
**MEETING INFORMATION**

**TMS2017 FINAL PROGRAM**

**REGISTRATION & MEETING LOGISTICS**

**REFRESHMENTS**
There is a Starbucks Coffee located outside of Hall A in the San Diego Convention Center open to visitors and meeting attendees from 8:00 a.m. to 9:00 p.m. daily.

There is also a Starbucks Coffee located in the South Tower of the Marriott Marquis and Marina Hotel. Additional dining options are available at the Marriott including the Marina Kitchen Café (open in the mornings only) and the Marina Kitchen Restaurant. There are many dining options within easy walking distance of the San Diego Convention Center and the TMS hotels. For suggestions and information on dining, visit the convention center Restaurant & Concierge Booth located in lobby B2 of the convention center.

You can also visit www.visitsandiego.com.

**ROOMS FOR NURSING MOTHERS**
Private, designated rooms are available at the convention center and the Marriott Marquis for nursing mothers. To access the private room at the convention center, contact TMS staff at the Member Welcome Center, located in the Ballroom 6 lobby. To access the private room at the Marriott, contact TMS staff in the Marina Ballroom Foyer.

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**IS THIS YOUR FIRST TMS ANNUAL MEETING?**

Visit the TMS Member Welcome Center to pick up your First-Time Attendee Welcome Packet. This includes useful tips for navigating the meeting, tools for getting more involved in TMS, and a special gift.

While you’re there, you can also learn more about the TMS membership you received as part of your full-conference TMS2017 registration.

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If you are attending TMS2017, then you are a member of TMS! Find out how being a part of this extraordinary community of minerals, metals, and materials scientists and engineers can help you to advance your career at the TMS Member Welcome Center:

- Learn about your member benefits
- Update your TMS membership profile
- Preview the new TMS website
- Take a break with the TMS Arcade
- Make a donation of $25 or more to the TMS Foundation and receive a souvenir mug
- View the winning images from the 2017 TMS Materials Photography Contest
TMS2017 MOBILE APP
A lightweight alternative to this printed at-meeting program, the TMS2017 mobile application can serve as your compact, hand-held guide to the meeting. This free conference tool is available on the App Store and the Google Play™ Store. To download the app, search “TMS Annual Meeting” in your respective device store.

The App’s features include:
- Latest programming schedule
- Complete abstracts
- Ability to build your personal schedule and download to your device
- Speaker information
- Exhibit map
- Exhibitors and sponsors
- Venue information
- Access to TMS2017 News

The App is also linked to the TMS Personal Conference Scheduler, so if you already created a schedule with that program, you can view it through the app.

TMS2017 NEWS:
YOUR DAILY MEETING NEWSLETTER
Want to stay informed of everything that’s happening at the TMS 2017 Annual Meeting & Exhibition? TMS2017 News, a daily newsletter reporting conference activities and events, will be published each morning, Sunday through Thursday, during the conference. You can access the newsletter through the TMS2017 app at any time, through the TMS2017 website, or by clicking on the link in the notification e-mail we’ll send each morning.

Each issue will provide a reminder of the big events planned for the day, as well as recaps and photos from events happening around the meeting. So before you start your day at TMS2017, sit down with a cup of coffee and skim TMS2017 News so that you don’t miss a thing!

TWEET YOUR OWN UPDATES
Keep each other updated on meeting activities, interesting talks, and tips on the best local restaurants. Use #MyTMS2017 to tweet your observations to @TMSSociety.
MEETING INFORMATION

MEETING INFORMATION

MEETING BADGES
All attendees must wear registration badges at all times during the meeting to ensure admission to events included in the paid fee such as technical sessions, exhibition, and receptions. “Exhibit Only” badges only provide admittance to the show floor for events in the exhibit hall. “Exhibit Only” attendees may not attend technical sessions.

BADGE REPLACEMENT FEE
There is a $25 fee to reprint lost badges. Visit the registration area to request a replacement badge.

GUEST SESSION ACCESS
Each full-conference attendee is permitted up to two guests for one session at which they are presenting. This does not include colleagues or exhibitors. This access is intended for family members who wish to listen to one talk presented by their relative. No one under the age of 18 is permitted. Please provide the names of the guests who will be attending your presentations at the registration desk.

GUEST FUNCTION TICKETS
You may purchase additional tickets to social functions for your guests at registration.

REFUND POLICY
The deadline for all refunds was January 20, 2017. No refunds will be issued at the meeting. Fees and tickets are nonrefundable. TMS is not responsible for “no show” presenters. Presenters are scheduled and advertised in good faith based on the presenter’s proposal to be included in the program.

TMS DIVERSITY AND INCLUSION STATEMENT
The Minerals, Metals & Materials Society (TMS) is committed to advancing diversity in the minerals, metals, and materials professions, and to promoting an inclusive professional culture that welcomes and engages all who seek to contribute to the field. TMS recognizes that a diverse minerals, metals, and materials workforce is critical to ensuring that all viewpoints, perspectives, and talents are brought to bear in addressing complex science and engineering challenges. To build and nurture this diverse professional community, TMS welcomes and actively engages the participation of underrepresented groups in all of its initiatives and endeavors.

ANTI-HARASSMENT POLICY
TMS policy prohibits conduct that is disrespectful, unprofessional, or harassing as related to any number of factors including, but not limited to, religion, ethnicity, gender, national origin or ancestry, physical or mental disability, physical appearance, medical condition, partner status, age, sexual orientation, military and veteran status, or any other characteristic protected by relevant federal, state, or local law or ordinance or regulation. Failure to comply with this policy could lead to censure from the TMS Board of Directors, potential legal action, or other actions. Anyone who witnesses prohibited conduct or who is the target of prohibited verbal or physical conduct should notify a TMS staff member as soon as possible following the incident. It is the duty of the individual reporting the prohibited conduct to make a timely and accurate complaint so that the issue can be resolved swiftly.

PHOTOGRAPHY AND RECORDING POLICY
TMS reserves the right to all audio and video reproductions of presentations at TMS-sponsored meetings. By registering for this meeting, all attendees acknowledge that they may be photographed by TMS personnel while at events, and that those photos may be used for promotional purposes, in and on TMS publications and websites, and on social media sites. Any recording of sessions (audio, video, still photography, etc.) intended for personal use, distribution, publication, or copyright without the express written consent of TMS and the individual authors is strictly prohibited. No photos are to be taken of any presenter’s slides. Attendees violating this policy may be asked to leave the session or the meeting without refund.

ANTITRUST COMPLIANCE POLICY
TMS complies with the antitrust laws of the United States. Attendees are encouraged to consult with their own corporate counsel for further guidance in complying with U.S. and foreign antitrust laws and regulations.

AMERICANS WITH DISABILITIES ACT
TMS strongly supports the federal Americans with Disabilities Act (ADA), which prohibits discrimination against, and promotes public accessibility for, those with disabilities. In support of, and in compliance with ADA, we ask those requiring specific equipment or services to contact TMS Meeting Services at the TMS Member Welcome Center.

CELL PHONE USE
In consideration of attendees and presenters, TMS kindly requests that you minimize disturbances by setting all cell phones and other devices on “silent” while in meeting rooms.
# CALENDAR OF EVENTS

**As of January 21, 2017**

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<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Saturday, February 25</strong></td>
<td></td>
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<tr>
<td>Committee &amp; Business Meetings</td>
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<tr>
<td>Professional Registration Item Writers Workshop and Committee Meeting</td>
<td>25-Feb</td>
<td>9:00 AM to 5:00 PM</td>
<td>Marriott</td>
<td>Del Mar</td>
<td>R</td>
</tr>
<tr>
<td>Financial Planning Committee</td>
<td>25-Feb</td>
<td>2:00 PM to 5:00 PM</td>
<td>Marriott</td>
<td>Encinitas</td>
<td>R</td>
</tr>
<tr>
<td>Professional Registration Committee Dinner</td>
<td>25-Feb</td>
<td>6:00 PM to 8:00 PM</td>
<td>Offsite</td>
<td>EddieV's</td>
<td>R</td>
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<tr>
<td><strong>Sunday, February 26</strong></td>
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<tr>
<td>All-Conference Events</td>
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</tr>
<tr>
<td>Registration</td>
<td>26-Feb</td>
<td>7:00 AM to 6:00 PM</td>
<td>SDCC</td>
<td>Hall A- B1 Foyer</td>
<td>O</td>
</tr>
<tr>
<td>TMS Member Welcome Center</td>
<td>26-Feb</td>
<td>7:00 AM to 6:00 PM</td>
<td>SDCC</td>
<td>Ballroom 6 Lobby</td>
<td>O</td>
</tr>
<tr>
<td>Programming Support Desk</td>
<td>26-Feb</td>
<td>2:00 PM to 6:00 PM</td>
<td>SDCC</td>
<td>Outside Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>President's Welcoming Reception</td>
<td>26-Feb</td>
<td>5:00 PM to 6:00 PM</td>
<td>Marriott</td>
<td>Pacific Foyer 20-26</td>
<td>O</td>
</tr>
<tr>
<td>Opening Plenary: Global Energy 2025</td>
<td>26-Feb</td>
<td>6:00 PM to 8:00 PM</td>
<td>Marriott</td>
<td>Pacific 21-26</td>
<td>O</td>
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<tr>
<td>Exhibition</td>
<td></td>
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<tr>
<td>Exhibit Move In</td>
<td>26-Feb</td>
<td>8:00 AM to 5:00 PM</td>
<td>SDCC</td>
<td>Ballroom 6</td>
<td>R</td>
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<tr>
<td>Professional Development &amp; Special Lectures</td>
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<tr>
<td>Hands On: New Demos and Activities to Engage Students in Materials Science and Engineering Workshop</td>
<td>26-Feb</td>
<td>8:30 AM to 12:00 PM</td>
<td>SDCC</td>
<td>13</td>
<td>T</td>
</tr>
<tr>
<td>Managing Sulfur in Cokes, Anodes and Smelter Potline Exhaust Gases Workshop</td>
<td>26-Feb</td>
<td>8:30 AM to 12:00 PM</td>
<td>SDCC</td>
<td>12</td>
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</tr>
<tr>
<td>Hands On: Interactive Materials Data Visualization and Selection Tools for Research and Teaching Workshop</td>
<td>26-Feb</td>
<td>8:30 AM to 12:00 PM</td>
<td>SDCC</td>
<td>18</td>
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</tr>
<tr>
<td>Emerging Electronic Interconnect Materials and Processing for Advanced Packaging Technology Workshop</td>
<td>26-Feb</td>
<td>8:30 AM to 4:30 PM</td>
<td>SDCC</td>
<td>14A</td>
<td>T</td>
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<tr>
<td>Refractory Linings used in Aluminium Production Short Course</td>
<td>26-Feb</td>
<td>8:30 AM to 4:30 PM</td>
<td>SDCC</td>
<td>19</td>
<td>T</td>
</tr>
<tr>
<td>Emerging Technologies That Are Poised to Change the Aluminum Industry Workshop</td>
<td>26-Feb</td>
<td>1:00 PM to 4:30 PM</td>
<td>SDCC</td>
<td>13</td>
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<tr>
<td>Introduction to Atom Probe Tomography Workshop</td>
<td>26-Feb</td>
<td>1:00 PM to 4:30 PM</td>
<td>SDCC</td>
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<tr>
<td>Additive Manufacturing Materials and Processes Workshop</td>
<td>26-Feb</td>
<td>1:00 PM to 5:30 PM</td>
<td>SDCC</td>
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<tr>
<td>TMS101: Fundamentals of TMS</td>
<td>26-Feb</td>
<td>5:00 PM to 5:45 PM</td>
<td>Marriott</td>
<td>Mission Hills</td>
<td>O</td>
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<tr>
<td>Student &amp; Young Professional Functions</td>
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<tr>
<td>Materials Bowl</td>
<td>26-Feb</td>
<td>12:00 PM to 6:00 PM</td>
<td>SDCC</td>
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<tr>
<td>Elimination Rounds</td>
<td>26-Feb</td>
<td>12:00 PM to 4:00 PM</td>
<td>SDCC</td>
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<tr>
<td>Championship Round</td>
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<tr>
<td>Student Networking Mixer</td>
<td>26-Feb</td>
<td>8:00 PM to 9:30 PM</td>
<td>SDCC</td>
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<tr>
<td>Social Functions</td>
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<tr>
<td>TMS Fellows and Invited Guests Reception</td>
<td>26-Feb</td>
<td>4:30 PM to 6:30 PM</td>
<td>Marriott</td>
<td>Marina Kitchen Terrace- The Porch</td>
<td>I</td>
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</tbody>
</table>

**Access Codes:**
- O - Open to all attendees
- R - Restrictions Apply
- I - Invitation Only
- T - Ticketed Event, Pre-registration required

**Facility Codes:**
- SDCC-San Diego Convention Center
- Marriott-Marriott Marquis & Marina

**www.tms.org/TMS2017**
# CALENDAR OF EVENTS

**As of January 21, 2017**

## Committee & Business Meetings

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<tr>
<td>New Board Member Orientation</td>
<td>26-Feb</td>
<td>8:30 AM to 10:00 AM</td>
<td>Marriott</td>
<td>Cardiff/Carlsbad</td>
<td>I</td>
</tr>
<tr>
<td>TMS Board of Directors Meeting</td>
<td>26-Feb</td>
<td>10:00 AM to 1:00 PM</td>
<td>Marriott</td>
<td>Cardiff/Carlsbad</td>
<td>O</td>
</tr>
<tr>
<td>Accreditation Committee</td>
<td>26-Feb</td>
<td>12:30 PM to 2:30 PM</td>
<td>Marriott</td>
<td>Laguna</td>
<td>O</td>
</tr>
<tr>
<td>Nominating Committee Meeting</td>
<td>26-Feb</td>
<td>1:30 PM to 3:00 PM</td>
<td>Marriott</td>
<td>Encinitas</td>
<td>I</td>
</tr>
<tr>
<td>Recycling and Environmental Technologies Committee Meeting</td>
<td>26-Feb</td>
<td>1:30 PM to 3:00 PM</td>
<td>Marriott</td>
<td>Leucadia</td>
<td>O</td>
</tr>
<tr>
<td>Magnesium Committee Meeting</td>
<td>26-Feb</td>
<td>1:30 PM to 3:00 PM</td>
<td>SDCC</td>
<td>15A</td>
<td>O</td>
</tr>
<tr>
<td>JOM Advisor Briefing</td>
<td>26-Feb</td>
<td>2:00 PM to 3:00 PM</td>
<td>Marriott</td>
<td>Del Mar</td>
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</tr>
<tr>
<td>Aluminum Committee Meeting</td>
<td>26-Feb</td>
<td>2:00 PM to 4:00 PM</td>
<td>SDCC</td>
<td>15B</td>
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<tr>
<td>Professional Development Committee</td>
<td>26-Feb</td>
<td>2:00 PM to 4:00 PM</td>
<td>Marriott</td>
<td>Oceanside</td>
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<tr>
<td>Materials Characterization Committee Meeting</td>
<td>26-Feb</td>
<td>2:30 PM to 4:00 PM</td>
<td>Marriott</td>
<td>Mission Hills</td>
<td>O</td>
</tr>
<tr>
<td>Materials and Society Committee Meeting</td>
<td>26-Feb</td>
<td>3:00 PM to 4:30 PM</td>
<td>Marriott</td>
<td>Vista</td>
<td>O</td>
</tr>
<tr>
<td>Pyrometallurgy Committee Meeting</td>
<td>26-Feb</td>
<td>3:00 PM to 4:30 PM</td>
<td>Marriott</td>
<td>Laguna</td>
<td>O</td>
</tr>
<tr>
<td>ABET Refresher Training</td>
<td>26-Feb</td>
<td>3:00 PM to 5:00 PM</td>
<td>Marriott</td>
<td>Balboa</td>
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<tr>
<td>Hydrometallurgy and Electrometallurgy Committee Meeting</td>
<td>26-Feb</td>
<td>4:00 PM to 5:00 PM</td>
<td>Marriott</td>
<td>Leucadia</td>
<td>O</td>
</tr>
<tr>
<td>TMS Program Committee</td>
<td>26-Feb</td>
<td>4:00 PM to 6:00 PM</td>
<td>Marriott</td>
<td>Point Loma/ Solana</td>
<td>I</td>
</tr>
<tr>
<td>Additive Manufacturing Committee Meeting</td>
<td>26-Feb</td>
<td>4:00 PM to 5:30 PM</td>
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<td>15A</td>
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<tr>
<td>Diversity Committee Meeting</td>
<td>26-Feb</td>
<td>4:30 PM to 6:00 PM</td>
<td>Marriott</td>
<td>Cardiff/Carlsbad</td>
<td>O</td>
</tr>
<tr>
<td>Process Technology and Modeling Committee Meeting</td>
<td>26-Feb</td>
<td>5:00 PM to 6:00 PM</td>
<td>Marriott</td>
<td>Vista</td>
<td>O</td>
</tr>
<tr>
<td>Nanomechanical Materials Behavior Committee Meeting</td>
<td>26-Feb</td>
<td>6:00 PM to 7:30 PM</td>
<td>Marriott</td>
<td>Point Loma/ Solana</td>
<td>O</td>
</tr>
<tr>
<td>Phase Transformation Committee Meeting</td>
<td>26-Feb</td>
<td>7:30 PM to 9:00 PM</td>
<td>Marriott</td>
<td>Leucadia</td>
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<tr>
<td>Mechanical Behavior of Materials Committee Meeting</td>
<td>26-Feb</td>
<td>7:30 PM to 9:00 PM</td>
<td>Marriott</td>
<td>Mission Hills</td>
<td>O</td>
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</table>

## Monday, February 27

### All-Conference Events

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
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<tbody>
<tr>
<td>Registration</td>
<td>27-Feb</td>
<td>7:00 AM to 6:00 PM</td>
<td>SDCC</td>
<td>Hall A- B1 Foyer</td>
<td>O</td>
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<tr>
<td>Programming Support Desk</td>
<td>27-Feb</td>
<td>7:00 AM to 6:00 PM</td>
<td>SDCC</td>
<td>Outside Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>Presenters’ Coffee</td>
<td>27-Feb</td>
<td>7:00 AM to 8:00 AM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>TMS Member Welcome Center</td>
<td>27-Feb</td>
<td>7:00 AM to 6:00 PM</td>
<td>SDCC</td>
<td>Ballroom 6 Lobby</td>
<td>O</td>
</tr>
<tr>
<td>Technical Programming Sessions</td>
<td>27-Feb</td>
<td>8:30 AM to 5:30 PM</td>
<td>SDCC &amp; Marriott</td>
<td>See Technical Program section for complete schedule and locations</td>
<td></td>
</tr>
<tr>
<td>Morning Break</td>
<td>27-Feb</td>
<td>9:50 AM to 10:30 AM</td>
<td>SDCC &amp; Marriott</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>Poster Session I, Job Candidate Poster Session, Young Professional, and Student Poster Set-up</td>
<td>27-Feb</td>
<td>12:00 PM to 2:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>Poster Session I Gallery Viewing</td>
<td>27-Feb</td>
<td>2:00 PM to 6:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>Afternoon Break</td>
<td>27-Feb</td>
<td>3:20 PM to 4:00 PM</td>
<td>SDCC &amp; Marriott</td>
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<tr>
<td>Poster Session I Presentations and Reception</td>
<td>27-Feb</td>
<td>6:00 PM to 8:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>Poster Session I Dismantle</td>
<td>27-Feb</td>
<td>8:00 PM to 9:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
</tbody>
</table>

* SDCC-San Diego Convention Center, Marriott-Marriott Marquis & Marina
  * O - Open to all attendees  R - Restrictions Apply  I - Invitation Only  T - Ticketed Event, Pre-registration required
# CALENDAR OF EVENTS

**As of January 21, 2017**

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
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<tbody>
<tr>
<td><strong>Exhibition</strong></td>
<td></td>
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</tr>
<tr>
<td>Participant set-up for Bladesmithing Competition</td>
<td>27-Feb</td>
<td>12:00 PM to 2:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>TMS2017 Exhibition</td>
<td>27-Feb</td>
<td>2:00 PM to 6:30 PM</td>
<td>SDCC</td>
<td>Ballroom 6</td>
<td>O</td>
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<tr>
<td>Exhibit Opening Reception</td>
<td>27-Feb</td>
<td>5:00 PM to 6:30 PM</td>
<td>SDCC</td>
<td>Ballroom 6</td>
<td>O</td>
</tr>
<tr>
<td><strong>Student &amp; Young Professional Functions</strong></td>
<td></td>
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</tr>
<tr>
<td>Young Professional Technical Division Poster Contest Viewing</td>
<td>27-Feb</td>
<td>2:00 PM to 8:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
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<tr>
<td>Meet-a-Mentor</td>
<td>27-Feb</td>
<td>4:30 PM to 6:30 PM</td>
<td>Marriott</td>
<td>Marina F</td>
<td>T</td>
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<tr>
<td>Young Professionals Reception</td>
<td>27-Feb</td>
<td>5:00 PM to 6:00 PM</td>
<td>Marriott</td>
<td>Point Loma/Solana</td>
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<tr>
<td>Technical Division Student Poster Contest Judging</td>
<td>27-Feb</td>
<td>5:00 PM to 6:30 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
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<tr>
<td>Job Candidate Poster Session</td>
<td>27-Feb</td>
<td>6:00 PM to 8:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
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<tr>
<td><strong>Social Functions</strong></td>
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<tr>
<td>SMD Luncheon</td>
<td>27-Feb</td>
<td>12:00 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Pacific 19</td>
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<tr>
<td>Pan American Materials Congress Banquet</td>
<td>27-Feb</td>
<td>6:00 PM to 9:00 PM</td>
<td>Offsite</td>
<td>Casa Guadalajara Restaurant</td>
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<tr>
<td>Professor Ramana G. Reddy Honorary Symposium: Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies Dinner</td>
<td>27-Feb</td>
<td>6:30 PM to 8:30 PM</td>
<td>Marriott</td>
<td>Miramar</td>
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</tr>
<tr>
<td><strong>Committee &amp; Business Meetings</strong></td>
<td></td>
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<tr>
<td>Metallurgical and Materials Transactions A Board of Review</td>
<td>27-Feb</td>
<td>7:00 AM to 8:00 AM</td>
<td>Marriott</td>
<td>Balboa</td>
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<tr>
<td>Membership &amp; Student Development Committee Meeting</td>
<td>27-Feb</td>
<td>8:15 AM to 9:45 AM</td>
<td>Marriott</td>
<td>Leucadia</td>
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<tr>
<td>TMS Executive Committee Meeting</td>
<td>27-Feb</td>
<td>10:00 AM to 11:00 AM</td>
<td>Marriott</td>
<td>Encinitas</td>
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<tr>
<td>TMS Past Presidents Meeting</td>
<td>27-Feb</td>
<td>11:30 AM to 1:00 PM</td>
<td>Marriott</td>
<td>Point Loma/Solana</td>
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<tr>
<td>Superalloys 2020 Program Committee</td>
<td>27-Feb</td>
<td>12:00 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Laguna</td>
<td>I</td>
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<tr>
<td>Integrated Computational Materials Engineering Committee Meeting</td>
<td>27-Feb</td>
<td>12:15 PM to 1:45 PM</td>
<td>SDCC</td>
<td>10</td>
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<tr>
<td>Public &amp; Governmental Affairs Committee</td>
<td>27-Feb</td>
<td>12:30 PM to 2:00 PM</td>
<td>Marriott</td>
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<tr>
<td>Powder Materials Committee Meeting</td>
<td>27-Feb</td>
<td>12:30 PM to 2:00 PM</td>
<td>SDCC</td>
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<tr>
<td>EPD Council Meeting</td>
<td>27-Feb</td>
<td>12:30 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Pacific 22</td>
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<tr>
<td>CDSM 2018 Organizing Committee Meeting</td>
<td>27-Feb</td>
<td>2:00 PM to 3:00 PM</td>
<td>Marriott</td>
<td>Balboa</td>
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<tr>
<td>Ad Hoc International Affairs Committee Meeting</td>
<td>27-Feb</td>
<td>3:00 PM to 4:30 PM</td>
<td>Marriott</td>
<td>Laguna</td>
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<tr>
<td>Superalloys 2020 Organizing Committee Meeting</td>
<td>27-Feb</td>
<td>5:30 PM to 7:30 PM</td>
<td>Marriott</td>
<td>Leucadia</td>
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<tr>
<td>Biomaterials Committee Meeting</td>
<td>27-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>Marriott</td>
<td>Pacific 15</td>
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<tr>
<td>Nuclear Materials Committee Meeting</td>
<td>27-Feb</td>
<td>6:00 PM to 7:30 PM</td>
<td>Marriott</td>
<td>Cardiff</td>
<td>O</td>
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<tr>
<td>Surface Engineering Committee Meeting</td>
<td>27-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>Marriott</td>
<td>Pacific 23</td>
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<tr>
<td>Advanced Characterization, Testing and Simulation Committee Meeting</td>
<td>27-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>SDCC</td>
<td>31B</td>
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<td>Solidification Committee Meeting</td>
<td>27-Feb</td>
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<tr>
<td>Steels Committee</td>
<td>27-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>Marriott</td>
<td>Balboa</td>
<td>O</td>
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<tr>
<td>Chemistry and Physics of Materials Committee Meeting</td>
<td>27-Feb</td>
<td>6:00 PM to 7:30 PM</td>
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<td>31C</td>
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<tr>
<td>Materials Innovation Committee</td>
<td>27-Feb</td>
<td>6:00 PM to 7:30 PM</td>
<td>Marriott</td>
<td>Laguna</td>
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<tr>
<td>Shaping and Forming Committee Meeting</td>
<td>27-Feb</td>
<td>6:00 PM to 7:30 PM</td>
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<tr>
<td>Refractory Metals &amp; Materials Committee Meeting</td>
<td>27-Feb</td>
<td>6:30 PM to 7:30 PM</td>
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<td>Pacific 14</td>
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<tr>
<td>Composite Materials Committee Meeting</td>
<td>27-Feb</td>
<td>6:30 PM to 7:30 PM</td>
<td>Marriott</td>
<td>Pacific 25</td>
<td>O</td>
</tr>
</tbody>
</table>

- SDCC-San Diego Convention Center. Marriott-Marriott Marquis & Marina
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www.tms.org/TMS2017
## CALENDAR OF EVENTS
As of January 21, 2017

<table>
<thead>
<tr>
<th>Function</th>
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<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
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<tr>
<td>LMD Council Meeting</td>
<td>27-Feb</td>
<td>6:30 PM to 8:30 PM</td>
<td>Marriott</td>
<td>Pacific 22</td>
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<td>Alloy Phases Committee Meeting</td>
<td>27-Feb</td>
<td>7:00 PM to 8:00 PM</td>
<td>SDCC</td>
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<tr>
<td>Computational Materials Science &amp; Engineering Committee Meeting</td>
<td>27-Feb</td>
<td>7:30 PM to 8:30 PM</td>
<td>Marriott</td>
<td>Pacific 15</td>
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### Tuesday, February 28

#### All-Conference Events

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
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<tbody>
<tr>
<td>Registration</td>
<td>28-Feb</td>
<td>7:00 AM to 5:30 PM</td>
<td>SDCC</td>
<td>Hall A-1 Foyer</td>
<td>O</td>
</tr>
<tr>
<td>Programming Support Desk</td>
<td>28-Feb</td>
<td>7:00 AM to 6:00 PM</td>
<td>SDCC</td>
<td>Outside Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>Presenters’ Coffee</td>
<td>28-Feb</td>
<td>7:00 AM to 8:00 AM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>TMS Member Welcome Center</td>
<td>28-Feb</td>
<td>7:00 AM to 5:30 PM</td>
<td>SDCC</td>
<td>Ballroom 6 Lobby</td>
<td>O</td>
</tr>
<tr>
<td>Technical Programming Sessions</td>
<td>28-Feb</td>
<td>8:30 AM to 5:30 PM</td>
<td>Marriott</td>
<td>SDCC &amp; Marriott</td>
<td>O</td>
</tr>
<tr>
<td>Morning Break</td>
<td>28-Feb</td>
<td>9:50 AM to 10:30 AM</td>
<td>Marriott</td>
<td>SDCC &amp; Marriott</td>
<td>O</td>
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<tr>
<td>Poster Session II Set-up</td>
<td>28-Feb</td>
<td>12:00 PM to 2:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
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<tr>
<td>Poster Session II Gallery Viewing</td>
<td>28-Feb</td>
<td>2:00 PM to 6:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
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<tr>
<td>Bladesmithing Awards Presentation</td>
<td>28-Feb</td>
<td>3:00 PM to 3:30 PM</td>
<td>SDCC</td>
<td>Bladesmithing Booth on Show Floor</td>
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<tr>
<td>Afternoon Break</td>
<td>28-Feb</td>
<td>3:20 PM to 4:00 PM</td>
<td>SDCC</td>
<td>SDCC &amp; Marriott</td>
<td>O</td>
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<tr>
<td>Poster Session II Presentations and Reception</td>
<td>28-Feb</td>
<td>6:00 PM to 8:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>Poster Session II Dismantle</td>
<td>28-Feb</td>
<td>8:00 PM to 9:00 PM</td>
<td>SDCC</td>
<td>Hall B1</td>
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#### Exhibition

<table>
<thead>
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<th>Time</th>
<th>Facility</th>
<th>Room</th>
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<tbody>
<tr>
<td>TMS2017 Exhibition</td>
<td>28-Feb</td>
<td>9:45 AM to 5:30 PM</td>
<td>SDCC</td>
<td>Ballroom 6</td>
<td>O</td>
</tr>
<tr>
<td>Exhibit Hall Happy Hour</td>
<td>28-Feb</td>
<td>4:30 PM to 5:30 PM</td>
<td>SDCC</td>
<td>Ballroom 6</td>
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#### Student & Young Professional Functions

<table>
<thead>
<tr>
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<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
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</thead>
<tbody>
<tr>
<td>Young Professional Tutorial Luncheon</td>
<td>28-Feb</td>
<td>12:00 PM to 12:45 PM</td>
<td>Marriott</td>
<td>Pacific 25</td>
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<tr>
<td>Young Professional Tutorial Lecture</td>
<td>28-Feb</td>
<td>12:45 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Pacific 25</td>
<td>O</td>
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<tr>
<td>Student Career Forum</td>
<td>28-Feb</td>
<td>2:00 PM to 4:00 PM</td>
<td>Marriott</td>
<td>Point Loma/Solana</td>
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#### Social Functions

<table>
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<tr>
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<th>Facility</th>
<th>Room</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPD/MPMD Luncheon</td>
<td>28-Feb</td>
<td>12:00 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Pacific 19</td>
<td>T</td>
</tr>
<tr>
<td>Energy Materials 2017 Dinner</td>
<td>28-Feb</td>
<td>6:00 PM to 9:00 PM</td>
<td>Offsite Harbor House Restaurant</td>
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<td></td>
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</tbody>
</table>

#### Committee & Business Meetings

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Metallurgical and Materials Transactions B Board of Review</td>
<td>28-Feb</td>
<td>7:00 AM to 8:00 AM</td>
<td>Marriott</td>
<td>Balboa</td>
<td>I</td>
</tr>
<tr>
<td>Fellows Award Committee Meeting</td>
<td>28-Feb</td>
<td>7:30 AM to 8:30 AM</td>
<td>Marriott</td>
<td>Oceanside</td>
<td>R</td>
</tr>
<tr>
<td>JOM Industrial Participation Focus Group</td>
<td>28-Feb</td>
<td>8:00 AM to 9:30 AM</td>
<td>Marriott</td>
<td>Laguna</td>
<td>I</td>
</tr>
<tr>
<td>Young Professionals Committee Meeting</td>
<td>28-Feb</td>
<td>8:15 AM to 9:45 AM</td>
<td>Marriott</td>
<td>Pacific 22</td>
<td>O</td>
</tr>
<tr>
<td>Honors &amp; Professional Recognition Committee Meeting</td>
<td>28-Feb</td>
<td>8:30 AM to 9:30 AM</td>
<td>Marriott</td>
<td>Oceanside</td>
<td>R</td>
</tr>
<tr>
<td>TMS Foundation Board of Trustees Meeting</td>
<td>28-Feb</td>
<td>8:30 AM to 10:00 AM</td>
<td>Marriott</td>
<td>Carlsbad</td>
<td>I</td>
</tr>
</tbody>
</table>
## CALENDAR OF EVENTS

**As of January 21, 2017**

### MEETING INFORMATION

www.tms.org/TMS2017

### CALENDAR OF EVENTS

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMS-MetSoc Leadership Meeting</td>
<td>28-Feb</td>
<td>9:00 AM to 10:00 AM</td>
<td>Marriott</td>
<td>Encinitas I</td>
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</tr>
<tr>
<td>TMS-CSM Leadership Meeting</td>
<td>28-Feb</td>
<td>11:00 AM to 12:00 PM</td>
<td>Marriott</td>
<td>Encinitas I</td>
<td></td>
</tr>
<tr>
<td>SMD Council Meeting</td>
<td>28-Feb</td>
<td>12:00 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Pacific 22 R</td>
<td></td>
</tr>
<tr>
<td>Electronic Packaging and Interconnection Materials Committee Meeting</td>
<td>28-Feb</td>
<td>12:30 PM to 1:30 PM</td>
<td>Marriott</td>
<td>Leucadia O</td>
<td></td>
</tr>
<tr>
<td>Education Committee</td>
<td>28-Feb</td>
<td>12:30 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Laguna O</td>
<td></td>
</tr>
<tr>
<td>Content Development and Dissemination Committee</td>
<td>28-Feb</td>
<td>5:00 PM to 7:00 PM</td>
<td>Marriott</td>
<td>Leucadia I</td>
<td></td>
</tr>
<tr>
<td>Titanium Committee Meeting</td>
<td>28-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>Marriott</td>
<td>Pacific 15 O</td>
<td></td>
</tr>
<tr>
<td>Nanomaterials Committee Meeting</td>
<td>28-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>Marriott</td>
<td>Pacific 23 O</td>
<td></td>
</tr>
<tr>
<td>Thin Films and Interfaces Committee Meeting</td>
<td>28-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>SDCC</td>
<td>32A O</td>
<td></td>
</tr>
<tr>
<td>Energy Conversion and Storage Committee Meeting</td>
<td>28-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>SDCC</td>
<td>12 O</td>
<td></td>
</tr>
<tr>
<td>Corrosion and Environmental Effects Committee Meeting</td>
<td>28-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>SDCC</td>
<td>31A O</td>
<td></td>
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<tr>
<td>Energy Committee Meeting</td>
<td>28-Feb</td>
<td>6:00 PM to 7:00 PM</td>
<td>SDCC</td>
<td>15B O</td>
<td></td>
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<tr>
<td>High Temperature Alloys Committee Meeting</td>
<td>28-Feb</td>
<td>6:00 PM to 7:30 PM</td>
<td>SDCC</td>
<td>15A O</td>
<td></td>
</tr>
<tr>
<td>MPMD Council Meeting</td>
<td>28-Feb</td>
<td>6:30 PM to 8:30 PM</td>
<td>Marriott</td>
<td>Pacific 22 R</td>
<td></td>
</tr>
<tr>
<td>Magnetic Materials Committee Meeting</td>
<td>28-Feb</td>
<td>7:00 PM to 8:00 PM</td>
<td>SDCC</td>
<td>24C O</td>
<td></td>
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</tbody>
</table>

#### Wednesday, March 1

**All-Conference Events**

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td>1-Mar</td>
<td>7:00 AM to 5:00 PM</td>
<td>SDCC</td>
<td>Hall A- B1 Foyer</td>
<td>O</td>
</tr>
<tr>
<td>Programming Support Desk</td>
<td>1-Mar</td>
<td>7:00 AM to 6:00 PM</td>
<td>SDCC</td>
<td>Outside Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>Presenters’ Coffee</td>
<td>1-Mar</td>
<td>7:00 AM to 8:00 AM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>TMS Member Welcome Center</td>
<td>1-Mar</td>
<td>7:00 AM to 5:00 PM</td>
<td>SDCC</td>
<td>Ballroom 6 Lobby</td>
<td>O</td>
</tr>
<tr>
<td>Technical Programming Sessions</td>
<td>1-Mar</td>
<td>8:30 AM to 5:30 PM</td>
<td>SDCC &amp; Marriott</td>
<td>See Technical Program section for complete schedule and locations</td>
<td>O</td>
</tr>
<tr>
<td>Morning Break</td>
<td>1-Mar</td>
<td>9:50 AM to 10:30 AM</td>
<td>SDCC &amp; Marriott</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Afternoon Break</td>
<td>1-Mar</td>
<td>3:20 PM to 4:00 PM</td>
<td>SDCC &amp; Marriott</td>
<td></td>
<td>O</td>
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</tbody>
</table>

**Exhibition**

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
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</thead>
<tbody>
<tr>
<td>TMS2017 Exhibition</td>
<td>1-Mar</td>
<td>9:45 AM to 2:00 PM</td>
<td>SDCC</td>
<td>Ballroom 6 O</td>
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</table>

**Social Functions**

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
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</thead>
<tbody>
<tr>
<td>Fresh Coffee, Fresh Ideas: Diversity and Inclusion Breakfast</td>
<td>1-Mar</td>
<td>7:00 AM to 8:00 AM</td>
<td>Marriott</td>
<td>Pacific 19 T</td>
<td></td>
</tr>
<tr>
<td>LMD Luncheon</td>
<td>1-Mar</td>
<td>12:00 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Pacific 19 T</td>
<td></td>
</tr>
<tr>
<td>TMS-AIME Awards Reception</td>
<td>1-Mar</td>
<td>5:30 PM to 6:00 PM</td>
<td>Marriott</td>
<td>Marriott Grand Ballroom 1-6 Foyer</td>
<td>O</td>
</tr>
<tr>
<td>TMS2019 Program Planning Mixer</td>
<td>1-Mar</td>
<td>5:30 PM to 6:30 PM</td>
<td>Marriott</td>
<td>Pacific 22 I</td>
<td></td>
</tr>
<tr>
<td>TMS-AIME Awards Ceremony</td>
<td>1-Mar</td>
<td>6:00 PM to 7:30 PM</td>
<td>Marriott</td>
<td>Marriott Grand Ballroom 3-4 O</td>
<td></td>
</tr>
<tr>
<td>TMS-AIME Awards Banquet</td>
<td>1-Mar</td>
<td>7:30 PM to 10:00 PM</td>
<td>Marriott</td>
<td>Marriott Grand Ballroom 1,2,5 T</td>
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</tbody>
</table>
## CALENDAR OF EVENTS

As of January 21, 2017

<table>
<thead>
<tr>
<th>Function</th>
<th>Date</th>
<th>Time</th>
<th>Facility</th>
<th>Room</th>
<th>Access</th>
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</thead>
<tbody>
<tr>
<td><strong>Committee &amp; Business Meetings</strong></td>
<td></td>
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<tr>
<td>TMS-DGMB Leadership Meeting</td>
<td>1-Mar</td>
<td>9:00 AM to 10:00 AM</td>
<td>Marriott</td>
<td>Encinitas</td>
<td>I</td>
</tr>
<tr>
<td>TMS-Nonferrous Metals Society of China Leadership Meeting</td>
<td>1-Mar</td>
<td>11:00 AM to 12:30 PM</td>
<td>Marriott</td>
<td>Encinitas</td>
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<tr>
<td>FMD Council Meeting</td>
<td>1-Mar</td>
<td>12:00 PM to 2:00 PM</td>
<td>Marriott</td>
<td>Pacific 22</td>
<td>R</td>
</tr>
<tr>
<td>Bladesmithing Committee and Student Meeting</td>
<td>1-Mar</td>
<td>2:00 PM to 3:00 PM</td>
<td>Marriott</td>
<td>Point Loma</td>
<td>O</td>
</tr>
<tr>
<td>Reviewer Workshop with Editors of <em>Materials Science and Engineering</em> by Elsevier</td>
<td>1-Mar</td>
<td>2:00 PM to 3:30 PM</td>
<td>Marriott</td>
<td>Pacific 25</td>
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<tr>
<td><strong>Thursday, March 2</strong></td>
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<tr>
<td><strong>All-Conference Events</strong></td>
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</tr>
<tr>
<td>Registration</td>
<td>2-Mar</td>
<td>7:00 AM to 5:00 PM</td>
<td>SDCC</td>
<td>Hall A- B1 Foyer</td>
<td>O</td>
</tr>
<tr>
<td>Programming Support Desk</td>
<td>2-Mar</td>
<td>7:00 AM to 5:30 PM</td>
<td>SDCC</td>
<td>Outside Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>Presenters’ Coffee</td>
<td>2-Mar</td>
<td>7:00 AM to 8:00 AM</td>
<td>SDCC</td>
<td>Hall B1</td>
<td>O</td>
</tr>
<tr>
<td>TMS Member Welcome Center</td>
<td>2-Mar</td>
<td>7:00 AM to 5:00 PM</td>
<td>SDCC</td>
<td>Ballroom 6 Lobby</td>
<td>O</td>
</tr>
<tr>
<td>Technical Programming Sessions</td>
<td>2-Mar</td>
<td>8:30 AM to 5:30 PM</td>
<td>SDCC &amp;</td>
<td>See Technical Program section for complete schedule and locations</td>
<td>O</td>
</tr>
<tr>
<td>Morning Break</td>
<td>2-Mar</td>
<td>9:50 AM to 10:30 AM</td>
<td>SDCC &amp;</td>
<td>Marriott</td>
<td>O</td>
</tr>
<tr>
<td>Afternoon Break</td>
<td>2-Mar</td>
<td>3:20 PM to 4:00 PM</td>
<td>SDCC &amp;</td>
<td>Marriott</td>
<td>O</td>
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<tr>
<td><strong>Social Functions</strong></td>
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<tr>
<td>Repeat Attendee Luncheon</td>
<td>2-Mar</td>
<td>11:30 AM to 1:00 PM</td>
<td>Marriott</td>
<td>Pacific 17</td>
<td>I</td>
</tr>
<tr>
<td><strong>Committee &amp; Business Meetings</strong></td>
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<tr>
<td>Audit Committee Meeting</td>
<td>2-Mar</td>
<td>7:00 AM to 7:30 AM</td>
<td>Marriott</td>
<td>Vista</td>
<td>I</td>
</tr>
<tr>
<td>TMS Annual Business Meeting</td>
<td>2-Mar</td>
<td>8:25 AM to 8:30 AM</td>
<td>Marriott</td>
<td>Cardiff/Carlsbad</td>
<td>O</td>
</tr>
<tr>
<td>TMS Board of Directors Meeting</td>
<td>2-Mar</td>
<td>8:30 AM to 11:45 AM</td>
<td>Marriott</td>
<td>Cardiff/Carlsbad</td>
<td>I</td>
</tr>
<tr>
<td><strong>Friday, March 3</strong></td>
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<tr>
<td><strong>Social Functions</strong></td>
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</tr>
<tr>
<td>San Diego Tour with Pan American Materials Congress</td>
<td>3-Mar</td>
<td>8:30 AM to 4:30 PM</td>
<td>Offsite</td>
<td></td>
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</tbody>
</table>

SDCC-San Diego Convention Center, Marriott-Marriott Marquis & Marina

O - Open to all attendees R - Restrictions Apply I - Invitation Only T - Ticketed Event, Pre-registration required
A NEW NETWORKING EVENT
Global Energy 2025 is the theme of the inaugural installment of a new TMS annual meeting tradition—the all-meeting, Opening Plenary Session. Don’t miss this opportunity for cross-disciplinary learning through an evening of networking and thought-provoking talks. Global Energy 2025 is organized by the Chinese Society for Metals, the Federation of European Materials Societies, and TMS.

PRESIDENT’S WELCOMING RECEPTION
Date: Sunday, February 26
Time: 5:00 p.m.
Location: Marriott Marquis & Marina, Pacific Foyer 20-26

The evening will begin with the President’s Welcoming Reception, where all attendees can meet and network prior to the start of the Global Energy 2025 plenary session. Light refreshments will be provided.

GLOBAL ENERGY 2025: PLENARY PRESENTATIONS
Time: 6:00 p.m. to 8:00 p.m.
Location: Marriott Marquis & Marina, Pacific 21-26

Organizers: Alan A. Luo, chair, TMS Light Metals Division; Cynthia K. Belt, vice chair, TMS Extraction and Processing Division.
Moderator: Jeremy Busby, Editor, Metallurgical and Materials Transactions E: Materials for Energy Systems

Meet the Plenary Speakers

“Grand Science Challenges to Energize a New Era of Innovation”
Harriet Kung
Director of Basic Energy Sciences
Office of Science, U.S. Department of Energy

The basis for this talk will be Challenges at the Frontiers of Matter and Energy: Transformative Opportunities for Discovery Science, released by the U.S. Basic Energy Sciences (BES) Advisory Committee in November 2015. The report identified emerging grand challenges for basic energy sciences research whose impacts promise to be transformative for science and energy.

“Advancement of Energy Industries and Related Critical Materials in China”
Zhiling Tian
Vice General Manager
China Iron and Steel Research Institute Group

This presentation reviews the development history of Chinese energy industries and their related critical materials since 1978, with an emphasis on the newly built ultra-super-critical (UCS) fossil fire power plants and pressurized water reactor nuclear power plants. The future outlook of materials-related energy issues in China will also be explored, to include fossil and nuclear power, gas turbines, and oil and gas.

“Establishing the Industrial Leadership of Europe in Advanced Materials for the Energy Union – The Role of Innovation”
Fabrice Stassin
Managing Director
Energy Materials Industrial Research Initiative

This talk will address global trends in low-carbon energy technologies, while highlighting EMRI’s contributions to inform stakeholders of the enabling role that the advanced materials industry plays in low-carbon energy technologies in Europe that create growth and jobs. Recommendations to solve European energy challenges and ensure industrial leadership of the sector will also be outlined.
ORGANIZING COMMITTEE

Congress Chair: Marc Meyers, University of California, San Diego

Committee Members
Argentina: Roberto Arce, Sonia Brühl, Carlos Schvezov
Brazil: André Costa e Silva, Sergio Neves Monteiro, Horacidio Leal
Canada: Mary Wells, Mihaela Isac
Chile: R.V. Mangalaraja, Claudio Aguilar, Marta Lopez, Enrique Miranda Salinas
Colombia: Henry A. Colorado, Juan Manuel Velez
Mexico: Armando Salinas-Rodriguez, Marco Ramirez-Argaez, J. Gerardo Cabanas-Moreno
Peru: Mery Cecilia Gomez Marroquin, Yovanna Gisela Palomares Yallico, Maria Isabel Gomez Marroquin
USA: Michael Kaufman, Diana Farkas, Olivia Graeve

WELCOME TO THE 3RD PAN AMERICAN MATERIALS CONGRESS

Hosted by TMS and made possible through the efforts of nine materials professional societies, the 3rd Pan American Materials Congress convenes leading experts on the minerals, metals, and materials issues impacting the technological progress of the nations of the Americas. TMS2017 registrants have access to the congress’s full technical program, which explores the latest science and engineering developments affecting the region’s key industries through nine symposia:

- Advanced Biomaterials
- Advanced Manufacturing
- Materials for Green Energy
- Materials for Infrastructure
- Materials for the Oil and Gas Industry
- Materials for Transportation and Lightweighting
- Minerals Extraction and Processing
- Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses
- Steels

3RD PAN AMERICAN MATERIALS CONGRESS
PLENARY SESSIONS

Location: Marriott Marquis & Marina, Marina G

TMS2017 registrants are also encouraged to attend the 3rd Pan American Materials Congress plenary sessions, featuring a roster of world-class speakers and compelling topics.

Tuesday Morning Plenary Session

“Designing Infrastructure Materials for 100-plus Year Service Lives”
Carolyn M. Hansson, Professor of Mechanical and Mechatronics Engineering, University of Waterloo, Canada
Time: 8:40 a.m. to 9:20 a.m.

“Production, Properties, and Applications of Titanium Dioxide Films”
Carlos Schvezov, Professor of Chemical and Natural Sciences, National University of Misiones, Argentina, and CONICET Independent Researcher
Time: 9:20 a.m. to 10:00 a.m.

Tuesday Afternoon Plenary Session

“Circular Economy- A Pathway to Resource Recovery and Recycling”
Diran Apelian, Alcoa-Howmet Professor of Mechanical Engineering, Worcester Polytechnic Institute, USA
Time: 2:00 p.m. to 2:40 p.m.

“Nano-sized Internal Precipitation during Oxidation of an Fe-Cr Alloy in Wet Environment”
Fernando Rizzo, General Director of the Brazilian National Institute for Technology (Instituto Nacional de Tecnologia, INT)
Time: 2:40 p.m. to 3:20 p.m.
Wednesday Morning Plenary Session

“Recent Progress in High Entropy Alloy Research”
**Enrique J. Lavernia**, Provost and Executive Vice Chancellor, University of California, Irvine, USA
**Time:** 8:30 a.m. to 9:10 a.m.

“High Temperature Solutions through Materials and Processes for Engines under Heavy Thermal Fatigue Conditions”
**Salvador Valtierra**, Chief Technology Process Manager, NEMAK, Mexico
**Time:** 9:10 a.m. to 9:50 a.m.

Wednesday Afternoon Plenary Session

“What Do Snakes Have to Say About Tribology? Biomimetics Applied to Friction and Wear Studies”
**Alejandro Toro**, Professor and Senior Researcher at Universidad Nacional de Colombia
**Time:** 2:00 p.m. to 2:40 p.m.

“Toward a Federation of American Materials Societies: The European Experience”
**Pedro D. Portella**, Department Head, Materials Engineering, Federal Institute for Materials Research and Testing (BAM), Germany
**Time:** 2:40 p.m. to 3:20 p.m.

**ORGANIZING SOCIETIES:**
- Asociación Argentina de Materiales (SAM)
- Associação Brasileira de Metalurgia, Materiais e Mineração (ABM)
- Asociación Peruana de Metalurgia, Materiales Y Minerales (APMMM)
- Colombian Materials Society
- Instituto Ingenieros de Minas de Chile (IIMCh)
- Metallurgy and Materials Society (MetSoc), Canadian Institute of Mining, Metallurgy, and Petroleum (CIM)
- Sociedad Chilena de Metalurgia y Materiales (SOCHIM)
- Sociedad Mexicana de Materiales (SMM)
- TMS (Host Society)
Energy Materials 2017

ORGANIZING COMMITTEE:

Representing TMS:
Conference Co-chair: Xingbo Liu, West Virginia University
Committee Members: Subodh Das, Phinix; Jeffrey Fergus, Auburn University; Jeffrey Hawk, NETL Department of Energy; Raul Rebak, GE Global Research; Indranil Roy, Schlumberger

Representing the Chinese Society for Metals:
Conference Co-chair: Zhengdong Liu, China Iron & Steel Research Institute Group
Committee Members: Zhancheng Guo, University of Science and Technology Beijing; Chenguang Shang, University of Science and Technology Beijing; Qing Song, The Chinese Society for Metals; Ji Zhang, China Iron & Steel Research Institute Group

WELCOME TO ENERGY MATERIALS 2017

Energy Materials 2017 will highlight materials research and industrial innovations for both established and emerging energy systems and technologies through seven symposia highlighted by keynote and featured presentations. All Energy Materials 2017 technical programming is open to TMS2017 registrants.

ENERGY AND ENVIRONMENTAL ISSUES IN MATERIALS MANUFACTURING AND PROCESSING KEYNOTE
Location: San Diego Convention Center, Room 14B
“Green Development is the Future Direction for Chinese Steel Industry” Chunxia Zhang, Central Iron & Steel Research Institute
Date: Tuesday, February 28, 8:30 a.m.

MATERIALS IN CLEAN POWER HIGHLIGHTS
Location: San Diego Convention Center, Room 15A
“Creep-Fatigue-Oxidation Interactions under Fossil Energy Service Conditions” Sebastien Dryepondt, Oak Ridge National Laboratory
Date: Monday, February 27, 8:30 a.m.

“High Temperature Oxidation of Ni-base Alloys and Stainless Steels in Supercritical CO2 for Power Systems Applications” Gordon Holcomb, National Energy Technology Laboratory
Date: Monday, February 27, 2:00 p.m.

MATERIALS FOR COAL-BASED POWER KEYNOTES
Location: San Diego Convention Center, Room 12
“Advances in Materials Technology to Enable Advanced Ultr-supercritical (A-USC) and Supercritical CO2 (sCO2) Power Cycles” John Shingledecker, Electric Power Research Institute
Date: Tuesday, February 28, 2:00 p.m.

“Creep Strength and Oxidation Resistance of Industrially Made G115 Steel Pipe” Zhengdong Liu, China Iron & Steel Research Institute Group
Date: Wednesday, March 1, 8:30 a.m.

MATERIALS FOR ENERGY CONVERSION WITH EMPHASIS ON SOFC HIGHLIGHTS
Location: San Diego Convention Center, Room 12
“Low Temperature RAA Process for SOFC Stacks” Jung Pyung Choi, Pacific Northwest National Laboratory
Date: Monday, February 27, 8:40 a.m.

“Plasma Sprayed Protective Coatings on Metallic SOFC Interconnects: Interplay between Processing and Performance” Sanjay Sampath, Stony Brook University
Date: Monday, February 27, 2:00 p.m.

“New Materials for Solid Oxide Fuel Cells” Shriram Ramanathan, Purdue University
Date: Tuesday, February 28, 8:30 a.m.
ENERGY MATERIALS 2017

MATERIALS FOR GAS TURBINES KEYNOTES
Location: San Diego Convention Center, Room 13

“Multilayered, Multifunctional Thermal Barrier Coatings for Gas Turbine Engines”
Sanjay Sampath, Stony Brook University
Date: Monday, February 27, 8:30 a.m.

“Development of High Strength Hot Corrosion Resistant Single Crystal Superalloys Based on Understanding the Effect of Key Elements on Hot Corrosion Behavior”
Jian Zhang, Institute of Metal Research, Chinese Academy of Sciences
Date: Monday, February 27, 3:10 p.m.

MATERIALS FOR NUCLEAR ENERGY KEYNOTES
Location: Marriott Marquis & Marina, Miramar Room

“Is There a Role for Advanced Materials in Light Water Reactors?”
Kurt Terrani, Oak Ridge National Laboratory
Date: Wednesday, March 1, 8:30 a.m.

“Development of a Novel Structural Material (SIMP steel) for Nuclear Equipment with Balanced Resistances to High Temperature, Radiation and LBE Corrosion”
Yiyin Shan, Institute of Metal Research, Chinese Academy of Sciences
Date: Wednesday, March 1, 9:10 a.m.

MATERIALS FOR OIL AND GAS (AND AMREE-III) HIGHLIGHTS
Location: San Diego Convention Center, Room 14A

KEYNOTES:
“Stabilizing Nanostructures in Metals via Interface Architectures”
Ke Lu, Institute of Metal Research, Chinese Academy of Sciences
Date: Monday, February 27, 8:30 a.m.

“The Four R’s to Promote Ductility of Metallic Glasses”
Evan Ma, Johns Hopkins University
Date: Monday, February 27, 10:20 a.m.

“Potential of Crystal Defects for Enhancing Bulk Functional Nanomaterials”
Michael Zehetbauer, University of Vienna
Date: Monday, February 27, 2:00 p.m.

Niels Hansen, Technical University of Denmark
Date: Monday, February 27, 3:50 p.m.

“Technological Innovation and Creative Destruction in the Energy Sector”
Ram Shenoy, RBR Group and U.S. Department of Energy
Date: Tuesday, February 28, 8:30 a.m.

“Interfacial Engineering for Efficiency Enhancements in Energy-Water-Food”
Kripa Varanasi, Massachusetts Institute of Technology (MIT)
Date: Tuesday, February 28, 9:00 a.m.

“Shell’s Game Changer—Delivering Disruptive Technologies through Partnership in Innovation”
Hani Elshahawi, Shell Exploration & Production, Co.
Date: Tuesday, February 28, 9:30 a.m.

“Accelerated Materials Innovation—Technology Enablers for Enhanced Reliability, Efficiency and Production in Oil & Gas”
Partha Ganguly, Baker Hughes
Date: Tuesday, February 28, 10:20 a.m.

“Immigration Trends in the Energy Sector and Options for Professionals”
Rehan Alimohammad, Alimohammad & Zafar, PLLC
Date: Tuesday, February 28, 10:50 a.m.

“Hydrogen-Assisted Failure in Ni-base Superalloy 718 Studied under In-situ Hydrogen Charging: The Role of Localized Deformation in Crack Propagation”
Dirk Ponge, Max-Planck-Institut für Eisenforschung GmbH
Date: Tuesday, February 28, 2:00 p.m.

“Microstructure and Properties of High Performance Pipeline Steels”
Lei Zheng, Baosteel
Date: Wednesday, March 1, 8:30 a.m.

PANEL DISCUSSION:
“Innovations and Materials as Technology Enablers for Improving Cost & Performance Efficiencies in Energy”
Moderator: Indranil Roy, Schlumberger
Panelists: Ram Shenoy, RBR group and U.S. Department of Energy; Kripa Varanasi, MIT; Hani Elshahawi, Shell; Partha Ganguly, Baker Hughes.
Date: Tuesday, February 28, 11:20 a.m.
TMS 101: FUNDAMENTALS OF TMS

Date: Sunday, February 26, 2017
Time: 5:00 p.m. to 5:45 p.m.
Location: Marriott Marquis & Marina, Mission Hills

Sponsored by the TMS Professional Development Committee

Want to get more involved in TMS, but don’t know where to start? Attend TMS 101: Fundamentals of TMS. This half-hour presentation will provide a brief overview of how TMS works and a concise, practical explanation of how you can get more involved in the society’s activities. Led by experienced TMS volunteers, TMS 101 will help you to take advantage of the many networking and professional development opportunities within the organization.

This session is open to all TMS2017 attendees but will be especially valuable to new members, international members, and graduate students.

GLOBAL ALUMINUM INDUSTRY 2017: A LOOK FORWARD

The Light Metals Keynote Session

Date: Monday, February 27, 2017
Time: 8:30 a.m. to 10:00 a.m.
Location: San Diego Convention Center, Room 1A
Organizer: Edward Williams, Alcoa

This opening keynote session, featuring talks from invited speakers, will kick off the light metals programming at TMS2017 and will include presentations by the following speakers:

“Alcoa Perspectives on the Global Aluminum Industry”
Agnello Borim
Smelting VP Technology & Strategy, Alcoa, Brazil

“Rio Tinto Perspectives on the Global Aluminum Industry”
Vincent Christ
Vice-President, Technology & Project Development – Aluminium, Rio Tinto, Canada

MAGNESIUM TECHNOLOGY KEYNOTE SESSION

Date: Monday, February 27, 2017
Time: 8:30 a.m. to Noon
Location: San Diego Convention Center, Room 5A
Organizers: Kiran N. Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science, Japan; Neale R. Neelameggham, Ind LLC

This year, the Magnesium Technology Symposium will open with a special keynote session, featuring the following presentations:

“Multi-scale Investigation on Yield ‘Symmetry’ and Reduced Strength Differential in an Mg-Y Alloy”
Enrique Lavernia
University of California Davis, USA

“Targeting High Impact R&D for Automotive Magnesium Alloys”
William Joost
U.S. Department of Energy, USA

“Magnesium Development as a Lightweight Material – In Competition with Other Structural Materials”
Alan Luo
The Ohio State University, USA

“The Continued Quest for Low-temperature Formability in Mg Alloys: Historical Developments and Future Opportunities”
Suveen Mathaudhu
University of California Riverside, USA
STUDENT-RUN SYMPOSUM: BUILDING BRIDGES – CONNECTING ACADEMIC AND INDUSTRY RESEARCH
Date: Monday, February 27, 2017
Time: 8:30 a.m. to 4:30 p.m.
Location: San Diego Convention Center, Room 22
Organizers: Katherine Vinson, Omar Rodriguez, Ben White, Dallin Barton, and Rachel White, The University of Alabama

This symposium, arranged by graduate students, will focus on the link between academia and industry research. Relationships between academic institutions and advancing technologies in industry are challenging to navigate because the two have traditionally been seen as distinctly separate research entities. The symposium will address this separation and provide a foundation to explore opportunities for mutually beneficial academic and industry partnerships.

ADDITIONAL MANUFACTURING: PAST, PRESENT, AND FUTURE KEYNOTE SESSION
Date: Monday, February 27, 2017
Time: 2:00 p.m. to 5:30 p.m.
Location: San Diego Convention Center, Room 7A
Organizers: John S. Carpenter and James Foley, Los Alamos National Laboratory; Eric A. Lass and Mark R. Stoudt, National Institute of Standards and Technology

This inaugural joint keynote session is comprised of talks that represent the three Additive Manufacturing-related symposia at TMS2017: Additive Manufacturing of Metals: Establishing Location Specific, Processing-Microstructure-Property-Relationships, Additive Manufacturing: Building the Pathway towards Process and Material Qualification, and Pioneers in Additive Manufacturing. This session will include presentations by:

- Dennis Dimiduk, BlueQuartz Software, LLC, USA
- Kevin Anderson, Brunswick Corporation, USA
- Bryce Meredith, Citrine Informatics, USA
- Tresa Pollock, University of California Santa Barbara, USA

PIONEERS IN ADDITIVE MANUFACTURING
Date: Tuesday, February 28, 2017
Time: 8:30 a.m. to 5:30 p.m.
Location: San Diego Convention Center, Room 8
Organizers: James Foley, Los Alamos National Laboratory; Paul D. Prichard, Kennametal Inc.; Iver E. Anderson, Iowa State University/Ames Laboratory; David L. Bourell, University of Texas at Austin

While additive manufacturing is a relatively new materials processing technology, its roots go back at least a couple of decades when it was a new processing research area, described as 3-D Printing or Rapid (Metal) Prototyping. While some of the pioneering work was conducted with stereo lithography of polymers, many of the process technologies for metal “freeform fabrication” were an extension of thermal spray deposition, atomization spray deposition, laser cladding, various welding (e.g., hard-facing build-up) processes, and binder-assisted powder metal sintering.

A PROSPECTIVE LOOK AT THE MGI AFTER FIVE YEARS
Date: Monday, February 27, 2017
Time: 3:30 p.m. to 5:30 p.m.
Location: San Diego Convention Center, Room 9
Sponsored by: TMS Materials Innovation Committee; Organizers: Charles H. Ward, Air Force Research Laboratory; Kevin Hemker, Johns Hopkins University; John Allison, University of Michigan

The Materials Genome Initiative (MGI), launched in the United States just over five years ago, sets four national goals that call for Enabling a Paradigm Shift in Culture; Integrating Experiments, Computation, and Theory; Facilitating Access to Materials Data; and Equipping the Next-Generation Materials Workforce. This symposium will examine the successes of the MGI to date against these goals and will provide an outlook on where materials science and engineering is headed over the next five years in this context. This symposium will include presentations by:

- Dennis Dimiduk, BlueQuartz Software, LLC, USA
- Kevin Anderson, Brunswick Corporation, USA
- Bryce Meredith, Citrine Informatics, USA
- Tresa Pollock, University of California Santa Barbara, USA
This symposium will feature talks by pioneers in the field of additive manufacturing, along with current innovators in the field, to present ground-breaking work that solved materials problems and enabled highly advanced manufacturing production. This symposium will include presentations by:

- **David Bourell**, University of Texas, USA
- **Michael Cima**, MIT, USA
- **Michael Feygin**, Cubic Technologies, Inc., USA
- **Hamish Fraser**, The Ohio State University, USA
- **Dan Thoma**, University of Wisconsin-Madison, USA
- **James Sears**, GE GRC, USA
- **Brent Stucker**, 3DSIM, USA
- **Khershed Cooper**, National Science Foundation, USA
- **Phill Dickens**, University of Nottingham, United Kingdom
- **John Smugeresky**, Additive Manufacturing Materials Consultants, USA
- **Pamela Kobryn**, U.S. Air Force Research Laboratory, USA
- **Ralph Napolitano**, Iowa State University, USA

### TMS2017 ACTA MATERIALIA SYMPOSIUM

**Date:** Tuesday, February 28, 2017  
**Time:** 3:15 p.m. to 4:55 p.m.  
**Location:** San Diego Convention Center, Room 22

This special symposium will honor three TMS members who will be accepting their prestigious Acta Materialia Awards at the TMS 2017 Annual Meeting & Exhibition. The session will include the following presentations by the award recipients:

**Acta Materialia Gold Medal Lecture:**  
“Dynamic Transformation of Austenite at Temperatures Well Above the \text{Ae}3”  
**John Jonas**, McGill University

**Acta Materialia Silver Medal Lecture:**  
“Advanced Ceramics for Environmental Protection Materials in Extreme Conditions”  
**Jingyang Wang**, Institute of Metal Research, Chinese Academy of Sciences

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**Acta Materialia Hollomon Award for Materials and Society Lecture:**  
“Advanced Materials Manufacturing for Global Mobility”  
**Warren Poole**, University of British Columbia

### JOHN CAHN MEMORIAL SYMPOSIUM

**Date:** Wednesday, March 1, 2017  
**Time:** 8:30 a.m. to 5:30 p.m.  
**Location:** San Diego Convention Center, Room 22

This one-day symposium will feature a series of invited talks on the extraordinary career in materials science of John W. Cahn. Cahn’s pioneering research in the thermodynamics and kinetics of materials provided profound insights, yielding a consequent capability to rationally engineer matter. This symposium will include presentations by:

- **Peter Voorhees**, Northwestern University, USA
- **David Srolovitz**, University of Pennsylvania, USA
- **John Blendell**, Purdue University, USA
- **Kevin Hemker**, Johns Hopkins University, USA
- **Mark Asta**, University of California Berkeley, USA
- **Elizabeth Holm**, Carnegie Mellon University, USA
- **Jörg Weissmüller**, Hamburg University of Technology, Germany
- **Srinivasan Sriniliputhur**, University of North Texas, USA
- **Jean Taylor**, Professor Emerita at Rutgers University and Visiting Faculty at Courant Institute, NYU, USA
- **Leonid Bendersky**, NIST, USA
- **Olivier Hardouin Duparc**, Ecole Polytechnique, France
- **Lyle Schwartz**, University of Maryland, USA

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**Organizer:** James A. Warren, National Institute of Standards and Technology
Each year, the TMS Technical Divisions recognize accomplished individuals with honorary symposia, inviting leaders in the honorees’ fields to discuss progress and recent developments on important topics. The following honorary symposia are planned for the TMS 2017 Annual Meeting & Exhibition:

APPLIED NATIONAL PROGRAM

APPLICATIONS OF PROCESS ENGINEERING PRINCIPLES IN MATERIALS PROCESSING, ENERGY AND ENVIRONMENTAL TECHNOLOGIES

An Extraction & Processing Division Symposium in Honor of Professor Ramana G. Reddy

Dates: Monday, February 27 to Thursday, March 2
Location: San Diego Convention Center, Room 15B

This symposium, which honors Professor Ramana Reddy, will provide a forum where industrial, research institutes, and university professionals can interact and exchange with other stakeholders to facilitate the advancement of materials processes and engineering. The impact of Reddy’s work and achievements is in the introduction and application of process engineering principles to the quantitative description of materials processing reactions, and industrial operations. His contributions include the development of the Reddy-Blander model, by which the impurities capacities of oxide melts can be predicted a priori with the fundamental structure and thermodynamic properties data of melts. He has formulated quantitative methodologies based on first principles of thermodynamics, phase equilibria, and kinetics to: design of slags and fluxes for production and purification of metals and alloys; development of novel ionic liquid electrolytes for materials processing; design materials for Fuel Cells and Capacitors; use of thermodynamic approaches to predict thermos-physical properties of materials for industrial applications; nuclear energy waste separation and remediation; and thermal energy storage.

FRONTIERS IN MATERIALS SCIENCE, ENGINEERING, AND TECHNOLOGY

A Functional Materials Division Symposium in Honor of Sungho Jin

Dates: Monday, February 27 to Wednesday, March 1
Location: San Diego Convention Center, Room 33B

This symposium honors Professor Sungho Jin, recipient of the 2016 Acta Materialia Gold Medal Award and professor emeritus at the University of California–San Diego, where he was Distinguished Professor of Materials Science in the Departments of Mechanical and Aerospace Engineering and held the Iwama Endowed Chair until his recent retirement. This symposium is dedicated to Jin’s seminal research contributions, to his leadership in materials science worldwide through various professional societies, and to the University of California – San Diego. This symposium includes coverage of recent advances in electronic, magnetic, optical, superconducting materials, devices and structures, electronic packaging, and MEMS materials and devices, nano-bio materials, and energy related materials.

AND THE WINNER IS...

See the winners of the 2017 TMS Materials Photography Contest at the TMS Member Welcome Center, San Diego Convention Center, Ballroom 6 Lobby.
MATERIALS BY DESIGN

A Materials Processing & Manufacturing Division Symposium Honoring Greg Olson on the Occasion of his 70th Birthday

Dates: Tuesday, February 28 to Wednesday, March 1
Location: San Diego Convention Center, Room 10

The foundation of computational materials design and integration of computational materials engineering (ICME) have been pioneered by Professor Greg Olson over the last thirty years. Olson has successfully demonstrated the use of a systems design approach for designing new materials by calculating optimum composition and processing routes to achieve desired materials properties. This approach has dramatically reduced the time and cost of the alloy development process. This symposium is dedicated to Olson on the occasion of his 70th birthday.

A series of invited papers will be presented on the topics of:

- Martensitic transformations
- Transformation induced plasticity and its application to ductility and fracture toughness
- Kinetics of coupled diffusional/displacive transformations
- Electronic basis of embrittlement mechanisms in metals
- Structure-property relations
- Applications of high resolution microanalysis

MECHANICAL AND CREEP BEHAVIOR OF ADVANCED MATERIALS

A Structural Materials Division Symposium Honoring Prof. K. Linga Murty

Dates: Monday, February 27 to Thursday, March 2
Location: San Diego Convention Center, Room 24A

This symposium will celebrate the 75th birthday and life-long contributions of Professor K.L. Murty and provide a forum to discuss the present status and recent advances in research areas in which he has made seminal contributions. These areas include:

- High-temperature creep deformation of materials and micromechanistic interpretation
- Prediction of mechanical behavior of HCP metals/alloys using crystallographic texture
- Creep and fatigue behavior of microelectronic solders
- Radiation tolerance of nanostructured materials
- Development and application of ball indentation techniques as a non-destructive monitoring method of structural materials
- Characterization of dynamical behavior of point and line defects using nuclear magnetic resonance techniques

THE SCIENCE OF MELT REFINING

A Light Metals Division Symposium in Honor of Christian Simensen and Thorvald Abel Engh

Dates: Tuesday, February 28
Location: San Diego Convention Center, Room 3

This year, dedicated sessions in Cast Shop Technology will honor the contributions by Thorvald Engh and Christian Simensen of Norway to the science and technology of alloying practice, melt oxidation, melt characterization, and melt refining.

ATTENTION FIRST-TIME ATTENDEES

$10 FOR 10 MINUTES.

Take ten minutes to complete your membership profile with TMS and you’ll receive $10 off your 2018 TMS membership dues. To learn more, visit the TMS Member Welcome Center, San Diego Convention Center, Ballroom 6 Lobby.
**Monday, February 27**

**EXTRACTION & PROCESSING DIVISION**  
**DISTINGUISHED LECTURER**  

**Date:** Monday, February 27, 8:35 a.m.  
**Location:** San Diego Convention Center, Room 15B  

**Speaker:** Corby G. Anderson, Harrison Western Professor, Kroll Institute for Extractive Metallurgy at the Colorado School of Mines  
**Lecture Title:** “The Theory and Application of Alkaline Sulfide Leaching and Nitrogen Species Catalyzed Pressure Oxidation Hydrometallurgical Technologies”

**About the Topic:** This presentation will cover the development, fundamentals, and applications of two distinct industrial hydrometallurgical technologies. First is Alkaline Sulfide Leaching (ASL) which was commercialized for production of antimony. In its 60-year history, the ASL plant provided antimony metal and compounds while also abating copper smelting penalties. Aspects of the thermodynamic and kinetic fundamentals and some economic aspects of this selective technology will be elucidated along with applications to gold, arsenic, mercury, and tin from primary and secondary sources. The second technology is Nitrogen Species Catalyzed Pressure Oxidation (NSC). The NSC plant was commercialized as a low-temperature process for treatment of copper concentrates with non-cyanide precious metals recovery. The facility operated successfully for more than a decade. Again, some of the thermodynamic and kinetic fundamentals and some economic aspects of this selective technology will be elucidated along with applications for molybdenum, nickel, cobalt, zinc, PGM, and gold-bearing materials.

**WILLIAM HUME-ROTHERY AWARD**  

**Date:** Monday, February 27, 8:40 a.m.  
**Location:** San Diego Convention Center, Room 31C  

**Speaker:** George Smith,  
Professor of Materials Science, University of Oxford  
**Lecture Title:** “The Role of Atom Probe Tomography in Decoding the Materials Genome”

**About the Topic:** The experimental technique of Atom Probe Tomography (APT) is unique in its capability to image and identify single atoms within solids and to establish their location with sub-nanometer precision. Iteration of this process enables the three-dimensional reconstruction of the nanoscale microstructure and chemistry of a wide range of materials. The mission and purpose of this work closely resembles the objectives of molecular biology. It involves taking materials apart at the atomic level in order to find out how they work, and then seeking ways to improve their design and assembly, in order to make them work better. This lecture will outline the successive stages of development of the APT method, and illustrate its breadth of application by reference to recent studies of metals and alloys, catalysts, semiconductors, and photonic materials.

**STRUCTURAL MATERIALS DIVISION LUNCHEON LECTURE**

**Date:** Monday, February 27, Noon to 2:00 p.m.  
**Location:** Marriott Marquis & Marina, Pacific 19  

**Speaker:** Nikhilesh Chawla,  
Fulton Professor of Materials Science and Engineering (MSE ), Arizona State University  
**Lecture Title:** “In Situ Materials Science: Probing Microstructural Evolution of Metallic Materials in Real-Time”

**About the Topic:** The field of materials science and engineering (MSE) is based on the fundamental principle that microstructure controls properties. Traditionally, the study of material structure has been limited by sectioning and post-mortem observations. This approach is often inaccurate or inadequate for solving many fundamental problems. It is also often laborious and time-consuming. Advances in experimental methods, analytical techniques, and computational approaches have now enabled the development of in situ techniques that allow us to probe the behavior of materials in real-time. The study of microstructures under an external stimulus (e.g., stress, temperature, environment) as a function of time is particularly exciting. Examples include an understanding of time-dependent deformation structures, phase transformations, compositional evolution, magnetic domains, etc.
X-ray synchrotron micro and nano-tomography provides a wonderful means of characterization damage in materials non-destructively. This talk will describe experiments and simulations that address the critical link between microstructure and deformation behavior of metallic materials, by using a three-dimensional (3D) virtual microstructure obtained by x-ray synchrotron tomography. The approach involves capturing the microstructure by novel and sophisticated in situ testing in an x-ray synchrotron, followed by x-ray tomography and image analysis, and 3D reconstruction of the microstructure. Case studies on fundamental precipitation evolution and deformation phenomena in aluminum alloys under cyclic loading and in a corrosive environment will be presented and discussed. New opportunities for x-ray microtomography, including lab-scale tomography and the next generation of x-ray synchrotron tomography will be highlighted.

*This lecture is open to all meeting attendees, but only those who purchased tickets in advance will receive a catered lunch.

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**Tuesday, February 28**

**JAPAN INSTITUTE OF METALS INTERNATIONAL SCHOLAR**

**Date:** Tuesday, February 28, 11:30 a.m.

**Location:** San Diego Convention Center, Room 16B

Speaker: Daisuke Ando, Assistant Professor, Tohoku University in Japan

Lecture Title: “Mg-Sc Based Alloy and its Functionality”

About the Topic: Magnesium alloys have been expected as a next-generation structural material for decades. However, because of low formability, low corrosion resistance, and high cost, Mg alloys have not been used widely yet. Therefore, in order to break the wall, our group has attempted to add some functionality, such as high strength, super-elasticity, and shape memory effect into Mg alloys using metastable body-centered cubic (BCC) phase in Mg-Sc alloys. This alloy shows ultra-high strength after aging due to fine HCP precipitation from BCC matrix. Furthermore, the alloys show super-elasticity of 4.4% at -150°C and shape recovery upon heating. The shape memory properties are caused by reversible martensitic transformation. Its density is around 2 g/cm3, which is one-third less than that of practical TiNi shape memory alloy. The study shows a possibility to use metastable BCC phase for novel microstructural control and adding functionality into Mg alloys.

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**EXTRACTION & PROCESSING DIVISION/MATERIALS PROCESSING & MANUFACTURING DIVISION LUNCHEON LECTURE**

**Date:** Tuesday, February 28, Noon to 2:00 p.m.

**Location:** Marriott Marquis & Marina, Pacific 19

Speaker: Diran Apelian, Alcoa-Howmet Professor of Engineering and Founding Director of the Metal Processing Institute (MPI), Worcester Polytechnic Institute

Lecture Title: “A Renaissance of Extractive Metallurgy in the 21st Century”

About the Topic: The 21st Century is the Innovation Era and the onset of the Fourth Industrial Revolution. This is the era when we will witness a major shift in the organization of global value chains. The focus of the presentation is on one of the grand challenges of the 21st century: How to sustain development in the 21st century? The presentation will be materials centric and will address the opportunities in extractive and process metallurgy. In this presentation, Apelian will highlight the context of the paradigm shifts we are witnessing and propose pathways to move forward in three specific arenas: Education, Public Policy, and Technological Innovations needed in resource recovery and recycling.

*This lecture is open to all meeting attendees, but only those who purchased tickets in advance will receive a catered lunch.
**YOUNG PROFESSIONAL TUTORIAL LUNCHEON LECTURE**

**Date:** Tuesday, February 28  
**Luncheon:** Noon to 12:45 p.m.  
*(Tickets must be purchased in advance)*  
**Lectures:** 12:45 p.m. to 2:00 p.m.  
*(Open to all meeting attendees)*  
**Location:** Marriott Marquis & Marina, Pacific 25

**Speaker:** Kristin Persson, Staff Scientist, Lawrence Berkeley National Laboratory  
**Lecture Title:** “The Materials Project: Accelerated Materials Design in the Information Age”

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**About the Topic:** The Materials Project (www.materialsproject.org)—part of the broader Materials Genome Initiative—is an effort to compute the properties of all known inorganic materials and beyond, and offer that data to the community together with online analysis and design algorithms. The current release contains data derived from density functional theory (DFT) calculations for more than 66,000 materials, with searchable associated properties such as relaxed structure, electronic state, energy storage capability, elastic behavior, piezoelectric response, aqueous and solid stability, and more. Furthermore, software algorithms are offered by the Materials Project and can be used by researchers for materials informatics, including both interactive web-based tools like the Phase Diagram App and the Pourbaix App, as well as opensource codebases and data access tools such as the pymatgen materials analysis library, FireWorks workflow software,3 and Materials API. Today—five years after launch—the Materials Project is driving materials innovation in broad chemical and structural spaces, for applications as varied as energy storage, energy production, thermoelectricity, transparent conductors, auxetics, materials synthesis conditions etc. This talk will highlight the development of the project, its growth attracting more than 18,000 users world-wide and a few of the many in-house projects that have been successfully concluded or are being pursued using the capabilities and materials understanding that has emerged from our approach of data informed materials design. Such projects are i) stability of inorganic materials in aqueous electrolytes for battery, fuel cell and catalysis applications, and design principles for ii) novel multivalent intercalation cathode discovery and iii) electrolytes.

**Speaker:** Guihua Yu, Assistant Professor, University of Texas  
**Lecture Title:** “A Soft Approach towards Grand Energy Challenges – An Emerging Class of Functional Polymers”

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**About the Topic:** In this presentation, Yu will discuss his personal research journey in designing novel energy materials for improved energy efficiency. Nanostructured materials become critically important in many areas of technology, ranging from renewable energy, electronics, and photonics to biology and medicine, because of their unusual physical/chemical properties due to confined dimensions of such materials. The presentation will start with the introduction of a special class of bulk polymeric materials, hydrogels that are based on three-dimensional (3D) microstructured polymeric networks bearing similarities to natural tissues, and have been used for many biotechnological applications, such as scaffolds for tissue engineering and vehicles for drug delivery. However, due to their intrinsic insulating properties, hydrogels are rarely useful for electronics and energy-related applications. The presentation will then discuss a smart ‘soft’ approach for turning these widely accessible ‘biogels’ to super ‘energy gels’ with well-controlled nanostructured frameworks for greatly improved electrical, thermal and electrochemical properties. These functional organic building blocks have been creatively demonstrated powerful for a number of significant applications in energy, environmental and health-related technologies. Several examples on developing this emerging class of functional polymers for energy storage and conversion devices will be discussed to illustrate ‘structure-derived functions’ of these special materials. The presentation will conclude with discussions on current challenges and issues in bringing them closer to practical applications in energy devices and possible potential solutions.
**Wednesday, March 1**

**LIGHT METALS DIVISION LUNCHEON LECTURE***

**Date:** Wednesday, March 1, Noon to 2:00 p.m.
**Location:** Marriott Marquis & Marina, Pacific 19

**Speaker:** Karl Ulrich Kainer, Director, Magnesium Innovation Center, Helmholtz-Zentrum Geesthacht, Germany

**Lecture Title:** “Status and Future of Metallic Light Weight Materials for Sustainable Vehicle Concepts”

**About the Topic:** In the last decades, structural light metals were implemented in conventional vehicle concepts. The focus was the use of this class of materials predominantly in premium cars with some exceptions in mass car production. Due to the request to reduce the emission of cars with combustion engines and the implementation of new vehicle concepts for hybrid, electrical, or fuel cell cars, the interest in metallic lightweight materials was growing. For those applications, life-cycle assessment of materials used became an important criteria for the selection. This presentation will report in the first part on the status of development and applications of light metals in automotive industries with a focus on the European point of view. The second part will address potential, challenges, and new developments of magnesium alloys for the transportation industries.

*This lecture is open to all meeting attendees, but only those who purchased tickets in advance will receive a catered lunch.

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**INSTITUTE OF METALS/ROBERT FRANKLIN MEHL AWARD**

**Date:** Wednesday, March 1, 2:00 p.m.
**Location:** Marriott Marquis & Marina, Del Mar

**Speaker:** Steven Zinkle, Governors Chair Professor, University of Tennessee

**Lecture Title:** “Microstructure of Irradiated Materials”

**About the Topic:** Energetic particle irradiation can induce pronounced microstructural changes and corresponding dramatic property changes in materials. This presentation will provide an overview of radiation-induced microstructural changes, with particular emphasis on similarities and differences between metals and ceramics. There are several key temperature regimes for all irradiated materials (defined by the onset temperatures for migration of interstitials and vacancies, thermal dissolution of in-cascade produced vacancy clusters, and thermal evaporation of cavities). In general, radiation tolerance in one temperature regime does not universally translate to radiation tolerance in other temperature regimes due to different controlling physical parameters. The fluence dependence of defect accumulation also is generally significantly different in the various temperature regimes. The roles of primary knock on atom energy, damage rate, atomic mass, crystal structure, and other material parameters will be briefly discussed.

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**WANT TO GET INVOLVED?**

Attend one of our open technical committee meetings this week to meet colleagues with similar interests and become a contributing member of the TMS community. See the **CALENDAR OF EVENTS** beginning on PAGE 11 for meeting times and locations.
Sunday, February 26

TMS2017 MATERIALS BOWL

Date: Sunday, February 26
Elimination Rounds: Noon to 4:00 p.m.
Championship Round: 5:00 p.m. to 6:00 p.m.
Location: San Diego Convention Center, Room 3
Open to all attendees

Even if you aren’t competing in the materials-themed quiz-show competition, you’re welcome to attend the elimination rounds or the final championship round. Play along to test your materials science and engineering knowledge or cheer on your favorite school.

Sponsored by:

Goodfellow

PRESIDENT’S WELCOMING RECEPTION

Date: Sunday, February 26
Time: 5:00 p.m. to 6:00 p.m.
Location: Marriott Marquis & Marina, Pacific Foyer 20-26
Open to all attendees

Kick off the TMS 2017 Annual Meeting & Exhibition with this social networking event, to be held immediately before the Global Energy 2025 Opening Plenary Session. Refreshments will be provided.

STUDENT MIXER

Date: Sunday, February 26
Time: 8:00 p.m. to 9:30 p.m.
Location: San Diego Convention Center, Room 5
Open to all attendees

Take a break and have some fun at this informal social event. Students will have the opportunity to interact with each other and with professionals in a relaxed setting. Refreshments will be provided.

Monday, February 27

MEET A MENTOR

Date: Monday, February 27
Time: 4:30 p.m. to 6:30 p.m.
Location: Marriott Marquis & Marina, Marina F
Pre-Registration Required

This event will provide an opportunity for professionals with established experience in their field (mentors) to engage in face-to-face, scheduled meetings with early-career professionals (mentees).

STUDENT POSTER CONTEST

Date: Monday, February 27
Judging and Presentation of Posters: 5:00 p.m. to 6:30 p.m.
Location: San Diego Convention Center, Hall B1

Stop by and browse the student poster displays at your leisure or attend the official judging session to ask questions of the participants. If you are participating in the student poster contest, you must be present at the judging session to answer questions about your work.
YOUNG PROFESSIONAL HAPPY HOUR RECEPTION
Date: Monday, February 27
Time: 5:00 p.m. to 6:00 p.m.
Location: Marriott Marquis & Marina, Point Loma/Solana
This reception provides young professionals the opportunity to network with more experienced TMS members in a relaxed, social atmosphere.

EXHIBIT OPENING RECEPTION
Date: Monday, February 27
Time: 5:00 p.m. to 6:30 p.m.
Location: San Diego Convention Center, Ballroom 6
Open to all attendees
You are invited to meet in the exhibit hall for appetizers, beverages, and networking with exhibitors and other colleagues on the first day of the TMS2017 Exhibition.

JOB CANDIDATE POSTER SESSION
Date: Monday, February 27
Time: 6:00 p.m. to 8:00 p.m.
Location: San Diego Convention Center, Hall B1
Graduate students, post-docs, and early career professionals will show potential employers their qualifications—not just their current research—at a special poster session. Sponsored by the TMS Young Professional Committee, the Job Candidate Poster Session allows young professionals to network with employers looking for high-caliber personnel for positions in national laboratories, academia, and industry.

PAN AMERICAN MATERIALS CONGRESS DINNER
Date: Monday, February 27
Time: 6:00 p.m. to 9:00 p.m.
Location: Casa Guadalajara Restaurant (offsite)
Advance Registration Required
Enjoy an evening with your colleagues at this networking event, featuring live music and dinner at Casa Guadalajara, a Mexican restaurant located in Old Town, San Diego.

Tuesday, February 28

STUDENT CAREER FORUM
Date: Tuesday, February 28
Time: 2:00 p.m. to 4:00 p.m.
Location: Marriott Marquis & Marina, Point Loma/Solana
“When should I start my job search?” “Should I continue to graduate school or begin my career?” “How important is networking to my career?” If you find yourself asking questions like these about your future, then you should attend the Student Career Forum. Organized by the TMS Young Professional Committee, this session will feature speakers from various stages of their careers and diverse materials science backgrounds to discuss how to navigate a successful career path in the fields of minerals, metals, and materials.

2017 TMS BLADESMITHING COMPETITION
Prizes Awarded: Tuesday, February 28
Time: 3:00 p.m. to 3:30 p.m.
Location: San Diego Convention Center, TMS2017 Exhibit Hall, Booth #1147
View an exhibit of knife and sword blades forged by your fellow minerals, metals, and materials science and engineering students—and learn how they did it. Blades will be on display Monday through Wednesday in the TMS2017 Exhibit Hall.

EXHIBIT HALL HAPPY HOUR
Date: Tuesday, February 28
Time: 4:30 p.m. to 5:30 p.m.
Location: San Diego Convention Center, Ballroom 6
All attendees are invited to gather in the exhibit hall for appetizers, beverages, and networking with exhibitors and colleagues.
ENERGY MATERIALS 2017 DINNER
Date: Tuesday, February 28
Time: 6:00 p.m. to 9:00 p.m.
Location: Harbor House Restaurant (offsite)
Tickets Required
Join your Energy Materials 2017 colleagues for an evening of networking and dining at Harbor House, a San Diego seafood and steak restaurant.

Wednesday, March 1
FRESH COFFEE, FRESH IDEAS: DIVERSITY AND INCLUSION BREAKFAST
(Formerly the Women in Science Breakfast)

Date: Wednesday, March 1
Time: 7:00 a.m. to 8:00 a.m.
Location: Marriott Marquis & Marina, Pacific 19
Tickets Required
Building on the success of the Women in Science Breakfast series at past TMS Annual Meetings, this event, organized by the TMS Diversity Committee, offers an opportunity for TMS members to network and discuss issues related to diversity and inclusion in the minerals, metals, and materials professions.

Friday, March 3
SAN DIEGO TOUR WITH PAN AMERICAN MATERIALS CONGRESS
Date: Friday, March 3
Time: 8:30 a.m. to 4:30 p.m.
Tickets Required
Gain first-hand insights into the connection between materials and nature. This full-day experience combines tours of the San Diego Zoo and Birch Aquarium with a visit to the laboratory of Marc Meyers, professor of Mechanical and Aerospace Engineering at the University of California, San Diego (UCSD) and lead organizer of the Pan American Materials Congress.

“The TMS Foundation has played, and will continue to play, a major role in my professional career, by allowing me to engage with and hold leadership roles in professional development and diversity initiatives, as well as scientific committees.”

—Kinga Unocic, Oak Ridge National Laboratory, 2017 TMS/JIM Young Leaders International Scholar

Visit the TMS Member Welcome Center, located in the San Diego Convention Center, Ballroom 6 Lobby, to learn more and to offer your support by making a donation to the TMS Foundation. Receive a souvenir mug with a donation of $25 or more.

www.TMSFoundation.org
Join us in the Exhibit Hall for the 2017 TMS Bladesmithing Competition Exhibit!

Booth #1147

More than 25 hand-forged knife and sword blades will be on display as part of the 2017 TMS Bladesmithing Competition. Come and see the blades, along with technical posters and videos depicting their production, in the Exhibit Hall this week.

Stop by the TMS 2017 Bladesmithing Competition booth during the following exhibit hours to view the competition entries:

Monday, February 27
2:00 p.m. to 6:30 p.m.

Tuesday, February 28
9:45 a.m. to 5:30 p.m.

Wednesday, March 1
9:45 a.m. to 2:00 p.m.

Who Will Win? Find out Tuesday, February 28!

Winners will be announced during a special ceremony (open to all) on Tuesday, February 28, from 3:00 p.m. to 3:30 p.m. at the Bladesmithing booth in the Exhibit Hall.
SCHEDULE OF EVENTS

Date: Wednesday, March 1, 2017
Location: Marriott Grand Ballroom, Marriott Marquis & Marina

Reception: 5:30 p.m.  
(Open to all TMS2017 attendees)
Awards Ceremony: 6:00 p.m.  
(Open to all TMS2017 attendees)
Dinner: 7:30 p.m.  
(Tickets required; purchase a ticket for $95 through the TMS2017 registration form)
Entertainment: 8:15 p.m.  
(included with dinner ticket)

The reception and ceremony are open to all meeting attendees, but tickets are required for the dinner and entertainment portion of the evening.

The 2017 TMS-AIME Awards Ceremony and Banquet will be an elegant event, designed to honor the significant professional achievements of members of the minerals, metals, and materials communities. The ceremony includes presentations of awards from both TMS and the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME), of which TMS is a member society. Additional awards, including three Acta Materialia awards and the Brimacombe Prize, will also be presented to TMS members.

The evening will consist of three parts. First, award recipients and their guests will be welcomed at a cocktail reception. Following the reception, participants will be seated for the awards ceremony, where individual recipients will be honored for their accomplishments. After the ceremony, those participants who have purchased banquet tickets will proceed to the adjacent ballroom for an elegant dinner and live entertainment.

Following dinner, attendees will be treated to a Sock Hop Performance by San Diego’s Hang Ten Hoppers. These costumed professional dancers will perform 1950s dances, such as the twist and the jitterbug, to songs from the era.

Installation of the 2017 TMS President: David H. DeYoung

During the 2017 TMS-AIME Awards Banquet, TMS will install David H. DeYoung, director research and development, Global Primary Products, Alcoa, as the society’s 2017 president. DeYoung has been a TMS member since 1981 and has served TMS in an array of volunteer leadership positions, including chair of both the Aluminum Committee (2008-2009) and the Process Technology and Modeling Committee (1998-2000). He is also a member of the Aluminum Processing Committee and Energy Committees, the TMS Nominating Committee, and the Brimacombe Medalist, Robert Lansing Hardy Award, and Early Career Faculty Fellow Award Subcommittee.

AIME Awards Ceremony Presenters

The ceremony will be hosted by James J. Robinson, TMS executive director, and will include comments from Stanley Howard, 2016 TMS president, and David DeYoung, 2017 TMS president. In addition, the following presenters will announce the awards:

- Nikhil C. Trivedi, Idekin International and 2016 AIME President
- Michele Lawrie-Munro, AIME Executive Director
- Carolyn Hansson, University of Waterloo and Acta Materialia Executive Secretary
- George T. “Rusty” Gray III, Los Alamos National Laboratory and Acta Materialia Chair & Treasurer
- Brian Thomas, University of Illinois and Brimacombe Prize Committee
- Michele V. Manuel, University of Florida and 2014 Early Career Faculty Fellow
- Brajendra Mishra, Worcester Polytechnic Institute, 2006 TMS President, and 2016 TMS Fellow
- Marc Meyers, University of California, 2011 TMS Fellow and 2015 Morris Cohen Award recipient
2017 Award Recipients

SOCIETY AWARDS

TMS Fellow Award – Class of 2017

Long-Qing Chen
Distinguished Professor, Pennsylvania State University

Ke Lu
Director, Institute of Metal Research

Gary Was
Professor, University of Michigan

Yuntian Zhu
Distinguished Professor, North Carolina State University

Brimacombe Medalist – Class of 2017

Matthew Barnett
Research Fellow, Deakin University

Eric Brown
Explosive Science and Shock Physics Division Leader, Los Alamos National Laboratory

Amit Misra
Professor and Department Chair, University of Michigan

Yue Qi
Associate Professor, Michigan State University

Gregory Thompson
Professor, University of Alabama

Application to Practice Award

Sanjay Sampath
Distinguished Professor and Director, State University of New York

Robert Wagstaff
Director and Global Team Leader, Novelis Corporation

S. Lee Semiatin
Senior Scientist, U.S. Air Force Research Laboratory

Morris Cohen Award

Robert Ritchie
Professor, University of California, Berkeley

Early Career Faculty Fellow Award

Kristin Persson
Staff Scientist, Lawrence Berkeley National Laboratory

Guihua Yu
Assistant Professor, University of Texas

Educator Award

Ramana Reddy
Professor, University of Alabama

William Hume-Rothery Award

George Smith
Professor of Materials Science, University of Oxford

Institute of Metals Lecturer/Robert Franklin Mehl Award

Steven Zinkle
Governors Chair Professor, University of Tennessee

Leadership Award

John Allison
Professor, University of Michigan

Alexander Scott Distinguished Service Award

James Foley
Scientist, Los Alamos National Laboratory

Cyril Stanley Smith Award

Stephen Foiles
Distinguished Member of Technical Staff, Sandia National Laboratories

Ellen Swallow Richards Diversity Award

Lorna Gibson
Professor, Massachusetts Institute of Technology

Frank Crossley Diversity Award

Lawrence Crosby
Ph.D. Candidate, Northwestern University

AIME Awards

AIME Honorary Membership

Reza Abbaschian
Dean of Bourns College of Engineering, University of California, Riverside

TMS/SME/AIME James Douglas Gold Medal

William F. Riggs
Retired, Mentors International Inc.

AIME Robert Lansing Hardy Award

Corinne Packard
Assistant Professor, Colorado School of Mines

AIME Champion H. Mathewson Award

Joseph D. Robson
Professor of Metallurgy, University of Manchester

AIME Henry DeWitt Smith Scholarship

Alexandra Anderson
Student, Colorado School of Mines

Lizeth Nayibe Ortiz Reyes
Student, University of Wisconsin

Acta Materialia Gold Medal Award

John J. Jonas
Henry Birks Professor Emeritus, McGill University

Acta Materialia Silver Medal Award

Jingyang Wang
Professor and Deputy Head, Shenyang National Laboratory for Materials Science

Warren Poole
Department Head, University of British Columbia

Brimacombe Prize

Robertus Boom
Professor, Delft University of Technology

Extraction and Processing Division (EPD) Awards

Distinguished Lecturer Award

Corby Anderson
Harrison Western Professor, Colorado School of Mines
<table>
<thead>
<tr>
<th>Award</th>
<th>Recipient</th>
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<tbody>
<tr>
<td><strong>Distinguished Service Award</strong></td>
<td>Shijie Wang Principal Advisor, Rio Tinto Kennecott Utah Copper Corporation</td>
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<tr>
<td>Pyrometallurgy Best Paper Award</td>
<td>Joalet Steenkamp Chief Engineer, MINTEK</td>
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<tr>
<td>Science Award</td>
<td>Derek Hayman Chief Technician, MINTEK</td>
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<td>Jacques Muller Consulting Process Engineer, Algoness Pty Ltd.</td>
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<td><strong>Science Award</strong></td>
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<td>Micro Wegener Sales Director Europe, SOPAT GmbH</td>
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<td></td>
<td>Luckman Muhmood Associate Professor, KJ Somaiya College of Engineering</td>
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<td></td>
<td>Shouyi Sun Research Program Leader, CSIRO Process Science and Engineering</td>
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<td></td>
<td>Alexandre Deev Principal Research Scientist, CSIRO Process Science and Engineering</td>
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<tr>
<td>Technology Award</td>
<td>Mark Taylor Professor, University of Auckland</td>
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<td>John J.J. Chen Professor, University of Auckland</td>
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<td><strong>Nagy El-Kaddah Award for Best Paper in MHD Material Processing</strong></td>
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<td>Bo Wang Student, University of the Chinese Academy of Science</td>
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<td>Xiaodong Wang Professor, University of Chinese Academy of Science</td>
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<td>Jacqueline Etay Senior Researcher, SIMAP EMP</td>
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<td>Xianzhao Na Professor, Central Iron and Steel Research Institute</td>
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<td></td>
<td>Xinde Zhang Master, Central Iron and Steel Research Institute</td>
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<td>Yves Fautrelle Professor, Grenoble Institute of Technology</td>
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<td></td>
<td><strong>LIGHT METALS DIVISION (LMD) AWARDS</strong></td>
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<tr>
<td>Light Metals Award</td>
<td>Erik Coats Professor and Director of Engineering Management Program, University of Idaho</td>
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<tr>
<td>Bradley Hogan</td>
<td>Armando McDonald Professor, University of Idaho</td>
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<tr>
<td>Andrew Furlong</td>
<td>Gordon J. McIntosh Research Fellow, University of Auckland</td>
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<tr>
<td>Energy Best Paper Award - Professional</td>
<td>James B. Metson Associate Director, University of Auckland</td>
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<tr>
<td>Tao Wang</td>
<td>Margaret M. Hyland Associate Director, University of Auckland</td>
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<tr>
<td>Distinguished Service Award</td>
<td>Luck Metals Subject Award - Aluminum Alloys</td>
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<tr>
<td>Wilhelms Sillekens Project Manager, European Space Agency</td>
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<tr>
<td>Energy Best Paper Award - Professional</td>
<td>Dimitry G. Sedako Canadian Nuclear Laboratories</td>
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<td>Walter Blejde Director of Technology, Castrip LLC</td>
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<td>Rama Mahapatra Chief Metallurgist, Castrip LLC</td>
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<tr>
<td>John Bardeen Award</td>
<td>Wojciech Kasprzak CanmetMATERIALS</td>
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<tr>
<td>Sinn-wen Chen Professor, National Tsing Hua University</td>
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<tr>
<td>Energy Best Paper Award - Student</td>
<td>Frank Czerwinski CanmetMATERIALS</td>
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<td>Caryn Havlovick Graduate Teaching Assistant, Idaho State University</td>
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<td>Chaston Ellis Research Intern, Idaho National Laboratory</td>
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<td>Kevin Feris Professor, Boise State University</td>
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<td>Chaston Ellis Research Intern, Idaho National Laboratory</td>
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<tr>
<td><strong>FUNCTIONAL MATERIALS DIVISION (FMD) AWARDS</strong></td>
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<tr>
<td>Distinguished Scientist/Engineer Award</td>
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<tr>
<td>Carol Handwerker Professor of Materials Engineering, Purdue University</td>
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<tr>
<td>Dona Post Guillen Distinguished Research Engineer, Idaho National Laboratory</td>
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<tr>
<td>Nick Depree Senior Project Engineer, University of Auckland</td>
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<tr>
<td>Roman Duessel Reduction Dept. Manager, TRIMET Aluminium SE</td>
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<tr>
<td>Ahmed M. Nabawy Canadian Nuclear Laboratories</td>
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<tr>
<td>Amir R. Farooosh Postdoc Fellow, McGill University</td>
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<tr>
<td>Light Metals Subject Award - Aluminum Reduction Technology</td>
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<tr>
<td>Light Metals Subject Award - Aluminum Alloys</td>
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</tbody>
</table>
Pretesh Patel  
Business Development Manager, University of Auckland

Till Reek  
Potroom Manager, TRIMET Aluminium SE

Light Metals Subject Award - Electrode Technology for Aluminum Production

Wojciech Gebarowski  
Norwegian University of Science and Technology

Camilla Sommerseth  
SINTEF

Arne Petter Ratvik  
Senior Scientist, SINTEF

Espen Sandnes  
Associate Professor, Norwegian University of Science and Technology

Lorentz Petter Lossius  
Principal Engineer, Hydro Aluminium AS

Hogne Linga  
Manager, Carbon R&D, Hydro Aluminium AS

Ann Mari Svensson  
Professor, Norwegian University of Science and Technology

LMD/EPD Subject Award - Recycling

Gisele Azimi  
Assistant Professor, University of Toronto

Mugdha Walawalkar  
Solutions Consultant, SAP Ariba

Connie K. Nichol  
Research Scientist, Agrium Inc.

Michael Powell  
Industrial Engineer, Southwire Company LLC

Kiran Manchiraju  
Director R&D, Southwire Company LLC

Qingyou Han  
Professor, Purdue University

Sindo Kou  
Professor, University of Wisconsin-Madison

Tao Yuan  
Ph.D. Student, Beijing University of Technology

Xiao Chai  
Metallurgy Scientist, Novelis Global Research and Technology Center

Magnesium Technology Award - Application

Sindou Kou  
Professor, University of Wisconsin-Madison

Hogne Linga  
Manager, Carbon R&D, Hydro Aluminium AS

Magnesium Technology Award - Fundamental Research

Jan Bohlen  
Scientist, Helmholtz-Zentrum Geesthacht

Oliver Schlung  
Helmholtz-Zentrum Geesthacht

Sven Gall  
Professor, Technische Universität Berlin

Magnesium Technology Award - Poster

Chaitanya Paramatmuni  
Research Scholar, Indian Institute of Technology, Madras

Anand Kanjarla  
Assistant Professor, Indian Institute of Technology, Madras

Mugdha Walawalkar  
Solutions Consultant, SAP Ariba

Concie K. Nichol  
Research Scientist, Agrium Inc.

Structural Materials Division (SMD) Awards

Distinguished Scientist/Engineer Award

Emmanuel Marquis  
Associate Professor, University of Michigan

Magnesium Technology Award - Poster

Distinguished Engineer Award

Ellen Solomon  
Student, University of Michigan

Somnath Ghosh  
Professor, Johns Hopkins University

JOM Best Paper Award

Anand Kanjarla  
Assistant Professor, Indian Institute of Technology, Madras

Ariba

Magnesium Technology Award - Poster

Tao Yuan  
Ph.D. Student, Beijing University of Technology

Normanlettersommerseth  
SINTEF

Hogennlinga  
Manager, Carbon R&D, Hydro Aluminium AS

Magnesium Technology Award - Application

Sindo Kou  
Professor, University of Wisconsin-Madison

Hogne Linga  
Manager, Carbon R&D, Hydro Aluminium AS

Magnesium Technology Award - Fundamental Research

Jan Bohlen  
Scientist, Helmholtz-Zentrum Geesthacht

Oliver Schlung  
Helmholtz-Zentrum Geesthacht

Sven Gall  
Professor, Technische Universität Berlin

Magnesium Technology Award - Poster

Chaitanya Paramatmuni  
Research Scholar, Indian Institute of Technology, Madras

Anand Kanjarla  
Assistant Professor, Indian Institute of Technology, Madras

Mugdha Walawalkar  
Solutions Consultant, SAP Ariba

Concie K. Nichol  
Research Scientist, Agrium Inc.

Structural Materials Division (SMD) Awards

Distinguished Scientist/Engineer Award

Emmanuel Marquis  
Associate Professor, University of Michigan

Magnesium Technology Award - Poster

Ellen Solomon  
Student, University of Michigan

Somnath Ghosh  
Professor, Johns Hopkins University

JOM Best Paper Award

Anand Kanjarla  
Assistant Professor, Indian Institute of Technology, Madras

Ariba

Magnesium Technology Award - Poster

Tao Yuan  
Ph.D. Student, Beijing University of Technology

Normanlettersommerseth  
SINTEF

Hogennlinga  
Manager, Carbon R&D, Hydro Aluminium AS

Magnesium Technology Award - Fundamental Research

Jan Bohlen  
Scientist, Helmholtz-Zentrum Geesthacht

Oliver Schlung  
Helmholtz-Zentrum Geesthacht

Sven Gall  
Professor, Technische Universität Berlin

Magnesium Technology Award - Poster

Chaitanya Paramatmuni  
Research Scholar, Indian Institute of Technology, Madras

Anand Kanjarla  
Assistant Professor, Indian Institute of Technology, Madras
2017 Award Recipients

LMD Young Leaders Professional Development Awards

Wenjun Cai
Assistant Professor, University of South Florida

Yi Eva Wang
Materials Scientist, Novelis Inc.

MPMD Young Leaders Professional Development Awards

Verena Maier-Kiener
Group Leader, Erich-Schmid-Institute, Austrian Academy of Sciences

Siddhartha Pathak
Assistant Professor, University of Nevada

SMD Young Leaders Professional Development Awards

Joshua Kacher
Assistant Professor, Georgia Institute of Technology

C. Robert Maass
Assistant Professor, University of Illinois at Urbana-Champaign

STUDENT AWARDS

TMS/FEMS Young Leaders International Scholar

Mohsen Asle Zaeem
Assistant Professor, Missouri University of Science and Technology

TMS/JIM Young Leaders International Scholar

Kinga Unocic
Research Staff Scientist, Oak Ridge National Laboratory

JIM Young Leaders International Scholar

Daisuke Ando
Assistant Professor, Tohoku University

Joseph Lee Ogea Jr.
Student, Virginia Polytechnic Institute and State University

Nisrit Pandey
Student, University of Wisconsin

SMD Scholarships

Danish Dhamani
Student, Drexel University

Jonathan Healy
Student, Case Western Reserve University

TMS Best Paper Contest – Graduate Division

First Place
Gian Song
Student, University of Tennessee

Second Place
Kazi Tasneem
Student, Vanderbilt University

TMS Best Paper Contest – Undergraduate Division

First Place
Shelly Jorgensen
Student, University of Nebraska

MPMD Scholarships

Ellie Ayvette Somerville
Student, University of Utah

FMD Gilbert Chin Scholarship

Emily Foley
Student, University of Illinois at Urbana-Champaign

Kaufman CALPHAD Scholarship

Zach Jensen
Student, University of Wisconsin-Madison

LMD Scholarship

Michael Cain
Student, Queen’s University at Kingston

Student Awards

Ellie Ayvette Somerville
Student, University of Utah

FMD Gilbert Chin Scholarship

Emily Foley
Student, University of Illinois at Urbana-Champaign

Kaufman CALPHAD Scholarship

Zach Jensen
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LMD Scholarship

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Kazi Tasneem
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TMS Best Paper Contest – Undergraduate Division

First Place
Shelly Jorgensen
Student, University of Nebraska
OFFICERS

2016 TMS President
Stanley M. Howard
Materials and Metallurgical Engineering Professor, South Dakota School of Mines and Technology

2016 Vice President/Incoming 2017 President
David H. DeYoung
Director Research and Development, Global Primary Products, Alcoa Inc.

Incoming 2017 Vice President
Kevin J. Hemker
Alonzo G. Decker Chair and Professor of Mechanical Engineering, Johns Hopkins University

Past President
Patrice E.A. Turchi
Scientific Capability and Group Leader, Lawrence Livermore National Laboratory

Financial Planning Officer
Joy Forsmark
Technical Expert, Light Cast Metals, Ford Motor Company

Secretary (non-voting)
James J. Robinson
Executive Director, TMS

FUNCTIONAL AREA DIRECTORS

Membership & Student Development
Amy J. Clarke
Scientist, Los Alamos National Laboratory

Programming
Srinivas Chada
Component Packaging Engineer, Schlumberger

Professional Development
Jeffrey Fergus
Professor, Auburn University

Incoming Professional Development
Chester J. Van Tyne
FIERF Professor, George S. Ansell Department of Metallurgical and Materials Engineering, Colorado School of Mines

Content Development & Dissemination
Eric N. Brown
Explosive Science and Shock Physics Division Leader, Los Alamos National Laboratory

Incoming Content Development & Dissemination
Michele V. Manuel
Assistant Professor, Department of Materials Science and Engineering, University of Florida

Public & Governmental Affairs
Edward D. Herderick
Global Sales Leader, Portables NDT, GE Oil & Gas

Incoming Public & Governmental Affairs
John A. Howarter
Assistant Professor in Materials Engineering, Purdue University

TECHNICAL DIVISION DIRECTORS

Extraction & Processing Division
Mark Schlesinger
Professor, Missouri University of Science and Technology

Incoming Extraction & Processing Division
Cynthia K. Belt
Energy Management Consultant, Metals Energy Management LLC

Functional Materials Division
Roger Narayan
Associate Professor, University of North Carolina

Incoming Functional Materials Division
Raymundo Arróyave
Associate Professor, Department of Materials Science and Engineering, Texas A&M University

Light Metals Division
Alan A. Luo
Professor, Materials Science and Engineering, and Professor, Integrated Systems Engineering, The Ohio State University

Materials Processing & Manufacturing Division
Corbett C. Battaile
Principal Member, Technical Staff, Sandia National Laboratories

Structural Materials Division
Ellen K. Cerreta
Group Leader, Materials in Radiation and Dynamic Extremes Group, Los Alamos National Laboratory
TMS 2017 Annual Meeting & Exhibition attendees in all registration classes receive free online access to the complete collection of proceedings publications. Complimentary proceedings content must be downloaded before March 31, 2017, at which time standard pricing will take effect. For details on how to access the proceedings publications, see the instructions attached to your registration badge.

INDIVIDUAL VOLUMES FOR PURCHASE
TMS members receive a 20% discount off hard copies of the following volumes, which are available for purchase at the Springer booth, located in the TMS2017 Registration Area at the San Diego Convention Center.

- 8th International Symposium on High-Temperature Metallurgical Processing
- Characterization of Minerals, Metals, and Materials 2017
- Energy Materials 2017
- Energy Technology 2017: Carbon Dioxide Management and Other Technologies
- Friction Stir Welding and Processing IX
- Light Metals 2017
- Magnesium Technology 2017
- Materials Processing Fundamentals 2017
- Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty
- Proceedings of the 3rd Pan American Materials Congress
- Rare Metal Technology 2017
- TMS 2017 Supplemental Proceedings

For more information on TMS publications, visit www.tms.org/publications.

Join us as we celebrate a new collaboration on the TMS-Springer Book Series. Cake will be served on Tuesday, February 28, from 2:00 p.m. to 4:00 p.m. at the Springer booth, located in the registration area on the main floor of the San Diego Convention Center.
31st EXHIBITION
LOCATED IN THE SAN DIEGO CONVENTION CENTER, BALLROOM 6

EXHIBIT HOURS

Monday, February 27
2:00 p.m. to 6:30 p.m.
Exhibit Opening Reception from 5:00 p.m. to 6:30 p.m.

Tuesday, February 28
9:45 a.m. to 5:30 p.m.
Exhibit Hall Happy Hour from 4:30 p.m. to 5:30 p.m.

Wednesday, March 1
9:45 a.m. to 2:00 p.m.

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ABB Measurement & Analytical  Booth #1116
ABB Inc. Measurement & Analytics - Measurement Products Group designs, manufactures and markets high-performance analytical system solutions for petroleum, chemical, life sciences, academic, semiconductor, metallurgy, and remote sensing/space markets. Building on more than 40 years of experience in analytical instrumentation, ABB has established itself as a worldwide leader in inclusion and hydrogen measurements in liquid aluminum. The company offers a complete range of analytical solutions to the aluminum industry: AISCAN™ hydrogen analyzer, LiMCA inclusion analyzer, Prefil®-Footprinter melt cleanliness analyzer, PoDFA inclusion identification, and quantification analysis. ABB also offers metallurgical analysis service for its customers.

AdValue Technology LLC  Booth #1217
AdValue Technology specializes in areas of Alumina, Fused Quartz, Sapphire, and Zirconia. Products range from Alumina and Silicon Dioxide Powders, Crucibles, Tubes & Rods, Plates & Discs, Sample Pans, UV Cuvettes, Quartz Wool, Ceramic Membranes, and Cerium Polishing Powders. We strive to be your valuable partner in Material Science!

Advanced Dynamics Corp., Ltd.  Booth #1105
For over almost five decades, Advanced Dynamics (ADCL) has supplied our global customer base with state-of-the-art material handling systems for carbon plants and cast houses. Our handling technology includes fully automated or semi-automated equipment for aluminum and primary metals sectors. ADCL is a one-stop shop for your material handling needs including mechanical and controls engineering, fabrication, assembly, test, and commissioning. Whether you need a new system or upgrades to existing systems or simply individual pieces of equipment, we can help improve your company’s productivity. Remember “When it’s critical to your operations, it’s an Advanced Dynamics mission” when you think of ADCL for your next project.

Almex, USA  Booth #1228
Almex USA is the leading supplier of commercial and aerospace aluminum billet and slab casting technology and equipment. The company specializes in complete turnkey casthouse engineering and equipment supply. The latest Minicast product line for extruders includes furnaces, degassing systems, DC casting machines, billet casting systems, and automated process control. Almex is engaged in equipment and processes involving green technology for efficient recycling of aluminum alloys. Almex’s process technology and equipment are in use at more than 30 plants around the world.

ALTEK, LLC  Booth #1109
ALTEK is a technology-based company with specialist expertise and experience in the design, manufacture, and installation of aluminium dross and scrap processing systems. Our engineers have, between them, over 200 years of international experience in developing and refining solutions to dross and scrap recycling. They are a unique skill resource for our worldwide customers.

AluCellTech Inc.  Booth #1211
AluCellTech provides novel technologies to upgrade existing aluminium reduction cells to save power, extend potlife and to improve current distribution and current efficiency, including: Magnetic mounted potshell cooling fins, and magnetic mounted insulation blankets to control frozen bath ledge thickness, Nickel Plating of anode rod stems to reduce clamp voltage drop, Anode Nails to reduce Stub to Carbon voltage drop and improve current distribution, Cathode Nails to reduce cathode voltage drop and improve current distribution and Thermal Imaging & Analysis to diagnose pot operating conditions, also providing thermal image training for potline operators & technicians. Please contact Will.Berends@AluCellTech.com for further information.

Aluminium International Today  Booth #1202
Aluminium International Today is the Aluminium Industry's leading international publication reporting on aluminium production and processing worldwide. Founded in 1989, the journal has consistently provided a wealth of technical features aimed at equipping producers and processors with information on latest developments. Added to this is a regular digest of industry news, contracts, events, new technology, product reviews, and conference reports. Supported by the Aluminium Federation in the UK, Aluminium International Today publishes six times a year in English plus one Russian issue and supplements in Chinese. Aluminium International Today is a subscription magazine. For additional information visit www.aluminiumtoday.com Contact: Aluminium International Today Quartz Business Media, Quartz House, 20 Clarendon Road, Redhill, Surrey RH1 1QX, UK. Tel +44 (0)1737 855000 Fax +44 (0)1737 855034 e-mail aluminium@quartzltd.com web www.aluminiumtoday.com
Aluminium Times

Aluminium Times was launched in 1998 with the objective to promote equipment, consumables and products to managers and operators involved in purchase decisions and employed with aluminium primary or secondary producers, rolling mills, forgers or extruders anywhere in the world. The magazine is sent to them free of charge. Since the journal was founded there have been three surveys undertaken to determine reader's requirements of an international magazine serving the aluminium industry. With 5,300 copies posted every issue, the 2013 reader survey suggests that on average 4 readers see each copy of Aluminium Times. 84% become aware of new products through Aluminium Times whilst 17% have purchased products after first reading it in Aluminium Times. Aluminium Times is published five times a year and features during the year aluminium industry maps and directories covering the sectors of rolling, extrusion, primary and secondary production. Our Booth will feature copies of our latest issues.

Anton Paar USA

TriTec, formerly CSM Instruments and now part of Anton Paar, offers a wide range of instruments and testing services for surface mechanical properties characterization, including: Hardness Testers, Scratch Testers & Tribometers. 3D-imaging options are available with the ConScan or AFM objective. CSM manufactures standalone instruments and testing modules that can be combined together on an automated platform.

Bloom Engineering Company, Inc.

Bloom Engineering has developed a reputation for quality industrial burners and combustion systems. Our professional staff and years of experience have been the cornerstone of our business. Bloom's products can be used for a variety of applications and can be operated with a wide array of fuels and capacity ranges. The industrial burners operate with Low to Ultra Low NOx emissions. Bloom Engineering prides itself on having in-depth knowledge of the various heating applications in which its equipment is used. Bloom's customizable product line, extensive installation list, R&D capability, and on-site field service experience, allows Bloom the ability to provide the best possible solution for each unique situation.

Bruker Nano

Bruker's Nano Surfaces Division recently released a nanoscale scratch option for its NanoForce Nanomechanical Testing System. The new option brings the industry-leading low-noise floor, precision, and stability of the NanoForce to controlled lateral displacement between tip and sample during nanoindentation. This significantly expands the platform’s capabilities to characterize the resistance of thin films and coatings to scratching, cracking, chipping, scuffing, and delamination, without compromising its ability to accurately investigate the uniformity of mechanical properties via instrumented indentation tests on nanoscale surfaces and structures over large sample areas.

California Nanotechnologies

California Nanotechnologies is an industry leader in Spark Plasma Sintering, an advanced consolidation technique for every type of material, and Cryogenic Milling, used for particle reduction as well as grain refinement. As the exclusive technical and training partner of FUJI-SPS, inventor of SPS technology, we offer R&D and production toll services, training and maintenance of SPS machines.

Carl Zeiss Microscopy, LLC

Carl Zeiss Microscopy offers tailor-made systems for industry, materials research and academia. A dedicated and well-trained sales force, an extensive support infrastructure and a responsive service team enable customers to use their ZEISS microscope systems to their full potential.

Claudius Peters

Since its founding in 1906, Claudius Peters has become one of the world's most respected engineering houses and an innovative world leader. Its German engineering excellence continues to set benchmarks for the design, manufacture and commissioning of materials handling and processing systems for the gypsum, cement, coal, alumina, steel, and other bulk-handling industries. From conception and installation through to commissioning and after-sales support, Claudius Peters provides world-class service to the world's biggest bulk materials producers. The Claudius Peters Group GmbH is headquartered in Buxtehude near Hamburg, Germany, with regional offices in the Americas, Asia and Europe.
**CompuTherm LLC**

CompuTherm LLC, established in 1996, develops CALPHAD modeling tools in the framework of ICME. A key feature of the newly released Pandat2017 is the high-throughput calculation through which thousands of calculations can be performed by a simple setting and alloys with user-defined optimum properties can be mined from the calculated results. Pandat Demo version can be downloaded from [http://www.computherm.com](http://www.computherm.com). Live binary phase diagrams are available at iPandat ([http://ipandat.computherm.com](http://ipandat.computherm.com)).

**CRC Press/Taylor & Francis**

Take your research skills to the next level with CRC Press, Taylor & Francis Group leading publisher of technical references and textbooks in Materials Science. Visit our Booth for the latest and bestselling books in Polymers, Ceramics, Metals, Composites, Biomaterials, Electronic Materials, and Nanomaterials. Receive 15-25% off an authoritative range of titles and 50% on conference specials. Review our journal selections and pick up complimentary sample copies. Talk to us about being a CRC Press Author! Visit our Booth for the latest and bestselling books in Materials Science.

**De Gruyter**

De Gruyter publishes first-class scholarship and has done so for more than 260 years. The De Gruyter Group publishes over 1,300 new titles each year in the humanities, social sciences, medicine, natural sciences, and law, more than 750 journals, and a variety of digital media. Due to distribution agreements De Gruyter provides all Columbia University Press, Cornell University Press, Harvard University Press, Penn Press, Princeton University, Toronto University Press and Yale University Press eBooks.

**EBSD Analytical**

EBSD Analytical provides advanced materials characterization services using EBSD/EDS/SEM techniques. We specialize in providing texture, grain size, ODF, grain boundary analysis, and phase ID including elemental composition. We also can provide strain analysis using Cross Court software and high resolution EBSD patterns. With over 20 years’ experience in EBSD and EDS, we have analyzed many thousands of different sample types. We guarantee our results will exceed your expectations as we work with you to solve your materials problems.
EDAX Inc.  
**Booth #1129**

EDAX is a leading provider of innovative materials characterization systems encompassing Energy Dispersive Spectrometry (EDS), Wavelength Dispersive Spectrometry (WDS), Electron Backscatter Diffraction (EBSD), and Micro X-ray Fluorescence (XRF). The company designs, manufactures, distributes, and services hardware and software solutions for a broad range of industries, educational institutions and research organizations.

**Elsevier**  
**Booth #1010**

Explore Elsevier's high-impact Materials Science content. Our books explore elements of applied physics and chemistry, as well as chemical, mechanical, civil, and electrical engineering and Elsevier's material science books cover seven major sub-disciplines: Energy & Power, Metals & Alloys, Ceramics, Composite Material Science, Polymer Science & Biomaterials, Interdisciplinary Materials Science, and Structural Materials. Lead the way exploring the latest in research news from journals such as Materials Today. Discover our highly regarded electronic research and solution tools via ScienceDirect!

**Energoprom Group**  
**Booth #1037**

Energoprom Group is the leading manufacturer of electrode, cathode, graphite and carbon-based products in Russia. • We are one of the top 5 global producers of carbon and graphite • We supply our products to silicon, steel, aluminum, chemical, nuclear, aerospace and electronics industries. • Our sales network covers more than 60 countries around the world. • Our main focus is on expanding product portfolio and customer's satisfaction. • Our R&D Center develops new products, such as isostatic graphite, anode materials for lithium-ion batteries, new types of composite materials for electric transport, large-sized items made of silicified graphite.

**Eutectix, LLC**  
**Booth #1008**

Eutectix, LLC is a metal and metal alloy manufacturing company with plants in Troy, MI and Tolleson, AZ. It supplies Eutectix™ rare earth element (REE) alloy and Co-based master alloy powders for manufacturing sintered magnets, superalloy rods, hydrogen storage alloy powders and various master alloy products (Ca-Ni, Mg-Ni, La-Ni, Hf-Ni, etc.) primarily for superalloy production. Recently, Eutectix has been named by Materion Performance Alloys and Composites as its manufacturer of crystalline alloys for bulk metallic glass (BMG) products. Since the TMS show highlights BMG R&D, the Booth will focus on the Eutectix-Materion relationship and provide an exposure to BMG microstructure as modeled by REE magnet bars connecting clusters of spheres. The Booth will also feature a Eutectix “guess the alloy” contest.

**FEI**  
**Booth #1110**

FEI is showcasing the popular Avizo® 3D visualization and analysis software application for materials research and development. From state-of-the art visualization to advanced image processing, quantification, analysis, and reporting, Avizo provides a comprehensive, multimodal digital lab for characterizing materials' structures, properties, and performance, in a wide range of applications (metals and alloys, ceramics, composites and polymers, semiconductors, food, and more).

**Fives**  
**Booth #1100**

Fives designs and supplies process equipment and manages complete installations in the 3 key sectors of aluminium: - Reduction: Gas Treatment Centers, ECL Pot Tending Machines and Pot Equipment. - Carbon: High Capacity Green Anode Plants including Carbon Butts Processing and Pitch Fume Treatment, Pitch storage and processing, Firing Systems & Fume Treatment Centers for anode baking furnaces, ECL Furnace Tending Assemblies, Anode Handling & Storage, Bath Processing Units and Anode Rodding Shops - Casthouse: Melting & Holding furnaces including water cooling systems. Fives also proposes EPC solutions for secondary aluminium plants.

**Fritsch Milling and Sizing**  
**Booth #1141**

Fritsch is an internationally respected German manufacturer of application-oriented laboratory instruments. Our instruments are used worldwide for particle size reduction, sample preparation, materials science, product development, and particle analysis for fast paced industrial process monitoring and critical applications in QA, QC, and R&D. Particle sizes from nano range on up. Fritsch, founded 1920 as an independent family business. Today 80+ employees work in the headquarters with subsidiaries in Russia, France, Singapore, China, USA. Our core competence is the innovative development and production of premium instruments. We are familiar with challenges and offer constructive solutions across industries. Fritsch, founded 1920 as an independent family business.

**www.tms.org/TMS2017**
**COMPANY DESCRIPTIONS**

**Gillespie & Powers, Inc.**
Booth #1004
Gillespie & Powers, Inc. has over 75 years of experience in the design, supply, and installation of furnace equipment for the non-ferrous melting industries. Our special expertise in the furnishing of melting and holding equipment is the total quantitative approach to all phases of the design. We work closely with our clients to design the equipment that will work for their long-term goals without compromising flexibility in their process. We can offer custom solutions found nowhere else in the industry. Gillespie & Powers is a safety oriented company. Our EMR rating is .062. Safety first ALWAYS.

**GLAMA Maschinenebau GmbH**
Booth #1101
GLAMA has designed and built heavy-duty Equipment for Aluminium pot rooms, cast houses and anode rodding shops throughout the world for more than 50 years. The following type of equipment is available: - Anode Changing Vehicles - Anode Pallet Transporters - Butt Cleaning Manipulators - Coil Lift Trucks - Furnace Charging Machines - Furnace Tending Machines - Hammer Crush Breakers - Ladle Charging Trucks - Molten Metal Carriers - Tapping Trucks GLAMA's experience of many years of producing machines with a unique combination of advanced control and rugged, reliable construction is evident in the several hundred machines now in service. GLAMA equipment withstands the heat, dust, vibration and battering of heavy industry while delivering precise handling performance. More details: www.glama.de

**GNA alutech**
Booth #1107
GNA specialises in the design and construction of furnaces machinery and process control systems for the aluminium industries. The company's product line includes cathode sealing equipment, melting and holding furnaces, heat treatment furnaces, homogenising furnaces, annealing furnaces and associated machinery. Its high-performance melting and holding furnaces are in operation around the world. GNA provides complete furnaces and machinery for aluminium billet casting and homogenising systems. GNA has sales offices in Canada, Brazil and Taiwan and has been serving the world's aluminium industries for more than 30 years.

**Goodfellow Corporation**
Booth #1140
Goodfellow supplies small quantities of metals, alloys, ceramics, and polymers to meet the research, development, and specialist product requirements of science industry worldwide. The company offers two distinct services: The first meets the needs of those customers who require small quantities of our standard catalog products for immediate shipment. The second is for those who require larger quantities or further processing of the company's standard products or who need products, which fall within our general supply capabilities. Our web catalog lists a comprehensive range of materials in many forms including rods, wires, tubes, and foils. There is no minimum order quantity and items are in stock ready for immediate shipment worldwide with no extra shipping charge. Custom made items are available to special order.

**Gouda Refractories**
Booth #1200
Gouda Refractories is an innovative refractory producer (refractory bricks, castables, mortar, self-flowing castables, complex pre-cast shapes) with global experience and a long track record of supplying superior quality refractories all over the world for more than 100 years. Gouda Refractories develops, manufactures, sells top quality refractory linings. Gouda's solutions play an important role in, non-ferrous metal (mainly aluminium), petrochemical, environmental, and energy industries. Based on an industry-oriented structure and highly competent employees, Gouda Refractories guarantees an optimal support which results in efficiency and reduction of refractory cost. Gouda Refractories supplies total solutions to customers which are cost effective, state of the art, and reliable. Gouda's R&D department is conducted in close cooperation with its customers and renowned research institutes. Gouda's quality assurance is based on the international ISO 9001 standard.

**Granta Design**
Booth #1125
Granta will demonstrate its software and resources for materials education, research, and product development, and run a hands-on workshop on 'Interactive Materials Data Visualization and Selection Tools for Research and Teaching' at the TMS Annual Meeting. We are a hub for communication, information and inspiration – our Education Division supports thousands of university educators worldwide with resources to teach materials or related topics across engineering, science, and design. Granta helps to organize the Materials Education Symposia, global events for materials educators. As the materials information technology experts, Granta also helps hundreds of industrial enterprises to manage materials information and make better materials decisions.

**Haarslev Industries Press Technology GmbH & Co. KG**
Booth #1118
Haarslev Industries Press Technology, Service and Sales of Wear and Spare Parts Components for Anode Paste Mixers for the Aluminum Industry. Haarslev Industries Press Technology is a manufacturer of high-class equipment and spare parts for various industries with wear-intensive products and therefore the leading expert for various surface protection methods and wear protection materials. We are certified according to DIN ISO 9001 and our internal processes guarantee that we supply stable, high-quality products in accord with international norms.
and regulations. The high requirements for special wear-protected surfaces for the production of anode paste were the driving force of Haarslev Industries to further develop existing wear protection materials and application methods to extend life time and reduce production costs. All of our wear and spare parts for the Aluminium Industry are manufactured in Germany in our own manufacturing facilities to guarantee a high quality level and a long life time.

**Hycast AS**  
Booth #1225

Hycast is now celebrating 25 years of operation and innovation. Hycast was established in 1990 by Hydro Aluminium as a spin off from Hydro R&D. Hycast provides One Stop Shop for complete casthouse solutions for competitive processes and quality end-products: RAM – Removal of Alkaline Metals; SIR – Inline Melt Refining; Hycast Launder Systems and Rod Feeders; CMV – Casting Machine Vertical for extrusion ingot and sheet ingot casting; GC – Gas Cushion extrusion ingot technology; LPC – Low Pressure Casting extrusion ingot technology; AFM – Adjustable Flexible Moulds sheet ingot technology; FM – Flexible Moulds sheet ingot technology; CCS – Casting Control Systems, automation and human/machine interface; and Hycast Services, Knowledge and Competence. Most of the Hycast products have been captive during the last two and half decades. Hycast supports customers to constantly achieve better quality at lower operation cost and thereby increases the competitiveness of its customers.

**Hysitron**  
Booth #1122

As the world leader in nanomechanical testing, Hysitron® is dedicated to the development of next-generation testing solutions for nanoscale materials characterization. Hysitron’s comprehensive nanomechanical testing suite of in-situ techniques (including TEM/SEM Nanomechanics, heating/cooling, nanoDMA®, and nanoECR®) and modular instrument platforms will keep you at the forefront of technology. Stop by our Booth to learn about our exciting new developments and for in-depth discussions with our application specialists about our latest nanomechanical testing solutions.

**innovatherm GmbH + Co., KG**  
Booth #1128

innovatherm GmbH +Co KG, Butzbach / Germany is an engineering company specialised in optimization of thermal processes. innovatherm offers a comprehensive range of products and services including consulting, process analysis, engineering, process optimisation, supervision of installation, commissioning, and maintenance. The company possesses versatile know-how, experience and innovative technologies for improvement of customers’ production facilities. The highly qualified staff are mainly engineers who have, in addition to their detailed knowledge of automation and computer systems, special knowledge in treatment and optimization of thermal processes. innovatherm also provides a wide range of products in the field of process technology and process automation, such as the ProBake firing and control system for anode/cathode baking furnaces in the primary aluminium industry, ProClean fume treatment plants for anode baking furnaces, and ProCast process control systems for cast houses.

**International ALUMINIUM Journal**  
Booth #1146

International ALUMINIUM Journal deals with all facets of aluminium’s value chain from the production of the metal via its processing through to recycling. The editorial focus is on smelting and semis production including the suppliers of plant, equipment and technology. Consideration is given to economic, technical and environmental/ecological topics as well as other aspects that affect the metal and its product applications in the different target markets. Aluminium relevant research articles from companies and institutes are also published. The publication is thus of particular interest to smelters and remelters, semis producers, foundries, fabricators and converters, metal traders, semis stock holders and research facilities. International ALUMINIUM Journal is circulated in over 40 countries worldwide – made in Germany, distributed to the world. Articles that are of global interest are published in English or bilingually (German and English).

**IOP Publishing**  
Booth #1002

IOP Publishing provides a range of journals, books, websites, magazines, conference proceedings and services through which leading-edge scientific research is distributed worldwide. IOP Publishing is central to the Institute of Physics, a not-for-profit society. Any financial surplus earned by IOP Publishing goes to support science through the Institute’s activities.
### COMPANY DESCRIPTIONS

#### Laboratorio Elettrofisico Walker
**LDJ Scientific**  
Booth #1143

Laboratorio Elettrofisico is a global company that specializes in engineering, designing, and manufacturing the world’s most precise magnetizing and magnetic measuring equipment. Founded in 1959, the company is headquartered in the Nerviano area of Milan, Italy. In addition to design and manufacturing operations in Italy and the United States, LE has laboratories, testing facilities, support staff, and services centers in the United States, China, and India.

#### Light Metal Age
**Booth #1003**

Light Metal Age (LMA) is the pre-eminent magazine of the light metal world. LMA covers the technology of primary production and semi-fabrication of the light metals. Aluminum is the largest of the light metal markets and that is where LMA concentrates its attention, starting at the smelter and the entire primary production process and moving with the metal to include all semi-fabricating processes, such as extrusion, rolling, and also remelt, basically LMA covers the technology of aluminum processing. Circulation is international and goes to primary and secondary smelters; casthouses; extrusion operations; rolling mills; sheet, rod, and wire mills; and foundries. Some editorial topics include: potline technology, direct chill casting, secondary production, casthouse metal quality, furnaces and melting, filtration, extrusion and handling, automation and process control, surface technologies (such as anodizing), rolling mill technology, and markets for aluminum, such as automotive.

#### Maschinenfabrik Gustav Eirich
**GmbH & Co KG**  
Booth #1224

Maschinenfabrik Gustav Eirich is a leading German supplier of industrial material processing solutions. For the carbon sector, we offer paste preparation equipment for the production of prebake anodes, Soederberg, graphite electrodes, cathodes, metallurgy and carbon & graphite specialties. Our key products are the continuously operated EIRICH Mixing Cascade (EMC®) and the EIRICH Intensive Remixer-Cooler for anode paste preparation as well as the batchwise operated EIRICH integrated preparation system for various applications in the carbon sector. Up to now, EIRICH has delivered more than 220 continuously operated machines to the carbon industry worldwide.

#### Mecfor Inc.
**Booth #1212**

Mecfor specializes in the design and manufacturing of specialised equipment used in all sectors of the aluminium industry. We work with you to understand what you need; then we make it. The acquisition of the Brochot IPs’ for the Aluminium and Magnesium division complements Mecfor’s offer and expertise. Consolidating its leading position of equipment designer and manufacturer, Mecfor maintains its strong offer in vehicles, stationary, and custom designed equipment. All Mecfor equipment take into account the harsh working environment. Our trademark: sturdy, reliable and safe equipment. Mecfor delivers on time and supports its products worldwide. Over the years, Mecfor has developed valubales skills. Products: AGV, LTV, Haulers, Casthouse Solution (QuicKonnect), BTV, ASCM, Ecumax, Descaling Arm, Pot Ramming Machine, Anode rodding shop and handling, Ingot casting and stacking line. Discover our proven technologies at: www.mecfor.com. Come to discuss with us, Booth No. 1212.

#### Mechatherm International Ltd
**Booth #1144**

Established in 1973, Mechatherm International Ltd. is a world leading company of industrial engineering experts specializing in the design, supply and commissioning of furnaces and casthouse equipment for the aluminium industry. Operating in numerous countries across all continents and with a large portfolio of clients, Mechatherm is known for its advanced casthouse technology and competency in executing international turnkey projects. Our engineers have, between them, over 150 years’ experience in developing and refining bespoke solutions to satisfy our clients’ individual requirements.

#### Metallurgy and Materials Society of CIM
**Booth #1216**

We are excited to host the 7th International World Gold conference and the Nickel Cobalt conference at our Annual Conference of Metallurgist in Vancouver, Canada. We are a world class Canadian organization that serves society and the needs of professionals in the global metallurgy and materials community. The purpose of MetSoc is to serve our members, society and others involved in the research, development and application of the science and technologies for the environmentally responsible extraction, fabrication, utilization, and recycling of metals and materials.
Micro Materials Ltd (MML) was established in 1988 and since then has pioneered many advances in nanomechanical test instrumentation. Measurements can be done at temperatures up to 850°C, in liquids and under vacuum conditions. We excel at providing platforms capable of depth sensing indentation and tribological measurements that can be done over a wide load range. Tribological techniques include scratch and wear, high strain rate nano-impact and nano-fretting. This year Micro Materials is launching an addition to our existing instrument range. The CORE range of dedicated mechanical testing platforms are designed to provide a testing solution for users requiring only a single test technique. This makes the CORE range the perfect tools for both academic teaching and industrial QA users. For more information, please contact our sales team at info@micromaterials.co.uk. Tel +44 (0)1978 261615 or visit the MML website: www.micromaterials.co.uk

Microtrac, a global pioneer of particle characterization technologies, provides the world with innovative, reliable, and repeatable instruments. Microtrac’s instruments can provide particle sizing, zeta potential, 3-D dynamic image analysis, molecular weight, surface analysis, and particle counting measurements. Microtrac also offers contract laboratory services.
MIPAR Image Analysis  
Booth #1024
MIPAR is a revolutionary image analysis software, capable of identifying and measuring features from nearly any image one can capture. Our users have shown it to be perhaps the most efficient and flexible image processing software on the planet. Through five integrated applications, MIPAR offers powerful and efficient environments for the different tasks performed during 2D and 3D image analysis. We started in materials science, but realized it was so much more. Developed by scientists, it is uniquely designed to offer workflows that are well-suited to solve a variety of scientific image analysis problems. Today, MIPAR is used by companies and universities, large and small, from anything from atomic imaging to aerial photography. Other software simply cannot offer the same ease-of-use and flexibility as MIPAR's Recipe technology — it's efficient and effective. No multi-tabbed ribbon interfaces, no recording macros. Recipes just work, and we have the testimony to back it up.

MTS Systems Corp  
Booth #1136
Engineers and researchers worldwide rely on MTS to address the full spectrum of materials testing challenges—from tension/compression tests to fracture mechanics to complex multi-axial fatigue studies at elevated temperatures. With high-performance testing systems, versatile application software and precision accessories, MTS provides leading-edge technology for testing advanced metals, polymers and composites. And standard solutions and software templates optimize efficiency for many testing applications, including high-cycle fatigue, low-cycle fatigue, thermomechanical fatigue and direct current potential drop. Explore the MTS Booth and discover how innovative solutions and decades of industry expertise can enhance your test program.

nanoHUB  
Booth #1111
nanoHUB.org is the premier place for computational nanotechnology research, education, and collaboration. Our site hosts a rapidly growing collection of simulation tools for nanoscale phenomena that run in the cloud and are accessible through a web browser. In addition to simulations, nanoHUB provides online presentations, cutting-edge nanoHUB-U short courses, animations, teaching materials, and more. These resources help users learn about our simulation tools and about nanotechnology in general. A good starting page for those new to our site or to nanotechnology is https://nanohub.org/ education. Materials science content is collected here: https://nanohub.org/groups/materials. Our site offers researchers a venue to explore, collaborate, and publish content, as well. Much of these collaborative efforts occur via workspaces, user groups, and projects. Uncertainty Quantification (UQ) is now automatically available for most nanoHUB tools, and adds powerful analytical and predictive capabilities for researchers.

Nanomechanics, Inc.  
Booth #1104
Our principal mission is to enable our customers to evaluate and understand the mechanical performance of their materials on micro and nano-scales. With field experts in nanomechanical testing, data acquisition, system integration and software development on our staff, we are well positioned to provide you with the most accurate results along with leading edge characterization.

Nanovea Inc.  
Booth #1016
From the Irvine, CA office Nanovea designs and manufactures 3D Non Contact Profilometers, Mechanical Testers & Tribometers to combine the most advanced testing capabilities in the industry: Indentation Hardness, Scratch Adhesion, Wear Friction & 3D Non-Contact Metrology at Nano, Micro & Macro range. Unlike other manufacturers, Nanovea also provides Laboratory Services, offering clients availability to the latest technology and optimal results through improvements in material testing standards.

NASA  
Booth #1220
NASA's Physical Sciences Informatics (PSI) data repository is the raw and analyzed data collection of physical science experiments performed on the International Space Station (ISS). The PSI system is a resource for researchers to data mine and expand upon the valuable research performed on the ISS. This envelope of experiments will take what would be a single investigator research opportunity and turn it into multi-investigator research opportunities. In essence, promoting and enabling “Open Science” to share and collaborate in new and exciting physical science experiment observation and research. http://psi.nasa.gov

Netzsch Instruments NA LLC  
Booth #1012
Thermal analysis & thermal properties measurement instruments, calorimeters, and contract testing services; Featuring the new DSC 214 Polyma, engineered for polymer analysis from the ground up with specially-designed furnace and sensor combination for fastest heating & cooling, new Concavus crucibles and unique sample-cutting tool. New instruments for Battery Calorimetry - introducing R&D 100 Award-winning IBC 284 Isothermal Battery Calorimeter for Large Format Li-Ion Batteries with and new MMC Nexus calorimeter module for characterization of coin-cells. Top-loading TGA and STA (DSC-TGA) with no hang-down wires, optimized for ease-of-use and for coupling to FTIR, MS, and GC-MS. Also offering DMA, TMA, Dilatometers, and DEA (Dielectric Analyzer for in-situ cure monitoring). We will also feature the new LFA 467 HyperFlash Light Flash Analyzer for...
measurement of thermal diffusivity and thermal conductivity.

**NKM Noell GmbH**  
Booth #1106

NKM Noell Special Cranes (NNSC) has built a strong technical force based on specialists who individually have up to 25 years' experience in Primary Aluminium Industry for Potroom as well as Carbon Area, being the only independent equipment supplier. For more than 40 years on the market through its constitutive companies, with more than 1,000 cranes in operation worldwide, NNSC is developing its mission for the Primary Aluminium Smelters and Nuclear plants: > To be a global supplier of handling systems, process equipment and solutions, > To integrate the client's process objectives in the design of the products through a continuous flow of mutual exchange.

**Nuclear Science User Facilities**  
Booth #1150

Nuclear energy is a clean and affordable energy source that reduces greenhouse gas emissions and supports a secure domestic energy portfolio. Research is needed to understand how radiation environments affect existing and proposed new reactor materials over time. Nuclear Science User Facilities merges the national nuclear research infrastructure with intellectual capital to pair the best ideas with the needed capability. NSUF provides no-cost access to specialized instrumentation and expertise to carry out experiments that could not be done in individual laboratories. Nuclear Science User Facilities and its partners represent a prototype laboratory for the future. This unique model utilizes a distributed partnership with each facility bringing exceptional capabilities to the relationship including reactors, beamlines, state-of-the-art instruments, hot cells and most importantly, expert mentors.

**Outotec Ltd.**  
Booth #1117

Outotec develops and provides technology solutions for the sustainable use of Earth’s natural resources. As the global leader in minerals and metals processing technology, Outotec has developed several breakthrough technologies. Outotec serves the light metals industries including the provision of cutting-edge alumina refineries and aluminium smelters. Outotec has over 50 years’ experience helping customers worldwide in both segments of the aluminum process to reach their goals.

**P-D Refractories GmbH**  
Booth #1134

P-D Refractories Group belongs to the most competitive suppliers of high-quality refractories for the primary aluminium industry - especially for open and closed anode baking furnaces and the barrier-brick lining of reduction cells. The know-how, we acquired in the aluminium industry over decades, and advanced manufacturing technologies combined with our continuous activities to meet our customers’ needs are the basis for the success of our refractory bricks in anode baking furnaces and reduction cells. Customers from all over the world rely on our well-known qualities.

**Photron Inc.**  
Booth #1133

Photron manufactures high speed cameras for slow motion analysis of events or phenomena that occur too fast for the eye to see or comprehend. Recording at frame rates from 60 to over one million frames per second (fps) for replay at conventional video rates of 30 fps or slower, Photron cameras are available in color or monochrome and utilize the latest CMOS sensor technology to provide unparalleled light sensitivity and image quality, regardless of the frame rate or shutter speed selected.

**PolarOnyx, Inc.**  
Booth #1208

PolarOnyx has developed the world’s first Additive Manufacturing (AM) and Subtractive Manufacturing (SM) system (Tungsten-LAM) for refractory materials such as Tungsten. With its innovation is femtosecond fiber lasers and AM/SM processes, this machine is capable of melting materials with high melting temperatures (>4000C) and high thermal conductivities, and fabricating complex structures. Both industrial grade and research grade systems are available to meet customers’ needs.

**Precision Light and Air Pty Ltd**  
Booth #1210

We are an instrumentation manufacturer specializing in process analysers for the minerals processing sector. Clarifier, Thickener, Washer, and CCD Mud Divers are our specialty. Our analysers are particularly suited to high-scale and high temperature applications as seen in the Alumina and Nickel Industries. Currently we have installations in 17 countries around the world with our core product “SmartDiver” and a full line-up of process analysers including: - AL-CARK Caustic Analyser - Slurry Liquor Phase Density - Refractometer AL-DCIK A/C Analyser - Slurry Steel/Ceramic - Conductivity Probe Smart Dose - Longwall Emulsion Station - Slurry Density Analysers Clarity/Suspended Solids Sensors.

**Proto Manufacturing**  
Booth #1123

Residual stress affects crack initiation and propagation, fatigue life, stress corrosion cracking, and distortion. For over 25 years, Proto Manufacturing has been providing both measurement services and equipment for measuring residual stress in metal components. Proto’s leading edge x-ray diffraction (XRD) technology is portable, cost effective, and provides the necessary data for making informed decisions about the health of components. Tel: 1-734-946-0974 E-Mail: proto@protoxrd.com Web: http://www.protoxrd.com
**COMPANY DESCRIPTIONS**

**RHI AG**  
Booth #1205  
RHI AG - Solutions for the nonferrous industry. Our comprehensive product and service program ranges from basic and non-basic bricks and mixes, prefabricated components, slide gate plates and gas purging systems to special machinery, repair systems, and the installation of refractory products in a variety of units for the nonferrous metals industry around the world. The optimization of all processes in the nonferrous metals industry, increasing efficiency, and enhancing safety of melting plants as well as the development of optimal refractories solutions for pyrometallurgical vessels. Comprehensive knowledge of processes in combination with unique refractories applications ensure perfectly developed and implemented concepts for re-linings, Greenfield projects and the expansion of melting units. From the development of refractory quality concepts to their realization - your refractory solution by RHI.

**Riedhammer GmbH**  
Booth #1130  
Riedhammer (RH) is the leading technology supplier of industrial kilns and delivers innovative technologies for various industries. For the Carbon Industry, RH only offers complete solutions and its proven furnace technologies for baking anodes, cathodes, electrodes, and special carbon products. Today, Riedhammer gives you the perfect answer for furnace rebuilding and modernization demands, up to turn-key plants based on the most advanced technology. We combine as best your needs with our experience.

**Sandia National Laboratories**  
Booth #1131  
Sandia National Laboratories is the nation’s premier science and engineering lab for national security and technology innovation, with teams of specialists focused on cutting-edge work in a broad array of areas. Some of the main reasons we love our jobs: - Challenging work with amazing impact that contributes to security, peace, and freedom worldwide - Extraordinary co-workers - Some of the best tools, equipment, and research facilities in the world - Career advancement and enrichment opportunities - Flexible schedules, generous vacations, excellent medical and other benefits, competitive 401k, learning opportunities, relocation assistance and amenities aimed at creating a solid work/life balance World-changing technologies. Life-changing careers. Learn more about Sandia at: www.sandia.gov/careers

**Sente Software Ltd.**  
Booth #1011  
Developers of JMatPro®, a powerful, extensively validated simulation software for calculating a wide range of materials properties and behavior for multi-components alloys based upon chemical composition input, with data exports to casting, forming, forging and heat treatment simulation packages. We have a proven track record for innovation and excellence with our customers worldwide.

**Southwire SCR Technologies**  
Booth #1005  
Southwire operates continuous casting lines for both Copper and Aluminum rod and the SCR Technologies division provides equipment for continuous cast rod systems and technology. SCR aluminum systems range in capacity from 2.5 to 15 metric tons/hour of EC aluminum and alloyed aluminum rod. SCR Technologies has developed a patented state of the art ultrasonic degasser that solves multiple challenges across a spectrum of aluminum casting industries. This ultrasonic degasser marketed under the brand name Ultra-D™ degasser produces the highest quality of aluminum without the use of any corrosive chemicals. The Ultra-D degasser can be easily integrated into the die casting, foundry, continuous cast and billet casting market segments.

**Springer Nature**  
Booth #101 Lobby  
Springer Nature is one of the world’s leading global research, educational and professional publishers, home to an array of respected and trusted brands providing quality content through a range of innovative products and services. Springer Nature is the world’s largest academic book publisher, publisher of the world’s most influential journals and a pioneer in the field of open research. The company numbers almost 13,000 staff in over 50 countries and has a turnover of approximately EUR 1.5 billion. Springer Nature was formed in 2015 through the merger of Nature Publishing Group, Palgrave Macmillan, Macmillan Education and Springer Science+Business Media. Find out more: www.springernature.com

**STAS**  
Booth #1112  
STAS Inc. is a Canadian based company specialized in the development, fabrication, and commercialisation of process equipment for the aluminium industry. STAS is a world leader in providing various equipment to improve productivity and the quality of molten aluminium. Aluminium producers that can benefit from such technologies are found throughout the spectrum of aluminium producers, ranging from primary smelter plants down to secondary smelters and including rolling mills and aluminium extruders as well. The company has been in business for more than 25 years and has clients on all continents. Most of STAS’ sales activities are managed from STAS’ head office in Canada, with a network of well-known agents around the globe. STAS employs more than 125 persons, including a technical team – made up of more than 70 engineers and technicians – with a broad expertise in processes and engineering.
COMPANY DESCRIPTIONS

SYKJ Booth #1013
SYKJ (Shenyang Kejing Auto-instrument Co. Ltd) is one of three production factories of KJ Group formed by MTI Corporation. MTI Corporation has been providing a total solution for materials research labs since 1995. MTI & SYKJ supplies ceramic, crystals, metallic substrates from A-Z and nanopowder. We also provide laboratory R&D equipment including alloy melting, casting, annealing, sectioning, polishing, mixing machines, high-temperature muffle furnace and tube furnaces, pressing machines, film coaters, high vacuum systems, high-pressure furnaces, RTP furnaces, as well as compact XRD/XRF for metallocraphic analysis, and equipment for Materials Genome Initiative (MGI) High Throughput & Productivity.

Synto-MDP Booth #1213
Synto-MDP is a manufacturer of diamond stylus for microtechnical instruments. Most of the diamond tips are used in metrological equipment (surface finish, profile, form, nano-indentation, hardness, scratch, and other characteristics). We specialize in small spherical diamond tips, with a high level of dimensional accuracy in ultra-compact configurations, and diamond points with razor sharp edges. We are accustomed to producing the smallest possible shapes with small tolerances. Our home is in the heart of the Swiss watch industry. These are the best conditions for us to partner with you for stylus tips.

TA Instruments Booth #1017
TA Instruments provides premier technology for thermal analysis, rheology, microcalorimetry, dilatometry, and thermal conductivity measurements. We provide innovative instrumentation for materials characterization for polymers, biomaterials, paints and coatings, metals, ceramics, and more. Visit to learn more about our newest range of products for traditional and optical dilatometry as well as a complete line-up of tools for thermal conductivity and thermal diffusivity by heat flow meters, guarded hot places, and the laser flash method.

Techno Car Booth #1148
Techno is an Italian, independent company focused in the engineering and production of special mobile and stationary equipment for the aluminium and non-ferrous metals industry. The full range of purpose designed machines covers different types of equipment performing a large number of operations in pot-rooms, rodding shops, and cast-houses. The company’s aim is to provide the most innovative, rational, cost effective, and user friendly technical solutions. Among the most significant families of mobile equipment are the Tapping Vehicles, Anode Transporters, Crucible Transporters and Tilters, Alumina/AlF3 Feeding Vehicles, Furnace Charging Vehicles and Furnace Tending Vehicles, Multipurpose Anode Changers, and Crucible Butts Cleaning Stations.

Breakers. Beside its line of purpose designed vehicles, Techno provides a number of stationary equipment such as Crucible Cleaning Machines, the Crucible Tilting stations, and the Anode Butts Cleaning Stations.

Tekna Booth #1218
Tekna is the world leader in induction plasma technology. For over 25 years, Tekna has specialized in the development, design and construction of integrated plasma systems for metallic materials research labs since 1995. Tekna is also specialized in the production of high quality micropowders and nanopowders. They are available off-the-shelf, or on a custom basis, in small or large quantities. In particular, Tekna is specialized in material development for Additive Manufacturing.

Thermo-Calc Software Booth #1001
Thermo-Calc Software is a leading developer of software and databases for calculations involving computational thermodynamics and diffusion controlled simulations. Thermo-Calc is a powerful tool for performing thermodynamic calculations for multicomponent systems. Calculations are based on thermodynamic databases produced by the CALPHAD method. Databases are available for steels, ferrous based slags, Ti, Al, Mg, Ni-superalloys, and other materials. Programming interfaces are available which enables Thermo-Calc to be called directly from in-house developed software or MatLab. DICTRA is used for accurate simulations of diffusion in multicomponent alloys; applications include: Homogenization of alloys; Microsegregation during solidification; Coarsening of precipitates; Joining, TC-PRISMA: a new tool for predictions of concurrent nucleation, growth, dissolution, and coarsening of precipitate phases.

Thorpe Technologies, Inc. Booth #1135
Thorpe Technologies Inc. manufactures custom mill duty furnace and process equipment for the aluminum and forging industries. Thorpe’s product line includes scrap delacquering and decoating systems; stationary and tilting furnaces for melting and holding molten metal; rotary furnaces; continuous, stationary, and shuttle homogenizing and process furnaces; box and rotary hearth forging furnaces; die heating furnaces. Thorpe also manufactures ancillary equipment including charge machines for the furnace and process equipment it manufactures. Thorpe has been serving industry’s heat processing equipment needs domestically and internationally from its Los Angeles based operations since 1932.

www.tms.org/TMS2017
TMS Bladesmithing Competition

Booth #1147

More than 25 hand-forged knife and sword blades will be on display as part of the 2017 TMS Bladesmithing Competition. View these works of art and science, as well as the technical posters and videos depicting their production, in the Exhibit Hall. The Bladesmithing Competition winners will be revealed at a ceremony open to all on Tuesday, February 28 from 3:00 PM-3:30 PM at the Bladesmithing booth.

UES

Booth #1132

RoboMet.3D® is a fully automated, serial sectioning system that generates two-dimensional data for three-dimensional reconstruction. With sectioning rates up to 100 times faster than manual sectioning, Robo-Met.3D collects data in a matter of hours, not months. Robo-Met.3D enables more time for data analysis and characterization and ensures repeatable and accurate data is collected in an efficient and cost-effective manner. UES, Inc. is an innovative science and technology company that provides its industry and government customers with superior research and development expertise. We create products and services from our technology breakthroughs and successfully commercialize them.

Pandat® Software

- Calculates multi-component multi-phase thermodynamic properties and phase equilibria
- Simulates diffusion-controlled precipitation kinetics during heat treatment processes
- Optimizes thermodynamic model parameters and thermophysical properties for database development

PanEngine API

- Dynamic-linked library that can be integrated with user’s in-house code to create custom applications such as solidification, heat-treatment, casting, welding, corrosion, and phase field simulation

Databases

- Thermodynamic databases for multi-component Al-, Co-, Cu-, Fe-, Mg-, Mo-, Nb-, Ni-, Ti-, TiAl- based commercial alloys, high entropy alloys, noble metal alloys, and Zr-based metallic glasses
- Mobility databases for Al-, Fe-, Ni- and Ti-based alloys

Consultation

- Provides materials solutions on multi-component phase equilibria, diffusion, precipitation, weldability, castability and more
- Develops customized thermodynamic databases, mobility databases and thermophysical property databases and more
- Supports software integration with PanEngine API to obtain instant thermodynamic input for custom applications

We are proud to announce the release of Pandat™ version 2017

New features of Pandat™ 2017 and databases

- High-throughput calculation performs thousands of calculations by a simple setting and alloy compositions with user-defined properties can be mined from the calculated results. The results can be presented as a color diagram. The figure below shows the solidification range (lever-rule) in the Al-Mg-Zn system with varying compositions of Mg and Zn
- New database for TiAl-based alloys

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TECHNICAL PROGRAM

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### Symposium and Session

#### Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions

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#### Defects and Properties of Cast Metals

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### Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI

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### Phase Transformations and Microstructural Evolution

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### Pioneers in Additive Manufacturing

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TMS-Chinese Society for Metals-Federation of European Materials Societies Global Energy 2025 — Plenary Session

Sunday PM  Room: Pacific Ballroom 21-26
February 26, 2017  Location: Marriott Marquis Hotel

Session Chair: Jeremy Busby, Oak Ridge National Laboratory

6:00 PM Introductory Comments

6:05 PM Plenary
Grand Science Challenges to Energize a New Era of Innovation: Harriet Kung; DOE Office of Basic Energy Sciences

6:35 PM Plenary
Advancement of Energy Industries and Related Critical Materials in China: Zhiling Tian; Central Iron and Steel Research Institute (CISRI)

7:05 PM Plenary
Establishing Industrial Leadership of Europe in Advanced Materials for Low Carbon Energy: Fabrice Stassin; EMIRI Association

7:35 PM Panel Discussion

8:00 PM Concluding Comments

2017 EPD Distinguished Lecture — Keynote session
Sponsored by: TMS Extraction and Processing Division
Program Organizer: Mark Schlesinger, Missouri University of Science and Technology

Monday AM  Room: 15B
February 27, 2017  Location: San Diego Convention Ctr

Session Chair: Mark Schlesinger, Missouri University of Science and Technology

8:30 AM Introductory Comments

8:35 AM Keynote
The Theory and Application of Alkaline Sulfide Leaching and Nitrogen Species Catalyzed Pressure Oxidation Hydrometallurgical Technologies: Corby Anderson; Colorado School of Mines

9:15 AM Break

2017 Light Metals Keynote Session — Global Aluminum Industry 2017: A Look Forward
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Edward Williams, Alcoa

Monday AM  Room: 1A
February 27, 2017  Location: San Diego Convention Ctr

Session Chair: Edward Williams, Alcoa

8:30 AM Introductory Comments

8:35 AM Keynote
Alcoa Corporation -- Strength Across the Value Chain: Agnelllo Borim; Alcoa

9:00 AM Keynote
Rio Tinto Perspectives on the Global Aluminum Industry: Vincent Christ; Rio Tinto

9:25 AM Keynote
Arconic Perspectives on the Global Aluminum Industry: Moustapha Mbaye; Arconic

9:50 AM Question and Answer Period

10:10 AM Break

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Novel Nanomaterials and Techniques
Sponsored by: TMS Functional Materials Division, TMS: Nanomaterials Committee
Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

Monday AM  Room: Pacific 26
February 27, 2017  Location: Marriott Marquis Hotel

Session Chairs: Jiyoung Kim, University of Texas at Dallas; Chang-Yong Nam, Brookhaven National Lab

8:30 AM Introductory Comments

8:40 AM Invited
Sequential Infiltration Synthesis (SIS) for Versatile Nanomaterials Fabrication: Seth Darling; Jeffrey Elam; Argonne National Laboratory

9:10 AM Invited
Organometallic Infiltration into Polymers toward the Formation of Hybrid Organic-inorganic Nanomaterials: Jesse Jar; Halil Akyildiz; Richard Padbury; North Carolina State University

9:40 AM
Direct Patterning Inorganic Nanostructures and Synthesis of Hybrid Materials via Infiltration Synthesis: Chang-Yong Nam; Brookhaven National Laboratory

10:00 AM Break

10:20 AM Invited
Carbon-metal Oxides Nanocomposites by Atomic Layer Deposition: Nicola Pinna; Humboldt-Universität zu Berlin

10:50 AM
Ultra-high Elastic Strain Energy Storage in AIOx-infiltrated SU-8 Photosensit Nanopillars: Keith Dusoe; Aaron Stein; Chang-Yong Nam; Seok-Woo Lee; University of Connecticut; Brookhaven National Laboratory

11:10 AM Invited
Bi2Te3 Nanowire Materials and Devices: Interplay between Thermoelectric and Topological Insulators Properties: Kornelius Nielsch; Leibniz Institute for Solid State and Materials Research

11:40 AM
Graphene-ZnO Hybrid with Enhanced Electronic Properties by Atomic Layer Deposition: Myung Mo Sung; Hanyang University

12:00 PM
1-D, 2-D and 3-D Nanoscale Architectures: Fundamentals, Materials and Applications: Simona Hunyadi Murph; Savannah River National Laboratory & University of Georgia
8th International Symposium on High Temperature Metallurgical Processing — Energy Efficient Clean Metallurgical Technology

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee

Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tiao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuray Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baijun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkılıc, Atılım University

Monday AM Room: 18
February 27, 2017 Location: San Diego Convention Ctr

Session Chairs: Jiann-Yang Hwang, Michigan Technological University; Zhiwei Peng, Central South University

9:20 AM Introductory Comments

9:25 AM
Flash Ironmaking from Magnetite Concentrate in a Laboratory Reactor: Experimental and CFD Work
9:45 AM
9:25 AM  Introductory Comments

9:45 AM
Synthesis of Chromite for Subsequent Carburization by Methane-hydrogen Gas Mixture: Vincent Canaguier; Leiv Kolbeinsen; Ingeborg-Helene Svennum; Norwegian University of Science and Technology; SINTEF Materials and Chemistry

10:05 AM Break

10:20 AM
Effects of Hydrogen-enriched Reduction on Metallurgical Properties of Iron-bearing Burdens under BF Operation with Cog Injection: Hongtao Wang; Mansheng Chu; Chuanguang Bi; Zhenggen Liu; Northeastern University; Shanghai Meishan Iron and Steel Corporation Ltd

10:40 AM
Investigations on Matrix Reactivity towards the Efficiency of the LSI Process: Singhe Tilhe; Arcan Dericioglu; Middle East Technical University

11:00 AM
Refractory Challenges in Lead Recycling Furnaces: Dean Gregurek; Katja Reinharter; Viktoria Reiter; Christine Wenzl; Alfred Spanring; RHI AG

11:20 AM
Synthesis of Carbide Ceramics via Reduction of Adsorbed Anions on an Activated Carbon Matrix: Grant Wallace; Jerome Downey; Janette Chorney; David Hutchins; Alaina Mallard; Montana Tech of the Univ of MT

11:40 AM
Metals and Mattes Air Atomization: A New Method to Increase Productivity: Sina Mostagheh; Lily Lai Chi So; Santiago Faucher; Mahdi Mahdi; Daan Sauter; Hatch Ltd.

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Materials, Methods, and Microstructures

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Semiatin, AFRL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poorganji, YTC America Inc.

Monday AM Room: 7B
February 27, 2017 Location: San Diego Convention Ctr

Session Chairs: Eric Lass, NIST; Anthony Rollett, Carnegie Mellon University

8:30 AM Introductory Comments

8:35 AM Invited
Influence of Feedstock Characteristics in Additive Manufacturing: Todd Palmer; Penn State

9:05 AM Invited
The Origin and Effect of HAZ Banding in Large Scale Wire-Arc Additive Manufacturing with Ti-6Al-4V: Alistair Ho; Jack Donoghue; Thays Machy; Jialuo Ding; Filomeno Martina; Stewart Williams; Phil Prangnell; The University of Manchester; Airbus Group Innovations; Cranfield University

9:35 AM
Investigation on the Effect of Process Parameters on the Grain Structures Formed during Wire-arc Additive Manufacturing (WAAM) of 2xxx Series Aluminium Alloys: Joseph Fixter; Philip Prangnell; Eloise Eimer; Jialuo Ding; Stewart Williams; University of Manchester; Cranfield University

9:55 AM
Investigation into the Different Behavior of Gas and Water Atomized 316L Stainless Steel Powders in Selective Laser Melting: Umberto Scipioni Bertoli; Alexander Wolfier; Manyalibo Matthews; Saad Kairallah; Kevin Wheeler; Dogan Timucin; Jean-Pierre Delplanque; Julie Schoenung; University of California, Irvine; University of California, Davis; Lawrence Livermore National Laboratory; NASA

10:15 AM Break

10:35 AM Invited

11:05 AM
Additive Manufacturing of Metals: Differing Microstructures with Varying Builds: Roberto Beal; Veronica Livescu; Manny Lovato; Los Alamos National Laboratory

11:25 AM Invited
Small Features and Microstructures in 3D Printed Heat Exchangers: Samikshya Subedi; Erfan Rasouli; Eric Truong; Vinod Narayanan; Anthony Rollett; Carnegie Mellon University; University of California Davis

11:55 AM
Fundamental Study of the Effect of Process Variables in LMD Repairs with Inconel 718: Faye McCarthy; Chris Heason; Gavin Baxter; Phil Prangnell; The University of Manchester; Rolls Royce Plc

www.tms.org/TMS2017
Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Novel Material Systems

**Sponsored by:** TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Powder Materials Committee, TMS: Process Technology and Modeling Committee, TMS: Additive Manufacturing Bridge Committee

**Program Organizers:** John Carpenter, Los Alamos National Laboratory; David Bourell, University of Texas - Austin; Allison Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Monday AM  Room: 8  Location: San Diego Convention Ctr

**Session Chairs:** Amanda Wu, Lawrence Livermore National Laboratory; Michael Kirka, Oak Ridge National Laboratory

**8:30 AM**

Structure / Property (Constitutive and Dynamic Strength / Damage)

**Characterization of Additively Manufactured (AM) Tantalum Produced Using Different AM Build Methods:** George Gray1; Veronica Livescu1; Cameron Knapp1; Carl Trujillo1; Roberta Beal1; David Jones1; 'Los Alamos National Laboratory

**8:50 AM**

Microstructures of Nickel-base Superalloy IN100 Fabricated through Scanning Laser Epitaxy: *Amrita Basak*1; Ranadip Acharya1; Suman Das1; 'Georgia Institute of Technology

**9:00 AM**

Development of Titanium Alloys Optimized for Additive Manufacturing Employing Laser Deposition of Powders: Brian Welk1; Hamish Fraser1; 'The Ohio State University

**9:30 AM**

Understanding the Influence of Powder Bed Fusion Processing on the Shape Memory Alloy, Uranium-6 wt. Pct. Niobium: Amanda Wu1; Donald Brown1; Bjorn Clausen1; John Elmer1; 'Lawrence Livermore National Laboratory; 'Los Alamos National Laboratory

**9:50 AM**

Influence of Powder Characteristics on the Defects and Oxidation of High Purity Tungsten Produced via Selective Laser Melting (SLM): Amanda Field1; Luke Carter1; Nicholas Akkins1; Mike Gorley1; Moataz Attallah1; 'University of Birmingham; 'UKAEA

**10:10 AM Break**

**10:30 AM**

Processing, Microstructure, and Tensile Behavior of MarM-247 Fabricated by Electron Beam Melting: Michael Kirka1; Yousub Lee1; Alfred Okello1; Christopher Romanoski1; Kinga Unocic1; Michael Massey1; Suresh Babu1; Ryan Dehoff1; 'Oak Ridge National Laboratory; 'Vanderbilt University; 'University of Tennessee

**10:50 AM**

Additive Manufacturing of Polymer-derived Ceramics: Zak Eckel1; Scott Biesboer1; Kenneth Cante1; John Martin1; Brennan Yahata1; Jacob Hundley1; Tobias Schauder1; 'HRL Laboratories, LLC

**11:10 AM**

A Comparison of Mechanical Properties of Additively Manufacturing and Conventionally Manufactured Components: Joy Forsmark1; 'Ford Motor Company

**11:30 AM**

Additive Manufacturing of Alloy 718 by Powder Bed Fusion Methods: John Porter1; Brian Hayes1; Kenneth Davis1; Holly Garich1; Francesco Simonetti1; 'UES Inc; 'CalRAM; 'Faraday Technology, Inc.; 'University of Cincinnati

**Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session I**

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee

**Program Organizers:** Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Monday AM  Room: 33C  Location: San Diego Convention Ctr

**Session Chairs:** David Collins, University of Oxford; Ricardo Lebensohn, Los Alamos National Laboratory

**8:30 AM Invited**

Recent Applications of Micromechanical Modeling Directly Coupled with Advanced Characterization Techniques of Polycrystalline Materials: Ricardo Lebensohn1; Receu Pokharel2; 'Los Alamos National Laboratory

**8:50 AM**

Effects of Crystallographic Structure on Damage Evolution Using Diffraction-amalgamated Grain-boundary Tracking Technique: Kyosuke Hirayama1; Hiroyuki Toda1; Teruyuki Shimoji1; Yasuto Tanabe1; Kentaro Uesugi1; Akihisa Takeuchi1; 'Kyushu University; 'Japan Synchrotron Radiation Research Institute

**9:10 AM**

A Correlation between Digital Image Correlation and Grain Misorientation Distribution Mapping to Capture the Localized Plastic Deformation in a Polycrystalline Titanium Alloy: Vahid Khademi1; Carl Boechler1; Thomas Bieler1; Masahiko Ikeda1; Samantha Daly1; Zhe Chen1; 'Michigan State University; 'Kansai University; 'University of California Santa Barbara

**9:30 AM**

Mapping the Deformation of Brazed Joints in Ti-6Al-4V Specimens Using High Angular Resolution Electron Backscatter Diffraction (HR-EBSD) and High Spatial Resolution Digital Image Correlation (HR-DIC): Jun Jiang1; Yongjuan Jing1; Ben Britton1; 'Imperial College London; 'Beijing Research Institute of Aviation Engineering

**9:50 AM Break**

**10:10 AM**

Effect of Stress and Strain Holds on Deformation in Ti-6Al-4V: Microscale Evidence of Load Shedding: David Collins1; Hamidreza Abdolvand2; Zhen Zhang1; Fionn Dunne1; Angus Wilkinson1; 'University of Oxford; 'Western University; 'Imperial College London

**10:30 AM**

Analysis of Strain Localization During Creep of a Polycrystalline Superalloy Using SEM-DIC: Connor Stone1; Michael Mills1; 'The Ohio State University

**10:50 AM**

High Resolution Strain Measurements in a Polycrystalline Superalloy during Deformation at Intermediate Temperature: J.C. Stinville1; M.P. Echlin1; W.C. Lenthe1; F. Bridier1; M. Soare1; S. Ismonov1; P. Bocher1; T.M. Pollock1; 'University of California Santa Barbara; 'DCNS Research; 'GE Global Research; 'Department of Mechanical Engineering, École de Technologie Supérieure, Montréal, Canada

**11:10 AM**

Understanding the Role of Competing Slip Systems during Formation of Stress Hotspots in Hexagonal Close Packed (HCP) Materials: Ankita Mangal1; Elizabeth Holm1; 'Carnegie Mellon University
Advanced Materials in Dental and Orthopedic Applications — Session I
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Tolou Shokuhfar, University of Illinois at Chicago; Grant Crawford, South Dakota School of Mines and Technology; Terry Lowe, Colorado School of Mines; Luis Rocha, UNESP, Univ. Estadual Paulista, Faculdade de Ciências; Rajendra Kasinath, DePuy Synthes Products, LLC
Monday AM  Room: Pacific 14  February 27, 2017  Location: Marriott Marquis Hotel
Session Chairs: Holly Martin, Youngstown State University; Terry Lowe, Colorado School of Mines; Tolou Shokuhfar, University of Illinois at Chicago

8:30 AM Invited
Examining the Long-Term Exposure Effects of Simulated Body Fluid on the Behavior of Chitosan Bonded to Titanium Using Three Biocompatible Solvents: Holly Martin1; Enuj Arip1; Cameron Carroll1; Vincent Pilotti2; Sajeezana Balar2; 1Department of Chemical Engineering, Youngstown State University; 2Department of Physics and Astronomy, Youngstown State University
9:00 AM  A New Ni-free Beta-Ti Alloy with Large and Stable Room Temperature Super-elasticity: Song Cai1; I Schaffer1; 1Fort Wayne Metals Research Products Corp.
9:20 AM  A Novel Strengthening Strategy Using Stacking Faults for Biomedical Co-Cr-Mo Alloys: Kenya Yamanaka1; Manami Mor1; Shigeo Sat1; Akihiro Chiba1; 1Tokoh University; 2National Institute of Technology, Sendai College; 3Baraki University
9:40 AM  Biomimetic Tooth Repair: Amelogenin-derived Peptides Enable In Vitro and In Vivo Enamel Remineralization: Deniz Yucesoy1; Carolyn Gresswell1; Sanaz Saadat1; Hanson Fong1; Sami Dogan1; Mehrnet Sarikaya1; 1University of Washington
10:00 AM  Break
10:20 AM  Cellular Response of Escherichia Coli to Mg-Zn-3Gd Alloy with Different Grain Structure: Mechanism of Disruption of Colonization: Pramanshu Trived1; K.C. Nune1; R.D.K. Misra1; A.K. Patel1; K. Balani2; R. Jaygathan3; 1University of Texas at El Paso, Texas; 2Indian Institute of Technology
10:40 AM  Characterization of Chitin Synthesized from Snail Shell: Samson Adevou1; Olawashina Gbenebor1; Emmanuel Akpan1; Adebayo Olaleyel1; 1University of Lagos
11:00 AM  Failure Analysis and Fatigue Properties of a New Generation B-based Ti-Nb Alloy and Cp-4 Titanium Osteosynthesis Plates: Andre Reek1; Andreas Kaiser1; Stefan Pilz1; Ulrich Thomann1; Volker Alt1; Annett Geber1; Christian Heib1; Martina Zimmermann1; 1Dresden University of Technology; 2University Hospital Giessen-Marburg GmbH; 3Leibniz Institute for Solid State and Materials Research Dresden
11:20 AM  Functionalization of Dental Titanium Implants for Improved Osteointegration: Genevieve Pournour1; Fabienne Perrin-Schnitt1; Van Quang Le1; Mathilde Giraudel1; Caroline Fischer1; Géraldine Koengig1; Leandro Jacomine1; Lue Beh1; Alain Chalons1; Laurence Fiette1; Alexis Morlet1; Adele Carrado1; 1Université de Strasbourg IPCMS; 2Université de Strasbourg INSERM, UMRS1121; 3Institute Charles Sadron; Institut Mutualiste Montsouris
8:00 AM Keynote

Local Strains and Crack Initiation in Lamellar Gamma-TiAl: Thomas Edwards1; Fabio Di Gioachino1; Rocio Munoz-Moreno2; Mark Dixon2; Nigel Martin3; William Clegg2; 1University of Cambridge; 2Rolls-Royce plc

9:05 AM

In Situ TEM Imaging of Defects in Metallic Samples Deforming at High Strain Rates: Thomas Voisin1; Michael Grapes2; Yong Zhang3; Nicholas Lorenzo4; Jonathan Ligda5; Brian Schuster5; Tian Li6; Melissa Santala6; Geoffrey Campbell7; Timothy Weils8; 1Johns Hopkins University; 2Army Research Laboratory; 3Lawrence Livermore National Laboratory

9:25 AM

Investigating Grain Rotations in Ultrafine-grained Aluminum Films Using In Situ TEM Straining with Automated Crystal Orientation Mapping: Ehsan Izadi1; Amith Darbal2; Rohit Sarkar3; Jagannathan Rajagopalan1; 1Arizona State University; 2AppFive LLC.

9:45 AM Invited

A Greater Understanding of Deformation in BCC Nanocrystalline Metals Using Quantitative In Situ TEM Techniques: Mitra Taheri1; Gregory Verterick1; Asher Lefk1; M Marshall2; Khalid Hattar2; J. Kevin Baldwin2; Amit Misra3; 1Drexel University; 2Sandia National Laboratories; 3Los Alamos National Laboratory; 4University of Michigan

10:10 AM Break

10:30 AM

In Situ TEM Study of Atomic Level Phase Transformation in Cerium-based Oxides during Redox Processes: Ruigang Wang1; 1The University of Alabama

10:50 AM

A New Designed Rig for In Situ Neutron Diffraction Creep Experiments under Different Boundary Conditions: Yiqiang Wang1; Saurabh Kabra2; Shuyan Zhang2; Sayeed Hossain3; David Smith1; 1University of Bristol; 2ISIS, Science and Technology Facilities Council

11:10 AM

Progress in In-situ Testing in the Electron Microscope at Cryogenic Temperatures: Jeffrey Wheeler1; 1ETH Zurich

11:30 AM

Dislocation Drag Coefficient Measurements via In-situ Micropillar Compression Experiments: Tommaso Giovannini1; Finn Giuliani2; Daniel Balint1; Ayan Bhownik1; 1Imperial College London

11:50 AM

Unusual Brittle to Ductile Transition in Single Crystalline Silicon: In Situ Micro-scale Fracture Studies at Elevated Temperatures: Nagamani Jaya Balili1; Jeffrey Wheeler2; Juri Wehr3; James Best3; Johannes Michler4; Christoph Kirchlechner1; Gerhard Dehm2; 1MPIE GmbH; 2ETH Zurich; 3EMPA-Swiss Federal Laboratories for Materials Science and Technology

8:30 AM

Understanding Scrap Recycling and the Potential of Hand-held Elemental Analyzers: Teija Mörvet1; Adam Gesing2; Subodh Das3; Gabrielle Gaustad1; Elsa Olivetti1; 1Rochester Institute of Technology; 2Gesing Consultants; 3Phinix, LLC; 4Massachusetts Institute of Technology

8:50 AM

Characteristics of Municipal Solid Waste Incineration Bottom Ash with Particulate Matters PM2.5 –PM10: Ahn Ji Whan1; Thenepalli Thriveni2; 1Korea Research Institute of Geoscience and Mineral Resources(KIGAM); 2Korea Research Institute of Geoscience and Mineral Resources(KIGAM)

9:10 AM

Development of Open Source Software Tool for Life Cycle Assessment of Rare Earth Elements Production: Ehsan Vahidi1; Praneet Arshi1; Fu Zhao1; 1Purdue University

9:30 AM

Scoping the Potential of Coal Ash as a Source of Rare Earth Elements: Gabrielle Gaustad1; Vasken Xhaxhollari1; Eric Williams1; Saptarshi Das1; 1Rochester Institute of Technology

9:50 AM Break

10:10 AM

Addressing Criticality in Rare Earth Elements through Strategic Recycling: Cajetan Nelebedim1; 1Ames Laboratory, US Department of Energy

10:30 AM

Environmental Implications of Laser Metal Deposition: The Role of Feedstock Powder and Material Utilization Fraction: Kaka Ma1; Julie Schoenung2; 1Colorado State University; 2University of California Irvine

10:50 AM

Development of a Separation Process of NBR/HNBR Rubber from Metal Substrate: Mariana Nascimento1; Sarah Scardelatto2; 1Centro Universitário Fundação Santo André

11:10 AM Poster Session Preview
Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session I

Sponsored by: TMS Functional Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-wen Chen, National Tsing Hua University; Franck Gascoin, Ensicaen University of Caen; Soon-jik Hong, Kongju National University; Philippe Jund, Université de Montpellier; Lan Li, Boise State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University

Monday AM, Room: 21
February 27, 2017
Location: San Diego Convention Ctr

Session Chairs: Sinn-wen Chen, National Tsing Hua University; Philippe Jund, Institut Charles Gerhardt Montpellier - UMR 5253 CNRS-UM-ENSCM

8:30 AM Introductory Comments
8:35 AM Invited
Novel Approaches on the Design of Thermoelectric Materials for Power Generation: Present and Future Prospects: Dinesh Misra1; 'CSIR-NPL
8:55 AM Invited
The ALMA Project: Extending First-principles Thermal Conductivity Calculations beyond Single Crystals: Jesús Carrete Montaña1; 'Technological University of Vienna
9:15 AM Invited
Combinatorial Approach in Thermoelectric Materials Research: Winnie Wong-Ng1; Yonggao Yan1; Joshua Martin1; Makoto Otani1; Sara Barron1; Nam Nguyen1; Evan Thomas1; Kevin Talley1; Martin Green1; 'NIST; 'Wuhan University of Technology; 'AFRL
9:35 AM
Data Science Approaches for Predicting Thermoelectric Properties: Al’ona Furmanchuk1; Ankita Agrawal1; Alok Choudhary1; 'Northwestern University
9:55 AM Invited
High-Throughput Computational Screening for Two-Dimensional Thermoelectric Materials: Lan Li1; Izaak Williamson1; 'Boise State University
10:15 AM Break
10:35 AM Invited
Thermoelectricity in Full-Heusler Systems: From Ab-initio Calculations Towards Promising Materials Design: Ernst Bauer1; Igor Knapp1; Sergei Khmelevskiy1; Peter Prengner1; 'Vienna University of Technology; 'AVL List
10:55 AM Invited
Band Engineering and Phonon Interactions in Thermoelectric Materials from First-Principles Calculations: Yue Chen1; 'The University of Hong Kong
11:15 AM Invited
Ab Initio Calculations of the Lattice Thermal Conductivity and the Discovery of New Thermoelectric Materials: Vladan Stevanovic1; 'Colorado School of Mines
11:35 AM
Integrating High-throughput Computations and Experimental Knowledge to Advance Design and Discovery of Novel Thermoelectric Materials: Michael Free1; 'University of Utah; 'Rio Tinto Kennecott Utah Copper
11:55 AM
Thermoelectric Properties of Synthesized Sulfides —Adjusted on First Principle Calculation for Screening: Tomohiro Sato1; Shuhei Ishikawa1; Toshiki Akamune1; Ken-ichi Saitoh1; Masanori Takuma1; Yoshimasa Takahashi1; 'Kansai University

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee
Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Lingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Monday AM, Room: 15B
February 27, 2017
Location: San Diego Convention Ctr

Session Chair: Hong Yong Sohn, University of Utah

9:20 AM
Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies—Contributions of Professor Ramana Reddy: Shijie Wang1; 'National Institute of Technology
9:50 AM
Towards the Innovation Economy: An Industry Perspective on Radical Innovation: Tom Hennebel1; Isabel Vermeulen1; Karolien Vasseur1; Lennart Schemeunis1; Christina Meskers1; Marleen Esprit1; Maurits Van Camp1; 'Umicore
10:20 AM Break
10:35 AM
Status of the Development of Flash Ironmaking Technology: H.Y. Sohn1; Yousef Mohassab1; Mohamed Elzohiery1; De Qiu Fan1; Amr Abdelghany1; 'University of Utah
11:05 AM
Innovations and Insights in Fluid Flow and Slime Adhesion for Improved Copper Electrowinning: Weizhi Zeng1; Michael Free1; Shijie Wang1; 'University of Utah; 'Rio Tinto Kennecott Utah Copper
11:35 AM
Molten Flux Design for Solid Oxide Membrane-Based Electrolysis of Aluminum from Alumina: Shizhao Su1; Thomas Villalon1; Uday Pal1; 'Boston University
12:05 PM
Effect of Slag Phase on Mixing and Mass Transfer in a Model Creusot Loire Uddeholm (CLU) Converter: Rauf Eric1; Admire Chaendera1; 'University of the Witwatersrand

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Applications of Solidification Fundamentals — Characterization of Solidification Structures I  
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee  
Program Organizers: Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing  
Monday AM  
February 27, 2017  
Room: 19  
Location: San Diego Convention Ctr  
Session Chairs: Amber Genau, University of Alabama at Birmingham; Melis Serefgolu, Koc University  

8:30 AM Invited  
In-situ Imaging of Metallic Alloy Solidification Dynamics for Advanced Manufacturing: Amy Clarke1; Seth Inhoff2; Damien Tourret3; John Gibbs4; James Mertens5; Younggil Song6; Kamel Fezzaa7; James Hunter8; Michelle Espy9; Frank Merrill10; Fessha Mariam11; Carl Wilde12; Brian Patterson13; Ricardo Lebenssohn14; Joseph McKewon15; John Roehling16; Theron Rodgers17; Jonathan Madison18; Paul Gibbs19; Kevin Baldwin20; Alain Karma21; Colorado School of Mines; Los Alamos National Laboratory; Northeastern University; Argonne National Laboratory; Lawrence Livermore National Laboratory; Sandia National Laboratories  

8:50 AM  
4D Synchrotron X-ray Tomography of Dendritic Microstructure Evolution in a Co Based Alloy during Solidification: Mohammed Azem2; Peter Rockett3; Andre Phillion4; Shyamprasad Karagadde5; Robert Artwood6; Loic Courtosis7; Peter Lee8; Manchester University; Oxford University; McMaster University; Diamond Light Source  

9:10 AM  
Quantifying Dendritic Evolution in Mg Alloys Using In Situ Synchrotron Tomography: Enyu Guo1; Andre Phillion2; Danil Kazantsev3; Sansan Shuai4; Tao Jing1; Peter Lee5; Manchester University; McMaster University; Tsinghua University  

9:30 AM  
Using Synchrotron X-ray Radiography to Measure the Statistics of Intermetallic Compound (IMC) Selection and Growth during Solidification: Shikang Feng1; Enzo Liotti2; Andrew Lui3; Sundaram Kumar4; Keyna O’Reilly5; Patrick Grant6; University of Oxford  

9:50 AM  
Analytics on Large Microstructure Datasets Using Two Point Statistics: Application to Coarsening Dendritic Solid-Liquid Mixtures: Yue San1; Ahmet Cecn2; Surya Kailidindi3; Peter Voorhees4; Northwestern University; Georgia Institute of Technology  

10:10 AM Break  

10:30 AM  
Four Dimensional Real-time Studies of Metal Solidification under External Fields: Wenjia Du1; Chuangnan Wang2; Billy Koe3; Jiawei Mi4; University of Hull  

10:50 AM  
Scandium Effect on Undercooling and Dendrite Morphology of Al–4.5 wt.%Cu Droplets: Jonas Vallotton1; Abdoul-Aziz Bogno2; Daniel Auras3; Marie Bede4; Guillaume Reinhart5; Hani Henein6; University of Alberta; ENSAM; Aix Marseille Univ, CNRS, IM2NP  

11:10 AM  
Fluid Flow and Its Influence on Crystal Growth Kinetics in Undercooled Melts: Dieter Herlach1; Sven Reutzel2; Sven Binder2; Hailong Peng3; Thomas Voigtmann1; Deutsches Zentrum für Luft- und Raumfahrt  

11:30 AM  
In-situ Observation of Multiple Equiaxed Dendrite Interaction under Reduced Gravity Conditions: Laszlo Stue2; Janin Eiken1; Gerhard Zimmermann1; Access e.V.  

Bio-Nano Interfaces and Engineering Applications — Bio-Nano Interfaces: Fundamentals I  
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee  
Program Organizers: Candan Tamerler, University of Kansas; John Nychka, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines  
Monday AM  
February 27, 2017  
Room: Pacific 21  
Location: Marriott Marquis Hotel  
Session Chairs: Candan Tamerler, University of Kansas; Terry Lowe, Colorado School of Mines  

8:30 AM Keynote  
Principles of Molecular Biomimetics versus Materials Science and Engineering: Mehmet Sarikaya1; University of Washington  

9:10 AM Invited  
Materials Construction through Peptide Design and Solution Assembly: Darrin Pochan1; University of Delaware  

9:40 AM Invited  
Interfaces Drive the Mechanics of Hard Biological Materials: Discrete Element Models and Bioinspired Prototypes: Francois Barthelat1; McGill University  

10:10 AM Break  

10:30 AM Keynote  
Engineering Solid Binding Proteins to Control Functional Nanostructure Assembly, Solid Interactions and Inorganic Mineralization: Francois Banex1; University of Washington  

11:10 AM  
Quasiparticle Approach to Self-assembly Kinetics of DNA and RNA Molecules: Helena Zapolsky1; Mykola Lavrskyi2; Armen Khachaturyan3; University of Normandy, Rouen; University of California and Rutgers University  

11:30 AM Keynote  
Multidimensional Atomic Force Microscopy for Physical and Biological Interfaces: Seeing the Invisible and Feeling the Insensible?: Ratnesh Lal1; University California, San Diego  

Biological Materials Science — Synthesis of Bio-inspired Composites  
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee  
Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah  
Monday AM  
February 27, 2017  
Room: Pacific 15  
Location: Marriott Marquis Hotel  
Session Chairs: Po-Yu Chen, National Tsing Hua University; Steven Naleway, University of Utah  

8:30 AM Invited  
3D Printing of Hierarchical Porous Materials: Andre Studart1; Clara Minas1; Davide Carnelli2; Elena Tervoort3; ETH Zurich  

9:00 AM  
Bio-inspired Flexible Armors with 3D Printed Tailored Architectures: Roberto Martini1; Yanis Balit1; David VanZyl2; Francois Barthelat1; McGill University  

9:20 AM  
Intrinsic and Extrinsic Control of Bioinspired Freeze Casting: Steven Naleway1; Marc Meyers2; Joanna McKittrick2; University of Utah; University of California, San Diego
9:40 AM
Fabrication and Characterization of Bioinspired Alumina with a Bulk Metallic Glass Matrix: Amy Wat; Jein Lee; Bernd Gludovatz; Eun Soo Park; Robert Ritchie; 'University of California, Berkeley; 'Seoul National University; 'Lawrence Berkeley National Laboratory

10:00 AM Break

10:20 AM Keynote
Bioinspired Structural Materials - “Nacre-Like” Compliant-Phase Ceramics: Where Are We Now?: Robert Ritchie; Antoni Tomsià; 'Lawrence Berkeley National Laboratory/University of California, Berkeley; 'Lawrence Berkeley National Laboratory

11:00 AM
Porcupine Fish Inspired Radial and Concentric Freeze: Frances Su; Joyce Mok; Joanna Mckittrick; 'University of California, San Diego

11:20 AM
Fabrication, Characterization and Modeling of Freeze-casted Ceramic Platelet Composites: Majid Minyard; 'University of Texas at Dallas

11:40 AM
Synergistic Porous Structures from Magnetic Freeze Casting with Surface Magnetized Alumina Particles and Platelets: Michael Frank; Sze Hei Siu; Steven Naleway; Chin-Hung Liu; Keyur Karandikar; Olivia Greave; Joanna Mckittrick; 'UC San Diego

Bulk Metallic Glasses XIV — Alloy Development and Application I
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Pittsburgh; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Monday AM
Location: 33A

Session Chairs: Peter Liaw, The University of Tennessee; William Johnson, California Institute of Technology

8:30 AM Keynote
Buckle Modes: A Simple Model for the Thermodynamics of Configurational Excitations in Metallic Glass Forming Liquids: William Johnson; 'California Institute of Technology

9:00 AM Invited
A Strategy Towards Decreasing the Cost of Humanoid Robotics Utilizing Bulk Metallic Glasses (Part 1): Douglas Hofmann; Scott Roberts; Peter Dillon; 'NASA JPL-Caltech

9:20 AM Invited
The Development, Manufacturing and Testing of New Robotics Gearbox Enabled by Bulk Metallic Glass (Part 2): Douglas Hofmann; Scott Roberts; Peter Dillon; 'NASA JPL-Caltech

9:40 AM Invited
Manufacturing of Metallic Glasses by Rapid Discharge Forming: Marios Demetriou; William Johnson; 'Glassimetal Technology; 'California Institute of Technology

10:00 AM Invited
Interface-Mediated Monatomic Metallic Glasses Formation Through Ultrafast Liquid Quenching: Li Zhong; Jiangwei Wang; Hongwei Sheng; Ze Zhang; Scott Mao; 'University of Pittsburgh; 'George Mason University; 'Zhejiang University

10:20 AM Break

10:40 AM Invited
Fabrication and Characterization of Roll Bonded, Laminated Bulk Metallic Glass/Metal Composites: Sina Shahrzadeh; Stephanie O’Keeffe; Irene Beyerlein; 'Suven Mathaudhu; 'University of California Riverside; 'Liquidmetal Technologies, Inc.; 'University of California, Santa Barbara

11:00 AM Invited
Improving the Fracture Toughness of Bulk Metallic Glasses by Thermomechanical Treatments: Jamie Krause; Bosong Li; Shenghui Xie; Hamed Shakur Shahabi; Sergio Scudino; Jürgen Eckert; 'UNSW Australia; 'Shenzhen University; 'IFW Dresden; 'Montanuniversität Leoben

11:20 AM Invited
Formation and Properties of Biodegradable Mg-Zn-Ca-Sr Bulk Metallic Glasses for Biomedical Applications: Shujie Pang; Haifei Li; Ying Liu; Peter K. Liaw; Tao Zhang; 'Beihang University; 'University of Tennessee

11:40 AM Invited
Critical Cooling Rate versus Critical Heating Rate in BMG-forming Alloys: C.W. Ryu; E.S. Park; G.W. Lee; K.F. Kelton; 'Seoul National University; 'Korea Research Institute of Standards and Science; 'Washington University

Ceramic Materials for Nuclear Energy Research and Applications — Microstructural Evolution under Irradiation in Oxide Ceramics
Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Monday AM
Room: Palomar
February 27, 2017
Location: Marriott Marquis Hotel

Session Chairs: Yongfeng Zhang, Idaho National Laboratory; Thierry Wiss, EC - JRC - Institute for Transuranium Elements

8:30 AM Invited
Ceramic Materials for Nuclear Energy Research and Applications: Kurt Sickafus; 'University of Tennessee

9:00 AM
Alpha-damage Formation in Mixed Americium-uranium Compounds: Thierry Wiss; Oliver Dieste; Rudy Konings; Ondrej Benes; Jean-Yves Colle; Joaquina Zappey; Florent Lebreton; Thibaud Delahaye; Enrica Epifano; Philippe Martin; Christine Guéneau; Damien Prieur; Joe Somers; 'European Commission; 'CEA

9:20 AM
Microstructural Characterization of the Processes, Stability, and End-of-Range Effects in Heavily Irradiated Pyrochlores: Terry Holesinger; James Valdez; Cortney Kreller; Yongqiang Wang; Blas Uberuaga; 'Los Alamos National Laboratory

9:40 AM
Probing Oxygen Defects in Ion Irradiated Actinide and Analogue Oxides Using Neutron Total Scattering: Raul Palomares; Jacob Shamblin; Cameron Tracy; Christina Trautmann; Maik Lang; 'The University of Tennessee; 'Stanford University; 'GSI Helmholtzzentrum für Schwerionenforschung

10:00 AM Break

10:20 AM Invited
High Burn-up Nuclear Fuel, Impact of Fission Gases: Jean Noirot; Philippe Bienvenu; Isabelle Zacharie-Aubrun; Karine Hanifi; Laurent Fayette; Aurelien Moy; Yves Pontillon; 'CEA

10:50 AM Invited
Irradiation Effects on Electrochemical Performance of TiO2 Anode: Janelle Wharry; Kassiopeia Smith; Hui Xiong; Darryl Butt; 'Purdue University; 'Boise State University; 'University of Utah
Characterization of Materials through High Resolution Coherent Imaging — Coherent Imaging I

**Sponsored by:** TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee

**Program Organizers:** Ross Harder, Argonne National Lab; Xianghui Lanzhou University; Walter Luscher; 1; John Carpenter, Los Alamos National Laboratory; Jian Li, GannetMATERIALS; Jian-Yang Hwang, Michigan Technological University; Sergio Monteiro, Measurement Systems Institute of Engineering; Firrao Donato, Technological University, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Ozturk, IST, University of Technology

**Location:** San Diego Convention Ctr

**Monday AM**

**Session Chair:** Brian Abbey, ARC Centre of Excellence for Advanced Molecular Imaging

**Room:** 25B

**February 27, 2017**

**Location:** San Diego Convention Ctr

**Monday AM**

8:30 AM

High Resolution Coherent Imaging for Materials: Anthony Rollett; 1; Carnegie Mellon University

9:10 AM

Applications of High Resolution Coherent X-Ray Imaging Techniques for Investigating Additively Manufactured Materials: Ross Cunningham; 1; Anthony Rollett; 1; Carnegie Mellon University

9:30 AM

3D Imaging of High-pressure Induced Deformation Twinning in a Nanocrystal: Xiaojing Huang; 1; Wenge Yang; 1; Ross Harder; 1; Yugang Sun; 1; Ming Lu; 3; Yong Chu; 1; Ian Robinson; 1; Ho-kwang Mao; 1; Brookhaven National Laboratory; 1; HPSTAR; 1; Advanced Photon Source; 1; Center for Nanoscale Materials; 1; University College London

9:50 AM

Nanoscale Chemical Imaging of an Individual Catalyst Particle with Soft X-ray Ptychography: Johanna Weker; 1; Anna Wise; 1; Sam Kalirai; 1; Maryam Farmand; 1; David Shapiro; 1; Florian Meier; 1; Bert Weckhuysen; 1; SLAC National Accelerator Laboratory; 1; Utrecht University; 1; Lawrence Berkeley National Laboratory

10:10 AM Break

10:30 AM

3D X-ray Imaging of Defect Dynamics in Nanostructured Materials: Andrew Ulvestad; 1; Argonne National Laboratory

11:00 AM

Characterizing Evolving Processes through Coupled CDI and Molecular Dynamics Studies: Mathew Cherukara; 1; Kiran Sasikumar; 1; Subramanian Sankaranarayanan; 1; Ross Harder; 1; Argonne National Lab

11:30 AM

Coherent Diffractive Imaging with Wavelength Spatial Resolution using 13.5nm High Harmonics: Full Field, High-contrast Imaging on a Tabletop: Dennis Gardner; 1; Michael Tanksalvala; 1; Elisabeth Shanblatt; 1; Xiaoshi Zhang; 1; Benjamin Galloway; 1; Christina Porter; 1; Robert Karl; 1; Charles Bevis; 1; Margaret Murnane; 1; Henry Kaptyn; 1; Daniel Adams; 1; Giulia Mancini; 1; University of Colorado; 1; KM Labs

11:50 AM

Revolutions in Coherent X-ray Sources: Where Will Enable Dynamic Nanometer Scale Imaging in Structural Materials: Richard Sandberg; 1; Saryu Fensin; 1; Ross Harder; 1; John Barber; 1; Richard Sheffield; 1; Rejju Pokharel; 1; Ricardo Lebenson; 1; Cris Barnes; 1; Los Alamos National Laboratory; 1; Argonne National Laboratory

**Characterization of Minerals, Metals, and Materials — Clays and Ceramics**

**Sponsored by:** TMS Extraction and Processing Division, TMS: Materials Characterization Committee

**Program Organizers:** Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, GannetMATERIALS; Jian-Yang Hwang, Michigan Technological University; Sergio Monteiro, Measurement Systems Institute of Engineering; Firrao Donato, Technological University, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Ozturk, IST, University of Technology

**Location:** San Diego Convention Ctr

**Monday AM**

**Session Chairs:** Bowen Li, Michigan Technological University; Carlos Fontes Vieira, UENF

**Room:** 32B

**February 27, 2017**

**Location:** San Diego Convention Ctr

**Monday AM**

8:30 AM

Effect of Skin-Core Hierarchical Structure on Dielectric Constant of Injection Molded and Cast Film Extruded Liquid Crystalline Polymer: Mark Shotter; 1; Anil Saigal; 1; Michael Zimmerman; 1; Tufts University

8:50 AM

Aging Behaviour in Ni$_x$Co$_{1-x}$Mo$_2$O$_7$ (x=0.5, 0.8 and 1.1) Thermistors: Gökhan Hardal; 1; Berat Yüksel Price; 1; Istanbul University

9:10 AM

Adsorption of Lead from Aqueous Solutions to Bentonite and Composite: Zhu Shu Jing; 1; Ying Qin; 1; Michigan Technological University; 1; Wuhan University of Technology

9:30 AM

Fabrication of Transparent Lanthana-doped Yttria Ceramics by Spark Plasma Sintering: Esin Korkmaz; 1; Istanbul Technical University

9:50 AM

Microstructure and Mechanical Properties of Silicon Doped Boron Carbide: Luoning Ma; 1; Fatih Toksoy; 1; Kelvin Xie; 1; Kanak Kowelkar; 1; Richard Haber; 1; Kevin Hemker; 1; Johns Hopkins University; 1; Rutgers University

10:10 AM Break

10:25 AM

Synthesis and Characterization of Textured BCZT Ceramics Prepared by Molten Salt Synthesis Method: Jai Shree K; 1; Chandrakala E; 1; Dibakar Das; 1; University of Hyderabad

10:45 AM

Mechanical Analysis of Artificial Stone Produced with Glass Waste in Polymer Matrix: Lucas Martins; 1; Carlos Mauricio Vieira; 1; Elaine Carvalho; 1; Sergio Monteiro; 1; UENF; 1; ME

11:05 AM

Phase Transformation of Andalusite-Mullite and Its Roles to Microstructure and Sinterability of Refractory Ceramic: Bowen Li; 1; Mengsheng He; 1; Huaguang Wang; 1; Michigan Technological University

11:25 AM

Structural Characterization of LaxSr$_1$-xCoO$_3$ (LSC 113) / (LaxSr$_1$-x)CoO$_4$ (LSC 214) Hetero-Interface Cathode for Intermediate Temperature Solid Oxide Fuel Cells: Dogancan Sarı; 1; Eren Kalay; 1; Tayfur Ozturk; 1; METU

11:45 AM

Production and Characterization of Magnesium Aluminate Spinel (MgAl$_2$O$_4$) Ceramics with Light Transmission by Spark Plasma Sintering: Seyran Saridas; 1; Filiz Sahin; 1; Istanbul Technical University
Monday AM  Room: 31B  Location: San Diego Convention Ctr

Session Chairs: Sérgio Monteiro,IME; Andrew Brown,UNSW Canberra

8:30 AM
Analysis of the Elastic Properties and Reaction Kinetics of an Epoxy Resin Polymer during Cure Relaxation: Manon Heili1; Andrew Bielawski2; John Kieffer2; 1University of Michigan; 2University of Michigan

8:50 AM
Charpy Toughness Behavior of Fique Fabric Reinforced Polyester Matrix Composites: Artur Camposo Pereira1; Foluke Salgado de Assis1; Sergio Neves Monteiro2; Henry Colorado2; 1Instituto Militar de Engenharia; 2University of Antioquia

9:10 AM
Comparative Analysis of Curaua Fiber Density Using the Geometric Characterization and Pycnometry Technique: Natália Maciel1; Carolina Ribeiro1; Janaina Vieira1; Jordana Ferreira1; Frederico Margem2; Carlos Mauricio Vieira2; Sérgio Monteiro2; Cláudio Roberto Marciano2; 1IME; 2IME

9:30 AM
Izod Impact Tests in Polyester Matrix Composites Reinforced with Blanket of the Malva and Jute Fibers: Carolina Ribeiro1; Frederico Margem2; Jean Margem2; Sérgio Monteiro1; Ygor de Moraes1; João Batista Gomes1; 1State University of the Northern Rio de Janeiro; 2Faculdade Redentor; 1ISECENS; 2Instituto Militar de Engenharia

9:50 AM
Tensile Behavior of Epoxy Matrix Composites Reinforced with Eucalyptus Fibers: Carolina Gomes de Oliveira1; Anna Carolina Cerqueira Neves1; Gilson Vieira Fernandes1; Marcos Vinicius Fonseca Ferreira1; Frederico Margem2; Sérgio Neves Monteiro1; 1IME; 2IME

10:10 AM Break

10:25 AM
Izod Toughness Behavior of Continuous PALF Fibers Reinforced Polyester Matrix Composites: Gabriel Glória1; Guilio Alto2; Maycon Gomes1; Maria Carolina Teles1; Frederico Muylaert2; Carlos Mauricio Vieira1; Sérgio Monteiro1; 1State University of the Northern Rio de Janeiro; 2Instituto Federal Fluminense; 1IME; 2IME

10:45 AM
Mechanical, Thermal, Morphology and Barrier Properties of Flexible Film Based on Polyethylene-ethylene Vinyl Alcohol Blend Reinforced with Graphene Oxide: Juliana Santana1; Angel Ortila2; Rene Oliveira3; Vijaya Rangan4; Olgun Gürven5; Esperidiana Moura5; 1Instituto de Pesquisas Energéticas e Nucleares; 2Tuskegee University; 3Hacettepe University, Department of Chemistry, Polymer Chemistry Division

11:05 AM
Izod Impact Tests in Epoxy Matrix Reinforced with Fique Fibers: Maria Carolina Teles1; Sérgio Monteiro2; Djalma Souza2; Frederico Margem2; 1State University of the Northern Rio de Janeiro; 2Instituto Militar de Engenharia; 3Faculdade Redentor

11:25 AM
Radiation Effects on Crosslinking of Butyl Rubber Compounds: Sandra Scaglioni1; Elizabeth Cardoso2; Ademar Lagio1; 1IPEN

11:45 AM
Viscoelastic Properties of Human Dental Pulp Tissue: Burak Ozcan1; Ece Bayrak2; Cevat Erisken2; 1TOBB University of Economics and Technology

12:05 PM
The Dimensional Characterization of Jute Fabric Strips for Reinforcement in Composite Polymeric Materials: Frederico Margem1; Sergio Monteiro2; Vinicius de Oliveira Barbosa1; Glênio Fernando Daniel1; André Raeh Gomes1; Victor Barbosa de Souza1; 1IME; 2IME; 3Redentor

Computational Materials Discovery and Optimization — From Bulk to Materials Interfaces and 2D Materials — Materials Informatics Approaches

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Computational Materials Science and Engineering Committee

Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Monday AM  Room: 11A  Location: San Diego Convention Ctr

Session Chair: To Be Announced

8:30 AM Invited
Invariant Representations for Robust Materials Prediction: Gus Hart1; Conrad Rosenbrock2; Gábor Csányi3; 1Brigham Young University; 2Cambridge University

8:50 AM
A Tetrahedron Tiling Method for Crystal Structure Prediction: Qijun Hong1; Axel van de Walle4; 2Brown University

9:20 AM
An Unsupervised Pattern Recognition Approach for Local Structural Analysis of Condensed Matter: Arash Dehghani Banadaki1; Srikanth Patala1; 1North Carolina State University

9:40 AM
A Tree Search Approach to Designing Kinematically Active Molecular Materials: Charles Marion1; Ryan Arlitt2; Laura de Sousa Oliveira3; Matthew Campbell1; 1University of California, Riverside

10:00 AM Break

10:15 AM Invited
Benchmarking and Validation of Density Functional Theory for Solids: Francesca Tavazza1; 1National Institute of Standards and Technology

10:45 AM
Design of Experiments Approach to Optimizing Complex Bond Order and Reactive Potentials: Efraín Hernandez-Rivera1; Souma Chowdhury2; Mark Tschopp3; Shawn Coleman4; 1U.S. Army Research Lab; 2University of Buffalo

11:05 AM
The OpenKIM Testing Framework for Interatomic Potentials: Eldad Tadmor1; Ryan Elliott2; Daniel Karl3; Matthew Bierbaum2; James Sethna2; 1University of Minnesota; 2Cornell University
11:25 AM
On the Fly Materials Design Using Efficient Global Optimization Techniques: Anjana Talapatra  1; Thien Duong  1; Raymundo Arroyave  1; 1Texas A&M University

11:45 AM
Guided Discovery in Multi-phase, Multi-component Thermodynamic Spaces as Solution to a Constraint Satisfaction Problem: Raymundo Arroyave  1; Sean Gibbons  1; Edgar Galvan  1; Richard Malak  1; 1Texas A & M University

Computational Thermodynamics and Kinetics — Microstructure Evolution I
Sponsored by: TMS: Chemistry and Physics of Materials Committee, TMS: Computational Materials Science and Engineering Committee
Program Organizers: Niaz Abdolrahim, University of Rochester; Stephen Folles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

Monday AM
February 27, 2017
Room: 11B
Location: San Diego Convention Ctr

Session Chairs: David Montiel, University of Michigan; William Andrews, University of Michigan

8:30 AM Invited
Predicting the Evolution of He Precipitate Networks in Metals Using Phase-field Models: Dina Yuryev  1; Michael Demkowicz  1; 1Massachusetts Institute of Technology; Texas A&M University

9:00 AM
3-D Phase-field Modeling of Electromigration-induced Damage in Polycrystalline Thin Films: Grain-boundary Silt Propagation and Hillock Formation: Arnab Mukherjee  1; Kamar Ankit  1; Britta Nestler  1; 1Karlsruhe University of Applied Sciences; 1Karlsruhe Institute of Technology

9:20 AM
Capillary-Mediated Interfacial Perturbation Fields: Their Exposure via Phase Field Equilibration: Martin Glicksman  1; Kamar Ankit  1; 1Florida Institute of Technology; 1Karlsruhe Institute of Technology (KIT), Campus South

9:40 AM
Comparison of the Phase-field Models to Predict the Recrystallization Kinetics: Julia Kandin  1; 1University Bayreuth

10:00 AM Break

10:20 AM Invited
Grain Boundary Segregation in Binary Alloys: A Diffuse Interface Model: Fadi Abdeljawad  1; Stephen Folles  1; Brad Boyce  1; Khalid Hattar  1; Blythe Clark  1; 1Sandia National Laboratories

10:50 AM
Strong Interfacial Energy Anisotropy in the PRISMS-PF Phase Field Model Code: William Andrews  1; Stephen DeWitt  1; Shiva Rudraju  1; Larry Aagesen  1; Katsuyo Thornton  1; 1University of Michigan; 1Idaho National Lab

11:10 AM
First-principles/Phase-field Modeling of Equilibrium 0<sup>°</sup> Precipitation in Al-Cu Alloys: Kyongdok Kim  1; M. P. Gururajan  1; C. Wolverton  1; P. W. Voorhees  1; 1Northwestern University; 1Indian Institute of Technology Bombay

11:30 AM
Conversion of an Internal Freedom to Configurational Freedom by Cluster Variation Method: Tetsuo Mohri  1; 1Tohoku University

11:50 AM
Nonlinear Elastic Effects in Phase Field Crystal and Amplitude Equations: Comparison to Ab Initio Simulations of bee Metals and Graphene: Claus Hüter  1; Martin Friak  1; Marc Weikamp  1; Jörg Neugebauer  1; Nigel Goldenfeld  1; Bob Svendsen  1; Robert Spatschek  1; 1Forschungszentrum Jülich; 1Institute of Physics of Materials, Academy of Sciences of the Czech Republic; 1MPIE; 1University of Illinois at Urbana-Champaign; 1RWTH Aachen University

Defects and Properties of Cast Metals — Defects I - Molten Metal and Inclusions
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee
Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Monday AM
Room: 23A
Location: San Diego Convention Ctr

Session Chairs: Mark Jolly, Cranfield University; Matthew Krane, Purdue University

8:35 AM Invited
Uncertainty Quantification in Modeling an Industrial High Pressure Die Casting Process: Jiahong Fu  1; John Coleman  1; Amy Marconnet  1; Matthew Krane  1; 1School of Mechanical Engineering, Purdue University; 1School of Materials Engineering, Purdue Center for Metal Casting Research, Purdue University

8:55 AM Invited
Casting Defects Prediction and Control in GE’s Brilliant Factory: Lang Yuan  1; Ade Makinde  1; Huijuan Dai  1; Aymeric Moinet  1; Matteo Belluccci  1; 1GE Global Research

9:15 AM
Effect of Solidification Conditions on the Formation of Sludge in High Pressure Die Casting of Aluminum Alloy AA383: Tuo Liu  1; Laurentiu Nastac  1; Luke Brewer  1; Vishweshwar Arvika  1; Ilya Levin  1; 1The University of Alabama; 1Nemark Alabama

9:35 AM
Wetting Characteristics of CMSX-4 on Various Ceramic Substrates for Use in Investment Casting of Turbine Blades: Logan Krone  1; Matthew Krane  1; Kevin Trumble  1; 1Purdue University

9:55 AM Break

10:15 AM Invited
Modeling of Air Entrainment and Inclusions in Steel Casting: Seyyed Hojjat Majidi  1; Christoph Beckermann  1; 1University of Iowa

10:35 AM
Modeling of Mechanical Properties of Al Oxide Films Using Molecular Dynamics: Jialin Liu  1; Qiguai Wang  1; Yue Qi  1; 1Michigan State University; 1General Motors Company

10:55 AM
Porosity Change of A356 by Excess Sr Addition: Baturalp Atakav  1; Ozen Gursoy  1; Eray Erzi  1; Derya Dispinar  1; 1Istanbul University

11:15 AM
Rejection Rate-melt Quality Relationship in High Pressure Die Casting of Al-Si Alloys: Halil Kalkan  1; Omer Vardar  1; Eray Erzi  1; Derya Dispinar  1; 1Istanbul University

11:35 AM
Quantification of A356 Melt Quality Change after Several Recycling: Abdullah Sasmaz  1; Ozen Gursoy  1; Eray Erzi  1; Derya Dispinar  1; 1Istanbul University

11:55 AM
Modification Efficiency of Sr in A360 and A413 and Its Relation with Melt Quality: Inal Kuan Dogyun  1; Ozen Gursoy  1; Eray Erzi  1; Derya Dispinar  1; 1Istanbul University
Deformation and Transitions at Interfaces — Grain Boundary Structure

Sponsored by: TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Computational Materials Science and Engineering Committee, TMS: Mechanical Behavior of Materials Committee, TMS: Thin Films and Interfaces Committee

Program Organizers: Saryu Fensin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaliya Barabash, Oak Ridge National Lab; Shen Dillon, University of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Monday AM Room: 23B Location: San Diego Convention Ctr

Session Chair: To Be Announced

8:30 AM Invited
Influence of Grain Boundary Structure and Character on the Deformation Mechanisms of Grain Boundaries: Diana Farkas; Bryan Kuhri; Ian Robertson; Gary Was; Virginia Tech; University of Wisconsin; University of Michigan

8:50 AM Invited
Quantifying Structure-Property Relationships of Grain Boundaries and Interfaces at the Atomic Scale for Design of Polycrystalline Materials: Mark Tschopp; Army Research Laboratory

9:10 AM
A Mesoscale Model of Grain Boundary Faceting: The Role of Facet Junctions: Fadi Abdeljawad; Douglas Medlin; Jonathan Zimmerman; Khalid Hattar; Stephen Foiles; Sandia National Laboratories

9:30 AM Invited
Alloy Stabilization of Nanocrystalline Grain Structures: Case Study of Pt-Au: Stephen Foiles; Christopher O’Brien; Ping Lu; Michael Chardross; Nicholas Argibay; Brad Boyce; Sandia National Laboratories

9:50 AM Invited
Kinetic Monte Carlo Simulations of Grain Boundary Kinetic Events: Kathleen Alexander; Christopher Schuh; Massachusetts Institute of Technology

10:10 AM Break

10:30 AM Invited
The Role of Collective Atomic Motion on Interface Migration and Deformation: Hao Zhang; University of Alberta

10:50 AM Invited
Grain Boundaries, Disorder, and Mass Transport in Complex Oxides: Blass Uberwaga; Romain Perriot; Los Alamos National Laboratory

11:10 AM
Non-Arrhenius Grain Growth, Interfacial Complexion Transitions and the Grain Boundary Character Evolution in SrTiO₃: Madeleine Kelly; Gregory Rohrer; Wolfgang Rheinheimer; Michael Hoffmann; Carnegie Mellon University; KIT

11:30 AM Invited
The Impact of Irradiation Dose Rate and Temperature on Grain Structure Evolution in Nuclear Fuel: Michael Tonski; Pennsylvania State University

11:50 AM Invited
The Effect of Interface Elastic Fields on Interface Sink Strengths: Aurelien Vatre; Thomas Jourdan; Hepeng Ding; Cosmin Marinica; Michael Denkovics; CEA; Texas A&M University

12:10 PM Invited
Virtual Diffraction of Grain Boundaries: Characterize, Optimize, and Drive Motion: Shawn Coleman; U.S. Army Research Laboratory

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Cu- and Ag-related Bonding Materials

Sponsored by: TMS Functional Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee

Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yun Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nagita, The University of Queensland

Monday AM Room: 30E Location: San Diego Convention Ctr

Session Chairs: C. Robert Kao, National Taiwan University; Kwang-Lung Lin, National Cheng Kung University

8:30 AM Invited
Low-Temperature Cu-to-Cu Direct Bonding Enabled by Highly (111)-oriented and Nanotwinned Cu: Chih Chen; Chien-Min Liu; Tien-Lin Lu; Han-wen Lin; Yi Cheng Chu; Chia-Ling Lu; Jing Ye Jiang; Kuan-Neng Chen; King-Ning Tu; National Chiao Tung University; University of California at Los Angeles

8:50 AM
The Materials Science of Solder Joints in Cu Pillar/Interposer Geometries: Francis Mutuku; Mohammed Genanui; Babak Arfaei; Eric Cotta; Eric Percepto; Universal Instruments; Binghamton University; Ford Motor Co; Global Foundries

9:10 AM
Mechanisms of Copper Pumping and Its Impact on the Reliability of 3D Electronic Devices: Hanry Yang; Tae-Kyu Lee; Indranath Dutta; Washington State University; Portland State University

9:30 AM
Influence of Annealing Conditions on the Microstructure of Cu-filled Through-silicon Vias: Zhao Xuewei; Limin Ma; Fu Guo; Beijing University of Technology

9:50 AM Break

10:10 AM
The Effect of Interlayer on Abnormal Grain Growth of Nanotwinned Copper Thin Film during Annealing Process: Le-H Ping Chang; Hsin-Yuan Chen; Fan-Yi Ouyang; National Tsing Hua University

10:30 AM
Fabrication and Characterisation of Electroplated Nanotwinned-copper Films on Polymer Substrates: Liang-Hsien Chang; Chih Chen; Dyi-Chung Hu; Ray Tain; Yu-Hua Chen; National Chiao Tung University; SiPlus Company; New Business Development Division Unimicron Technology Corp.

10:50 AM
A Study of Microstructure, Electronic Flame-off Characteristics and Electrical Properties of 15um Ag-Pd-Au-Pt (APAP) Alloy Wires: Che-Wei Hsu; Fei-Yi Hung; Tuan-Sheng Liu; National Cheng Kung University

11:10 AM
In-situ Evolution of the Nanoporous Microstructure of Sintered Ag at High Temperature: Azdine Nait-Ali; Diouwel Tandiang; Marc Legros; Yijin Liu; Douglas Van Campen; Xavier Milhet; Institut Pprime CNRS; CEMES CNRS; SLAC National Accelerator Laboratory
Sponsored by: Chinese Society for Metals
Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Kyle Brinkman, Clemson University; Teruhisa Horita, AIST; Minfang Han, China University of Mining and Technology, Beijing
Monday AM Room: 12
February 27, 2017 Location: San Diego Convention Ctr
Session Chairs: Amit Pandey, LGFCS; Kyle Brinkman, Clemson University

8:30 AM Introductory Comments

8:40 AM Invited
Low Temperature RAA Process for SOFC Stacks: Jung Pyung Choi1; Jeffry Stevenson2; Pacific Northwest National Laboratory

9:05 AM Oxygen Reduction Reaction Mechanisms on Ruddlesden-Popper Cathodes for Intermediate-Temperature Solid Oxide Fuel Cells: Wenyuan Li1; Bo Guan1; Xuxin Zhang1; Xingbo Liu1; West Virginia University

9:25 AM Invited
Enhanced Performance of Doped Ceria Electrolyte by the Addition of Barium Carbonate in Solid Oxide Fuel Cells: Fergus1; Auburn University

9:50 AM Break

10:10 AM
Analysis of the Effects of Chromium Poisoning on LSM-based Cathode Using Polarization Modeling and Impedance Measurements: Ruofan Wang1; Manuel Würth2; Boshan Mo3; Uday Pal4; Srikanth Gopalan5; Soumendra Basu6; Boston University; Technische Universität München

10:30 AM
Enhanced Performance of Doped Ceria Electrolyte by the Addition of Barium Carbonate in Solid Oxide Fuel Cells: Tao Hong1; Devin Harkins2; Kyle Brinkman3; Clemson University (CU)

10:50 AM
Mitigation of Chromium Poisoning in Solid Oxide Fuel Cells: Jeffrey Fergus1; Auburn University

Sponsored by: Chinese Society for Metals
Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group
Monday AM Room: 13
February 27, 2017 Location: San Diego Convention Ctr
Session Chairs: Sanjay Sampath, Stony Brook University; Jeffrey Fergus, Auburn University

8:30 AM Keynote
Multilayered, Multifunctional Thermal Barrier Coatings for Gas Turbine Engines: Sanjay Sampath1; Vaishak Vishwanathan1; Gopal Dwivedi2; Stony Brook University

9:10 AM Invited
Thermal Barrier Coatings for More Efficient Gas-Turbine Engines: Nitin Padture1; Brown University

9:40 AM
Evolution of the Thermal Conductivity of Sm2Zr2O7 under CMAS Attack: Ahmet Bakal1; Kai Roebeke2; Honglong Wang3; Wenzhuo Deng3; Xingxing Zhang4; Jeffrey Fergus5; Auburn University

10:00 AM Break

10:20 AM Invited
The Effect of Superalloy and Coating Composition and Specimen Geometry on TBC Lifetime: Bruce Pint1; Oak Ridge National Laboratory

10:50 AM
Thermal Gradient Mechanical Fatigue Testing and Life Modeling of Thermal Barrier Coating Systems: Zhongqiao Zhou1; Changpeng Li2; Guofeng Chen3; Xuxin Hua3; Tsinghua University; Corporate Technology, Siemens

11:10 AM
Porous Yttria-stabilized Zirconia Microspheres for Advanced Reflective Thermal Barrier Coatings: Ricardo Castro1; Pieter Stroeve2; Roland Faller3; Maria Perez-Page1; Dereck Muche4; University of California, Davis

11:30 AM Invited
Electrodeposited MCrAlY Coatings for Gas Turbine Engine Applications: Ying Zhang1; Tennessee Technological University

Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Harnessing Bulk Nanostructured Materials for Energy I
Sponsored by: Chinese Society for Metals
Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing
Monday AM Room: 14A
February 27, 2017 Location: San Diego Convention Ctr
Session Chairs: Indranil Roy, Schlumberger; Partha Ganguly, Baker Hughes

8:30 AM Keynote
Stabilizing Nanostructures in Metals via Interface Architectures: Ke Lu1; Institute of Metal Research, Chinese Academy of Sciences

9:00 AM Invited
Scientific and Technological Foundations for Pilot Scale Production of Nanostructured Metals: Terry Lowe1; Colorado School of Mines

9:30 AM Invited
Bulk Nanomaterials with Superior Strength and Thermostability: Ruslan Valiev1; Ilchat Sabirov2; Maxim Murashkin3; Ilchat Sabirov1; Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; IMDEA Materials Institute; Ufa State Aviation Technical University

10:00 AM Break

10:20 AM Keynote
The Four R’s to Promote Ductility of Metallic Glasses: Evan Ma1; Johns Hopkins University

10:50 AM Invited
Iron-based Amorphous Metals for Impact and Corrosion Resistance Applications: The Effect of Pressure and Current on Devitrification Kinetics: Olivia Graeve1; James Kelly2; Gauri Khanolkar3; Michael Rauls4; Andrea Hodge1; Veronica Eliasson3; University of California San Diego; Alfred University; University of Southern California; California Institute of Technology

11:20 AM
The World of Water Reactive or Degradable Alloys: Oilfield, Defense, Bio-Medical and Beyond: Indranil Roy1; Schlumberger

11:50 AM
Sensitivity Variation of Nanomaterials at Different Operating Temperature Conditions: Enobong Bassey1; Philip Sallis2; Krishnamachar Prasad3; Coventry University; Auckland University of Technology
**Energy Materials 2017: Materials in Clean Power — Session I**

**Sponsored by:** Chinese Society for Metals, TMS: Corrosion and Environmental Effects Committee

**Program Organizers:** Sebastien Dryepondt, Oak Ridge National Laboratory; Zhengdong Liu, China Iron & Steel Research Institute Group; Jeffrey Fergus, Auburn University; Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Ji Zhang, China Iron and Steel Research Institute Group

Monday AM  
February 27, 2017  
Location: San Diego Convention Ctr  
Room: 15A

**Session Chair:** To Be Announced

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8:30 AM Invited  
**Creep-Fatigue-Oxidation Interactions under Fossil Energy Service Conditions:** Sebastien Dryepondt; Amit Shyam; Sumit Bahi; Charles Hawkins; Dana McClurg; ‘Oak Ridge National Laboratory; ‘Indian Institute of Science

9:00 AM  
**Microstructural Stability of High Cr Containing FeCrAl Alloys with Minor Alloying Additions:** Yukinori Yamamoto; Bruce Pint; Benjamin Shassere; Sudarsanam Babu; ‘Oak Ridge National Laboratory; ‘University of Tennessee

9:20 AM Invited  
**Effect of Pressure and Thermal Cycling on Compatibility in CO2 for Concentrated Solar Power Applications:** Bruce Pint; Robert Brese; James Keiser; ‘Oak Ridge National Laboratory

9:50 AM  
**The Composite Materials with Semiconductor and Ionic Conductor for Novel Low Temperature Solid Oxide Fuel Cells:** Xanying Wang; Bin Zhu; ‘Hubei University

10:10 AM Break

10:30 AM Invited  
**The Impacts of Alternative Fuels and Associated High Water Vapor Content Environments on the Stability and Aging of Turbine Hot-Section Materials:** Daniel Mamun; ‘University of California-Irvine

11:00 AM  
**Early Stage Oxidation of Alloy 617 in CO2 Power Cycle Environments:** Richard Oleksa; John Baltrus; Casey Carney; Jinichiro Nakano; Anna Nakano; Gordon Holcomb; Omer Dogan; ‘National Energy Technology Laboratory

11:20 AM  
**Nickel-doped Titania Nanotube Arrays and Their Application in Hydrogen Production:** Joaquin Tirano Vanegas; Hugo Zea; Claudia Luhrs; ‘Universidad Nacional de Colombia; ‘Naval Postgraduate School

11:40 AM  
**Phase Relation Prediction for AgCuGaInSe PV Absorber Layers:** Zhi Li; Christopher Muzzillo; Shun-li Shang; Jianyun Shen; Po-Hsin Liao; Zi-kui Liu; Timothy Anderson; ‘University of Florida; ‘Pennsylvania State University; ‘General Research Institute For Nonferrous Metals

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**Environmentally Assisted Cracking: Theory and Practice — Hydrogen Embrittlement I**

**Sponsored by:** TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Mechanical Behavior of Materials Committee

**Program Organizers:** Bai Cui, University of Nebraska–Lincoln; Raul Rebak, GE Global Research; Sebastien Dryepondt, Oak Ridge National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

Monday AM  
February 27, 2017  
Location: San Diego Convention Ctr  
Room: 31A

**Session Chairs:** Ian Robertson, University of Wisconsin-Madison; Petroso Sofronis, University of Illinois at Urbana-Champaign

8:30 AM **Introductory Comments Speaker:** Prof. Ian Robertson / Bai Cui

8:45 AM **Invited  
**Linking Hydrogen-enhanced Plasticity to Hydrogen-induced Failure Mode:** Kelly Nygren; Shiui Wang; Ian Robertson; ‘University of Illinois; ‘University of Wisconsin-Madison

9:25 AM  
**Effects of Trace Impurities on the Strength and Fracture of Hydrogen-Charged Ni-201:** Samantha Lawrence; Richard Karnesky; Khalid Hattar; Stephen Foiles; Brian Somerday; ‘Sandia National Laboratories; ‘Southwest Research Institute

9:45 AM  
**Macro- and Micro-scale Study of Hydrogen Susceptibility of Advanced High Strength Sheet Steels:** Yiran Lu; Shrikant Bharat; Clyde Brian; Sharvan Kumar; ‘Brown University; ‘ArcelorMittal, Global R&D

10:05 AM Break

10:20 AM **Invited  
**Hydrogen-Induced Fracture: From Fundamentals to Prognosis:** Petroso Sofronis; Mohsen Dadfarnia; Akihide Nagao; Shiui Wang; May Martin; Brian Somerday; Reiner Kirchheim; Robert Ritchie; Ian Robertson; ‘University of Illinois; ‘JFE Steel Corporation; ‘University of Wisconsin; ‘Sandia National Laboratories; ‘South West Research Institute; ‘Georg-August-Universität Göttingen; ‘University of California-Berkeley

11:00 AM  
**Atomic Insights on Hydrogen Embrittlement in Iron:** Ilaksh Adlakha; Kiran Solanki; ‘Arizona State University

11:20 AM  
**Effects of Internal and External Hydrogen Environments on Crack Growth in an Iron Based Superalloy:** Neville Moody; Warren Garrison; S. Robinson; M. Perra; William W. Gerberich; ‘Sandia National Laboratories; ‘Carnegie Mellon University; ‘University of Minnesota

11:40 AM  
**Hydrogen Embrittlement and Hydrogen-enhanced Strain-induced Vacancies in a-iron:** Yuya Matsumoto; Nami Kurihara; Hiroshi Suzuki; Kenichi Takai; ‘Sophia University
Friction Stir Welding and Processing IX — High Temperature Applications I
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay
Monday AM Room: 9
February 27, 2017 Location: San Diego Convention Ctr
Session Chairs: Tracy Nelson, Brigham Young University; Yutaka Sato, Tohoku University

8:30 AM Introductory Comments
8:35 AM Invited
Effect of Thermal Aging on the Corrosion and Mechanical Properties of Friction Stir Welded 250 Grade Maraging Steel: Todd Curtis1; Bharat Jasthi1; Christian Widener1; Michael West1; Brendon Kellogg1; ‘South Dakota School of Mines and Technology
8:55 AM Invited
FSW Studies to Achieve High Charpy Impact Energy in 19 mm Thick ASTM-A6 Steel: Murray Mahoney1; Russell Steel1; Dale Fleck1; Steve Larson1; Trever Davis1; ‘MegaStir
9:15 AM Invited
Friction Stir Processing of 304L Stainless Steel for Crack Repair: Michael Miles1; Cameron Gunter1; Fengchao Liu1; Tracy Nelson1; ‘Brigham Young University
9:35 AM Invited
Influence of Underwater Operation on Friction Stir Welding of Medium Carbon Steel: Tomoko Miyamori1; Yutaka Sato1; Hiroyuki Kokawa1; ‘Tohoku University
9:55 AM Invited
Friction Stir Welding of Steel-two Innovative Welding Methods: Hidetoshi Fujii1; ‘Osaka University
10:15 AM Break
10:30 AM Invited
High Temperature Properties and Microstructures of ODS and RAFM Alloys FSW: Wei Tang1; Xinghua Yu1; David Hoelzer1; Zhili Feng1; ‘Oak Ridge National Lab
10:50 AM Invited
Feasibility of Iridium Containing Nickel Base Superalloy Tool to Friction Stir Spot Welding of High Strength Steel: Kunihiro Tanaka1; Tatsuya Nakazawa1; Koichi Sakairi1; Yutaka Sato1; Hiroyuki Kokawa1; Toshihiro Omori1; Kiyohito Ishida1; Tanaka Kikinzoku Kogyo K.K.; ‘Tohoku University
11:00 AM Invited
Effect of Friction Stir Processing on Microstructure and Mechanical Properties of Cast Eglin Steel (ES-1): Vedavyas Tungala1; Matthew Carl1; Amit Arora1; Marcus Young1; Rajiv Mishra1; Kunihiro Tanaka1; Hiroyuki Kokawa1; Toshihiro Omori1; Kiyohito Ishida1; Tanaka Kikinzoku Kogyo K.K.; ‘Tohoku University
11:30 AM Friction Stir Processing of 2507 Super Duplex Stainless Steel: Microstructure and Corrosion Behaviour: M.K. Mishra1; G. Ganasekar1; A.G. Rao1; B.F. Kashyap1; N. Prabh1; ‘Indian Institute of Technology Bombay; ‘Naval Materials Research Laboratory

Sponsored by: TMS Functional Materials Division, TMS: Biomaterials Committee, TMS: Electronic Packaging and Interconnection Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee

Program Organizers: Fay Hua, Intel Corporation; Tae-Kyu Lee, Portland State University; Young-Ho Kim, Hanyang University; Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Choong-un Kim, University of Texas at Arlington; Nuggehalli Ravindra, New Jersey Institute of Technology

Monday AM  Room: 33B
February 27, 2017  Location: San Diego Convention Ctr

Session Chairs: Sung Kang, IBM; Nuggehalli Ravindra, New Jersey Institute of Technology

8:30 AM Introductory Comments

8:40 AM Invited
The Grain Refinement of Martensitic Steel by Thermal Processes: John Morris1; 2University of California Berkeley

9:10 AM Invited
Extreme Deformation and Failure of Materials: Marc Meyers1; Bruce Remington2; Chris Wehrenberg3; Hye-Sook Park4; T. Remington5; Eduardo Bringa6; Bimal Kad7; Eric Hahn8; Shiteng Zhao9; 1University of California San Diego; 2Lawrence Livermore National Laboratory; 3National Chiao Tung University

9:40 AM Invited
Application of Thermodynamics to Rare Earth-based Alloy Design: Patrice Turchi1; Aurelien Perron1; Per Soderlind1; Alexander Landa1; Orlando Rios1; 1Lawrence Livermore National Laboratory; 2Oak Ridge National Laboratory

10:10 AM Break

10:25 AM
Growth of Cu6Sn5 and Cu3Sn Intermetallic Compounds on (111)-, (100)- and Randomly-oriented Copper Films: Yu-Jun Li1; Chih Chen1; 1National Chiao Tung University

10:45 AM Invited
Low-Temperature and Pressureless Cu-to-Cu Bonding By Electroless Nickel Plating: C. Robert Kao1; 1National Taiwan University

11:15 AM Invited
Visualizing In-situ Microstructure Dependent Crack Tip Stress Distribution in IN-617 Using Nano-mechanical Raman Spectroscopy: Yang Zhang1; Vikas Tomar1; 1Purdue University

11:45 AM
High-throughput Computational Discovery of Epitaxial Thin Films with Enhanced Ferroelectric Properties: Thomas Angsten1; Lane Martin1; Mark Asta1; 1UC Berkeley

Fundamental Aspects and Modeling Powder Metal Synthesis and Processing — Titanium and Advanced Materials

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee

Program Organizers: Paul Prichard, Kennametal; Eugene Olevsksy, San Diego State University; Iver Anderson, Ames Laboratory

Monday AM  Room: 16A
February 27, 2017  Location: San Diego Convention Ctr

Session Chair: Paul Prichard, Kennametal

8:30 AM Engineering the Microstructure and Mechanical Properties of Titanium Alloys via Hydrogen Sintering and Phase Transformation (HSPT): James Paramore1; Brady Butler1; Jonathan Ligda1; Z. Zak Fang1; Matt Dunstan1; 1United States Army Research Laboratory; 2University of Utah

8:50 AM
Titanium Hydrides Enhancing Improvement of Ductility of PM a-Ti Material: Katsuyoshi Kondoh1; Takafumi Mimoto1; Junko Umeda1; Hitashi Imai1; 1Osaka University

9:10 AM
Particle Charging during Electron-beam Additive Manufacturing: Zachary Cordero1; Harry Meyer1; Peeyush Nandwana1; Ryan Dehoff1; 1Oak Ridge National Laboratory

9:30 AM
Titanium-Based Alloys with Gradient Structures Fabricated by Blended Elemental Powder Metallurgy (BEPM): Dmytro Savvakin1; Pavlo Markovsky1; Orest Ivaishin1; Sergey Prykhodko1; 1G.V. Kurdyumov Institute for Metal Physics, National Academy of Science of Ukraine; 2University of California, Los Angeles

9:50 AM Break

10:10 AM
Characterizing the Effect of Powder Properties on In-Machine Performance in Powder Bed Direct Metal Additive Manufacturing: Ross Cunningham1; Ola Harrysson1; Jack Beuth1; Fred Higgs III1; Anthony Rollett1; 1Carnegie Mellon University; 2North Carolina State Univ.

10:30 AM
Sintering of Titanium-Magnesium Alloys with Stable Nanocrystalline Structure: Katherine Graetz1; Christopher Schuh1; 1Massachusetts Institute of Technology

10:50 AM
Enhanced Texture and Magnetic Energy Product in Alnico Magnets Utilizing Solid State Processing: Aaron Kassen1; Emma White1; Wei Tang1; Lin Zhou1; Matthew Kramer1; Iver Anderson1; 1Iowa State University

11:10 AM
Size-Scaled High-Performance Alnico Magnets with Enhanced Mechanical Properties and Near-Final Shape: Liangfa Hu1; 1University of Utah; 2Ames Laboratory

11:30 AM
Self-propagating High-temperature Synthesis for Synthesizing Tantalum Carbide from Ta Metal Scraps: Jae-Jin Sim1; Sang-Hun Choi1; Won Ju1; Won-Jung Choi1; Basit Ali1; Tae-Hyuk Lee1; Kyung-Mook Lim1; Bum-Sung Kim1; Tae-Soo Kim1; Kyoung-Tae Park1; 1Korea Institute of Industrial Technology; 2Department of Materials Science & Engineering, University of Sheffield
## Tuesday AM

### Session Chairs: Dennis Dimiduk, BlueQuartz Software; Alain Courret, CEMES

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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>8:30 AM</td>
<td>Introductory Comments: Young-Won Kim, Gamteck</td>
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<td>8:40 AM</td>
<td>Keynote: Wilfried Smarsly(^1); Joerg Esslinger(^1); MTU Aero Engines GmbH</td>
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<tr>
<td>9:15 AM</td>
<td>Invited: Armin Schuster; Mohammad Rezaei(^1); Ege University</td>
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<tr>
<td>9:40 AM</td>
<td>Advances in the Systems and Processes for the Production of Gamma Titanium Aluminide Bars and Powder: Rob Haun(^1); Retech Systems, LLC</td>
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<tr>
<td>10:00 AM</td>
<td>Break</td>
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<tr>
<td>10:15 AM</td>
<td>Invited: Pierre Salot; Guillaume Martin(^1); Stéphane Knittel(^1); SAFRAN</td>
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<tr>
<td>10:40 AM</td>
<td>Study on Milling of a TiAl Alloy under Minimum Quantity of Lubrication: Sajjad Kolahdouz(^1); Siavash Zamani(^1); Fatemeh Heydari(^1); Ali Bakhshti(^1); MAPNa Turbine Blade Eng. &amp; Mfg. Co. - PARTO</td>
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<tr>
<td>11:00 AM</td>
<td>Invited: Matthias Büneck(^2); Todor Stoyanova(^1); Rüdiger Tiefers(^1); Jan Schievenbusch(^1); Access e.V.</td>
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<tr>
<td>11:25 AM</td>
<td>High Temperature and High Strain Rate Deformation Behavior of Powder Metallurgical TiAl-Nb Composite: Yong Liu(^1); Bin Liu(^1); Qihong Fang(^1); Xiang Zan(^1); Central South University; Hunan University; Hefei University of Technology</td>
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<tr>
<td>11:45 AM</td>
<td>Plastic Deformation Behaviour and Crack Initiation Mechanisms of γ-TiAl in High Temperature, High Cycle Fatigue: Thomas Edwards(^1); Fabio Di Gioacchino(^1); Nigel Martin(^1); Mark Dixon(^1); William Clegg(^2); Department of Materials Science and Metallurgy, University of Cambridge; Rolls-Royce plc</td>
</tr>
</tbody>
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### Introductory Remarks — Session I

8:30 AM Introductory Remarks: Given by Prof. Patrick Grant, Department Head of Materials Science, University of Oxford

8:40 AM Keynote: The Role of Atom Probe Tomography in Decoding the Materials Genome: George Smith\(^1\); Oxford University

9:20 AM Invited: Atomic-scale Analytical Tomography: Thomas Kelly\(^1\); CAMECA Instruments, Inc.

9:50 AM Unique Insights from the Correlated Combination of Atom Probe and Electron Tomography: Peter Wells\(^1\); Oxford University

10:30 AM Invited: On the Amazing Role of Atom Probe Tomography in Nuclear Materials Research: Some Seminal Contributions and Opportunities for Developing a New Lab On a Chip Paradigm: G. Robert Odette\(^1\); Peter Wells\(^1\); Nicholas Cunningham\(^2\); Nathan Almirall\(^2\); University of California Santa Barbara; ATI

11:00 AM Invited: Revisiting Field Ion Microscopy: Baptiste Gault\(^1\); Shyam Katnagallu\(^1\); François Vorpillot\(^1\); Michael Moody\(^1\); Max-Planck-Institut für Eisenforschung GmbH; University of Oxford; CNRS, SIMAP; Normandie Université

11:30 AM Invited: Quantification of Hydrogen using Atom Probe Tomography: Daniel Haley\(^1\); Yi-Sheng Chen\(^1\); Paul Bagot\(^1\); Michael Moody\(^1\); University of Oxford
ICME Gap Analysis: Structural Materials for Automotive Applications — High-Temperature Alloys for Automotive Applications  
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Integrated Computational Materials Engineering Committee  
Program Organizers: Dongwon Shin, Oak Ridge National Laboratory; Jerry Gibbs, Department of Energy; Will Joost, Department of Energy; Nicholas Hatcher, QuesTek Innovations, LLC  
Monday AM  Room: 10  Location: San Diego Convention Ctr  
Session Chairs: Jerry Gibbs, Department of Energy; Dongwon Shin, Oak Ridge National Laboratory

8:30 AM Invited  
Bridging the Gap between ICME Design and Implementation of Third Generation Advanced High Strength Steels for Automotive Applications: Louis Hector Jr1; Anil Sachdev1; Tyson Brown1; 'General Motors

9:10 AM Invited  
Application of ICME in the Development of Cast Steel Alloys: Rick Huff1; Caian Qiu1; Adrian Catalina1; 'Caterpillar

9:50 AM Break

10:05 AM Invited  
ICME Model Development and Gap Analysis for Advanced Cast Aluminum and Magnesium Alloys for Automotive Applications: Mei Li1; 'Ford Motor Company

10:45 AM Invited  
Progress and Gaps in Thermodynamic Modeling for the Development of Advanced Cast Aluminum Alloys using Integrated Computational Materials Engineering: Mike Walker1; Andrew Bobel1; WeiWei Zhang1; Nick Hatcher1; Abhinav Saboo1; Dana Frankel1; Kyoungdoc Kim1; Christopher Wolverton1; 'General Motors; 'Northwestern University; 'QuesTek Innovations, LLC

11:25 AM Invited  
An Assessment of Modeling Tools for High Temperature Aluminum Alloy Development: The Good, the Bad and the Ugly: Amit Shyam1; Dongwon Shin1; Shibayan Roy1; Adrian Sabau1; Yukinori Yamamoto1; James Haynes1; 'Oak Ridge National Laboratory

Interface-Mediated Properties of Nanostructured Materials — Nanolaminates and Nanotwinned Materials I  
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Nanomechanical Materials Behavior Committee  
Program Organizers: Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University; Michael Demkowicz, Texas A&M University  
Monday AM  Room: Pacific 23  Location: Marriott Marquis Hotel  
Session Chairs: Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory

8:30 AM  
Micro-scale Scratch Behavior of Copper-silver Nanolayers: Madhavan Radhakrishnan1; Pascal Bellon1; Robert Averback1; 'University of Illinois

8:50 AM Invited  
Plasticity in Small-scale Metallic Composites: Amit Misra1; Jian Wang2; 1University of Michigan; 2University of Nebraska

Magnesium Technology 2017 — Keynote Session  
Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee  
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC  
Monday AM  Room: 5A  Location: San Diego Convention Ctr  
Session Chairs: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University

8:30 AM Introductory Comments

8:45 AM Keynote  
Multi-scale Investigation on Yield “Symmetry” and Reduced Strength Differential in an Mg-Y Alloy: Dalong Zhang1; Lin Jiang1; Xin Wang1; M. Kumar1; Irene Beyerlein1; Julie Schoenung1; Mo Li1; Subhash Mahajan4; Enrique Lavernia1; 'University of California Irvine; 'University of California, Davis; 'University of California, Irvine; 'Los Alamos National Laboratory; 'Georgia Institute of Technology

9:25 AM Keynote  
Targeting High Impact R&D for Automotive Magnesium Alloys: William Joost1; 'U.S. Department of Energy

10:05 AM Break

10:30 AM Keynote  
Magnesium Development as a Lightweight Material - In Competition with Other Structural Materials: Alan Luo1; 'The Ohio State University

11:10 AM Keynote  
The Continued Quest for Low-temperature Formability in Mg Alloys: Historical Developments and Future Opportunities: Suveen Mathaudhu1; 'University of California, Riverside
Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Fuels I
Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Nuclear Materials Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Monday AM  Room: Cardiff
February 27, 2017  Location: Marriott Marquis Hotel

Session Chairs: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory

8:30 AM
Results of Microstructural Characterization Focused on the U-10Mo/Zr Diffusion Barrier Interface in Irradiated Monolithic Fuel Plates: Dennis Keiser1; Jun-Fong Jue1; Brandon Miller1; Jian Gan1; Adam Robinson1; James Madden1; Assel Aitkaliyeva1; 1Idaho National Laboratory

8:50 AM
Nanoscale Structural and Compositional Analysis of U-10Mo Fuels: Arun Devapriya1; Vineet Joshi2; Libor Kovarik1; Saamyadeep Jana1; Bruce Arey1; Curt Lavender2; 1Pacific Northwest National Laboratory

9:10 AM
Recrystallization Texture in U10Mo Alloy: Karun Kalia1; David Field1; Vineet Joshi2; 1Washington State University; 2Pacific Northwest National Laboratory

9:30 AM
Electron Backscatter Diffraction Analysis of Irradiated U-Mo Plate Fuel for the US High Performance Research Reactor Development Program: Bjorn Westman1; Brandon Miller1; Julie Tucker1; 1Oregon State University; 2Idaho National Laboratory

9:50 AM
Eutectoid Transformation Kinetics of As-Cast U - 8 wt.% Mo Established by In Situ Neutron Diffraction: Matthew Steiner1; Christopher Calhoun1; Robert Klein1; Ke An1; Elena Garlea1; Sean Agnew2; 1University of Virginia; 2University of Erlangen-Nuremberg

10:10 AM Break

10:30 AM
Assessment of the Suppression Methods for Porosity Growth in U-Mo/AI Dispersion Fuel: Yeon Soo Kim1; Gwan Yoon Jeong1; Dong-Seong Sohn1; 1Argonne National Laboratory; 2UNIST

10:50 AM
Microstructural Development of UMoAI Dispersion Fuels after Thermal Annealing: Laura Jamison1; Bei Ye1; Sumit Bhattacharya2; Abdellatif Yacout1; 1Argonne National Laboratory; 2Argonne National Laboratory and Northwestern University

11:10 AM
Effect of Grain Morphology on Gas Bubble Swelling in UMo Fuels — A 3D Microstructure Dependent Booth Model: Shenyang Hu1; Curt Lavender1; Vineet Joshi1; 1Pacific Northwest National Laboratory

11:30 AM
An Integrated Simulation for Deformation and Irradiation-Induced Grain Growth in, U-10 wt.% Mo: William Frazier1; Vineet Joshi1; Shenyang Hu1; 1Pacific Northwest National Laboratory

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Next Generation Superalloys I
Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee
Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmair, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Monday AM  Room: Pacific 16
February 27, 2017  Location: Marriott Marquis Hotel

Session Chairs: Akane Suzuki, GE Global Research; Jonathan Cormier, ENSMA - Institut Pprime

8:30 AM Keynote
The Drive for Greater Efficiencies: Creating New Materials to Meet the Challenge: David Stifler1; 1Office of Naval Research

9:00 AM Invited
Challenges and Future of Ni-based SX Superalloys Components: Jonathan Cormier1; 1ENSMA / Institut Pprime - UPR CNRS 3346

9:30 AM
The Influence of Ta and Ti on Heat-treatability and γ'/γ'-partitioning of High W Containing Re-free Nickel-based-superalloys: Nils Ritter1; Ralf Retting2; Robert Singer1; 1University of Erlangen-Nuremberg

9:50 AM
Improved 3rd Generation Single Crystal Superalloy CMSX-4® Plus: Jacqueline Wahlgren1; Ken Harris1; 1Cannon-Muskegon

10:10 AM Break

10:30 AM
Improvement of Creep Resistance at 950 °C/400MPa in Ru-containing Single Crystal Superalloys: Jiajie Huo2; Qianying Shi2; Qiang Feng2; 1University of Science and Technology Beijing; 2University of Michigan

10:50 AM
Improved Creep Strength of Nickel-base Superalloys by Optimized γ'/γ'-partitioning Behavior of Solid Solution Strengthening Elements: Steffen Neumeier1; Martin Pröbstle1; Sven Giese1; Ralf Retting2; Mathias Göken1; 1Friedrich-Alexander-Universität Erlangen-Nürnberg; 2Friedrich-Alexander-Universität Erlangen-Nürnberg

11:10 AM
Sources of Creep Dislocations in Ni-base, Single Crystal Superalloys Revisited: Farangis Rahimzadeh1; Zhaoming Li1; Zailing Zhu1; Masood Hafez Haghighi1; Stefan Zaefferer2; Dierk Raabe2; Roger Reed2; 1Carnegie Mellon University; 2Max-Planck Institut für Eisenforschung GmbH; 3University of Oxford

11:30 AM
Influence of Stress Triaxiality and Relaxation on the Creep Behavior under Oxidizing Conditions of the Nickel-based Single-crystal Superalloy CMSX-4: Experiments and Numerical Approach: Vincenzo Caccuri1; Jonathan Cormier2; Rodrigo Desmorat1; Clara Moriconi1; 1ENSMA-Institut P’/LMT Cachan/Safran Helicopter Engines; 2ENSMA -Institut P’/LMT Cachan; 3Safran Helicopter Engines

11:50 AM
Determination of Gamma/Gamma Prime Lattice Misfit in Ni-based Single Crystal Superalloys at High Temperatures by Neutron Diffraction: Shenyang Huang1; Yan Gao1; Akane Suzuki1; Ke An2; 1GE Global Research; 2Oak Ridge National Laboratory
Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Introductory Session: Unique Mechanical Behavior and Technologies

Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nuclear Materials Committee

Program Organizer: Indrajit Chari, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

Monday AM  February 27, 2017  Room: 24A  Location: San Diego Convention Ctr

Session Chairs: Indrajit Chari, University of Idaho; Yuntian Zhu, North Carolina State University

8:30 AM Introductory Comments: A short commentary on Prof. K. Linga Murty’s short biography and seminal contributions to the field of mechanical and creep behavior of materials

8:35 AM Keynote
Creep, Deformation and Fracture Studies of Materials for Various Technologies in the Nuclear Materials Research Group at NC State: Korukonda Murty1; North Carolina State University

9:05 AM Keynote
Fundamental Discovery of Q-phases and Direct Conversion of Carbon into Diamond and h-BN into c-BN: Jagdish (Jay) Narayan1, Anagh Bhaumik1; North Carolina State University

9:35 AM Invited
Anisotropy and Creep Mechanisms during the Hot Forming of Light Alloy Sheet Materials: Eric Taleff1; The University of Texas at Austin

9:55 AM Break

10:10 AM Keynote
In-situ TEM Observation of the Peculiar Movement of <c+a> Dislocations in Mg: Dalong Zhang1; Lin Jiang1; Irene Beyerlein2; Julie Schoenung1; Subhash Mahajan1; Enrique Lavernia1; University of California-Irvine; University of California, Irvine; University of Kentucky; University of California, Davis

10:40 AM Invited
The Representation of Grain Boundary Texture Using Hyperspherical Harmonics: Srikanth Patala1; Jeremy Mason1; North Carolina State University; Bogaziçi University

11:00 AM Invited
Irradiation Creep of Zr-Alloys: Malcolm Griffiths1; Grant Bickel1; Robert DeAbreu1; Wenjing Li1; Canadian Nuclear Laboratories

11:20 AM
The Microstructural Evolution of Hot Deformed Ti-IF Steel: Philip Noell1; Ryann Rupp1; Eric Taleff1; The University of Texas at Austin

11:40 AM
Effect of Mo and Bi Additions on the Microstructure of Zr-Cr-Fe Alloy after β-quenching: Jianmin Wang1; Dafeng Luan1; Korukonda Murty1; Qing Liu1; Chongqing University; North Carolina State University

Mechanical Behavior of Nanostructured Materials — Mechanical Behavior of Bulk Nanostructured Materials I

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Xinghang Zhang, Purdue University; Yuntian Zhu, North Carolina State University; Joseph Poon, University of Virginia; Suryanarayana Challapalli, University of Central Florida; Enrique Lavernia, University of California, Irvine; Haiyan Wang, Texas A&M University

Monday AM  February 27, 2017  Room: 30D  Location: San Diego Convention Ctr

Funding support provided by: AYA International; Hysitron Inc.

Session Chairs: Xinghang Zhang, Purdue University; Ron Scattergood, North Carolina State University; Kris Darling, Army Research Laboratory

8:30 AM Introductory Comments

8:40 AM Invited
High Temperature Mechanical Properties of Ultrafine-grained and Nanocrystalline Materials: Megumi Kawasaki1; Roberto Figueiredo1; Terence Langdon1; Hanyang University; Universidade Federal de Minas Gerais; University of Southern California

9:05 AM Invited
15 Years SPD-Processed Bulk Nanostructured Materials: From Mechanical to Functional Highlights: Michael Zehetbauer1; University of Vienna

9:30 AM Invited
 Bulk Nanocrystalline Materials: Mechanical Behavior and Deformation Mechanisms: Farghalli Mohamed1; University of California, Irvine

9:55 AM Invited
Hardening by Annealing and Abnormal Hall-Petch Relationship in Nanocrystalline Elements and Alloys: T. D. Shen1; B. R. Sun1; S. W. Xin1; Yanshan University

10:20 AM Break

10:40 AM Invited
Twinning in Small-scaled BCC Crystals: Jiangwei Wang1; Zhi Zeng1; Christopher Weinberger1; Ze Zhang1; Ting Zhu1; Scott Mao1; University of Pittsburgh; Georgia Institute of Technology; Sandia National Laboratories; Zhejiang University

11:05 AM
Mechanical Properties of Nanotwinned Al: Xinghang Zhang1; Sichuang Xue1; Qiang Li1; Dan Bufford1; Yue Liu1; Haiyan Wang1; Texas A&M University; Sandia National Laboratories; Los Alamos National Laboratory

11:25 AM
The Effects of Solutes on the Tensile Strength of Nano-twinned Ag Thin Films at Various Temperatures: Jie Geng1; M. F. Besser1; F. Q. Meng1; R. T. Ott1; Ames Laboratory

11:45 AM
Correlation between Nanotwin Density and Texture Transformation in Thin Ag Films: Nathaniel Rogers1; Shelby Johnson1; Elizabeth Ellis1; Kyle Fleming1; Paul Lashomb1; Jonathon Yuly1; Brandon Hoffman1; Shefford Baker1; Cornell University; Houghton College
10:00 AM  Invited
Microstructural Processes in Irradiated Materials — Advanced Characterization and Techniques
Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kacem, University of South Carolina; Dan Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Monday AM  Room: Del Mar
February 27, 2017  Location: Marriott Marquis Hotel

Session Chairs: Philip Edmondson, Oak Ridge National Laboratory; Philippe Pareige, Rouen University

8:30 AM Introductory Comments

8:35 AM  Invited
Atom Probe Characterization of Microstructures in Irradiated Materials:
Philippe Pareige\(^1\); Bertrand Radiguet\(^1\); Auriane Etienne\(^1\); Cristelle Pareige\(^1\);
\(^1\)Rouen University

9:05 AM  On the Influence of the Irradiation Depth on the Microstructural Evolution of FeCrX (X=Ni,Si,P) Alloys under Ion Irradiation: Begona Gómez-Ferrer\(^1\); Cristelle Pareige\(^1\); Philippe Pareige\(^1\);
\(^1\)University of Rouen

9:25 AM  Prismatic Dislocation Loop Interaction with Free Surface in BCC Metals: Jan Fikar\(^1\); Roman Gröger\(^1\); Robin Schäublin\(^1\);
\(^1\)IPM; ETHZ

9:45 AM  Determination of the Type, Burgers Vector and Density of Dislocation Loops by X-ray Line Profile Analysis in Proton Irradiated Zr Alloys: Tamás Ungár\(^1\); Matthew Topping\(^1\); Philipp Frankel\(^1\); Michael Preuss\(^1\);
\(^1\)The University of Manchester

10:05 AM  Break

10:20 AM  High Resolution EBSD and Strain Mapping of Nanoindentation in Ion-irradiated Steels: Anna Kcover\(^1\); Hamid Abdolvand\(^1\); Steve Roberts\(^1\);
\(^1\)University of Oxford; \(^2\)Western University

10:40 AM  Invited
Deformation Behavior of Ion-irradiated Materials under Nanoindentation: Ryuta Kasada\(^1\); Satoshi Konishi\(^1\); Hyoseong Gwon\(^1\); Takeshi Miyazawa\(^1\); Masami Ando\(^1\); Hiroyasu Tanigawa\(^1\);
\(^1\)Kyoto University

11:10 AM  Characterizing Radiation Damage in Stainless Steels Using Spherical Nanoindentation Stress-Strain Curves: Jordan Weaver\(^1\); Siddhartha Pathak\(^1\); Ashley Reichardt\(^1\); Peter Hosemann\(^1\); Nathan Mara\(^1\); Los Alamos National Laboratory; \(^2\)University of Nevada Reno; \(^3\)University of California Berkeley

11:30 AM  Novel Methods of Recording Flow Curves in Proton Irradiated Material:
Albert Smith\(^1\); Jack Donoghue\(^1\); Bartlomiej Winiarski\(^1\); Alistair Garner\(^1\); Nick Riddle\(^1\); Keith Wilford\(^1\); Philip Withers\(^1\); Michael Preuss\(^1\);
\(^1\)University of Manchester; \(^2\)Rolls-Royce

11:50 AM  Invited
Small Scale Mechanical Testing on He Bubble Containing and Irradiated Materials: Peter Høsemann\(^1\); Zhangjie Wang\(^1\); David Frazer\(^1\); Frances Allen\(^1\);
\(^1\)University of California Berkeley

Multiscale Architectured Materials (MAM II):
Tailoring Mechanical Incompatibility for Superior Properties — Gradient Materials
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huaqian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Monday AM  Room: 24B
February 27, 2017  Location: San Diego Convention Ctr

Session Chairs: Ke Lu, Institute of Metal Research; Xiaolei Wu, Institute of Mechanics

8:30 AM Introductory Comments

8:35 AM  Invited
Fatigue Behavior of Gradient Nanograined Cu: Qingsong Pan\(^1\); Lei Lu\(^1\); Jianzhou Long\(^1\); \(^1\)Institute of Metal Research, CAS

9:00 AM  Strain Incompatibility and Ductility in a Gradient Nanostructure of IF Steel: Xiaolei Wu\(^1\); Yuntian Zhu\(^1\);
\(^1\)Institute of Mechanics, Chinese Academy of Sciences; \(^2\)North Carolina State University

9:20 AM  Effect of Gradient on Mechanical Behavior of Ni Based Gradient Materials: Y Lin\(^1\); R.Q. Cao\(^1\); J Pan\(^1\); Yi Li\(^1\);
\(^1\)Institute of Metal Research

9:45 AM  Suppression of Surface Fatigue Cracking in Steels with a Gradient Nanostructured Surface Layer: Z.B. Wang\(^1\); K. Zhang\(^1\); H.W. Huang\(^1\); K. Lu\(^1\);
\(^1\)Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

10:05 AM  Break

10:25 AM  Invited
Superior Combinations of High Strength and Ductility in Compositionally Graded Martensitic Steels: Hatem Zurobi\(^1\); Hamid Azizi\(^1\); Olivier Bouaziz\(^1\); David Embury\(^1\);
\(^1\)McMaster University; \(^2\)University of Lorraine

10:50 AM  Tensile Behaviors of Gradient Nano-grained Copper at 77K: Xiaoyan Li\(^1\); Xin Zhou\(^1\); Ke Lu\(^1\);
\(^1\)Shenyang National Laboratory for Materials Science, Institute of Metal Research, CAS

11:10 AM  Invited
Stress and Strain Gradients in a Low Carbon Steel Deformed under Heavy Sliding: Xiaodan Zhang\(^1\); Niels Hansen\(^1\); Xiaoxu Huang\(^1\);
\(^1\)Technical University of Denmark

11:35 AM  Novel Contributions to Deformation and Properties in Gradient Materials: Shan “Cecelia” Cao\(^1\); Christian Roach\(^1\); Yuntian Zhu\(^1\); Suveen Mathaudhu\(^1\);
\(^1\)University of California Riverside
Nanocomposites IV: Nanoscience for Renewable Energy — Nanoscience Part I
Sponsored by: TMS Structural Materials Division, TMS: Composite Materials Committee
Program Organizers: Changsoo Kim, University of Wisconsin-Milwaukee; Simona Murph, Savannah River National Laboratories; Muralidharan Paramsothy, NanoWorld Innovations (NWI); Meisha Shofter, Georgia Institute of Technology

Monday AM Room: Pacific 25
February 27, 2017 Location: Marriott Marquis Hotel

Session Chairs: Simona Murph, Savannah River National Laboratory (SRNL); Muralidharan Paramsothy, NanoWorld Innovations (NWI)

8:30 AM Keynote
Multifunctional Materials for Renewable Energy Technologies: Federico Rosei1; ‘INRS’

9:10 AM Invited
Ceramic Composites in Diverse Applications Ranging from Oxygen Production to Nuclear Waste Immobilization: Kyle Brinkman1; ‘Clemson University’

9:50 AM Break

10:10 AM Invited
Conditions for Effective Nanocrystal Shape Control in Colloidal SILAR Reactions: Andrew Greytak1; ‘University of South Carolina’

10:50 AM Invited
Hydrogen Storage, Ionic Conduction, and Photophysical Properties of Fullerene Based Materials: Joseph Teprovich1; Patrick Ward2; Aaron Washington1; Hector Colon-Mercado1; Ragaiy Zidan2; ‘Savannah River National Laboratory’

Sponsored by: TMS Functional Materials Division, TMS: Alloy Phases Committee
Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Hsing University; Jae-Ho Lee, Hongik University; Ikuo Ohnuma, National Institute for Materials Science (NIMS) University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Monday AM Room: 25A
February 27, 2017 Location: San Diego Convention Ctr

Session Chairs: Yu Zhong, Florida International University; Thomas Reichmann, Karlsruhe Institute of Technology

8:30 AM Invited
Understanding and Predicting Nanoscale Precipitate Formation and Associated Reactor Pressure Vessel Embrittlement: Dane Morgan1; Huibin Ke1; Mahmood Mamiyand1; Shipeng Shi1; Henry Wu1; Peter Wells1; Nicholas Cunningham1; Nathan Almirall2; G. Robert Odette1; ‘University of Wisconsin - Madison’; ‘University of California, Santa Barbara’

9:00 AM Search for Radiation Resistance Materials: As Revealed by Computer Simulations: Fei Gao1; Liangliang Liu1; Nanjun Chen1; Chenyang Lu2; Lumin Wang1; ‘University of Michigan’

9:20 AM Kinetic Mote Carlo Simulation of Radiation-induced Segregation in Quaternary Fe-Ti-Y-O: Christopher Nellis1; Celine Hin1; ‘Virginia Tech’

9:40 AM Molecular Dynamic Cascade Simulations of Yttria Nanoclusters in an Alpha Fe Matrix: Mike Higgins1; Fei Gao1; ‘University of Michigan’
9:00 AM

Weight Loss Mechanism of \((La_{0.8}Sr_{0.2})_{0.98}MnO_3+d\) During Thermal Cycles: Shadi Darvish1; Yu Zhong1; 1Florida International University

10:00 AM

Intermetallic Alloy Systems for Li-ion Batteries: Clemens Schmutterer1; Siegfried Fürtauer1; Alexander Beutl1; Hans Flandorfer1; 1University of Vienna

11:25 AM

Calorimetry on Coin Cells with a DSC-like Battery Calorimeter for Lithium-ion Batteries: David Henriques1; Hans Giel1; Torsten Markus1; 1Mannheim University of Applied Sciences

11:45 AM

Dependence of Grain Size Distribution on the Conductivity of Ceria - Approach by Spark Plasma Sintering: Po-Heng Lin1; Eric Tseng1; Shih-Iun Chen1; Yang-Yuan Chen1; 1National Taiwan University of Science and Technology; 2Institute of Physics, Academia Sinica

8:30 AM

A Direct Evidence of Solute Interactions with a Moving Ferrite/Austenite Interface in a Model Fe-C-Mn Alloy: Goune Mohamed1; Frédéric Danoix2; Xavier Sauvage3; Didier Huin1; Lionel Germain1; 1ICMBC-Bordeaux1; 2GPM - Université de Rouen; 3ArcelorMittal; 1Université de Lorraine

9:00 AM

An Experimental Assessment of the \(\alpha + \alpha'\) Miscibility Gap in Fe-Cr: Alexander Dahlstrom1; Frédéric Danoix2; Peter Hedstrom2; Joakim Odqvist2; Helena Zapolsky1; 1Normandy University; 2KTH (Royal Institute of Technology)

9:20 AM

A Direct Observation of the Movement of the Austenite-ferrite Interface in Fe-C-Mn Steels: William Rainforth1; John Nutter1; 1The University of Sheffield

10:00 AM

Synchrotron High-energy X-rays for In-situ Study of Phase Transformation of Advanced Materials: Yang Ren1; 1Argonne National Laboratory

10:20 AM

Harnessing the Kirkendall Effect for the Fabrication of Metallic Microtubes and Hollow Scaffolds: Ashley Paz y Puente1; Dinc Erdeniz2; David Dunand1; 1Northwestern University

11:10 AM

Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Biomaterials and Functional Films

Sponsored by: TMS Functional Materials Division, TMS: Thin Films and Interfaces Committee

Program Organizers: Adele Carradó, Université de Strasbourg IPCMS; Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, UTEP; Heinz Palkowski, Clausthal Univ of Technology; Vikas Tomar, Purdue Univ; Njugahelli Ravindra, NJIT

Monday AM

Room: Pacific 18

February 27, 2017

Location: Marriott Marquis Hotel

Session Chairs: Adele Carradó, Université de Strasbourg IPCMS; Heinz Palkowski, TU Clausthal IMET

8:30 AM Keynote

Osteogenic Potential of a Biomimetic Layer-by-layer Platform: Khalil Abdelkebi1; Fabien Gaudière1; Laura Tesson1; Jean-Pierre Vannier1; Hassan Atmani1; Sandrine Morin-Grognet2; Béatrice Labat1; Guy Ladam1; 1University of Rouen Normandy

9:10 AM

Synthesis of CNT Reinforced Hydroxyapatite Coatings over Bio Interfaces through Electrodepositions: Rajib Chakraborty1; Sriraj Sengupta1; Partha Saha1; Karabi Das1; Siddhartha Das1; 1Indian Institute of Technology, Kharagpur

9:30 AM

Osteoanabolic Implant Materials for Orthopaedic Treatment: Xiaobo Chen1; Yun-Fei Ding1; Rachel Li1; M. Nakai1; M. Niinomi1; Paul Smith1; Nick Birbilis1; 1Monash University; 2The Australian National University; 3Tohoku University

9:50 AM Break

10:10 AM Keynote

Multifunctional Magnetic Biomaterials: Dendronized Nanoparticles and Magnetic Microbubbles: Geneviève Pourroy1; 1CNRS University of Strasbourg-IPCMS

10:50 AM

Comparing Various Corrosion Inhibitors Absorbed on to Chitosan bonded to Steel and the Resulting Corrosion Protection: Holly Martin1; Stephen Cornich1; John Crowe1; Jacob Millerleile1; Snjezana Balaz2; 1Department of Chemical Engineering, Youngstown State University; 2Department of Physics and Astronomy, Youngstown State University
11:10 AM
Development of Enamel Coatings in Accordance with Recent Regulations of Food Contact Materials: Meltem Ipekçi1; Kagan Benzesik1; Onuralp Yücel2; Filiz Cinar Sahin1; Alper Yesilcubuk1; 1Istanbul Technical University; 2Arçelik A.S.

11:30 AM
Super-stretchable Metallic Interconnect Films with a Linear Strain of up to 100%: Yeasir Arafat1; Indranath Dutta1; Rahul Panat1; 1Washington State University

Student-Run Symposium: Building Bridges – Connecting Academic and Industry Research — Session I
Sponsored by: TMS: Education Committee
Program Organizers: Katherine Vinson, The University of Alabama; Omar Rodriguez, The University of Alabama; Ben White, The University of Alabama; Dalin Barton, The University of Alabama; Rachel White, The University of Alabama

Monday AM
February 27, 2017
Room: 22
Location: San Diego Convention Ctr

Session Chairs: Omar Rodriguez, The University of Alabama; Dalin Barton, The University of Alabama

8:30 AM Introductory Comments: Dr. Garry W. Warren

8:40 AM Invited
Building Bridges: Transitioning from Academia to Industry: Lucille Giannuzzi1; 1ExpressLO LLC

9:20 AM Invited
Building Bridges: Connecting Academic and Industry Research: Nanci Hardwick1; Jianqing Su1; 1Aeroprobe Corporation

9:40 AM Invited
The Faculty Entrepreneur: Finding Win-Win Commercialization Opportunities for University Research: Christian Widener1; 1University of Nebraska-Lincoln

10:00 AM Invited
Four Pillars of Academia: A Cultural Shift to include Entrepreneurship: Michael Sealy1; 1University of Nebraska-Lincoln

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — 2D Nanomaterials for Nanoelectronics
Sponsored by: TMS Functional Materials Division, TMS: Nanomaterials Committee
Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

Monday PM
February 27, 2017
Room: Pacific 26
Location: Marriott Marquis Hotel

Session Chairs: Stephen McDonnell, University of Virginia; Myung Mo Sung, HanYang University

2:00 PM Invited
Graphene for Alternative Digital Logic Applications: Byoung Hun Lee1; 1Gwangju Institute of Science and Technology

2:30 PM Invited
Two-dimensional Materials for Next Generations of Electronic Devices: Saptarshi Das1; 1Pennsylvania State University

3:00 PM Invited
Two-dimensional Nanosheets for Electronic Device Applications: Seongil Im1; 1Yonsei University

3:30 PM Break

3:50 PM Invited
Realizing Large-scale 2-D Materials: Properties and Applications: Joshua Robinson1; 1The Pennsylvania State University

4:20 PM Invited
Nucleation of ALD on Graphene and Transition Metal Dichalcogenide (TMDs): Iljo Kwak1; Jun Hong Park2; Bernd Fruhberger3; Andrew Kammel4; 1University of California, San Diego

4:50 PM Invited
Using Ions to Control Transport in Two-dimensional Materials for Electronics: Susan Fullerton1; Ke Xu1; Jierui Liang1; 1University of Pittsburgh

5:20 PM
Novel In Situ Electrical Characterization of the Dielectric Deposition Process on 2-D Transition Metal Dichalcogenides: Antonio Lucero1; Laxia Cheng1; Joy Lee1; Jaebeom Lee1; Xin Meng1; Arul Ravichandran1; Young-Chul Byun1; Jaegil Lee1; Jiyong Kim1; 1University of Texas at Dallas

8th International Symposium on High Temperature Metallurgical Processing — Simulation of High Temperature Process
Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee
Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Kesikilmik, Altilum University

Monday PM
February 27, 2017
Room: 18
Location: San Diego Convention Ctr

Session Chairs: Varadarajan Seshadri, Universidade Federal de Minas Gerais; Yousef Mohassab, University of Utah

2:00 PM Introductory Comments

2:05 PM
A CFD Based Algorithm for Kinetics Analysis of the Reduction of Hematite Concentrate by H2+CO Mixtures in a Drop Tube Reactor: De Qu Fan1; Mohamed Elzohiery1; Yousef Mohassab1; H. I. Sohn1; 1University of Utah

2:25 PM
A Continuous Dynamic Process Model to Design a Carbon Profile toward Yield Improvement: Mohammed Tayeb1; Narottam Behera1; Raja Mathu2; 1SABIC Metals SBU; 1HADEED

2:45 PM
Alloy Yield Prediction Model Based on the Data Analysis in EAF Steelmaking Process: Lingzhi Yang1; 1Central South University

3:05 PM
Analysis of Jet Behavior and Surface Fluctuations in the Meniscus of Fluid in a Physical Model of a Beam Blank Mold and CFD Modelling: Johne Peixoto1; Weslei Gabriel1; Ciro Silva2; Leticia Ribeiro2; Carlos Silva2; Itavahn Silva2; Varadarajan Seshadri1; 1Federal University of Brazil, Ouro Preto; 2Federal University of Brazil, Ouro Preto; 3Universidade Federal de Minas Gerais

3:25 PM
CFD Study of Gas-liquid Phase Interaction Inside a Submerged Lance Smelting Furnace for Copper Smelting: Guangwu Tang1; Armin Silaen1; Hongjie Yan2; Zhixiang Cui2; Zhi Wang2; Haibin Wang3; Kaile Tang3; Ping Zhou3; Chenn Zhou3; 1Purdue University Northwest; 2Central South University; 3Dongying Fangyuan Nonferrous Metals
MONDAY PM

3:45 PM Break

4:05 PM
Debottlenecking High Temperature Metallurgical Plants through Modeling and Simulation: Kamal Adham1; 2Hatch Ltd.

4:25 PM
Assessment of Slag Entrainment in a RH Degasser through Physical Modelling Using Circulating Fluids of Different Densities/Oil Systems for Simulating Steel Melt/Slag: John Peixoto1; Natalia Barony1; Weslei Gabriel1; Carlos Silva1; Itauvaln Silva1; Varadarajang Sheshadr2; 3Federal University of Ouro Preto; 4Universidade Federal de Minas Gerais

A Prospective Look at the MGI After Five Years — Keynote Session
Sponsored by:TMS: Materials Innovation Committee
Program Organizers: Charles Ward, Air Force Research Laboratory; Kevin Hemker, Johns Hopkins University; John Allison, University of Michigan

Monday PM
Room: 9
February 27, 2017
Location: San Diego Convention Ctr

Session Chairs: Charles Ward, Air Force Research Laboratory; Kevin Hemker, Johns Hopkins University; John Allison, The University of Michigan

3:25 PM Introductory Comments

3:30 PM Keynote
Spatiotemporally Integrated Theory, Computation and Experiments: A Frontier of the Materials Genome Initiative: Dennis Dimiduk1; 2BlueQuartz Software, LLC and Ohio State University

4:00 PM Keynote
The Materials Genome Initiative – Leading a Culture Shift in Materials Research: Kevin Anderson1; 3Brunswick Corporation – Mercury Marine Division

4:30 PM Keynote
Democratizing Large-scale Data and Machine Learning in Materials Research: Bryce Meredith1; 4Citrine Informatics

5:00 PM Keynote
The Materials Genome after Five Years: An Academic Perspective: Tresa Pollock1; 5University of California Santa Barbara

Additive Manufacturing: Past, Present, and Future — Joint Keynote Session
Sponsored by:TMS: Additive Manufacturing Committee
Program Organizers: John Carpenter, Los Alamos National Laboratory; James Foley, Los Alamos National Laboratory; Eric Lass, National Institute of Standards and Technology; Mark Stoudt, National Institute of Standards and Technology

Monday PM
Room: 8
February 27, 2017
Location: San Diego Convention Ctr

Session Chair: David Bourell, University of Texas

2:00 PM Introductory Comments

2:05 PM Keynote
The New Metallurgy of Additive Manufacturing: Thomas Stair1; 2University of Louisville

2:45 PM Keynote
Laser Engineered Net Shaping (LENS™): Past, Present and Future: David Keicher1; 2John Smugeresky3; 3Sandia National Laboratories

3:15 PM Keynote
Additive Manufacturing Machines from the University of Texas at Austin: Joseph Beaman1; Scott Fish1; 2University of Texas

3:45 PM Break

4:00 PM Keynote
Location Specific Control of Solidification Microstructure across AM Alloys and Processes: Sneha Narra1; 2Jack Beuth1; 3Carnegie Mellon University

4:30 PM Keynote
Unraveling Out-of-equilibrium Phase and Microstructure Formation in Alloys towards Alloy Design for Additive Manufacturing: Christian Leinenbach1; Christoph Kenel1; Xiaoshuang Li1; Toni Ivas1; 3Empa-Swiss Federal Laboratories for Materials Science and Technology

5:00 PM Keynote
The Move to Multifunctionality: Additive Manufacturing of Graded and Multimaterial Structures: Christopher Tuck1; 2Ricky Wildman1; Ian Ashcroft1; Richard Leach2; Richard Hague3; Adam Clare1; 4University of Nottingham

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session II
Sponsored by:TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee
Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Monday PM
Room: 33C
February 27, 2017
Location: San Diego Convention Ctr

Session Chairs: Thomas Bieler, Michigan State University; Xavier Sauvage, Normandy University

2:00 PM Invited
Atomic Scale Investigation of Co-deformation and Mechanical Mixing in Severely Deformed Multiphase Structures: Xavier Sauvage1; 2Normandy University

2:20 PM
Strain Localization Structures in Textured Magnesium AZ31 under Reversed Loading via Multi-scale Digital Image Correlation: Enver Kapan1; Nima Shafaghi1; Sevinç Uçar1; Cahit Aydiner1; 3Bogazici University

2:40 PM
Kink Band Propagation during Plastic Deformation of Bulk Metallic Nanolaminates: Thomas Nizolek1; 2Natalia Mara1; Rodney McCabe1; Irene Beyerlein1; Jaclyn Avallone1; Tresa Pollock1; 3Materials Department, University of California Santa Barbara; 4Institute for Materials Science and the Center for Integrated Nanotechnologies, Los Alamos National Laboratory; 5Materials Science and Technology Division 8, Los Alamos National Laboratory; 6Mechanical Engineering Department, University of California Santa Barbara

3:00 PM Break

3:40 PM
Deformation and Strengthening Mechanisms in AISI 321 Austenitic Stainless Steel under both Dynamic and Quasi-static Loading Conditions: Ahmed Tiamiyu1; Akindele Odeshi1; Jerzy Szpunar1; 2University of Saskatchewan
4:00 PM
Study of Homophase Interfaces in Structural Materials by ECCI and EBSD in the SEM: Ivan Gutierrez-Urrutia; 'National Institute for Materials Science

4:20 PM
Comparison of Measured and Simulated Elastic Strain States in Crystal Plasticity Simulation of Experimentally Deformed and Characterized Microstructure Patches: Thomas Bieler; Chen Zhang; Harsha Phukan; Quan Zhou; Philip Eisenlohr; Martin Crimp; Carl Boehler; Leyun Wang; Peter Keneesi; Jun-Sang Park; Ruxing Xu; Venjun Liu; 'Michigan State University; 'Shanghai Jiao Tong University; 'Argonne National Laboratory

4:40 PM
In Situ Strain Mapping of Deformation Processes in Metallic Specimens: Thomas Pekin; Colin Ophus; Jim Ciston; Christoph Gammer; Andrew Minor; 'University of California, Berkeley; 'National Center for Electron Microscopy; 'Erich Schmid Institute of Materials Science

5:00 PM
Effect of Thermal and Mechanical Loadings on the Residual Strain Field in a Shot-peened Nickel Based Superalloy Investigated Using the Synchrotron X-ray Microdiffraction Technique: Gader Altinkurt; Mathieu Fève; Guillaume Geandier; Odile Rabach; Moukrane Dehmas; 'Onera-The French Aerospace Lab; 'Institut Jean Lamour; 'CEA

Advanced High-Strength Steels — Recent Developments in High-/Medium Mn Steels
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Tilman Nickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Militzer, The University of British Columbia
Monday PM  Room: 17A
February 27, 2017  Location: San Diego Convention Ctr
Session Chairs: Jörg Neugebauer, Max-Planck-Institut für Eisenforschung; Young-Kook Lee, Yonsei University

2:00 PM Introductory Comments

2:05 PM Invited
Strain Path Dependence of Retained Austenite Mechanical Stability in a Medium Manganese Stamping: Louis Hector Jr; Yu-wei Wang; Wei Wu; Feng Zu; Panagiotis Makrygiannis; Fadi Abu-Farha; Xin Sun; Xiaohua Hu; Yang Ren; 'General Motors; 'AK Steel; 'Clemson University; 'Pacific Northwest National Laboratory; 'Argonne National Laboratory

2:35 PM
Segregation Engineering in Medium Manganese Steels: Dirk Ponge; Margarita Kuzmina; Alisson Kwiatkoski; Meimei Wang; 'Stefanie Sandlöbes; Michael Herbig; Dierk Raabe; 'Max-Planck-Institut für Eisenforschung GmbH

2:55 PM
High Strength Nb-bearing Medium Mn Steel for Warm Stamping: Jae-Hoon Nam; Jeongho Han; Young-Kook Lee; 'Yonsei University; 'Max-Planck-Institut für Eisenforschung

3:15 PM
High Strain Rate Deformation of High-Mn and Medium-Mn TWIP-TRIP Steel: Jake Benzing; Whitney Poling; Dean Pierce; Kip Findley; Dirk Ponge; Dierk Raabe; James Wittig; 'Vanderbilt University; 'Colorado School of Mines; 'Oak Ridge National Laboratory; 'Max-Planck-Institut für Eisenforschung

3:35 PM Break

3:50 PM
Effect of Retained Austenite Transformation Holding Time and Temperature on the Microstructural Development and Properties of a Medium Mn Third Generation Advanced High Strength Steel: Kazi Bhadon; Joseph McDermid; Elizabeth McNally; Frank Goodwin; 'McMaster University; 'International Zinc Association

4:10 PM
Effect of Starting Microstructure and Intercritical Annealing Parameters on Mechanical Properties of a Medium-Mn Third-generation Advanced High Strength Steel: Daniella Pullisco; Joseph McDermid; Elizabeth McNally; Frank Goodwin; 'McMaster University; 'International Zinc Association

4:50 PM
Austenite Formation along Dislocations in Medium Manganese Steels: Margarita Kuzmina; Dirk Ponge; Stefanie Sandlöbes; Michael Herbig; Dierk Raabe; 'Max-Planck-Institut für Eisenforschung GmbH

5:10 PM
Ultrahigh Strength and Excellent Ductility Achieved by Grain Refinement in Low-carbon High-manganese Steels: Hung-Wei Yen; Yu-Han Huang; Ching-Yuan Huang; Steve Ooi; 'National Taiwan University; 'China Steel Corporation; 'University of Cambridge

Advanced Materials in Dental and Orthopedic Applications — Session II
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Tolou Shokuhfar, University of Illinois at Chicago; Grant Crawford, South Dakota School of Mines and Technology; Terry Lowe, Colorado School of Mines; Luis Rocha, UNESP, Univ. Estadual Paulista, Faculdade de Ciências; Rajendra Kasinath, DePuy Synthes Products, LLC
Monday PM  Room: Pacific 14
February 27, 2017  Location: Marriott Marquis Hotel
Session Chairs: Holly Martin, Youngstown State University; Tolou Shokuhfar, University of Illinois at Chicago; Terry Lowe, Colorado School of Mines

2:00 PM Invited
Rapid Mechanical Assessment of Dental Materials for the Mitigation of Cracks in Natural Teeth: Shweta Bhatnagar; Cherilyn Sheets; James Earthman; 'University of California, Irvine; 'Newport Coast Oral Facial Institute

2:30 PM
Orthopedic Implants with Graded Mechanical Behavior Made from Metastable Beta Ti Alloys: Rubens Caram; Eder Lopes; 'University of Campinas

2:50 PM
Preparation and Characterizations of Nano Composites Based on Biphasic Mixture of Bioactive Ceramics for Biomedical Applications: Nida Iqbal; Muhammad Abdul Raﬁq; 'Universiti Teknologi Malaysia

3:10 PM
Repelling Biofilm Formation on Dental Materials via Piezoelectric Fillers: Santiago Orrego; Anna Pizzano; Kavan Hazel; Mary Anne Melo; 'Johns Hopkins University; 'The University of Alabama at Huntsville; 'University of Maryland School of Dentistry
3:30 PM Break

3:50 PM
Surface Modified Drug Releasing Total Hip Implant: R. Manoj Kumar1; Pallavi Gupta1; Partha Roy1; Debgrupa Lahiri1; 1Indian Institute of Technology Roorkee

4:10 PM
Tailoring of the Mechanical Properties of Alloys of the Ti-Zr-Mo System through Alloying and Heat Treatments: Caio Xavier3; Carlos Grandini2; Luis Rocha1; 1UNESP

4:30 PM
The Effects of Inclusions on the Fatigue Performance of Superelastic Nitinol Fine Wires: Janet Gbur2; John Lewandowski1; 1Case Western Reserve University

4:50 PM
Thermomechanical Processing of Beta-Ti Alloys for Load-bearing Implant Applications: Stefan Plit2; André Reck2; Mariana Calin1; Jens Freudenberger1; Martina Zimmermann2; Jürgen Eckert1; Annett Gebert2; 1Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Germany; 2Institute of Materials Science, Dresden University of Technology, Dresden, Germany; 1Department Materials Physics, Montanuniversität Leoben, Leoben, Austria

5:10 PM
Microstructures and Properties of Mg AZ Alloys Subject to High Shear Deformation: Casey Davis1; Jacob Edick1; Terry Lowe1; 1Colorado School of Mines; 2Boston Scientific Corporation

Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques II
Sponsored by: TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Nanomechanical Materials Behavior Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Monday PM
Room: 32A
February 27, 2017
Location: San Diego Convention Ctr

Session Chairs: Teresa Prado, IMDEA- Spain; Amit Pandey, LG Fuel Cell Systems

2:00 PM Invited
Advanced In Situ Loading Environments for High Energy Synchrotron X-ray Experiments: Paul Shade1; Basil Blank1; Jay Schuren1; Joel Bernier1; Darren Pagan1; David Menasche1; Robert Suter1; Armand Beaudoin1; Peter Keresel1; Jun-Sang Park1; Jonathan Almer1; Darren Dale1; Peter Ko1; Todd Turner1; 1Air Force Research Laboratory; 2PulseRay; 3Lawrence Livermore National Laboratory; 4Carnegie Mellon University; 5University of Illinois at Urbana Champaign; 6Argonne National Laboratory; 7Comell University

2:25 PM
Unveiling the Micromechanical Response of Mg Alloys by EBSD-assisted Slip Trace Analysis: Carmen M. Cepeda-Jiménez1; María Teresa Pérez Prado1; 1IMDEA Materials Institute

2:45 PM
Development of a High Temperature Tensile Tester for Micromechanical Characterization of Materials Supporting Meso-Scale ICME Models: Zafir Alam1; David Eastman1; Minjea Jo1; Kevin Hemker1; 1Johns Hopkins University

3:05 PM Invited
In Situ Micro-mechanical Testing of Ion Irradiated Materials: Dhruti Bhattacharyya1; Alan Xu1; Lyndon Edwards1; 1ANSTO

3:30 PM Break

3:50 PM
Grain Growth and Mechanical Behavior of Nanostructured Intermetallic Films Studied Using In Situ TEM Annealing and Tensile Straining: Rohit Sarkar1; Jagannathan Rajagopalan1; 1Arizona State University

4:10 PM
Crystal Size and Temperature Effects on the Transformation in Deformation Modes in Twin Oriented Mg Single Crystals: Gi-Dong Sin1; Kelvin Xie1; Kevin Hemker1; Jaafar El-Awady1; 1Johns Hopkins University

4:30 PM Invited
In Situ Characterization of Electromigration and Thermal Cycling Damage and Grain Growth in Cu/Pure Sn/Cu Solder Joints: Antony Kirubanandham1; Nikhil V Chawla1; 1Arizona State University

4:55 PM Invited
Plasticity of Nano-Sized Metallic Glasses: Dongchan Jang1; 1Korea Advanced Institute of Science and Technology

5:20 PM
In-situ Experiments Combining SEM and X-ray Computed Tomography: Torin Quick1; Nathan Sesar2; Robert Wheeler2; 1Air Force Research Laboratory; 3Southwestern Ohio Center for Higher Education; 4MicroTesting Solutions LLC

Advances in Environmental Technologies: Recycling and Sustainability Joint Session — Advances in Environmental Technologies: New Areas of Value Recovery
Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, REWAS Organizing Committee, TMS: Pyrometallurgy Committee, TMS: Recycling and Environmental Technologies Committee
Program Organizers: John Howarter, Purdue University; Mark Kennedy, Proval Partners SA; Naiyang Ma, ArcelorMittal; Elsa Olivetti, Massachusetts Institute of Technology; Randolph Kirchain, Massachusetts Institute of Technology

Monday PM
Room: 14B
February 27, 2017
Location: San Diego Convention Ctr

Session Chairs: Mark Kennedy, Proval Partners SA; John Howarter, Purdue University; Elsa Olivetti, MIT

2:00 PM Invited
Accelerating Life-cycle Management Protocols for New Generation Batteries: Timothy Ellis1; John Howes1; Travis Hesterberg2; 1RSR Technologies, Inc.; 2Redland Energy Group

2:20 PM
Recovery of Aluminum from the Secondary Aluminum Production Dust: Myungwon Jung1; Brajendra Mishra1; 1Worcester Polytechnic Institute

2:40 PM
Fabrication of Aluminum Foam from Aluminum Scrap: Abdel-Nasser Omrani1; Hamza Osman1; A. Atlam1; Moatasem Kh1; 1Mining and Metallurgical Engineering Depart., Faculty of Engineering, Azhar University

3:00 PM
A Low Temperature Procedure for the Delamination of Brominated Epoxy Resin of Waste Printed Circuit Boards: Himanshu Verma1; Kamalesh Singh1; Tilak Mankhand1; 1IIT(BHU)

3:20 PM Break

3:40 PM
Recovery of Metals and Nonmetals from Waste Printed Circuit Boards (PCBs) by Physical Recycling Techniques: Muammar Kaya1; 1ESOGU
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
<th>Location</th>
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<tbody>
<tr>
<td>4:00 PM</td>
<td>Recovery of Electrolytic Zinc from Aqueous Wastes: An Approach to the Industry of Hot Dip Galvanizing</td>
<td>Luz Ocampo Carmona; Andres Meza Rodriguez; Universidad Nacional de Colombia</td>
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<td>2:00 PM</td>
<td>Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session II</td>
<td>Sponsored by: TMS Functional Materials Division, TMS: Alloy Phases Committee</td>
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<td>Program Organizers: Sinn-wen Chen, National Tsing Hua University; Franck Gascoin, Ensaien University of Caen; Soon-jik Hong, Kongju National University; Philippe Jund, Université de Montpellier; Lan Li, Boise State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University</td>
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<td>2:00 PM</td>
<td>Invited Bottom-up Nanostructuring for Thermoelectrics: Takao Mori; National Institute for Materials Science (NIMS)</td>
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<td>2:20 PM</td>
<td>A Facile Route for Ge Addition to Nanostructured Fe-Si Alloys Towards Improved Thermoelectric Properties: Naiming Liu; Wade Jensen; Long Chen; Brian Donovan; Patrick Hopkins; Jerrold Floro; University of Virginia</td>
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<td>2:40 PM</td>
<td>Silicon Carbide Particles as Nanoinclusions for Improved Thermoelectrics: Desin Coleman; Sahab Bux; Lorenzo Mangolini; University of California, Riverside; Jet Propulsion Laboratory</td>
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<td>3:00 PM</td>
<td>Invited Enhancement of Thermoelectric of PbTe Bulks Visa Heterogeneous Nanostructure: Hongchao Wang; Junphil Hwang; Chunlei Wang; Woohul Kim; Shandong University; Yonsei University</td>
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<td>3:20 PM</td>
<td>Break</td>
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<td>3:40 PM</td>
<td>Invited Phononic Crystal Nanopatterning in Si and SiGe Thin Films for Thermoelectric Application: Masahiro Nomura; University of Tokyo</td>
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<td>4:00 PM</td>
<td>Nanostructure of Si/transition Metal Silicide Composite Prepared by a Melt Spinning Method: Yuji Ohishi; Tomoki Ebata; Jun Xie; Hiroaki Muta; Ken Kurosaki; Shinsuke Yamanaka; Osaka University</td>
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<td>4:20 PM</td>
<td>Incorporation of HfO2 Nanoprecipitates: Way to Improve Half-Heusler Thermoelectric Material: Alizée Visconti; Guillaume Bernard-Granger; Christelle Navone; CEA Grenoble; CEA Marcoule</td>
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<td>4:40 PM</td>
<td>Microstructure and Thermoelectric Properties of Silicon and Metal Silicides Nanocomposites Synthesized by a Melt Spinning Method: Ken Kurosaki; Sora-at Tanusilp; Yuji Ohishi; Hiroaki Muta; Shinsuke Yamanaka; Osaka University</td>
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<td>5:00 PM</td>
<td>Invited Binary Titanium Alloys as Templates for Co-doping Titanium Oxide Photocatalysts: J. Shang; Zhengchao Xu; Qi Li; University of Illinois; Institute of Metal Research</td>
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<td>2:00 PM</td>
<td>Alumina &amp; Bauxite — Digestion and Calcination</td>
<td>Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee Program Organizer: Zhang Ting-an, Northeastern University</td>
<td>San Diego Convention Ctr</td>
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<td>Session Chairs: Fernanda Silva, Federal University of Rio de Janeiro; Adriana Felix, Federal Institute of Education Science and Technology of Rio de Janeiro</td>
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<td>2:05 PM</td>
<td>Introductory Comments</td>
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<td>2:05 PM</td>
<td>CFB Alumina Calciners - New and Future Generation Opportunities for Green Field Refineries: Linus Perander; Alessio Scarsella; Edgar Gaswil; Hans-Werner Schmidt; Outotec GmbH</td>
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<td>2:30 PM</td>
<td>Evolutional Development of Alkaline Aluminosilicates Processing Technology: Sergey Vinogradov; Andrey Panov; Svyatoslav Engalychev; RUSAL Engineering and Technology Center; RUSAL Engineering and Technology Center</td>
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<td>2:55 PM</td>
<td>Characterization and Ore Dressing of Bauxite from Brazil: Fernanda Silva; Karoline Ferreira; Carla Barbatto; Adriana Felix; Luiz Bertolino; Marta Medeiros; Francisco Garrido; Daniel Barcellos; António Guerra; Bruna Novo; Danielle Castro; IQ-UFRJ; EQ-UFRJ/CETEM; IFRJ-CMAR; CETEM; IQ-UFRJ/CETEM</td>
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<td>Process Optimization for Diaspore Digestion Equilibrium Using Response Surface Methodology: Zhengyong Zhang; Chalco</td>
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<td>3:45 PM</td>
<td>Break</td>
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<td>4:00 PM</td>
<td>Leaching Behavior of Alumina from Smelting Reduction Calcium Aluminate Slag with Sodium Carbonate Solution: Z. F. Tong; Yingjie Li; Jiangxi University of Science and Technology</td>
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<td>4:25 PM</td>
<td>Thermodynamic Analysis and Formation Law of Q Phase of Calcium Aluminate Clinker: Long Lu; Dongdong Ma; Tianxu Zhang; Bo Wang; Hebei University of Science and Technology; Chengde Petroleum College</td>
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<td>2:00 PM</td>
<td>Aluminum Alloys, Processing and Characterization — Alloy Development and Applications</td>
<td>Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee Program Organizer: Yanjun Li, Norwegian University of Science and Technology</td>
<td>San Diego Convention Ctr</td>
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<td>Session Chair: In-Ho Jung, McGill University</td>
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<td>Introductory Comments</td>
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<td>2:05 PM</td>
<td>Aluminium, Current and Future Development: Juergen Hirsch; Hydro Aluminium Rolled Products GmbH</td>
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<td>2:35 PM</td>
<td>Design of New 6xxx Series Al Alloy Using the CALPHAD Thermodynamic Database: Seelin Cui; Raja Mishra; In-Ho Jung; McGill University; General Motors R&amp;D Center</td>
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3:00 PM  
Study of an Al-Ca Alloy with Low Young’s Modulus: Jun Yi1; Yasuo Ishiwata1; Yoshihiro Taguchi1; Daisuke Shimosaka1; Ryosuke Taniguchi1; Takutoshi Kondo1; Nobuki Tetzuka1; ‘Nippon Light Metal; 2Nikkei Niigata co. ltd; 3Tohoku University

3:25 PM  
Production of 3004 Aluminum Alloy Sheet for Structural Applications from Twin Roll Casting: Ali Malcioglu1; Seda Ertan1; 1ASAS Aluminyum Sanayi ve Ticaret A.S.

3:50 PM  
Break

4:05 PM  
Aluminum Alloys with Tailored TiB2 Particles for Composite Applications: Xingtao Liu1; Yanfei Liu1; David Yan1; Qingyou Han1; Xiaoming Wang2; 1Purdue University; 2University of Wisconsin-Green Bay

4:30 PM  
Development of Low Expansion and High Strength Aluminium Hybrid Composite: Jamuna Sethi1; Siddhartha Das1; Karabi Das1; 1Indian Institute of Technology Kharagpur

4:55 PM  
Poster Session Previews: Select poster presenters in the Tuesday, February 28 poster session will give five-minute previews of their work during this time.

Aluminum Reduction Technology — Electrolyte and Fundamentals, Anode Effects and PFC Emissions

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee  
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Monday PM  
February 27, 2017  
Room: 2  
Location: San Diego Convention Ctr

Session Chairs: Jayson Tessier, Alcoa; Thor Aarhaug, SINTEF

2:00 PM  
Introductory Comments

2:05 PM  
Bauxite Processing via Chloride Route to Produce Chloride Products and Subsequent Electrolysis of Aluminium Chloride to Produce Aluminium Metal: Sankar Namboothiri1; Subash Mallick1; 1Ghada Scientific Research Foundation

2:30 PM  
Stability of Chlorides in Cryolitic Electrolyte: Luis Espinoza-Nava1; Xiangwen Wang2; 1Alcoa Technical Center

2:55 PM  
Sodium in Aluminium as a Cell Performance Indicator: A Quantitative Framework: Ashjorn Solheim1; 1SINTEF

3:20 PM  
Role of Heat Transfer in the Formation of Carbon Oxides in Smelting Cells: Mark Dorreen1; N.E. Richards2; Barry Welch2; 1Light Metals Research Centre, The University of Auckland; 2Retired; 2University of Auckland; University of New South Wales

3:45 PM  
Break

4:00 PM  
Partial Anode Effect in a Two-Compartment Laboratory Alumina Reduction Cell: Henrik Åsheim1; Thor Aarhaug2; Wojciech Gebarski1; Ashjorn Solheim1; Geir Haarberg1; 1NTNU; 2SINTEF

4:25 PM  
Co-evolution of Carbon Oxides and Fluorides during the Electrowinning of Aluminium with Molten NaF-AlF3-CaF2-Al2O3 Electrolytes: Mark Dorreen1; Margaret Hyland1; R. G. Haverkamp2; James Metson1; Ali Jassim1; B.J. Welch2; Alton Tabereaux2; 1University of Auckland; Light Metals Research Centre; 2University of Auckland; University of New South Wales; 3University of Auckland; University of New South Wales; 4Consultant

4:50 PM  
Preventive Treatment of Anode Effects Using On-Line Individual Anode Current Monitoring: Lukas Dion1; François Laflamme2; Antoine Godfrey2; Charles-Luc Lagacé3; James Evans4; László Kiss5; Sándor Ponscák5; 1Université du Québec à Chicoutimi; 2Alumieric Alouette inc.; 3Wireless Industrial Technologies

5:15 PM  
Reduction in EGA Jebel Ali Potroom GHG Emissions: Daniel Whitfield1; Sergey Akhmetov2; Najeeba Al-Jabri1; 1Emirates Global Aluminium (EGA)


Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee  
Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Monday PM  
February 27, 2017  
Location: San Diego Convention Ctr

Session Chair: Shijie Wang, Rio Tinto Kennecott Utah Copper

2:00 PM  
Modeling of Aluminum Electrowinning in Ionic Liquid Electrolytes: Mingming Zhang1; Ramana Reddy2; 1ArcelorMittal Global R&D; 2The University of Alabama

2:25 PM  
Electrochemical Processing of Rare Earth Alloys: Karen Olsen1; Ana Maria Martinez2; Henrik Gudbrandsen2; Anne Store2; Ole Kjos2; 1SINTEF Materials and Chemistry

2:50 PM  
Effect of Cobalt Concentration on the Potential for Oxygen Evolution from Pb-Ca-Sn Anodes in Synthetic Copper Electrowinning Electrolytes: Charles Abbey1; Michael Moata1; 1Missouri University of Science and Technology

3:15 PM  
Corrosion Resistance of Ni-P-Zn Alloy Deposit Coated Using a Sulfate Electroless Bath: Amir Kordjazi1; Mohsen Manjili1; 1University of Wisconsin–Milwaukee

3:40 PM  
Break

4:00 PM  
Cobalt Electrodeposition from Cobalt Chloride Using Urea and Choline Chloride Ionic Liquid: Effect of Temperature, Applied Voltage, and Cobalt Chloride Concentration on Current Efficiency and Energy Consumption: Andrea Kim1; Ramana Reddy1; 1University of Alabama

4:25 PM  
Mathematical Modeling of Molten Salt Electrolytic Cells for Sodium and Lithium Production: Donghui Li1; Lei Gao1; Boyd Davis2; Rüdiger Schwarze3; Anjnad Asad1; Christoph Kratzsch3; Kinnor Chattopadhyay3; 1University of Toronto; 2Kingston Process Metallurgy inc; 3TU Bergakademie Freiberg

4:50 PM  
An Investigation on the Kinetics and Mechanism of Alkali Reduction of Mine Waste Containing Titaniiferous Minerals for the Recovery of Metals: Stephen Parivenivatna1; Animesh Jha1; Lida Escudero Castejon1; Sergio Sanchez-Segado1; Yotamu Hara1; 1University of Leeds
Applications of Solidification Fundamentals — Characterization of Solidification Structures II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee

Program Organizers: Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing

Monday PM  
February 27, 2017  
Location: San Diego Convention Ctr

Session Chairs: Sabine Bottin-Rousseau, Institut des Nanosciences de Paris; Amy Clarke, Colorado School of Mines

2:00 PM Invited
Real-time Study on Microstructure Evolution of a Three-phased Eutectic System in Quasi-2D Samples: Samira Mohagheghi1; Melis Serefoglu1; Koc University

2:20 PM Invited
Effect of Crystal Orientation Relationships on Lamellar Eutectic Solidification Microstructures: Sabine Bottin-Rousseau1; Oriane Sennninger1; Gabriel Faivre1; Silvère Akamatsu1; UPMC-CNRS

2:40 PM
Influence of Crystal Orientation on the Dynamical Selection of Propagative Cellular Solidification Patterns: Younggil Song1; Sabine Bottin-Rousseau; Silvère Akamatsu1; Alain Karma1; Northeastern University; CNRS - UPMC

3:00 PM
4D Synchrotron X-ray Quantification of the Cellular to Dendritic Transition: Biao Cai1; Peter Lee2; Andrew Kao2; Andre Phillion1; Kouli Pericleous1; University of Manchester; University of Greenwich; McMaster University; University of Greenwich

3:20 PM
Thermal Analysis of Cu-CuO Eutectic: Cécile FOSSE1; Manuel Castro-Román1; Jacques Lacaze1; Luc Robbiola1; Université de Toulouse; CINVESTAV Saltillo

3:40 PM Break

4:00 PM
Microstructural Development During Thin Film Solidification: Comparison of Experiments and Simulations: Theron Rodgers1; Amy Clarke2; John Gibbs1; James Mertens1; Daniel Coughlin1; Harrison Whitt2; Joseph McKeown1; John Roehling1; J. Baldwin1; Seth Imhoff1; Damien Tourret1; Jonathan Madison1; Sandia National Laboratories; Colorado School of Mines; Los Alamos National Laboratories; Lawrence Livermore National Laboratory

4:20 PM
Investigation of the Metatectic Reaction in Boron Containing Steels: Kara Luijijohan1; Matthew Krane1; Volkan Ortalan1; David Johnson1; Purdue University

4:40 PM
Solidification Characteristics of CNTs/Mg Composite with Ultrasonic: Yuansheng Yang1; Fuze Zhao1; Xiaohui Feng1; Institute of Metal Research, Chinese Academy of Sciences

5:00 PM
Microstructure Characteristics of A356 Nanocomposites Manufactured via Ultrasonic Cavitation Processing under Controlled Solidification Conditions: Yang Xuan1; Laurentiu Nastac1; The University of Alabama
Biological Materials Science — Biomaterials and Biomedical Applications
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Po-Yu Chen, National Tsing Hua University; François Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Monday PM Room: Pacific 15
February 27, 2017 Location: Marriott Marquis Hotel

Session Chairs: François Barthelat, McGill University; Benjamin Hatton, University of Toronto

2:00 PM Keynote
Peptide-Enabled Materials & Systems for Technology & Medicine: Mehmet Sarikaya; David Starkebaum; Carolyn Gresswell; Deniz Yucesoys; Hanson Fong; 'University of Washington

2:40 PM
Nano- and Micro-scale Mechanical Properties of the Sclera following Proteoglycan Degradation: Zhuola Zhuola; Riaz Akhtar; Zhuo Chang; 'University of Liverpool

3:00 PM
Synthesis of Magnetic Nanoparticles as Effective Hyperthermia Agent: Jun Ding; 'National University of Singapore

3:20 PM
Localized Nanomechanical Characterization of Arterial Stiffening in Human Arteries with the PeakForce Quantitative Nanomechanical Mapping Technique: Zhuo Chang; Riaz Akhtar; Maria Hansen; Lars Rasmussen; Po-Yu Chen; Paolo Paoletti; 'University of Liverpool; 'Centre for Materials and Structures, School of Engineering, University of Liverpool; 'Department of Cardiothoracic and Vascular Surgery, Odense University Hospital; 'Department of Clinical Biochemistry and Pharmacology, Centre of Individualized Medicine In Arterial Diseases, Odense University Hospital; 'Department of Materials Science and Engineering, National Tsing Hua University; 'Centre for Engineering Dynamics, School of Engineering, University of Liverpool

3:40 PM Break

3:50 PM Invited
Engineering Antibacterial and Anti-Biofilm Surfaces: Dalal Asker; Benjamin Hatton; 'University of Toronto; Alexandria University; 'University of Toronto

4:20 PM
Development of Sponge Structure and Casting Conditions for Absorbable Magnesium Bone Implants: Stefan Julmi; Christian Klose; Ann-Kathrin Krüger; Peter Wrighers; Hans Jürgen Maier; 'Leibnitz Universität Hannover

4:40 PM
Wet-lay Textile Technique for Biological Fiber Reinforced Hydrogel Scaffolds: Andrew Wood; Vinoy Thomas; 'University of Alabama at Birmingham

5:00 PM
Mechanical Properties of Synthetic Bone and Tissue Simulants: Andrew Brown; Juan Pablo Escobedo-Diaz; Paul Hazell; 'UNSW Australia

5:20 PM
Design of Novel Low-Ni Shape Memory Alloys for Biomedical Applications: Dana Franke; Ida Berglund; Weiwei Zhang; Nicholas Hatcher; Jason Sebastian; Gregory Olson; 'QuesTek Innovations LLC; 'Northwestern University

Bulk Metallic Glasses XIV — Alloy Development and Application II
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yurifeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Monday PM Room: 33A
February 27, 2017 Location: San Diego Convention Ctr

Session Chairs: Frans Spaepen, Harvard School of Engrg & Appl Sciences; Jinn Chu, National Taiwan University of Science and Technology

2:00 PM Keynote
Stress Measurements on Colloidal Glasses: J. Terdik; David Weitz; Frans Spaepen; 'Harvard School of Engrg & Appl Sciences

2:30 PM Invited
Structure Modulation and Brittle-to-ductile Transition in Metallic Glasses: Juergen Eckert; 'Montanuniversität Leoben

2:50 PM Invited
Thin Film Metallic Glasses: Novel Diffusion Barrier Materials for Solar Cell and Electronic Packaging Applications: Chia-chi Yu; Cheng-Min Lee; Chia-Lin Li; Chia-Hao Chang; Jinn Chu; 'National Taiwan University of Science and Technology

3:10 PM
Improving the Glass Formation and Mechanical Behavior of Ni-free TiZr-based Bulk Metallic Glasses by Ga Additions: Mariana Calin; Supriya Bera; Ramasamy Parthiban; Mihai Stoica; Jürgen Eckert; 'IFW Dresden; 'Montanuniversität Leoben

3:30 PM Break

3:50 PM
Minimizing Losses in Ferromagnetic Metallic Glass Power Transformers: Michael Floyd; Marios Demetriou; William Johnson; 'California Institute of Technology; 'Glassimetal Technology

4:10 PM Invited
Property Enhancement of BMG Based Nanoglasses Prepared by RF Sputtering of Thin Films: Hans Fecht; Pierre Denis; 'Ulm University

4:30 PM Invited
Design and Development of Catalytic Amorphous Metals for Energy Conversion and Environmental Remediation: Sundeep Mukherjee; 'University of North Texas

4:50 PM
Manufacturing of Cu-based Metallic Glasses Matrix Composites by Spark Plasma Sintering: Sandrine Cardinal; Jean-Marc Pelletier; Guoqiang Xie; Jichao Qiao; 'INSA
Cast Shop Technology — Continuous Strip Casting  
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee  
Program Organizer: David Gildemeister, Alcoa Technical Center

Monday PM  
February 27, 2017  
Room: 1A  
Location: San Diego Convention Ctr

Session Chairs: Kai-Friedrich Karhausen, Hydro Aluminium Rolled Products GmbH; Murat Dundar, Assan Aluminium

2:00 PM Introductory Comments

2:05 PM  
Effect of Grain Refiners on Aluminum Twin Roll Casting Process: Yu Matsui1; Koichi Takahashi1; 1UACJ Corporation

2:30 PM  
Influence of Process Conditions on Segregation Behavior in Twin-Roll Casting of an AlFeSi Alloy: Christian Schmidt1; Dag Mortensen2; Kai Karhausen3; 1Hydro Aluminium Rolled Products GmbH; 2Institute for Energy Technology

2:55 PM  
Effect of Magnesium Content on Microstructure and Mechanical Properties of Twin-Roll Cast Aluminum Alloys: Onur Meydanoglu1; Cemil Isiksaçan1; Hatice Mollaoglu Altuner1; Mert Günyüz1; Onur Birbasar1; 1Assan Alüminyum San. Tic. AS

3:20 PM Break

3:35 PM  
Influence of Sticking on the Roll Topography at Twin-roll Casting of Aluminum Alloys: Oleksandr Grydin1; Florian Nünberger1; Mirko Schaper1; 1University of Paderborn; 1Leibniz Universität Hannover

4:00 PM  
Material Surface Roughness Change in Twin Roll Casting of Aluminium as Cast Sheet Product: Ali Ulas1; Ceyhun Kuru1; Özgür Özsahin1; Sadik Kaan İpek1; Eda Dagdelen1; 1Teknik Üniversitesi

4:25 PM  
Twin-roll Casting of Aluminum-steel Clad Strips: Static and Dynamic Mechanical Properties of the Composite: Mykhailo Stolbchenko1; Oleksandr Grydin1; Mirko Schaper1; 1Paderborn University

Cast Shop Technology — Foundry and Shape Casting  
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee  
Program Organizer: David Gildemeister, Alcoa Technical Center

Monday PM  
February 27, 2017  
Room: 3  
Location: San Diego Convention Ctr

Session Chair: Ning Sun, Worcester Polytechnic Institute

2:00 PM Introductory Comments

2:05 PM  
Operational and Economic Impact of Super Vacuum Die Casting Technologies: Muhammad Farooq1; Randolph Kirchain1; Richard Roth1; Alan Loe1; Diran Apelian1; Andrew Klarnet1; Joshua Curto1; Libo Wang1; 1Massachusetts Institute of Technology; 2The Ohio State University; 3Worcester Polytechnic Institute

2:30 PM  
Multi-Component High Pressure Die Casting (M-HPDC): Influencing Factors on the Material Temperature during the Joining of Metal-plastic-hybrids: Patrick Messer1; Uwe Vroomen1; Andreas Bührig-Polaczek1; 1Foundry Institute RWTH Aachen University

2:55 PM  
X-Ray Computed Tomographic Investigation of High Pressure Die Castings: Shoucan Ji1; Douglas Watson1; Zhongyun Fan1; 1Brunel University; 2Jaguar Cars Ltd

3:20 PM  
The Comparison of Intensive Riser Cooling of Castings after Solidification in Three Classic Metals: Shangguan Hao1; Kang Jinwu1; 1Tsinghua University

3:45 PM Break

4:00 PM  
Sequential Gravity Casting in Functionally Graded Aluminum Alloys Development: Mario Rosso1; Silvia Lombardo1; Federico Gabber1; 1POLITECNICO di Torino

4:25 PM  
Assessment of Eutectic Modification Level in Al-Si Alloys via Thermal Analysis: Maiada Abdelrahmat1; Mahmoud Abdu1; Waleed Khalifa1; 1Cairo University

Ceramic Materials for Nuclear Energy Research and Applications — Fuel Performance Modeling and Fundamental Defect Science in Ceramics  
Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khaflizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Monday PM  
February 27, 2017  
Room: Palomar  
Location: Marriott Marquis Hotel

Session Chairs: Michael Tonks, Penn State University; Chris Stanek, Los Alamos National Laboratory

2:00 PM Invited  
Highlights of Ceramic Nuclear Fuel Research within the Nuclear Energy Advanced Modeling and Simulation (NEAMS) Program: Chris Stanek1; 1Los Alamos National Laboratory

2:30 PM  
Modeling the Effect of Percolation on Fission Gas Release in UO2 Nuclear Fuels: Larry Aagesen1; Daniel Schwen1; 1Idaho National Laboratory

2:50 PM  
Irradiation-induced Recrystallization in UO2: A Phase Field Study: Karim Ahmed1; Xiaoming Bai1; Yongfeng Zhang1; Daniel Schwen1; Cody Permann1; Bulent Biner1; 1Idaho National Laboratory

3:10 PM  
Sensitivity Analysis and Uncertainty Quantification of the MARMOT Mesoscale Fuel Performance Code: Marina Sessim1; Michael Tonks1; Jie Lian1; 1Pennsylvania State University; 2Rensselaer Polytechnic Institute

3:30 PM Break

4:00 PM Invited  
Theoretical and Experimental Investigation of the Interrelationship Between Radiation Damage and Ionic Transport in Pyrochlore: Blas Uheruaga1; Romain Perriot1; James Valdez1; Terry Holesinger1; Yongqiang Wang1; Cortney Kreller1; 1Los Alamos National Laboratory

4:30 PM  
Atomistic Simulation of Swift Heavy Ion Irradiation Effects in UO2 and CeO2: Ram Devanathan1; 1Pacific Northwest National Laboratory

4:50 PM  
One-Dimensional String-like Relaxation in Actinide Oxides: Ajay Annamareddy1; Jacob Eapen1; 1NC State University

www.tms.org/TMS2017
Characterization of Materials through High Resolution Coherent Imaging — Coherent Imaging II

Monday PM  Room: 25B
February 27, 2017  Location: San Diego Convention Ctr

Session Chair: Xiaojing Huang, Brookhaven National Laboratory

2:00 PM
Coherent X-ray Diffraction Measurements of Lattice Distortions Caused by Ion Bombardment: Felix Hofmann; Edmund Tarleton; Ross Harder; Nicholas Phillips; Jesse Clark; Ian Robinson; Brian Abbey; Wenjun Liu; Yevhen Zayachuk; Christian Beck; 'University of Oxford'; 'Argonne National Lab'; 'La Trobe University'; 'The University of Melbourne'; 'Advanced Photon Source

3:20 PM Break

3:40 PM
Progress towards Dichroic Bragg Coherent Diffractive Imaging: Jonathan Logan; Ross Harder; Luxi Li; Daniel Haskel; Brian Abbey; 'La Trobe University'; 'The University of Melbourne'; 'Advanced Photon Source

4:10 PM
Photoelastic Ptychography: A New Approach for Quantitative Stress Determination: Guido Cadenazzi; Keith Nugent; Nicholas Anthony; Brian Abbey; 'La Trobe University'; 'Argonne National Laboratory

4:30 PM
Soft-X-ray Ptychographic Imaging of Shale: Namhey Lee; Peter Nico; David Shapiro; Manika Prasad; Timothy Kneassey; Benjamin Gilbert; 'Lawrence Berkeley National Lab'; 'Colorado School of Mines

4:50 PM
Polychromatic Bragg Coherent X-ray Diffraction Imaging for Rapid Measurements: Wonsuk Cha; Stephan Hruszczewczuk; Matthew Highland; Ross Harder; Wenjun Liu; Ruqing Xu; Paul Fuoss; 'Argonne National Laboratory

5:10 PM
Coherent X-ray Imaging at Future High Brightness Synchrotrons
Sources: Ross Harder; 'Argonne National Laboratory

Characterization of Minerals, Metals, and Materials — Electronic, Magnetic, Environmental, and Advanced Materials

Monday PM  Room: 31B
February 27, 2017  Location: San Diego Convention Ctr

Session Chairs: Shadia Ikhmayies, Al Isra University; Zhiwei Peng, Central South University

2:00 PM
Characterization of Defects in Metal Oxide Thin Films Using Electron Channeling Contrast Imaging (ECCI) and TEM: Isha Kashyap; Marc De Graef; 'Carnegie Mellon University

2:20 PM
Characterization of Low-zinc Electric Arc Furnace Dust: Zhiwei Peng; Xiaoalong Lin; Jiaxing Yan; Jian-Yang Hwang; Yuanbo Zhang; Guanghui Li; Tao Jiang; 'Central South University

2:40 PM
Formation of ZrO2 in Coating on AZ31 Mg Alloy via Plasma Electrolytic Oxidation: Phase and Structure of Zirconia: Jung-Woo Choi; Gye-Won Kim; Bongyoung Yoo; Dong-Hyuk Shin; 'Hanyang University

3:00 PM
Gamma-radiation Effect on Biodegradability of Synthetic PLA Structural Foams PP/HMSPP Based: Elizabeth Cardoso; Sandra Seagliusi; Ademar Lugão; 'IPEN - Instituto de Pesquisas Energéticas e Nucleares

3:20 PM
Study of Flexible Films Prepared From PLA/PBAT Blend and PLA E-Beam Irradiated as Compatibilizing Agent: Elizabeth Cardoso; Esperidiana Moura, A. B.; Glauson Mahado; René Oliveira; 'IPEN - Instituto de Pesquisas Energéticas e Nucleares

3:40 PM Break

3:55 PM
Study on the Electrically Assisted Springback Reduction of Super-elastic Titanium Alloys: Yong-Ha Jeong; Viet Tien Lui; Trung Thien Nguyen; Sung-Tae Hong; Hyunwoo So; Heung Nam Han; Sangwoo So; Hyun-Tae Hwang; 'University of Ulsan'; 'LG electronics'; 'Seoul National University'; 'Ulsan Technopark

4:15 PM
Electrical and Microstructural Investigation of Ni1-xCo3x-xCu3Zn6Mn0.5O4 Temperature Sensors: Gökhan Hardal; Berat Yüksel Price; 'Istanbul University

4:35 PM
Domain Wall Behavior and Phase Transitions of Ba(Zr0.2Ti0.8)O3-50(Ba0.7Ca0.3)TiO3 under Frequency of 0.2Hz-1.2 MHz: Le Zhang; Michael Carpenter; Xiaobing Ren; 'Xian Jiaotong University'; 'University of Cambridge

4:55 PM
Synthesis of ZnO Micro Prisms on Glass Substrates by the Spray Pyrolysis Method: Shadia Ikhmayies; 'Al Isra University
Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Shadid Ikhsamies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jinn-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firaao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasami Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Monday PM Room: 32B
February 27, 2017 Location: San Diego Convention Ctr

Session Chairs: John Carpenter, Los Alamos National Laboratory; Tyler Ley, Oklahoma State University

2:00 PM
Enhanced Physical Properties of Thin Film Nanocomposites: T. Thuy Minh Nguyen1; Sathish Lageshetty1; Paul Bernazzani1; ‘Lamar University

2:20 PM
Grain Size and Mechanical Properties in Severely Rolled Duplex Steel: John Carpenter1; Nan Li2; Rodney McCabe1; Nathan Mara1; Irene Beyerlein1; ‘Los Alamos National Laboratory; ‘University of California - Santa Barbara

2:40 PM
Effect of Incorporation of POSS into Fluoroelastomer Matrix: Heloisa Zen1; Ademar Luguão1; ‘IPEN

3:00 PM
A Study on the Size and Type of Inclusions in Si-Mn Combined Deoxidated Low Carbon Steel Strip: Ting Wang1; ‘Shanghai University

3:20 PM
To Twin or Not to Twin in Boron Carbide: Kelvin Xie1; Fatih Toksoy2; Vlad Domnich3; James McCauley4; Rich Haber1; Kevin Hemker1; ‘Johns Hopkins University; ‘Rutgers University; ‘Rutgers University; ‘U.S. Army Research Lab

3:40 PM Break

3:55 PM
The Influence of Grain Boundaries and Grain Orientations on the Stochastic Responses to Low Load Nanoindentation in Cu: Benjamin Schuessler1; Pui Ching Wo1; Hussein Zbib1; ‘Washington State University

4:15 PM
Magnetic Property and Core-shell Nanostructure of Ni Nanoparticles Coated on Si3N4 Powders: Huazhang Zhai1; ‘Beijing Institute of Technology

4:35 PM
Dielectric Property, Characterization and Preparation of 3Y-ZrO2/TiO2 Solid Solution Ceramics: Huazhang Zhai1; ‘Beijing Institute of Technology

4:55 PM
Effect of Argon Gas Purging of Spark Plasma Sintered ZrB2+SIC Nanopowder Composites: Naidu Seetala1; Owen Reedy1; Lawrence Matson1; HeeDong Lee1; Thomas Key1; ‘Grambling State University; ‘Wright-Patterson Air Force Research Lab; ‘UES, Inc.

5:15 PM
Stochastic Character of Plastic Deformation in FIB-milled Copper Micropillars Investigated by the Acoustic Emission Technique: Michal Knapek1; Ádám Hegyi2; Péter Ispánovity3; Kristián Mátis3; František Chmelík1; István Groma1; ‘Charles University; ‘Eötvös Loránd University

Computational Materials Discovery and Optimization — From Bulk to Materials Interfaces and 2D Materials — 2D Materials and Epitaxy
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Computational Materials Science and Engineering Committee
Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois; Urbana-Champaign; Eric Homer, Brigham Young University

Monday PM Room: 11A
February 27, 2017 Location: San Diego Convention Ctr

Session Chair: To Be Announced

2:00 PM Invited
Polyphony in B Flat — Is the Two-dimensional Boron Truly Emerging?: Boris Yakobson1; Yuanyue Liu2; ‘Rice University; ‘Caltech

2:30 PM
Topology-Scaling Identification of Layered Compounds and Stable Exfoliated 2D Materials: Michael Ashton1; Joshua Paul1; Susan Sinnott1; Richard Hennig1; ‘University of Florida; ‘Pennsylvania State University

2:50 PM
Two-Dimensional Multiferroics for Novel Multifunctional Mechanos-Opto-Electronic Devices: Hua Wang1; Xiaofeng Qian1; ‘Texas A&M University

3:10 PM
Opening Electronic Band Gaps in 2D Materials by Deformation Twins: Dingyi Sun1; David Rojas2; Mauricio Ponga2; ‘California Institute of Technology; ‘University of British Columbia

3:30 PM Break

3:45 PM Invited
Tailoring Properties of 2D Transition Metal Dichalcogenides: Looking Beyond Graphene: Talat Rahman1; ‘University of Central Florida

4:15 PM
Structural and Vibrational Properties of Transition Metal Dichalcogenide Polymorphs: Kamal Choudhary1; Arunima Singh1; Francesca Tavazza1; ‘National Institute of Standards and Technology

4:35 PM Invited
Van der Waals Interactions in Nanoscale Materials: A Solved Problem?: Alexandre Tkatchenko1; ‘University of Luxembourg

5:05 PM
Two-Dimensional Materials-by-Design for Electronic and Energy Conversion Applications: Lan Li1; Izaak Williamson1; ‘Boise State University

5:25 PM
A Three-Dimensional Phase-Field Crystal Model for 2D Materials Using Multiple-Point Correlation Functions: David Montiel1; Guanglong Huang1; Matthew Seymour2; Nikolai Provatas2; Katsuyo Thornton1; ‘University of Michigan; ‘McGill University
MONDAY PM

Defects and Properties of Cast Metals — Defects II & Properties I
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Solidification Committee
Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Monday PM Room: 23A
February 27, 2017 Location: San Diego Convention Ctr

Session Chairs: Steven Cockcroft, University of British Columbia; Andrew Kao, University of Greenwich

2:00 PM Introductory Comments: Defects II session

2:05 PM
Reducing Freckle Formation with External Magnetic Fields: Andrew Kao; Koulish Periculous; University of Greenwich

2:25 PM
Modelling the Effects of Fluid Flow on Microstructure Evolution at the Component Scale: Matthaios Alexandrakis; Andrew Kao; Koulish Periculous; University of Greenwich

2:45 PM
Determining Eutectic Grain Size and Casting Defects in an Al-12Si-0.8Cu-0.6Fe-0.9Mg-0.7Ni-0.2Zn Alloy: Jiehua Li; Bernd Oberdorfer; Daniel Habe; Peter Schumacher; University of Leoben; Austrian Foundry Research Institute; University of Leoben, Austrian Foundry Research Institute

3:05 PM
A Modeling and Experimental Investigation on the Formation of Accicular Silicon and Sludge in High Pressure Die Casting of a Modified A383 Alloy: Mikko Kärkkäinen; Laurentiu Nastac; Luke Brewer; Vishweshwar Avikar; Ilya Levin; University of Alabama; Nemak

3:25 PM Break

3:45 PM Introductory Comments Properties I Session

4:00 PM
Corrosion Behaviour of V and B Grain Refined A360: Eda Ergun Songul; Cemre Bas; Derya Dispinar; Göökhan Orhan; Istanbul University

4:30 PM
Assessment of the Impact of Water-Cooled Chill Technology on Microstructure Length-Scales in an A319 Engine Block Casting: Farzaneh Farhang Mehr; Steve Cockcroft; Daan Maier; Robert MacKay; Wade Marquardt; UBC; Nemak of Canada Corporation; Highland Foundry Ltd.

Deformation and Transitions at Interfaces — Defects/Grain Boundary Interactions
Sponsored by: TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Computational Materials Science and Engineering Committee, TMS: Mechanical Behavior of Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Saryu Fensin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaliya Barabash, Oak Ridge National Lab; Shen Dillon, University of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Monday PM Room: 23B
February 27, 2017 Location: San Diego Convention Ctr

Session Chair: Remi Dingreville, PO box 5800

3:45 PM Invited
A Concurrent Atomistic-continuum Study of Sequential Slip Transfer of Curved Dislocations across Grain Boundaries: Shuozi Xu; David McDowell; Liming Xiong; Youping Chen; Georgia Institute of Technology; Iowa State University; University of Florida

2:20 PM Invited
Investigation of Slip Transfer across Grain Boundaries with Application to Cold Dwell Fatigue: Zehang Zheng; Daniel Balint; Fionn Dunne; Imperial College

2:40 PM
Atomistic Simulation Algorithm for Studying Dislocation Glide Loop—Grain Boundary Interactions in Aluminum: Khanh Dang; Laurent Capolungo; Douglas Spearot; University of Florida; Los Alamos National Laboratory

2:00 PM Invited
A Concurrent Atomistic-continuum Study of Sequential Slip Transfer of Curved Dislocations across Grain Boundaries: Shuozi Xu; David McDowell; Liming Xiong; Youping Chen; Georgia Institute of Technology; Iowa State University; University of Florida

2:20 PM Invited
Investigation of Slip Transfer across Grain Boundaries with Application to Cold Dwell Fatigue: Zehang Zheng; Daniel Balint; Fionn Dunne; Imperial College

2:40 PM
Atomistic Simulation Algorithm for Studying Dislocation Glide Loop—Grain Boundary Interactions in Aluminum: Khanh Dang; Laurent Capolungo; Douglas Spearot; University of Florida; Los Alamos National Laboratory
3:00 PM  
A Micro-Compression Test Study of Grain Boundary Sliding: Jiecheng Geng1; Angus Wilkinson1; 1University of Oxford

3:20 PM  Invited  
Criteria for Grain Boundary Dislocation Nucleation on Different Slip Systems Obtained by Atomistic Simulations: Eric Homer3; Ricky Wyman3; 1Brigham Young University

3:40 PM  Break

4:00 PM  Invited  
Interface-Mediated Twinning in Small-Scaled BCC Bi-crystals: Jiangwei Wang1; Scott Mao1; 1University of Pittsburgh

4:20 PM  Invited  
Intrinsic Scale Effects in Metal Deformation: Christopher Woodward2; Satish Rao2; Ahmed Hussein1; Brahim Akdim1; Edwin Antillon1; Triplicane Parthasarathy1; 1Air Force Research Laboratory; 2École Polytechnique Fédérale

4:40 PM  Invited  
Quantifying the Dislocation Emission Process from Grain Boundaries with Traction Fields: Huck Beng Chew1; Ruizhi Li1; 1University of Illinois at Urbana-Champaign

5:00 PM  Invited  
Stresses in Reverse-deformed Single Crystal Cu: Quantitative Tests of the Composite Model: Lyle Levine1; Thien Phan1; Fang Lee1; Ruqiong Xu1; Yaakov Idell1; Michael Kassner1; 1National Institute of Standards and Technology; 2University of Southern California; 3Argonne National Laboratory

5:20 PM  Invited  
The Development of Physically Based Atomistic Microstructure: The Effect on the Mechanical Response of Polycrystals: Jacob Gruber1; Fadi Abdelljawad1; Hojun Lim1; Stephen Foiles1; Garrett Tucker1; 1Drexel University; 2Sandia National Laboratories

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Electrode Technology — Anode Characterization  
Sponsored by: TMS Light Metals Division, TMS: Aluminium Committee  
Program Organizer: Houshang Alamdari, Laval University

Monday PM  Room: 1B  
February 27, 2017  Location: San Diego Convention Ctr

Session Chair: Duygu Kocaefe, University of Quebec at Chicoutimi

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2:00 PM Introductory Comments

2:05 PM  
Characterization of Prebake Anodes by Micro X-ray Computed Tomography: Stein Rørvik1; Lorentz Lossius1; 1SINTEF Materials & Chemistry; 2Hydro Aluminium

2:30 PM  
Development of Techniques and Tools for the Determination of Carbon Anode Quality: Duygu Kocaefe1; Yasar Kocaefe1; Dipankar Bhattacharayya1; Bazoumana Sanogo1; Yao Ahoutou1; Hang Sun1; Patrick Coulombe1; 1University of Quebec at Chicoutimi; 2Aluminerie Alouette Inc.

2:55 PM  
Non-destructive Testing of Baked Anodes Based on Modal Analysis and Principal Component Analysis: Moez Ben Boubaker1; Donald Picard1; Carl Duchesne1; Jayson Tessier1; Houshang Alamdari1; Mario Fafard1; 1Laval University; 2Alcoa Primary Metals Smelting Center of Excellence

3:20 PM  
3D Automated Anode Stub Inspection System: Jean-Pierre Gagne1; Remi St-Pierre2; Pascal Coté2; Harold Frenette2; 1STAS; 2Alcoa

3:45 PM  Break

4:00 PM  
Identification of the Stress Intensity Factor of Carbon Cathode by Digital Image Correlation: Donald Picard1; Luca Sorelli1; Julien Réthoré1; Houshang Alamdari1; Marc-Antoine Baril1; Mario Fafard1; 1Université Laval; 2Université de Lyon

4:25 PM  
The Impact of Anode Nails on the Stub to Carbon Electrical Contact Resistance of Anode Assemblies with Simulated Corroded Stubs: William Berends1; 1AluCellTech

4:50 PM  
Finite Element Analysis of Slot Size Effect on the Thermal-Electrical Behaviour of the Anode: Hicham Chaouki1; Mounir Baiteche1; Alain Jacques1; Edward Gosselin1; Mario Fafard1; Houshang Alamdari1; 1Laval University; 2SAWNODE

5:15 PM  
Hydrodynamic and Thermoelectric 3D Mathematical Model of Aluminium Electrolysis Cell to Investigate Slotted Carbon Anode Efficiency: Mounir Baiteche1; Hicham Chaouki1; Edward Gosselin1; Alain Jacques1; Houshang Alamdari1; Mario Fafard1; 1REGAL, Aluminium Research Centre, University Laval; 2SAWNODE

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Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Mechanical Properties of Pb-free Materials  
Sponsored by: TMS Functional Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee  
Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Aflaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Monday PM  Room: 30E  Location: San Diego Convention Ctr

Session Chairs: Fay Hua, Intel Corporation; Carol Handwerker, Purdue University

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2:00 PM  Invited  
Impact of Interrupted Thermal Cycling on Sn-Ag-Cu Interconnection Performance: Tae-Kyu Lee1; Zhiqiang Chen1; Greg Baty1; Thomas R. Bieler2; Choong-Un Kim1; 1Portland State University; 2Michigan State University; 3University of Texas, Arlington

2:20 PM  
Thermal Cycling Performance of Sn-0.5Cu(Pd)-Al(Si)-Ge Solder Joints for Power Control Unit of Automotive: Won Sik Hong1; Chulmin Oh1; 1Korea Electronics Technology Institute(KETI)

2:40 PM  
Thermocycling Stress Induced Slab Band Sliding in Ultra-thin ENEPiG Joints: Tsu-Ting Chou1; Cheng-Ying Ho1; Wei-Yu Chen1; Jenq-Gong Duhl1; 1National Tsing Hua University

3:00 PM  
The Variation of Grain Structure and the Enhancement of Shear Strength in SAC305-0.1Ni/Cu Solder Joint before and after Aging: Collin Fleshman1; 1National Tsing Hua University

3:20 PM  Break

3:40 PM  
Electrical and Mechanical Properties of Sn-Ag-Cu Solder Pastes for Reverse-offset Printing Depending on Particle Concentration: Min-jung Son1; Minwoo Kim1; Taik-Min Lee1; Hoo-Jeong Lee1; Inyoung Kim1; 1Korea Institute of Machinery & Materials (KIMM); 2Sungkyunkwan University
4:00 PM Invited
Plasma Sprayed Protective Coatings on Metallic SOFC Interconnects: Interplay between Processing and Performance: Sanjay Sampath1; Su Jung Han2; Hwasoo Lee3; Stony Brook University

2:00 PM Invited
Development of Solid Oxide Fuel Cell Residential CHP System: Yuya Takawa1; Shuichi Inoue2; Minoru Suzuki1; Osaka Gas Co., Ltd

2:30 PM Invited
Development of a New High Strength Hot Corrosion Resistant Directionally Solidified Superalloy DZ409: Jiantao Li1; Jiantao Wu2; Ping Yan3; Jianxin Dong2; Lei Wang4; Guang Zeng5; China Iron & Steel Research Institute Group; University of Science and Technology Beijing; Northeastern University

2:40 PM Invited
Deposit-Induced Hot Corrosion and Materials Design Strategies to Reduce Its Impact: Brian Gleeson1; University of Pittsburgh

3:10 PM Keynote
Development of High Strength Hot Corrosion Resistant Single Crystal Superalloys Based on Understanding the Effect of Key Elements on Hot Corrosion Behavior: Jianxiu Chang1; Dong Wang2; Langhong Lou3; Jian Zhang4; Institute of Metal Research, Chinese Academy of Sciences

3:30 PM Break
3:50 PM Invited
Advanced Characterization of the Hot Corrosion Behavior of Gas Turbine Alloys under Burner Rig Test Exposures: Maryam Zahiri Azar1; Khalid Soto Leytan1; Daniel Mumm2; The University of California, Irvine

4:20 PM Invited
Efforts to Introduce TiAl Alloys for Gas Turbine Applications: Ji Zhang1; Helena Oskarsson1; China Iron and Steel Research Institute Group; Siemens Industrial Turbomachinery AB

4:50 PM
Effect of Alloying Elements (Cr and Al) in Nickel-based Alloys in Molten Sulfate Environments: Kuldeep Kumar1; Hojong Kim1; The Pennsylvania State University

5:10 PM Invited
The Materials, Manufacturing and Equipments of the Large Disk Forgings for Industrial Gas Turbines: Shichong Yuan1; China National Erzhong Group Co.

2:00 PM Keynote
Potential of Crystal Defects for Enhancing Bulk Functional Nanomaterials: Michael Zehetbauer1; University of Vienna

2:30 PM Invited
Gradient Materials: Microstructure, Texture and Properties: Jordan Moering1; Xiaolei Wu2; Jianxin Zhu2; North Carolina State University; Institute of Mechanics, Chinese Academy of Sciences

3:00 PM Invited
High Temperature Shape Memory Alloys for Potential Applications in Oil and Gas Industry: Ibrahim Karaman1; Texas A&M University

3:30 PM Break
3:50 PM Keynote
The Microstructural Origin of the Multifunctional Properties of Energy Metals: Niels Hansen1; Technical University of Denmark

4:20 PM
Effect of Severe Plastic Deformation (SPD) Surface Treatment on Corrosion Resistance and Environmental Cracking (EC) Susceptibility of Various Alloys: Ting Chen1; Manasa Varanasi1; Kripa Varanasi2; Massachusetts Institute of Technology

4:50 PM
Processing Aluminum 6061 by Equal Channel Angular Extrusion for Oil and Gas Applications: Ramatou Ly1; Karl T. Hartwig1; Homero Castaneda-Lopez2; University Texas A&M
Sponsored by: Chinese Society for Metals, TMS: Corrosion and Environmental Effects Committee
Program Organizers: Sebastien Dryepondt, Oak Ridge National Laboratory; Zhengdong Liu, China Iron & Steel Research Institute Group; Jeffrey Fergus, Auburn University; Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Ji Zhang, China Iron and Steel Research Institute Group

Monday PM Room: 15A Location: San Diego Convention Ctr
February 27, 2017
Session Chair: To Be Announced

2:00 PM Invited
High Temperature Oxidation of Ni-base Alloys and Stainless Steels in Supercritical CO2 for Power Systems Applications: Gordon Holcomb; Ömer Dogan; Joseph Tylczak; Casey Carney; Kyle Rozman; Jeffrey Hawk; 1National Energy Technology Laboratory; 1National Energy Technology Laboratory, AECOM

2:30 PM Corrosion of Energy System Materials in Supercritical Carbon Dioxide (sCO2): Benjamin Adam; Lucas Teeter; Sebastien Teysseyre; Julie Tucker; 1Oregon State University; 1Idaho National Laboratory

2:50 PM Manipulating Creep through Modifying Gamma Prime Coarsening Rate in Haynes 282 for A-USC Power Plants: Jeffrey Hawk; John Sears; Paul Jablonski; 1U.S. Department of Energy, National Energy Technology Laboratory; 1AECOM

3:10 PM Defect Chemistry of Black Anatase TiO2: An Ab Initio Study: Heechae Choi; Taesup Song; Seungchul Kim; 1Virtual Lab Inc.; 1Yeungnam University; 1KIST

3:30 PM Break

2:50 PM Solid-State, High-Shear Manufacturing to Enable Lower Cost and Higher Performance Materials for Energy Conversion: Glenn Grant; David Catalin; Jens Darsell; Anthony Reynolds; Suveen Mathaudhu; 1Pacific Northwest National Laboratory

4:20 PM Transient Liquid Phase Bonding of Ni-based-superalloy-H230 for Microchannel Heat Exchanger for Application in Supercritical CO2: Monica Kapoor; Ömer Dogan; Brian Paul; Rajesh Saramani; Patrick McNuff; 1National Energy Technology Lab; 1Oregon State University

4:40 PM Invited
Ph-Bi-Sb and Pb-Bi-Ge: Novel Alternative Alloys for Application as Heat-transport Fluids in Concentrated Solar Power Systems: Miroslav Popovic; Alan Bolind; Mark Asta; Peter Hosemann; Ruijie Shao; 1UC Berkeley

www.tms.org/TMS2017
Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Modeling Approaches to Improve Fatigue Predictions
Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Monday PM
February 27, 2017
Room: 23C
Location: San Diego Convention Ctr

Session Chair: Jean-Briac le Graverend, Texas A&M University

2:00 PM Keynote
ICME and Computational Mechanics for Advancing Predictive Capabilities in Fatigue Modeling: Somnath Ghosh1; Johns Hopkins University

2:40 PM Invited
Perspectives and Prospects for Microstructure-based Models to Quantify Fatigue Life: Dennis Dimiduk2; BlueQuartz Software, LLC

3:00 PM
Advances in Mesoscale Crystal Plasticity under Cyclic Loading: Gustavo Castelluccio3; Sandia National Laboratories

3:20 PM Invited
Physically-based Simulation of Surface Microcrack Initiation and Comparison with Experimental Data: Maxime Sauzay4; Jia Liu5; Jérôme Hazan1; CEA

3:40 PM Break

4:00 PM
Simulation of Microstructurally-influenced Fatigue Crack Propagation: Patrick Golden1; Robert Brockman2; Rebecca Hoffman2; William Musinski3; Sushant Jha1; Reji John1; Air Force Research Laboratory; University of Dayton Research Institute; Universal Technology Corporation

4:20 PM
Probabilistic Analysis of the Fatigue Incubation Life Distribution in an AT13 Cast Aluminum Alloy Based on a Multi-sized Pore-sensitive Numerical Model: Lin Yang1; Yan Jin1; Zhiqiang Xu2; Tongguang Zhai1; University of Kentucky; Yanshan University

4:40 PM
Statistical Prediction of Crack Initiating Rate from Pre-fractured Constituent Particles in High Strength Al Alloys: Pei Cai1; Yan Jin1; Lin Yang1; Tongguang Zhai1; University of Kentucky

5:00 PM
Finite Elements Simulation and Statistical Analysis of Elastic Stress Field at Surface of Ti6Al4V Polycrystals in the Presence of Textured Regions: Loïc Signor1; Van Truong Dang1; Patrick Villechaise1; Samuel Hemery1; Pprime Institute (CNRS - ISAE/ENSMA - Poitiers University)

Sponsored by: TMS Functional Materials Division, TMS: Biomaterials Committee, TMS: Electronic Packaging and Interconnection Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Fay Hua, Intel Corporation; Tae-Kyu Lee, Portland State University; Young-Ho Kim, Hanyang University; Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Choong-un Kim, University of Texas at Arlington; Nuggehalli Ravindra, New Jersey Institute of Technology

Monday PM
February 27, 2017
Room: 33B
Location: San Diego Convention Ctr

Session Chair: Choong-Un Kim, University of Texas - Arlington; Srinivasa Rao Singamaneni, North Carolina State University

2:00 PM Introductory Comments

2:10 PM Keynote
Direct Conversion of h-BN into c-BN and Formation of Epitaxial c-BN/Diamond Heterostructures: Jagdish (Jay) Narayan1; North Carolina State University

2:40 PM Invited
Elastic Coupling between Layers in Two-dimensional Materials: Yang Gao1; Angelo Bongiorno2; Elisa Riedo3; City University of New York Advanced Science Research Center, The City College of New York; CUNY College of Staten Island

3:10 PM
Synthesis and Characterization of Nitrogen-vacancy (NV) Centers in Diamond Nanostructure Formed by Laser Annealing Technique: Anagh Bhaumik1; Ariful Haque2; Jagdish Narayan1; North Carolina State University

3:30 PM Break

3:45 PM Invited
In-situ TEM Characterization of Nanoscale Systems in Complex Environments: Shen Dillon1; University of Illinois at Urbana-Champaign

4:15 PM Invited
Materials Science in Two Dimensions: Daniel Kaplan1; U.S. Army RDECOM-ARDEC

4:45 PM
Pulsed Laser Deposition of Cubic Boron Nitride Films: Ariful Haque2; Anagh Bhaumik1; Jagdish Narayan1; NCSU

5:05 PM Invited
Quantum Dot Formation In Core-Shell Nanowires: Q. Zhang1; S.H. Davis2; Peter Voorhees3; Northwestern University
Fundamental Aspects and Modeling Powder Metal Synthesis and Processing — Powder Atomization and Synthesis

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee

Program Organizers: Paul Prichard, Kennametal; Eugene Olevsky, San Diego State University; Iver Anderson, Ames Laboratory

Monday PM Room: 16A February 27, 2017 Location: San Diego Convention Ctr

Session Chair: Iver Anderson, Ames Laboratory - DOE

2:00 PM Invited
Fundamental Parameters for Control of Two-Fluid Close-Coupled Gas Atomization: Process Observations and Modeling with Correlations to Metal Powder Yields: Iver Anderson1; Emma White1; Jonathan Regele2; Vince McDonell1; David Byrd1; Ross Anderson1; 1Ames Laboratory; 1Iowa State University; 1University California-Irvine

2:40 PM
A Study of the Brazing Filler Pastes by Gas Atomized Cu-Fe Powders for Cu/STS Joints: Won-Jung Choi1; Sang-Hun Choi1; Jae-Jin Sim1; Won Ju1; Basit Ali1; Tae-hyuk Lee1; Kyung-Mook Lim1; Bum-Sung Kim1; Taek-Soo Kim1; Kyoungh-Tae Park1; 1Korea Institute of Industrial Technology; 1Sheffield University

3:00 PM
Fabrication of Ti Powder by Combined Techniques of Cold Crucible and Gas Atomization: Taek-Soo Kim1; Sun-Woo Nam1; Sang-Hyun Lee1; Jae-Jin Sim1; Seok Jun Seo1; Kyung-Mook Lim1; Bum-Sung Kim1; Kyoungh-Tae Park1; 1Korea Institute of Industrial Technology

3:20 PM
Microstructural Development in Binary Aluminum-Copper Alloy Powders during Gas Atomization: Tian Liu1; Luke Brewer1; 1University of Alabama

3:40 PM Break

4:00 PM
Influence of the Plasma Gas Composition and Power Level on the Processing of Powders by Induction Plasma: Siwen Xue1; Richard Dolbec1; Thomas Kinsey1; 1Tekna Plasma Systems Inc

4:20 PM
Mesoscale Modeling of Single Particle Impact Induced Microstructural Evolution during Cold Spray of Aluminum Powders: Sumit Suresh1; Benjamin Bedard1; Tyler Flanagan1; Seok-Woo Lee1; Mark Aindow1; Harold Brody1; Xueimei Wang1; Victor Champagne1; Avinash Dongare1; 1University of Connecticut; 1United Technologies Research Center; 1U.S. Army Research Laboratory

4:40 PM
Algorithmic Prediction of Bulk Properties from Powdered Feedstock Consolidated via Laser-assisted Cold Spray: Aaron Birt1; Diran Apelian1; 1Worcester Polytechnic Institute

5:00 PM
Formation of Nano-lamellar Structure in Ni-Al High-density Energetic Material by Cryomilling: Minseok Oh1; Byungmin Ahn1; 1Ajou University

5:20 PM
Microstructural Evolution in Dilute Mg-X Binary Alloys Processed by Mechanical Alloying: Christian Roach1; Kiran Solanki1; Suveen Mathaudhu1; 1UC: Riverside; 1Arizona State University

GAT-2017 (Gamma Alloys Technology - 2017) — Surface Protection with Panel Discussion and Oral Posters

Sponsored by: TMS Structural Materials Division, TMS: Titanium Committee

Program Organizers: Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Monday PM Room: Pacific 17 February 27, 2017 Location: Marriott Marquis Hotel

Session Chairs: Al Sommer, Del West Engineering; Laiqi Zhang, Univ. of Science and Technology Beijing

2:00 PM Invited
The Role of Surface Protection for High Temperature Performance of TiAl Alloys: Michael Schütze1; 1DEHEMA-Forschungsinstitut

2:25 PM
Effect of Surface Condition on the RT Tensile Properties and Oxidation Resistance of TiAl Alloys: Baochao Lin1; Renci Liu1; Qing Jia1; Yuyou Cui1; Rui Yang1; 1Institute of Metal Research

2:45 PM
Mechanical Properties and Environment Induced Embrittlement of a High Nb Containing TiAl Alloy: Tiebang Zhang1; Zeen Wu1; Hongchao Kou1; Jinshan Li1; 1Northwestern Polytechnical University

3:05 PM Panel Discussion Topic 1 (Surface Engineering): Al Sommer (Del West Engineering) and Michael Schuetze (DEHEMA)

3:40 PM Break

3:55 PM
Observation of Modulated Structure in High Nb-containing TiAl Alloy by Synchrotron Radiation and Electron Microscopy: J. Sun1; 1Shanghai Jiao tong University

4:15 PM
Origin of Enhanced Ductility of TiAl Alloys: A Hybrid Study on the Deformation Behavior of Gamma Phase in TiAl Alloys Using In-situ Transmission Electron Microscopy Experiments and Molecular Dynamics: Seong-Woong Kim1; Seung-Hwa Ryu1; Jaemin Kim1; Young-Sang Na1; Seung-Eun Kim1; Jong-Taek Yeom1; Andrew Minor1; 1Korea Institute of Materials Science (KIMS); 1KAIST; 1Lawrence Berkeley National Laboratory

4:35 PM
Determination of the Isothermal Sections of the Ti-Al-Nb Ternary System at 1300 °C and 1400 °C: Shuai Xu1; Yong Xu1; Xiangjun Xu1; Jianping He1; Yongfeng Liang1; Junpin Lin1; 1University of Science and Technology Beijing; 1Shandong Jianzhu University; 1Zhongyuan University of Technology

4:55 PM Concluding Comments Briefing of Selected Posters
Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session II

Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Alloy Phases Committee, TMS: Nuclear Materials Committee, TMS: Phase Transformations Committee

Program Organizers: Wei Xiong, University of Pittsburgh; Shuanglin Chen, CompuTherm LLC; Frederic Danois, Université de Rouen; Indrajit Charit, University of Idaho

Session Chairs: Dieter Isheim, Northwestern University; Duc Nguyen-Manh, Culham Centre for Fusion Energy

Monday PM Room: 31C
February 27, 2017 Location: San Diego Convention Ctr

ICME Gap Analysis: Structural Materials for Automotive Applications — Light-weight Materials for Automotive Applications

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Integrated Computational Materials Engineering Committee

Program Organizers: Dongwon Shin, Oak Ridge National Laboratory; Jerry Gibbs, Department of Energy; Will Joost, Department of Energy; Nicholas Hatcher, QuesTek Innovations, LLC

Monday PM Room: 10
February 27, 2017 Location: San Diego Convention Ctr

Session Chairs: Will Joost, Department of Energy; Nick Hatcher, QuesTek Innovations, LLC

2:00 PM Invited
The Phase Field Method and Materials Design: K. Kim1; M.P. Guruajan1; C. Wolverton1; Peter Voorhees1; 1Northwestern University

2:40 PM Invited
Case Studies and Gap Analyses in ICME for Structural Materials in Automotive Applications: Xin Sun1; 1Pacific Northwest National Laboratory

3:20 PM Break

3:35 PM Invited
ICME for Automotive Composites — Development of Predictive Integrated Stochastic Manufacturing and Structural Performance Models: Venkat Aitharaju1; 1General Motors

4:15 PM Invited
Integrated Computational Materials Engineering for Automotive Light Metals: Alan Luo1; 1The Ohio State University

4:55 PM Invited
Limitation of the ICME Approach for Mg Alloy Production via Twin Roll Casting Process: In-Ho Jung1; 1McGill University

Interface-Mediated Properties of Nanostructured Materials — Nanolaminates and Nanotwinned Materials II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University; Michael Demkowicz, Texas A&M University

Monday PM Room: Pacific 23
February 27, 2017 Location: Marriott Marquis Hotel

Session Chairs: Michal Demkowicz, Texas A&M University; Caizhi Zhou, Missouri University of Science and Technology

2:00 PM Invited
Strength, Plasticity, and Toughness of Nanolaminated Materials: Jian Wang1; 1University of Nebraska-Lincoln

2:30 PM Invited
Fracture Behavior of Nanostructured Heavily Cold Drawn Pearlite: Influence of the Interface: Nagamani Jaya Balila1; Christoph Kirchlechner1; Gerhard Dehm1; 1MPIE GmbH

3:00 PM
Excess Volume and Defect Annealing in Ultrafine-grained Ni Studied by Difference Dilatometry: Jaromir Kotzurek1; Anton Hohenwarter1; Macej Krystian1; Wolfgang Sprengel1; Reinhard Pippau1; Roland Würschum1; 1Graz University of Technology; 2University of Leoben; 3Austrian Institute of Technology
3:20 PM
Mechanisms for Stable Nanocrystalline Materials via Nanometallic Multilayers: Juan Riaño Zambrano1; Andrea Hodge1; 1University of Southern California

3:40 PM Break

3:55 PM Invited
On the Frank-Bilby Equation and the Corresponding Relaxed Dislocation Structures: Aurelien Vattré1; 1CEA

4:25 PM Invited
Deformation Mode Transitions in Amorphous Cu45Zr55/Crystalline Cu Nanolaminates: Christian Sterwerf1; Tyler Kaub2; Chuang Deng2; Greg Thompson2; Lin Li2; 1Bielefeld University; 2University of Alabama; 2University of Manitoba

4:55 PM
Dislocation Nucleation Controlled Deformation in Angstrom Scaled FCC Twins: Jiangwei Wang1; Frederic Sansoz2; Scott Mao1; 1University of Pittsburgh; 2The University of Vermont

5:15 PM
Grain Boundary Anisotropy-mediated Properties of fcc and bcc Materials: Brandon Runnels1; 1University of Colorado Colorado Springs

5:30 PM
Molecular Dynamics Simulation of Face-centered Cubic Metallic Nanospheres under Uniaxial Compression: Sellim Bel Haj Salah1; Céline Gerard1; Laurent Pizzagalli1; 1Institut Pprime, CNRS - ENSMA - Université de Poitiers

Magnesium Technology 2017 — Poster Preview Session
Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Monday PM
February 27, 2017
Room: 5A
Location: San Diego Convention Ctr

Session Chair: To Be Announced

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Fuels II
Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Nuclear Materials Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Ramprasad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Monday PM
February 27, 2017
Room: Cardiff
Location: Marriott Marquis Hotel

Session Chairs: Yongho Sohn, University of Central Florida; Vineet Joshi, Pacific Northwest National Laboratory

2:00 PM
Reduced Modulus and Hardness of Uranium-molybdenum Solid Solution as a Function of Mo Composition and Related Phase Transformations: Ryan Newell1; Youngjoo Park1; Abhihek Mehta1; Dennis Keiser1; Yongho Sohn1; 1University of Central Florida; 1Idaho National Laboratory

2:20 PM
Interdiffusion and Reaction between U and Zr: Youngjoo Park1; Ryan Newell1; Abhishek Mehta1; Dennis Keiser1; Yongho Sohn1; 1University of Central Florida; 1Idaho National Laboratory

2:40 PM
Microstructural Analysis of Electrochemically Formed Zirconium Coatings for Uranium-Molybdenum Nuclear Fuels: Alexander Snirnov1; John Scott O’Dell1; 1Plasma Processes LLC

3:00 PM
Sensitivity Analysis on the Temperature of U–Mo/Al Plate-type Dispersion Fuel: Faris B. Sweidan1; Jeong Sik Yim1; Ho Jin Ryu1; 1Korea Advanced Institute of Science and Technology; 1Korea Atomic Energy Research Institute (KAERI)

3:20 PM
Characterization of Metallic Fuel Slugs Fabricated by Injection Casting: Jeong-Yong Park1; Jong-Hwan Kim1; Ki-Hwan Kim1; Hoon Song1; Jung-Won Lee1; Seok-Jin Oh1; Seoung-Woo Kuk1; Young-Mo Ko1; Yoon-Myung Woo1; Chan-Bock Lee1; 1Korea Atomic Energy Research Institute

3:40 PM Break

4:00 PM
Characterization of Nuclear Fuels by Neutron Diffraction and Energy-resolved Neutron Imaging: Svend Vogel1; 1Los Alamos National Laboratory

4:20 PM
Microstructure Evolution during Spark Plasma Sintering of Nuclear Fuel Pellets and Their Large-scale Manufacturability: Ghatu Subhash1; James Tulenko1; 1University of Florida

4:40 PM
Fabrication and Characterization of TRISO Particles Using 800µm Uranium Nitride and Surrogate ZrO2 Kernels: Brian Jolly1; Grant Helmreich1; Kevin Cooley1; John Dyer1; Kurt Terrani1; 1Oak Ridge National Laboratory

5:00 PM
Fission Product Electron Microscopy Analysis of Post Irradiated TRISO-coated Particles from the Second Advanced Gas Reactor Experiment: Clemente Parga1; Jeffery Aguilar1; Isabella van Roojen1; 1Idaho National Laboratory

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Next Generation Superalloys II
Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee
Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmayer, Karlruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Monday PM
February 27, 2017
Room: Pacific 16
Location: Marriott Marquis Hotel

Session Chairs: Howard Stone, University of Cambridge; Nathalie Bozzolo, MINES-ParisTech

2:00 PM Invited
Nickel-based Superalloys Reinforced by Gamma Prime and Gamma Double Prime Precipitates: Howard Stone1; Paul Mignanelli1; Nicholas Jones1; Ed Pickering2; Olivier Messé2; Catherine Rae2; Mark Hardy3; 1University of Cambridge; 2University of Manchester; 3Rolls-Royce plc

2:30 PM
Effect of Alloying on the Microstructure and Properties of Superalloys Containing Gamma Prime and Gamma Double Prime Precipitates: Paul Mignanelli1; Nicholas Jones1; Giles Rought Whitta1; Felicity Dear1; Mark Hardy1; Howard Stone1; 1University of Cambridge; 1Rolls-Royce plc

2:50 PM
Gamma-Prime Strengthened Superalloys for Heavy Duty Gas Turbine Applications: Andrew Deters1; Reza Sharghi-Moshaghin1; Ning Zhou1; Shenyuan Huang1; Richard DiDomizio1; 1General Electric Global Research
3:10 PM Invited
Grain Size Refinement of Ga-doped Nd-Fe-B Magnet: Yasuhiro Une; Kazuhiro Kubo; Tetsuhiho Mizoguchi; Takahiko Iriyama; Masato Sagawa; Masashi Matsuura; Satoshi Sugimoto; 1Intermetallcics Co., Ltd; 2Tohoku University

3:40 PM Break

4:00 PM Invited
High-coercivity Dy-free Nd-Fe-B Permanent Magnets: Kazuhiro Hono; 1National Institute for Materials Science

4:30 PM Microstructural Engineering of Nd-Fe-B Permanent Magnets with Significantly Reduced Dy: Matt Tianen; Catherine Galligan; Jie Li; Peter Moran; Yongmei Jin; 1Michigan Tech

4:50 PM Electrical Resistivity Enhancement by Doping with Eutectic DyF₆-LiF Salt Mixture in Nd-Fe-B Die-upset Magnet: Hae-Woong Kwon; Kyung Min Kim; Dong Hwan Kim; Jung Gu Lee; Ji Hoon Yu; 1Pukyong National University; 2Star-group Ind. Co.; 3Korea Institute of Materials Science

5:10 PM Coercivity Enhancement of Hot-deformed NdFeB Magnets by GBDP with NdHₓ and Metallic Nanoparticles: Junggoo Lee; Heeyoung Cha; Younkyoung Baek; Jihun Yu; Haewoong Kwon; 1Korea Institute of Materials Science

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — High Temperature Creep of Structural Materials
Sponsored by:TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nuclear Materials Committee Program Organizers: Indrajit Chant, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

Session Chairs: James Earthman, University of California - Irvine; Rajiv Mishra, University of North Texas

2:00 PM Keynote
Fundamentals of Creep in Aluminum Over a Very Wide Temperature Range: Michael Kassner; 1Kamia Smith; 1University of Southern California

2:30 PM Invited
Development of Creep-Resistant Austenitic Stainless Steels for High Temperature Applications: Philip Maziasz; 1Oak Ridge National Laboratory

2:50 PM Invited
Effect of Dynamic Strain Aging on Creep in Titanium Alloys: Priyanka Agrawal; S. Karthickeyan; Dipankar Banerjee; 1Indian Institute of Science

3:10 PM Invited
Mechanisms Governing the Creep Behavior of High Temperature Alloys for Generation IV Nuclear Energy Applications: Vijay Vasudevan; Xingshao Wen; Laura Carroll; Richard Wright; T. L. Sham; 1University of Cincinnati; 2Electrodiesel Corp; 3Idaho National Laboratory; 4Oak Ridge National Laboratory

3:30 PM Break

3:45 PM Keynote
Creep of Dispersion Strengthened Materials – Emergence of Paradigms Challenging the Old Theories: Rajiv Mishra; 1University of North Texas

Materials Science for High-Performance Permanent Magnets — Nd-Fe-B: Microstructure and Properties
Sponsored by:TMS Functional Materials Division, TMS: Magnetic Materials Committee Program Organizers: Satoshi Hiroswa, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Gufleisf, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Monday PM Room: 24C February 27, 2017 Location: San Diego Convention Ctr

Session Chairs: Satoshi Hiroswa, National Institute for Materials Science; Josef Fidler, Vienna University of Technology

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

2:00 PM Invited
The Current State and Future of the Rare Earth Magnets: Hajime Nakamura; 1Shin-Etsu Chemical Co., Ltd.

2:30 PM Quantifying the True Enhancement in Coercivity by Dy Diffusion into Sintered Nd-Fe-B Alloys: Caietan Nebedim; Matthew Kramer; 1Ames Laboratory, US Department of Energy

2:50 PM Microstructure and Coercivity in Ultra-fine Grained Nd-Fe-B Sintered Magnets: Tsuiseke Sasaki; Tadakatsu Ohkubo; Yasuhiro Une; Hirokaz Kudo; Masato Sagawa; 1National Institute for Materials Science; 2Intermetallcics Co. Ltd.
4:15 PM Invited
Uniaxial and Multiaxial Miniature Specimen Creep Testing of Single Crystal Ni-base Superalloys (SX): Gunther Eggeler; Philip Wollgramm; David Bürger; Lijie Cao; Xiaoxiang Wu; Alireza Parsa; 1; Ruhr University Bochum

4:35 PM Invited
TerraPower HT9 Mechanical and Thermal Creep Properties: Cheng Xu; Micah Hackett; TerraPower

4:55 PM Invited
Creep Behavior of a Microstructurally Stable Nanocrystalline Alloy: K. Darling1; M Rajagopalan2; M Komarasamy1; M Bhartia1; B Hornbuckle1; R Mishra1; Kiran Solanki2; 1; ARL; 2; Arizona State University; 3; UNT

5:15 PM Invited
On the Creep Behavior of Dual-Scale Particle Strengthened Nickel Based Alloy: Aniket Dutt; Somayeh Paseban; Indrajit Charit; Rajiv Mishra1; University of North Texas; 2; University of Idaho

Mechanical Behavior of Nanosctructured Materials—Mechanical Milling
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinheng Zhang, Purdue University; Yuntian Zhu, North Carolina State University; Joseph Poon, University of Virginia; Suryanarayana Challapalli, University of Central Florida; Enrique Lavernia, University of California, Irvine; Haiyan Wang, Texas A&M University

Monday PM
February 27, 2017
Room: 30D
Location: San Diego Convention Ctr

Funding support provided by: AJA International; Hysitron Inc.

Session Chairs: C. Suryanarayana, University of Central Florida; Pascal Bellon, University of Illinois, Urbana-Champaign; Tongde Shen, Yanshan University

2:00 PM Invited
Processing and Properties of Nanostructured Metallic Systems: John Lewandowski1; 1; Case Western Reserve University

2:25 PM
Dependence of Shear Mixing on Alloy Properties: A Study on Cu-X-Mo Ternary Alloys: Nishe Vera1; Nirab Pani1; John Beach1; Pascal Bellon1; Robert Averback1; 1; University of Illinois at Urbana-Champaign

2:45 PM Invited
Mechanical Alloying by Severe Plastic Deformation: Reinhard Pippan1; Andrea Bachmat1; Lisa Kraemer1; Pradipta Ghosh1; Karoline Kormout2; Timo Mueller1; Anton Hohenwarter1; Oliver Renk1; 1; Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; 2; Montanuniversität Leoben

3:10 PM
Nanostructured Ferrite Steels: Synthesis, Microstructure and Mechanical Properties: Somayeh Paseban1; Indrajit Charit1; Yaqiao Wu1; Jatuporn Burns1; James Cole1; Darryl Butt1; 1; University of Idaho; 2; Boise State University; 3; Idaho National Laboratory

3:30 PM Invited
Break

3:50 PM Invited
Microstructures and Mechanical Properties of Nanostructured and Ultrafine Grained Al Alloy and Cu Matrix Nanocomposites Fabricated by Thermomechanical Powder Consolidation: Deliang Zhang1; Dengshan Zhou1; Xun Yao1; Jamiao Liang1; Wei Zeng1; Charlie Kong1; Paul Munroe1; 1; Northeastern University; 2; Shanghai Jiao Tong University; 3; University of New South Wales

Mechanical Properties of Aluminum Composites with Nano Alumina Reinforcement: William Harrigan1; 1; Gamma Technology, LLC

4:35 PM Invited
Ultrahigh-strength Nanostructured Magnesium Alloys via Mechanical Allaying: Suveen Mathanadu1; 1; University of California Riverside

5:00 PM
Suppressing Oxide Nanoparticle Coarsening and Cu Nanograined Growth in Nanostructured Cu Matrix Nanocomposites by Adding Ti: Dengshan Zhou1; Wei Zeng1; Charlie Kong1; Paul Munroe1; Deliang Zhang1; 1; Northeastern University; 2; Shanghai Jiao Tong University; 3; The University of New South Wales

5:20 PM
Achieving Enhanced Room Temperature Ductility in Bulk Nanostructured Mg: Xin Wang2; Lin Jiang2; Dalong Zhang2; Enrique Lavernia1; Julie Schoenung1; 1; University of California, Irvine

Microstructural Processes in Irradiated Materials—Reactor Pressure Vessel Steels
Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mavand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Monday PM
February 27, 2017
Room: Del Mar
Location: Marriott Marquis Hotel

Session Chairs: Peter Wells, University of California-Santa Barbara; Peter Hosemann, University of California-Berkeley

2:00 PM Invited
A Summary of ATR-2 Reactor Pressure Vessel Steel High Fluence Irradiation: Some New Science and Implications to Extended Reactor Life: G. Robert Odette1; Peter Wells1; Takuya Yamamoto1; Nathan Almirall1; Randy Nanstad1; 1; University of California Santa Barbara; 2; Oak Ridge National Laboratory

2:30 PM
Structural Characterization of Precipitates in Neutron Irradiated Surveillance Reactor Pressure Vessel Steels: David Sprouster1; E. Dooyehe1; S Ghose1; M Elbaksha1; P Wells1; T Stan1; N Almirall1; G. R. Odette1; M. Sokolov1; R. Nanstad1; L. Ecker1; 1; Brookhaven National Laboratory; 2; Materials Department, University of California, Santa Barbara; 3; Oak Ridge National Laboratory

2:50 PM
Modeling Cu-Mn-Ni-Si Precipitation in Reactor Pressure Vessels: Mahmood Mavand, 1; Huibin Ke1; Peter Wells1; George Odette1; Dane Morgan1; 1; University of Wisconsin-Madison; 2; University of California-Santa Barbara

3:10 PM
Kinetic Monte Carlo Modeling of CuMnNiSi Precipitation in Reactor Pressure Vessel Steels: Shipeng Shu1; Dane Morgan1; Peter Wells1; George Odette1; Dane Morgan1; 1; University of Wisconsin-Madison; 2; University of California, Santa Barbara

3:30 PM
Phase-field Modelling of Gamma-precipitate Behaviour in RPV Steel: Kunok Chang1; Junhyun Kwon1; 1; Korea Atomic Energy Research Institute
3:50 PM Break

4:05 PM Invited
Effect of Heat Load on Microstructural Development in Irradiated Steels: Naoyuki Hashimoto; Eriko Suzuki; Hokkaido University; Japan Atomic Energy Agency

4:35 PM
Instrumental Methodology at the Atomic Scale to a Better Understanding of Grain Boundary Segregation Mechanisms in Steels: Ali Alkatrova; Bertrand Radigue; Fabien Cuvilly; Emmanuel Cadel; Auriane Etienne; Laurence Chevalier; David Gibouin; Philippe Periege; GPM, University of Rouen

5:05 PM
Hardening Mechanism of a Neutron Irradiated Reactor Pressure Vessel Steel Studied by APT, PAS and WB-STEM: Masaki Shimodaira; Takeshi Toyama; Kenta Yoshida; Koji Inoue; Yasuyoshi Naga; Toshimasa Yoshi; Milan Konstantinovic; Robert Gerard; Tohoku University; Kyto University; SCK-CEN; Tractebel ENGIE

5:15 PM
Chemistry Factor Development for Prediction of Reactor Pressure Vessel Embrittlement: Peter Wells; Takuya Yamamoto; Huibin Ke; Nathan Almiral; Dan Morgan; G Odette; UC Santa Barbara; University of Wisconsin, Madison

5:35 PM
Computer Simulation of Defect-free Channel Formation by the Monte Carlo Method: Peter Doyle; Kelsa Benensky; Steven Zinkle; University of Tennessee, Knoxville

5:55 PM
Investigating Effects of Microstructural Heterogeneity on Mechanical Properties Using Samples Prepared by Park Plasma Sintering: Andy Godfrey; Kainan Zhu; Chenglu Zhang; Tsinghua University

4:20 PM Invited
Taming Microstructure of Nanostructured Alloy through the Concurrence of Phase Transition and Grain Growth: Feng Liu; Northwestern Polytechnical University

4:45 PM Invited
Tuning Heterogeneity in Metals for Better Hardenability and Deformability: Examples from TWIP Steels and High Entropy Alloys: Yujie Wei; LNM, Institute of Mechanics, CAS

5:10 PM
Heterogeneous Structures: A New Paradigm for Designing Super Strong and Tough Materials: Xiaolei Wu; Yuntian Zhu; Institute of Mechanics, Chinese Academy of Sciences; North Carolina State University

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**Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Heterogeneous Materials**

**Sponsored by:** TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee

**Program Organizers:** Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huajian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Monday PM  Room: 24B  Location: San Diego Convention Ctr

**Session Chairs:** Yuntian Zhu, NC State University; Kei Ameyama, Ritsumeikan University

2:00 PM Invited
Unique Deformation Behavior of Harmonic Structure Materials with High Strength and High Ductility: Kei Ameyama; Mie Ota; Ritsumeikan University

2:25 PM
Deformation Mechanisms in Multiscale Architectured Harmonic-structured Nickel: Dmitry Orlov; Stephen Hall; Jinming Zhou; Mie Ota; Kei Ameyama; Lund University; Ritsumeikan University

2:45 PM Invited
Atomistic and Mesoscale Modeling Investigation of Deformation Mechanisms in Heterogeneous Materials: Shenyang Hu; Pacific Northwest National Laboratory

3:10 PM Invited
Tensile Properties of Heterogeneous Structures Embedded with Nanotwins: Nairong Tao; F.K. Yiu; H.Y. Yi; Y. Zhang; Y.S. Li; Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

2:35 PM Break

3:55 PM Invited
Investigation of Effects of Microstructural Heterogeneity on Mechanical Properties Using Samples Prepared by Park Plasma Sintering: Andy Godfrey; Kainan Zhu; Chenglu Zhang; Tsinghua University

4:20 PM Invited
Taming Microstructure of Nanostructured Alloy through the Concurrence of Phase Transition and Grain Growth: Feng Liu; Northwestern Polytechnical University

4:45 PM Invited
Tuning Heterogeneity in Metals for Better Hardenability and Deformability: Examples from TWIP Steels and High Entropy Alloys: Yujie Wei; LNM, Institute of Mechanics, CAS

5:10 PM
Heterogeneous Structures: A New Paradigm for Designing Super Strong and Tough Materials: Xiaolei Wu; Yuntian Zhu; Institute of Mechanics, Chinese Academy of Sciences; North Carolina State University

**Nanocomposites IV: Nanoscience for Renewable Energy — NanoScience Part II**

**Sponsored by:** TMS Structural Materials Division, TMS: Composite Materials Committee

**Program Organizers:** Changsoo Kim, University of Wisconsin-Milwaukee; Simona Murph, Savannah River National Laboratories; Murahidhan Paramsothy, NanoWorld Innovations (NWI); Meisha Shofner, Georgia Institute of Technology

Monday PM  Room: Pacific 25  Location: Marriott Marquis Hotel

**Session Chairs:** Changsoo Kim, University of Wisconsin-Milwaukee; Meisha Shofner, Georgia Institute of Technology

2:00 PM Invited
Combinatorial Fabrication of Composite Photocatalytic Nanostructures by Oblique Angle Co-Deposition: Steven Larson; Weijie Huang; Yiping Zhao; University of Georgia

2:40 PM
Introducing Dislocation Lines for Controlled Thermal Conductivity in Si-based Nanocomposites by Liquid-phase Sintering: Jun Xie; Yui Ohishi; Satoshi Ichikawa; Aikebaier Yusufu; Hiroaki Muta; Ken Kurosaki; Shinsuke Yamanaka; Osaka University; University of Fukui

3:00 PM
Fabrication of Silicon/Graphite Nanocomposite as Promising Anode Material for Lithium-ion Battery Applications: Maziar Ashouri; Qianran He; Leon Shaw; Illinois Institute of Technology (IIT)

3:20 PM Break

3:40 PM Invited
Photonic Curing for Advanced Thin Film and Device Development: Pooran Joshi; Teja Kuruganti; Tolga Aytug; Oak Ridge National Laboratory

4:20 PM
Surface-Functionalized Nanoporous Carbons for Kinetically Stabilized Complex Hydrides through Lewis acid-Lewis base Chemistry: Christopher Carr; Eric Majzoub; University of Missouri St. Louis

4:40 PM
Polypyrrole Coated Silver Nanowire Supercapacitors: Recep Yuksel; Husein Unalan; Middle East Technical University
Nanostructured Materials for Nuclear Applications II — Session II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Nanomechanical Materials Behavior Committee, TMS: Nuclear Materials Committee

Program Organizers: Cheng Sun, Idaho National Laboratory; Khalid Hattar, Sandia National Laboratories; Celine Hin, Virginia Tech; Fei Gao, University of Michigan; Osman Anderoglu, Los Alamos National Laboratory; Mitra Taheri, Drexel University; Haiming Wen, Idaho State University

Monday PM
February 27, 2017
Room: Pacific 24
Location: Marriott Marquis Hotel

Session Chairs: Fei Gao, University of Michigan; Osman Anderoglu, Los Alamos National Laboratory

2:00 PM Invited
Radiation Interaction of Nanostructured Ceramics: Tiankai Yao; Fengyuan Lu; Jie Liu; Rensselaer Polytechnic Institute; Louisiana State University

2:30 PM Invited
Magnetic and Electrical Responses of Nanomaterials under Irradiation - New Type of Radiation Detection: You Qiang; University of Idaho

3:00 PM Point Defect Diffusion in Oxide Dispersion Strengthened Steels: Markus Mock; Karsten Albe; TU Darmstadt

3:20 PM Defect Evolution in Stannate Pyrochlores under Swift Heavy Ion Irradiation: Chien-Hung Chen; Cameron Tracy; Maik Lang; Christina Trautmann; Rodney Ewing; Stanford University; University of Tennessee; GSI Helmholtz Centre for Heavy Ion Research

3:40 PM Break

4:00 PM Invited
Probing Nanoscale Damage Gradients in Irradiated Materials with Spherical Nanoindentation: Siddhartha Pathak; Jordan Weaver; Cheng Sun; Yongqiang Wang; Russ Doemer; Surya Kalidindi; Nathan Mara; University of Nevada, Reno; Los Alamos National Laboratory; University of California at San Diego; Georgia Institute of Technology

4:30 PM Radiation Effects on the Mechanical Properties of Nanoporous Gold: Nicolas Birod; T. John Balk; Remi Dingeville; Khalid Hattar; University of Kentucky; Sandia National Laboratories

4:50 PM Radiation Resistance of a FeCr Model Alloy Nanostructured by Severe Plastic Deformation: Bertrand Radiquet; Nariman Enikeev; Marina Abramova; Julia Ivanisenko; Helena Zapolsky; Xavier Sauvage; Auriane Etienne; Cristelle Pareige; Ruslan Valiev; GPM UMR CNRS 6634 - Université et INSA de Rouen; Ufa State Aviation Technical University; Institute of Nanotechnology, Karlsruhe Institute for Technology

5:10 PM Synthesis and Microstructural Characterization of Zirconium Oxide Dispersion Strengthened Model Alloy and 9 Cr Ferritic Steel: Raghavendra K G; Arup Dasgupta; Raj Narayan Hajra; K. Jayasankar; S. Saroja; IGCAR Kalpakkam; CSIR-IMMT

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials

XVI — Phase Stability & Phase Equilibria

Sponsored by: TMS Functional Materials Division, TMS: Alloy Phases Committee

Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Cheng Kung University; Jie-Ho Lee, Hongik University; Ikuo Ohnuma, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Monday PM
February 27, 2017
Room: 25A
Location: San Diego Convention Ctr

Session Chairs: Shih-kang Lin, National Cheng Kung University; Chih-Ming Chen, National Chung Hsing University

2:00 PM Invited
Zirconia Mystery? Why and How Zirconia Phases and Phase Diagrams Have Been Misunderstood for a Long Time?: Masahiro Yoshimura; National Cheng Kung University

2:30 PM Searching for New Permanent Magnetic Phases: The Systems Bi-Mn-T (T = Ni, Rh, Pt): Peter Kainzbauer; Martin Marker; Klaus Richter; Herbert Ipser; University of Vienna

2:50 PM Phase Stability of Mixed-Cation Alkaline-Earth Hexaborides: Insights from X-ray Diffraction and High-resolution Transmission Electron Microscopy: James Cahill; Michael Alberga; Doreen Edwards; Scott Misture; Victor Vasquez; Olivia Graeve; University of California, San Diego; Alfred University; University of Nevada, Reno

3:10 PM Effect of Structural Order on Pulsed Laser Crystallization Kinetics of Amorphous Germanium Thin Films: Tian Li; Leonarus Bimo Bayu Aji; Tae Wook Heo; Melissa Santala; Sergei Kucheyev; Geoffrey Campbell; Lawrence Livermore National Laboratory; Oregon State University

3:30 PM Break

3:50 PM In-situ Characterization of the Transverse Propagation Mechanism for Crystallization of Amorphous Germanium and the Resulting Microstructure: Garth Egan; Tian Li; John Roehling; Joseph Mckeown; Geoffrey Campbell; Lawrence Livermore National Laboratory

4:10 PM High Temperature Phase Stability of a-Cu3Al in Binary Cu-Al Alloys: Issues in the Al-Cu Phase Diagram: Valery Ouvarov-Bancalero; Choong- Un Kim; The University of Texas at Arlington

4:30 PM Thermodynamic Study on PMN-PT Single Crystals: Hooman Sabarou; Yu Zhong; Florida International University
**Phase Transformations and Microstructural Evolution — Ti & Zr, and Lightweight Metals Al & Mg**

*Sponsored by:* TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee

*Program Organizers:* Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

- Monday PM  Room: 16B
- February 27, 2017  Location: San Diego Convention Ctr

**Session Chair:** Rajarshi Banerjee, University of North Texas

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**2:00 PM**

**Investigation of Nano-scale Instabilities in Titanium Alloys:** Yufeng Zheng; Robert Williams; Rajarshi Banerjee; Dipankar Banerjee; Hamish Fraser; 1; The Ohio State University; 2; University of North Texas; 3; Indian Institute of Science

**2:20 PM**

**Deformation Modes in High-pressure ω-phase of Zr: A First-principles Study:** Anil Kumar; 1; M. Arul Kumar; 1; Irene Beyerlein; 1; Los Alamos National Laboratory

**2:40 PM**

**Crystallization Pathway in Al-Sm Alloys Prepared by Melt Spinning and Magnetron Sputtering:** Fangqiang Meng; 1; Wenjie Wang; 1; Shihua Zhou; 1; Matthew Besser; 1; Matthew Kramer; 1; Ryan Ott; 1; Ames Laboratory

**3:00 PM**

**Microstructural and Texture Transitions Observed Using Shear Assisted Processing and Extrusion (ShAPE) of Melt Spun AZ91E Precursors:** Nicole Overman; 1; Scott Whalen; 1; Matt Olsztia; 1; Karen Kruska; 1; Jens Darselli; 1; Virent Joshi; 1; Hellen Jiang; 1; Suveen Mathaudhu; 1; Pacific Northwest National Laboratory

**3:20 PM Break**

**3:40 PM**

**Neutron Diffraction Study on Atomic Structures and Phase Transition of Magnesium-lithium Alloy:** Ye Cui; 1; Zhongwu Zhang; 1; Harbin Engineering University

**4:00 PM**

**Solute Segregation in Aluminum Alloys:** Dongwon Shin; 1; Shibayan Roy; 1; Baishakhi Mazumder; 1; Larry Allard; 1; James Haynes; 1; Amit Shyam; 1; Oak Ridge National Laboratory

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**Rare Metal Extraction & Processing — Rare Earth Elements I**

*Sponsored by:* TMS Extraction and Processing Division, TMS: Hydrometallurgy and Electrometallurgy Committee

*Program Organizers:* Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhof, Umicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

- Monday PM  Room: 17B
- February 27, 2017  Location: San Diego Convention Ctr

**Session Chairs:** Shafiq Alam, University of Saskatchewan; Takanari Ouchi, MIT

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**2:00 PM Keynote**

**The Economics of the Search Minerals Direct Extraction Process for Rare Earth Recovery:** David Dreisinger; 1; Search Minerals

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**2:35 PM**

**Recovery of Critical Rare Earth Elements for Green Energy Technologies:** Rajesh Kumar Jyothi; 1; Jin-Young Lee; 1; Korea Institute of Geoscience and Mineral Resources (KIGAM)

**3:00 PM**

**Selective Reduction and Separation of Europium from Mixed Rare-earth Oxides from Waste Fluorescent Lamp Phosphors:** Mark Strauss; 1; Brajendra Mishra; 1; Gerald Martins; 1; WPI; 1; Colorado School of Mines

**3:25 PM**

**Application of Rare Earths for Higher Efficiencies in Energy Conversion:** William Judge; 1; Z.W. Xiao; 1; Georges Kipouros; 1; University of Saskatchewan

**3:50 PM Break**

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**4:10 PM**

**Microwave Treatment for Extraction of Rare Earth Elements from Phosphogypsum:** Adrian Lambert; 1; Jason Tam; 1; Gisele Azimi; 1; University of Toronto

**4:35 PM**

**Selective Separation of Rare Earth Elements Utilizing Vapor Phase Extraction:** Katelyn Lyons; 1; Jerome Downey; 1; Jannette Chorney; 1; Montana Tech of the University of Montana

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**5:00 PM**

**Observation of Oxidation of Nd-Magnet In High Temperature Recycling/Recovery Process:** Muhammad Firdaya; 1; M Rhandhani; 1; W Rankin; 1; Kathie McGreggor; 1; Yvonne Durandt; 1; Nathan Webster; 1; Swinburne University of Technology; 1; CSIRO Minerals Resources

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**Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Multiscale Modeling of Thin Films**

*Sponsored by:* TMS Functional Materials Division, TMS: Thin Films and Interfaces Committee

*Program Organizers:* Adele Carradó, Université de Strasbourg IPCMS; Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, UTEP; Heinz Paikowski, Clausthal Univ of Technology; Vikas Tomar, Purdue Univ; Nuggehalli Ravindra, NJIT

- Monday PM  Room: Pacific 18
- February 27, 2017  Location: Marriott Marquis Hotel

**Session Chairs:** Ramana Chintalapalle, University of Texas at El Paso, UTEP; Adele Carradó, Université de Strasbourg IPCMS

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**2:00 PM Keynote**

**Atomic-Scale Modeling of Thin Films and Nanomaterials:** Christine Goyhenex; 1; IPCMS

**2:40 PM**

**Transmission Probability of Diffusing Particles – A Case Study:** Kinnari Shah; 1; Ravindra Nuggehalli; 1; New Jersey Institute of Technology

**3:00 PM**

**Magnetic Field Assisted Assembly - Modeling, Design and Implementation:** Yan Liu; 1; Nuggehalli Ravindra; 1; New Jersey Institute of Technology

**3:20 PM**

**Interface Mechanical Strength and Interface Elastic Constants Calculations in Thin Films of Polymer Composites, and Natural Materials:** Devendra Verma; 1; Vikas Tomar; 1; Purdue University

**3:40 PM Break**

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**4:00 PM**

**Modeling of Spatial Temperature Distribution in Silicon:** Ashvin Kumar Vasudevan; 1; Chihlin Huang; 1; Nuggehalli Ravindra; 1; New Jersey Institute of Technology
4:20 PM
Barrierless Cu–Ni–M thin films on Silicon Based on the Stable Solid Solution Cluster Model: Xiaona Li\textsuperscript{1}; Yuehong Zheng\textsuperscript{1}; Miao Wang\textsuperscript{1}; Chuang Dong\textsuperscript{1}; \textsuperscript{1}Dalian University of Technology

4:40 PM
Black Silicon Based Microbolometer: Sita Rajyalaxmi Marthi\textsuperscript{1}; Asahel Banobre\textsuperscript{2}; Nugghehalli Ravindra\textsuperscript{1}; \textsuperscript{1}New Jersey Institute of Technology

Student-Run Symposium: Building Bridges – Connecting Academic and Industry Research — Session II
Sponsored by: TMS: Education Committee
Program Organizers: Katherine Vinson, The University of Alabama; Omar Rodriguez, The University of Alabama; Ben White, The University of Alabama; Dallin Barton, The University of Alabama; Rachel White, The University of Alabama

2:00 PM Invited
The Role of Government in Supporting Industry-Academic Interactions: Eric Wuchina\textsuperscript{1}; \textsuperscript{1}Office of Naval Research

2:20 PM
An HPC4Mfg Project Update: Developing Computational Tools for the Glass Manufacturing Using High Performance Computing Resources: Vic Castillo\textsuperscript{1}; \textsuperscript{1}Lawrence Livermore National Laboratory

2:40 PM
Fundamental Principles for a Successful Collaboration between University and Metalworking Industries: Silvia Lombardo\textsuperscript{1}; Federico Simone Gobber\textsuperscript{1}; Mario Rosso\textsuperscript{1}; Politecnico di Torino

3:00 PM Break

3:20 PM Introductory Comments: Dr. Hani Henein

3:30 PM Panel Discussion: Dr. Eric Wuchina, Dr. Christian Widener, Nanci Hardwick, Dr. Michael Sealy

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Materials Design
Sponsored by: TMS Functional Materials Division, TMS: Nanomaterials Committee
Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

Tuesday AM Room: Pacific 26
February 28, 2017 Location: Marriott Marquis Hotel
Session Chairs: Vinu Unnikrishnan, University of Alabama; KyeongJae Cho, University of Texas at Dallas

8:30 AM
Tribological Properties of Carbyne on Nickel Surface: Scott Muller\textsuperscript{1}; Arun Nair\textsuperscript{2}; \textsuperscript{1}University of Arkansas

8:50 AM
A Screening of Transition Metal Nitrides with Dopants as Electrocatalysts for Oxygen Reduction Reaction: Doosun Hong\textsuperscript{1}; Soonho Kwon\textsuperscript{1}; Hyuck Mo Lee\textsuperscript{1}; \textsuperscript{1}KAIST

9:10 AM
Atomic and Electronic Structures of Stabilized Metal Monolayer: KyeongJae Cho\textsuperscript{1}; \textsuperscript{1}University of Texas at Dallas

9:30 AM Invited
Theory and Applications for Two-dimensional Phase Change Materials: Yao Li\textsuperscript{1}; Karel-Alexander Duerloo\textsuperscript{1}; Yao Zhou\textsuperscript{1}; Evan Reed\textsuperscript{1}; \textsuperscript{1}Stanford University

10:00 AM Break

10:20 AM
New 2-D Material Recipes from Scratch: Susan Sinnott\textsuperscript{1}; \textsuperscript{1}Penn State University

10:50 AM
Controlling Topological Phase Transition in Van Der Waals Stacked 2-D Materials for Topological Device Applications: Xiaofeng Qian\textsuperscript{1}; \textsuperscript{1}Texas A&M University

11:10 AM Invited
Cu-based Nanoparticles and Nanowires for Applications in Printed Electronics and Transparent Electrode: Changsoo Lee\textsuperscript{1}; Na Rae Kim\textsuperscript{1}; Jahyun Koo\textsuperscript{1}; Cho Rong Cha\textsuperscript{1}; Hyuck Mo Lee\textsuperscript{1}; \textsuperscript{1}KAIST

11:40 AM Invited
Correlation between Morphology and Field Emission Behavior of Various CuO Nanostructures: Gurjinder Kaur\textsuperscript{1}; Krishna Saini\textsuperscript{1}; Narasimha Pulagari\textsuperscript{1}; Indranil Lahiri\textsuperscript{1}; \textsuperscript{1}Indian Institute of Technology Roorkee

8th International Symposium on High Temperature Metallurgical Processing — Fundamental Research of Metallurgical Process
Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee
Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yucel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinikli, Atılım University

Tuesday AM Room: 18
February 28, 2017 Location: San Diego Convention Ctr
Session Chairs: Mark Kennedy, Proval Partners SA; Xuewei Lv, Chongqing University

8:30 AM Introductory Comments

8:35 AM
Kinetics of Dephosphorization between Bloated Metal Droplet and Slag Containing Iron Oxide: Kezhuan Gu\textsuperscript{1}; Kenneth Coley\textsuperscript{1}; Neslihan Dogan\textsuperscript{1}; \textsuperscript{1}McMaster University

8:55 AM
Kinetic Study of Low Grade Nickel Ores by Pyrometallurgical Processes: Sandra Diaz\textsuperscript{1}; Oscar Restrepo\textsuperscript{1}; \textsuperscript{1}Universidad Nacional de Colombia

9:15 AM
Investigate on the Phase Composition of Vanadium Slag with High CaO Content and Influence of P\textsubscript{2}O\textsubscript{5} on Crystalization Kinetics of Spinels: Wotang Zhou\textsuperscript{1}; Bing Xie\textsuperscript{1}; Zhao-Qun Ke\textsuperscript{1}; Jiang Diao\textsuperscript{1}; Wen-Feng Tan\textsuperscript{1}; Yu-Hao Liu\textsuperscript{1}; Hong-Yi Li\textsuperscript{1}; Tao Zhang\textsuperscript{1}; \textsuperscript{1}Chongqing University

9:35 AM
Effect of Carbon to Hematite (Fe\textsubscript{2}O\textsubscript{3}) Molar Ratio on the Reduction Behaviour of Iron Ore-coal Composite Pellets in Multi-layer Bed Rotary Hearth Furnace (RHF): Srinivas Mishra\textsuperscript{2}; Gour Gopal Roy\textsuperscript{2}; \textsuperscript{2}Indian Institute of Technology Kharagpur; \textsuperscript{2}Indian Institute of Technology Kharagpur
9:55 AM
The Kinetics Study on the Reaction Rate Constant of Pulverized-coal Combustion at Different Heating Rates: Rueling Du; 'University of Science and Technology Beijing

10:15 AM Break

10:35 AM
Evaluation of High Temperature Refractory Corrosion by Liquid Al2O3-Fe2O3-MgO-SiO2: Christoph Sagadin; Stefan Luidold; Christine Weitz; Christoph Wagner; 'Montanuniversitaet Leoben; 'RHI AG

10:55 AM
Thermodynamic Analysis on the Reactivity between Slag and Ti-Fe2O3-MgO-SiO2: Krishna Bhuyan; Sunil Kakkar; 'Indian Institute of Science; 'University of Kansas

11:15 AM
Phase Equilibria and Thermodynamics of CaO-SiO2-Dy2O3 System: Fei Wang; Thu Hoai Le; Bin Yang; Muxing Guo; 'Kunming University of Science and Technology; 'Kunming University of Science and Technology Leuven

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Local Microstructural Control and Graded Materials
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Semiatin, AFRL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poonganj, YTC America Inc.

Tuesday AM Room: 7B Location: San Diego Convention Ctr

Session Chairs: Mark Stoudt, NIST; John Lewandowski, Case Western Reserve University

8:30 AM Invited
Location- and Orientation-dependent Properties in AM Systems: John Lewandowski; 'Case Western Reserve University

9:00 AM Invited
Development of Ti-6Al-4V to 304L Stainless Steel Functionally Graded Components Fabricated with Laser Deposition: R. Peter Dillon; John Paul Borgonia; Ashley Reichardt; Bryan McEnery; Andrew Shapiro; Peter Hosemann; 'Jet Propulsion Laboratory; 'University of California, Berkeley

9:30 AM
Characterization of Maraging Steel to Austenitic Stainless Steel Gradient Components Fabricated with Laser Deposition: Ashley Reichardt; John Paul Borgonia; R. Peter Dillon; Bryan McEnery; Andrew Shapiro; Peter Hosemann; 'University of California, Berkeley; 'Jet Propulsion Laboratory

9:50 AM
Microstructural Control in SLM Ti-6Al-4V: Key Factors Facilitating In Situ α Martensite Decomposition: Wei Xu; Edward Liu; Ma Qian; Milan Brandt; 'Macquarie University; 'Royal Melbourne Institute of Technology University

10:10 AM Break

10:30 AM
Multiphase Samples Built by Additive Manufacturing: Thomas Watkins; Amit Shyam; Yukinori Yamamoto; Nyamth Sridharan; Ercan Cakmak; Kinga Unocic; Ryan Dehoff; Sarma Gorti; Srdjan Simunovic; S. Suresh Babu; 'ORNL; 'University of Tennessee

10:50 AM
Tailoring the Mechanical Properties of Ni-base Superalloys Processed by Direct Metal Laser Melting (DMLM): Thomas Eter; Fabian Geiger; Karsten Kunze; 'General Electric (Switzerland) GmbH; 'ETH Zurich (ScopeM)

11:10 AM
Characterization of Microstructure and Material Properties of Selective Laser Sintered Ni-alloy 625: Kevin Kaufmann; Tyler Harrington; Kenneth Vecchio; 'University of California San Diego

11:30 AM
Influence of Processing Parameters on the Development of Microstructure and Texture in EBM Ti-6Al-4V: Todd Butler; Kevin Chapur; Benjamin Georgin; Edwin Schwalbach; 'UES, Inc. / AFRL; 'Wright-Patterson AFRL

11:50 AM
Mapping the Decomposition of β to α in Composition and Temperature Space in Titanium Alloys: Deep Choudhuri; Srinivas Mantri; Chris Yannetta; Rajarshi Banerjee; Dipankar Banerjee; 'University of North Texas; 'Indian Institute of Science

Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Beam Line Studies and In Situ Monitoring
Sponsored by: TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Powder Materials Committee, TMS: Process Technology and Modeling Committee, TMS: Additive Manufacturing Bridge Committee Program Organizers: John Carpenter, Los Alamos National Laboratory; David Bourell, University of Texas - Austin; Allison Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Tuesday AM Room: 8 Location: San Diego Convention Ctr

Session Chairs: Manyalibo Matthews, Lawrence Livermore National Laboratory; Jason Fox, National Institute of Standards and Technology

8:30 AM Invited
Process Monitoring for Powder Bed Fusion of Metal Alloys Using High Speed Optical Diagnostics: Manyalibo Matthews; Gabe Guss; Nicholas Calla; Sheldon Wu; Sonny Ly; Michael Crumb; 'Lawrence Livermore National Laboratory; 'LLNL

9:00 AM
The Use of Laser Ultrasound to Detect Defects in Laser Melted Parts: Phill Dickens; Sarah Everett; Chris Tuck; Ben Dutton; David Wimpenny; 'University of Nottingham; 'MTC

9:20 AM
Embedding Fiber Bragg Gratings with Ultrasonic Additive Manufacturing: Adam Hehr; Mark Norfolk; 'Fabrisonic LLC

9:40 AM
The Development of a L-PBF Test Bed and Evaluation of In-process Sensing Technologies: Bryan Foster; 'EWI

10:00 AM Break

10:20 AM Invited
Using Neutron and High Energy X-ray Diffraction to Probe Additively Manufactured Materials Over a Range of Length and Time Scales: Donald Brown; John Carpenter; Bjorn Clausen; Jason Cooley; John Bernal; Mark Bourke; 'Los Alamos National Lab
10:50 AM
Investigated are the Smallest Grains for their Aggregate Mechanics?
Tias Maiti, Philip Eisenlohr, Michigan State University

11:10 AM
The Origin of Stochastic Behavior during Nanoindentation near a Grain Boundary in Cu:
Benjamin Schuessler, Mehdi Hamid, Pui Ching Wo, Hussein Zbib, Washington State University

11:30 AM
Improved Angular and Spatial Resolution of Measured Lattice Rotations in Highly Deformed Bulk Materials through Combining Low-kV EBSD with the Dictionary Indexing Approach:
Ali Gholinia, Timothy Burnett, Yung-Kook Lee, Takeshi Kasama, Cicle Cornell University, and Jason Lai, Washington State University

Advanced High-Strength Steels — Planar Defects and Interfaces
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Tim Illenbach, Max-Planck-Institut fuer Eisenforschung, GMBH, Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Mitlzer, The University of British Columbia

Tuesday AM Room: 17A
Location: San Diego Convention Ctr
Session Chairs: Tadashi Furuhara, Tohoku University; Chad Sinclair, University of British Columbia

8:30 AM Invited
Parameter-free Finite-temperature Computations of Stacking Fault Energies for Magnetic Materials:
Fritz Korinna, Ivan Bleskov, Bjorn Ailing, Blasej Grabowski, Bswanath Dutta, Timlann Hickel, Jorg Neugebauer, Delft University of Technology and Max-Planck-Institut fur Eisenforschung; Max-Planck-Institut fur Eisenforschung

8:50 AM
Analysis of the Aged Behavior and Orientation Relationships with Respect to f-Mn Phase in Austenite-based Low-density Steel: Keunho Lee; Seong-jun Park; Jun-yun Kang; Siwok Park; Anthony Rollett, Yonsei University; Sukbin Lee, Tsinghua University; Kyu Hwan Oh; Heung Nam Han, Seoul National University; Korea Institute of Materials Science; Carnegie Mellon University; Ulsan National Institute of Science and Technology (UNIST)

9:10 AM
Relationship between Impact Toughtness, Prior Austenite Grain Boundaries and Microstructural Morphology in Medium Mn Steel: Jeongho Han; Alisson Kwaitkowski da Silva; Dirk Ponge; Dierk Raabe; Sang-Min Lee; Young-Kook Lee; Sang-In Lee; Byoungchul Hwang; Max-Planck-Institut fur Eisenforschung; Yonsei University; Seoul National University of Science and Technology

9:30 AM
Experimental Determination of Magnitude of Shear of Stacking Faults, Twins and Alpha'-martensite in TRIP/TWIP Steels: Anja Weidner; Horst Biermann, TU Bergakademie Freiberg

9:50 AM
Effect of Interfacial Mn Partitioning on Carbon Partitioning and Interface Migration during Quenching and Partitioning: Zongbiao Dai; Jianguo He; Zhiqiang Yang; Chi Zhang; Hao Chen; Tsinghua University

10:10 AM Break

10:30 AM
Molecular Dynamics Simulations of the Interaction of Helium Clusters with Grain Boundaries and Dislocations bcc Iron: Tegar Wicaksan, Yu Yue; Matthias Mitlzer, The University of British Columbia; Tsinghua University

10:50 AM
Residual Stress Characterization of Additively Manufactured Components: Maria Stranetz; Danny Van Hemelrijck; Patrick Guillaume, Vrije Universiteit Brussel

11:10 AM

11:30 AM
Characterizing Microstructure in Ti Alloys Using Synchrotron-based MicroCT: Johanna Weker, Ryan Ott, Yimin Wang, Kevin Stone, Chris Tassone, Matthew Kramer, Tony Van Buuren, Michael Toney, SLAC National Accelerator Laboratory, AMES, Lawrence Livermore National Laboratory, AMES Laboratory

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session III
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee
Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Panteleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Tuesday AM Room: 33C
Location: San Diego Convention Ctr
Session Chairs: Philip Eisenlohr, Michigan State University; Saren Schmidt, Technical University of Denmark

8:30 AM Invited
3D Orientation Mapping in the Transmission Electron Microscope: Saren Schmidt; Peter Mahler Larsen; Hossein Alimadadi; Takeshi Kasama; Xiaoou Huang; Technical University of Denmark

8:50 AM
Shear-Coupled Grain Growth and Texture Development in a Nanocrystalline Ni-Fe Alloy during Cold Rolling: Li Li; Tamás Ungár; L Toth; Z Skrotzki; Y Ren; Zs Fogarassy; X T. Zhou; Peter Liaw; Shanghai Institute of Applied Physics-Chinese Academy of Science; Éötvös University Budapest; Université de Lorraine; Technische Universität Dresden; Argonne National Laboratory; Hungarian Academy of Science; The University of Tennessee

9:10 AM
Unambiguous Complexion Identification and Inspection in High Purity Binary Alloy Systems: Jennifer Schuler; Timothy Rupert; University of California Irvine (UCI)

9:30 AM
In Situ TEM Compression Testting of IN718 Fabricated by Electron Beam Melting: Kinga Unocic, Michael Kirka, Ryan Dehoff; ORNL

9:50 AM Break

10:10 AM
Characterization and Deformation Behavior of Microstructural Gradients in the Low Solvus High Refractory (LSHR) Nickel Base Superalloy: Samuel Kuhl; Göpal Viswanathan, Hamish Fraser; The Ohio State University

10:30 AM
Atomic Resolution Energy Dispersive X-ray Spectroscopy of Segregation Along SESFs in Ni-Based Disk Alloys: Timothy Smith, Bryan Esser, Nikolas Antoniol, Robert Williams; Andrew Wessman; Hamish Fraser; Wolfgang Windl; David McComb; Michael Mills; The Ohio State University; GE Aviation
Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques III

Sponsored by: TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Nanomechanical Materials Behavior Committee, TMS: Thin Films and Interfaces Committee

Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; Maria Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Tuesday AM
Room: 32A
Location: San Diego Convention Ctr

Session Chairs: Jon Molina, IMDEA- Spain; Sanjit Bhowmick, Hysitron, Inc.

8:30 AM Keynote
Elevated Temperature Mechanical Properties of Three Component Nanodominated Thin Films: David Bahr; Rachel Schoepner; Jeffrey Wheeler; Purdue University; ETH Zurich

9:10 AM
In-situ Imaging and Diffraction Studies of Shear Band Nucleation and Propagation in Metallic Glass and Composites: Jia Chuan Khong; Jianwei Mi; University of Hull

9:30 AM Invited
Plasticity and Time Dependent Stress Relaxation in FCC Nanowires: Horacio Espinosa; Rajaparakash Ramachandramoorthy; Yanning Wang; Rodrigo Bernal; Amin Aghaei; Gunther Richter; Wei Cai; Northwestern University; Stanford University; Max Planck Institute

10:00 AM Break

10:20 AM
In-situ Neutron Diffraction Analysis for Dynamic Ferrite Transformation Behavior in Low-carbon Steels: Akinobu Shibata; Yasunari Takeda; Wu Gong; Stefanus Harjo; Takuro Kawasaki; Nobuhiro Tsaiji; Kyoto University; Japan Atomic Energy Agency

10:40 AM
In Situ 4D Tomographic Examination of Semi-solid Indentation Behaviour in Ni and Co Based Alloys: Mohammed Azeem; Chethan Puncreobutr; Robert Atwood; Rahman Khandaker; David Dye; Peter Lee; Manchester University; Chulalongkorn University; Diamond Light Source; Imperial College London

11:00 AM
In-situ Micro-Laue Diffraction and HR-EBSD Investigation to Understand the Microstructure-deformation Interactions in Dual-phase Titanium Alloy, Ti6242, Using Micro-pillar Compression: Tea-Sung Jun; Xavier Maeder; Gaylord Guillonneau; Johann Michler; Finn Giuliani; T Ben Britton; Department of Materials, Imperial College; EMPA; Laboratoire de Tribologie et Dynamique des Système, Université de Lyon

11:20 AM
In Situ X-ray Diffraction Study of Strain Path Change Effects in Al-5wt% Mg (AlMg5) Using a Miniaturized Multiaxial Deformation Machine: Karl Softnowski; Maxime Dupraz; Steven Van Petegem; Helena Van Swygenhoven; Paul Scherrer Institut & EPFL; Paul Scherrer Institut

11:40 AM
Characterizing Thermal- and Moisture-induced Glass Transitions Using Nanoindentation-based Dynamic Mechanical Analysis: Joseph Jakes; USDA Forest Products Laboratory
Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session III
Sponsored by: TMS Functional Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-wen Chen, National Tsing Hua University; Franck Gascoin, Ensicaen University of Caen; Soon-jik Hong; Kongju National University; Philippe Jund, Université de Montpellier; Lan Li, Boise State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University

Tuesday AM  Room: 21  Location: San Diego Convention Ctr
Session Chair: Albert Wu, National Central University; Soon-jik Hong, Kongju National University

8:30 AM Invited
Enhanced Thermoelectric Figure of Merit in Bi-Sb-Te based Composites with Dispersed ZrO$_2$ Nanoparticles: Babu Madavali; Chul-Hee Lee; Hyo-Seob Kim; Kap-Ho Lee; Soon-Jik Hong; Kongju National University and Institute for Rare Metals; Ames Laboratory; Chungnam National University

8:50 AM Invited
Bismuth Telluride Based Composites with High-density Current Stressing: Dopant Migration, Structural Evolution and Transport Property Modulation: Yao-Hsiang Chen; Cheng-Tang Li; Chien-Neng Liao; National Tsing Hua University

9:10 AM
Fabrication of Bi$_2$Sb$_2$Te$_3$ Nanoplates Incorporated Bi$_0$.5Sb$_1$.5Te$_3$ Composites: Peyala Dharmaiah; Chul Lee; Dongwon Shin; Jar-Myung Koo; Soon-Jik Hong; Kongju National University; Chungnam National University

9:30 AM
Enhanced Thermoelectric Properties of Sb$_2$Te$_3$ Nanoplates Incorporated Bi$_0$.5Sb$_1$.5Te$_3$ Composites: Peyala Dharmaiah; Chul Lee; Dongwon Shin; Jar-Myung Koo; Soon-Jik Hong; Kongju National University

9:50 AM Break

10:10 AM Invited
Interfacial Reactions at the Joints of PbTe Thermoelectric Modules: Sinn-wen Chen; Jen-chieh Wang; National Tsing Hua University

10:30 AM Invited
Evaluation of Cobalt Diffusion Barrier for Low and Medium Temperature Thermoelectric Module: Albert T. Wu; Hsin-Chien Hsieh; Chun-Hsien Wang; National Central University

10:50 AM
Investigation of Defects in CZT Single Crystals: Bengisu Yasar; Merve Kabukcuoglu; Yasin Ergunt; Mehmet Parlak; Rasit Turan; Eren Kalay; METU

11:10 AM
Scalable Synthesis of Silicon-implanted CZTS Nanoparticles for Catalysis and Thermoelectric: Stephen Exarhos; Edgar Palmes; Alejandro Alvarez; Lorenzo Mangolini; University of California, Riverside

11:30 AM
Thermoelectric Behaviour of Polyvinyl Acetate /CNT Composites: Hussein Badi; Mostafa Youssef; Mohamed Gamal; Hebatullah Abdel-elsalam; Mirna Mohamed; Iman El Mahallawi; Ahmed Abdel-rehim; Cairo University; ‘British University in Egypt

11:50 AM Invited
Nanostructure and Phonon Engineering in Oxide Thermoelectric Materials: Michitaka Ohtaki; Kyushu University

Alumina & Bauxite — Bauxite Residues Technology
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee Program Organizer: Zhang Ting’an, Northeastern University
Tuesday AM  Room: 1B  Location: San Diego Convention Ctr
Session Chair: Guanghui Li, Central South University

8:30 AM Introductory Comments

8:35 AM
Security Disposal and Comprehensive Utilization of Bauxite Residues: Songqing Gu; Zhonglin Yin; Lijuan Qi; Chalco

9:00 AM
Application of Tricalcium Aluminate Instead of Lime for the Recovery of Aluminum in Middle-low Grade Bauxite in Calcification-Carbonization Process: Yanxiu Wang; Zhang Ting’an; Guozhi Lv; Xiaofeng Zha; Weiguang Zhang; Lijun Xie; Northeastern University

9:25 AM
Low Temperature Reduction of Hematite in Red-Mud to Magnetite: Sumedh Gosta; Worcester Polytechnic Institute

9:50 AM Break

10:05 AM
Recovery of Iron-, Titanium-bearing Constituents from Bauxite Ore Residue via Magnetic Separation Followed by Sulfuric Acid Leaching: Guanghui Li; Foquan Gu; Jun Luo; Bona Deng; Zhiwei Peng; Tao Jiang; School of Minerals Processing and Bioengineering, Central South University

10:30 AM
Processing Diasporic Red Mud by the Calcification-carbonation Method: Xiaofeng Zhu; Zhang Ting’an; Guozhi Lv; Fangfang Guo; Weiguang Zhang; Yanxiu Wang; Lijun Xie; Long Wang; Northeastern University

10:55 AM
Research of Flocculants and Dewatering Additives for Filtration of Red Mud: Cao Wenzhong; Zheng Fuliang; Tian Weiwei; Zhong Hong; Nanchang University

11:20 AM
Characterization of Activated Alumina Production via Spray Pyrolysis: Long Wang; Zhang Ting’an; Guozhi Lv; Xiaofeng Zhu; Weiguang Zhang; Sida Ma; Northeastern University

Aluminum Alloys, Processing and Characterization — Heat Treatment
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee Program Organizer: Yanjun Li, Norwegian University of Science and Technology
Tuesday AM  Room: 4  Location: San Diego Convention Ctr
Session Chair: Ramasis Goswami, Naval Research Laboratory

8:30 AM Introductory Comments

8:35 AM
The Optimization of the Homogenization Treatment of AA7075: Gheorghe Dobră; Ioan Sava; Marin Petre; Gheorghe Popa; ALRO

9:00 AM
Precipitation Modeling and Validation of Al-5%Cu-0.4%Mn Alloy Using Quench Factor Analysis: Yisen Hu; Gang Wang; Wenguang Wang; Mao Ye; Yiming Rong; Tsinghua University
9:25 AM  
Young’s Modulus of Al-Si-Mg-Cu Based Alloys under Different Heat Treatment Processes:  
Sajjad Amirkhanloo;  
Shouxun Ji;  
Yijie Zhang;  
Douglas Watson;  
Zhongyang Fan;  
Brunel University London;  
Jaguar Cars Ltd

9:50 AM  
Intergranular Corrosion Investigation on EN-AW 6082 Redraw Rod:  
Luisa Marzoli;  
Somov;  

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9:50 AM  Break

10:05 AM  
The Influence of Process Parameters and Thermomechanical History on Streaking Defects in AA6060 Extrusions:  
Steven Babaniaris;  
Aiden Beer;  
Matthew Barnett;  
Deakin University - Institute for Frontier Materials

11:20 AM  
Effect of Interrupted Quenching on Al-Zn-Mg-Cu alloys:  
Gernot K.-H. Kolb;  
Helmut Antrekowitsch;  
Daniel Pöschmann;  
Peter Uggowitzer;  
Stefan Pogatscher;  
Montanuniversitaet Leoben;  
AMAG rolling GmbH;  
ETH Zürich

11:45 AM  
Manganese-induced Precipitation in a Modified AA6061 (Al-Mg-Si-Cu) Alloy during Homogenization:  
Gongwang Zhang;  
Yi Han;  
Qi Zhou;  
Hiromi Nagaumi;  
Gang Sha;  
Chad Parish;  
Donovan Leonard;  
Tonggang Zhai;  
University of Kentucky;  
Suzhou Research Institute for Nonferrous Metals;  
Nanjing University of Science and Technology;  
Oak Ridge National Laboratory

Aluminum Reduction Technology — Joint Session on Cell Lining Materials  
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee  
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Tuesday AM  
Room: 2  
Location: San Diego Convention Ctr

Session Chair: Stephan Broek, Hatch

8:30 AM  
Introductory Comments

8:35 AM  
Chemical Stability of Thermal Insulating Materials in Sodium Vapour Environment:  
Raymond Luneng;  
Søren N. Bertel;  
Jørgen Mikkelsen;  
Arne P. Ratvik;  
Tor Grande;  
NTNU;  
Skamol A/S; SINTEF Materials and Chemistry

9:00 AM  
Aging of Insulating Linings in Aluminium Electrolysis Cells:  
Ove Paasen;  
Christian Schoning;  
Ove Darell;  
Arne Ratvik;  
SINTEF

9:25 AM  
Cathode Wear Based on Autopsy of a Shut down Aluminium Electrolysis Cell:  
Samuel Senada;  
Tor Grande;  
Arne Petter Ratvik;  
Zhaohui Wang;  
Stein Rørvik;  
Christian Schoning;  
Norwegian University of Science and Technology;  
SINTEF Materials and Chemistry

9:50 AM  Break

10:05 AM  
SPL Recycling and Re-Processing:  
Victor Mann;  
Vitalii Pingin;  
Aleksy Zbirev;  
Aleksandr Proshkin;  
Sergey Pavlov;  
Yuri Bogdanov;  
Vladimir Somov;  
RUSAL Global Management B.V.;  
RUSAL ETC LLC
### Applications of Solidification Fundamentals — Phase Field Modeling

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee  
**Program Organizers:** Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing

**Session Chairs:** Ebrahim Asadi, University of Memphis; Damien Tourret, Los Alamos National Laboratory

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<th>Time</th>
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<tr>
<td>8:30 AM</td>
<td>Break</td>
<td>Pacific 15</td>
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| 8:50 AM    | On the Solidification Kinetics of Metal Alloys: A Study Using 3-D Phase Field Modeling and Synchrotron X-ray Image Techniques: Zhipeng Guo; Manhong Yang; Shuo Wang; Shoumei Xiong; Tsinghua University  
3D Phase-field Simulations of Graphite Growth in Ductile Cast Iron Considering Interaction between Local Expansion and Microsegregation: Janin Eiken; Bernd Böttger; Access

#### 9:10 AM

**Dendritic Grain Growth Competition in Directional Solidification of Alloys: A Phase-field Study**  
: Damien Tourret; Younggil Song; Amy Clarke; Alain Karma; Los Alamos National Laboratory; Northeastern University; Colorado School of Mines

#### 9:30 AM

**Phase Field Modelling of Snowflakes Growth:** Gilles Demange; Helena Zapolsky; Renaud Patte; Marc Brune; Université de Rouen/GPM/ERAFEN; Université de Rouen/CORIA

#### 9:50 AM

**Quantitative Phase-Field Crystal Model for Coarsening in Pb-Sn Solid-Liquid Mixtures:** Ahmad Nourian Avval; Ebrahim Asadi; University of Memphis

#### 10:10 AM

**Pattern Formation during In-varient Three-phase Eutectic Growth:** Abhik Choudhury; Indian Institute of Science

#### 10:25 AM

**Pattern Formation during Directional Solidification of the Ternary Eutectic Alloy Al-Ag-Cu under Influence of Velocity Changes:** Johannes Hützer; Philipp Steinmetz; Michael Kellner; Anne Denstedt; Amber Genau; Britta Nestler; University of Applied Science Karlsruhe; KIT; Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR); University of Alabama at Birmingham

#### 11:05 AM

**Pattern Formation during the Directional Solidification of the Ternary Eutectic Alloys and the Influence of the Average Front Undercooling:** Philipp Steinmetz; Johannes Hützer; Michael Kellner; Britta Nestler; Karlsruhe Institute of Technology

#### 11:25 AM

**Three Dimensional Eutectic Colony Morphologies in Multi-component, Multi-phase Alloys:** Arka Lahiri; Abhik Choudhury; Indian Institute Of Science

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### Bio-Nano Interfaces and Engineering Applications — Bio-Nano Interfaces: Fundamentals II

**Sponsored by:** TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee  
**Program Organizers:** Candan Tamerler, University of Kansas; John Nychka, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

**Session Chairs:** Hendrik Heinz, University of Colorado Boulder; Stefano Corni, University of Modena

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<td>8:30 AM</td>
<td>Break</td>
<td>Marriott Marquis Hotel</td>
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| 9:00 AM    | Invited | University Of Colorado-Boulder  
**Computational Models of Peptide-Surface Interactions Drawn from Bacterial Display Studies:** Margaret Hurley; Meagan Small; Dimitra Stratis-Cullum; Deborah Sarkes; Justin Jahnke; Jessica Terrell; Hong Dong; US Army Research Laboratory

#### 9:20 AM

**Formation of Planar Lipid Bilayers on 2D Materials Assisted by Self-assembled Peptides:** Takakazu Seki; Tomohiro Tanaka; Yuhei Hayamizu; Tokyo Institute of Technology

#### 9:40 AM

**Computational Design of Biological-Inorganic Materials from the Nanoscale:** Hendrik Heinz; University Of Colorado-Boulder

#### 9:50 AM

**Atomistic Simulations of the Interaction of Gold Surfaces and Nanoparticles with Amyloidogenic Proteins and Peptides:** Stefano Corni; CNR Istituto Nanoscience

#### 10:40 AM

**Modeling of Nanocomposite Scaffolds and Interfacial Behavior during Tissue Regeneration and Scaffold Degradation: A Multiscale Mechanics Approach:** Dinesh Katti; Anurag Sharma; Kalpana Katti; North Dakota State University

#### 11:10 AM

**Designing Peptides with Antimicrobial Properties using Rules of Induction:** Kyle Boone; Kyle Camarda; Candan Tamerler; University of Kansas

#### 11:30 AM

**Interfacing Biomolecules with Nanomaterials: Structure and Function at the Atomic-scale:** Tiff Walsh; Deakin University

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### Biological Materials Science — Bones, Teeth and Dental Materials

**Sponsored by:** TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee  
**Program Organizers:** Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

**Session Chairs:** Dwayne Arola, University of Washington; Michael Porter, Clemson University

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<tr>
<td>8:30 AM</td>
<td>Break</td>
<td>Marriott Marquis Hotel</td>
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</table>
| 8:30 AM    | Invited | University Of Washington  
**Improving the Performance of Dental Restorative Composites:** Jamie Kranich; Dmytro Khvostenko; Thomas Hilton; Jack Ferracane; John Mitchell; UNSW Australia; Oregon State University; Oregon Health & Science University; Midwestern University

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**www.tms.org/TMS2017**
9:00 AM Multiscale Experiment and Computational Insight into Mechanical and Electromechanical Behavior of Collagen: Zhong Zhou1; Dong Qian1; Majid Minarya2; 1University of Texas at Dallas; 2University of Texas at Dallas

9:20 AM Nanofibrous Composites Enriched with Growth Factors for Tendon-bone Interface Regeneration: Ece Bayrak1; Burak Ozcan1; Cevat Erisk2; 1TOBB University of Economics and Technology

9:40 AM Osteoporosis and Fatigue Fracture Prevention by Analysis of Bone Microdamage: Gerardo Presbi1; David Gutierrez2; David Taylor3; National Autonomous University of Mexico; 2Center for Research and Advanced Studies (Cinvestav), at Monterrey, Mexico; 3Trinity College Dublin

10:00 AM Invited A Study on the Formation and Propagation Behavior of Shear Bands in Metallic Glasses: Ke-Fu Yao1; Guan-Nan Yang1; Yang Shao1; 1Tsinghua University

10:20 AM Break

10:40 AM Invited An Assessment of Ternary Bulk Metallic Glasses: Correlations between Structure, Glass Forming Ability & Stability: Kevin Law1; Daniel Miracle2; Dmitri Louzguine-Luzgin3; Larissa Louzguina-Luzgina1; 1University of New South Wales; 2Air Force Research Laboratory, 3Tohoku University

11:00 AM Invited High Pressure, High Temperature Structural Study of Zr-based Glasses: Wojciech Dmowski1; Stanislaw Gierlotka2; Yoshihiko Yokoyama2; Takeshi Egami1; 1University of Tennessee; 2Institute of High Pressure Physics of the Polish Academy of Sciences; 3Tohoku University

11:20 AM Invited Effect of Stress on Crystalization Pathways in Metallic Glasses: M. Naeem1; S. Lan1; B. Wang1; Yang Ren1; Xun-Li Wang2; 1City University of Hong Kong; 2Argonne National Laboratory

11:40 AM Discovering a Unique Thermal-driven Glass-glass Transition in Metallic Glass: Qing Du1; Xiongjun Liu1; Qiaoshi Zeng2; En Ma1; Hui Wang1; Yuan Wu1; Z.P. Lu1; 1University of Science and Technology Beijing; 2Center for High Pressure Science and Technology Advanced Research; 3Johns Hopkins University

9:30 AM Time Dependent Deformation Behavior of Aged Dentin: Carolina Montoya1; Alex Ossa1; Dwayne Arola1; 1Eafit University; 2University of Washington

11:05 AM The Geometric Effects of a Woodpecker’s Hoid Apparatus for Stress Wave Mitigation: Lokesha Williams1; Nayeon Lee1; Mark Horstmeyer1; Raj Prabhu1; Jun Liao1; Hongjoo Rhee2; Yossef Hammi1; Robert Moser1; 1Mississippi State University; 2US Army Engineering Research and Development Center

11:25 AM Avoiding Brain Injury: A Structural Role of the Frontal Overhang on the Skull Bone of Woodpeckers: Jae-Young Jung1; Andrei Pissarevko2; Steven Naleway3; Kathryn Kang3; Nicholas Yaraghi3; Eric Bushong1; Mark Ellisman1; David Kisolius1; Marc Meyers1; Joanna McKittrick1; 1UC San Diego; 2University of Utah; 3UC Riverside

10:00 AM Invited The Evaluation of Hot Dross Processing Systems: Ali Ulus1; Hamdi Mehrabi1; Eishin Takahashi2; 1Tohoku University; 2University of New England

10:20 AM Break

10:40 AM Invited Optimization of Recovery Efficiency for Briquetted Aluminum Chips up to Briquetting Parameters: Ali Ulus1; Hamdi Ekici1; Erdem Güler3; 1Teknik Global Solutions
Ceramic Materials for Nuclear Energy Research and Applications — Fundamental Defect Science in Ceramics and Thermal Transport

**Sponsored by:** TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Energy Committee, TMS: Nuclear Materials Committee

**Program Organizers:** Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

**Tuesday AM**

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<th>Title</th>
<th>Speakers</th>
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<tr>
<td>8:30 AM</td>
<td>Invited</td>
<td>Palomar</td>
<td>Marriott Marquis Hotel</td>
<td>Radiation Damage on UO&lt;sub&gt;2&lt;/sub&gt; and UN: Lingfeng He&lt;sup&gt;1&lt;/sup&gt;; Jian Gan&lt;sup&gt;2&lt;/sup&gt;; Marquis Kirk&lt;sup&gt;3&lt;/sup&gt;; Beata Tyburska-Paeschel&lt;sup&gt;4&lt;/sup&gt;; Brian Jaques&lt;sup&gt;5&lt;/sup&gt;; Idaho National Laboratory; Argonne National Laboratory; University of Wisconsin-Madison; Boise State University</td>
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**9:00 AM**

- Five-dimensional Representation of Grain Boundary Energies in UO<sub>2</sub>: Yongfeng Zhang<sup>1</sup>; Timothy Harbison<sup>2</sup>; Jurin French<sup>3</sup>; Joseph Carmack<sup>4</sup>; Idaho National Laboratory; Brigham Young University-Irdo; University of Arkansas

**9:20 AM**

- Study of Point and Extended Defects in Fluorite UO<sub>2</sub> with Variable Charges Empirical Potentials: Aurélien Soulié<sup>1</sup>; Jean-Paul Crocombette<sup>1</sup>; Emmanuel Clouet<sup>1</sup>; Frederico Garrido<sup>1</sup>; Commissariat à l’Energie Atomique

**9:40 AM**

- The Roles of Surfaces, Chemical Interfaces, and Disorder on Plutonium Incorporation in Pyrochlores: Romain Perriot<sup>1</sup>; Pratik Dholarbhai<sup>1</sup>; Blas Uberuaga<sup>2</sup>; Los Alamos National Laboratory

**10:00 AM Break**

**10:20 AM Invited**

- Effect of Burn-up on the Thermal Conductivity of Fast Reactor MOX Fuel: Dragos Staicu<sup>1</sup>; Thierry Wiss<sup>2</sup>; Rudy Konings<sup>3</sup>; European Commission, Joint Research Centre, Nuclear Safety and Security Directorate

**10:50 AM Invited**

- Thermal Transport Properties of Uranium Dioxide from Atomistic Simulations: Aleksandr Chernatynsky<sup>1</sup>; Simon Phillips<sup>2</sup>; Missouri Science and Technology University; University of Florida

**11:20 AM**

- Molecular Dynamics Simulations of Thermal Transport in Uranium Dioxide with Intrinsic Defects and Fission Products: Xiangle Liu<sup>1</sup>; M.-W. D. Cooper<sup>1</sup>; K.J. McClellan<sup>1</sup>; J.C. Lashley<sup>2</sup>; D.D. Byler<sup>2</sup>; B.D.C. Bell<sup>3</sup>; R.W. Grimes<sup>3</sup>; C.R. Stanek<sup>1</sup>; D.A. Andersson<sup>4</sup>; Los Alamos National Laboratory; Imperial College London

**11:40 AM**

- Anisotropic Thermal Conductivity and Interface Resistance in Pyrolytic Carbon Coated Zirconia Particles: Yizhou Wang<sup>1</sup>; David Hurley<sup>2</sup>; Erik Luther<sup>3</sup>; Miles Beaux<sup>4</sup>; Venkateswara Rao<sup>5</sup>; Igor Usoskin<sup>6</sup>; Marat Khafizov<sup>7</sup>; The Ohio State University; Idaho National Laboratory; Los Alamos National Laboratory

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Characterization of Materials through High Resolution Coherent Imaging — Coherent Imaging and Phase Contrast I

**Sponsored by:** TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee

**Program Organizers:** Ross Harder, Argonne National Lab; Xianghui Xiao, Argonne National Laboratory; Richard Sandberg, Los Alamos National Laboratory; Saryu Fensin, Los Alamos National Laboratory; Brian Abbey, LaTrobe University; Ana Diaz, Paul Scherrer Institut

**Tuesday AM**

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<tr>
<td>8:30 AM</td>
<td>Session</td>
<td>25B</td>
<td>San Diego Convention Ctr</td>
<td>Biomimetic CaCO&lt;sub&gt;3&lt;/sub&gt; Complex Morphologies Studied by Coherent X-ray Diffraction Imaging: Yuriy Chushkin&lt;sup&gt;1&lt;/sup&gt;; Thomas Beuvier&lt;sup&gt;2&lt;/sup&gt;; Federico Zontone&lt;sup&gt;3&lt;/sup&gt;; Oxana Cherkas&lt;sup&gt;2&lt;/sup&gt;; Alain Gibaud&lt;sup&gt;2&lt;/sup&gt;; European Synchrotron Radiation Facility; Université du Maine</td>
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**9:00 AM**

- Biological and Bio-inspired Multifunctional Structural Materials: Ling Li<sup>2</sup>; Harvard University

**9:30 AM**

- Biological Imaging Using Combined Ptychography and X-ray Fluorescence: Karolina Stachnik<sup>1</sup>; Martin Warner<sup>2</sup>; Pawel Wrobel<sup>3</sup>; Felix Marschall<sup>3</sup>; Istvan Mohacsi<sup>3</sup>; Pontus Fischer<sup>3</sup>; Ismo Vartiainen<sup>3</sup>; Christian David<sup>3</sup>; Marek Lankosz<sup>3</sup>; Alke Meents<sup>3</sup>; Deutsches Elektronen-Synchrotron DESY; AGH University of Science and Technology; Paul Scherrer Institut; University of Eastern Finland

**9:50 AM**

- Speckle-based X-ray Imaging at Diamond Light Source: Hongchang Wang<sup>1</sup>; Yogesh Kashyap<sup>2</sup>; Kaswal Sawhney<sup>3</sup>; diamond Light Source

**10:20 AM Break**

**10:40 AM**

- Real-time Direct and Diffraction Hard X-ray Imaging of Ultra-fast Processes: Alexander Rack<sup>1</sup>; Margie Olbinado<sup>1</sup>; Mario Schell<sup>2</sup>; Jörg Grenzer<sup>2</sup>; Andreas Danilewsky<sup>3</sup>; ESRF; Synchrotron Soleil; Helmholtz-Zentrum Rossendorf; Albert-Ludwigs-University Freiburg

**11:20 AM**

- Some Recent Advances in the Theory and Modeling of Phase Contrast Imaging: John Barber<sup>1</sup>; Los Alamos National Laboratory

**11:50 AM**

- Nanoscale 4D Microstructural Evolution of Precipitates in Aluminum Alloys Using Transmission X-Ray Microscopy (TXM): Shashank Kota<sup>1</sup>; S.S. Singh<sup>2</sup>; C Kantzios<sup>3</sup>; A Kirubanandham<sup>4</sup>; V De Andrade<sup>5</sup>; F De Carlo<sup>6</sup>; Nikhilesh Chawla<sup>7</sup>; Arizona State University; Argonne National Lab
Characterization of Minerals, Metals, and Materials — Alloys

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee

Program Organizers: Shadia Ikthmayes, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jian-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramassia Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Tuesday AM  Room: 31B
February 28, 2017  Location: San Diego Convention Ctr

Session Chairs: Eren Kalay, METU; Juan Escobedo-Diaz, University of New South Wales-Canberra

8:30 AM  Characterization of Surface Roughness of Laser Deposited Titanium Alloy and Copper Using AFM: Mutia Erinosho1; Esther Akinlabi1; 1University of Johannesburg

8:50 AM  Contribution of Phosphorus Addition to Strength after Intercritical Hot-rolling in HSLA Steels: Yan Li1; Wei Ding1; Zengwu Zhao1; 1Inner Mongolia University of Science and Technology

9:10 AM  Creation of Thermally Stable Precipitate Structures in a Ni-Base Superalloy through Compositional Modification: Donald McIlister2; Andrew Detor2; Richard DiDomizio2; Rongpei Shi1; Yanzhi Wang1; Michael Mills1; 1The Ohio State University; 2GE Global Research

9:30 AM  Characterizing γ′ Shape Evolution in Nickel-base Superalloys Using Lower Order Moment Invariants: Ryan Harrison1; Patrick Callahan1; Tresa Pollock1; Marc De Graef1; 1Carnegie Mellon University; 1University of California, Santa Barbara

9:50 AM  Developing Al-Sm Alloys for Structural Applications: Gokhan Polat1; Eren Kalay1; 1METU

10:10 AM Break

10:25 AM  Microstructural Characterization of Oxide Layers Formed on Fe-Cr-Al-steels during the Exposure to Heavy Liquid Metals: Miroslav Popovic1; Alan Bolind1; Peter Hosemann1; Mark Asta1; Jan Schroers2; 1UC Berkeley; 2Yale University

10:45 AM  Investigating the Anisotropic Behaviour of Lean Duplex Stainless Steel 2101: Ali Amer1; Juan Escobedo-Diaz1; Mahmud Ashraf1; Md. Quadir1; 1University of New South Wales-Canberra

11:05 AM  Microstructural Investigation and Impact Testing of Additive Manufactured Ti-6Al-4V: Danielle Austin1; Ali Amer1; Daniel East1; Juan P. Escobedo-Diaz1; A.D. Brown1; M.Z. Quadir1; PJ Hazel1; Sammy Chan1; Matt Bevan1; 1School of Engineering and Information Technology, UNSW Australia; 1Manufacturing Flagship, CSIRO Clayton; 1Microscopy and Microanalysis Facility (MMF), John de Laeter Centre (JdLC), Curtin University; 1UNSW Australia

11:25 AM  Net Shaping of Steel-Tungsten Metal Hybrid via Binder Jet Additive Manufacturing: Amy Elliott1; Derek Siddel1; Christopher Shafer1; 1Oak Ridge National Lab

11:45 AM  Texture Evolution of Binary Mg-Gd Alloys during Extrusion: Aidin Imandoust1; Haitham El Kadiri2; 1Mississippi State University; 2Mississippi State University

12:05 PM  Thermo Chemical Nitriding of Ti6Al4V Alloy: Farid Siyahjani1; 1Istanbul Technical University

Computational Materials Discovery and Optimization – From Bulk to Materials Interfaces and 2D Materials — Materials Surfaces, Interfaces, and Electrochemistry

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Computational Materials Science and Engineering Committee

Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Tuesday AM  Room: 11A
February 28, 2017  Location: San Diego Convention Ctr

Session Chair: To Be Announced

8:30 AM Invited
Ab-initio Description of Oxides in an Electrochemical Environment: Mira Todorova1; Anoop Vati1; Suhyun Yoo1; Joerg Neugebauer1; 1Max-Planck-Institut fuer Eisenforschung GmbH

9:00 AM  Computational Discovery of Highly Active Catalysts to Enhance Electrochemical Reactions in Li-O2 Batteries: Jianjun Liu1; 1Shanghai Institute of Ceramics, Chinese Academy of Sciences

9:20 AM Invited
The Electrostatic Double Layer of Pt/Water Interfaces from First Principles Molecular Dynamics: Clotilde Cucinotta1; 1Trinity College

9:50 AM Invited
Metal-Organic Frameworks for Gas Capture and Storage: Computational Discovery and Experimental Validation: Donald Siegel1; 1University of Michigan

10:20 AM Break

10:35 AM  Machine Learning the Atomistic “Building Blocks” of Grain Boundary Systems: Conrad Rosenbrock1; Gus Hart1; Eric Homer1; 1Brigham Young University

10:55 AM  A Theoretical Study of Interfaces between Transition Metals and a-C:H: Matous Mrovec1; Srinivasan Rajagopalan1; Davide Di Stefano1; Christian Elsaesser1; 1Fraunhofer Institute for Mechanics of Materials IWM; 1ExxonMobil Research and Engineering Company

11:15 AM Invited
Computational Materials Discovery: From Reduced Pt Catalysts to Lightweight Alloys: Houlong Zhuang1; Alexander Tkalych1; Mohan Chen1; Emily Carter1; 1Princeton University

11:45 AM  High-throughput Screening on Relationship between Selectivity and Working Capacity of Porous Materials for Propylene/Propane Adsorptive Separation: Byung Chul Yeo1; Sang Soo Han1; 1Korea Institute of Science and Technology
Defects and Properties of Cast Metals — Properties II & Hot Tearing

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee

Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Tuesday AM  Room: 23A Location: San Diego Convention Ctr

Session Chairs: Hongbiao Dong, University of Leicester; Daan Maijer, The University of British Columbia

8:30 AM Introductory Comments: Properties II

8:35 AM Invited Study of The Species Macro-segregation in A356 Wheel Casting: Pan Fan1; Andre Phillion1; Steven Cockcroft3; Daan Maijer1; Carl Reilly1; Lu Yao1; University of British Columbia; McMaster University

8:55 AM Invited The Mechanism of a Rapidly Solidified Structure in Spray Forming: Hani Henein1; University of Alberta

9:15 AM Update on Bilums - The Fundamental Defect in Cast Metals.: John Campbell2; University of Birmingham

9:35 AM 4D Synchrotron X-ray Imaging of Magnetically Controlled AI Alloy Solidification: Biao Cai1; Andrew Kao3; K. Pericleous2; Peter Lee1; University of Manchester; University of Greenwich

9:55 AM In-situ Synchrotron X-ray Imaging of Inter-dendritic Fluid Flow Using a Model AI-Pb Alloy: Enzo Liotti4; Andrew Lui1; Andre Phillion1; Patrick Grant1; University of Oxford; McMaster University

10:15 AM Break

10:35 AM Introductory Comments: Hot Tearing

10:40 AM Keynote Prediction of Hot Tearing in Steel and Aluminum alloys: Andre Phillion1; McMaster University

11:00 AM Keynote X-ray Imaging of Solidification Cracking during Welding of Steel: Hongbiao Dong1; University of Leicester

11:20 AM Hot-tearing of Multicomponent Al-Cu Alloys Based on Casting Load Measurements in a Constrained Permanent Mold: Adrian Sabahi1; Seyed Seyed Mirimiran1; Christopher Glaspie2; Shinmin Li3; Diran Apelian1; Amit Shyam1; J. Haynes1; Andres Rodriguez2; Oak Ridge National Laboratory; Fiat Chrysler Automobiles North America; Worcester Polytechnic Institute; Nemak Monterrey

11:40 AM Semi-solid Mechanical Behaviour and Hot-tearing of a 7050 Alloy: Experimental Analysis and Thermomechanical Modeling: Kjerstin Ellingsen1; Arne Nordmark1; Mohammed M’Hamdi1; SINTEF

12:00 PM The Nucleation and Growth of Hot Tearing during Strip Casting Steel: Wangjiang Xu1; Michael Ferry1; The University of New South Wales

12:20 PM Investigation of Hot Tearing A380.1 In “T Shape Mold”: Muhammet Uludag1; Remzi Cetin2; Derya Dispinar3; Murat Tiryakioglu1; Selek University; Halic University; Istanbul University; University of North Florida
Deformation and Transitions at Interfaces — Meso/ Microstructural Scale Mechanical Behavior of Polycrystals I
Sponsored by: TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Computational Materials Science and Engineering Committee, TMS: Mechanical Behavior of Materials Committee, TMS: Thin Films and Interfaces Committee

Program Organizers: Saryu Fensin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaliya Barabash, OakRidge National Lab; Shen Dillon, Universe of Illinois; Jian Luo, University of California, San Diego; Doug Spearat, University of Florida

Tuesday AM Room: 23B Location: San Diego Convention Ctr

Session Chair: To Be Announced

8:30 AM Invited
New Insights into Plasticity at Grain Boundaries by Nano- and Micromechanics: Christoph Kirchlechner1; Nataliya Malyar2; Nicolas Peter3; Gerhard Dehm4; 1Max-Planck-Institut für Eisenforschung GmbH

8:50 AM Invited
Grain Boundary-Mediated Deformation Mechanisms Accommodating Mechanical Grain Growth in Nanocrystalline Metals: Jason Trelewicz1; 1Stony Brook University
9:10 AM Invited
Studying the Mechanical Response of Regions within Grains and Near Grain Boundaries Using Spherical Nanoindentation: Siddhartha Pathak1; 1University of Nevada, Reno

9:30 AM
Influence of Dislocation Density on Plastic Deformation near Grain Boundary in Alpha-titanium Studied by Nanoindentations and Modeling: Yang Su1; Philip Eisenlohr2; Thomas Bieler1; Martin Crimp3; 1Michigan State University

9:50 AM Invited
Deformation Mechanisms of Single and Polycrystalline Zirconia Nanopillars: Ning Zhang1; Mohsen Asle Zaeem2; 1Missouri University of Science and Technology

10:10 AM Break

10:30 AM Invited
Mechanical Characterization of Grain Boundary Regions Using Spherical Nanoindentation: Shradhha Vachhani1; Roger Doherty2; Surya Kalidindi3; 1Hysitron, Inc; 2Drexel University; 3Georgia Institute of Technology

10:50 AM Invited
Phases and Phase Transformations at Interfaces: Tim Frolov1; Mark Asta2; Y. Mishin3; 1Lawrence Livermore National Laboratory; 2University of California - Berkeley; 3George Mason University

11:10 AM Invited
Atomistic Simulations of Transient Testing in Nanocrystalline Al: Maxime Dupraz1; Zhen Sun2; Christian Brandl1; Helena Van Suygenhoven3; 1Paul Scherrer Institut; 2Paul Scherrer Institut & EPFL; 3Karlsruhe Institute of Technology

11:30 AM
Stabilization of Nanocrystalline Alloys at High Temperatures via Utilizing High-entropy Grain Boundary Complexions: Naixie Zhou1; Tao Hu2; Mingde Qin3; Jiajia Huang1; Jian Luo1; 1UCSD Nanomaterial engineering

11:50 AM Invited
Observation and Characterization of Grain Boundary Complexions in Hot-pressed Boron Carbide: Kristopher Behler1; Scott Walck2; Christopher Marvel3; Jerry LaSalvia1; Martin Harmer1; 1U.S. Army Research Laboratory (SURVICE Engineering); 2Lehigh University; 3U.S. Army Research Laboratory

12:10 PM Invited
Complexion Transitions in Metals: Unique Opportunities for Mechanical Behavior and Materials Processing: Timothy Rupert1; 1University of California, Irvine

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Electromigration, Thermomigration and Electrochemical Behaviors
Sponsored by: TMS Functional Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Tuesday AM Room: 30E Location: San Diego Convention Ctr

Session Chairs: John W Elmer, Lawrence Livermore National Laboratory; Yan Li, Intel Corporation

8:30 AM Invited
The Grain Refinement of Metal Alloy by Electromigration: PinChu Liang1; Kwang-Lung Lin2; 1National Cheng Kung University

8:50 AM
In Situ Characterization of Electromigration Damage in Single Crystal and Bi-crystal Pure Tin Solder Joints: Marion Branch Kelly1; Antony Krubanandham2; Nikhil Chawla1; 1Arizona State University

9:10 AM
DZ Value of the Sn Diffuser in CuSn1 under Various Current Densities: Cheng-Hsien Yang1; Pei-Tzu Lee2; Han-Lin Chung3; Cheng-En Ho3; 1Yuan Ze University

9:30 AM
Study of Electromigration Mechanism in Pb-free Tricrystals Ball Grid Array Solder Joints: Yu Tian1; Jing Han1; Fu Guo3; 1Beijing University of Technology

9:50 AM
Intermetallic Compound Movement Behavior of Cu Reinforced Composite Solder under Current Stressing: Fu Guo1; Yan Wang1; Jing Han1; 1Beijing University of Technology

10:10 AM Break

10:30 AM
Effective Suppression of Thermomigration-induced Cu Dissolution in Micro-scale Pb-free Interconnects by Ag3Sn interlayer: Gong-Lin Hong1; Yu-Fang Lin1; Fan-Yi Ouyang1; 1Dept. of Engineering and System Science, National Tsing Hua University

10:50 AM
Corrosion Resistance for High Reliability Devices: Tsan-Hsien Tseng1; Albert T. Wu1; 1National Central University

11:10 AM
Failure Mechanism and Reliability of Ag-4Pd Alloy Wire Bonded on Al-Si Metallization under High Temperature Storage and Thermal Cycle Tests in Corrosive Environments: Yan Wen Tsai1; Jui-Nung Wang2; Fan-Yi Ouyang1; 1National Tsing Hua University

**Sponsored by:** Chinese Society for Metals, TMS: Recycling and Environmental Technologies Committee

**Program Organizers:** Subodh Das, Phinix, LLC; Zhancheng Guo, University of Science and Technology Beijing; Minfang Han, China University of Mining and Technology, Beijing; Teruhisa Horita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Xingbo Liu, West Virginia University

Tuesday AM

8:30 AM Keynote
Green Development is the Future Direction for Chinese Steel Industry: Chunxia Zhang1; Fangqin Shangguan1; Haiqiang Wang1; Shourong Zhang1; Ruiyu Yin1; 1Central Iron & Steel Research Institute; 1Wuhan Iron and Steel (Group) Co. Ltd (WISCO)

9:00 AM Invited
The Combined Cycle Power Plant (CCPP) Used In Energy Conversion of Steel Smelting Production: Chuanting Tan1; Xuezi Dong1; Yixiang Yuan1; 1Chinese Academy of Sciences

9:30 AM
Green Manufacturing Process of Shougang Jingtang Steel Plant: Fuming Zhang1; Jianxin Xie1; 1Shougang Group

9:50 AM Invited
The Introduction and Process Optimization Research of Oxygen Blast Furnace Ironmaking Technology: Qingguo Yue1; Zeshang Dong1; Jingsong Wang1; Zeyi Jiang1; Haibin Zhuo1; Xuefeng She1; Guang Wang1; 1University of Science and Technology Beijing

10:10 AM Break

10:30 AM
Prediction and Optimal Scheduling of Byproduct Gases in Steel Mill: Trends and Challenges: Xiancong Zhao1; Hao Bai1; Qi Shi1; Zhancheng Guo1; 1State Key Laboratory of Advanced Metallurgy, University of Science and Technology Beijing

10:50 AM
Processing Non-Oriented Electrical Steels Using Inclined/Skew Rolling Schemes: Youliang He1; Mehdi Sanjari1; Erik J. Hilinski1; 1Natural Resources Canada; 1Temple Steel Co.

11:10 AM Invited
A Possible Way for Efficient Utilization of Coal Energy: The Combined Process of Ironmaking with Gasoline Synthesis and Electricity Generation: Zhancheng Guo1; 1University of Science and Technology Beijing

11:30 AM
Waste Energy Recovery Technology of Iron and Steel Industry in China: Xu Zhang1; Hao Bai1; Juxian Hao1; Zhancheng Guo1; 1State Key Laboratory of Advanced Metallurgy, University of Science and Technology Beijing


**Sponsored by:** Chinese Society for Metals

**Program Organizers:** Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Kyle Brinkman, Clemson University; Teruhisa Horita, AIST; Minfang Han, China University of Mining and Technology, Beijing

Tuesday AM

8:30 AM Invited
New Materials for Solid Oxide Fuel Cells: Shriram Ramanathan1; 1Purdue University

8:55 AM Invited
Investigation on Cathode Interlayer and Electrolyte for Improving Electric Power Efficiency of SOFCs: Takaaki Somekawa1; Yoshi Matsuzaki1; Yuya Tachikawa1; Hiroshi Matsumoto1; Shunsuke Taniguchi1; Kazunari Sasaki1; 1Tokyo Gas Co., Ltd.; 1Kyushu University

9:20 AM Invited
Poisoning Mechanism and Performance Degradation at SOFC Cathode/Electrolyte Interfaces: Teruhisa Horita1; Masahiro Ishiyama1; Katherine Develos-Bagarinao1; Haruo Kishimoto1; Katsuhiko Yamaji1; 1AIST

9:40 AM
Phase Field Modelling of Microstructure and Conductivity Evolution of SOFC Electrodes: Yinkai Lei1; Tianle Cheng1; Youhai Wen1; 1National Energy Technology Laboratory

10:00 AM Break

10:20 AM
Reactive Synthesis of Spinel Contact Layers with Metallic Precursor Powders: Jiahong Zhu1; Yutian Yu1; 1Tennessee Technological University

10:40 AM Invited
Electrophoretically Deposited Copper Manganese Spinel Coatings for Interconnections in Solid Oxide Fuel Cells: Zhibao Sun1; Srikant Gopalan1; Uday Pal1; Soumendra Basu1; 1Boston University

11:05 AM
Synthesis and Characterisation of Perovskite Type Anode Material and Its Tape Casting for IT-SOFC Application: Subhajit Pan1; Ramesh Biswal1; Koukish Biswas1; 1IIT Kharagpur

11:25 AM Invited
Modified SOFC Cermet Anodes for Improved Catalysis at High Fuel Utilization: Paul Gasper1; Yanchen Lu1; Uday Pal1; Soumendra Basu1; Srikant Gopalan1; 1Boston University
8:30 AM Invited

8:40 AM Keynote

9:00 AM Rafting Prediction Criterion and Creep Life for Nickel-based Single Crystal Superalloys under Multiaxial Stress States: Zhixun Wen; Huan Yang; Zhufeng Yue; Chengjiang Zhang; Northwestern Polytechnical University

9:20 AM Effect of C Addition on Creep and Microstructure Stability of Lamellar TiAl Alloys: Xiwen Zhang; Ji Zhang; Jing Zhu; China Iron and Steel Research Institute Group; Tsinghua University

9:40 AM Revisiting the Sources of Creep Dislocations in Ni-base, Single Crystal Superalloys: Farangis Ram; Zhaoming Li; Zailing Zhu; Masood Hafez Haghighat; Stefan Zaefferer; Dierk Raabe; Roger Reed; Carnegie Mellon University; Max-Planck Institut für Eisenforschung GmbH; University of Oxford

10:00 AM Break

10:20 AM Development Activities for the Manufacture of Rotor Forgings for Turbines in High Efficiency Power Plants: Nikolaus Blaes; B. Donth; Andreas Diwo; D. Bokelmann; M. Baues; Saarschmiede GmbH; Exova AB

10:40 AM Mechanisms of Fracture in Laser Powder Bed Additive Manufactured Superalloys: Håkan Brodin; Per Sandahl; Siemens Industrial Turbomachinery AB; Exova AB

11:00 AM Wang: High Temperature Oxidation of the New Type γ’-strengthened Cobalt-base Superalloys: Lei Wang; Yang Liu; Bo Gao; Xu Song; Shuyu Yang; Northeastern University; Shenyang University

12:00 PM Monday Program Co-chair: James Burns, University of Virginia; Panelists: John Scully, University of Virginia; Brian Scully, University of Virginia; Somerday, Southwest Research Institute

1:00 PM Monday Program Co-chair: James Burns, University of Virginia; Panelists: John Scully, University of Virginia; Brian Scully, University of Virginia; Somerday, Southwest Research Institute

2:00 PM Monday Program Co-chair: James Burns, University of Virginia; Panelists: John Scully, University of Virginia; Brian Scully, University of Virginia; Somerday, Southwest Research Institute

2:30 PM Keynote

4:00 PM Monday Program Co-chair: James Burns, University of Virginia; Panelists: John Scully, University of Virginia; Brian Scully, University of Virginia; Somerday, Southwest Research Institute

4:30 PM Monday Program Co-chair: James Burns, University of Virginia; Panelists: John Scully, University of Virginia; Brian Scully, University of Virginia; Somerday, Southwest Research Institute

5:00 PM Monday Program Co-chair: James Burns, University of Virginia; Panelists: John Scully, University of Virginia; Brian Scully, University of Virginia; Somerday, Southwest Research Institute
Applications: Development of Advanced Nickel-Titanium-Hafnium Alloys for Tribology

10:10 AM  Break

718: Experiments and Crystal Plasticity Modeling and Grain Boundary in Iron: Liang Wan1; Wen-Tong Geng1; Jun-Ping Du2; Akio Ishii1; Hajime Kimizuka1; Shigenobu Ogata1; Osaka University; Kyoto University

11:20 AM  Role of Hydrogen on Metal Plasticity: An Ab-Initio Study: Palkit Garay1; Ilaksh Adlakha1; Kiran Solanki1; SEMTE


Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Tuesday AM  Room: 23C  Location: San Diego Convention Ctr

Session Chair: Ashley Spear, University of Utah

8:30 AM  Keynote: Research Directions in Materials Engineering and Fatigue: An NSF Engineering Perspective: Alexis Lewis1; National Science Foundation

9:10 AM  Low Cycle Fatigue Behavior of Direct Metal Laser Sintered Inconel Alloy 718: Experiments and Crystal Plasticity Modeling: Marko Knezevic2; Saeede Ghorbanpour1; University of New Hampshire

9:30 AM  The Effect of Grain Boundaries on Short Crack Growth Behavior in WE43 Magnesium: Jacob Adams1; Wayne Jones3; John Allison4; University of Michigan

9:50 AM  Enhancing Fatigue Life through Ultrasonic Shot Peening: Garrett Patak1; Vivie Harrinan1; Clemson University

10:10 AM  Break

10:30 AM  Development of Advanced Nickel-Titanium-Hafnium Alloys for Tribology Applications: Sean Mills1; Ronald Noebe2; Christopher DelaCorte2; Aaron Stebner2; Colorado School of Mines; NASA Glenn Research Center

10:50 AM  Effects of Alloying and Microstructure on Ultrasonic Fatigue Behavior of Binary Ti-Al Alloys: Qiangying Shi1; Sinsar Hsie1; J. Wayne Jones1; John Allison4; University of Michigan

11:10 AM  Low Cycle Fatigue Properties of a CoCrFeMnNi Equiatomic High-entropy Alloys: Tsung-Ruei Sai1; E-Wen Huang1; Jien-Wei Yeh2; National Chiao Tung University; National Tsing Hua University

Friction Stir Welding and Processing IX — High Temperature Applications II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee

Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yuataka Sato, Tohoku University; Priyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Tuesday AM  Room: 9  February 28, 2017  Location: San Diego Convention Ctr

Session Chairs: Murray Mahoney, Retired from Rockwell Scientific; Hidetoshi Fuji, Osaka University

8:30 AM  Introductory Comments

8:35 AM  Invited: Evaluation of Ausformed H13 Tool Steel for FSW Tools: Murray Mahoney1; John Baumann2; Anthony Reynolds3; Retired from Rockwell Scientific; Boeing; University of South Carolina

8:55 AM  Invited: Development of Friction Stir Processing for Repair of Nuclear Dry Cask Storage System Canisters: Kenneth Ross1; Ben Sutton2; Glenn Grant3; Gary Cannell4; Greg Frederick5; Robert Couch6; Pacific Northwest National Laboratory; Electric Power Research Institute; FLUOR

9:15 AM  Invited: Friction-Stir-Processing Microstructure Improvement Related to Fatigue-strength and Charpy-absorbed-Energy Increase of TIG-welded SS400 Steels: Kazuhiro Ito1; Tatsuya Okuda1; Hiroki Izumi1; Makoto Takahashi2; Kazuyuki Kohama1; Hajime Yamamoto2; Hidetoshi Fujii1; Osaka University

9:35 AM  Invited: Performance of Tungsten-based Alloy Tool Developed for Friction Stir Welding of Austenitic Stainless Steel: Yutaka Sato1; Ayuri Tsuij1; Tomohiro Takida1; Akihiko Ikegaya1; Akinori Shibata1; Hiroshi Ishizuka1; Hideki Moriguchi1; Shinnichi Susukida2; Hiroiyuki Kokawa1; Tohoku University; Allied Material; Nippon ITF

9:55 AM  Break

10:10 AM  Microstructure and Mechanical Properties of Beta-type Ti-15V-3Cr-3Al-3Sn Alloy Joints Fabricated by Friction Stir Welding: Huatong Liu1; Hidetoshi Fujii1; Joining and Welding Research Institute, Osaka University, Japan

10:30 AM  Invited: Effect of Hydrogenation on Superplastic Behavior of Nugget in Friction Stir Welded Ti-6Al-4V Joints: Z.Y. Ma1; L.H. Wu1; B.L. Xiao1; Institute of Metal Research, Chinese Academy of Sciences

10:50 AM  Investigation of Process Parameters for Friction Stir Welding (FSP) of Ti-6Al-4V Alloy: Sandip Chougule1; Diggijay Sheed2; Rajkumar Singh3; Nithyanand Prabhu1; Bhagwati Kashyap1; Kaushal Jha1; Bharat Forge Ltd.; Indian Institute of Technology, Bombay; Bhabha Atomic Research Centre, Mumbai
Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin — Structure-Property-Performance Correlations: Carbon Nanotubes, Boron Nitride and Biomaterials

Sponsored by: TMS Functional Materials Division, TMS: Biomaterials Committee, TMS: Electronic Packaging and Interconnection Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee

Program Organizers: Fay Hua, Intel Corporation; Tae-Kyu Lee, Portland State University; Youngho Kim, Hanyang University; Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Choong-un Kim, University of Texas at Arlington; Nugeghalli Ravindra, New Jersey Institute of Technology

Tuesday AM
February 28, 2017
Location: San Diego Convention Ctr

Session Chairs: Seung Kang, Qualcomm Incorporated; Roger Narayan, UNC/NCSU

8:30 AM Introductory Comments

8:40 AM Invited
Multifunctional Carbon Nanotube Films and Composites: Liwen Zhang1; Xin Wang1; Qingwen Li2; Junlian Zhu1; 'North Carolina State University; 1Suzhou Institute of Nanotechnology and Nanobionics

9:10 AM Invited
Boron-Filled Hybrid Carbon Nanotubes: Rajen Patel1; Alokik Kanwal2; Tseng-Ming Chou1; Joseph Lefebvre2; Frank Owens2; David Apiro2; Zafar Iqbal1; 'Pitciminy Arsenal, NJ; 2NJJIT; 3SIT; 4Hystron; 5Hunter College

9:40 AM
Direct Conversion of h-BN into Phase Pure c-BN and Size Dependent Raman Spectroscopy of Nano and Micro Structures, and Thin Films of c-BN: Ariful Haque1; Anag Bhaumik1; Jagdish Narayan1; 'NCSU

10:00 AM Break

10:15 AM Invited
Catalyzed BNNT Growth on Metallic Substrates: Vijayesh Kumar1; Debrupa Lahiri1; Indranil Lahiri1; 'Indian Institute of Technology Roorkee

10:45 AM
Remarkable Conversion of p to n Type Reduced Graphene Oxide (rGO) by Laser Annealing Technique at Room Temperature and Pressure: Anag Bhaumik1; Ariful Haque1; Jagdish Narayan1; 'North Carolina State University

11:05 AM Invited
Preparation and Characterization of Ceramic Scaffolds: Joanna McKittrick1; Steven Naleway1; Michael Frank1; Jae-Young Jung1; Frances Su1; 'University of California, San Diego

11:35 AM Invited
Development of Biodegradable Magnesium Alloys: Kwang Seon Shin1; Ahmad Bahmani1; 'Seoul National University

Fundamental Aspects and Modeling Powder Metal Synthesis and Processing — Field-assisted Processing

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee

Program Organizers: Paul Prichard, Kennametal; Eugene Olevsky, San Diego State University; Iver Anderson, Ames Laboratory

Tuesday AM
February 28, 2017
Location: San Diego Convention Ctr

Session Chair: Eugene Olevsky, San Diego State University

8:30 AM Invited
Mechanisms of Pore Formation in High-temperature Carbides: Case Study of TaC Prepared by Spark Plasma Sintering: Olivia Graeve1; James Kelly1; 'University of California, San Diego

9:10 AM
A Numerical Tool to Master the SPS Densification of TiAl Complex Shapes: Martins David1; Estournes Claude2; Sallot Pierre1; Bellet Michel1; Mocellin Katia1; 'SAFRAN; 'CIRIMAT; 'CEMEF

9:30 AM
The Role of Electric Current in Spark Plasma Sintering of Conductive Powders: Geuntak Lee1; Eugene Olevsky1; 'San Diego State University

9:50 AM
Modeling and Optimization of Hierarchical Porous Structures during Spark Plasma Sintering: Diletta Giuntini1; Eugene Olevsky1; 'San Diego State University

10:10 AM Break

10:30 AM Invited
Predicting (1) Activated Sintering of Refractory Metals and (2) Flash Sintering of Oxides: Jian Luo1; 'UC San Diego

11:10 AM
Optimization of Temperature Regime of Spark Plasma Sintering of AlON Powder: Yingchun Shan1; Xialu Wei2; Xiannian Sun1; Geuntak Lee1; Jijun Xu1; Eugene A Olevsky1; 'Dalian Maritime University; 'San Diego State University

11:30 AM
On the Role of Electric Current in Spark Plasma Sintering of Conductive Powders: Geuntak Lee1; Eugene Olevsky1; Joanna Mckittrick1; 'San Diego State University; 'University of California, San Diego
TECHNICAL PROGRAM

Tuesday AM  Room: Pacific 14  Location: Marriott Marquis Hotel

Session Chairs: Eric Lass, NIST; TBD; TBD

8:30 AM Invited

8:35 AM Keynote

Coarsening Kinetics and Elemental Partitioning of (f.c.c.) Gamma Plus (L1_2) Gamma-prime-strengthened Co-base Superalloys: Daniel Sauza1; Peter Bocchini1; James Coakley1; Eric Lass1; David Dunand1; David Sield1; NorthWestern University; National Institute of Standards and Technology (NIST); NorthWestern University Center for Atom Probe Tomography (NUCAPT)

9:15 AM Invited

On the Role of the Base Elements Co and Ni in γ'-hardened Superalloys: Steffen Neumeier1; Christopher Zenk1; Nicklas Volz1; Timur Halvaci1; Mathias Göken1; Friedrich-Alexander-Universität Erlangen-Nürnberg; Friedrich-Alexander-Universität Erlangen-Nürnberg

9:45 AM

Properties of γ’-phase in L1_2-precipitation Hardened Co-base Alloys with Different W-content: Yuzhi Li1; Uwe Lorenz1; Steffen Neumeier2; Andreas Schreyer3; Andreas Stark1; Li Wang1; Florian Pyczak1; Helmholtz-Zentrum-Geesthacht; Friedrich-Alexander-Universität Erlangen-Nürnberg; European Spallation Source ERIC

10:05 AM Break

10:25 AM Invited

Structural Stability of L1_2 and TCP Phases in Co-based Superalloys: Thomas Hammerschmidt1; Årthur Bialon1; Jörg Köllmann1; Ralf Drautz2; ICAMS, Ruhr-Universität Bochum

10:55 AM

Elemental Partitioning Behaviour in Ni-Co-Al-Ti-Cr Alloys: Sioned Llewelyn1; Katerina Christofidou1; Vicente Araullo-Peters2; Nick Jones1; Emmanuelle Marquis1; Mark Hardy1; Howard Stone1; University of Cambridge; University of Michigan; Rolls-Royce plc

11:15 AM

Modeling Precipitate Coarsening in Cobalt-based Superalloys: Andrea Jokisaari1; Shahab Naghavi1; Peisheng Wang1; Wei Xiong1; Kil-Won Moon1; Christopher Wolverton1; Ursula Kattner1; Careylyn Campbell2; Peter Voorhees1; Olle Heinonen3; Northwestern University; National Institute of Standards and Technology; Argonne National Laboratory

11:35 AM

Gammaprime Precipitation in Model CoAlW Alloys: Ahmad Azzam1; Frederic Danoix1; Annie Hauet1; Didier Locq1; Pierre Caron1; Didier Blavette1; Normandy Université - CNRS; Onera

GAT-2017 (Gamma Alloys Technology - 2017) — Other Applications and Materials-Processes Development Efforts

Sponsored by: TMS Structural Materials Division, TMS: Titanium Committee

Program Organizers: Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Saltot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Tuesday AM  Room: Pacific 17  Location: Marriott Marquis Hotel

Session Chairs: Yuyong Chen, Harbin Institute of Technology; Marc Thomas, ONERA

8:30 AM Invited

IC Engine Valves, an Application for Gamma Ti-Al Alloy Technology: Al Sommer1; Del West Engineering, Inc

8:55 AM

CAE-based Analysis of Structural Integrity for an Industrial Gas Turbine Blade Made from TIAL Alloy: Omid Sedaghat1; Siavash Zamani1; Saeed Asadi1; Fatemeh Heydari1; Ali Bakhshi1; MAPNA Turbine Blade Eng. & Mfg. Co. - PARTO

9:15 AM

O-phase in a Lamellar TIALn Alloy Produced by Powder Metallurgy: Heike Gabrisch1; Uwe Lorenz1; Florian Pyczak1; Marcus Rackel1; Andreas Stark1; Helmholtz-Zentrum Geesthacht

9:35 AM

Preparation and Electron Beam Welding of Hot Packed Rolled Powder Metallurgy γ-TiAl Sheets: Zhengguan Lu1; Lei Xu1; Jie Wu1; Ruipeng Guo1; Rui Yang1; Institute of Metal Research, CAS

9:55 AM

Why Grinding of Gamma Titanium Aluminide Makes Sense?: K. Philip Vergheese1; Saint-Gobain Abrasives

10:15 AM Break

10:30 AM Invited

Development of Cost-effective Processes for Gamma-TIAL Application: Rui Tang1; Institute of Metal Research CAS

10:55 AM

Multi-direction Forging and Superplastic Deformation Characteristic of High Nb Containing TIAL Alloys: Bin Tang1; Northwestern Polytechnical University

11:15 AM

Titanium Aluminides under High-pressure, High Temperature and during Plastic Deformation: In-situ Studies by Neutron and Synchrotron Quantum Beams: Klaus-Dieter Liss1; Australian Nuclear Science and Technology Organisation

11:35 AM

Hot Forming of Titanium Aluminide Alloys Studied In Situ with Synchrotron Radiation: Andreas Stark1; Marcus Rackel1; Michael Oehring1; Norbert Schell1; Lars Lottermoser1; Florian Pyczak1; Helmholtz-Zentrum Geesthacht

11:55 AM

Fracture Behavior during High Tension Testing of High Nb Containing TiAl Alloys: Bin Zhu1; Xiangyi Xue1; Hongchao Kou1; Lin Song1; Jinshan Li1; Northwestern Polytechnical University
High Entropy Alloys V — Alloy Development and Applications I
Sponsored by: TMS Structural Materials Division, TMS Functional Materials Division, TMS: Alloy Phases Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suvene Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Tuesday AM Room: 32B
February 28, 2017 Location: San Diego Convention Ctr
Session Chairs: Peter Liaw, The University of Tennessee, Knoxville; Michael Gao, National Energy Technology Laboratory

8:30 AM Invited
A Critical Review of High Entropy Alloys and Related Concepts: Dan Miracle; Oleg Senkov; 1AF Research Laboratory; 2UES, Inc.

8:50 AM Invited
Formations, Thermodynamics and Elasticity of High-entropy Alloys: Michael Gao; Jeffrey Hawk; David Alman; 1National Energy Technology Lab

9:10 AM Invited
On the Damage Tolerance of the High-entropy Alloy CrMnFeCoNi in the Range Room Temperature to Liquid Nitrogen Temperatures: Bernd Gudovatz; Keli Thurston; Anton Hohenwarter; Guillaume Laplanche; Easo George; Robert Ritchie; Lawrence Berkeley National Laboratory; 1University of Leoben; 2Ruhr-University Bochum

9:30 AM Invited
Phase Stability of the CrMnFeCoNi High-entropy Alloy: F. Fox; G. Laplanche; A. Hohenwarter; A. Kostka; F. Otto; E. P. George; 1Ruhr University Bochum; 2Montanuniversität Leoben

9:50 AM Invited
A Highly Fracture and Fatigue Resistant Al0.3CoCrFeNi High Entropy Alloy: Mohsen Seifi; Yunzu Shi; Peter Liaw; Mingwei Chen; John Lewandowski; 1Case Western Reserve University; 2The University of Tennessee; 3Tohoku University

10:10 AM Break

10:30 AM Invited
Novel Precious Metal High Entropy Alloys – Design, Structure and Mechanical Performance: Caitlin Healy; Jörg Löfler; Michael Ferry; Kevin Laws; 1University of New South Wales; 2ETH Zürich

10:50 AM Invited
Hexagonal Close-Packed High-entropy Alloys: The Effect of Entropy: Junwei Qiao; Michael Gao; Huijun Yang; 1Tianyuan University of Technology; 2National Energy Technology Laboratory

11:10 AM
Design of Light-weight High-Entropy Alloys: Rui Feng; Michael C. Gao; Chanho Lee; Michael Mathes; Tingting Zuo; Shuying Chen; Jeffrey A. Hawk; Yong Zhang; Peter K. Liaw; 1The University of Tennessee; 2National Energy Technology Laboratory/AECOM; 3University of Science and Technology, Beijing

11:30 AM
The Design of Creep-resistant High Entropy Alloys for Elevated-temperature Applications: Haoyan Diao; Chuan Zhang; Fan Zhang; Karin Dahmen; Peter Liaw; 1The University of Tennessee; 2CompuTherm, LLC; 3University of Illinois at Urbana-Champaign; 4The University of Tennessee

11:50 AM
Local Texture in a Swaged CrMnFeCoNi High-entropy Alloy: Aurimas Pukenas; Guillaume Laplanche; Easo George; Werner Skrotzki; 1TU Dresden; 2Ruhr-Universität Bochum

Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session III
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Alloy Phases Committee, TMS: Nuclear Materials Committee, TMS: Phase Transformations Committee
Program Organizers: Wei Xiong, University of Pittsburgh; Shuanglin Chen, CompuTherm LLC; Frederic Danoix, Université de Rouen; Indrajit Charit, University of Idaho

Tuesday AM Room: 31C
February 28, 2017 Location: San Diego Convention Ctr
Session Chairs: Amy Clarke, Colorado School of Mines; Peter Wells, University of California - Santa Barbara

8:30 AM Invited
Advanced FIM and APT Techniques at the University of Oxford: Michael Moody; Paul Bagot; 1University of Oxford

9:00 AM Invited
Advanced Microstructural and Chemical Characterization of Nano-scale NiMnSi Precipitates Formed in Irradiated Reactor Pressure Vessel Steels Using Atom Probe Tomography and Scanning Transmission Electron Microscopy: Philip Edmondson; Chad Parish; Randy Nanstad; 1Oak Ridge National Laboratory

9:30 AM Invited
Design of Nd-Fe-B Permanent Magnets with Maximum Coercivity by Controlling Grain Boundary Chemistry at the Atomic Level: Kazuhiro Hono; Taisuke Sasaki; Hossein Sepehri-Amin; Tadakazu Ohkubo; 1National Institute for Materials Science
In-situ Methods for Unraveling Structure-Property Relationships in Light Metals — Imaging and Acoustic Emission

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee, TMS: Magnesium Committee

Program Organizers: Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

Tuesday AM Room: 5B
February 28, 2017 Location: San Diego Convention Ctr

Session Chairs: Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

8:30 AM Introductory Comments

8:40 AM Keynote
Overview of In-Situ X-ray Studies of Light Alloy Solidification in Microgravity: David Browne¹; F. Garcia-Moreno²; H. Nguyen-Thi³; G. Zimmermann⁴; F. Kargl⁵; Ragnvald Mathiesen⁶; Axel Griesche⁷; O. Minster⁴; ¹University College Dublin; ²Institute of Applied Materials, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH; Technische Universität Berlin; ³IM2NP & Université d’Aix-Marseille; ⁴Access e.V., Intezestrasse; ⁵Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Materialphysik Im Weltraum; ⁶Institut für Fysikk, Norsk Teknisk-Naturvitenskapelige Universitet (NTNU); ⁷Bundesanstalt für Materialforschung und –prüfung (BAM); ¹Human Spaceflight and Robotic Exploration Directorate, ESTEC, European Space Agency

9:10 AM Morphological Transition of a-Mg Dendrites during Near-isothermal Solidification of a Mg-Nd-Gd-Zn-Zr Casting Alloy: Daniele Casari¹; Wajira Mirihanage³; Stuart McDonald⁴; Ragnvald Mathiesen⁶; ¹NTNU; ³University of Queensland; ⁶University College Dublin; ³University of Manchester; ¹University of California, Santa Barbara

9:30 AM Real-time Observation of AZ91 Solidification by Synchrontron Radiography: Guang Zeng¹; Kazuhiro Nogita²; Sergey Belyakov¹; Jingwei Ding¹; Stein Østmo³; Stuart McDonald⁴; Hideyuki Yasuda⁵; Christopher Gourlay⁶; ¹Imperial College London; ²University of Tokyo; ³University of Manchester; ⁴University of Queensland; ⁵Kyoto University

9:50 AM 3D Microstructural Evolution on Solidifying Mg-Nd-Zn Alloy Observed via In Situ Synchrontron Tomography: Tungky Subrato¹; Chamini Mendis²; Francesco D’Elia³; Gábor Szakács⁴; Julie Fife⁴; Norbert Hrot⁴; Karl Kainer⁵; Domenkos Tolnai⁶; ¹Helmholtz-Zentrum Geesthacht; ²Brunel Centre for Advanced Solidification Technology (BCAST), Brunel University; ³Previously with: Swiss Light Source, Paul Scherrer Institut (PSI)

10:10 AM Break

10:30 AM Invited
The Use of In-situ X-ray Imaging Methods in the Research and Development of Magnesium-based Grain-refined and Nanocomposite Materials: Wim Sillekens¹; Daniele Casari⁴; Wajira Mirihanage³; Sophie Terzi⁶; Ragnvald Mathiesen⁶; Luc Salvo⁴; Remi Daudin⁶; Pierre Lhuissier⁴; Enya Guo⁴; Peter Lee⁴; ¹European Space Agency; ²NTNU Norwegian University of Science and Technology; ³University of Manchester; ⁶European Synchrontron Radiation Facility – Institut Laue-Langevin; ¹Université Grenoble Alpes

10:55 AM Acoustic Emission Study of Deformation Behavior of Wrought Mg Alloys: Patrik Dobron¹; Daria Drozdenko¹; Sangbong Yi¹; Jan Bohlen⁴; ¹Charles University; ²Helmholtz-Zentrum Geesthacht

11:15 AM Effect of Thermo-mechanical Treatment of Extruded Z1 Mg Alloy on Resulting Mechanical Properties: Daria Drozdenko¹; Jan Bohlen⁴; Sangbong Yi¹; Patrik Dobron¹; ¹Charles University in Prague; ²Helmholtz-Zentrum Geesthacht

11:35 AM Invited
In-situ Investigation of Deformation Mechanisms in Mg-Zn-Y Magnesium Alloy with LPSO Phase by Diffraction Methods and Acoustic Emission: Kristian Mathis²; Gerardo Garces³; Claudia Horváth¹; Daria Drozdenko¹; Patrik Dobron¹; ¹Faculty of Mathematics and Physics, Charles University; ²CENIM-CSIC

Interface-Mediated Properties of Nanostructured Materials — Hierarchical Nanostructured Materials

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University; Michael Demkowicz, Texas A&M University

Tuesday AM Room: Pacific 23
February 28, 2017 Location: Marriott Marquis Hotel

Session Chairs: Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University

8:30 AM Deformation Mechanisms in bcc Mg/Nb: Youxiang Chen¹; Satyesh Yadav²; Nan Li¹; Xiang-Yang Liu¹; Kevin Baldwin¹; Irene Beyerlein²; Richard Hoagland³; Jian Wang³; Nathan Mara³; ¹Los Alamos National Laboratory; ²University of Nebraska – Lincoln

8:50 AM Invited
Fracture Toughness of Al/SiC Nanolaminates: Experiments and Simulation: Carl Mayer¹; Ling Yang²; V. Carollo²; J. Kevin Baldwin¹; Nathan Mara³; Jon Molina-Alderueguia²; Nikhilesh Chawla¹; ¹Arizona State University; ²IMDEA; ³Los Alamos National Laboratory

9:20 AM Invited
The Role of Interfaces on Plasticity in Dislocation Nucleation-mediated Nanostructures: Jungho Shin¹; Lisa Chen¹; Gunther Richter³; Thomas Cornelius¹; Olivier Thomas³; Daniel Giana³; ¹University of Pennsylvania; ²Max-Planck-Institut für Intelligente Systeme; ³Aix-Marseille Université; ⁴University of California, Santa Barbara

9:50 AM In-situ TEM Observations of Grain Growth during High-cycle Fatigue and Notch Fatigue: Khalid Hattar¹; Daniel Bufford¹; William Mook¹; Christopher O’Brien¹; Fadi Abdeljawad¹; Tim Furnish¹; Brad Boyce¹; Stephen Foiles¹; ¹Sandia National Laboratories

10:10 AM Break

10:25 AM Invited
Competing Interfaces within Hierarchical Nanostructured Metallic Alloys: Daniel Foley¹; Garratt Tucker¹; ¹Drexel University

10:55 AM Twinning Paths and Twin Boundaries in Hexagonal Close-packed Titanium: Hao Wang¹; ¹Institute of Metal Research, Chinese Academy of Sciences

11:15 AM Invited
Role of Twinning, Dynamic Recrystallization, and Shear Banding in the Microstructural Evolution of Magnesium Alloys: Ibrahim Karaman¹; Ebubekir Dogan¹; Matthew Vaughan¹; S.J. Wang¹; ¹Texas A&M University

11:45 AM The Twinning Genome: A Systematic Framework for Predicting Twinning in Materials: Doghy Sun¹; Mauricio Ponga¹; Kaushik Bhattacharya¹; Michael Ortiz¹; ¹California Institute of Technology; ²University of British Columbia

www.tms.org/TMS2017
Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Fuels III

Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Nuclear Materials Committee, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Rampurashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Tuesday AM  
Room: Cardiff  
February 28, 2017  
Location: Marriott Marquis Hotel

Session Chairs: Kurt Terrani, Oak Ridge National Laboratory; Isabella van Roojen, Idaho National Laboratory

8:30 AM
Production of Fully Ceramic Microencapsulated Fuel for Test Reactor Irradiation: Kurt Terrani1; James Kiggans1; Michael Trammell2; Wilson Cowherd2; Gregory Core2; Oak Ridge National Laboratory; 1Idaho National Laboratory; 2Idaho National Laboratory

8:50 AM
Microstructural Characterization and Thermal Properties of Metallic Pu-Zr Systems: Assel Aitikaliyeva1; Cynthia Papesch2; Idaho National Laboratory

9:10 AM
Post Irradiation Electron Microscopy Examination of UCO Fuel Kernels from TRISO Coated Particles: Terry Holestoning1; Isabella van Roojen2; Weicheng Zhong3; Los Alamos National Laboratory; 1Idaho National Laboratory

9:30 AM
Preliminary Post Irradiation Examination SEM Analysis of AGR 2 UO2 and UCO TRISO Fuel Particles: Tyler Gerczak1; John Hunn2; Charles Baldwin1; Robert Morris1; Fred Montgomery1; Oak Ridge National Laboratory

9:50 AM
Grain Boundary Complexions in SiC and Their Relevance in Silver Diffusion in TRISO Particles: Felix Cancino Trejo1; Eddie Lopez2; 1CINVESTAV

10:10 AM
Break

10:30 AM
On Silver Transport in 3C-SiC: Johannes Neethling1; Jacques O’Connel1; 1Nelson Mandela Metropolitan University

10:50 AM
High Temperature Fuel Cladding Chemical Interactions between Unirradiated TRIGA Fuels and 304 Stainless Steel: Emmanuel Perez1; Dennis Keiser1; Bryan Forsmann2; Dawn Janney1; Jody Henley1; Eric Woolstenhulme1; 1Idaho National Laboratory; 2Boise State University

11:10 AM
Small Scale Mechanical Testing of UO2 at Elevated Temperatures: David Frazer1; Benjamin Shaffer2; Kitt Roney3; Harim Lim2; Perdo Peralta1; Peter Hosemann1; 1University of California, Berkeley; 2Arizona State University

11:30 AM
Model of Thermal Conductivity Reduction Due to Point Defect Accumulation in Ion Irradiated UO2: M Faisal Riyad1; Vinay Chauhan1; Yuzhou Wang1; Marat Khaifizov1; 1The Ohio State University
Materials by Design: An MPMD Symposium Honoring Greg Olson on the Occasion of His 70th Birthday — Materials Design I
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Functional Materials Division, TMS Structural Materials Division, TMS: Integrated Computational Materials Engineering Committee, TMS: Phase Transformations Committee
Program Organizers: Carolyn Campbells, National Institute of Standards and Technology; Michele Manuel, University of Florida; Wei Xiong, University of Pittsburgh; Jason Sebastian, Questek Innovations

Tuesday AM  Room: 10
February 28, 2017  Location: San Diego Convention Ctr
Session Chairs: Carelyn Campbell, National Institute of Standards and Technology; Jason Sebastian, Questek Innovations, LLC

8:30 AM Introductory Comments

8:50 AM Keynote
A History of Materials by Design, and a Very Bright Future: Charles Kuehmann; 1Space Exploration Technologies

9:30 AM Keynote
Computational Thermodynamics and Materials Design: Zi-Kai Liu; 1The Pennsylvania State University

10:10 AM Break

10:40 AM Keynote
Exploring the Dark Continent of Structure-Property Relationships: Mark Eberhart; 1Colorado School of Mines

11:20 AM Keynote
The Redistribution of Carbon Atoms during Tempering of Martensite: George Smith; 1University of Oxford

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Emerging Materials and Refractory Metals
Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee
Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmair, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Tuesday AM  Room: Pacific 16
February 28, 2017  Location: Marriott Marquis Hotel
Session Chairs: Pierre Sallot, Safran; Don Lipkin, GE Global Research

8:30 AM Keynote
Advanced Aerospace Engine Requirements and Materials Development: Francis Prelli; 1Pratt & Whitney

9:00 AM Invited
Ceramic Matrix Composites for Jet Engine Applications: Damage Mechanisms and Design: Gregory Morschel; 1University of Akron

9:30 AM Invited
Creep and Oxidation Resistance of Select MAX Phases: A Critical Review: Michel Barsoum; 1Sankalp Kota; 1Drexel University

10:00 AM Break

10:20 AM Invited
Oxidation of Alumina-forming MAX Phases in Turbine Environments: James Smialek; 1Anita Garg; 1Bryan Harder; 1James Nesbitt; 1Timothy Gabb; 1NASA Glenn Research Center

10:50 AM Invited
Toughness and High Temperature Strength of Nb-Si and MoSiBTC Alloys: Nobuaki Sekido; 1Junya Nakamura; 1Kyousoke Yoshimi; 1Tohoku University

11:20 AM
Scalable Processing, Microstructure, and Mechanical Properties in Mo-matrix Mo-Si-B: Peter Marshall; 1Oliver Strbik; 1Imaging Systems Technology; 1Deep Springs Technology

Materials Science for High-Performance Permanent Magnets — Coercivity Mechanism
Sponsored by: TMS Functional Materials Division, TMS: Magnetic Materials Committee
Program Organizers: Satoshi Hiroswa, National Institute for Material Science, Matthew Kramer, Iowa State University; Oliver Gutflieisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Tuesday AM  Room: 24C
February 28, 2017  Location: San Diego Convention Ctr
Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Akimasa Sakuma, Tohoku University; Gino Hrkac, University of Exeter

8:30 AM Invited
Tailoring the Coercive Field of Grain Boundary Engineered Magnets: A Nanoanalytical TEM and Micromagnetic Simulation Study: Josef Fidler; 1Gregor Alexander Zickler; 1Ahmad Asali; 1TU Wien

9:00 AM Invited
Demagnetizing Fields and Magnetization Reversal in Permanent Magnets: Johann Fischbacher; 1Lukas ExF; 1Thomas Schroef; 1Danahe University Krems; 1Vienna University

9:30 AM Invited
Analyses on Magnetization Reversal Process of Nd-Fe-B Hot-deformed Magnets: Satoshi Okamoto; 1Takahiro Yomogita; 1Luran Zhang; 1Nobuaki Kikuchi; 1Osamu Kitakami; 1Hossein Sepehr-Amin; 1Takadatsu Okabe; 1Kazuhiro Hono; 1Takahiro Akiya; 1Keiko Hikii; 1Atsushi Hattori; 1Tohoku University; 1ESICMM-NIMS; 1Daido Steel Co., LTD; 1Daido Steel Co., LTD

10:00 AM Break

10:20 AM Invited
Theoretical Study on Atomic Structures and Coercivity in Nd-Fe-B Magnets: Hiroki Tsuchiura; 1Tohoku University

10:50 AM
Grain Boundary Diffusion of Different Rare Earth Elements in Nd-Fe-B Sintered Magnets by Experiment and FEM Simulation: Konrad Löwe; 1Dimitri Benke; 1Tim Lienig; 1Michael Duerrnbach; 1Leopoldo Molina-Luna; 1Konstantin Skokov; 1Oliver Gutfleisch; 1Technische Universität Darmstadt

11:10 AM
Temperature Dependence of Threshold of Magnetic Fields for Nucleation and Domain Wall Propagation: Seiji Miyashita; 1Masamichi Nishino; 1The University of Tokyo; 1National Institute for Material Science

11:30 AM Invited
Theoretical Study on the Temperature Dependence of Magnetic Anisotropy Constants of Rare Earth Permanent Magnets: Akimasa Sakuma; 1Daisuke Miura; 1Yuta Toga; 1Tohoku University; 1National Institute for Materials Science
Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Crystal Defects: Experiments and Modeling/Simulation

Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nuclear Materials Committee
Program Organizers: Indrajit Chait, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

Tuesday AM
February 28, 2017
Room: 24A
Location: San Diego Convention Ctr

Session Chairs: Anter El-Azab, Purdue University; Ram Devanathan, Pacific Northwest National Laboratory

8:30 AM Keynote
Helium Hardening in Interface-dominated Metallic Composites: Amit Misra1; Nan Li2; 1University of Michigan; 2LANL

9:00 AM Invited
On Dislocation Patterning in Deformed Crystals: Anter El-Azab1; 1Purdue University

9:20 AM Invited
Role of Structural Defects on the Magnetostriction of a-phase of Fe-based Alloys: Sivaraman Guruswamy1; Kanagasundar Appusamy1; Travis Willard1; Richard Laroche1; 1University of Utah

9:40 AM
Non-basal Dislocations in HCP Mg: Yizhe Tang1; 1Shanghai University

10:00 AM Break

10:15 AM Keynote
Precipitate-dislocation Interaction Mediated Portevin-Le Chatelier-like Effect in a Beta-stabilized Ti-Mo-Nb-Al Alloy: Deep Choudhuri1; Srinivas Mantri1; Talukder Alam1; Rajarshi Banerjee1; Srikumar Banerjee1; 1University of North Texas; 2Bhabha Atomic Research Centre

10:45 AM Invited
Molecular Dynamics Simulations of Dislocation – Obstacle Interactions: Brian Wirth1; 1University of Tennessee

11:05 AM Invited
Atomistic Simulation of Radiation Effects in FeCr-based Cladding: Ram Devanathan1; 1Pacific Northwest National Laboratory

11:25 AM Invited
On the Origin of the Sink Efficiency of Grain Boundaries under Irradiation: Blas Uberuaga1; Enrique Martinez1; Laurent Capolungo1; 1Los Alamos National Laboratory

11:45 AM Invited
Application of Phase-field Approach in Deformation-induced Microstructure Evolution: Yulan Li1; Shenyang Hu1; Scott Whalen1; Suveen Mathaudhu1; 1Pacific Northwest National Laboratory

Mechanical Behavior of Nanostructured Materials — Mechanical Behavior of Bulk Nanostructured Materials II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinghang Zhang, Purdue University; Yuntian Zhu, North Carolina State University; Joseph Poon, University of Virginia; Suryanarayana Challapalli, University of Central Florida; Enrique Lavernia, University of California, Irvine; Haiyan Wang, Texas A&M University

Tuesday AM
February 28, 2017
Room: 30D
Location: San Diego Convention Ctr

Funding support provided by: AJA International; Hysitron Inc.

Session Chairs: Enrique Lavernia, University of California; Xiaoxu Huang, Technical University of Denmark; Kaiyuan Yu, China University of Petroleum

8:30 AM Invited
Mechanical Behaviors of Gradient Nanostructured Materials: Ke Lu1; 1Institute of Metal Research, Chinese Academy of Sciences

8:55 AM
Macrostructure and Mechanical Behavior of ECAP and HPT Processed Austenitic and Ferritic-martenitic Steels: Haiming Wen1; 1Rinat Islamgaliiev2; Marina Nikitina2; 1Idaho State University; 2Ufa State Aviation Technical University

9:15 AM Invited
Mechanical Properties and Microstructure Stability in Fe-Cr base Alloys for Nuclear Energy Applications: Ronald Scarttgood1; Carl Koch1; 1NC State University

9:40 AM
Hierarchical Structure and Strengthening Mechanisms in Pearlite Steel Wire: Xiaodan Zhang1; Niels Hansen2; Xiaoxu Huang1; Andrew Godfrey1; 1Technical University of Denmark; 2Tsinghua University

10:00 AM
Back-stress Strengthening and Strain Hardening in Heterogeneous Materials: Muxin Yang1; Fuping Yuan2; Xiaolei Wu1; 1University of Petroleum-Beijing; 2University of California Irvine

10:20 AM Break

10:40 AM Invited
Correlation between Nanostructuring and Precipitation in Age-hardened Aluminum Alloys: Kaka Ma1; Tao Hu2; Ryan Cohn2; Troy Topping2; Enrique Lavernia1; Julie Schoenung1; 1Colorado State University; 2University of California San Diego; 3University of California Davis; 4California State University Sacramento; 5University of California Irvine

11:00 AM
In Situ Synchrotron X-ray Studies on the Deformation Mechanism of Carbon-steel/Copper Nanocomposites: Kaiyuan Yu1; Yadong Ru1; Yang Ren1; Lishan Cui1; 1China University of Petroleum-Beijing; 2APS, Argonne National Laboratory, USA

11:20 AM
Study of Dynamic Recovery in Nanocrystalline Metals Using In-situ X-ray Diffraction and MD Simulations: zhen Sun1; Steven Van Petegom2; Christian Brandl2; Maxime Dupraz2; Karsten Durst2; Wolfgang Blum2; 1Paul Scherrer Institut; 2Karlsruhe Institut of Technology; 3Technische Universität Darmstadt; 4University Erlangen-Nürnberg

11:40 AM
Gradient Nanostructure and Mechanical Behavior of Ultrasonic Shot Peened Ti-6Al-4V: Fei Yin1; Hannah Han2; Qingyou Han2; 1Purdue University; 2West Lafayette High and Junior School
Microstructural Processes in Irradiated Materials — Ferritic and Ferritic-Martensitic Alloys I
Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Tuesday AM  Room: Del Mar
February 28, 2017  Location: Marriott Marquis Hotel

Session Chairs: Meimei Li, Argonne National Laboratory; Kevin Field, Oak Ridge National Laboratory

8:30 AM Invited
Microstructures in Irradiated and Deformed FeCrAl Alloys: Kevin Field; Samuel Briggs; Jack Haley; Maxim Gussev; Kenneth Littrell; Philip Edmondson; Yukinori Yamamoto; Xunxiang Hu; Richard Howard; Zhijie Jiao; Gary Was; Kumar Sridharan; Lance Sned; Kurt Terrani; 1Oxford; Dan Morgan; 1University of Wisconsin-Madison; 1University of Michigan; 1Massachusetts Institute of Technology

9:00 AM
Ballistic Mixing Effect on a' Precipitation in Irradiated Fe-Cr Alloys: Ji-Hong Ke; Makesh Bachhav; Elaina Anderson; Emmanuel A. Marquis; G. Robert Odette; Dane Morgan; 1University of Wisconsin-Madison; 1University of Michigan, Ann Arbor; 1University of California, Santa Barbara

9:20 AM
Kinetics of Cr Precipitation in Iron under Irradiation: Frederic Soisson; Estelle Meslin; Olivier Tissot; Jean Henry; Chu-Chun Fu; Brigitte Descamps; Cristelle Pareige; 1CEA Saclay; 1CSNSM; 1GPM

9:40 AM
Atomistic Modeling of Hardening in Thermally-aged Fe-Cr Binary Alloys: Tomoaki Suzuki; Yasuyoshi Nagai; Alfredo Caro; 1Japan Atomic Energy Agency; 1Tohoku University; 1Los Alamos National Laboratory

10:00 AM
Influence of Secondary Phase Formation on Microstructure Evolution in Self-Ion Irradiated HT9 up to 650 dpa: Elizabeth Getto; Kai Sun; Gerrit Vancovevering; Zhijie Jiao; Gary Was; 1University of Michigan

10:20 AM Break

10:35 AM
Ion Irradiation Induced Segregation and Precipitation in F/M Steel HT9: Ce Zheng; Maria Auger; Djamel Kaoumi; 1North Carolina State University; 1University of Oxford

10:55 AM
Microstructural Studies of Irradiated and Deformed FeCr Model Alloys: Mercedes Hernández-Mayorla; Elvira Oñorbe; Marta Serrano; 1CIEMAT

11:15 AM
Emulation of Reactor-irradiated Microstructural Features with Dual Ion-irradiation in T91 Steel: Stephen Taller; Zhijie Jiao; Kevin Field; Gary Was; 1University of Michigan; 1Oak Ridge National Laboratory

11:35 AM
He Implantation of Fe-YTi2O7 Bilayers: Furthering NFA Understanding: Tiberiu Stan; Yuan Wu; Robert Odette; Yonggui Wang; Richard Cox; 1University of California Santa Barbara; 1Los Alamos National Laboratory; 1Pacific Northwest National Laboratory

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Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Heterogeneous and Gradient Materials
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huajian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Tuesday AM  Room: 24B
February 28, 2017  Location: San Diego Convention Ctr

Session Chairs: Huajian Gao, Brown University; Irene Beyerlein, University of California

8:30 AM Invited
The Austenite-Martensite Interface: Francesco Maresca; W Curtin; 1EPFL

8:55 AM
A Deformation Mechanism by Correlated Necklace Dislocations in Nanotwinned Materials: Haofei Zhou; Huajian Gao; 1Brown University

9:15 AM Invited
Simultaneous High Strength and Ductility in Nickel Induced by Nanodomains with Size Effects: Fuping Yuan; Xiaolei Wu; Evan Ma; 1Institute of Mechanics, Chinese Academy of Science; 1The Johns Hopkins University

9:40 AM
Interfacial Incompatibilities and Crystalline Deformation and Failure: Matt Bond; Mohammed Zikry; 1North Carolina State University

10:00 AM
 Mechanical Behavior and Deformation Mechanism of Gradient Structured Cu Alloys with Varying Stacking Fault Energy: Xinkun Zhu; 1Kunming University of Science and Technology

10:20 AM Break

10:35 AM Invited
Gradient Nanostructure and Residual Stresses Induced by Ultrasonic Nano-crystal Surface Modification for Improved Mechanical Properties: Chang Ye; Yalin Dong; Vijay Vasudevan; 1University of Akron; 1University of Cincinnati

11:00 AM Invited
Homogeneous Plastic Deformation in Heterogeneous Lamella Structures: Caizhi Zhou; Rui Yuan; Irene Beyerlein; 1Missouri University of Science and Technology; 1University of California at Santa Barbara

11:25 AM
Gradient Nanostructured Silicon through High Power Pulsed Laser-driven Shock Compression: Shiteng Zhao; Eric Hahn; Bimal Kadi; Bruce Remington; Christopher Wehrenberg; Karren More; Eduardo Bringa; Marc Meyers; 1University of California, San Diego; 1Lawrence Livermore National Laboratory; 1Oak Ridge National Laboratory; 1Universidad Nacional de Cuyo

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Nanostructured Materials for Nuclear Applications II — Session III
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Nanomechanical Materials Behavior Committee, TMS: Nuclear Materials Committee
Program Organizers: Cheng Sun, Idaho National Laboratory; Khalid Hattar, Sandia National Laboratories; Celine Hin, Virginia Tech; Fei Gao, University of Michigan; Osman Anderoglu, Los Alamos National Laboratory; Mitra Taheri, Drexel University; Haiming Wen, Idaho State University

Tuesday AM

Location: Marriott Marquis Hotel

Session Chairs: Fei Gao, University of Michigan; Eda Aydogan, Los Alamos National Laboratory

8:30 AM Invited
Nano-particles Control for High Performance ODS Steels: Akihiko Kimura; 1Kyoto University

9:00 AM
Varying Responses of Nanocrystalline Structures to Assorted Irradiation Conditions: Brittany Muntifering; Daniel Bufford; Khalid Hattar; 3Sandia National Laboratories

9:20 AM
Microstructural Characterization of ATR Irradiated Cu/Nb Nanolayered Composites: Osman Anderoglu; Peter Hosemann; Amit Misra; George Odette; Michael Nastasi; Stuart Maloy; 3Los Alamos National Laboratory; 2University of California-Berkeley; 3University of Michigan; 3University of California-Santa Barbara; 2University of Nebraska

9:40 AM
Kinetics of Initial Phase Separation and Coarsening of Nanoscale Phase in Fe-Cr Alloys: Zhilong Yan; Yongsheng Li; Xiaorong Zhou; Nanjing University of Science and Technology

10:00 AM Break

10:20 AM Invited
Using Atom Probe Tomography and Neutron Inventory Simulation to Investigate Neutron-Irradiation-Induced Nano-Scale Second Phase Precipitation Chemistry in Pure Tungsten Irradiated at HFIR: Philip Edmondson; Mark Gilbert; 2Oak Ridge National Laboratory; 2EURATOM/CCFE Fusion Association

10:50 AM
Design of Radiation-resistant Alloys: Thomas Schuler; Dallas Trinkle; Pascal Bellon; Robert Averback; 3University of Illinois at Urbana-Champaign

11:10 AM
Exploring the In-plane Distribution of Helium Bubbles at Cu/V Interfaces: Di Chen; Nan Li; Kevin Baldwin; Dina Yuryev; Michael Demkowicz; Yongqiang Wang; 3Los Alamos National Laboratory; 2Massachusetts Institute of Technology; 2Texas A&M University

11:30 AM
Atom Probe Tomography Study of Neutron Irradiated U-Mo Fuel: Haiming Wen; Assel Atikaliyeva; Yaqiao Wu; Bandon Miller; Dennis Keiser; Jian Gan; 3Idaho State University; 2Idaho National Laboratory; 1Boise State University

Pan American Materials Congress Plenary — Session I
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizer: Marc Meyers, UCSD

Tuesday AM

Location: Marriott Marquis Hotel

8:30 AM Introductory Comments

8:40 AM Plenary
Designing Infrastructure Materials for 100-plus Year Service Lives: Carolyn Hansson; 2University of Waterloo

9:20 AM Plenary
Production, Properties, and Applications of Titanium Dioxide Films: Carlos Schvezov; 1Institute of Materials of Misiones

10:00 AM Break

Pan American Materials Congress: Advanced Manufacturing — Materials Processing
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Holzta, UFSC

Tuesday AM

Location: Marina D

February 28, 2017

Session Chair: To Be Announced

10:20 AM Invited
Carbon Based Coatings Deposited on Nitrided Stainless Steel: Study of Thermal Degradation: Sonia Brühl; Eugenia Dalibon Bähler; Vladimir Trava-Airoldi; Naureen Ghafoor; Lina Rogström; Magnus Oden; 3National University of Technology; 2Instituto Nacional de Pesquisas Espaciais (INPE); 2Linköping University

11:10 AM
Deep Drilling in Soda-lime Glass Using Air Jet Assisted Electrochemical Discharge Machining (ECDM): Rajendra Arya; Akshay Drivedi; Pradeep Kumar; 1Indian Institute of Technology, Roorkee

11:30 AM
Mechanisms and Influence of In-situ Pre-heating during Friction Welding: Daniel Adams; Jerry Gould; Michael Skinner; Tom Budd; 1Manufacturing Technology, Inc. (MTI); 1EWI

11:50 AM Invited
Microstructure-processing-property Relationships in Nanocrystalline Ceramics Produced Using Current-activated, Pressure-assisted Densification (CAPAD): Javier Garay; 1University of California San Diego

12:10 PM Invited
Sintering of Anisotropic Porous Microstructures: Eugene Olevsky; Andrey Maximenko; Diletta Giuntini; Rajendra Bordia; 1San Diego State University; 2Clemson University

12:30 PM
Finite Element Modelling of Current-activated, Pressure-assisted Densification (CAPAD): The Role of Materials Properties and Geometry on Thermal Gradients: Meir Shachar; Alexander Dupuy; Yasuhiro Kodera; Javier Garay; 1University of California, San Diego; 2University of California, Riverside
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday AM
February 28, 2017
Room: Marina G
Location: Marriott Marquis Hotel
Session Chair: Ramalinga Viswanathan Mangalaraja, University of Concepcion

10:20 AM
Defect Engineering for Strong Photocatalysis of TiO₂ Nanoparticles with Dopants: DFT Calculations and Experimental Verifications: Heechae Choi¹; Sovann Khan²; So Hye Cho³; Taeseup Song⁴; Virtual Lab Inc.; ¹KIST; ²Youngnam University

10:40 AM
Emission and Photocatalytic Properties of Graphene:ZnO Hybrid Nanostuctures: Pandiyarajan Thangaraj¹; Mangalaraja Ramalinga Viswanathan¹; Udayabhashakar Rednam¹; Naveenraj Selvaraj²; Karthikeyan Balasubramani¹; Mansilla Héctor D.¹; David Contreras²; M.A. Gracia Pinilla¹; ¹University of Concepcion

11:00 AM
Thermal and Electrical Conductivities of Mesoporous Nanofluids and Applications for Enzyme Catalysis: Shuang Qiao¹; Ekaterina Novitskaya¹; Flor Sanchez²; Rafael Vazquez-Duhalt³; Olivia Graeve⁴; ¹University of California, San Diego; ²University Nacional Autonoma de Mexico

11:20 AM
Simulation of Bonded Magnet Performance for Renewable Energy Applications: H. Khazdozian¹; H. Ucar⁵; C. Hatter⁶; M. Kramer⁶; M. Paranthaman⁷; I. Nlebedim⁸; ¹Ams Laboratory; ²Oak Ridge National Laboratory

Pan American Materials Congress: Materials for Transportation and Lightweighting — Processing-Structure-Property Relationships I
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo Leon

Tuesday AM
February 28, 2017
Room: Mission Hills
Location: Marriott Marquis Hotel
Session Chair: Patricia del Carmen Zambrano Robledo, Universidad Autónoma de Nuevo León/Investigación

10:20 AM
Mechanical and Microstructural Evaluation of New Superalloys, an Actual Review: Octavio Covarrubias¹; ¹Exova

11:00 AM
Phase Transformations in Continuous Heating and Aging Heat Treatments in Ti-Nb-Fe Alloys: Fernando da Costa¹; Mariana de Mello¹; Camilo Salvador¹; Rubens Caran¹; ¹University of Campinas

11:20 AM
Study of Phase Transformations and Decomposition of Martensite in FV535 High Cr Martensitic Steel: Liangela Guerra¹; Patricia Zambrano¹; Armando Salinas²; Edgar García¹; ¹Universidad Autonoma de Nuevo Leon, Facultad de Ingeniería Mecanica y Electrica; ²Centro de Investigacion y de Estudios Avanzados del IPN Unidad Saltillo

11:40 AM
Fatigue Behavior of Plasma Scribed HSLA Steels: Jeffrey Rossett¹; Michael Kesler¹; Edward George²; Steve Duke²; Michele Manuel³; ¹University of Florida; ²E&S Consulting, Inc.; ³Florida Department of Transportation

12:00 PM
FeCrAl-steels as Candidates for Structural Material in CSP Systems with Lead-bismuth Eutectic as a Heat Transport Fluid: Miroslav Popovic¹; Alan Bolind¹; Peter Hosemann¹; ¹University of California, Berkeley

12:20 PM
Observations and Analyses of Tribochemical Reactions in Lightweight Boron Carbide (B4C) Impacted at High-Velocity: Jerry LaSalvia¹; Scott Walck²; Kristopher Behler³; Brady Aydelotte⁴; Brian Schuster⁵; ¹U.S. Army Research Laboratory

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — SPD Processing, Mechanical Properties of Nanocrystalline Materials, BMG
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figureiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Tuesday AM
February 28, 2017
Room: Marina F
Location: Marriott Marquis Hotel
Session Chairs: Terence Langdon, University of Southern California; Hans Roven, Norwegian University of Science and Technology

10:20 AM
A Novel Method for SPD – Continuous Metal Screw Extrusion (CMSE): Hans Roven¹; Kristian Skorpen¹; Oddvin Reiso¹; ¹Norwegian University of Science and Technology; ²Hydro Aluminium

10:40 AM
Rate Sensitivity and Deformation Mechanisms of Ultrafine-Grained Single Phase and Composite Metals: Daniel Kiener¹; Alexander Leitner¹; Verena Maier-Kiener¹; ¹University of Leoben

11:00 AM
Comparisons of Mechanical Property Development during HPT Processing and Subsequent Room Temperature Storage in High Purity Cu and a Pb-62%Sn Alloy: Yi Huang¹; Shima Sabbaghiaranad²; Abdulla Almazroue³; Khaled Al-Fadhalah⁴; Saleh Alhajeri⁵; Nian Xian Zhang⁶; Terence Langdon⁷; ¹University of Southampton; ²University of Southern California; ³P.A.E.T.; ⁴Kuwait University

11:20 AM
Micro-scale Mechanical Response of Ultrafine-grained Materials Processed by High-pressure Torsion: Megumi Kawasaki¹; Jae-il Jang¹; Byungmin Ahn³; Terence Langdon¹; ¹Hanyang University; ²Ajou University; ³University of Southern California

11:40 AM
History-independent Fatigue Response of Polycrystalline Cu with Highly Oriented Nanoscale Twins: Qingsong Pan¹; Haozhi Zhou²; Qihong Lu³; Huajian Gao⁴; Lei Lu⁵; ¹Institute of Metal Research, CAS; ²Brown University

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12:00 PM
On the Strength Effects in Hydrogenated Palladium Subjected to HPT Processing: Daria Setman1; Wolfgang Ress1; Andreas Grill1; Erhard Schafler1; Wolfgang Sprengel2; Yuzeng Chen1; Michael Zehetbauer1;
1University Vienna; 2TU Graz; 3Northwestern Polytechnical University, State Key Lab of Solidification Processing, Republic of China

Pan American Materials Congress: Steels — Properties and Performance
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - Universidade Federal Fluminense

Tuesday AM
Room: Marina E
February 28, 2017
Location: Marriott Marquis Hotel
Session Chair: Kester Clarke, Colorado School of Mines

10:20 AM Invited
Developing Sustainable Pipeline Steels: Hani Henein1; 1University of Alberta

10:50 AM
The Effect of Particle Speed and Impact Angle on the Erosion of Newy Developed API X120 Pipeline Steel: Paul Okonkwo3; R. Shakoor3; A.M Mohamed3; 3Qatar University; 3Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering, Suez University

11:10 AM
The Development of NbC Reinforced Martensitic Stainless Steel Composites for High Wear and Corrosive Environments: Wen Hao Kan1; Qaiser Ihsan Gondal1; Xin Zhou1; Jiahui Li2; Zi Jie Ye2; Yue Zhu3; Vijay Bhatia1; Kevin Dolman2; Timothy Lucey2; Xinhua Tang3; Chang Li1; Gwénaëlle Proust3; Julie Cairney1; 1The University of Sydney; 2Weir Minerals Australia

11:30 AM
Hot-stamping Response of Laser Welds in Low-carbon Steels: Martha Guerrero-Mata1; Michael Andreassen1; S Liu1; O Garcia1; J. Speer1;
1Universidad Autonoma de Nuevo Leon; 1Technical University of Denmark; 1Colorado School of Mines; 1Ternium Mexico

11:50 AM
The Influence of Hydrogen on Tensile Properties of TRIP-aided Bainitic Ferrite Steels with Carbon/Manganese Variations: Andrea Bollinger1;
John Speer1; Kip Findley1; Emmanuel De Moor1; Toshio Murakami1;
1Colorado School of Mines; 1Kobe Steel LTD

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials
XVI — Electromigration
Sponsored by:TMS Functional Materials Division, TMS: Alloy Phases Committee
Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Hsing University; Jae-Ho Lee, Hongik University; Ikuo Ohnuma, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee- wen Yen, National Taiwan Univ of Science & Tech

Tuesday AM
Room: 25A
February 28, 2017
Location: San Diego Convention Ctr
Session Chairs: Shih-kang Lin, National Cheng Kung University; Ming-Tzer Lin, National Chung Hsing University; Chao-hong Wang, National Chung Cheng University

8:30 AM Invited
Electromigration Enhanced Intermetallic Growth and Damage Formation in Pb-free Solder Joints: Paul Ho1; Brook Huang-Lin Chao1; Seung-Hyun Chae1; Xuefeng Zhang1; 1The University of Texas at Austin

9:00 AM
Investigation of the Influence of Ni Content on Electromigration Resistance of (Pd,Ni)Sn2: Chao-hong Wang2; Kuan-ting Li1; 1National Chung Cheng University

9:20 AM
Ab Initio Critical Product of Blech Distance and Current Density: Yi-cheng Lin1; 1National Cheng Kung University

9:40 AM
Phase-field Modeling of Grain-boundary Grooving and Surface Drift under Homogeneous Electromigration: Arnab Mukherjee1; Kumar Ankit1; Britta Nestler1; 1Karlsruhe University of Applied Sciences; 1Karlsruhe Institute of Technology

10:00 AM Break

10:20 AM Invited
An Industry Perspective on Electromigration in Microelectronics: Ping-Chuan Wang1; 1GlobalFoundries

10:50 AM
Electromigration Effects upon Interfacial Reactions in Electronic Solder Joints of Different Bump Heights and Different Electric Current Densities: Jing-wei Chen1; Sinn-wen Chen1; Yi-cheng Lin1; Tao-chih Chang1; 1National Tsing Hua University; 1Industrial Technology Research Institute

11:10 AM
The Investigation of Electromigration Defects due to Currents Stress Effects between the Flip-chip Solder and Copper Substrate: Wei-Jhen Chen1; Yue-Lin Lee1; Ti-Yuan Wu1; Ang-Tin Tsai1; Ming-Tzer Lin1; 1National Chung Hsing University
Phase Transformations and Microstructural Evolution — Shape Memory Alloys, and Lightweight Metals Al & Mg
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjeee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Rajan Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab
Tuesday AM Room: 16B
February 28, 2017 Location: San Diego Convention Ctr
Session Chair: Rajan Ramanujan, Nanyang Technological University

8:30 AM
Phase Field Modeling of Functional Fatigue in Shape Memory Alloys: Yipeng Gao; Yunzhi Wang; 'The Ohio State University

8:50 AM
In Situ X-ray Diffraction Investigation of Thermally Induced Martensitic Transformations in High Temperature Shape Memory Alloys: Mohammed Azeem; Vassili Vorontsov; Nicholas Jones; Seema Raghunathan; David Dye; 'Manchester University; 'Imperial College London; 'University of Cambridge

9:10 AM
The Effect of Aluminum Content on Recrystallization and Grain-growth of Mg-Sc-based Alloy and Its Functionality: Daisuke Ando; Yukiko Ogawa; Yuta Takeuchi; 'Tohoku University

9:30 AM
Origin of the (332)<113> Twinning System in β Titanium Shape Memory Alloys: Emmanuel Bertrand; Philippe Castany; Yang Yang; Thierry Gloriant; 'Institut de Matériaux Jean Rouxel (IMN); 'INSA de Rennes

9:50 AM
Modeling the Supereelastic Behavior in Small-scale ThCrSi₂-type Crystals: Ian Bakri; John Sypek; Hang Yu; Paul Canfield; Seok-Woo Lee; Christopher Weinberger; 'Colorado State University; 'University of Connecticut; 'Drexel University; 'Iowa State University

10:10 AM Break

10:30 AM
KD:

10:50 AM
Structure, Mechanical Properties and Corrosion Behavior in a Powder-processed Icosahedral-phase-strengthened Aluminum Matrix Nanocomposite: Mark Aindow; Benjamin Bedard; Iuliana Cernatescu; Alexis Ernst; Mauricio Gordillo; Aaron Nardi; Thomas Watson; 'University of Connecticut; 'Pratt and Whitney; 'FEI Corporation; 'United Technologies Research Center

11:10 AM Break

11:30 AM
The Electrochemical Formation of Nd Alloys Using Liquid Metal Electrodes in Molten LiCl-KCl Systems: Hirokazu Konishi; Hideki Ono; Eiichi Takeuchi; Toshiyuki Nohira; Tetsuo Oishi; 'Osaka University; 'Kyoto University; 'National Institute of Advanced Industrial Science and Technology (AIST)

Session Chair: James Foley, Los Alamos National Laboratory

8:30 AM Invited
A History of Additive Manufacturing: David Bourell; 'University of Texas

9:00 AM Invited
3DP Retrospective: Do Inventors Know What They Are Doing?: Michael Cima; 'MIT

9:30 AM Invited
Assent and Decline of LOM Technology: Michael Feygin; 'Cubic Technologies, Inc.

10:00 AM Break

10:20 AM Invited
Laser Deposition of Metallic Powders: Brian Welk; Peter Collins; Rajarshi Banerjeee; Hamish Fraser; 'The Ohio State University; 'Iowa State University; 'University of North Texas

10:50 AM Invited
Directed Light Fabrication: A Near-Net Shape Process using Laser Assisted Metal Deposition: Dan Thoma; 'University of Wisconsin-Madison

11:20 AM Invited
Development of Laser-powder Metal Additive Manufacturing for Industry: Historical Perspective, Current and Future Applications: James Sears; 'GE GRC

Rare Metal Extraction & Processing — Rare Earth Elements II and Platinum Group Metals
Sponsored by: TMS Extraction and Processing Division, TMS: Hydrometallurgy and Electrometallurgy Committee
Program Organizers: Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhof, Umicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology
Tuesday AM Room: 17B
February 28, 2017 Location: San Diego Convention Ctr
Session Chairs: Takanari Ouchi, MIT; Harald Oosterhof, Umicore

8:30 AM
Electrochemical Behavior of Neodymium in Molten Chloride Salts: Laure Diaz; Jérôme Serp; Pierre Chamelot; Mathieu Gibilaro; Laurent Massot; 'CEA Marcoule; 'Laboratoire de Génie Chimique

8:55 AM
Novel Reactive Anode for Electrochemical Extraction of Rare Earth Metals from Rare Earth Oxides: Aida Abbassalizadeh; Seshadri Seetharaman; Prakash Venkatesan; Jilt Sietsma; Yongxiang Yang; 'Delphi University of Technology; 'Royal Institute of Technology

9:20 AM
Electrochemical Formation of Nd Alloys Using Liquid Metal Electrodes in Molten LiCl-KCl Systems: Hirokazu Konishi; Hideki Ono; Eiichi Takeuchi; Toshiyuki Nohira; Tetsuo Oishi; 'Osaka University; 'Kyoto University; 'National Institute of Advanced Industrial Science and Technology (AIST)
### Technical Program

#### Tuesday AM

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>9:45 AM</td>
<td>Challenges in the Electrolytic Refining of Silver – Influencing the Co-deposition through Parameter Control: Ann-Kathrin Maurer-Lopez; Bernd Friedrich; Wolfgang Koch; 1RWTH Aachen; 2Agosi Allgemeine Gold- und Silberscheideanstalt AG</td>
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<td>10:10 AM</td>
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<td>10:30 AM</td>
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<td>10:55 AM</td>
<td>Biotechnological Recovery of Platinum Group Metals from Leachates of Spent Automotive Catalysts: Norizo Saito; Toshiyuki Nomura; Yasuhiro Konishi; 1Osaka Prefecture University</td>
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<tr>
<td>11:20 AM</td>
<td>Recoverying Palladium from Chloridizing Leaching Solution of Spent Pd/Al2O3Catalyst by Sulfide Precipitation: Li Qian; Zou qiang; Xu bin; Yang yong-bin; Rao xuexei; Hu long; Jiang tao; 1Central South University</td>
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<td>11:45 AM</td>
<td>Mechanism of Intensifying Cyanide Leaching of Gold from a Calcine by the Pretreatment of Acid or Alkali Washing: Zhang Yan; Li Qian; Liu Xiaoliang; Yang Yong-bin; Xu Bin; Li Hong-wei; Jiang Tao; 1Central South University</td>
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</table>

### Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Functional Surfaces and Thin Films I

**Sponsored by:** TMS Functional Materials Division, TMS: Thin Films and Interfaces Committee  
**Program Organizers:** Adele Carradò, Université de Strasbourg  
PACS: Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, UTEP; Heinz Palkowski, Clausthal Univ of Technology; Vikas Tomar, Purdue Univ; Nuggehalli Ravindra, NJIT  
**Location:** Marriott Marquis Hotel  
**Room:** Pacific 18  
**February 28, 2017**

**Session Chairs:** Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, University of Texas at El Paso; UTEP

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<tr>
<th>Time</th>
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<td>8:30 AM</td>
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**Sponsored by:** TMS Light Metals Division, TMS: Aluminum Committee  
**Program Organizers:** John Grandfield, Grandfield Technology Pty Ltd; Anne Kvitvold, SINTEF

**Location:** San Diego Convention Ctr  
**Room:** 3  
**February 28, 2017**

**Session Chair:** Mark Badowski, Hydro

<table>
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<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>Introductory Comments</td>
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<tr>
<td>8:35 AM</td>
<td>The Contributions of Thorvald Engh and Christian Simensen to the Science of Melt Refining: John Grandfield; Anne Kvitvold; 1Grandfield Technology Pty Ltd; 2SINTEF</td>
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<td>9:10 AM</td>
<td>The Fundamentals of Forming Microbubbles in Liquid Metal Systems: Roderick Guthrie; Mihaiela Isac; 1McGill University</td>
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<td>9:45 AM</td>
<td>A Holistic Approach to Molten Metal Cleanliness: D. Corleen Chesonis; 1Metal Quality Solutions, LLC</td>
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<td>10:15 AM</td>
<td>Break</td>
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<td>10:30 AM</td>
<td>Results of Trials with a Multi Stage Filtration System Employing a Cyclone: John Courtenay; Marcel Rosefort; 1MQP Limited; 2Trimet Aluminium SE</td>
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<tr>
<td>11:00 AM</td>
<td>Developments in Inclusion Removal Technology: John Grandfield; 1Grandfield Technology Pty Ltd</td>
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**Supported by:** TMS Light Metals Division, TMS: Aluminum Committee  
**Program Organizers:** John Grandfield, Grandfield Technology Pty Ltd; Anne Kvitvold, SINTEF

**Location:** San Diego Convention Ctr  
**Room:** 3  
**February 28, 2017**

**Session Chair:** Mark Badowski, Hydro
2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Nanomaterials for Nanoelectronics

Sponsored by: TMS Functional Materials Division, TMS: Nanomaterials Committee

Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; Y. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

Tuesday PM

Session Chairs: Nitin Chopra, University of Alabama; JangSik Lee, Pohang Institute of Sci. & Tech.

2:00 PM Invited
Recent Advancement in Graphene-based Layer Transfer: Jeehwan Kim; Massachusetts Institute of Technology

2:30 PM Invited
Van Der Waals Epitaxy of TMDs and Topological Insulators: R. Yue; L. A. Walsh; A. T. Barton; Y. Nie; H. Zhu; D. Barrera; S. McDonnell; R. Addou; Q. Wang; N. Liu; M. J. Kim; J. Hsu; K. Cho; Y. J. Chabal; J. Kim; R. M. Wallace; L. Colombo; Christopher Hinkele; University of Texas at Dallas; University of Virginia; Texas Instruments

3:00 PM Design of 2-D Vertical Heterostructures for Steep-slope Devices: Philip Campbell; Jake Smith; Jud Ready; Eric Vogel; Georgia Tech Research Institute

3:20 PM Invited
Silicate Thin Films with Aligned Nanochannels by Surfactant Mediated Sol-gel Approach: Mechanism and Limitations: Choong-um Kim; University of Texas at Arlington

3:50 PM Break

4:10 PM Invited
Redefining Energy-efficient Systems via a Unified Memory Subsystem in STT-MRAM: Seung Kang; Qualcomm Technologies, Inc.

4:40 PM
Protein-based Resistive Switching Memory with Configurable Switching Properties: Sungjo Kim; Jang-Sik Lee; Postech

5:00 PM Enhancement-mode ALD DEZ-H₂O-treated InGaAs MOSFETs with High-k Gate Dielectric: Jae-Gil Lee; Young-Chul Byun; Kushyant Narayanan; Jiyoung Kim; The University of Texas at Dallas

5:20 PM Improvement of Interface Properties on High Mobility Substrates by Low Temperature (100 °C) Deposited-ZrO₂: Young-Chul Byun; Jae-Gil Lee; Joy Lee; Jiyoung Kim; The University of Texas at Dallas

8th International Symposium on High Temperature Metallurgical Processing — Alloys and Materials Preparation

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee

Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queenslan; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim University

Tuesday PM

Session Chairs: Onuralp Yücel, ITU; James Cox, UTRS Inc.

2:00 PM Introductory Comments

2:05 PM Development of a Novel, Low-cost Titanium Extraction Process for Bulk or Powder Applications: James Cox; Chanaka De Alwis; Benjamin Kohler; Mike Lewis; Matthew Call; Julia Kluck; Amelinda Olson; Marc Snyderman; UTRS Inc.

2:25 PM Evolution of Non-metallic Inclusions in Solid Fe-Al-Ti-N Alloy during Heating: Hiroyuki Matsuura; Wonjin Chio; Gen Kamimura; The University of Tokyo

2:45 PM Preparation of Low-carbon TiO₃ by Carbothermal Reduction of the Mixture of Titanium Dioxide and Activated Carbon under Vacuum Condition: Kejia Liu; Yaowu Wang; Yuezong Di; Jianping Peng; Xinzhong Deng; Naixiang Feng; Yi Zhang; Northeastern University; Institute of Process Engineering, Chinese Academy of Sciences

3:05 PM Pyrometallurgical Studies for Manganese Extraction Using Turkish Ore Reserves: Ender Keskinkilic; Atilim University

3:25 PM Break

3:45 PM A Recommendation of a New Method of Ti and Ti-Al Alloy Production by Aluminum Reduction Na₂TiF₆: Feng Naixiang; KUN ZHAO; Jianping Peng; Northeastern University

4:05 PM Trace Elements Behavior during the Oxidation of Liquid SiMn Alloy: Yan Ma; Ida Kero; Sarel Gates; Gabriella Tranell; Norwegian University of Science and Technology; SINTEF Materials and Chemistry; University of Pretoria

4:25 PM Effect of Microalloy Elements V And Mg on Organization at High Heat Input Welding Shipbuilding Structure Steel: Wang Yan; Han Yihua; Zha Liguang; Zhang Qingjun; Wang Shuoming; Zhang Caijun; North China University of Science and Technology

4:45 PM Sintering Performance of Blends Containing High Proportion of Limonite Iron Ore Fines: Feng Zhang; Deqing Zhu; Jian Pan; Central South University

Sponsored by:TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Powder Materials Committee, TMS: Process Technology and Modeling Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: John Carpenter, Los Alamos National Laboratory; David Bourell, University of Texas - Austin; Allison Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Tuesday PM Room: 8 Location: San Diego Convention Ctr

Session Chairs: Dan Thoma, University of Wisconsin; Deepankar Pal, 3DSIM

2:00 PM Invited
Challenges and Opportunities for Metal Additive Manufacturing: Dan Thoma
1; University of Wisconsin-Madison

2:30 PM
Microstructure Variation and Process Model Developments For LENS: Joshua Sugar1; Lauren Beighlin1; Michael Stender1; Michael Veilex1; David Keicher2; Daryl Dagel2; Michael Maguire2; Chris San Marchi2; Sandia National Labs, Livermore, CA; Sandia National Labs, Albuquerque, NM

2:50 PM
Machine Learning Applications for Microstructure and Process Qualification in Additive Manufacturing: Brian DeCost1; Barnabas Poczos1; Elizabeth Holm1; Carnegie Mellon University

3:10 PM
Development of an Integrated Laser-aided Metal Additive Manufacturing System with Real-time Process, Dimensions, and Property Monitoring, Measurements and Control: Navin Sakhivel1; Joseph Fiordilino2; Deedee Bahn1; Subrata Sanyal1; Hitesh Vora1; Oklahoma State University; University of Pittsburgh; Naval Surface Warfare Center

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Advances in Methods, Characterization, and Modeling Tools

Sponsored by:TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Semiatin, AFRL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poorganjii, YTC America Inc.

Tuesday PM Room: 7B Location: San Diego Convention Ctr

Session Chairs: Lee Semiatin, AFRL; Ayman Salem, Materials Resources LLC

2:00 PM Invited
Cloud-based Integrated Computational Microstructure-informed Response for Titanium Additive Manufacturing: Ayman Salem1; Daniel Sadof1; Joshua Shaffer2; Richard Kublik3; Molsen Seifit1; John Lewandowski1; S.L. Semiatin1; 1Materials Resources LLC; 2Case Western Reserve University; 3Air Force Research Laboratory

2:30 PM Invited
Understanding Structure Property Relationships in Electron Beam Melting through Data Analytics and Visualization: Ryan Dehoff1; Vincent Paquin1; Michael Kirk1a; Ralph Dinwiddie1; Kinga Unocic1; Peeyush Nandwana1; Sean Yoder1; Naren Raghav2; William Halsey1; Chad Steed1; Suresh Babu1; 1Oak Ridge National Laboratory; 2University of Tennessee

3:00 PM
Three-dimensional Tomography of EBM-manufactured IN718: Andrew Polonsky1; McLean Echlin1; William Lennie1; Ryan Dehoff1; Michael Kirk1; Tresa Pollock1; University of California, Santa Barbara; Oak Ridge National Laboratory

3:20 PM
High Strain Rate Mechanical Behavior of Stainless Steel 316L. Processed by Selective Laser Melting: Travis Kneen1; Christopher Barrett1; Brett Conner1; Guha Manogharan1; Youngstown State University

3:40 PM Break

4:00 PM Invited
Recent Progress in Low-cost Open-source Metal 3-D Printing: Joshua Pearce1; Paul Sanders1; Michigan Tech

4:30 PM
The Effect Process Parameters have on Residual Stress and Texture of Additively Manufactured Ti-6Al-4V Components: Nathan Levkulich1; Gregory Loughnane1; Nathan Klingbeil2; Wright State University

4:50 PM
Synchrotron X-ray and Neutron Diffraction Measurements of Multi-scale Full Tensor Residual Stresses in Nickel-based Super Alloy Built through Direct Metal Laser Sintering Technique of Additive Manufacturing: Thien Pla1; Lyle Levine1; Thomas Gnaneupel-Herold1; Yaakov Idell1; National Institute of Standards and Technology

5:10 PM
Study on the Effects of Microsegregation, Temperature, and Stress on IN625 Microstructures by Phase Field Simulations: Trevor Keller1; Jonathan Guyer1; National Institute of Standards and Technology

Additive Manufacturing Symposium — Award Session

Sponsored by: No Sponsors Found!

Program Organizer: Carolyn Hansson, University of Waterloo

Tuesday PM Room: 22 Location: San Diego Convention Ctr

Session Chair: Carolyn Hansson, University of Waterloo

3:15 PM Introductory Comments

3:25 PM Invited
Acta Materialia Gold Medal Lecture: Dynamic Transformation of Austenite at Temperatures Well Above the Ae3: John Jonas1; 1McGill University

3:45 PM Question and Answer Period

3:55 PM Invited
Acta Materialia Silver Medal Lecture: Advanced Ceramics for Environmental Protection Materials in Extreme Conditions: Jingyang Wang1; 1Institute of Metal Research, Chinese Academy of Sciences

4:15 PM Question and Answer Period

4:25 PM Invited
4:15 PM Question and Answer Period

4:45 PM Question and Answer Period

Additive Manufacturing: Establishing Location-Specific Processing-Microstructure-Property Relationships — Advances in Methods, Characterization, and Modeling Tools

Sponsored by:TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Semiatin, AFRL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poorganjii, YTC America Inc.

Tuesday PM Room: 22 Location: San Diego Convention Ctr

Session Chair: Carolyn Hansson, University of Waterloo

3:15 PM Introductory Comments

3:25 PM Invited
Acta Materialia Gold Medal Lecture: Dynamic Transformation of Austenite at Temperatures Well Above the Ae3: John Jonas1; 1McGill University

3:45 PM Question and Answer Period

3:55 PM Invited
Acta Materialia Silver Medal Lecture: Advanced Ceramics for Environmental Protection Materials in Extreme Conditions: Jingyang Wang1; 1Institute of Metal Research, Chinese Academy of Sciences

4:15 PM Question and Answer Period

4:25 PM Invited
Acta Materialia Hollomon Award for Materials and Society Lecture: Advanced Materials Manufacturing for Global Mobility: Warren Poole1; 1University of British Columbia

4:45 PM Question and Answer Period
3:00 PM In-situ EBSD Analysis and Crystal Plasticity FE Simulations in a CP Titanium Sheet: Joo-Hee Kang1; Ji Hoon Kim1; Chan Hee Park1; Chang-Seok Oh1; 1Korea Institute of Materials Science; 2Pusan National University

3:30 PM Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session IV

2:00 PM Invited
Digital Image Correlation Using Forescatter Detector Images for the Study of Transformation in TRIP Steel: David Fullwood1; Shamooin Irfan2; Jeff Cramer3; Tyler Mathis4; Derek Adams3; Michael Miles3; Eric Homer3; Tyson Brown4; Robert Kubie4; 1Brigham Young University; 2The Northcap University; 3General Motors

2:20 PM In-situ Experiments to Capture Rapid Microstructural Evolution and Phase Transformation of Titanium during Dynamic Loading: Benjamin Morrow1; David Jones1; Paul Rigg2; Ellen Cerreta2; 1Los Alamos National Laboratory; 2Washington State University

2:40 PM In-situ Structural and Mechanical Characterization of ThCr2Si2-structured Superelastic Intermetallic Compounds: Keith Dusoe1; Ian Bakst1; John Sypek1; Gil Drachuck1; Paul Canfield2; Christopher Weinberger2; Seok-Woo Lee1; 1University of Connecticut; 2Drexel University; 3Iowa State University

3:00 PM Advanced High-Strength Steels — Impact of Solutes

2:00 PM Invited
New Insights into H Trapping and Diffusion in Steel Microstructures Obtained from Atomistic Simulations: Matous Mrovec1; Davide Di Stefano2; Christian Elsässer2; Roman Nazarov2; Tilman Hickel2; Jörg Neugebauer2; 1ICAMS, Ruhr University Bochum, Germany; 2Fraunhofer IWM; 3Lawrence Livermore National Laboratory; 4Max Planck Institute for Iron Research

2:20 PM Hydrogen Solubility near Surfaces and Interfaces: Robert Spatschek1; Giorgia Gobbi1; Elias Hunziker2; 1ETH Zurich, Switzerland; 2KTH Royal Institute of Technology, Sweden

2:40 PM Ab Initio Calculations of Solute Effects on the Lattice Parameters and Elastic Constants of Fe Phases: Michael Fellinger1; Louis Hector Jr.2; Dallas Trinkle3; 1University of Illinois at Urbana-Champaign; 2General Motors

3:00 PM Tempering Reactions in Martensitic Stainless Steels Studied by Dilatometry and Correlative Magnetic Saturation Measurements: Quliang Huang1; Olena Volkova1; Horst Biermann1; Javad Mola2; 1Technische Universität Bergakademie Freiberg; 2University of Oldenburg, Germany

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session IV

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee

Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Session Chairs: Aaron Stebner, Colorado School of Mines; David Fullwood, Brigham Young University

Location: Room 33C

Session Chairs: Matthias Militzer, The University of British Columbia; Mohamed Goune, ICMCB-Bordeaux1
3:20 PM  Invited  Atomistic Simulations of Ionic Liquid and Polymer Electrolytes: From Bulk Phases to Interface Behavior: John Lawson1; Justin Hasksins2; 1NASA Ames Research Center

4:20 PM  Invited  Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques IV
Sponsored by: TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Nanomechanical Materials Behavior Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhownick, Hysaitron; Jeffrey Wheeler, ETH Zurich; Maria Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech
Tuesday PM  Location: San Diego Convention Ctr
Session Chairs: Bob Wheeler, Microtesting Solutions; Jeff Wheeler, ETH Zurich

2:00 PM  Invited  Optimum Layer Thickness for High Temperature Mechanical Properties of ARB Cu/Nb Nanoscale Multilayers: Ion Molina-Alldaregui1; Jeremy Snel1; Miguel Monclus1; Nathan Mara1; Irene Beyelerlin2; Javier Llorca1; 1IMDEA Materials Institute; 2Los Alamos National Laboratory

2:30 PM  Invited  Influence of Dislocation Density and Grain Boundaries on the Scaling Behaviour of Ultrafine-grained BCC Micropillars: Reinhard Fritz1; Alexander Leitner1; Verena Maier-Kiener1; Daniel Kiener1; 1Mannuniversität Leoben

2:50 PM  Invited  Micro-Mechanical Characterization of Micro-Architected Tungsten Coating at Elevated Temperatures: Quan Jiao1; Gidong Sim1; Jaafar El-Awady1; 1Johns Hopkins University

3:10 PM  Invited  Multiscale 3D Imaging of Damage in an Angle-Interlocked Ceramic Matrix Composite under In-Situ Mechanical Loading Using Lab X-Ray Microscopy: Harshikesh Bale1; Robert Ritchie1; David Marshall1; 1Carl Zeiss X-ray Microscopy; 2Department of Materials Science and Engineering, University of California, Berkeley; 3Teledyne Scientific Co.

3:30 PM  Invited  In Situ Thermo-mechanical Characterization of Materials: Xiaodong Li1; 1University of Virginia

4:20 PM  Invited  Probing the Dynamic Response of Ordered Lattice Materials: J. Lind1; J. Hawrelak1; B. Maddox1; M. Bartham1; M. Messner1; B. Jensen1; N. Barton1; M. Kumar1; 1Lawrence Livermore National Laboratory; 2Washington State University; 3Los Alamos National Laboratory

4:40 PM  Invited  Pushing the Envelope in Variable Temperature Nanoindentation: High and Cryogenic Temperature Measurements: Nicholas Randall1; Marcello Conte1; Gaurav Mohanty1; Jakob Schwiedrzik1; Jeffrey Wheeler1; Bertrand Bellatoni1; 1Anton Paar TriTec; 2EMPA; 3ETH Zurich

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**Advanced Materials for Energy Conversion and Storage — Energy Storage I**

**Sponsored by:** TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee

**Program Organizer:** Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

**Tuesday PM  Location:** San Diego Convention Ctr Room: 15A

**Session Chairs:** Partha Mukherjee, TAMU; Leela Arava, Wayne

**2:00 PM  Keynote**
Direct Electrodeposition of High Performance Solid and Mesostructured Li-ion Cathodes and Anodes: Paul Braun1; Hailong Ning1; Huigang Zhang1; 1University of Illinois at Urbana-Champaign; 2Xerion Advanced Battery Company; 3Nanjing University

**2:30 PM  Invited**
A Multi-Scale Approach to Li-Ion Battery Analysis Using 2D, 3D, and 4D Microscopy: Jeff Gelb1; Stefanie Freitag1; Will Harris1; Arno Merk1; 1Carl Zeiss X-ray Microscopy; 2Carl Zeiss Microscopy

**2:55 PM**
First Principles Simulations of Lithium Ion Transport through Graphite/Electrolyte Interfaces: Vincenzo Lordi1; Mitchell Ong1; Tuan Pham1; Kyoung Kweon1; John Pask1; 1Lawrence Livermore National Lab

**3:15 PM  Invited**
Operando Structural and Chemical Characterization during Li-ion Battery Cycling: Shen Dillon1; Ching-Yen Tang1; 1University of Illinois at Urbana-Champaign

**3:40 PM  Break**

**4:00 PM**
Nanoscale Characterization of Li-ion Battery Cathodes Using Atom Probe Tomography and Correlative Microscopy: Arun Devaraj1; Ethan Vo1; Pengfei Yan1; Chongmin Wang1; Vijaya Murugesan1; 1Pacific Northwest National Laboratory
Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session IV

Sponsored by: TMS Functional Materials Division, TMS: Alloy Phases Committee

Program Organizers: Sinn-wen Chen, National Tsing Hua University; Franck Gascouin, Eniscaen University of Caen; Soon-ik Hong, Kongju National University; Philippe Jund, Université de Montpellier; Lan Li, Boise State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University

Tuesday PM Session Chairs: Hsin-jay Wu, ational Sun Yat-sen University; Teruyuki Ikeda, Ibaraki University

2:00 PM Invited

2:20 PM Invited

2:40 PM Invited

3:00 PM

3:20 PM

3:40 PM Break

4:00 PM Invited

4:20 PM Invited

4:40 PM Invited

5:00 PM

5:20 PM

Aluminum Alloys, Processing and Characterization — Plasticity and Mechanical Behavior

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee

Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Tuesday PM Room: 4

February 28, 2017 Location: San Diego Convention Ctr

Session Chair: Pizhi Zhao, Chinalco

2:00 PM Introductory Comments

2:05 PM New Yield Criterion for Description of Plastic Deformation of Face-Centered Cubic Single Crystals: Nitin Chandola1; Crystal Pasiliao2; Oana Cazacu3; B. Revil-Baudard1; 'University of Florida/REEF; 'Air Force Research Laboratory

2:30 PM Quantifying As-cast and Homogenized AA7050 Mechanical Properties through Compression Testing: Yunbo Wang1; Matthew Krane1; Kevin Trumble1; 'Purdue University

2:55 PM Determining a Stable Texture Condition Under Complex Strain Path Deformations in Face Centered Cubic Metals: Mehdi Rahimian1; Ahbijit Brahme2; Raja Mishra3; Kaan Inal1; 'University of Waterloo; 'General Motors Research and Development Center

3:20 PM Microstructural Transition and Elevated Temperature Tensile Properties of Modified Al-Si-Cu-Mg Alloys: HDL Aluminum Foils: Takashi Suzuki1; Shigeru Kuramoto2; Masaya Endo2; Qi Cui1; 'Mitsubishi Aluminum Co., Ltd.; 'Ibaraki University

3:45 PM Break

4:00 PM Effects of Alloying Elements on Anneal-hardening Behavior of Aluminum Alloy Foils: K. Liu1; 1; 'University of Waterloo

4:25 PM Increasing Strength and Corrosion Resistance of AlMgSi Alloys by Tailor-made Thermomechanical Processing: Alexander Wimmer1; 'University of Michigan

4:50 PM Microstructural Optimization of a High Mechanical Properties (HMP) Aluminum Alloy by Using CobaPress™ Process: Mamadou Balde; Christophe Desrayaud; Véronique Bouvier; Frédéric Perrier; 'Mines Saint-Etienne; 'Saint-Jean Industries

5:15 PM Cyclic Stress-strain Behavior and Low Cycle Fatigue Life of AA6061 Aluminum Alloy: Mirza Foisal Ahmed1; K. Liu1; X. Grant Chen1; 'University of Quebec at Chicoutimi
Aluminum Reduction Technology — Cell Voltage and Pot Control
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Tuesday PM Room: 2
February 28, 2017 Location: San Diego Convention Ctr

Session Chair: Daniel Whitfield, Emirates Global Aluminium

2:00 PM Introductory Comments

2:05 PM
Application of Multivariate Statistical Process Control with STARprobeTM Measurements in Aluminium Electrolysis Cells: Jean-Pierre Gagné; Pascal Lavoie; Albert Mulder; Rémi St-Pierre; Pascal Côté; STAS; Consultant, Reso-Lean Conseil

2:30 PM
Predicting Instability and Current Efficiency of Industrial Cells: Patrice Côté; Olivier Martin; Bertrand Allano; Véronique Dassy-Raymond; Rio Tinto Alcan; Consultant, Reso-Lean Conseil

2:55 PM
Detecting, Identifying and Managing Systematic Potline Issues with Generation 3 Process Control: Nusrat; Tjahyono; Yashuang Gao; David Wong; Ron Etzion; Albert Mulder; University of Auckland, Light Metals Research Centre; IT Consultant

3:20 PM
Integrating a New Smelter Supervision HMI in Existing Control Systems at ALBRAS: Vanderlei Fernandes; Geir Sandnes; Leonel Mota Ivo; Rogério Labanca; ALBRAS Aluminio Brasileiro S.A.; Norsk Hydro ASA; Accenture

3:45 PM Break

4:00 PM
Clustering Aluminium Reduction Cells: Flavia Lima; Alan Souza; Fabio Soares; Diego Lisboa; Roberto Oliveira; UFPA

4:25 PM
Study of Impact of the Anode Slots on the Voltage Fluctuations of Aluminium Electrolysis Cell Using Bubble Layer Simulator: Sandor Poncsak; László Kiss; Sébastien Guérard; Jean François Bilodeau; University of Quebec at Chicoutimi; Rio Tinto Aluminium

4:50 PM
Minimizing Cathode Voltage Drop by Optimizing Cathode Slot Design: Ralph Friedrich; Frank Hiltmann; Andreas Lützerath; Richard Meier; Markus Pfeffer; Till Reek; Oscar Vera Garcia; SGL CFL CE GmbH; TRIMET Aluminium SE

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee
Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Accelor Mittal; Patrick Taylor, Colorado School of Mines

Tuesday PM Room: 15B
February 28, 2017 Location: San Diego Convention Ctr

Session Chair: Patrick Taylor, Colorado School of Mines

2:00 PM
Market Dynamics, Recycling and Recovery of Magnesium from Aluminum Alloy Scrap: Adam Gesing; Subodh Das; Gesing Consultants Inc.; Phinix, LLC

2:20 PM
Alternative Ways of Using Nonferrous Slags as Feed Material in the Ferrous Production Industry: Mario Sanchez; Fernando Parada; Jose Palacios; Universidad Andrés Bello; Universidad de Concepcion; Universidad de Playa Ancha

2:40 PM
Insulating or Conductive Lining Designs for Electric Furnace Smelting?: Joalet Steenkamp; Glen Denton; Derek Hayman; MINTEK

3:00 PM
The Influence of Phosphorous Additions on Phase Evolution in Molten Coal Slag: Han Abu El Hawa; Jinichiro Nakano; Anna Nakano; James Bennett; National Energy Technology Laboratory; AECOM

3:20 PM
Reaction Mechanisms in the Silicothermal Production of Magnesium: Mao Chen; Yuhong Chen; Fenglan Han; Laner Wu; Baogun Zhao; The University of Queensland; Beifang University of Nationalities

3:40 PM Break

4:00 PM
Influences of CaO/SiO2/MgO/Al2O3 on the Formation Behavior of FeO-bearing Primary-slags in Blast Furnace: Dongdong Wang; Kaihui Ma; Yang Xu; Jian Xu; Liangying Wen; Chongqing University

4:20 PM
Desulfurization of High Sulfur Coal Leached with H2O2 and NaOH by Microwave Irradiation: Pengyi Zhang; Shengfu Zhang; Lixiong Shao; Mingchong Bing; Shuxing Qiu; Qingyun Zhang; Chongqing University

4:40 PM
The Recovery of Copper from Smelting Slag by Flotation Process: Jiaqi Fan; Hongxu Li; Liangtian Wei; Jian Xu; Liangying Wen; Beifang University of Nationalities
Applications of Solidification Fundamentals — Simulation and Modeling of Solidification Behavior
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee
Program Organizers: Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing

Tuesday PM  Room: 19
February 28, 2017  Location: San Diego Convention Ctr

Session Chair: Andre Phillion, McMaster University

2:00 PM
Investigating Homogenous Nucleation in Solidification of Aluminum and Iron by Molecular Dynamics Simulations: Avik Mahata1; Mohsen Asle Zaeem1; Michael Baskes1; ‘Missouri University of Science and Technology; 1University of California, San Diego

2:20 PM
Inoculant Undercooling Induced Nucleation and Growth during Equiaxed Solidification: Effect of Location and Separation Distance of the Inoculants and Time: Avind Prasad1; Lang Yuan2; Peter Lee3; Mark Easton4; David StJohn1; 1University of Queensland; 2GE; 3University of Manchester; 4RMIT

2:40 PM
Nucleation of Solidification in Confined High Aspect Ratio Films: James Mastandrea1; Joel Ager1; Daryl Chrzan1; 1Lawrence Berkeley National Laboratory

3:00 PM
Thermomechanical Properties of Metals during Solidification by Molecular Dynamics Simulations: Seyed Alireza Etesami1; Ebrahim Asadi1; 1University of Memphis

3:20 PM  Break

3:40 PM
On the Transition from Equiaxed Sedimentation to Viscoelastic Packed Bed Dynamics: Andreas Ludwig1; Menghui Wu2; Christian Rodrigues2; Tobias Holzmann3; Alexander Vakhrushev3; 1Montanuniversitaet Leoben; 2University of California, San Diego; 3Montanuniversität Leoben

4:00 PM
Lattice Boltzmann GPU Solutions for Alloy Microstructure Development and Solute Transport: Ivars Krastins1; Andrew Kao2; Koulis Pericleous2; 1University of Greenwich

Bio-Nano Interfaces and Engineering Applications — Bio-Nano Interfaces: Engineering Applications
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Richard Naleway, University of Utah; Mason Dean; 1Harvard University; 2University of California, San Diego; 3Massachusetts Institute of Technology; 4California State University; 5Max Planck Institute of Colloids and Interfaces

Tuesday PM  Room: Pacific 21
February 28, 2017  Location: Marriott Marquis Hotel

Session Chairs: Po-Yu Chen, National Tsing Hua University; Mohan Edirisinghe, University College London

2:00 PM  Break

2:40 PM
Bio-inspired Syntheses of Self-cleaning Coatings and Oil-water Separation Interfaces by Atmospheric Pressure Plasma and Freeze Casting Techniques: Po-Yu Chen1; Ching-Yu Yang1; Yu-Hsiang Lo1; 1National Tsing Hua University

3:00 PM  Invited
Biomimetic Lipid Bilayers in Biosensing Applications: Abdulhalim Kilic1; Majid Jafari1; Hakan Oezger1; Fatma Nese Koks2; 1Istanbul Technical University

3:30 PM
Peptide Enabled Addressable Immobilization of Kinetically Matched Fusion Enzymes in Membrane Flow Bioreactors: Deniz Yucesoys; Suxur Akkineis; Bruce Hinds1; Candan Tamerler2; Mehmet Sarikaya1; 1University of Washington

3:50 PM  Break

4:10 PM  Keynote
Solution Plasma Materials Processing from Natural Products: Nagahiro Saito1; 1Nagoya University

4:50 PM
Engineering Lactate Oxidases with Metal Binding Peptides towards Lactate Monitoring: Erkan Mozloglu1; Dwight O’Dell1; Thomas Brandon Richard1; Mark L. Richter1; Candan Tamerler1; 1The University of Kansas

Biological Materials Science — Structural Biological Materials I
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Richard Naleway, University of Utah; Mason Dean; 1Harvard University; 2University of California, San Diego; 3Massachusetts Institute of Technology; 4California State University; 5Max Planck Institute of Colloids and Interfaces

Tuesday PM  Room: Pacific 15
February 28, 2017  Location: Marriott Marquis Hotel

Session Chairs: Steven Naleway, University of Utah; Dwayne Arola, University of Washington

2:00 PM  Invited
Biological Materials Science: Challenges and Opportunities: Marc Meyers1; 1UCSD

2:30 PM
Biological and Bio-inspired Flexible Armor Based on Chiton’s Girdle Scales: Ling Li1; Matthew Connors2; Ahmed Hosny1; Douglass Earnisse1; Mason Dear1; James Weaver1; Christine Ortiz1; 1Harvard University; 2Massachusetts Institute of Technology; 3California State University; 4Max Planck Institute of Colloids and Interfaces

2:50 PM
On the Stress Relaxation and Tear Resistance of Skin: Wen Yang1; Andrei Pissarenko2; Vincent Sherman1; Eric Schable1; Katherine Brown1; William Proud1; Alun Williams1; Robert Ritchie1; Marc Meyers1; 1Swiss Federal Institute of Technology in Zurich (ETHZ); 2University of California, San Diego; 3Lawrence Berkeley National Laboratory; 4University of Cambridge; 5Imperial College London

3:10 PM
On the Impact Resistance of Horn and Hoof in Different Loading Orientations: Wei Huang1; Alireza Zaheri1; Horacio Espinosa1; David Restrepo1; Paolo Zavattieri1; Joanna McKittrick1; 1University of California, San Diego; 2Northwestern University; 3Purdue University

3:30 PM  Break

3:40 PM  Keynote
Bio-inspired Design of Hierarchical Materials: Horacio Espinosa1; 1Northwestern University
4:20 PM
Nacre's Strategy to Enhance Its Mechanical and Fracture Properties: Sina Askarinejad1; Nima Rahbar2; 1Worcester Polytechnic Institute

4:40 PM
The Hierarchical Structure of Atractosteus Spatula (Alligator Gar Fish) Bony Scales: XRM and Finite Element Modeling Characterization of Structural Porosity: Kenneth Liv1; Matt Nelms2; Alyssa Browning2; Wayne Hodo1; A.M. Rajendran1; Johns Hopkins University; 3University of Mississippi; Carl Zeiss X-ray Microscopy, Inc.; 3US Army ERDC-GSL

5:00 PM
Structure and Mechanical Behavior of Coelacanth Scales: Huocheng Quan1; Wen Yang2; Robert Ritchie2; Marc Meyers3; 1UCSD; 2ETH-Zurich; 3Lawrence Berkeley National Laboratory

5:20 PM
The First Barrier to Penetration of Fish Scales: Structure and Properties of the Limiting Layer: Sandra Murcia1; Melcindent Stosssel1; Rishi Pahuja2; Timothy Linley2; Alex Osa3; Junlan Wang4; Dwayne Arola1; 1University of Washington; 2Pacific Northwest National Laboratory; 3Universidad EAFIT

Bulk Metallic Glasses XIV — Structures and Mechanical Properties II
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Tuesday PM - Room: 33A
Location: San Diego Convention Ctr
Session Chairs: Lindsay Greer, University of Cambridge; Shigenobu Ogata, Osaka University

2:00 PM Keynote
Rejuvenation of Metallic Glasses: A. Greer1; 1University of Cambridge

2:30 PM Invited
Plasticity—toughness Connections in Ductile Metallic Glasses: Upadrashta Ramamurty1; 1Indian Institute of Science

2:50 PM Invited
Atomistic Study on Pressure-promoted Thermal Rejuvenation of Metallic Glass: Shigenobu Ogata1; Narumasa Miyazaki1; Masato Wakeda1; 1Osaka University

3:10 PM
Exploring the Spectrum of Mechanical Properties and Structural States in Metallic Glasses via Physical Vapor Deposition: Daniel Maggnacoste; Gang Feng2; Le Ye2; Xuemei Cheng3; Daniel Gianola3; 1University of Pennsylvania; 2Villanova University; 3Bryn Mawr College; 4UC Santa Barbara

3:30 PM Break

3:50 PM Invited
Inverse Notch Effect in Bulk Metallic Glasses: Jie Pan1; Haofei Zhou2; Yi Li3; Huajian Gao2; 1Institute of Metal Research, Chinese Academy of Sciences; 2Brown University; 3Institute of Metal Research, Chinese Academy of Sciences

4:10 PM
Dynamics of Inherent Structure Energy Evolution in Metallic Glasses: Yue Fan3; Takuya Iwashita2; Takeshi Egami2; 1University of Michigan, Ann Arbor; 2University of Tennessee, Knoxville

4:30 PM Invited
New Soft Magnetic FeCoNi(P, C, B) High-entropy Bulk Metallic Glasses with Large Supercooled Liquid Region: Yanhui Li1; Wei Zhang2; Tianlong Qi2; 1Dalian University of Technology

4:50 PM Invited
Quasi-Elastic Neutron Scattering and Machine Learning Studies of the Arhenius Crossover Phenomenon and Its Correlation with the Kinetic Fragility in Glass-Forming Metallic Liquids: Abhishek Jaiswal1; Yang Zhang1; 1University of Illinois at Urbana-Champaign

5:10 PM
A High-Throughput Approach to Identifying Metallic Glasses and Characterizing Their Mechanical Properties: Juan Wang1; Peter Tsai2; Katharine Flores3; 1Department of Mechanical Engineering and Materials Science, Washington University in Saint Louis; 2Institute of Materials Science and Engineering, Washington University in Saint Louis

Cast Shop Technology: Recycling and Sustainability Joint Session — Cast Shop/Recycling Joint Session
Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, REWAS Organizing Committee, TMS: Aluminum Committee, TMS: Recycling and Environmental Technologies Committee
Program Organizers: David Gildemeister, Alcoa Technical Center; Anne Kvithyld, SINTEF; Elsa Olivetti, Massachusetts Institute of Technology

Tuesday PM - Location: San Diego Convention Ctr
Room: 1A

Session Chair: Elsa Olivetti, MIT

2:00 PM
Tramp Element Accumulation and Its Effects on Secondary Phase Particles: Robert Wagstaff; Samuel Wagstaff; Antoine Allanore; Novelis Inc.; Massachusetts Institute of Technology

2:20 PM
Drop Formation Mechanisms of Thermally Pre-treated Used Beverage Can Scrap Bales with Different Density: Jan Stieglitch; Regina Dittrich2; Georg Rombach; Marcel Rosefort3; Bernd Friedrich2; Anne Pichat2; 1TRIMET Aluminium SE; 2RWTH Aachen University; 3Hydro Aluminium Rolled Products GmbH; Constellium Technology Center

2:40 PM
Influence of Coating and De-coating on the Coalescence of Aluminium Drops in Salt: Stefano Capuzzi1; Anne Kvithyld2; Giulio Timelli2; Arne Nordmark3; Thorvald Abel Engh4; 1University of Padua; 2SINTEF; 3NTNU

3:00 PM
The Scale-up of High Shear Processing for the Purification of Recycled Molten Scrap Aluminium Alloy: Key Features of Fluid Flow: Mingming Tong1; Jayesh Patel1; Ian Stone2; Zhongyuan Fan1; David Browne2; 1University College Dublin; 2NUI Galway; 3Brunel University London; 4University College Dublin

3:20 PM Break

3:40 PM
Centrifugal Casting of Al-Si Scrap: Aya Abdelrahman1; Shimaan El-Hadad2; Iman El Mahallawi2; 1British University in Egypt; 2Centre for metallurgical Research and Development; 3Cairo University

4:00 PM
Improved Recyclability of Cast Al-alloys by Engineering ß-AlFe2Si2 Phase: C. B. Basak1; N. Hari Babu2; 1BCAST, Brunel University London; 2BCAST, Brunel University London
Ceramic Materials for Nuclear Energy Research and Applications — Advanced Sintering, Characterization, and Measurement


Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Tuesday PM  
Room: Palomar  
Location: Marriott Marquis Hotel

Session Chairs: Maria Okuniewski, Purdue University; Larry Aagesen, Idaho National Laboratory

2:00 PM Invited  
Thermal-Mechanical Properties of Sintered UO₂: Tiankai Yao²; Jie Lian¹; ¹Rensselaer Polytechnic Institute

2:30 PM  
Correlation Between Particle Size and Grain Size Distributions in Single/ Multiphase Ceramic Oxide Surrogate Materials: Keyur Karandikar¹; Austin Travis¹; Kenta Ohtaki²; Martha Mecartney¹; Olivia Grave²; ¹University of California, San Diego; ²University of California, Irvine

2:50 PM  
Phase Field Modeling of Uranium Dioxide Sintering and Densification: Ian Greenquist¹; Benjamin Shaffer¹; Robert McDonald¹; ¹Purdue University; ²Penn State University

3:10 PM  
Study of Oxide Dispersion Strengthened 316L Austenitic Steel by Mechanical Milling: Supriya Koul¹; Joysurya Basu¹; Kausik Chattopadhyay¹; Krishanu Biswas¹; Nilay Mukhopadhyay¹; ¹Indian Institute of Technology (BHU) Varanasi; ²Indian Institute of Technology Kanpur

3:30 PM Break

4:00 PM Invited  
In Situ Synchrotron Characterization of the Field Assisted Sintering of UO₂: David Sprouster¹; E. Dooryhee²; L. Ecker²; R. Pokharel²; A Rafferty³; D Byler¹; K.J. McClellan¹; ¹Brookhaven National Laboratory; ²Los Alamos National Laboratory

4:30 PM  
Thermoelectric Properties of Doped and Pure UO₂ at High Temperatures: Ali Massih¹; Lars Jernkvist¹; ¹Quantum Technologies

4:50 PM  
Evaluation of Creep Behavior of UO₂ at Sub-grain Length Scales: Benjamin Shafer¹; Bowen Gong¹; Harn Chyi-Lim²; Robert McDonald¹; Pedro Peralta¹; ¹Arizona State University

5:10 PM  
Irradiation Dependent Deformation and Thermal Properties of SiC and SiO₂ Measured by Using Nanomechanical Raman Spectroscopy: Debapriya Mohanty¹; Vignesh Vivekanandan¹; Vikas Tomar¹; ¹Purdue University

Characterization of Materials through High Resolution Coherent Imaging — Phase Contrast Imaging II

Sponsored by: TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee  
Program Organizers: Ross Harder, Argonne National Lab; Xianghui Xiao, Argonne National Laboratory; Richard Sandberg, Los Alamos National Laboratory; Sanyu Fensin, Los Alamos National Laboratory; Brian Abbey, LaTrobe University; Ana Diaz, Paul Scherrer Institut

Tuesday PM  
Room: 25B  
Location: San Diego Convention Ctr

Session Chair: Ross Harder, Argonne National Lab

2:00 PM  
Anisotropic Growth Patterns in Four Dimensions: Ashwin Shahani¹; ¹Northwestern University; ²Argonne National Laboratory

2:30 PM  
In-situ Phase Contrast Nano-tomography at ID16B: Julie Villanueva¹; Richi Kumar¹; Rémi Daunin²; Pierre Lhuissier²; Luc Salvo²; David Jauffrée²; Christophe L. Martin; Rémi Tucoulou¹; ¹ESRF - The European synchrotron; ²SIMAP-Univ. Grenoble Alpes

2:50 PM  
High Speed Tomographic Imaging of Materials during Uniaxial Loading: Brian Patterson¹; Nikhilesh Chawla²; Sudhanshu Singh²; Angel Ovejero²; Jason Williams³; Xianghui Xiao³; Kevin Henderson³; Robin Pacheco³; ¹Los Alamos National Laboratory; ²Arizona State University; ³Argonne National Laboratory

3:20 PM Break

3:40 PM  
In-situ Deformation and Damage Assessment in Materials under Dynamic Loading Using High Speed Synchrotron X-ray Phase Contrast Imaging: Niranjana Parab¹; Zherui Guo¹; Matthew Hudspeth¹; Benjamin Claus¹; Jou-Mei Chu¹; Tao Sun¹; Kamel Fezzaa¹; Weinong Chen¹; ¹Purdue University; ²Argonne National Laboratory

4:10 PM  
In-Situ and In-Operando Examination of Structure-Functional Relations in Porous Materials for Energy Conversion and Storage with Nano- and Micro- Synchrotron X-ray Computed Tomography: Andrew Sham¹; Vincent De Andrade¹; Xianghui Xiao¹; Dilworth Parkinson²; Adam Weber²; Iryna Zenyuk¹; Tufts University; ¹Advanced Photon Source, Argonne National Laboratory; ²Advanced Light Source, Lawrence Berkeley National Laboratory; ³Lawrence Berkeley National Laboratory

4:40 PM  
Zernike Phase Contrast for Hard X-ray Microscopy: Ken Vidar Falch¹; Ragnvald Mathiesen¹; Anatoly Snigirev¹; Irina Snigireva¹; Mikhail Lyubomirskiy¹; Daniele Casari²; ¹NTNU; ²Immanuel Kant Baltic Federal University; ³ESRF

5:10 PM  
Phase Contrast Tomography to Document Gypsum Dehydration in Single Crystals and Polycrystalline Materials: Florian Fussies¹; Xianghui Xiao¹; John Bedford¹; Henri Leclère¹; ¹University of Edinburgh; ²Argonne National Laboratory; ³Liverpool University
Characterization of Minerals, Metals, and Materials — Powders and Foams

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee

Program Organizers: Shadia Ilkhamyies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jian-Hong Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Ferrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Tuesday PM  Room: 31B
February 28, 2017  Location: San Diego Convention Ctr

Session Chairs: Juan Escobedo-Diaz, UNSW Australia; Brahim Akdim, Air force Research Lab

2:00 PM
Microstructural Evaluation of Ti-6Al-4V Powder Compacts Sintered by Microwave Energy: Kenneth Grabowski1; Evan Groopman1; Benjamin Rock1; M Imam1; Albert Fahey1; ‘Naval Research Laboratory; ‘National Research Council; ‘George Washington University

2:20 PM
Residual Stress Analysis within Steel Encapsulated Metal Matrix Composites Via Neutron Diffraction: Sean Fudger1; Dimitry Sediako2; Prashant Karandikar1; Chaoying Ni1; ‘University of Delaware; ‘Canadian Neutron Beam Centre; ‘M Cubed Technologies, Inc.

2:40 PM
Microstructure and Phase Evolution during the Synthesis of Manganese Germanides: Vamsi Meka1; Tanjore Jayaraman1; ‘University of Michigan

3:00 PM
Application of AFM in Morphology Determination of Powder Material: Jian Wu1; Ping Long1; Yaochun Yao1; ‘Kunning University of Science and Technology

3:20 PM
Fracture Toughness Characterization of Spark Plasma Sintered Boron Carbide with Different Additives: Burcu Apak1; Meral Cengiz1; Onuralp Yucel1; Gültekin Goller1; Filiz Sahin1; ‘Istanbul Technical University

3:40 PM Break

3:55 PM
Effects of Thermal Processing on Closed-Cell Aluminium Foams: Andrew Brown1; Wayne Hutchison1; Md Ashraful Islam1; Md Abdul Kader1; Juan Pablo Escobedo-Diaz1; Paul Hazell1; ‘UNSW Australia

4:15 PM
Experimental Investigation of Mechanical Behaviour of Closed-Cell Aluminium Foams under Drop Weight Impact: Md Ashraful Islam1; Md Abdul Kader1; Andrew Brown1; Paul Hazell1; Juan Pablo Escobedo-Diaz1; Mohammad Saadatfar1; ‘UNSW Canberra

4:25 PM
Deformation Mechanisms of Closed Cell-Aluminium Foams during Drop Weight Impact: M.A. Kader1; M.A. Islam1; M. Saadatfar1; Juan P. Escobedo-Diaz1; P.I. Hazell1; A.D. Brown1; ‘School of Engineering and Information Technology, UNSW Australia; ‘Department of Applied Mathematics, Australian National University

4:55 PM
Optical Characterization of α-Ti Grain Orientation: Insight from First-principles Calculations: Brahim Akdim1; Chris Woodward; Micheal Uchie1; ‘Air Force Research Lab

5:15 PM
Tracking 3D Microstructure Evolution during Sintering of Copper Particles by Laboratory Diffraction Contrast Tomography (LabDCT): Samuel McDonald1; Christian Holzner1; Erik Lauridsen1; Peter Reischig1; Arno Merkle1; Michael Feser1; Philip Withers1; ‘University of Manchester; ‘Carl Zeiss X-ray Microscopy; ‘Xnovo Technology

Computational Materials Discovery and Optimization — From Bulk to Materials Interfaces and 2D Materials — Electronic, Magnetic, and Optical Properties

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Computational Materials Science and Engineering Committee

Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Tuesday PM  Room: 11A
February 28, 2017  Location: San Diego Convention Ctr

Session Chair: To Be Announced

2:00 PM Invited
Bridging Semi-classical and Ab Initio Descriptions of Electronic Transport in Semiconductors: Alireza Faghaninia1; Michael Sullivan1; Derreko Becker-Rickets1; Cynthia Lo1; ‘Washington University

2:30 PM Invited
Using First Principle Approaches to Optimize Materials for Next Generation Non-volatile Memory: Derek Stewart1; ‘Western Digital

3:00 PM
Neural Networks Assisted Vector Tomography for the Reconstruction of the Magnetic Vector Potential: KC Prabhat1; Marc De Graef1; ‘Carnegie Mellon University

3:20 PM
First-Principles Computation Design of CoPt and FePt Nanoparticles with Desired Magnetic Properties through Tailoring Surface Segregation: Gui-feng Wang1; Zhenyu Liu1; ‘University of Pittsburgh

3:40 PM Break

3:55 PM Invited
Magnetic-Field Tunability of Thermal Conduction in Non-Magnetic Materials: Wolfgang Windl1; Nikolaos Antolini1; Oscar Restrepo1; Roberto Myers1; Joseph Heremans1; ‘Ohio State Univ.

4:25 PM
Data-driven Magnetic Materials Selection, Design, and Optimization: Shruthi Badam1; Tanjore Jayaraman1; ‘University of Michigan

4:45 PM
Optimization of Buffer Layer Alloy Materials for CIGS Thin-Film Solar Cells: Vincenzo Lordi1; Joel Varley1; Xiaqing He1; Angus Rockett1; Jeff Bailey1; Geordie Zapolac1; Dmitry Poplavskyy1; Neil Mackie1; Atiye Bayman1; ‘Lawrence Livermore National Lab; ‘University of Illinois at Urbana-Champaign; ‘MiaSole Hi-Tech Corp.

5:05 PM
Restraining Electron-hole Recombination in W-N Codoped Titania: First-principles Study: Heechae Choi1; ‘Virtual Lab Inc.
## Computational Thermodynamics and Kinetics — Diffusion and Kinetics I

**Sponsored by:** TMS: Chemistry and Physics of Materials Committee, TMS: Computational Materials Science and Engineering Committee  
**Program Organizers:** Niaz Abdolrahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

**Tuesday PM  Room: 11B**  
February 28, 2017  
Location: San Diego Convention Ctr

**Session Chairs:** Christine Geers, Chalmers University of Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign

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<th>Time</th>
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<td>2:00PM</td>
<td><strong>Invited</strong></td>
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| 2:30PM | Accelerated Analysis of Beta Phase Ti-Nb-Al Ternary Diffusion via Optimization Fitting of Interdiffusion Coefficients in Three-Alloy Diffusion Multiples: *James Haley*; Kaka Ma; Aparna Tripathi; Kaustubh Kulkarni; Anil Sachev; Enrique Lavernia; \*University of California, Irvine; \*Colorado State University; \*India Institute of Technology, Kumpur; \*General Motors
| 3:00PM | Evaluation of Silver and Tin Diffusion Mobility in Magnesium Alloys: *Ian Parker*; Michele Manuel; \*University of Florida
| 3:30PM | **Break**                                                            |                                                                        |                                                                            |
| 3:45PM | **Invited**                                                          |                                                                        |                                                                            |
| 4:15PM | Long-time Simulations of Cation Diffusion and Material Recovery in Disordered Gd2Ti2O7 Pyrochlore: *Romain Perriot*; Blas Uberuaga; Richard Zamora; Danny Perez; Arthur Voter; \*Los Alamos National Laboratory
| 4:35PM | First-Principles Computational Study of Charged Vacancy Diffusion in Alpha-Al2O3 and Alpha-Cr2O3: *Guofeng Wang*; Yinkai Lei; Corinne Gray; \*University of Pittsburgh
| 4:55PM | Automated Diffusivity Theory without Kinetic Monte Carlo: Solute Diffusivity from First Principles: *Dallas Trinkle*; \*University of Illinois, Urbana-Champaign
| 5:15PM | The Effects of Quantum Dynamics of Atomic Motion on Dislocation Mobility: *Rodrigo Freitas*; Mark Asta; Vasily Bulatov; \*University of California Berkeley and Lawrence Livermore National Laboratory; \*University of California Berkeley; \*Lawrence Livermore National Laboratory

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## Defects and Properties of Cast Metals — Porosity

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee  
**Program Organizers:** Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

**Tuesday PM  Room: 23A**  
February 28, 2017  
Location: San Diego Convention Ctr

**Session Chairs:** Murat Tiryakioglu, University of North Florida; David Browne, University College Dublin

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<th>Time</th>
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<td>2:00PM</td>
<td><strong>Introductory Comments</strong></td>
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<td>2:05PM</td>
<td><strong>Keynote</strong></td>
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| 2:25PM | Influence of Fe-rich Intermetallics on the Formation of Solidification Defects: *Chedtha Puncroobutr*; Surada Chuaepradit; André Phillion; Julie Fife; Peter Lee; Chulalongkorn University; \*McMaster University; \*Paul Scherrer Institut; \*The University of Manchester
| 2:45PM | Modelling of Defects in Aluminium Castings: *Laurens Katgerman*; \*Mark Jolly; \*Delft University; \*Cranfield University
| 3:05PM | Quantification of Porosity in Electron Beam Welded Dissimilar Steel to Fe-Al Alloy Joints by X-ray Computed Tomography: *Soumitra Dinda*; Gour Gopai Roy; Prakash Sriniram; Indian Institute of Technology, Kharagpur, India; \*University of Warwick
| 3:25PM | **Break**                                                            |                                                                        |                                                                            |
| 3:45PM | Role of Grain Refiners on Porosity Formation in Directionally Solidified Al-Si Alloys: *Muhammet Uludag*; \*Derya Dispinar; \*Seleuk University; \*Istanbul University
| 4:05PM | Self-Healing Micro-Porosity in Ductile Iron by Controlling Graphite Nodule Solidification Kinetics: *Simon Lekakk*; \*MST
| 4:25PM | Theoretical Calculations for Pore Formation in Aluminum during Solidification: *Pedram Yousefian*; Murat Tiryakioglu; \*University of North Florida
| 4:45PM | 3D Visualisation of Porosity in Cast Al-Si Alloys Using X-ray Tomography: *Mario De Giovanni*; Jason Warnett; \*University of Warwick; \*University of North Florida

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*www.tms.org/TMS2017*
Deformation and Transitions at Interfaces — Fracture and Decohesion
Sponsored by: TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Computational Sciences and Engineering Committee, TMS: Mechanical Behavior of Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Saryu Fensin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozalia Barabash, OakRidge National Lab; Shen Dillon, University of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Tuesday PM
February 28, 2017
Room: 23B
Location: San Diego Convention Ctr
Session Chair: To Be Announced

2:00 PM Invited Investigations on the Origin of Crack Initiation and Propagation Susceptibility of Prior Austenite Grain Boundaries in DP and Martensitic Steels: Fady Archie; Stefan Zaefeller; Max-Planck-Institut für Eisenforschung GmbH

2:20 PM
Hydrogen Embrittlement and Grain Boundary Fracture in Nickel: A Perspective from Atomistic Simulations: Douglas Spearot; Remi Dieugreville; Doruk Aksoy; University of Florida; Sandia National Laboratories

2:40 PM
Segregation of Lead and Hydrogen Isotopes to Grain Boundaries in Nickel and Their Effect on Fracture: Richard Karnesty; Samantha Lawrence; Khalid Hattar; Stephen Foiles; Brian Somerday; Sandia National Laboratories

3:00 PM
Mesoscale Modeling of the Influence of Microstructural Gradients on Fracture: Gustavo Castelluccio; Hojun Lim; John Emery; Corbett Battaile; Sandia National Laboratories

3:20 PM Invited Multi-probe, Multi-scale Analysis of Plasticity and Crack Blunting at Lath Martensitic Boundaries: Cem Tasan; MIT

3:40 PM Break

4:00 PM Invited The Nature of Grain Boundaries and Their Response to Shock Compression and Release in Tantalum: Marc Meyers; Eric Hahn; Saryu Fensin; Tim Germann; UCSD; LANL

4:20 PM
The Influence of Second-phase Distribution on Dynamic Damage and Spall Strength: David Jones; Saryu Fensin; Daniel Martinez; Carl Trujillo; George Gray; Ellen Cerreta; Los Alamos National Laboratory

4:40 PM
The Role of Interfaces in Nucleation of Dynamic Damage in FCC and BCC Materials: Saryu Fensin; Eric Hahn; Tim Germann; Ellen Cerreta; George Gray; Los Alamos National Laboratory; University of California, San Diego

5:00 PM
Void Nucleation and Growth at Grain Boundaries in Flat and Surface Perturbed Copper Bicrystals: Elizabeth Fortin; Matthew Catlett; Jenna Lynch; Eric Loomis; Pedro Peralta; Arizona State University; Los Alamos National Laboratory

5:20 PM Invited Development of Long-range Crystallographic Correlations in Microstructures: Mukul Kumar; Jonathan Lind; David Bober; Lawrence Livermore National Laboratory

Electrode Technology — Electrodes: Raw Materials and Anode Quality
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Houshang Alamdari, Laval University

Tuesday PM
February 28, 2017
Room: 1B
Location: San Diego Convention Ctr
Session Chair: Christopher Kuhnt, Rutgers Basic Aromatics GmbH

2:00 PM Introductory Comments

2:05 PM
Influence of Calcination Temperature and Sulfur Level on Coke Properties: Victor Bazunov; John Johnson; JCG

2:30 PM
Pilot Anode Properties of Binder Pitches Softening between 110 and 150°C: Winfried Boenigk; Christopher Kuhnt; Jens Stiegert; Joris Claes; Les Edwards; RAIN Carbon Inc. (dba) RÜTGERS Germany GmbH; RAIN Carbon Inc. (dba) RÜTGERS Belgium N.V.; RAIN Carbon Inc. (dba) RAIN CI Carbon LLC

2:55 PM
Uniform Bulk Density for Calcined Petroleum Coke: Ravindra Narvekar; Gajanand Bandodkar; Jagmohan Chhabra; Goa Carbon Ltd.

3:20 PM
Use of Thermally Desulfurized Shaft CPC for Anode Production: Les Edwards; Kevin Harp; Christopher Kuhnt; Rain Carbon Inc.

3:45 PM Break

4:00 PM
Anode Carbon Aggregate Packing Description Compared to Relevant Industrial and Engineering Practises: Bjarte Oye; Lorentz Lossius; SINTEF; Hydro Aluminium

4:25 PM
CPC Testing and Relationship between Coke and Anode Physical Properties: Marthin Lubis; Kevin Harp; Les Edwards; Christopher Kuhnt; Winfried Boenigk; RAIN Carbon Inc. (dba) Rain CI Carbon; RAIN Carbon Inc. (dba) RÜTGERS Germany GmbH

4:50 PM
Effect of Coke Properties on the Bubble Formation at the Anodes during Aluminium Electrolysis in Laboratory Scale: Wojciech Gębarowski; Arne Petter Ratvik; Stein Ravvik; Lorentz Petter Lossius; Hogne Linga; Ann Mari Svensson; Norwegian University of Science and Technology; SINTEF Materials and Chemistry; Hydro Aluminium

5:15 PM
Coke Produced from Lower-Oxygen Fast-Pyrolysis Oil, a New Approach to Produce Renewable Anode Raw Materials: Yaseen Elkasabi; Hans Darmstadter; Akwasi Boateng; Eastern Regional Research Center, Agricultural Research Service, U.S. Department of Agriculture; Rio Tinto Alcan
Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Alloying and Doping of Pb-free Materials
Sponsored by: TMS Functional Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Tuesday PM Location: San Diego Convention Ctr Room: 14B

Session Chair: Elsa Olivetti, MIT

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Alloying and Doping of Pb-free Materials
Sponsored by: TMS Functional Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Tuesday PM Location: San Diego Convention Ctr Room: 30E

Session Chairs: Chih Chen, National Chiao Tung University; Albert T. Wu, National central University

2:00 PM Effects of Cobalt on the Nucleation, Grain Refinement and Orientations of Sn-3Ag-0.5Cu Solder: Christopher Gourlay1; Sergey Belyakov2; Zhaolong Ma1; ‘Imperial College London’

2:20 PM Influence of Bi on Microstructure and Properties of Sn-Cu-Ni Based BGAs on Cu Metallization: Sergey Belyakov1; Christopher Gourlay2; Takatoshi Nishimura3; Keith Sweatman4; ‘Imperial College London’; ‘Nihon Superior Co., Ltd.’

2:40 PM The Effect of Bi on the Behaviour and Properties of Sn-0.7Cu Based Alloys: Keith Sweatman1; Selena Smith2; Arif Salleh3; Stuart McDonald2; Takatoshi Nishimura3; Kazuhiro Nogita4; ‘Nihon Superior Co., Ltd.;’ ‘University of Malaysia Perlis

3:00 PM Effect of Ni on Mechanical Properties and Microstructure of Sn-0.7Cu and SAC307 Solder Alloys: Mehran Maalekian1; Karl Seelig2; 1AIM Metals & Alloys

3:20 PM Break

3:40 PM Long Term Isothermal Aging Effect on Reliability of Doped Lead-Free Solder Joint: Cong Zhao1; John Evans2; Jeffrey Suhling3; Michael Bozack2; ‘Auburn university

4:00 PM Physico-mechanical Properties and Microstructure of Sn3.0Ag0.5Cu Solder Ribbons Doped with Ni and Ni-Sn Nanoparticles: Andriy Yakymovskyi1; Peter Svec Sr.2; Pavel Sebo2; Martin Nosko2; Herbert Ipser2; ‘University of Vienna’; ‘Slovak Academy of Sciences

Sponsored by: Chinese Society for Metals, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Subodh Das, Phinix, LLC; Zhancheng Guo, University of Science and Technology Beijing; Minfang Han, China University of Mining and Technology, Beijing; Teruhisa Horita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Xingbo Liu, West Virginia University

Tuesday PM Location: San Diego Convention Ctr Room: 14B

Session Chair: Elsa Olivetti, MIT

2:00 PM Numerical Approach for the Implementation of the Interaction of Pyrolysis Gases and Combustion Products in an Aluminium Melting Furnace: Rukiye Gültekin1; Antje Rückert2; Herbert Pfeifer1; 1IOB RWTH University

2:20 PM Approach for Pyrolysis Gas Release Modelling and its Potential for Enhanced Energy Efficiency of Aluminium Remelting Furnaces: Henning Bruns1; Antje Rückert1; Herbert Pfeifer1; 1RWTH Aachen University

2:40 PM Nitrate and Other Anion Removal from Waste Water Using the Hydroflex Technology: David Dreisinger1; Gary Kordosky2; Mike Schrock2; Todd Beers2; Jianming Lu1; Buming Chen1; ‘University of British Columbia’; ‘Winner Water Services

3:00 PM Invited Sustainability and Applicability of Light Metals Producing Processes: Subodh Das1; Adam Gesing2; 1Phinix, LLC; 2Gesing Consultants Inc.

3:30 PM Break

3:50 PM The Influence of Water Vapour on the Fuming Rate in a Ferromanganese System: Sarel Gates1; Gabriella Tranell2; Gerrit Kornelius3; Ida Kero1; 1University of Pretoria; 2Norwegian University of Science and Technology (NTNU); 3SINTEF Materials and Chemistry

4:10 PM Fluoropolymer Coated Condensing Heat Exchangers for Low-grade Waste Heat Recovery: Youliang He1; Afsaneh Edrisy2; Robert Triebe1; 1Natural Resources Canada; 2University of Windsor; 3Thermal Energy International Inc.

4:30 PM Study on Treatment of Chromium Slag by Metallurgical Sintering Process: Qingcai Liu1; Fei Meng1; Lijun Jiang1; Ming Kong1; Shan Ren1; Guang Hu1; Qi Zhao1; ‘Chongqing University
### Energy Materials 2017: Materials for Coal-Based Power — Session I

**Sponsored by:** Chinese Society for Metals  
**Program Organizers:** Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Zhengdong Liu, China Iron & Steel Research Institute Group; Sebastien Dryepondt, Oak Ridge National Laboratory

**Tuesday PM**  
Room: 12  
February 28, 2017  
Location: San Diego Convention Ctr

**Session Chair:** Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory

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<th>Speaker(s)</th>
<th>Location</th>
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<tr>
<td>2:00 PM</td>
<td>Keynote Advances in Materials Technology to Enable Advanced Ultrasupercritical (A-USC) and Supercritical CO2 (sCO2) Power Cycles</td>
<td>John Shingledecker; Electric Power Research Institute</td>
<td>Location: San Diego Convention Ctr, Room: 12</td>
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<tr>
<td>2:40 PM</td>
<td>Invited Corrosion Issues in Advanced Supercritical and Ultra Supercritical Coal Fired Boilers</td>
<td>Bruce Pint; Oak Ridge National Laboratory</td>
<td>Location: San Diego Convention Ctr, Room: 12</td>
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<tr>
<td>3:10 PM</td>
<td>Invited Materials for Advanced Ultra Supercritical Steam Turbines</td>
<td>Philip Maziaze; Oak Ridge National Laboratory</td>
<td>Location: San Diego Convention Ctr, Room: 12</td>
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<tr>
<td>4:00 PM</td>
<td>Invited Heat Resistant Alloy Design: Process Considerations for Microstructural Stability and Long-term Creep Strength in Scaled-Up, Thick Wall Nickel Castings</td>
<td>Paul Jablonski; Jeffrey Hawk; U.S. Department of Energy, National Energy Technology Laboratory</td>
<td>Location: San Diego Convention Ctr, Room: 12</td>
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<tr>
<td>4:30 PM</td>
<td>Invited Ni-Fe Based Alloy GH984G Used for 700°C Coal-fired Power Plants</td>
<td>Changshuai Wang; Tingting Wang; Jianting Guo; Lanzhang Zhou; Haiping Zhao; Songjian Xu; Institute of Metal Research, Chinese Academy of Sciences; Research Institute, Baoshan Iron&amp;Steel Co., Ltd.</td>
<td>Location: San Diego Convention Ctr, Room: 12</td>
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**Sponsored by:** Chinese Society for Metals  
**Program Organizers:** Jeffrey Ferguson, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group

**Tuesday PM**  
Room: 13  
February 28, 2017  
Location: San Diego Convention Ctr

**Session Chair:** Jeffrey Ferguson, Auburn University

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<tr>
<td>2:00 PM</td>
<td>Invited Modeling the Diffusion of Minor Elements in Different MCrAlY — Superalloy Substrates at High Temperature</td>
<td>Krishna Jonnalagadda; Kang Yuan; Xin-Hai Li; Ru Peng; Yueguang Yu; Linkoping University; Siemens Industrial Turbomachinery</td>
<td>Location: San Diego Convention Ctr, Room: 13</td>
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<tr>
<td>2:30 PM</td>
<td>Invited On Healing Mechanism of Cast Porosities in Cast Ni-Based Superalloy by Hot Isostatic Pressing</td>
<td>Yuan Chaoh; Li Jie; Kai-Xin Dong; Guo Jianting; Institute of Metal Research, Chinese Academy of Sciences</td>
<td>Location: San Diego Convention Ctr, Room: 13</td>
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<td>2:50 PM</td>
<td>Invited Simulation of Precipitation Behavior of Nickel-based Superalloys</td>
<td>Fan Zhang; Weisheng Cao; Shuanglin Chen; Chuan Zhang; Jun Zhu; CompuTherm, LLC</td>
<td>Location: San Diego Convention Ctr, Room: 13</td>
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**Additional Information:**

- **Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Hydrogen Effects on Materials in Energy**
  **Sponsored by:** Chinese Society for Metals  
  **Program Organizers:** Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing
  **Tuesday PM**  
  Room: 14A  
  February 28, 2017  
  Location: San Diego Convention Ctr

  **Session Chairs:** Hani Elshahawi, Shell Exploration & Production, Co.; Partha Ganguly, Baker Hughes

  **Keynote:** Hydrogen-assisted Failure in Ni-base Superalloy 718 Studied under In-situ Hydrogen Charging: The Role of Localized Deformation in Crack Propagation
  **Speaker:** Z. Tarzimoghadam; Dirk Ponge; J. Klöwer; Dierk Raabe; Max-Planck-Institut für Eisenforschung GmbH; VDM Metals GmbH
  **Time:** 2:30 PM

  **Invited Failure Conditions for Individual Grain Boundaries in a Ni-base Alloy Embritted by H**
  **Speaker:** Michael Demkowicz; Texas A&M University
  **Time:** 3:00 PM

  **Invited A Combined Micromechanics/Materials Science Approach to Understanding High Temperature Hydrogen Attack**
  **Speaker:** Mohsen Dadfarnia; May Martin; PetroSofonis; David Moore; Steve Orwig; University of Illinois Urbana-Champaign; BP
  **Time:** 3:30 PM
4:15 PM
High Strength Nickel-based Alloys for HPHT Applications: Ramgopal Thodia1; Brandon Rollins1; Jeff Hawk2; Colum Holtem1; 1DNV USA; 1NETL

4:40 PM
High Strength Alloys for Oil and Gas Drilling Applications: Robert Badrak1; Sergey Kolesov2; William Howie1; 1Weatherford

5:05 PM
Research on the Pinpoint Controlling of CRA N08028 OCTG Microstructure and Properties: Pan Dong1; Zhiqiang Yu2; Guangwei Fan3; Genshu Zhou1; Pengsheng Yao1; Zhiqiang Zhang4; 1Technology Center, Shanxi Taigang Stainless Steel Co., Ltd., 2State Key Laboratory for Mechanical Behavior of Materials, Xi’an Jiaotong University; 3Shanxi Taigang Stainless Steel Tubes & Pipes Co., Ltd.; 4Shanxi Taigang Stainless Steel Co., Ltd.

Environmentally Assisted Cracking: Theory and Practice — Stress Corrosion Cracking II
Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Bai Cui, University of Nebraska–Lincoln; Raul Rebak, GE Global Research; Sebastien Dryspontd, Oak Ridge National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

Tuesday PM  Room: 31A
February 28, 2017  Location: San Diego Convention Ctr
Session Chairs: Sebastien Teysseyre, Idaho National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

2:00 PM Invited
Challenges and Recent Progress in High Fluence Irradiation Assisted Stress Corrosion Cracking: Sebastien Teysseyre1; 1Idaho National Laboratory

2:40 PM
3D Microstructural and Electrochemical Characterization of Galvanic Corrosion in Al7075-T651/316 Stainless Steel Couples: Sridhar Niverty1; Jason Williams1; Ilakash Adhakha2; Scott Turnage3; Kiran Solanki4; Nikhilesh Chawla5; 1Arizona State University

3:00 PM
Direct Observations of Corrosion Cracking in a TEM: Claire Chisholm1; William Mook2; Steven Hayden3; Daniel Bufford4; Khalid Hattar5; Timothy Kucharski6; Michele Ostraat7; Katherine Jungjohann8; 1Sandia National Laboratories; 2Aramco Services Company

3:20 PM
Environmentally Assisted Cracking of Commercial Carbon Steels and Corrosion Resistant Alloys: Yugo Ashida1; Yozo Daigo2; Katsuo Sugahara3; 1NHK International Corporation; 2Hitachi Metals MMC Super alloy, Ltd.

3:40 PM Break

4:00 PM
Assessing the Fracture Strength of Geological and Related Materials via an Atomistically Based J-integral: Reese Jones1; Louise Criscenti2; Jessica Rimsa3; 1Sandia National Laboratories

4:20 PM
Sensitization Effects on Environmentally Assisted Cracking of Al-Mg Alloys: Mohsen Seifi1; Henry Holroyd2; Timothy Burnett3; John Lewandowski4; 1Case Western Reserve University; 2University of Manchester

4:40 PM
Structural and Mechanical Characterization of Corroded Region in 7075 Aluminum (Al) Alloy: Yokanta Sathya Sai Renuka Vallabhaneni1; Tyler Stannard2; Ziguang Chen3; Shumin Li4; Florin Bobaru5; Nikhilesh Chawla1; 1Arizona State University; 2University of Nebraska-Lincoln

5:00 PM
Environmentally Assisted Stress Corrosion Cracking of 5xxx Al Alloys in Atmospheric Environments: Patrick Steiner1; James Burns2; 1University of Virginia

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Fatigue Characterization Using Advanced Experimental Methods in 2D and 3D
Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky
Tuesday PM  Room: 23C
February 28, 2017  Location: San Diego Convention Ctr
Session Chair: Antonios Kontsos, Drexel University

2:00 PM
Miniaturised Ultrasonic Fatigue Testing: Jicheng Gong1; Arutyun Arutyunyan1; Isaac Cabrera2; Angus Wilkinson3; 1University of Oxford

2:20 PM Invited
Crack Initiation and Propagation in Nickel-based Superalloy Microcrystals during In Situ Scanning Electron Microscopy High Cycle Fatigue Testing: Steven Lavenstein1; Gi-Dong Sim2; Bryan Crawford3; Paul Shade1; Michael Uchie4; Christopher Woodward5; Jafar El-Awady1; 1Johns Hopkins University; 2AFRL

2:40 PM Invited
Investigating Very High Cycle Fatigue Behavior of Ti-6242S Using In-situ Ultrasonic Fatigue in an E-SEM: Jason Geathers1; Christopher Torber2; J Wayne Jones3; Samantha Daly4; 1University of Michigan; 2University of California, Santa Barbara

3:00 PM
Novel High-throughput Experiments for Early Damage Evolution in FCC Materials in the High and Very Cycle Fatigue Regime: Thomas Straub1; Michael Buck2; Chris Eber3; 1University of Freiburg; 2Fraunhofer Institute for Mechanics of Materials IWM

3:20 PM
Characterization of Crack Propagation in Ni-based Superalloys Using High Energy X-ray Techniques: Diwakar Naraganti1; Michael Sangid2; Paul Shade1; Peter Kneser3; Hemant Sharma4; 1Air Force Research Laboratory; 2Advanced Photon Source

3:40 PM Break

4:00 PM
CFFE Simulations and In-situ Laue Micro-diffraction to Reveal the Geometry of a Forming Vein during Fatigue: Ainara Istra torza-Landa1; Nico1; Giul1; Helena Van Suyggenhoven2; 1Paul Scherrer Institute & EPFL; 2Paul Scherrer Institut

4:20 PM Invited
Fatigue Crack Growth and Fracture of Flexible Metallic Sheets: Wade Lanning1; Syed Javaid2; James Collins3; Christopher Muhlstein4; 1Georgia Institute of Technology

4:40 PM
Short Crack Growth in Ni-base Superalloys during Micro-bending Fatigue: Gi-Dong Sim1; Zafr Ali2; Gyuseok Kim3; Paul Shade1; Chris Woodward4; Kevin Hemker5; 1Johns Hopkins University; 2University of Pennsylvania; 3Air Force Research Laboratory
Friction Stir Welding and Processing IX — Derivative Technologies

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS; Shaping and Forming Committee
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Tuesday PM
Room: 9
Location: San Diego Convention Ctr

Session Chairs: Glenn Grant, Pacific Northwest National Laboratory; Jorge Dos Santos, Helmholtz-Zentrum Geestacht GmbH

2:00 PM Invited
Solid-State Joining of Thick-Section Dissimilar Materials Using a New Friction Stir Dovetailing (FSD) Process: Scott Whalen1; Md. Reza-E-Rabb2; Ken Ross3; Yuri Hovanski3; Martin McDonnell3; 1Pacific Northwest National Laboratory; 2Pacific Northwest National Laboratory; 3U.S. Army Tank, Automotive, Research, Development, and Engineering Center (TARDEC)

2:20 PM Invited
Solid State Additive Manufacturing Using FSW and Low-cost Precursors: Anthony Reynolds1; Ilana Lu1; 1University of South Carolina

2:40 PM Invited
Joining Aerospace Aluminum 2024-T4 to Titanium by Friction Stir Extrusion: William Evans1; Alvin Strauss1; George Cook2; 1Vanderbilt University

3:00 PM
Microscopic Evaluation of Friction Plug Welds—Correlation to a Processing Analysis: Ellen Rabenberg1; Poshoun Chen1; Sridhar Gorti1; 1National Aeronautics and Space Administration; 2Jacobs, NASA/MSFC

3:20 PM Invited
Friction Stir Welding — A Closer Examination: Tracy Nelson1; Bryan Stringham1; 1Brigham Young University

3:50 PM
Break

4:10 PM
Micro-mechanical Testing of Magnesium Based Composites Reinforced by Carbon Fibers Manufactured by Friction Stir Processing: Aude Simar1; Anne Mertens2; Laurence Brassart1; Jacqueline Lecomte-Beckers2; Francis Delannay3; 1Université Catholique de Louvain; 2University of Liège; 3Monash University, Australia

4:30 PM
Predicting Friction Pull Plug Welding Results: Justin Littell1; 1NASA

4:50 PM
Microstructural Analysis and Mechanical Properties of Friction Stir Back Extruded/Aged 7075 Aluminum Alloy: Zeren Xu1; Fadi Abu-Farha1; 1Clemson University

5:10 PM
Dissimilar Metal T-Joint Formed by Friction Stir Extrusion: Adam Jarrell1; Alvin Strauss1; George Cook2; 1Vanderbilt University

Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin — Process-Property-Performance Correlations: Titanates, Transition Metal Oxides, Chalcogenides & Beyond

Sponsored by: TMS Functional Materials Division, TMS; Biomaterials Committee, TMS; Electronic Packaging and Interconnection Materials Committee, TMS; Nanomaterials Committee, TMS; Thin Films and Interfaces Committee
Program Organizers: Fay Hua, Intel Corporation; Tae-Kyu Lee, Portland State University; Young-Ho Kim, Hanyang University; Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Choong-un Kim, University of Texas at Arlington; Nuggehalli Ravindra, New Jersey Institute of Technology

Tuesday PM
Room: 33B
Location: San Diego Convention Ctr

Session Chairs: Tae-Kyu Lee, Portland State University; Yuntian Zhu, North Carolina State University

2:00 PM Introductory Comments

2:10 PM Invited
What are in a Phase with Property Anomaly?: Zi-Kui Liu1; 1The Pennsylvania State University

2:40 PM Invited
Interface Magnetism in La1−xSrxBiMnO3/SrRuO3 Bilayers Integrated on Silicon: Srinivasa Rao Singamaneni1; John Prater2; Jay Narayan3; 1University of Texas, El Paso; 2North Carolina State University

3:10 PM Invited
Interfacial Reactions at the Joints in the Bi2Te3-based Thermoelectric Modules: Sinn-wen Chen1; Tz-wen Liou1; Hsue-shen Chu1; 1National Tsing Hua University

3:40 PM Break

3:55 PM
Microstructure and Mechanism Studies of Epitaxial TiN Oxidation in Different Growth Orientations: Adele Moatti1; Jagdish Narayan1; 1NCSU

4:15 PM Invited
Novel Iron-lanthanide Based High-mobility, Ferromagnetic and Transparent Amorphous Semiconducting Oxides: Humaira Taz1; Abhinav Malasi1; Tamil Sakhthev1; N Yamoah2; Connor Carr3; Annette Farah4; Benjamin Lawrie5; Raphael Pooser1; Maulik Patel6; Arthur Baddorf6; Dhananjay Kumar6; Sudipta Seal7; Hernando Garcia8; Gerd Duscher6; Ramki Kalyanaraman1; 1University of Tennessee; 2University of Central Florida; 3North Carolina A&T; 4Oak Ridge National Laboratory; 5Southern Illinois University

4:45 PM
Tuning of Semiconductor-to-metal Transition in Epitaxial VO2 through Strain Engineering in the Heterostructures: Adele Moatti1; Jagdish Narayan1; 1NCSU

5:05 PM Invited
Synchrotron X-ray Structure–resolved Study of Photovoltaic Titanium Oxide Phthalocyan: E-wen Huang1; Wei-Chieh Huang2; Yu-Hsiang Hsu3; Tsun-Hsu Chen3; 1National Chiao Tung University; 2National Taiwan University
Fundamental Aspects and Modeling Powder Metal Synthesis and Processing — Fundamentals of Powder Consolidation

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee
Program Organizers: Paul Prichard, Kennametal; Eugene Olevsky, San Diego State University; Iver Anderson, Ames Laboratory

Tuesday PM  Room: 16A  Location: San Diego Convention Ctr
February 28, 2017
Session Chair: Eugene Olevsky, San Diego State University

2:00 PM Invited
Anisotropy of Mass Transfer during Sintering of Powder Materials with Pore-Grain Structure Orientation: Diletta Guintini1; Elisa Torresani2; Chaoyi Zhu3; Tyler Harrington3; Kenneth Vecchio3; Alberto Molinari3; Eugene Olevsky3; 1San Diego State University and University of California, San Diego; 2University of Trento; 3University of California, San Diego

2:40 PM
Dislocation Density Approach to Understanding Sintering Mechanics: Chaoyi Zhu1; Diletta Guintini1; Tyler Harrington1; Eugene Olevsky1; Kenneth Vecchio1; 1UC San Diego; 2San Diego State University

3:00 PM
Effect of Additives on the Densification Kinetics and Microstructure of Hot-Pressed Boron Suboxide: Kristopher Behler1; Cooper Voigt2; Eugene Shanholz2; Jerry LaSalvia3; Scott Walck1; 1U.S. Army Research Laboratory (SURVICE Engineering); 2U.S. Army Research Laboratory (SEAP); 3U.S. Army Research Laboratory (ORISE); 4U.S. Army Research Laboratory

3:20 PM
Microstructural Evolution during Early Stages of Hot Isostatic Pressing of 316L Austenitic Stainless Steel: Sandeep Irukuvarghula1; Hany Hassanin2; Moataz Attallah3; Michael Preuss3; 1University of Manchester; 2Kingston University; 3University of Birmingham

3:40 PM Break

4:00 PM Invited
Thermodynamics versus Kinetics of Grain Growth Control to Enable Stable Nanocrystalline Materials: Ricardo Castro1; Nazia Nafsin2; 1University of California, Davis

4:40 PM
Grain Growth and Densification of Tungsten Nanopowders: Brady Butler1; James Paramore1; Anthony Roberts1; Jonathan Ligda1; Micah Gallagher1; 1U.S. Army Research Laboratory

5:00 PM
Development of Novel Multi-compaction Technique for Fabrication of Hybrid P/M Steels: Minchul Oh1; Hyunjoo Seok1; Byungmin Ahn1; 1Ajou University

5:20 PM
Microwave vs Conventional Sintering of Ti Powders: Comparative Analysis: Charles Maniere1; Tony Zahrah1; Eugene Olevsky1; 1San Diego State University; 2MATSYS Inc

Gamma (FCC)/Gamma-Prime (L12) Co-Based Superalloys II — Alloy Development

Program Organizers: Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology; Beijing; Alessandro Moturma, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Tuesday PM  Room: Pacific 14  Location: Marriott Marquis Hotel
February 28, 2017
Session Chairs: Alessandro Mottura, University of Birmingham; Wei Xiong, University of Pittsburgh

2:00 PM Invited
γ’-strengthened Co-Base Alloys – Development and Challenges: Akane Suzuki1; 1GE Global Research

2:30 PM Invited
An Update on Cobalt Based Co-Mo-Al –X Alloys with γ-γ’ Microstructure: Effect of Alloying Additions, Mechanical Properties and Interaction with Different Environments: Kamario Chattopadhyay1; Dipankar Banerjee1; Abhishek Shig1; Rajarshi Banerjee1; Sureendra Makineni1; Nitin Bellari1; Abhishek Sharma1; Praful Pandey2; Saurabh Das2; 1Indian Institute of Science; 2University of North Texas

3:00 PM
Integrated Computational Materials Engineering of Co Bushing Alloy: Ida Berglund1; James Saal2; Jason Sebastian1; David Snyder2; Clay Houser2; Dana Frankel2; Nicholas Hatcher1; Gregory Olson1; 1QuesTek Innovations

3:20 PM
The Microstructure and Hardness of Ni-Co-Al-Ti-Cr Quinary Alloys: Katerina Christofidou1; Nicholas Jones1; Roxana Flacau1; Mark Hardy2; Howard Stone1; 1University of Cambridge; 2Canadian Neutron Beam Center; 3Rolls-Royce plc

3:40 PM Break

4:00 PM
Thermodynamics and Kinetics of L12-containing Co-base Superalloys from First-Principles: Robert Rhein1; Tresa Pollock1; Anton Van der Ven1; 1University of California Santa Barbara

4:20 PM
Thermodynamic Database for the Co-Al-W-Ni-Ti-Ta-Cr Superalloy System: Peisheng Wang1; Wei Xiong2; Oleg Kontsevoi1; Ursula Kattner2; Carelyn Campbell2; Eric Lass3; Gregory Olson2; 1Northwestern University; 2University of Pittsburgh; 3National Institute of Standards and Technology

4:40 PM
Calphad Design of Co-based Gamma-prime-strengthened Superalloys: Eric Lass1; 1National Institute of Standards and Technology
**TECHNICAL PROGRAM**

**GAT-2017 (Gamma Alloys Technology - 2017) — Microstructure Evolution, Simulation and Prediction**

**Sponsored by:** TMS Structural Materials Division, TMS: Titanium Committee

**Program Organizers:** Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

**Tuesday PM**
**February 28, 2017**
**Room: Pacific 17**

**Session Chairs:** Florian Pyczak, Helmholtz-Zentrum Geesthacht; Thomas Broderick, GE Aviation

**2:00 PM Invited**

Grain Refinement and Texture Evolution in Boron Containing TiAl Alloys: *Ulrike Hecht*1; Siljaa-Katharina Rittinghaus2; 1Access e.V.; 2Fraunhofer ILT (Institute for Laser Technique)

**2:25 PM**

Fine-grained FL Microstructure Evolution/Control and their Tensile Properties in a Cast Beta Gamma Alloy Material: *Joon Sik Park*1; Kwang Soo Choi1; Sang Lan Kim1; Young-Won Kim1; 1Hanbat National University; 2Gamteck LLC

**2:45 PM Invited**

Processing, Microstructure and Mechanical Properties of Beta-gamma TiAl Alloy: *Yayong Chen*1; Fantao Kong1; Jing Tian1; Shulong Xiao1; Xiaopeng Wang1; Ping Sun1; 1Harbin Institute of Technology

**3:10 PM**

Effect of Borides on the Beta/Alpha Phase Transformation Kinetics in Gamma Titanium Aluminide Alloys: *Michael Oehring*1; Andreas Stark1; Marcus Rackel1; Norbert Schell1; Florian Pyczak1; 1Helmholtz-Zentrum Geesthacht

**3:30 PM**

Ordered α Phase Transformations in High Nb-TiAl Alloys: *Lin Song*1; Junpin Lin1; Jinshan Li1; Hongchao Kou1; 1Northwestern Polytechnical University; 2University of Science and Technology Beijing

**3:50 PM Break**

**4:05 PM Invited**

3D Materials Science and Engineering: Emerging Capabilities for Gamma Alloys: *Dennis Dimiduk*1; Michael Uchic1; Michael Grober1; 1BlueQuartz Software, LLC; 2Air Force Research Laboratory

**4:30 PM**

Three Dimensional Reconstruction of TiAl Microstructures: *Henry Proudhon*1; Anouk Briane1; Nicolas Gueninchaud1; Wolfgang Ludwig1; Jerome Crepin1; Lionel Marcin1; Jean-Charles Stinvil1; McLean Echlin1; Tresa Pollock1; 1MINES ParisTech / UCSB; 2MINES ParisTech; 3ESRF / INSA Lyon; 4SafanTech; 5UCSB

**4:50 PM Invited**

Thermodynamic Modeling of the Ti-Al-Cr-Mo-Nb-B System for Aiding Gamma-TiAl Alloy Design: *Fan Zhang*1; Jun Zhu1; Chuan Zhang1; John Holtz2; Nick Sonnentag1; Thomas Broderick1; 1CompuTherm, LLC; 2ATI; 3GE Aviation

**5:15 PM Invited**

Phase Field Simulation of Microstructure Evolution in TiAl: *Dongsheng Xu*1; Chunyu Teng1; Jinhu Zhang1; Yunzhi Wang1; Rui Yang1; 1Institute of Metal Research, Chinese Academy of Sciences; 2Ohio State University

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**High Entropy Alloys V — Alloy Development and Applications II**

**Sponsored by:** TMS Structural Materials Division, TMS Functional Materials Division, TMS: Alloy Phases Committee, TMS: Mechanical Behavior of Materials Committee

**Program Organizers:** Peter Liao, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

**Tuesday PM**
**February 28, 2017**
**Room: 32B**

**Location: San Diego Convention Ctr**

**Session Chairs:** Suveen Nigel Mathaudhu, University of California, Riverside; Yong Liu, Central South University

**2:00 PM Invited**

Precipitation Strengthening Effects in Powder Metallurgical High Entropy Alloys: *Yong Liu*1; Bin Liu1; Qihong Fang1; C.T. Liu1; 1Central South University; 2Hunan University; 3City University of Hong Kong

**2:20 PM Invited**

Synthesis and Characterization of Nanostructured Magnetic High Entropy Alloys: *Trevor Clark*1; Christian Roach1; Suveen Mathaudhu1; 1University of California Riverside

**2:40 PM**

Adaption of Metal Injection Molding to Quinary High Entropy Alloys: *Arnoud Grimponnez*1; Julia Wagner1; Volker Piotter1; Alexander Kauffmann1; Yizhou Chen1; Martin Heilmaier1; 1Karlsruhe Institute of Technology (KIT); 2University of Stuttgart

**3:00 PM**

Design of Novel Precipitate Strengthened Al-Co-Cr-Fe-Nb-Ni High-entropy Alloys: *Martin Detroit*1; Stoichko Antonov1; Sammy Tin1; 1Illinois Institute of Technology

**3:20 PM Invited**

Design of High Entropy Alloys for Turbine Applications: *Iva Berglund*1; James Saal1; Jason Sebastian1; Gregory Olson1; 1QuesTek Innovations

**3:40 PM Break**

**4:00 PM Invited**


**4:20 PM**

Design of “High Entropy Alloys” (HEA) with Optimal Combinations of Stability, Density, Strength and Ductility: *Edmen Menou1; Isaac Toda-Caraballo1; Emmanuel Bertrand1; Gérard Ramstein1; Pedro Rivera-Díaz-del-Castillo1; Franck Tancrèt1; 1Université de Nantes; 2University of Cambridge

**4:40 PM**

Fabrication of High-entropy Refractory Metal Carbides: *Tyler Harrington*1; Joshua Gild1; Jian Luo1; Cormac Toher1; Pranab Sarkar1; Stefano Curtarolo1; Kenneth Vecchio1; 1University of California San Diego; 2Materials Science and Engineering Program, UC San Diego; 3Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; 4Department of Mechanical Engineering and Materials Science, Duke University; 5Materials Science, Electrical Engineering, Physics, and Chemistry, Duke University

**5:00 PM Invited**

The Oxidation of an Equimolar FeCoNiCrMn High-entropy Alloy in CO/CO2 Mixed Gases at 973K (700°C): *Wu Kai*1; Fu-Pen Cheng1; Rong-Tan Huang1; Leu-Wen Tsay1; Ji-Jung Kai1; 1National Taiwan Ocean University

**5:20 PM**

Carbides-induced Hardening of CoCrFeMnNi Family of HEAs: *Adrianna Lozinko*1; Michal Mroz1; Fares Haddad1; Anna Fraczkiewicz1; 1MINES St-Étienne
Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session IV

2:00 PM Invited
Interaction of Solute with Interfaces in Iron: Matthias Militzer; Hatem Zurob
- The University of British Columbia; McMaster University

2:30 PM Invited
A New Look at Steel Martensite Tempering with Advanced Characterization Tools: Amy Clarke; Michael Miller; Daniel Coughlin; Dean Pierce; Jon Poplawsky; Paul Gibbs; Kester Clarke; Virginia Judge; Bjorn Claussen; Jon Almer; Robert Field; Don Williamson; David Alexander; John Speer; George Krauss; Colorado School of Mines; Oak Ridge National Laboratory; Los Alamos National Laboratory; Sandia National Laboratories - Livermore; Argonne National Laboratory

3:00 PM
Atomistic Modelling of Carbon Redistribution in Martensite Phase: Helena Zapolsky; Mykola Lavrskyi; Armen Khachatryan; Frederic Danoix; Renaud Patte; Sophie Cazottes; Mohamed Gouné; Philippe Maugis; University of Rouen; University of California and Rutgers University; INS Lyon - MATEIS - SGM; University of Bordeaux; Aix-Marseille University Saint-Jerome

3:20 PM Break

3:40 PM Invited
Precipitation Kinetics: Quantitative In-situ Characterization Using Small-angle Scattering Helps Establish Models Validity: Alexis Deschamps; Frederic De Geuser; Mark Styles; Christopher Hutchinson; Grenoble Institute of Technology; CSIRO; Monash University

4:10 PM
Thermally Induced Phase Transformations in Beta-titanium Alloys and Corresponding Effects on Mechanical Properties: James Coakley; Anna Radecka; Paul Bagot; David Dye; Howard Stone; Dieter Isbeim; Stephan Seidman; University of Cambridge; Rolls-Royce plc.; Oxford University; Imperial College London; Northwestern University

4:30 PM Method for Correcting Atom Probe Tomography Trajectory Aberration Artifacts in Multiphase Materials: Samuel Briggs; Nathan Almiral; Philip Edmondsow; Peter Welle; G. Robert Odette; Kumar Sridharan; Kevin Field; University of Wisconsin-Madison; University of California - Santa Barbara; Oak Ridge National Laboratory

4:50 PM
Solute Distribution Analysis of Early Stages of Aging in Al-Mg-Si Alloys via Atom Probe Tomography: Phillip Dumitrasczewitz; Gunther Rak; Stephanie Sacik; Stephan S.A. Gerstl; Stefan Pegatscher; Chair of Nonferrous Metallurgy, Montanuniversitaet Leoben; AMGA rolling GmbH; Chair of Physical Metallurgy and Metallic Materials, Montanuniversitaet Leoben; Scientific Center of Optical and Electron Microscopy, ETH Zurich

In-situ Methods for Unraveling Structure-Property Relationships in Light Metals — Diffraction and Other Novel Methods

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee, TMS: Magnesium Committee

Program Organizers: Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

Tuesday PM Room: 5B February 28, 2017 Location: San Diego Convention Ctr

Session Chairs: Wim Sillekens, European Space Agency; Dmytro Orlov, Lund University

2:00 PM Structural Evolution of Metals at High Temperature: Complementary Investigations with Neutron and Synchrotron Quantum Beams: Klaus-Dieter Liss; Australian Nuclear Science and Technology Organisation

2:20 PM
Advanced Aluminum Alloys Development and In-Situ Fitness-for-Service Testing in Automotive Lightweighting: Dimitry Sediiako; David Weiss; Ahmed Nabawy; Canadian Nuclear Laboratories; ECK Industries Inc.

2:40 PM
In-situ X-ray Synchrotron Profile Analysis during High Pressure Torsion of Ti: Erhard Schaffer; Michael Kerber; Florian Speckermann; Torben Fischer; Roman Schuster; Cornelia von Baecckmann; University of Vienna, Faculty of Physics; University of Leoben; Deutsches Elektronen-Synchrotron DESY; University of Vienna, Faculty of Earth Sciences; University of Vienna, Faculty of Chemistry

3:00 PM
The Effect of Grain Refinement on Hot Tearing in AZ91D Magnesium Alloys: Tyler Davis; Lukas Bichler; Francesco D’Elia; Norbert Hort; University of British Columbia; Helmholtz-Zentrum Geesthacht

3:20 PM
Formability of Magnesium Alloy AZ31B from Room Temperature to 125C under Biaxial Tension: Isaac Chelladurai; Andrew Orme; Michael Miles; David Fullwood; John Carlyle; Raj Mishra; Irene Beyerlein; Marko Knezevic; Brigham Young University; General Motors; Sandia National Laboratory; University of New Hampshire

3:40 PM Break

4:00 PM Keynote
Ambient Pressure X-ray Photoelectron Spectroscopy in Light Element Materials Investigations: Joachim Schmidt; Ashley Head; Lund University; Lawrence Berkeley National Laboratory

4:30 PM
In-situ Real-time Monitoring of Aging Processes in an Aluminum Alloy by High-precision Dilatometry: Martin Luckabauer; Elisabeth Hengge; Gregor Klinser; Wolfgang Sprengel; Roland Würschum; Graz University of Technology

4:50 PM
Analysis of Microstructure and Damage Evolution in Ultra-thin Wires of the Magnesium Alloy MgCa0.8 at Multipass Drawing: Andrij Miletin; Piotr Kustra; Dorota Byrskaja-Wojciek; Oleksandr Grydin; Mirko Schaper; Thorben Mentlein; Gregory Gerstein; Florian Närämberger; AGH University of Science and Technology; Paderborn University; Leibniz Universität Hannover

5:10 PM
Effect of the Zn Content on the Compression Behaviour of Mg5Nd(4Zn): An In Situ Synchrotron Radiation Diffraction Study: Domokos Tolnai; Tim Kärcher; Ricardo Bustolín; Tungky Subrotó; Francesco D’Elia; Serge Gavras; Andreas Stark; Norbert Schell; Norbert Hort; Karl Kainer; Helmholtz Zentrum Geesthacht
Interface-Mediated Properties of Nanostructured Materials — Measurement and Modeling of Nanoscale Deformation

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Cai Zhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University; Michael Demkowicz, Texas A&M University

Tuesday PM  Room: Pacific 23
February 28, 2017  Location: Marriott Marquis Hotel

Session Chairs: Peter Anderson, The Ohio State University; Michal Demkowicz, Texas A&M University

2:00 PM  Invited
Slip Transmission in fcc/fcc Bilayers Using Phase Field Dislocation Dynamics: Yifei Zeng1; Abigail Hunter2; Irene Beyerlein2; Marisol Koslowski1; Purdue University; Los Alamos National Laboratory

2:30 PM  Invited
Strengthening Mechanisms of Nanoporous Metallic Materials: Niaz Abdollahim1; Bin Ding1; University of Rochester

3:00 PM
Deformation and Fracture in Stressed Multi-layer Thin Films: Ruth Konetschnik1; Darjan Kozic2; Roland Schöngundrner1; Hans-Peter Gänser1; Roland Brunner; Daniel Kiener1; University of Leoben; Materials Center Leoben

3:20 PM
Green’s Function Formulation for Vacancy-assisted Dislocation Climb and Applications to Low Angle Grain Boundaries: Xiang Yang1; Yejun Gu1; Jian Han2; David J Srolowitz2; Hong Kong University of Science and Technology; University of Pennsylvania

3:40 PM  Break

3:55 PM  Invited
Ab Initio Determination of the Energetics of Atomically Sharp Interfaces: Liang Qi1; University of Michigan

4:25 PM
Molecular Dynamics Simulations of Mg/Nb Interfaces: Shear Strength and Interaction with Lattice Glide Dislocations: Xiang-Yang Liu; Satyesh Yadav1; Shuai Shao1; Jian Wang2; Youxing Chen1; Richard Hoagland1; Los Alamos National Laboratory; University of Nebraska-Lincoln

4:45 PM
On the Impact of Capillarity for Strength at the Nanoscale: Nadia Mameka1; Jürgen Markmann2; Jörg Weissmüller2; Helmholtz-Zentrum Geesthacht; Hamburg University of Technology

5:05 PM
Mitigation of Atomic Oxygen Attack to Spacecraft Composite Structures: A Fundamental Investigation Using Reactive Molecular Dynamics Simulation: Sasan Nouranian1; Farzin Rahmani1; Mina Mahdavi1; Ahmed Al-Ostaz2; Department of Chemical Engineering, University of Mississippi; Department of Civil Engineering, University of Mississippi

5:25 PM
Joining of Copper by Ag Nanopaste: Microstructure and Strength Behavior Depending on Different Process Parameters: Susann Hauser1; Bernhard Wielage1; Guntram Wagner1; Technische Universität Chemnitz

Magnesium Technology 2017 — Solidification and Processing I

Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee

Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Tuesday PM  Room: 5A
February 28, 2017  Location: San Diego Convention Ctr

Session Chairs: Neale Neelameggham, Ind LLC; Tracy Berman, University of Michigan

2:00 PM
Microsegregation in High Pressure Die Cast Mg Alloys: Tracy Berman1; Mei Li; John Allison1; University of Michigan; Ford Motor Company

2:30 PM
Numerical Simulations of TRC Equipped with a Core: Jong-Jin Park1; Hongik University

2:50 PM
Growth of A8Mn5 Intermetallic in AZ91: Christopher Gourlay1; Guang Zeng1; Jingwei Xian1; Imperial College London

3:10 PM
Influence of CaO Grain Refiner Addition on the Microstructure and Mechanical Properties of As-cast Mg Alloys: Yahia Ali1; Dong Qiu1; Ming-Xing Zhang1; University of Queensland

3:30 PM  Break

3:50 PM
Grain Refinement of Mg and Its Alloy by Inoculation of In-situ MgO Particles: Yan Wang; Guosheng Peng; Zhongyuan Fan; Brunel University London

4:10 PM
Numerical Study of Magnesium Production by Pidgeon Process and Pre-prepared Pellets Silicothermic Process: Comparison of Heat Transfer: Duxue Fu1; Zhang Ting’an1; Zhihe Dou1; Lukui Guan1; Northeastern University

4:30 PM
On the Age Hardening Response of Aluminum Containing Magnesium Sheets with Zinc or Manganese (AZ- and AM Series Alloys): Jan Bohlen1; Ander Telleria Iparragirre; Gurutze Arruebarrena; Dietmar Letzig1; Helmholtz-Zentrum Geesthacht; Mondragon University

4:50 PM
Performance Evaluation of High-pressure Die-cast Magnesium Alloys: Mark Easton1; Suming Zhu1; Mark Gibson; Trevor Abbott1; Hua Qian Ang1; Xiaobo Chen1; Nick Birbilis1; Gary Savage1; RMIT University; CSIRO; Magontec; Monash University

5:10 PM
Simulation Study on Direct Desulfurization of Molten Iron by Magnesium Vapor: Yan Lin2; Yongkun Yang2; Dongxing Wang; Xiaolong Li1; Zhang Ting’an1; Northeastern University
Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Structural Materials I
Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Nuclear Materials Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Tuesday PM Room: Cardiff
February 28, 2017 Location: Marriott Marquis Hotel

Session Chairs: Brian Cockeram, Bechtel-Bettis; Stuart Maloy, Los Alamos National Laboratory

2:00 PM The Increase in Fatigue Crack Growth Rates Observed for Zircaloy-4 in a PWR Environment: Brian Cockeram1; B.F. Kammenzind1; ‘Bechtel-Bettis’

2:20 PM Wear Results for Zirconium Alloys and Their Oxides: William Howland2; Paolo Zaffred2; Gene Lucadamo3; Natalia Tymiak-Carlson3; Richard Smith3; ‘Bechtel Marine Propulsion Corporation

2:40 PM Characterization and Simulation of Wear-tested Zirconium Alloy Surfaces: Gene Lucadamo3; Natalia Tymiak-Carlson3; William Howland2; Richard Smith3; Clinique Brundidge1; ‘Bettis Laboratory, Bechtel Marine Propulsion Corporation

3:00 PM Determination of Material Properties of Ion-irradiated and Corroded Zircaloy-4 by Using Nanomechanical Raman Spectroscopy: Debapriya Mohanty1; Yang Zhang1; Vikas Tomar1; ‘Purdue University’

3:20 PM Evolution of Stress and Fracture During Oxidation of Zirconium Alloys: Natalia Tymiak-Carlson3; Jason Gruber3; John Seidensticker3; Ram Bajaj3; Douglas Rishel1; William Howland2; Richard Smith3; ‘Bettis Atomic Power Laboratory

3:40 PM Break

4:00 PM Damage Rate Dependence of Oxide Evolution on Zircaloy-4 under Simultaneous Irradiation-corrosion Experiment: Peng Wang3; Gary Was1; ‘University of Michigan

4:20 PM Modeling Activation and Radionuclide Decay in Proton Irradiated Zirconium Alloys: Jesse Carter1; Diane Moran1; Richard Smith1; ‘Bettis Laboratory, BMPC

4:40 PM Study on Texture Evolution of As-hydrided Zircaloy-4 Cladding under Low Temperature Biaxial Creep Test: Kuan-Che Lan1; Xiang Liu1; Huan Yan1; Hoon Lee1; Hsiao-Ming Tung1; Chih-Pin Chuang1; Kun Mo1; Yinbin Miao1; James Stubbins1; ‘University of Illinois at Urbana-Champaign; ‘Institute of Nuclear Energy Research; ‘Argonne National Laboratory

5:00 PM The Recovery of Irradiation Damage for Zircaloy-2 and Zircaloy-4 Following Irradiation at Higher Temperatures of 377-410C: Brian Cockeram1; T.S. Byun1; K.J. Leonard1; J.L. Hollenbeck1; B.F. Kammenzind1; ‘Bechtel-Bettis’; ’PNNL’; ‘Oak Ridge National Laboratory

Materials by Design: An MPMD Symposium Honoring Greg Olson on the Occasion of His 70th Birthday — Materials Design II
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Functional Materials Division, TMS Structural Materials Division, TMS: Integrated Computational Materials Engineering Committee, TMS: Phase Transformations Committee
Program Organizers: Carelyn Campbell, National Institute of Standards and Technology; Michele Manuel, University of Florida; Wei Xiong, University of Pittsburgh; Jason Sebastian, QuesTek Innovations

Tuesday PM Room: 10
February 28, 2017 Location: San Diego Convention Ctr

Session Chairs: Michele Manuel, University of Florida; Wei Xiong, University of Pittsburgh

2:00 PM Keynote Creating Materials Databases Using X-Ray Tomography: J. Zhang1; S.O. Poulsen2; J.W. Gibbs2; Peter Voorhees2; H.F. Poulsen2; ‘Danish Technical University; ‘Northwestern University; ‘Los Alamos National Laboratory

2:40 PM Keynote The Use of 3D Microstructural Characterization for the Validation of Models: David Rowenhorst3; ‘U.S. Naval Research Laboratory

3:20 PM Break

3:50 PM Keynote Formalizing the Process-Structure-Property-Performance Approach to Materials Design and Development: David Furrer1; Vassiliy Venkatesh1; Max Kaplan1; ‘Pratt & Whitney

4:30 PM Keynote GBO, SRG, ICME and MGI - Towards the General Materials Design System: John Ageren3; ‘Royal Institute of Technology

5:10 PM Concluding Comments

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Refractory Metals
Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee
Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmair, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Tuesday PM Room: Pacific 16
February 28, 2017 Location: Marriott Marquis Hotel

Session Chairs: Martin Heilmair, KIT Karlsruhe; Nobuaki Sekido, Tohoku University

2:00 PM Invited High Temperature Oxidation Behavior of Mo-Si-B-Ti-Based Alloys: Bronislava Gorr1; ‘University Siegen

2:30 PM Design and Production of bcc Titanium-molybdenum-based Alloys Strengthened by Ordered Intermetallic Precipitates: Alexander Knowles1; Nick Jones1; Neil Jones1; Howard Stone1; David Dye2; ‘Imperial College London; ‘University of Cambridge; ‘Rolls-Royce plc

2:50 PM The Influence of Titanium on the Phase Equilibria in Mo-Si-B Alloys: Daniel Schliephake1; Martin Heilmair1; ‘Karlsruhe Institute of Technology
3:10 PM  Microstructure and Mechanical Behavior of Nb-based Nb-Al-Fe Alloys:  
Frank Stein1; Noah Philips1; Max-Planck-Institut für Eisenforschung; ATI Specialty Alloys and Components

3:30 PM  Break

3:50 PM  Phase Evolution and Creep Properties of Nb-rich Nb-Si-Cr Eutectics:  
Fiorian Gang2; Alexander Kauffmann1; Martin Heilmair1; Karlsruhe Institute of Technology

4:10 PM  On the Design of Nb Silicide Based Alloys with a Balance of Properties:  
Panayiotis Tsakiropoulos1; University of Sheffield

4:30 PM  Powder Route Processing of Nb Silicide Based Alloys:  
Claire Utton1; Panayiotis Tsakiropoulos1; Edward Gallagher1; University of Sheffield

4:50 PM  Solidification Processing of Nb-silicide Based Alloys:  
Nicola Tankov1; Claire Utton1; Panayiotis Tsakiropoulos1; University of Sheffield

5:10 PM  Accelerated Discovery and Development of Intermetallic-containing Refractory-based Multi-principal-component Alloys:  
Michael Titus2; Hauke Springer2; Fritz Körmann2; Blażej Grabowski2; Dierk Raabe2; Purdue University; Max-Planck-Institut für Eisenforschung

5:30 PM  Deformation Behavior and Solid Solution Hardening of Al-containing Refractory High-entropy Alloys:  
Hans Chen1; Alexander Kauffmann1; Bronislava Gor2; Daniel Schliephake2; Christoph Seemüller2; Julia Wagner2; Hans-Juergen Christ3; Martin Heilmair1; Karlsruhe Institute of Technology; University of Siegen; Karlsruhe Institute of Technology; University of Stuttgart

Materials Science for High-Performance Permanent Magnets — Magnetization Process / Microstructural Stability  
Sponsored by: TMS Functional Materials Division, TMS: Magnetic Materials Committee  
Program Organizers: Satoshi Hiroswawa, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Guffelisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Tuesday PM  
Room: 24C  
Location: San Diego Convention Ctr

Funding support provided by:  Elements Strategy Initiative Center for Magnetic Materials

Session Chairs:  Kazuhiro Hono, National Institute for Material Science; Scott McCall, Lawrence Livermore National Laboratory

2:00 PM  Invited  
Imaging the Changes in Magnetic Domain Structure in Nd-Fe-B Sintered Magnets throughout the Demagnetisation Process by Soft X-ray Magnetic Circular Dichroism Microscopy:  
David Billington1; Kentaro Toyoki2; Yosinohoro Kobayashi3; Shinya Tsuneyuki2; Yoshioho Go4; University of Tokyo; The University of Tokyo, ISSP; The University of Tokyo, Tokyo Institute of Technology

2:20 PM  Large-scale Micromagnetics Simulation for Initial Magnetization Process in Nd-Fe-B Hot-deformed Nanocrystalline Magnet:  
Hiroyuki Isahara1; Kaoru Iwano1; Chiharu Misumata1; Tadashi Ishikawa1; Kanta Ono1; High Energy Accelerator Research Organization; National Institute for Materials Science

2:40 PM  Electronic States of Rare Earth Elements in Permanent Magnet Materials Probed by X-ray Magnetic Circular Dichroism Nano-Spectroscopy:  
Tetsuro Ueno1; Ai Hashimoto2; Yasuo Takeichi2; Kanta Ono2; National Institute for Materials Science; High Energy Accelerator Research Organization

3:00 PM  Fabrication of Nd-Fe-B Thin Films as a Model Material:  
Toshiyuki Shimizu1; Ryosuke Nakagawa1; Aya Sugawara1; Risa Kurosu1; Masaaki Doi2; Tohoku Gakuin University

3:20 PM  Data-driven Approach for Magnetic Neutron Scattering Data Analysis of Permanent Magnets Using Statistical Learning and Artificial Intelligence:  
Kanta Ono1; Akinori Asahara2; Hidekazu Morita2; Chiharu Mitsumata2; Masao Yano3; Tetsuya Shoji4; High Energy Accelerator Research Organization (KEK); Hitachi Ltd.; National Institute for Materials Science; Toyota Motor Corporation

3:40 PM  Break

4:00 PM  Invited  
Phase Equilibria in the Nd-based Permanent Magnets:  
Tsuchi Abe1; Ikuo Ohnuma1; Yoshinohoro Kobayashi3; Ying Ying1; Osamu Takeda2; NIMS; Tokyo Institute of Technology; Tohoku University

4:25 PM  Stability Origin of Binary Systems Relevant to Multi-component Phase in Nd-Fe-B:  
Ying Chen1; Arkapal Saengdeejing2; Tohoku University

4:35 PM  Al-initiated Study of Transition-metal-doping Effects on the Magnetic Anisotropy in Nd-Fe-B Sintered Magnets:  
Yuutoshi Tettsu1; Shinji Tsuneyuki2; Yoshioho Go3; University of Tokyo; The University of Tokyo, ISSP; The University of Tokyo, Tokyo Institute of Technology

5:05 PM  Invited  
Grain Boundary Diffusion of Co, Cu and Nb as Function of Temperature in NdFeB:  
Gino Hrkac4; Thomas Schreg4; Johann Fischbach4; Thomas Ostler5; Richard Evans5; Sam Westmoreland5; Michael Winklhofer6; Roy Chantrell7; Gergely Zimanyi8; University of Exeter; Danube University Krems; University of York; University of Duisburg; University of California Davis

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Advanced Materials and Processing  
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nuclear Materials Committee Program Organizers: Indrajit Charit, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee — Knoxville

Tuesday PM  
Room: 24A  
Location: San Diego Convention Ctr

Session Chairs:  Peter Liaw, University of Tennessee; Somayeh Fasebani, Oregon State University

2:00 PM  Keynote  
Microstructure, Texture and Mechanical Properties of the 14YWT Nanostructured Ferritic Alloy NFA-4:  
G. Robert Odette1; Md Ershadul Alam1; Souptik Pal1; Takuya Yamamoto2; University of California Santa Barbara

2:30 PM  Invited  
Dynamic Behavior of a Nanocrystalline Cu-Ta Alloy:  
Scott Tumage1; Kris Darling2; Mansa Rajagopal1; Chad Hornbuckle2; Kiran Solanki2; ASU; ARL
2:50 PM
The Creep-resistant High Entropy Alloys (HEAs): Haoyan Diao; Dong Ma; Wei Guo; Jonathan Poplawsky; Chuan Zhang; Fan Zhang; Karin Dahmen; Peter Liaw; 1The University of Tennessee; 2Oak Ridge National Laboratory; 3Computherr, LLC; 4University of Illinois at Urbana-Champaign; 5The University of Tennessee

Structure-property Correlations in Metallic Components Synthesized Using Selective Laser Melting: Upadrashta Ramamurty; 1Indian Institute of Science

3:00 PM Invited
Tailoring the Mechanical Behavior of Metallic Glasses: Juergen Eckert; 1Montanuniversität Leoben

3:10 PM Invited

2:00 PM Keynote
Design of Creep-resistant Copper Alloys: Steven Zinkle; Ying Yang; Lance Snead; 1University of Tennessee; 2Oak Ridge National Laboratory; 3Massachusetts Institute of Technology

2:10 PM Invited
Compatibility of a Complex Concentrated Alloy with Non-aqueous Coolants: Justin Lee; Timothy White; Rajiv Mishra; James Earleman; 1University of California, Irvine; 2University of North Texas

2:50 PM Invited
Radiation Response of Nanowinned Metals: Xinghang Zhang; Jin Li; Cuncai Fan; Kaiyuan Yu; Youxing Chen; Haiyan Wang; 1Purdue University; Texas A&M University; 2China University of Petroleum; 3Los Alamos National Laboratory

3:50 PM Invited
Influence of Fine Scale Alpha Precipitation on the Mechanical Properties of the Beta Titanium Alloy Beta-21S: Srinivas Mantri; Deep Choudhuri; Rajarshi Banerjee; 1University of North Texas

4:15 PM Invited
Emulating Neutron Damage in Nanocrystalline Copper via In-situ Ion Irradiation: Walid Mohamed; Samit Bhattacharya; Laura Jamison; Marquis A. Kirk; Korukonda Murty; Abdelatif Yacout; 1Argonne National Laboratory; 2Northwestern University; 3NC State University

3:15 PM Invited
Deviations from High-Entropy Configurations in the AlxCoCrCuFeNi Alloys: Louis Santodonato; Yang Zhang; Mikhail Feygenson; Chad Parish; Michael Gao; Richard Weber; Joerg Neuerefeld; Zhi Tang; James Morris; Peter Liaw; 1Oak Ridge National Laboratory; 2The University of Illinois at Urbana-Champaign; 3Juelich Centre for Neutron Science; 4National Energy Technology Laboratory; 5Materials Development, Inc.; 6Alcoa Technical Center; 7The University of Tennessee

4:00 PM Invited
Universal Parameter to Quantitatively Predict Metallic Glass Properties: Evan Ma; 1Johns Hopkins University

4:25 PM
Brittle-to-ductile Transition in Metallic Glass Nanowires: Daniel Sopić; Mihai Stoica; Jürgen Eckert; 1IFW Dresden; 2Erick Schmid Institute of Materials Science

4:45 PM
Strain Delocalization and “Ductile” Fracture Behaviors of Metallic Glass: Zhe Fan; Jin Li; Yingchao Yang; Qiang Li; Sichuang Xue; Haiyan Wang; Jun Lou; Jian Wang; Xinghang Zhang; 1Texas A&M University; 2Rice University; 3Purdue University; 4University of Nebraska-Lincoln

5:05 PM
Structural Evolution and Deformation Characteristics of Nanocrystalline Equiatomic AlCrCuCoFeNi High-entropy Alloy: Ramya Sree Ganji; Koteswararao Rajulapati; 1University of Hyderabad

Microstructural Processes in Irradiated Materials — Ferritic and Ferritic-Martensitic Alloys II

Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l'énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuoyoshi Nagai, Tohoku University

Tuesday PM
Room: Del Mar
Location: Marriott Marquis Hotel

Session Chairs: Frederic Soisson, CEA Saclay; Maylise Nastar, CEA Saclay

2:00 PM Invited
Understanding the Multiple Functions of Point Defects in Fe-based Alloys under Irradiation: Maylise Nastar; Thomas Schuler; Luca Messina; Chu Chun Fu; Frédéric Soisson; Pär Olsson; 1CEA; 2University of Illinois; 3KTH

2:30 PM
Effect of Neutron Irradiation on the Microstructure of a Series of Fe-Cr Alloys: Dhriti Bhattacharya; Peter Wills; Mukesh Bachhav; Alan Xu; Emmanuelmele Marquis; G. Robert Odette; 1ANSTO; 2UCSB; 3University of Michigan

2:50 PM
Diffusion Mechanisms of Solutes in Ferritic Steels: Effects of Irradiation: Caroline Barouhi; Chu-Chun Fu; Thomas Jourdan; 1SRMP, CEA-Saclay

3:10 PM
Understanding the Formation and Growth Behavior of Alpha-prime Precipitates in Neutron-Irradiated FeCrAl Alloys Using SANS and APT: Philip Edmondson; Samuel Briggs; Yukinori Yamamoto; Ken Littrell; Richard Howard; Charles Daily; Kurt Terrani; Kumar Sridharan; Kevin Field; 1Oak Ridge National Laboratory; 2University of Wisconsin

3:40 PM Break

www.tms.org/TMS2017
3:30 PM
Strain and Self-ion Irradiation Changes in Cr Atoms Distribution in Fe-Cr Alloys: Stanislaw Dubiel; Jan Zukrowski; AGH University of Science and Technology

3:50 PM Break

4:05 PM
Deformation Microstructure of Ferrite-Martensitic Steels Irradiated in Spallation Environment: Kuan Wang; Yong Dai; Philippe Spatig; Maximo Victoria; Paul Scherrer Institute

4:25 PM
APT Characterization of Post-irradiation Microstructural Changes in T91 Steel: Guma Yeli; Maria Auger; Steve Roberts; Paul Bagot; Michael Moody; University of Oxford

4:45 PM
Understanding Deformation Dynamics in Neutron-irradiated Fe-based Alloys with High-Energy X-rays: Meimei Li; Xuan Zhang; Yiren Chen; Jonathan Almer; Jun-Sang Park; Peter Kenesei; Hemant Sharma; Yong Yang; Chi Xu; Lizhen Tan; Argonne National Laboratory; University of Florida; Oak Ridge National Laboratory

5:05 PM
Investigation of Elevated Temperature Tensile Deformation of Neutron-irradiated Fe using High-Energy X-ray Techniques: Xuan Zhang; Chi Xu; Meimei Li; Jun-Sang Park; Jonathan Almer; Argonne National Laboratory; University of Florida; Argonne National Laboratory

5:25 PM
Radiation Effects in RAFM Steels: Ernidle Gaganidze; Christian Dethloff; Benjamin Kaiser; Jarar Actaar; Daniel Brimbal; Mickael Payet; Lucile Beck; Karlsruhe Institute of Technology, Institute for Applied Materials; Institute of Technology, Institute for Applied Materials; CEA, DEN, Service de Recherches de Metallurgie Physique, Laboratoire JANNUS

5:45 PM
A Predictive Model for Irradiation-induced Nanocluster Evolution in b.c.c. Fe-based Alloys: Matthew Swenson; Janelle Wharry; Boise State University; Purdue University

### Multiscalar Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Laminated Materials

**Sponsored by:** TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee

**Program Organizers:** Yuniant Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huaqian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

**Location:** Marriott Marquis Hotel Room: Pacific 24

**Session Chairs:** Mathias Göken, Universität Erlangen-Nürnberg; Christopher Schuh, MIT

**Tuesday PM**

**February 28, 2017**

**Session Chairs:** Haiming Wen, Idaho State University; Celine Hin, Virginia Tech

**2:00 PM Invited**

Multilayered and Functionally Graded Materials for Optimized Galvanic Corrosion Protection: Christopher Schuh; Samuel Cross; MIT

**2:25 PM**

High Temperature Plasticity of Cu-Cr Nanolayered and Chemically Nanostructured Cu-Cr Films: Gerhard Dehm; T. Harzer; C. Liebscher; R. Raghavan; Max-Planck-Institut für Eisenforschung

**2:45 PM Invited**

Designing High Fracture Toughness Nanocomposites via In Situ TEM Approach: Nan Li; Satyesh Yadav; Xiang-Yang Liu; Jian Wang; Amit Misra; Nathan Mara; Los Alamos National Laboratory; University of Nebraska-Lincoln; University of Michigan, Ann Arbor

**3:00 PM**

Laminar Bulk Metallic Glass/Metal Composites Via Accumulative Roll Bonding: Sina Shahrezaei; Irene Beyerlein; Stephanie O’Keefe; Suveen Mathaudhu; University of California, Riverside; University of California, Santa Barbara; Liquidmetal Technologies

**3:30 PM Break**

**3:50 PM**

Effect of Initial Oxide Layer on the Growth and Morphology of Intermetallic Layer in Fe-based MIL Composites: Yu Wang; Kenneth Veechow; North University of China; University of California San Diego

**4:10 PM Invited**

Nanolaminated Structures in Metals Induced by Plastic Deformation with High Strain Rates and Strain Gradients: Xiaochun Liu; Wei Xu; Ke Lu; Institute of Metal Research, Chinese Academy of Sciences

**4:30 PM**

Tailoring the Mechanical Properties of Nanolaminated Processes by Accumulative Roll Bonding: Mathias Göken; Heinz Werner Höppel; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

**4:50 PM Invited**

The Development of Deformation Heterogeneity in Cu/Nb Lamellar Composites Predicted by Nonlocal Single Crystal Plasticity: Jason Mayeur; Irene Beyerlein; Los Alamos National Laboratory; University of California, Santa Barbara

**5:15 PM**

Iron-aluminum Metallic-intermetallic Lamine (MIL) Composites: Huoren Wang; Yu Wang; Kenneth Veechio; University of California, San Diego; Dalian University of Technology

### Nanostructured Materials for Nuclear Applications II — Session IV

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Nanomechanical Materials Behavior Committee, TMS: Nuclear Materials Committee

**Program Organizers:** Cheng Sun, Idaho National Laboratory; Khalid Hattar, Sandia National Laboratories; Celine Hin, Virginia Tech; Fei Gao, University of Michigan; Osman Anderoglu, Los Alamos National Laboratory; Mitra Taheri, Drexel University; Haiming Wen, Idaho State University

**Tuesday PM**

**February 28, 2017**

**Session Chairs:** Haiming Wen, Idaho State University; Celine Hin, Virginia Tech

**2:00 PM Invited**

Stability and Self-ion Irradiation Damage in Nanocrystalline Tungsten and Solute-stabilized Tungsten Alloys: Jason Televizcic; Stony Brook University

**2:30 PM**

The Two-step Nucleation of G-phase in Ferrite: The Critical Size and Composition for the Structural Change of Solute Clusters: Yoshitaka Matsukawa; Tomoaki Takeuchi; Yuta Kakubo; Tomoaki Suzudo; Hideo Watanabe; Hiroki Abe; Takeshi Toyama; Yasuyoshi Nagai; Tohoku University; Japan Atomic Energy Agency; Kyushu University; The University of Tokyo

**3:00 PM**

Period-thickness Dependent Responses of Cu/W Multilayered Nanofilms to Ion Irradiation under Different Ion Energy: Feng Ren; Wuhan University

**3:20 PM**

Advanced Manufacturing of Nanostructured Ferritic Steels with Enhanced Irradiation Performance for Nuclear Applications: Somayeh Pasehban; Indrajit Charit; University of Idaho
3:40 PM Break

4:00 PM
Computational Simulation of Threshold Displacement Energy of GaAs: Nanjun Chen¹; Sean Gray¹; Fei Gao¹; Danhong Huang¹; David A Cardimona¹; ¹University of Michigan; ²US Air force Research Laboratory

4:20 PM
Thermal Conductivity of Uranium: Eric Tea¹; Celine Hin¹; ¹Virginia Tech

4:40 PM
First-principles Study of Nano-layered Ceramic Coatings for U-Mo/Al Dispersion Fuels: Zhi-Gang Mei¹; Sumit Bhattacharyya¹; Abdellatif Yacout¹; ¹Argonne National Laboratory; ²Northwestern University

Pan American Materials Congress Plenary — Session II
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizer: Marc Meyers, UCSD

Tuesday PM
February 28, 2017
Room: Marina G
Location: Marriott Marquis Hotel

2:00 PM Plenary
Circular Economy - A Pathway to Resource Recovery and Recycling: Diran Apelian¹; ¹Worcester Polytechnic Institute

2:40 PM Plenary
Nano-sized Internal Precipitation during Oxidation of an Fe-Cr Alloy in Wet Environment: Fernando Rizzo¹; Leonardo Agudo²; Gert Nolze²; Maria Mosqueda²; Axel Kranzmann²; Andre Costa e Silva²; ¹INT/MCTI, Brazil; ²BAM; ²UFF

3:20 PM Break

Pan American Materials Congress: Advanced Manufacturing — Metals and Alloys
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Holza, UFSC

Tuesday PM
February 28, 2017
Room: Marina D
Location: Marriott Marquis Hotel
Session Chair: Sonia Brühl, UTN

3:40 PM Keynote
Overview - The Use of Plasma Nitriding for Surface Hardening Stainless Steels: Carlos Pinedo¹; Andre Tschiptschin²; ¹TMS; ²University of Sao Paulo

4:20 PM
Combining CALPHAD-informed Phase-field Modeling with Rapid Solidification Experiments for Prediction of Microstructure Evolution during Laser-based Additive Manufacturing: Aurelien Perron¹; John Rochling¹; Patrice Turchi¹; Jean-Luc Fattebert¹; Joseph McKown¹; ¹Lawrence Livermore National Laboratory

4:40 PM
Tailoring the Mechanical Properties of Additively Manufactured Ti-6Al-4V Alloys by Post Processing: Guney Mert Bilgin¹; Ziya Eser¹; Seniz Kushan Akın¹; Arcan Dericioğlu¹; ¹Middle East Technical University; ²Cankaya University

5:00 PM
Effect of Tool Rotation on Tool Wear Phenomenon in Rotary Tool micro- USM: Sandeep Kumar¹; Akshay Divedi¹; Pradeep Kumar¹; ¹Indian Institute of Technology, Roorkee

5:20 PM
Green Machining Process: Near-dry Electric Discharge Machining: Krishnakant Dhakar¹; Kuldeep Chaudhary¹; Akshay Divedi¹; Pradeep Kumar¹; ¹Indian Institute of Technology Roorkee

Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday PM
Room: Marina G
February 28, 2017
Location: Marriott Marquis Hotel
Session Chair: Julie Schoenung, University of California, Irvine

3:40 PM
A Comparison between Recycled Spent Zeolite and Calcite Limestone for Manganese Removal: Aadarle Silva¹; Rodrigo Figueiredo¹; Versiane Leao¹; ¹Universidade Federal de Ouro Preto

4:00 PM
Environmental Impact of the Synthesis of Calcium Silicates (C2S AND C3S) by Combustion Processes: Juan Restrepo¹; Oscar Restrepo³; Jorge Tobón³; ¹Universidad Nacional de Colombia

4:20 PM
Environmentally Responsible Polymer Selection for Organic Photovoltaic Solar Cells: Haoyang He¹; Yadira Gutierrez²; Thomas Young²; Julie Schoenung¹; ¹University of California Irvine; ²University of California, Davis

4:40 PM
 Electromagnetic Levitation Refining Of Silicon-iron Alloys for Generation of Solar Grade Silicon: Yindong Yang¹; Katherine Le¹; Mansoor Barati¹; Alex McLean¹; ¹University of Toronto

5:00 PM
Novel Metrics for Assessing Criticality of Byproduct Metals: Gabrielle Gaustad¹; Michele Bustamante²; Berlyn Hubler²; Callie Babbitt³; Alexandra Leader³; ¹Rochester Institute of Technology; ²MIT

5:20 PM
Technical and Environmental Assessment of an Alternative Binder for Low Traffic Roads with LCA Methodology: Alejandra Balaguera Quintero¹; Diana Gómez Cano¹; Gloria Carvajal Pelayo¹; Yhan Arias³; ¹Universidad de Medellín; ²Universidad Nacional de Colombia
Pan American Materials Congress: Materials for Transportation and Lightweighting — Structure-Property Relationships II

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo León

Tuesday PM
February 28, 2017
Room: Mission Hills
Location: Marriott Marquis Hotel

**Session Chair:** To Be Announced

3:40 PM
Cyclic Deformation Characteristics of AM30 Mg Alloy Extrusion along Two Orthogonal Directions: Ali A. Roostaee1; Hamid Jahed2; 1 University of Waterloo

4:00 PM
Understanding of Twin-twin Junctions in Connection with the Local Stresses in HCP Magnesium: M. Arul Kumar1; Irene J Beyerlein1; Carlos Tome2; 1 Los Alamos National Laboratory

4:20 PM
Effect of Forging on Microstructure, Texture and Compression Behaviour of Extruded AZ31B: Dwayne Toscano1; Sugrib Shaha1; Hamid Jahed1; Mary Wells1; Bruce Williams1; Jonathan McKinley2; 1 University of Waterloo; 2 CanmetMATERIALS

4:40 PM
Effects of Hypoeutectic Sc Additions to Al-4.5 wt% Cu under Different Cooling Rates: Abdoul-Atiz Bogno1; Jonas Valloton1; Hani Henein1; Mark Gallerneault1; Dieter Herlach1; 1 University of Alberta; 2 ALCERECO INC.; 1 DLIR, Institute of Materials Physics in Space

5:00 PM
Microstructure and Hardness of Subzero Quenched and Heat Treated Ti-6Al-4V Alloy: Abdellahman Abbas1; Andrew Seif1; Iman El Mahallawi2; Waled Khalefa2; 1 British University in Egypt; 2 Cairo University

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Mechanical Properties of Structural Materials Processed by SPD

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Tuesday PM
February 28, 2017
Room: Marina F
Location: Marriott Marquis Hotel

**Session Chairs:** Megumi Kawasaki, Hanyang University; Malgorzata Lewandowska, Warsaw University of Technology

3:40 PM
Effects on Hardness and Microstructure of AISI 1020 Low Carbon Steel Subjected to High-Pressure Torsion Process: Diana Marulanda1; Hernando Jimenez1; Jittaporn Wonsa-Ngum1; Terence Langdon1; 1 Universidad Antonio Nariño; 2 King Mongkut’s Institute of Technology Ladkrabang; 1 University of Southampton

4:00 PM
Static and Cyclic Mechanical Properties of High Strength Pearlitic Steels: Marlene Kapp1; Antonio Hohenwarter2; Bo Yang2; Reinhard Pippan1; 1 Erich Schmid Institute of Materials Science; 2 Montanuniversität Leoben

4:20 PM
The Influence of Testing Temperature on the Fracture Behavior of SPD-processed Iron and Tantalum: Antonio Hohenwarter1; 1 Department of Materials Physics, Montanuniversität Leoben, Austria

4:40 PM
Precipitation Processes and Related Strengthening Mechanisms in a Nanostructured 6802 Aluminium Alloy: Malgorzata Lewandowska1; Witold Chrominski1; 1 Warsaw University of Technology

5:00 PM
Forcing Contributions on a Commercially Al-Mg-Si Alloy Processed by ECAP: Tarek Khelfa1; Mohamed Ali Rekik1; Jairo-Alberto Muñoz-Bolaños1; Mohamed Khitouni2; Jose-Maria Cabrera1; 1 University of Sfax; 2 Universidad Politecnica de Catalunya

5:20 PM
Effect of Grain Size on Strain Rate Dependence of Mechanical Properties in CP Ti: Ying Chun Wang1; Alexander Zhilyaev2; Shukui Li1; Terence Langdon3; 1 School of Materials Science and Engineering, Beihang University; 2 National Key Laboratory of Science and Technology on Materials under Shock and Impact; 3 Institute for Problems of Metals Superplasticity, Russian Academy of Sciences; 4 Research Laboratory for Mechanics of New Nanomaterials, St. Petersen State Polytechnical University; 5 Materials Research Group, Faculty of Engineering and the Environment, University of Southampton

Pan American Materials Congress: Steels — Steelmaking & Solidification

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - Universidad Federal Fluminense

Tuesday PM
February 28, 2017
Room: Marina E
Location: Marriott Marquis Hotel

**Session Chair:** Martha Guerrero-Mata, Universidad Autónoma de Nuevo León

3:40 PM Invited

4:10 PM
Controlling Mold Heat Transfer by Dispersed Metallic Particles in Slag Film during Continuous Casting of Steels: Jungwook Cho1; 1 Pohang University of Science and Technology

4:30 PM
Modeling of Metal-Slag Mass and Momentum Exchanges in Gas-Stirred Ladles: Marco Ramirez-Araguez1; Carlos Gonzalez-Rivera1; 1 UNAM

4:50 PM
Dissolution of MgO-Containing Additions in Steelmaking Slag and Its Impact on the Formation of Magnesiowustite: Antonio Augusto Martins1; Rafaela Batista1; Roberto Avillez2; Andre Costa E Silva1; 1 CSN; 2 PUC-RIO; 3 EEIMVR

5:10 PM
Study on Adjustment and Optimization of LF Refining Slag of Spring Steel 55SiCr: Chao Gu1; Yaping Bao2; Lu Lin3; Min Wang4; Linhua Zhao5; Zixuan Wu6; 1 University of Science and Technology Beijing
Phase Transformations and Microstructural Evolution — Ti & Zr, and Steels
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Gregory Thompson, University of Alabama; Rajarsi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab
Tuesday PM  Room: 16B  Location: San Diego Convention Ctr
Session Chair: Monica Kapoor, National Energy Technology Lab

2:00 PM  Determination of Phase Transformations and Microstructure Evolution of Zr-based Alloys During Thermal Processing: Cliniqe L. Brundidge1; John Seidensticker1; Tyler Tenkku1; Linda Rishel2; Richard Smith1; ‘Bechtel Marine Propulsion Corporation
2:20 PM  Development of Various Scale Alpha Microstructures in Titanium Alloys: Yufeng Zheng1; Robert Williams1; Rongpei Shi1; Deep Choudhuri1; Talukder Alam1; Rajarsi Banerjee1; Yanyi Wang1; Hamish Fraser1; ‘The Ohio State University; ’University of North Texas
2:40 PM  Hydrostatic Compression Behavior and High-pressure Stabilized b-phase in g-based Titanium Aluminide Intermetallics: Klaus-Dieter Liss1; Xi Li2; Ken-Ichi Funakoshi3; Rian Dippenaar4; Yuji Higo5; Ayumi Shiro6; Mark Reid1; Hiroshi Suzuki1; Takahisa Shobu1; Koichi Akita1; ‘Australian Nuclear Science and Technology Organisation; ’University of Wollongong; ’Comprehensive Research Organization for Science and Society (CROSS-Tokai); ’Spring-8, Japan Synchrotron Radiation Research Institute; ’National Institute for Quantum and Radiological Science and Technology; ’Japan Atomic Energy Agency
3:00 PM  Kinetics of Low-temperature Spinodal Decomposition in a Fe-Ni-C Martensite: A Discrete Mean-field Model: Philippe Maugis1; Mohamed Gouni2; Frédéric Danois3; Sophie Cazottes3; Myriam Dumont1; ‘Aix-Marseille Univ, CNRS, IM2NP; ’Université de Rouen, CNRS, GPM; ’MATEIS, INSA de Lyon
3:20 PM  Oxide Growth Mechanism of (111), (100) and Random Copper Films at Low Temperatures for the Application of Cu-to-Cu Direct Bonding: Chih-Hsun Tsen1; Chih Chen1; ‘National Chiao Tung University
3:40 PM  Break
4:00 PM  Phased-field Simulation of Solidification of High and Medium Manganese Steels: Incorporating the Effects of Convection and of Transformation Strains: Joao Rezende1; Christian Schankies1; Celso Alves1; Dieter Senk1; ‘RWTH Aachen
4:20 PM  Phase Transformation Kinetics of Pressure-vessel Steel Welds: Gideon Obasi1; Dinesh Rathod1; Anastasia Vasileiou1; Ed Pickering2; John Francis2; Mike Smith3; Michael Preuss3; ‘The University of Manchester; ’The University of Manchester
4:40 PM  Phase Transformation, Microstructural Evolution and Property Modification in Rapidly Solidified Grey Cast Iron: Olamilekan Oloyede1; Robert F. Cochrane1; Andrew M. Mullis1; ‘University of Leeds
TECHNICAL PROGRAM
TMS2017 FINAL PROGRAM

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Tuesday PM Room: 7A
February 28, 2017 Location: San Diego Convention Ctr
Session Chair: Paul Prichard, Kennametal Inc.

2:00 PM Invited
Pioneering International Consensus: Brent Stucker; 3DSIM

2:30 PM Invited
Making Things Bit-by-byte: Opportunity in a Fortuitous Convergence of Technologies: Khershed Cooper; Ralph Wachtel; National Science Foundation

3:00 PM Invited
Early Developments of AM within the UK: Phill Dickens; University of Nottingham

3:30 PM Break

3:50 PM Invited
Laser Engineered Net Shaping - AM Metal Parts with Exceptional Material Properties: John Smugeresky; David Keicher; Additive Manufacturing Materials Consultants; Sandia National Laboratories

4:20 PM Invited
AFRL Contributions to Additive Manufacturing of Titanium, ca 2000: Pamela Kobryn; Lee Semiatin; US Air Force Research Laboratory

4:50 PM Invited
Process Fundamentals for Selective Laser Melting: Power Ratio, Melting, Porosity, and Build Properties: Ralph Napolitano; Iowa State University

Rare Metal Extraction & Processing — Base and Rare Metals
Sponsored by: TMS Extraction and Processing Division, TMS: Hydrometallurgy and Electrometallurgy Committee
Program Organizers: Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhof, Umicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, University of Science and Technology Beijing; David Bourell, University of Texas

Tuesday PM Room: 17B
February 28, 2017 Location: San Diego Convention Ctr
Session Chairs: Neale Neelameggham, Ind LLC; Xiaofei Guan, Harvard University

2:00 PM Disclosure of the Kinetic Relations of Semidirect Cemented Carbide Leaching in Acid Media: Gregor Kücher; Stefan Luidold; Christoph Czett; Christian Storf; CDL-TM; CERATIZIT Austria GmbH

2:25 PM A New Two-stage Process for Preparation of Ti/Ti-Al Alloys: Kun Zhao; Naixiang Feng; Northeastern University

2:50 PM Study on Pre-reduction Mechanisms of Chromium Ore Pellets in SRC Process: Peixiao Liu; Yanxiang Li; Hanjie Guo; University of Science and Technology Beijing

3:15 PM Break

3:35 PM Sulfuric Acid Leaching of Mechanically Activated Vanadium-bearing Converter Slag: Jinyi Xiang; Qingyan Huang; Xuewei Lv; Chenguang Bai; School of Materials Science and Engineering, Chongqing University; School of Materials and Metallurgical Engineering, Chongqing University of Science and Technology

4:00 PM Present Status and Development of Comprehensive Utilization of Vanadium-Titanium Magnetite: Shiju Zhang; Shiju Zhang; Songli Liu; Henhui Mao; Kuisong Zhu; Li Cao; Yongnian Dai; Faculty of Metallurgical and Energy Engineering, Kunming University of Science and Technology; Resources and Environmental Engineering College of Panzhihua University; Materials Science and Engineering College, Xihua University

4:25 PM Review of TiO2-rich Materials Preparation for the Chlorination Process: Songli Liu; Songli Liu; Li Cao; Li Cao; Kuisong Zhu; Shiju Zhang; Shiju Zhang; Pan Huang; Pan Huang; Resources and Environmental Engineering College, Panzhihua University; Materials Science and Engineering College, Xihua University; Faculty of Metallurgical and Energy Engineering, Kunming University of Science and Technology

Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Functional Surfaces and Thin Films II
Sponsored by: TMS Functional Materials Division, TMS: Thin Films and Interfaces Committee
Program Organizers: Adele Carradó, Université de Strasbourg IPCMS; Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, UTEP; Heinz Palkowski, Clausthal Univ of Technology; Vikas Tomar, Purdue Univ; Nuggehalli Ravindra, NJIT

Tuesday PM Room: Pacific 18
February 28, 2017 Location: Marriott Marquis Hotel
Session Chairs: Nuggehalli Ravindra, New Jersey Institute of Technology; Adele Carradó, Université de Strasbourg IPCMS

2:00 PM Keynote
Conducting Polymer/Nanocarbons Composites: New Opportunities And Scientific Challenges For Material Science: Emanuela Tamburri; University of Rome “Tor Vergata”

2:40 PM Invited
Quantification of SiC Nano Particles in Mg-SiC Composites Using USAAXS Technique: Prakash Srivangam; University of Warwick

3:10 PM Electrodeposition of Conductive Polymers on Diamond-coated Titanium Substrates: Melanie Reggente; Emanuela Tamburri; Sara Politi; Marco Natali; Daniele Passeri; Marco Rossi; Maria Letizia Terranova; Sapienza University of Rome; University of Rome “Tor Vergata”

3:30 PM Break

3:50 PM Invited
Printed Nanoparticle Films for Electronic Applications: Md Taibur Rahman; Sadeq Saleh; Arya Rahimi; Subhamshu Gupta; C. V. Ramana; Rahul Panat; Washington State University

4:20 PM Effect of Processing Parameters on Microstructure and Mechanical Properties of DC Magnetron Sputtered Ni-Zr Alloy Thin Films: Bibhu Sahu; RAUL MITRA; Indian Institute of Technology, Kharagpur

4:40 PM Epitaxial Integration of Ba0.4Sr0.6TiO3/La0.7Sr0.3MnO3 Thin Film Heterostructures on Silicon: Srinivasa Rao Singamaneni; John Prater; Jay Narayan; University of Texas; North Carolina State University
5:00 PM
Effect of Increase in the Zr Content on the Microstructural and Corrosion Properties of Nano-crystalline Cu-Zr Thin Films: Vignesh Nallasivam1; Madhuri Varadharajan1; Sivakumar Bose2; Geetha Priyadharshini B1; Angelo P C1; 1PSG college of Technology; 2CSIR-NML; 1PSG Institute of Advanced Studies

The Science of Melt Refining: An LMD Symposium in Honor of Christian Simensen and Thorvald Abel Engh — TAE/CJS II Degassing and Oxidation
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Grandfield, Grandfield Technology Pty Ltd; Anne Kvithyld, SINTEF

Tuesday PM Room: 3
February 28, 2017 Location: San Diego Convention Ctr
Session Chair: Geoffrey Sigworth, retired

2:00 PM Invited
Overview of Ultrasonic Degassing Development: Dmitry Eskin1; 1Brunel University

2:35 PM
Modelling of Hydrogen Removal in Gas Fluxing of Molten Aluminium: Dag Mortensen1; Jinsong Hua1; Arild Håkonsen2; Terje Haugen1; John Olav Fagerlie1; 1Institute for Energy Technology; 2Hycast AS

3:00 PM
The Use of Nitrogen to Degas Molten Aluminium - Comparison of Metallurgical Results with Argon and Nitrogen Used in an ACD/8482: Florent Gougerot1; Bruno Maltais1; Etienne Tremblay1; 1STAS Inc.

3:25 PM Break

3:40 PM
Oxide Skin Strength on Molten AA5XXX Aluminum Alloy – Effect of Beryllium and Alternatives: Martin Svvertson1; 1SINTEF Materials and Chemistry

4:05 PM
Understanding of Interactions between Pyrolysis Gases and Liquid Aluminum and Their Impact on Dross Formation: Regina Dittrich1; Bernd Friedrich1; Georg Rombach1; Jan Steglich1; Anne Pichat1; 1IME Process Metalurgy and Metal Recycling, RWTH Aachen University; 2Hydro Aluminium Rolled Products GmbH; 3TRIMET Aluminium SE; 4Constellium Technology Center

4:30 PM
Effects of 2 ppm Beryllium on the Oxidation of a 5XXX Aluminum Alloy at Temperatures between 500 °C and 750 °C: Nicholas Smith1; Gabriella Tranell1; Anne Kvithyld1; Brian Gleeson1; 1NTNU; 2SINTEF Materials and Chemistry; 3University of Pittsburgh

4:55 PM Concluding Comments

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Nanomaterials for BT Applications
Sponsored by: TMS Functional Materials Division, TMS: Nanomaterials Committee
Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

Wednesday AM Room: Pacific 24
March 1, 2017 Location: Marriott Marquis Hotel
Session Chairs: Stephen McDonnell, University of Virginia; Lanxia Cheng, The University of Texas at Dallas

8:30 AM
Probing Osteogenic Cell Functionality on Architected Nanolattices with Softness Spanning the Low Megapascal Region: Alessandro Maggi1; 1California Institute of Technology

8:50 AM
Antimicrobial Clay-based Ceramic with Copper Nanoparticles Embedded in 3-D Porosity: Adam Drellich1; Jaroslaw Drellich1; 1Michigan Technological University

9:10 AM
Engineered Bio-functional Silver Nanoparticle Interface Offers Antimicrobial Efficacy with Reduced Cellular Cytotoxicity: Sarah VanOosten1; Esra Yuca1; Banu Taktak Karaca1; Kyle Boone1; Malcolm Snead2; Paulette Spencer1; Candan Tamerler1; 1University of Kansas; 2University of Southern California

9:30 AM
Potential of Magnetotactic Bacteria for the Fabrication of Iron Nanoparticles: T. Thuy Minh Nguyen1; Manish Baviskar1; Paul Bernazzani1; 1Lamar University

9:50 AM
Facile Green Synthesis and Characterization of Water-soluble Superparamagnetic Iron Oxide Nanoparticles-gold Porphyrin Conjugate for Improved Photodynamic Therapy: Olayemi Fakayode1; Oluwafemi Oluwatobi1; Sandile Songca1; 1University of Johannesburg; 2Walter Sisulu University

10:10 AM Break

10:30 AM
Silver Nanowire Heaters on Glass and Textiles: Sahin Coskun1; Orcun Ergun1; Doga Doganay1; Sevim Polat1; Yusuf Yusufoglu1; Hasnu Unal1; 1Middle East Technical University; 2Material Technologies Department, R&D Center, Arcelik A.S.

10:50 AM
A Novel Strategy for Synthesis of Ultrathin Au Nanowires inside Carbon Nanotubes and Their Atomic Structure Study: Wenbo Xin1; Igor De Rosa1; Jenn-Ming Yang1; Larry Carlson1; 1UCLA

11:10 AM
Wetting Kinetics and Self-pinning of Nanosuspension Droplets: Baiou Shi1; Edmund Webb1; 1Lehigh University

11:30 AM
Acoustic Focussing for Bulk Assembly of Colloidal Solids from Nanoscale Building Blocks: Tyler Ray1; Rachel Collino1; Leanne Friedrich1; Matthew Begley1; 1University of California, Santa Barbara

11:50 AM
Synthesis and Characterization of Polycaprolactone Nanofibers by Electrospinning Method with Hormone: Cynthia Matos1; Marivalda Pereira1; Rodrigo Orélice1; 1Federal University of Minas Gerais; 2Federal University of Minas Gerais
2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Nanomaterials for ET Applications

Sponsored by: TMS Functional Materials Division, TMS: Nanomaterials Committee

Program Organizers: Jiyong Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Niti Chopra, The University of Alabama

Wednesday AM

Session Chairs: Jung-Kun Lee, Univ. of Pittsburgh; Seungbum Hong, Argonne National Lab

8:30 AM
Synthesis and Characterization of Ag/CFO@PANI Core-shell Nanocomposite for Photocatalytic Application: Venkata Sai Sriman Mosali1; Mohd Qasim1; Bhanu Mallamuri1; Basavaiah Chandu1; Dipak Das1; University of Hyderabad; 2Acharya Nagarjuna University; 3Acharya Nagarjuna University

9:10 AM
Effect of Carbon Reductant On The Formation of Copper Doped Titanium Oxycarbonitride by Carbothermal Reduction and Nitridation: Yong Jing Hui1; Sheikh Abdul Rezan1; Noor Izah Shoparwe1; Norlia Baharun1; Srimala Sreekantan1; Ahmad Faizu Mohd Noor1; Universiti Sains Malaysia

9:35 AM
Improving Separation of Cu-Fe from Copper Slag by Mineral Phase Reconstruction: Zhengqi Guo1; Deqing Zhu1; Jian Pan1; Feng Zhang1; Central South University

10:15 AM Break

10:30 AM Invited
Visualization of Polarization and Screening Charges Using Charge Gradient Microscopy: Seungbum Hong1; Andreas Roelofs2; 1Argonne National Laboratory; 2KAIST; 3Argonne National Laboratory

11:00 AM
Multilayer Graphene-coated Silicon Photoanodes: Keren Freedy1; Yin Xu1; Giovanni Zangari1; Stephen McDonnell2; 1Argonne National Laboratory; 2KAIST; 3Argonne National Laboratory

11:20 AM
High-performance Supercapacitors Based on Hierarchical VOs Microspheres Forming from Hyperbranched Nanoribbons: Chuang Wei1; Hong-Yi Li1; Zhao Yang1; Bing Xie1; 1Chongqing University

11:40 AM
Highly Porous Interconnected Carbon Nanosheets Derived from Jute Fibres for Supercapacitors and Li-ion Batteries: Arghya Patra1; Srikanth Sengupta1; Arijit Mitra1; Karabi Das1; Siddhartha Das1; 1Indian Institute of Technology, Kharagpur

8th International Symposium on High Temperature Metallurgical Processing — Extraction and Recovery of Metals

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee

Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinlikilic, Attilim University

Wednesday AM

Session Chairs: P. Chris Pistorius, Carnegie Mellon University; Ender Keskinlikilic, Attilim University

8:30 AM Introductory Comments

8:35 AM
Surface of the Melt with Induction Heating: Georgi Djambazov1; Dmytro Shevchenko1; David Burnard2; 1Istanbul Technical University; 2University of Greenwich

9:35 AM
Extraction of Zinc from Willemite by Sodium Salt Roasting and Microwave-intensified Reduction of Biochar-containing Briquettes: Zhiwei Peng1; Xiaolong Lin1; Tiancheng Nie1; Zhizhong Li1; Yuanbo Zhang1; Guanghui Li1; Tao Jiang1; Central South University

9:55 AM
Direct-to-blower Copper Smelting with the ISASMELT™ Process: Paul Voigt1; Alistair Burrows2; Michael Somerville1; Chunlin Chen2; 1Glencore Technology; 2CSIRO Mineral Resources

10:15 AM Break

10:35 AM
Evaluation of Molybdenum Concentrates: Kagan Benzesik1; Seref Sommez1; Onuralp Yuce1; 1Istanbul Technical University

10:55 AM
Sensitivity of Contactless Ultrasound Processing to Variations of the Free Surface of the Melt with Induction Heating: Georgi Djambazov1; Valdis Bojarevics1; Dmytro Shevchenko1; David Burnard2; William Griffiths2; Koulis Pericleous1; 1University of Greenwich; 2University of Birmingham

11:15 AM
Extraction of Zinc from Willemite by Sodium Salt Roasting and Ammonia-leaching Process: Xu Dong Liu1; Gang hua Fu1; Yu Feng Guo1; Tao Jiang1; Wei Chen1; Yu jia Tan1; 1Central South University

11:35 AM
Effect of Shrouding Gas on Nozzle Exit Pressure and Temperature of Supersonic Coherent Jet: Fei Zhao1; Lingzhi Yang2; 1University of Science and Technology Beijing; 2Central South University
Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Processing-Microstructure Relationships

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Semiatin, AFRL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poorganji, YTC America Inc.

Wednesday AM  Room: 7B  Location: San Diego Convention Ctr

Session Chair: Judy Schneider, University of Alabama-Huntsville

8:30 AM Invited
Accelerated Certification of Additively Manufactured Metals: Wayne King1; Andrew Anderson1; Robert Ferenz2; Neil Hedge3; Chandrika Kamath1; Saad Khairallah1; Manyalibo Matthews1; Alexander Rubenchik1; Otis Walton4; Morris Wang5; 1Lawrence Livermore National Laboratories; 2Lawrence Livermore National Laboratories; 3Iowa State University

9:00 AM Multiscale Modeling of Coupled Melt Pool Evolution and Solidification Morphology in the LENS Process: Matthew Rolchigo1; Peter Collins1; Michael Mendoza1; Richard LeSar1; 1Iowa State University

9:20 AM Process Window Optimization for Powder Bed Additively Manufactured Molybdenum: Mustafa Megahed1; Wolfgang Ottow2; Amanda Field3; Luke Carter4; Moataz Attallah5; Michael Gorley5; Michael Porton5; 1ESI Group; 2University of Birmingham

9:40 AM In Situ Time and Location Resolved Measurements of Residual Stresses in Additively Manufactured 308L Stainless Steel: John Carpenter1; Donald Brown1; Bjorn Clausen1; Jason Cooley1; Adrian Losko1; Mark Bourke1; 1Los Alamos National Laboratory

10:00 AM Break

10:20 AM Real Time Composition Control of Weld-based Additive Manufacturing: Rachel Clark1; Gerald Anzalone1; Paul Sanders1; 1Michigan Technological University

10:40 AM Effect of Laser Scan Strategy on Microstructure-property Relations in Additively Manufactured Stainless Steel: Brandon McWilliams1; Jian Yu1; Andrew Gaynor1; Tomoko Sano1; Andelle Kudzal2; 1US Army Research Laboratory; 2Worcester Polytechnic Institute

11:00 AM Microstructure Control in Additive Manufacturing of Aluminum Alloys: Hunter Martin1; Brennan Yahata1; Eric Clough1; Jacob Hundley1; Tobias Schaedler1; Tresa Pollock1; 1HRL Laboratories; 2HRL Laboratories; 3University of California, Santa Barbara

11:20 AM Numerical and Experimental Investigation of Residual Stress Evolution in Additively Manufactured 17-4 PH Stainless Steel by Selective Laser Melting: Md Shamsujjoha1; Sean Agnew1; James Fitz-Gerald1; 1University of Virginia

11:40 AM In Situ Structure and Microstructure Investigation of Heat Treatment's Effect on AM Inconel 625: Fan Zhang1; Lyle Levine1; Andrew Allen1; Eric Lass1; Sudha Cheruvathur3; Mark Stoudt4; Maureen Williams4; Yaakov Idell1; Greta Lindwall1; Carolyn Campbell1; 1National Institute of Standards and Technology

Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Process Qualification Part II

Sponsored by: TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Powder Materials Committee, TMS: Process Technology and Modeling Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: John Carpenter, Los Alamos National Laboratory; David Bourell, University of Texas - Austin; Allison Beese; Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Wednesday AM  Room: 8  Location: San Diego Convention Ctr

Session Chair: Richard Otis, Penn State; Jonathan Madison, Sandia National Laboratory

8:30 AM Invited
Identification of Defect Signatures in an Additively Manufactured Precipitation Hardened Stainless Steel: Jonathan Madison1; Laura Swiler2; Olivia Underwood3; Brad Boyce4; Bradley Jared4; Jeff Rodelas4; Brad Salzbrenner4; 1Sandia National Laboratories

9:00 AM ALE3D’s High-Order Fully-Implicit All-Speed Navier-Stokes Solver for Additive Manufacturing Applications: Brian Weston1; Jean-Pierre Delplanque1; Robert Nourgaliev1; Andrew Anderson1; 1University of California, Davis; 2Lawrence Livermore National Laboratory

9:20 AM Optimization Framework for Designing of Scanning Strategies for Microstructure Control in Additive Manufacturing Using Numerical Modeling Aided by High Performance Computing: Narendran Raghavan1; Suresh Babu1; Damien Lebrun-Grandid1; Srdjan Simunovic1; Michael Kirka2; John Turner2; Neil Carlson2; Ryan Dehoff2; 1University of Tennessee Knoxville; 2Oak Ridge National Laboratory; 3Los Alamos National Laboratory

9:40 AM Residual Stress Control in Additive Manufacturing through Integration of Physics-based and Data-driven Modeling: Jingran Li1; Ran Jin1; Hang Yu2; 1Virginia Tech

10:00 AM Break

10:20 AM Invited
Surface Topography and the Relationship to Surface and Near-surface Structures in Laser Powder Bed Fusion Additive Manufacturing: Jason Fox1; Mark Stoudt3; Thiem Phan4; Zach Reese4; Shawn Moylan4; Brandon Lane3; Lyle Levine1; 1National Institute of Standards and Technology

10:50 AM Invited
Toward a New Generation of Thermodynamic Models for Alloy Additive Manufacturing: Richard Otis1; Lourdes Bobbio1; Allison Beese1; Zi-Kui Liu1; 1Pennsylvania State University

11:20 AM SLM Process Variables and Part Geometry Optimization Based on Numerical Prediction of Process Induced Distortions: Maria San Sebastian1; Iñaki Setien1; Ane Miren Mancisidor1; Alberto Echeverria1; 1LORTEK

11:40 AM Optimizing, Fabricating and Characterizing Additively Manufactured Process Tubing: Paul Korinko1; Haley McKee1; John Bobbitt1; Frederick List1; Sudarsanam Babu1; 1Savannah River National Laboratory; 2Honeywell Federal Manufacturing and Technology; 3Oak Ridge National Laboratory; 4University of Tennessee -- Knoxville
TECHNICAL PROGRAM

Wednesday AM

10:00 AM  Advanced Characteristics Techniques — Session V
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee
Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Panteleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Wednesday AM  Room: 33C
March 1, 2017  Location: San Diego Convention Ctr

Session Chairs: Yue Liu, Los Alamos National Lab; Marc Legros, CEMES-CNRS

8:30 AM Invited
Tracking Shear-migration Coupling of Grain Boundaries Using In Situ TEM: Marc Legros1; Nicolas Combe1; Frédéric Monpiou1; 1CEMES-CNRS

8:50 AM
Characterization of Dislocation Pile-ups at Special Angle Tilt Boundaries in Pure Nickel by Electron Channeling Contrast Imaging (ECCI) and Molecular Dynamics Simulations: Shanob Balachandran1; James Seal1; Jialin Liu1; Yue Qi1; Martin Crimp1; 1Michigan State University

9:10 AM
Detection of the Onset of Plasticity in Micro-crystals: In-situ Deformation Mechanisms — Session V
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee
Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Panteleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Wednesday AM  Room: 33C
March 1, 2017  Location: San Diego Convention Ctr

Session Chairs: Yue Liu, Los Alamos National Lab; Marc Legros, CEMES-CNRS

9:30 AM
Dislocation Characterization in a Scanning Electron Microscope Equipped with an Annular STEM Detector: Patrick Callahan1; Jean-Charles Stinville1; McLean Echlin1; Eric Yao1; Mike Titus1; Dan Gianola1; Samantha Daly1; Tresa Pollock1; 1University of California Santa Barbara

9:50 AM Break

10:10 AM
Comparison of Dislocation Characterization in Tantalum using Electron Channeling Contrast Imaging and Cross-Correlation Electron Backscattered Diffraction: Bret Dunlap1; David Fullwood1; Timothy Ruggles1; Brian Jackson1; Martin Crimp1; 1Michigan State University; 2Brigham Young University; 3National Institute of Aerospace

10:30 AM
Analysis of Dislocation Structures in Ferritic and Dual Phase Steels Carrying Continuous and Discontinuous Loading Paths: Gregory Gerstei1; Till Clausmeyer1; Florian Gutknecht1; A. Erman Tekkaya1; Florian Nürnberg1; 1Leibniz Universität Hannover; 2TU Dortmund University

10:50 AM
Modeling Dislocation Arrays in Orientation Gradient Microstructures in Ta Thin Films: Elizabeth Ellis1; Art Kestenbaum1; Shefford Baker1; 1Cornell University

11:10 AM
Quantifying Strain-path Dependent Dislocation Densities Using Time of Flight Neutron Diffraction and High Resolution Electron Backscatter Diffraction Techniques: David Collins1; Richard Todd1; Angus Wilkinson1; 1University of Oxford

Advanced High-Strength Steels — Nanostructures and Precipitates
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Mittler, The University of British Columbia

Wednesday AM  Room: 17A
March 1, 2017  Location: San Diego Convention Ctr

Session Chair: Amy Clarke, Colorado School of Mines

8:30 AM Invited
Extraordinary Crack Resistance in Metastable Multi-phase Nanolaminated Steels: Cem Tasan1; 1MIT

9:00 AM
Advanced High Strength Steel Based on Vanadium Carbide Precipitation: William Rainforth1; Arjan Rijkenberg2; David Hanlon2; Peng Gong2; Alfonse Chami3a; Andrew Patterson1; Francis Sweeney4; 1The University of Sheffield; 2Tata Steel Europe

9:20 AM
Application of Nano-sized Precipitation in Strengthening Low Alloy Dual Phase Steel: Tadashi Furuhara1; Elango Chandiran1; Naoya Kamikawa1; 1Tohoku University; 2Hiroasaki University

9:40 AM
Design of a Core-Shell Structure Carbide for Enhancing Toughness of UHS Steels: Wei Xiong1; Ye Tian1; Oleg Kontsevov2; Gregory Olson1; 1University of Pittsburgh; 2Northwestern University

10:00 AM
Influences of Thermomechanical Treatments on the Microstructure Evolution and Mechanical Properties of Nano-precipitates Strengthened Steels: Yu Zhao1; Songsong Xu1; Hao Guo1; Junpeng Li1; Z.W. Zhang1; 1Harbin Engineering University

10:20 AM Break

10:40 AM
Ab-initio Investigation of the Interaction of Hydrogen with Carbides in Advanced High-strength steels: Poulumi Dev1; Tobias Timmerscheid2; Jörg von Appen1; Tilmann Hickel1; Richard Dronskowskit; Jörg Neugebauer1; 1Max-Planck-Institut für Eisenforschung GmbH; 2Institute of Inorganic Chemistry, Chair of Solid-State and Quantum Chemistry, RWTH Aachen University

11:00 AM
Effect of B2 Morphology on the Mechanical Properties of Dispersion Strengthened Lightweight Steels: A. Zargaran1; C. Nam2; S.-H. Kim1; 1Graduate Institute of Ferrous Technology ( GiFT) and CAAM, Pohang University of Science and Technology (POSTECH)

11:20 AM
Interaction of VC-Precipitation and Phase Transformation Kinetics in Mo-containing Nano-steels: Chrysoula Ioannidou1; Zaloa Arechabalea2; Arjan Rijkenberg2; Ad van Well1; Erik Offerman1; 1Delft University of Technology; 2Tata Steel Research, Development and Technology; 3Reactor Institute Delft

11:40 AM
Effects of Solid Solution Treatment on the Microstructure and Mechanical Properties in the Ultra-high Strength Steel Strengthened by Nanoscale Particles: Songsong Xu1; Yu Zhao1; Hao Guo1; Mingxing Qiu1; Jing Zhang1; Junpeng Li1; Zhongwu Zhang1; 1Harbin Engineering University
Advanced Materials for Energy Conversion and Storage — Energy Storage II
Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee

Wednesday AM  Room: 15A
March 1, 2017  Location: San Diego Convention Ctr

Session Chairs: Partha Mukherjee, TAMU; Leela Arava, Wayne

8:30 AM Invited
In-situ X-ray Diffraction Analysis of Li-ion Battery Materials: Scott Speakman; 1PAAnalytical

8:55 AM Invited
Mesoscale Probing of Transport-Interface Interaction in Lithium-Ion Battery Electrodes: Partha Mukherjee; Ashutosh Mistry; 1Texas A&M University

9:20 AM
Novel Three Dimensional Porous Sn-Sh-Ni Anode on Ni Foam: Electrodeposition Synthesis and Lithium Storage Performance. Srijan Sengupta; Arghya Patra; Arijit Mitra; Mainul Akhtar; Karabi Das; Subhasish Basu Majumder; Siddhartha Das; 1IIT Kharagpur

9:40 AM Invited
Phase Field Studies of Mechanical and Electrochemical Behavior of Li-ion Battery Electrode Materials: Bai-Xiang Xu; Ying Zhao; Peter Stein; 1TU Darmstadt

10:05 AM Break

10:25 AM
Stable Li-Sn Electrode: Jonathan Phillips; Tongli Lim; Pol Vilas; 1Naval Postgraduate School; 2Purdue University

10:45 AM Invited
Towards The Development of Solid-State Batteries: Addressing the Challenges in Replacing Liquid with Solid Electrolytes and Enabling Li Metal Anodes. Jeff Sakamoto; 1University of Michigan

11:10 AM
Studying Transport Mechanisms of Li in Graphite Polycrystals via Atomistic Simulations: Christopher Shumeyko; Ed Webb; 1Lafayette College; 2Lehigh University

11:30 AM
Inelastic Shape Changes of Silicon Particles and Stress Evolution at Binder/Particle Interface in a Composite Electrode during Lithiation/ Delithiation Cycling: Siva Nadimpalli; Vivek Shenoy; Hailong Wang; 1New Jersey Institute of Technology; 2UPenn

11:50 AM Invited
Electrocatalysis Approach to Lithium Sulfur Batteries: Leela Mohana Reddy Arava; 1Wayne State University

Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques V
Sponsored by: TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Nanomechanical Materials Behavior Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Wednesday AM  Room: 32A
March 1, 2017  Location: San Diego Convention Ctr

Session Chairs: Vikas Tomar, Purdue; Jagannathan Rajagopalan, Arizona State University

8:30 AM
Site-Specific Mechanical Evaluation Using Microscale Samples Tested In Situ within SEM and XCT: Jack Donoghue; 1Robert Wheeler; 2Bartlomiej Winiarski; Albert Smith; 1Alistair Garner; Ziang Li Zhong; M. G. Burke; Timothy Burnett; Philip Withers; 1University of Manchester; 2MicroTesting Solutions LLC

8:50 AM
Understanding the Local Ligament-level Deformation Response in Unit Cell Lattices: H. Carlton; 1J. Lind; N. Volkoff-Shoemaker; M. Messner; H. Barnard; 2N. Barton; M. Kumar; 1Lawrence Livermore National Laboratory; 2Lawrence Berkeley National Laboratory

9:10 AM
Extraction of Crystal Plasticity Parameters of IN718 Using High Temperature Microcompression: Bin Gan; 1Aitor Cruzado; Marcos Jiménez; Koldo Ostoalza; Arantza Linaza; Javier Segurado; Javier Llocà; Jon Molina; 1Northwestern Polytechnical University; 2IMDEA Materials Institute; 3Industria de TurboPropulosares

9:30 AM
In-Situ Thermo-mechanical Characterization of Serrated Flow in Nanostructured Binary Mg-Al Alloys: Marta Pozuelo; Yuan-Wei Chang; Sanjit Bhowmick; Jaime Marian; Jenn-Ming Yang; 1UCLA; 2Hysitron, Inc.

9:50 AM Break

10:10 AM
In-SEM Microscale Mechanical Testing of Thin Film Plastic Flow and Interfacial Integrity: Yang Ma; Xiaoman Zhang; 1Wen Meng; 1Louisiana State University

10:30 AM
In-situ Analysis of the Tensile Deformation Modes and Anisotropy of Extruded Mg-10Gd-3Y-0.5Zr (wt.%) at Elevated Temperatures. Huan Wang; 1Carl Boehlert; 2Qudong Wang; Dongdi Yin; W Ding; 1Shanghai Jiao Tong University; 2Michigan State University; 3Southwest Jiaotong University

10:50 AM
Dislocation Shielding as a Function of Temperature in Microscale Silicon Bending Beams: Eric Hintsala; Sanjit Bhowmick; S. A. Syed Asif; William Gerberich; 1Hysitron, Inc.; 2University of Minnesota
8:30 AM Introductory Comments

8:35 AM
New Process Research on Aluminium Production from Non-traditional Aluminum Resource by Microwave Chlorination: Zhang Ting’an; Guozhi Lv; Long Wang; Zhilie Dou; Weiguang Zhang; Yukuang Huang; Yanxiu Wang; ‘Northeastern University

9:00 AM
Chemical Alumina Preparation by Using High Alumina Content Fly Ash: Guozhi Lv; Zhang Ting’an; Weiguang Zhang; Xiaofeng Zhu; Yan Liu; Long Wang; Zhihe Dou; Quyue Zhao; ‘Northeastern University

9:25 AM
Iron Separation from Bauxite through Smelting-reduction Process: Hanne Sellæg; Leiv Kolbeinsen; Jafar Safarian; ‘NTNU

9:50 AM Break

10:05 AM
Thermodynamic Behavior of Lime Desulfurization in Sodium Aluminate Solution: Wu Xianxi; Zhu Weidong; Jiang Hongshi; Wu Song; ‘Guizhou University

10:30 AM
A Novel Process of Alumina Production from Low-grade Bauxite Containing Sulfur: Bo Wang; Kai Zhao; Huiyan Sun; Xuezheng Zhang; Zepeng Li; Hongyou Ma; ‘Hebei University of Science and Technology

10:45 AM
In-situ Observation of Fragmentation of Primary Crystals by Ultrasonic Cavitation in Water: Feng Wang; Iakovos Tzanakis; Dmitry Eskin; Jiawei Mi; Thomas Connorley; ‘Brunel University London; ‘Oxford Brookes University; ‘University of Hull; ‘Diamond Light Source

9:50 AM Break

10:15 AM
The Enhancement of Mechanical Properties of A356 Alloy Solidified at Lower Cooling Rate via Effectively Grain Refinement: Yijie Zhang; Shouxun Ji; Zhongyun Fan; ‘Brunel University

10:30 AM
Secondary Aluminum Alloys Processed by Semisolid Process for Automotive Application: Fabrizio D’Errico; Davide Mattaveldi; ‘Politecnico di Milano

10:55 AM
Integrated Casting-extrusion of an AA6082 Aluminum Alloy: Shohreh Khorsand; Yan Huang; ‘Brunel University London

11:20 AM
On Porosity Formation in Al-Si-Cu Cast Alloys: Fawzy Samuel; Agnes Samuel; Herbert Doty; Salvador Valtierra; ‘UQAC; ‘Nemak, S.A.

11:45 AM
Influence of Trace Element Additions on Fe Bearing Intermediate: Solidification of a 6063 Al Alloy: Sunpam Kumar; Julian Malisano; Yuri Itó; Keyna O’Reilly; ‘University of Oxford; ‘Tokyo Institute of Technology

Aluminum Reduction Technology — Dry Scrubbing, Alumina Transport and Dissolution

8:30 AM Introductory Comments

8:35 AM
Influence of Handling Parameter on Powder Properties: Petri Hiltunen; ‘HAW University of Applied Science; ‘Claudius Peters Projects

9:00 AM
Spreading of Alumina and Raft Formation on the Surface of Molten Cryolite: Csilla Kaszás; Laszlo Kiss; Sandor Poncsak; Jean-Francois Bilodeau; Sebastien Guerard; ‘Université du Québec à Chicoutimi; ‘ARDC Rio Tinto Aluminium

9:25 AM
Fluoride Capture Capacity of SGA: The Interplay between Particle and Pore Size Distribution: Gordon Agheneyegah; Grant McIntosh; Margaret Hyland; James Metson; ‘Light Metals Research Center; ‘School of Engineering, University of Auckland; ‘School of Chemical Sciences, University of Auckland

9:50 AM
Predictive Formulae for the Competitive Adsorption of HF and SO2 on Smelterygrade Alumina Used in Dry Scrubbing Applications: Stephan Broek; Neal Dando; Stephen Lindsay; ‘Hatch Ltd; ‘Alcoa Technical Center (retired); ‘Alcoa Primary Metals

10:15 AM Break

10:30 AM
Pot Gas Treatment at High Gas Temperatures: Anders Sorhuus; ‘Sivert Ose; ‘GE Power Norway

10:55 AM
Potroom HF Emission Reduction by Anode Inert Tray Technology: Performance of ALRO Industrial 1st of Class: Vincent Verlin; El Hani Bouhabila; Jérémy Neveu; Serge Despinasse; Gheorghe Dobra; Marian Cilianu; Fabienne Virieux; ‘Fives Solios; ‘Fives ECL; ‘VIMETCO ALRO; ‘Fives Aluminium Division
Sponsored by:TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee
Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Wednesday AM
March 1, 2017
Location: San Diego Convention Ctr

Session Chair: Subhadra Gupta, The University of Alabama

8:30 AM
Chloridizing Roasting of Bismuthinite with Sodium Chloride-oxygen: Rafael Padilla1; Luis Salinas1; Maria Ruiz2; 'University of Concepcion

8:50 AM
Natural Gas Utilization in Blast Furnace Ironmaking: Tuyère Injection, Shaft Injection and Prerredduction: P. Chris Pistorius1; Jorge Gibson1; Megha Jampani1; 'Carnegie Mellon University

9:10 AM
Selective Sulfation Roasting of Rare Earths from NdFeB Magnet Scrap: Brett Carlson1; Patrick Taylor1; 'Colorado School of Mines

9:30 AM
Gold Solubility in Smelting Slags for the Recycling of Industrial and Mining Wastes: Jun-Gil Yang1; Hyun-Sik Park2; Joohyun Park1; 'Hanyang University; 'Korea Institute of Geoscience and Mineral Resources (KIGAM)

9:50 AM Break

10:10 AM
Solid State Reduction of Iron, Manganese and Chromium OXide Ores with Methane: Rauf Eric1; Petteri Halli1; Pekka Taskinen1; Amit Bhalla1; 1University of the Witwatersrand; 'Aalto University

10:30 AM
Sphalerite Chloridizing with Calcium Chloride-oxygen at Roasting Temperatures: Rafael Padilla1; Ilitch Moscoso1; Maria Ruiz1; 'University of Concepcion

10:50 AM
Investigations on Rotary Tool Near-dry Electric Discharge Machining: Vineet Yadav1; Prudeep Kumar2; Akshay Divedi2; 'Indian Institute of Technology, Roorkee

Applications of Solidification Fundamentals — Solidification of Iron and Steel
Sponsored by:TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee
Program Organizers: Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifang Zheng, University of Science and Technology Beijing

Wednesday AM
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Andrew Kao, University of Greenwich; Mahdi Torabi Rad, University of Iowa

8:30 AM
Spheroidal Graphite Growth Studied by Synchrotron X-ray Tomography: Mathias Bjørne1; Mohammed Azeem2; Niels Tiedje1; Jesper Hattel1; Peter Lee2; 1Technical University of Denmark; 'University of Manchester

8:50 AM
Effect of Solidification Parameters and Alloying Elements on Graphite Morphology in Ni-C Alloys: Amir Ardalan Rezaei1; Haamun Kalantari1; Reza Abbaspahian1; 1University of California, Riverside; 1California State Polytechnic University, Pomona

9:10 AM
Effects of Rare Earth Oxides on the Precipitation of graphite in Fe-C-Si Alloy: Kok Long Ng1; Hideaki Sasaki3; Hisao Kimura1; Takeshi Yoshikawa1; Masafumi Maeda1; 1University of Tokyo; 1Ehime University; 1University of Tokyo

9:30 AM
Evolution of Microstructure in Directionally Solidified Compacted Graphite Iron: Subhojit Chakraborty1; Amber Genau1; Charles Monroe1; 1University of Alabama at Birmingham

9:50 AM
An Electron Microscopy Study of Graphite Growth in Nodular Cast Irons: Rawen Ajay1; Lydia Laffont1; Jacques Lacaze1; 1CIRIMAT

10:10 AM Break

10:30 AM
Discovery of New Grain Refiners Utilizing Crystallographic Data: Hunter Martin1; Brennan Yahata1; Tresa Pollock1; 1University of California, Santa Barbara; 1HRL Laboratories

10:50 AM
Mechanisms of Surface Stability in Al-Zn Coated Steel: Matthew Gear1; Kazuhiro Ogita1; Stuart McDonald1; Dongdong Qu1; David StJohn1; 1University of Queensland

Bio-Nano Interfaces and Engineering Applications — Functional Bionanointerfaces
Sponsored by:TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Candan Tamerler, University of Kansas; John Nychka, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

Wednesday AM
March 1, 2017
Location: Marriott Marquis Hotel

Session Chairs: Hendrik Heinz, University of Colorado Boulder; Sermin Utku, Yeditepe University

8:30 AM
Engineering Hydrogels with Bioactive Nanomaterials for Bone Regeneration Applications: Settimio Pacelli1; Ryan Maloney1; Arghya Paul1; 1University of Kansas

9:00 AM Invited
Toughness-Enhancing Linear Metastructure in the Recluse Spider’s Nanoribbon Silk: Hannes Schniepp1; 1The College of William & Mary

9:40 AM Keynote
Interfacing Freeze-Cast Biopolymer Scaffolds with Tissue In Vivo: Effects of Composition and Structure on Integration and Degradation: Prajan Divakar1; Karen Moodie1; P. Jack Hoopes2; Ulrike Wegst1; 1Dartmouth College; 1Dartmouth College

10:20 AM Break

10:40 AM
Bio-Nano-Technology toward Smart Interfaces and Functional Hybrid Materials: Candan Tamerler1; 1University of Kansas

11:00 AM
Characteristics of von Willebrand Factor Adhesion on Collagen Surface under Flow: Wei Wei1; Chuqiao Dong1; Michael Morabito1; Xiaohui Zhang1; Wei Zhang1; Yan Xu1; Wenli Ouyang1; xuanhong cheng1; Edmund Webb1; Alparslan Oztekin1; 1Lehigh University
11:20 AM Charaterization of Solid-supported Thin Films and Molecular Interactions Using Multi-parametric Surface Plasmon Resonance: Aninka Jokinen; Niko Granqvist; Janusz Sadowski; ‘BioNavis Ltd.

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**Biological Materials Science — Structural Biological Materials II**

*Sponsored by:* TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee

*Program Organizers:* Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Wednesday AM Room: Pacific 15
March 1, 2017 Location: Marriott Marquis Hotel

**Session Chairs:** Francois Barthelat, McGill University; Wen Yang, ETH Zurich

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**8:30 AM Invited**

Bioinspired Design Strategies: Joanna McKittrick; Steven Naleway; Michael Frank; Jay-Young Jung; Frances Su; Michael Porter; ‘University of California, San Diego; ‘University of Utah; ‘Clemson University

**9:00 AM**

Revisiting Laminated Glass Using Bio-inspired Architectures: Zhen Yin; Francois Barthelat; ‘McGill University

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**9:20 AM Invited**

Impact and Wear Resistant Biological Composites: Insight to Next Generation Multifunctional Materials: Nicholas Yaraghi; Steven Herrera; Lessa Grunenfelder; Nobphadon Sukasangpanya; David Restrepo; Enrique Escobar de Olaldea; C. Jeong; Richard Wuhrer; Pablo Zavattieri; David Kisailus; ‘University of California Riverside; ‘Purdue University; ‘University of Western Sydney

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**9:50 AM Break**

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**10:10 AM**

Stretch-and-release Fabrication, Testing and Optimization of a Bioinspired Flexible Ceramic Armor: Roberto Martini; Francois Barthelat; ‘McGill University

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**10:30 AM**

The Effect Moisture Content on Mechanical Properties of Lignin and Hemicellulose: Sina Youssellefan; Nima Rahbar; ‘Worcester Polytechnic Institute

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**10:50 AM**

The Effect of Freezing, Thawing, and Drying on the Tensile Strength of Galleria mellonella Silk: Mary Glasper; Jane Batcheller; Andrew Keddie; John Nychka; ‘University of Alberta

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**11:10 AM Invited**

Lessons Learned from the Mighty Dactyl Club of the Mantis Shrimp: Nobphadon Sukasangpanya; Nicolas Guarin-Zapata; Nick Yaraghi; David Kisailus; Pablo Zavattieri; ‘Purdue University; ‘University of California Riverside

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**Bulk Metallic Glasses XIV — Structures and Mechanical Properties III**

*Sponsored by:* TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee

*Program Organizers:* Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yurinong Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Wednesday AM Room: 33A
March 1, 2017 Location: San Diego Convention Ctr

**Session Chairs:** John Lewandowski, Case Western Reserve University; Wojciech Dmowski, University of Tennessee

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**8:30 AM Invited**

Early Plasticity in Metallic Glasses: Dominik Tönnies; Cynthia Volkert; Lin Tian; ‘University of Göttingen; ‘Universität Göttingen

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**8:50 AM**

A Comparative Analysis of Metal-Ni-P Metallic Glasses Synthesized via Electroless Plating: Phil Meagher; Manuel Abad; David Browne; ‘University College Dublin

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**9:10 AM**

Thermal Structural Evolution of Zr-based Metallic Glasses and Liquids Investigated by High Energy X-ray Diffraction and Inelastic Neutron Scattering: Zengquan Wang; Wojciech Dmowski; Yang Tong; Takeshi Egami; Adam Vogt; Kenneth Kelton; ‘University of Tennessee, Knoxville; ‘Oak Ridge National Laboratory; ‘Washington University in St. Louis

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**9:30 AM Invited**

Pressure Dependence in Mechanical Properties of Metallic Glasses near the Glass Transition: Zachary Aitken; Mehdi Zadeh; John Lewandowski; Yong Wei Zhang; ‘Institute of High Performance Computing, A*STAR; ‘Case Western Reserve University

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**9:50 AM Invited**

Pressure-induced Structural Change in Liquid Eutectic Ga85.8In14.2 Alloy: Qing Yu; Xiaodong Wang; Yu Su; Azkar Saeed Ahmad; Qingping Cao; Dongxian Zhang; Jianzhong Jiang; ‘Zhejiang University

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**10:10 AM Break**

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**10:30 AM**

Revealing Homogeneous Plastic Deformation in Ti-based Metallic Glass Composites with dendrites under Tension: Fufa Wu; ‘Liaoning University of Technology, China

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**10:50 AM Invited**

Plasticity of In-situ Ti-based Metallic Glass Matrix Composites: Jean-Marc Pelletier; S. Cardinal; Jichao Qiao; ‘INSA-Lyon; ‘Northwestern Politechnical University

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**11:10 AM Invited**

Homogeneous Plastic Deformation of Metallic Glasses at Room Temperature: Yi Li; ‘Institute of Metal Research

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**11:30 AM**

Investigation of the Stability of Newtonian Viscous Flow in Various Metallic Glass Systems: Hyun Seok Oh; Chae Woo Ryu; Eun Soo Park; ‘Seoul National University

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**11:50 AM**

Production of Zirconium Based Bulk Metallic Glass Sheet: Daniel East; Nicholas Hutchinson; Jim Yurko; Robert Haun; ‘CSIRO; ‘Materion; ‘Retch Systems

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**12:10 PM**

Structure-property Relationships in Nanoporous Metallic Glasses: Daniel Sopu; Celal Soyarslan; Mihai Stoica; Jürgen Eckert; ‘IFW Dresden; ‘Hamburg University Technology; ‘Erick Schmid Institute of Materials Science
Cast Shop Technology — DC Casting and Macrosegregation
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: David Gildemeister, Alcoa Technical Center

Wednesday AM Room: 1A
March 1, 2017 Location: San Diego Convention Ctr

Session Chair: Samuel Wagstaff, MIT

8:30 AM Introductory Comments

8:35 AM
A Study on DC Casting Trough/ Launder Design and Material Selection:
Bin Zhang1; ‘Wagstaff Inc

9:00 AM
Critical Role of Thermal Management during Cast Start-up of DC Casting Process: Andrè Larouche1; Sabrina Guy1; Josée Colbert1; ‘Rio Tinto Aluminium

9:25 AM
Modelling and Analysis of a Horizontal Direct Chill Casting Process: Garðar Garðarsson1; Írðustur Guðmundsson1; Magnus Jonsson1; Halldor Palsson1; ‘Alcoa Fjarðaál; ‘Reykjavík University; ‘University of Iceland

9:50 AM
Casting of Sound, Large Diameter 7050 Billets: Kjerstin Ellingsen1; Mohammed M’Hamdi1; ‘SINTEF

10:15 AM Break

10:30 AM
Circulation of Grains during Ingot Casting: Carolyn Joseph1; Samuel Wagstaff1; Antoine Allanore1; ‘Massachusetts Institute of Technology

10:55 AM
Minimization of Macrosegregation through Jet Erosion of a Continuously Cast Ingot: Samuel Wagstaff1; Antoine Allanore1; ‘Massachusetts Institute of Technology

11:20 AM
Full Size Measurement and Simple Prediction on Macro Segregation of Aluminum Alloys Elements in Industrial DC Casting Slab: Tatsuya Yamada1; Nobuhito Ishikawa1; Takashi Kubo1; Koichi Takahashi1; ‘UACJ Corporation

11:45 AM
Ultrasonic Assisted Reduction of Hot-tearing during High-speed DC Casting of 6000 Series Aluminum Alloys: Sergey Komarov1; Yasuo Ishiwata1; Yoshihiro Takeda1; ‘Tohoku University; ‘Nippon Light Metal Co.,Ltd

Ceramic Materials for Nuclear Energy Research and Applications — Non-oxide Ceramics for Nuclear Applications I
Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khaifzov, Ohio State University; Thierry Wiss, European Commission- JRC - Institute of Transuranium Elements – Germany

Wednesday AM Room: Palomar
March 1, 2017 Location: Marriott Marquis Hotel

Session Chairs: Xianming Bai, Virginia Tech; Yong Yang, University of Florida

8:30 AM Invited
Progress in Development of Non-Oxide Ceramic Nuclear Fuels: Andrew Nelson1; ‘Los Alamos National Laboratory

9:00 AM Invited
Radiation-Stability of Zirconium Carbide and Nitride Ceramics for Advanced Fuel Cycles: Yong Yang1; ‘University of Florida

9:30 AM
Spark Plasma Sintering of Boron Carbide Ceramics for Nuclear Applications: Meral Cengiz1; Onuralp Yucel1; Gultekin Goller1; Buletin Buyuk1; Asiye Tugrul1; Filiz Sahin1; ‘Istanbul Technical University

9:50 AM Break

10:10 AM Invited
Ionization-Induced Damage Annihilation in Silicon Carbide: Yunwen Zhang1; Haizhou Xue1; Ritesh Sachan1; Olli Pakarinen1; Matthew Chisholm1; Peng Liu1; William Weber1; ‘Oak Ridge National Laboratory; ‘University of Tennessee; ‘Shandong University

10:40 AM
Multi-scale Modeling of Fracture Behavior in SiC with a Phase Field Fracture Model: Shuafang Zhang1; Michael Tonks1; ‘Pennsylvania State University

11:00 AM
A TEM Study of Microstructure of Hi-Nicalon Type S SiC Composite beyond Ultimate Shear Strength: Yun Yang1; Mehdi Balooch1; Joseph Kabel1; Cameron Howard1; David Frazier1; Peter Hosemann1; ‘University of California, Berkeley

11:20 AM
Micro-Mechanical Interphase Property Evaluation for SiC-SiC Composites: Joseph Kabel1; Mehdi Balooch1; Yun Yang1; Kurt Terrani1; Takaaki Koyanagi1; Peter Hosemann1; ‘University of California Berkeley; ‘Oak Ridge National Laboratory
Characterization of Minerals, Metals, and Materials — Minerals
Sponsored by: TMS Extraction and Processing Division, TMS
Materials Characterization Committee
Program Organizers: Shadia Ikhmayes, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Farrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramassim Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Wednesday AM
Room: 31B
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Bowen Li, Michigan Technological University; Fernanda Silva, IQ/UFRJ

8:30 AM
The Precious Metals Resource Potentials of Nigerian Benue Trough and Schist Belts - A Review: Abraham Adeleke1; Kayode Oluwabunmi2; Daniel Okunke1; Obafemi Awolowo University; 1Prototype Engineering Development Institute (PEDI) Nigeria; 2Tshwane University of Technology (TUT)

8:50 AM
Chemical and Mineralogical Characterization of Pyrite Ore Deposit in Umunobom Ideato, Imo State, Nigeria: Gerald Onyedika1; Amauche Achusim1; Martín Ogvuegbu2; Christogonous Akalte3; Goddy Onuoha1; 1Federal University of Technology, Owerri

9:10 AM
Industrial Use of Brazilian Bentonite Modified by Mild Acid Attack: Christiano Gianesi Bastos Andrade1; Danilo Marin Fermino1; Marcos Gonzales Fernandes; Francisco Rolando Valenzuela Diaz1; 1University of São Paulo

9:30 AM
Multilayer Characteristic and Sinterability of Kyanite in Ceramic Preparation: Huaguang Wang1; Bowen Li2; Mengsheng He2; Jiann-Yang Hwang1; 1Michigan Technological University; 2R&D Center of Wuhan Iron and Steel Corp. Group

9:50 AM
Ore Dressing and Technological Characterization of Polygorskite from Piana/Italy for Applications as Adsorbent of Heavy Metals: Fernanda Silva1; Karla Simões2; Luiz Carlos Bertolino3; Bruna Novo2; Julio Afonso1; Adriana Felix1; 1IQ/UFRJ; 2IQ-UFRJ/CETEM; 3CETEM

10:10 AM Break

10:25 AM
Temperature Dependence of the Dielectric Properties of Kaolin: Csakí Stefani1; Patrik Dobrown1; Igor Stubna1; Libor Vozar; Viera Trmovcova; Jan Ondruska; 1Charles University in Prague; 2Constantine the Philosopher University in Nitra

10:45 AM
Synthesis and Characterization of Sodalite and Canerinita from Kaolin: Fernanda Silva1; Fabiano Passos2; Karoline Ferreira1; Adriana Felix1; Carla Barbato1; Karla Simões; Francisco Garrido2; Luiz Bertolino3; Danielle Castro1; 1IQ-UFRJ; 2IQ-UFRJ/CETEM; 3IHFJ-CMAR; 4EQ-UFRJ; 5IQ-UFRJ/CETEM; 6IQ-UFRJ; 7CETEM

11:05 AM
Characterization of a Sienite Rock from Tanguá/Brazil as a Source of Potassium to the Agriculture: Adriana Felix1; Thuanny Soares1; Fernanda da Silva1; Fernanda Pontes1; Carla Barbato1; Adão da Luz1; 1FRJ; 2IQ-UFRJ; 3EQ-UFRJ; 4CETEM

11:25 AM
Characterization of High Performance Toothpaste Abrasive Derived from Perlite: Bo Wang1; 1Imerys

11:45 AM
Effect of Mechanical Activation on the Structural Properties of Vanadium Slag: Qingyun Huang1; Shengde Dong1; 1Chongqing University of Science and Technology

12:05 PM
Technological Characterization of Waste from Gold Mining Dam: Fernanda Silva1; Vanessa Silva2; Zuleica Castilho1; Fabiano Passos1; Roberto Faria1; Lillian Domingos1; 1IQ/UFRJ; 2IQ-UFRJ/CETEM; 3CETEM; 4EQ-UFRJ/CETEM

Computational Approaches to Materials for Energy Applications — Session I
Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee
Program Organizer: Laurent Chaput, LEMTA

Wednesday AM
Room: 7A
March 1, 2017
Location: San Diego Convention Ctr

Session Chair: Laurent Chaput, Lorraine University

8:30 AM Invited
Visual Search Strategies for Thermoelectrics: David Singh1; 1University of Missouri

9:00 AM Invited
First Principles Calculations of the Stability and Physical Properties of Thermoelectric Materials: Philippe Jund1; Kinga Niedziolka1; Alexandre Berche1; Patrick Hermet1; Jean-Claude Tédenac1; 1ICGM-Montpellier University

9:30 AM Invited
Accelerated Discovery of Novel Low-thermal-conductivity Crystals by First-principles Data-driven Approach: Ibao Tanaka1; 1Kyoto University

10:00 AM Break

10:20 AM Invited
Monte Carlo Modeling of Phonon Transport in Nanostructures: David Lacroute1; 1University of Lorraine

10:50 AM
Tuning Thermal Conductivity of Metal-Organic–Frameworks: Luping Han1; Wenxi Huang1; Agnieszka Truszkowska1; P. Greaney1; 1OSU; 2UCR

11:10 AM
Atomistic Study of the Synergistic Effects of Helium and Hydrogen Bubbles in Nickel: Edmanuel Torres1; Colin Judge1; Jeremy Pencer1; Lori Walters1; 1Canadian Nuclear Laboratories
Computational Materials Discovery and Optimization – From Bulk to Materials Interfaces and 2D Materials — Mechanical Properties

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Computational Materials Science and Engineering Committee

Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Wednesday AM  Room: 11A  Location: San Diego Convention Ctr

Session Chair: To Be Announced

8:30 AM
A Minimal Continuum Dislocation Dynamics Model for Slip in bcc Metals: Roman Groger; ‘Academy of Sciences of the Czech Republic

8:50 AM
Dislocation Core Structures in FCC Ni and L12 Ni3Al Computed Using Density Functional Theory Based Flexible Boundary Condition Approach: Anne Marie Tan; Christopher Woodward; Dallas Trinkle; ‘Univ. Illinois, Urbana-Champaign; ‘Air Force Research Laboratory

9:10 AM
Efficient Multi-step Optimization for Materials Design and Discovery: Thien Duong; Anjana Talapatra; Raymundo Arroyave; ‘Texas A&M University

9:30 AM
A New Class of Hyperuniform Heterogeneous Material with Superior Mechanical Properties via Stochastic Optimization: Yaopengxiao Xu; ‘Arizona State University

9:50 AM
Efficient Screening for High Strength, Superalastic Alloys: Ian Winter; Daryl Chrzan; ‘University of California, Berkeley

10:10 AM Break

10:25 AM
Modeling Deformation and Recrystallization Textures Using Viscoplastic Self-consistent Polycrystal Plasticity: Miroslav Zecевич; Ricardo Lebensein; Rodney McCabe; Marko Knezevic; ‘University of New Hampshire; ‘Los Alamos National Laboratory

10:45 AM
Microstructure Evolution in Ni materials: Annealing-Detwinning due to Thermal Fluctuation of Incoherent Twin Boundary: Hao Sun; Chandra Singh; ‘University of Toronto

11:05 AM
First Principle Investigation of Electrical Conductivity and Phase Stability of Al-Zn-Ni Alloy for Precipitation Hardening: Oladeji Fadayomi; Gregory Odegard; Paul Sanders; ‘Michigan Tech University

11:25 AM
Graph Spectra and Grain Boundary Network Design: Oliver Johnson; ‘Brigham Young University

11:45 AM
Topology Optimization for Composite Wear: Natasha Vermaak; ‘Lehigh University

Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions — Mathematical Tools for Uncertainty Quantification and Propagation


Program Organizers: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida; Li Ma, NIST; Shawn Coleman, ARL; Jeff Doak, QuesTek Innovations, LLC; Fadi Abdeljawad, Sandia National Laboratory

Wednesday AM  Room: 10  Location: San Diego Convention Ctr

Session Chairs: Jeff Doak, QuesTek Innovations; Fadi Abdeljawad, Sandia National Laboratories

8:30 AM Invited
Information-theoretic Tools for Uncertainty Quantification of High Dimensional Stochastic Models: Petr Plechac; Ting Wang; ‘University of Delaware

9:00 AM
Numerical Simulation of Electromagnetic Field, Flow Field, and Temperature Field in Secondary Cooling Zone of Round Billet under the Impact of Pulsed Magneto-oscillation: Junli Hao; Yunhu Zhang; Honggang Zhong; Zhishuai Xu; Renxing Li; Qijie Zhai; ‘Shanghai University

9:20 AM Invited
Uncertainty Quantification in Density Functional Theory: Non-intrusive vs. Intrusive Methodologies: David Mebane; Wilfredo Ibarra-Hernandez; Aldo Romero; ‘West Virginia University

9:50 AM Break

10:10 AM Invited
Uncertainty Quantification, Molecular Dynamics, and the Glass-Transition Temperature of Aerospace Polymers: Andrew Dienstfrey; Paul Patrone; ‘National Institute of Standards and Technology

10:40 AM Invited
Using Information Geometry to Relate Parametric Uncertainty and Model Predictivity: Mark Transtrum; ‘Brigham Young University

11:10 AM
Using Metropolis-Hasting Algorithm to Calibrate NiTi Precipitation Model Implemented in MatCalc© Code: Pejman Honarmandi; Raymundo Arroyave; Luke Johnson; ‘Texas A&M University
### Computational Thermodynamics and Kinetics — Materials Physics

**Sponsored by:** TMS: Chemistry and Physics of Materials Committee, TMS: Computational Materials Science and Engineering Committee

**Program Organizers:** Niaz Abdolrahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

**Session Chairs:** Michael Manley, Oak Ridge National Laboratory; Brent Fultz, California Institute of Technology

**Wednesday AM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>9:00 AM</td>
<td>Guillaume Hachet</td>
<td>Finite Temperature from Experiments and First Principles Calculations</td>
</tr>
<tr>
<td>9:40 AM</td>
<td>Ahmed Asadi</td>
<td>Anharmonic Phonon Effects in Wurtzite and Zincblende GaN: Jane Herriman; Olle Hellman; Brent Fultz; 'California Institute of Technology</td>
</tr>
<tr>
<td>10:10 AM</td>
<td>Brent Fultz</td>
<td>Single and Poly-Crystal Elastic Constants of Nickel and Ni-H$_2$ Alloys at Finite Temperature from Experiments and First Principles Calculations: Guillaume Hachet; Arnaud Metsue; Abdelali Oudriss; Marc Huger; Xavier Feugas; 'University of La Rochelle; 'University of Limoges</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>Megan Herriman</td>
<td>Vibrational Entropy from Thermally-Driven Electronic Topological Transitions: Fred (Chae-Reem) Yang; Jorge Muñoz; Olle Hellman; Lisa Mauger; Matthew Lucas; Sally Tracy; Brent Fultz; 'California Institute of Technology; 'The Datum Institute; 'Air Force Research Laboratory</td>
</tr>
<tr>
<td>11:05 AM</td>
<td>Brent Fultz</td>
<td>Heat Transport at Interface in the Metal-Organic-Frameworks MOF-5: Wenxi Huang; Peter Greaney; 'University of California-Riverside</td>
</tr>
</tbody>
</table>

### Defects and Properties of Cast Metals — Cast Iron & Steel

**Sponsored by:** TMS: Materials Processing and Manufacturing Division, TMS: Solidification Committee

**Program Organizers:** Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

**Session Chairs:** Lifeng Zhang, University of Science and Technology Beijing; Peter D. Lee, The University of Manchester

**Wednesday AM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>Brent Fultz</td>
<td>Introductory Comments</td>
</tr>
<tr>
<td>8:35 AM</td>
<td>Brent Fultz</td>
<td>In-situ Observation of Spheroidal Graphite Formation and Measurement of Apparent Volume Expansion in Ductile Cast Iron: Hideyuki Yasuda; Akira Sugiyama; Kohei Morishita; Tomoya Nagira; Masato Yoshiya; Kentaro Uesugi; Akihisa Takeuchi; 'Kyoto University; 'Osaka Sangyo University; 'Osaka University; 'JASRI / Spring-8</td>
</tr>
<tr>
<td>9:35 AM</td>
<td>Mohammad Azeem</td>
<td>Effect of Moiybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dogic; 'Linnaeus University</td>
</tr>
<tr>
<td>10:35 AM</td>
<td>Mohammed Azeem</td>
<td>Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: Tito Andriollo; Niels Tiedje; Jesper Thorgor; Jesper Hatte1; 'Technical University of Denmark; 'Magma GmbH</td>
</tr>
<tr>
<td>11:15 AM</td>
<td>Mohammed Azeem</td>
<td>Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo; Lifeng Zhang; Yang Wen; Ping Shen; 'University of Science and Technology Beijing</td>
</tr>
<tr>
<td>11:55 AM</td>
<td>Mohammed Azeem</td>
<td>Effect of Segregated Alloying Elements on the High Strength Steel Properties: Application to the Large Size Ingot Casting Simulation: Chunping Zhang; Davood Shahhari; Abdulhalim Louci; Mohammad Jalalzi; Louis-Philippe Lapierre-Boire; Rami Tremblay; 'L’Ecole de Technologie Supérieure de Montréal; 'Finkl Steel - Sorel</td>
</tr>
<tr>
<td>12:35 AM</td>
<td>Mohammed Azeem</td>
<td>Non-metallic Inclusions and Precipitates in High Quality Steels: Lifeng Zhang; Seetharaman Sridhar; 'University of Science and Technology Beijing; 'University of Warwick</td>
</tr>
</tbody>
</table>
Deformation and Transitions at Interfaces — Meso/ Microstructural Scale Mechanical Behavior of Polycrystals II
Sponsored by: TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Computational Materials Science and Engineering Committee, TMS: Mechanical Behavior of Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Saryu Fensin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaliya Barabash, OakRidge National Lab; Shen Dillon, Universe of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Wednesday AM
Room: 23B
Location: San Diego Convention Ctr

Session Chair: To Be Announced

8:30 AM Invited
Accounting for the Micromechanical Effect of Grain Boundaries Using a New FFT-based Strain-gradient Polycrystal Plasticity Formulation: Ricardo Lehrensohn1; Alan Needleman2; 1Los Alamos National Laboratory; 2Texas A&M University

8:50 AM
Investigating Deformation at Grain Boundaries by SEM-DIC: Zhe Chen1; Samantha Daly1; 1University of Michigan

9:10 AM Invited
Residual Stress and Dislocation Density Distributions near Grain Boundaries in Deformed Materials: Angus Wilkinson1; Jun Jiang2; T Ben Britton3; David Wallis4; Lars Hansen5; 1University of Oxford; 2Imperial College London

9:30 AM Role of Grain Boundary Sliding in Deformation of Polycrystalline Materials: Ajey Venkataraman1; Marissa Linne2; Samantha Daly1; Michael Sangid1; 1Purdue University; 2University of California, Santa Barbara

9:50 AM Invited
Crystallographic Rotation, Deformation, and Damage: Jay Carroll1; Hojun Lim1; Brad Boyce1; Corbett Battaile1; Blythe Clark1; 1Sandia National Laboratories

10:10 AM Invited
Statistical Analysis of Grain Boundary Structure-Property Relationships: Srinkanth Patala1; 1North Carolina State University

10:50 AM Invited
A Non-local Continuum Mechanics Treatment of the Dynamics of Interfaces: Laurent Capolungo1; 1Los Alamos National Laboratory

11:10 AM Invited
Nanoscale Strain Mapping at Interfaces Using Scanning Nanobeam Electron Diffraction: Andrew Minor1; 1University of California Berkeley & Lawrence Berkeley Laboratory

11:30 AM Polycrystalline Plasticity Simulations with Anisotropic Discrete Dislocation Dynamics: John Graham1; Anthony Rollett2; Richard LeSar2; 1Iowa State University; 2Carnegie Mellon University

11:50 AM Invited
Quantification of Dislocation Behavior and Deformation Twinning at High Strain Rates: Mitra Taheri1; Shang-Hao Huang1; Evan Kahl1; Asher Left1; Christopher Barr1; Logan Shanahan1; IP Liu2; Yong Zhang2; Leslie Lamberson1; 1Drexel University; 2University of Science & Technology Beijing

12:10 PM Invited
The Effect of Microstructure on Strain Localisation in Two-phase Ti-alloys: Michael Preuss1; David Lunt1; Joao Quinta da Fonseca1; 1University of Manchester

Electrode Technology — Baking Furnace/Electrode Design
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Houshang Alamdari, Laval University

Wednesday AM
Room: 1B
Location: San Diego Convention Ctr

Session Chair: Donald Ziegler, Alcoa

8:30 AM Introductory Comments

8:35 AM Flow Detection Module — A New Model to Predict the Flow in Open Pit Anode Baking Furnace: Defrel Matiward1; Domenico Di Lisa2; Frank Heinke1; Florian Krummrich1; 1Innovatherm

9:00 AM Formation of Carbon Build-Up on the Flue Wall of Anode Baking Furnace: Zhaohui Wang1; Arne Petter Ratvik2; Tor Grande1; 2Norwegian University of Science and Technology, NTNU; 1Innovatherm Materials and Chemistry; 2SINTEF Materials and Chemistry

9:25 AM Investigation of Spent Refractory Lining in an Anode Baking Furnace: Trond Brandvik1; Zhaohui Wang2; Arne Petter Ratvik2; Tor Grande1; 1Norwegian University of Science and Technology, NTNU; 2SINTEF Materials and Chemistry

9:50 AM 25 Years of Natural Gas Purged Infrared Pyrometer Temperature Measurement for the Operation of Open-Top Anodes Baking Furnaces: Yvon Menard1; 1Retired Process Specialist

10:15 AM Break

10:30 AM Impact of Cast Iron Degradation and Cathode Block Erosion on the Current Path in the Cathodic Assembly of Aluminium Production Cells: Martin Brassard1; Marc LeBreux2; Martin Desilets1; Gervais Soucy1; Martin Forte1; Jean-François Bilodeau1; 1Université de Sherbrooke; 2Rio Tinto

10:55 AM Reducing Cathode Voltage Drop and Reducing Peak Current Density by Use of Cathode Nails across the Carbon to Cast Iron Interface: Will Berends1; Stephen Haley1; 1Hatch

11:20 AM Production of NiFe2O4 Nanocermet for Aluminium Inert Anode: Wu Xian1; Zhu Weidong1; Luo Kunlin1; Jia Hefeng1; 1Guizhou University

11:45 AM Gas Anodes Made of Porous Graphite for Aluminium Electrowinning: Babak Khalaghi1; Henrik Gudbrandsen1; Ole Kjos2; Karen Osen2; Ove Paulsen1; Tommy Mokkelbost2; Geir Martin Haarberg2; 1Norwegian University of Science and Technology (NTNU); 2SINTEF
Wednesday AM  
Session Chairs: Kazuhiro Nogita, The University of Queensland; Sergey A Belyakov, Imperial College London

8:30 AM  Invited  
Nucleation and Growth of Primary Cu6Sn5 in Solder Joints: Christopher Gourlay1; J.W. Xian; M.A.A. Salleh; Sergey Belyakov1; Kazuhiro Nogita; 1Imperial College London; 2University of Queensland

8:50 AM  
Growth Behavior of Interaclntermetallic Compound at ENIG and Sn-Ag-Cu Solder Joint with Plating Temperature of Ni(P): Wonil Seo2; Young-Ho Kim2; Sehoon Yoo2; 1Korea Institute of Industrial Technology; 2Hanyang University

9:10 AM  
Study of Al-Cu Compounds as Soldering Bond Pad for High-power Device Packaging: Yan-Hao Chen1; Cheng-Yi Liu1; 2National Central University

9:30 AM  
Thermodynamic and Microstructural Evaluation of the Sn-Si-Ge Ternary System for Advanced Pb-Free Solder Design: Kathlene Reeve3; Carol Handwerker3; 1Purdue University

9:50 AM  
Microstructure Formation in Reinforced Sn-Cu Lead-free Solder Alloys: M. A. A. Mohd Salleh1; Stuart McDonald1; Christopher Gourlay1; Kazuhiro Nogita1; 1Universiti Malaysia Perlis; 2University of Queensland; 3Imperial College London

10:10 AM  Break

10:30 AM  
The Grain Orientation Evolution of Mixed Solder Joints with Single-crystal Grain at the Same Position of BGA Packages during Thermal Shock: Jing Han; Fu Guo; Shihai Tan; 1Beijing University of Technology

10:50 AM  
Subgrain Rotation Behavior of SnAgCu-SnPb Mixed Solder Joints in BGA Components during Thermal Shock: Fu Guo1; Shihai Tan1; Jing Han1; 1Beijing University of Technology

11:10 AM  
Advances in High Temperature Pb-Free Composite Solder Paste Research: Stephanie Choquette1; Iver Anderson1; 1Ames Laboratory

Sponsored by: Chinese Society for Metals, TMS: Recycling and Environmental Technologies Committee  
Program Organizers: Subodh Das, Phinix, LLC; Zhan Cheng Guo, University of Science and Technology Beijing; Minfeng Han, China University of Mining and Technology, Beijing; Tenuhisa Horita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Xingbo Liu, West Virginia University

Wednesday AM  
Session Chair: To Be Announced

8:30 AM  
Enhanced Thermoelectric ZT Constantan Alloy by Cryorolling: Huijun Kang1; Daquan Liu1; Jinling Li1; Tongmin Wang1; 1Dalian University of Technology

8:50 AM  
Thermoelectric Properties of La-doped SrTiO3 Materials Prepared by Mechanical Alloying: Daquan Liu1; Huijun Kang1; Jinling Li1; Tongmin Wang1; 1Dalian University of Technology

9:10 AM  
Mechanical Analysis of Raceway Formation in Bulk Bed of Blast Furnace: Qiuming Wang1; Yuanxiang Lu1; Zeyi Jiang1; 1University of Science and Technology Beijing

9:30 AM  
Energy Savings in Aluminium Sand Casting Foundries: Hamid Ahmad Mehrabi1; 1Cranfield University

Energy Materials 2017: Materials for Coal-Based Power — Session II  
Sponsored by: Chinese Society for Metals, TMS: Recycling and Environmental Technologies Committee  
Program Organizers: Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Zhengdong Liu, China Iron & Steel Research Institute Group; Sebastien Dryepondt, Oak Ridge National Laboratory

Wednesday AM  
Room: 12  
Location: San Diego Convention Ctr

Session Chair: Omer Dogan, NETL, U.S. Department of Energy

8:30 AM  Keynote  
Creep Strength and Oxidation Resistance of Industrially Made G115 Steel Pipe: Zhengdong Liu1; HanSheng Bao1; Zhengzong Chen1; Songqian Xu1; Hanping Zhao1; Qijiang Wang2; 1China Iron & Steel Research Institute Group; 2Baosteel

9:10 AM  Invited  
Evolution of Precipitates of 25Cr-20Ni-3Cu3WNbN Austenitic Heat Resistant Steel during 973K Aging: HauSheng Bao1; Zhengdong Liu1; Zhengzong Chen1; Zhaobo Tian1; 1Central Iron & Steel Research Institute

9:40 AM  Invited  
Heat Resistant Advanced 9% Cr Steel for Fossil Energy Power Generation: Jeffrey Hawk1; Paul Jablonski1; Kyle Rozman1; 1U.S. Department of Energy, National Energy Technology Laboratory; 2ORISE

10:10 AM  Break

10:30 AM  
Creep of Alumina-forming Austenitic Stainless Steels: I. Baker1; Natalie Afonina1; Bin Hu1; Geneva Trotter1; S.J. Kernion1; 1Dartmouth College; 2Carpenter Technology
10:50 AM  
**Accelerated Creep Test for New Steels and Welds:** Stan Mandzijevski;  
1Advanced Materials Analysis  

11:10 AM  
**The Reliability Analysis of 12Cr1MoVG and T23 Used for USC Boilers**  
**Water Wall:** Xiaoli Lu; Yu Wang; Jiayong Wang; Kaiyang Yang;  
Chongbin Wang; Jiongxiang Wang; 1Shanghai Boiler Works.Ltd  

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**Sponsored by:** Chinese Society for Metals  
**Program Organizers:** Raul Rebak, GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Hosemann, University of California Berkeley; Jian Li, CANMETMATERIALS  

**Wednesday AM**  
Room: Miramar  
Location: Marriott Marquis Hotel  
Session Chair: Raul Rebak, GE Global Research  

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#### 8:30 AM  
**Keynote**  
Is There a Role for Advanced Materials in Light Water Reactors?: Kurt Terrani; Steven Zinkle; L.L. Sneed; 1Oak Ridge National Laboratory; 2University of Tennessee, Knoxville; 3Massachusetts Institute of Technology  

#### 9:10 AM  
**Keynote**  
Development of a Novel Structural Material (SIMP steel) for Nuclear Equipment with Balanced Resistances to High Temperature, Radiation and LBE Corrosion: YiYin Shan; Wei Yan; Wei Wang; Quanqiang Shi; Ke Yang; Zhiguang Wang; 1Institute of Metal Research, Chinese Academy of Sciences  

#### 9:50 AM  
**Enhancing the High-Cycle Fatigue Property of 316 Austenitic Stainless Steels through Introduction of Mechanical Twins by Cold-Drawing:** Xingfei Xie; 1Shanghai Jiao Tong University  

#### 10:10 AM  
**Break**  

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#### 10:25 AM  
**Invited**  
Research and Development of Pressure Vessel Steels for Advanced Pressurized Water Reactors in China: Xiaok He; Zhengdong Liu; Wenhui Zhang; Deli Zhao; Ying Luo; Xiaobin Wang; 1China Iron & Steel Research Institute Group; 2China First Heavy Industries; 3China First Heavy Industries; 4Nuclear Power Institute of China; 5Nuclear Power Institute of China  

#### 11:05 AM  
**Bonding Characteristics and Site Occupancies of Si Atoms in M6C Carbides from First Principles and Experimental Study:** Li Jiang; 1Shanghai Institute of Applied Physics, Chinese Academy of Sciences  

#### 11:25 AM  
**Ductile Phase Toughening of 90-97W-NiFe Heavy Alloys:** Md Ersdadul Alam; G. R. Odette; 1University of California, Santa Barbara  

#### 11:45 AM  
**Investigation of Oxidation/Carburisation Mechanisms of 9Cr Ferritic Steel Heat Exchanger Tubes:** Sabrina Yan; Scott Doak; Aya Shin; Jonathan Pearson; Rebecca Higginson; 1Loughborough University; 2EDF Energy Generation  

#### 12:05 PM  
**Invited**  
Comparison of Corrosion Properties of Alloy 800 and Alloy 690 by In-situ Scratching Repassivation Behavior in High-temperature Pressurized Water: En-Hou Han; Jiazhen Wang; Jianqiu Wang; 1Institute of Metal Research, Chinese Academy of Sciences  

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### Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Materials, Interfaces and Innovations for Hostile Oil and Gas / Energy I

**Sponsored by:** Chinese Society for Metals  
**Program Organizers:** Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing  

**Wednesday AM**  
Room: 14A  
Location: San Diego Convention Ctr  
Session Chairs: Chengjia Shang, University of Science and Technology Beijing; Samantha McBride, Massachusetts Institute of Technology  

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#### 8:30 AM  
**Keynote**  
Microstructure and Properties of High Performance Pipeline Steels: Lei Zheng; 1Baoshan Iron & Steel Co. Ltd.  

#### 9:00 AM  
**Advanced Duplex Stainless Steels for Extreme Oil-Gas Environments:** Pasi Kangas; Gaouci Chai; 1Sandvik Materials Technology  

#### 9:30 AM  
**Development of High-strength and High Corrosion-resistant Ni-Cr-Al Alloy for Drilling Tools:** Yoshihiko Koyanagi; Hiroyuki Takabayashi; Shigeki Ueta; 1Daido Steel Co., Ltd./R&D center  

#### 10:00 AM  
**Break**  

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#### 10:20 AM  
**Invited**  
Investigation on the Weldability of High-strength Steels Used for Low Temperature Environment: Chengjia Shang; Xuelin Wang; 1University of Science and Technology Beijing  

#### 10:50 AM  
**Novel Cu-bearing Antibacterial Pipeline Steels for Microbiologically Induced Corrosion Control:** Xianbo Shi; YiYin Shan; Wei Yan; Wei Wang; Zhenguang Yang; Ke Yang; 1Institute of Metal Research, Chinese Academy of Sciences  

#### 11:20 AM  
**Development of Cr-based Duplex Alloy for Corrosive Environments I:** Evaluation of Mechanical Properties and Pitting Potential: Masafumi Nojima; Tomonori Kimura; Makoto Ogata; Naoya Toko; Kosuke Kuwabara; 1Hitachi, Ltd. Research & Development Group  

#### 11:45 AM  
**Development of Cr-based Duplex Alloy for Corrosive Environments II:** Evaluation of Corrosion Resistance in Boiling Sulfuric Acid: Tomonori Kimura; Masahumi Nojima; Makoto Ogata; Naoya Toko; Kosuke Kuwabara; 1HITACHI, Ltd.  

#### 12:10 PM  
**Effect of Residual Stress on Aging Precipitation Behavior of Oil-grade Alloy 718:** Zhongnan Bi; Hailong Qin; Jinhui Du; Ji Zhang; 1Central Iron and Steel Research Institute, China  

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Natural text:

**Energy Technologies — Energy Technologies**

*Sponsored by:* TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Pyrometallurgy Committee

*Program Organizers:* Lei Zhang, University of Alaska Fairbanks; Jaroslaw Drelich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu, Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Åbo Akademi University

**Wednesday AM**

**March 1, 2017**

**Location:** San Diego Convention Ctr

**Room:** 13

**Session Chairs:** Lei Zhang, University of Alaska Fairbanks; Jaroslaw Drelich, Michigan Technological University

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8:30 AM **Introductory Comments**

8:35 AM **Continuous Optimization of the Energy Input — The Success Story of AOS:** Felix Wolters; Michael Schütt; 1 Aluminium Oxid Stade GmbH

8:55 AM **Energy Savings through Thermally-efficient Crucible Technology: Fundamentals, Process Modeling, and Applications:** Wenwu Shi; Brian Pinto; 1 Vesuvius/Foseco

9:15 AM **Invited Applications of Engineered Materials for Geothermal Resource Utilization:** Jefferson Tester; 1 Cornell University

9:35 AM **Invited National Laboratory-led Collaborations for Accelerating Hydrogen Storage Materials Development:** Ned Stetson; Zeric Hulvey; Jesse Adams; 1 U.S. Department of Energy; 2 Oak Ridge Affiliated Universities

10:05 AM **Break**

10:20 AM **Invited Interrogating Nanoscale Defects to Enable Cost-Effective Solar Energy Conversion:** David Fenning; 1 UC San Diego

10:40 AM **Invited Graphene-like Ultrathin 2D Metal Oxide Nanosheets for Sustainable Applications:** Ziqi Sun; 1 Queensland University of Technology

11:00 AM **Advanced Composite Materials for Passive Thermal Management of Electronics:** John Howarter; Yash Ganatra; Alexandra Bruce; Amy Marconnet; 1 Purdue University

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**Environmentally Assisted Cracking: Theory and Practice — Environmentally Assisted Embrittlement and Cracking I**

*Sponsored by:* TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Mechanical Behavior of Materials Committee

*Program Organizers:* Bai Cui, University of Nebraska–Lincoln; Raul Rebak, GE Global Research; Sébastien Dryendonk, Oak Ridge National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

**Wednesday AM**

**March 1, 2017**

**Location:** San Diego Convention Ctr

**Room:** 31A

**Session Chairs:** Reiner Kirchheim, University of Göttingen; Bai Cui, University of Nebraska-Lincoln

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8:30 AM **Invited Hydrogen Embrittlement and Stress Corrosion Cracking as Examples of the Chemomechanics of Solids:** Reiner Kirchheim; 1 University of Göttingen

9:10 AM **The Role of Hydrogen-enhanced Strain-induced Lattice Defects on Hydrogen Embrittlement Susceptibility of X80 Pipeline Steel:** Moeko Hattori; Hiroshi Suzuki; Kenichi Takai; Yusuke Seko; 1 Sophia University; 2 Tokyo Gas

9:30 AM **Consequence of Hydrogen Desorption on Local Mechanical Properties and the Fracture Mechanisms of a Martensitic Steel: Abdelali Oudriess; Hélène Morillot; Rémy Milet; Cyril Berziou; Stephan Cohenoz; Jean-Michel Sobrino; Juan Cresu; Xavier Feaugas; 1 University of La Rochelle; 2 CETIM-Matériaux Métalliques et Surfaces; 3 CETIM-Matériaux Métalliques et Ingénierie de Surface

9:50 AM **Design of Nickel Alloys and Superalloys with a High Resistance to Hydrogen Embrittlement:** Franck Tancrat; Miles Stopher; Edern Menou; Gérard Ramstein; Pedro Rivera-Diaz-del-Castillo; 1 Université de Nantes; 2 University of Cambridge

10:10 AM **Break**

10:30 AM **Corrosion of Nickel-Titanium, C110, and Al6061 in Gallium-based Liquid Metal Alloys:** Jacob Mingear; Darren Hartl; 1 Texas A&M University

10:50 AM **Sensitization Effects on Tensile Behavior in 5XXX Series Aluminum Alloys: Macro- and Mesoscale Observations:** Benjamin Palmer; John Lewandowski; 1 Case Western Reserve University

11:10 AM **Strain Rate Effects on the Stress Corrosion Cracking Behavior of Ni and Co Based Superalloys for Marine Applications:** Allison Popernack; James Burns; 1 University of Virginia Center for Electrochemical Science and Engineering

11:30 AM **Stress-corrosion Cracking in Ti-8Al-1Mo-1V:** Sheng Cao; Chao Voon Samuel Lim; Su-Ming Zhu; Xinhua Wu; 1 Monash University
Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Creep, Fatigue, and Environmental Interactions


Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontosos, Drexel University; Tongguang Zhai, University of Kentucky

Wednesday AM
March 1, 2017
Room: 23C
Location: San Diego Convention Ctr

Session Chair: Jean-Briac le Graverend, Texas A&M University

8:30 AM
Fatigue Deformation Mode in a Polycrystalline Nickel Base Superalloy at Intermediate Temperature: Oxidation Assisted Process: J.C. Stinville; M.P. Echlin; P.G. Callahan; W.C. Lenth; J. Miao; T.M. Pollock; 1University of California Santa Barbara; 2University of Michigan

8:50 AM
Fatigue Crack Initiation and Fatigue Crack Growth Behavior of AA7050-T7451 with Different Corrosion Morphologies: Noelle Easter Co; James Burns; 1University of Virginia

9:10 AM
The Influence of Operating Slip Systems on the Dwell Sensitivity of Titanium Alloys: Samuel Hemery; Patrick Vilechaise; 1ENSMA; 2CNRS

9:30 AM
Creep-fatigue Damage Mechanism in Cyclically-Softened Mod.9Cr-1Mo Ferritic-Martensitic Steel: Meimei Li; Weiyong Chen; Ken Natesan; 1Argonne National Lab

9:50 AM
Damage Evolution in Thin Tin Sheets During Creep Fatigue Loading: Syed Javaid; Wade Lanning; James Collins; Christopher Mahlstein; 1Georgia Institute of Technology

10:10 AM Break

10:30 AM Invited
Micromechanics of Biaxial Cold Dwell Fatigue Mechanisms in Ti-7Al Elucidated Using Far-field High-energy Diffraction Microscopy: Aaron Steiner; Garrison Hommer; Adam Pilchak; 1Colorado School of Mines; 2Air Force Research Laboratory

10:50 AM
On the Effects of Multiaxial Stress on Facet Nucleation in Cold Dwell Fatigue: Mitch Cuddihy; Adam Stapleton; Steve Williams; David Rugg; Fionn Dunne; 1Imperial College London; 2Rolls-Royce plc

11:10 AM
A Continuum Damage Model for Creep-Fatigue Interactions: Jean-Briac le Graverend; 1Texas A&M University

11:30 AM Invited
Creep, Fatigue and Environmental Interactions and Their Effect on Crack Growth in Superalloys: Jack Telesman; Tim Gabb; Louis Ghosni; 1NASA GRC

Fracture Properties and Residual Stresses in Small Dimensions — Fracture Mechanisms and Modeling

Sponsored by: TMS Structural Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Daniel Kiener, University of Leoben; Marco Sebastiani, Roma TRE university; Nagamani Jaya Balila, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Wednesday AM
March 1, 2017
Room: 21
Location: San Diego Convention Ctr

Session Chairs: Erik Bitzek, Friedrich-Alexander Universität Erlangen Nurnberg; Karsten Durst, Technical University Darmstadt

8:30 AM Introductory Comments

8:35 AM Invited
Atomistic Simulations of Crack Nucleation and Propagation along Grain Boundaries: Erik Bitzek; Johannes Möller; 1Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

9:05 AM
Directional Dependency of the Fracture Behavior of High Strength Pearlitic Steel Wires: Bernhard Völker; Marlene Kapp; Reinhard Pippan; Anton Hohenwarter; 1Montanuniversität Leoben; 2Erich Schmid Institute, Austrian Academy of Sciences

9:25 AM
Bristle-to-ductile Transition of Quasicrystals at Small Scales: Cracking, Serrated flows, Diffusion and Phase Transformation: Yu Zou; Jeffrey Wheeler; Alla Sologubenko; Pawel Kuczera; Walter Steurer; Johann Michler; Ralph Spolenak; 1ETH Zurich; 2Empa Thun

9:45 AM
Coupling Discrete Dislocation Plasticity and Cohesive Zone Models: Edmund Tarleton; Angus Wilkinson; 1Oxford University

10:05 AM Break

10:30 AM Invited
Constitutive Modeling of Indentation Cracking in Fused Silica: Karsten Durst; 1Technical University Darmstadt

11:00 AM
Critical Stresses in Intermittent Plasticity: Peter Derlet; Robert Maass; 1Paul Scherrer Institut; 2University of Illinois at Urbana-Champaign

11:20 AM Invited
Tensile Deformation Behaviour of Notched Nano-scale Metallic Glass Specimens: Narasimhan Ramarathinam; Indrasen Singh; 1Indian Institute of Science
Friction Stir Welding and Processing IX — Lightweight Applications
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Wednesday AM
March 1, 2017
Room: 9
Location: San Diego Convention Ctr

Session Chair: Christian Widener, South Dakota School of Mines and Technology

8:30 AM Introductory Comments
8:35 AM Invited
Friction Stir Welding of Thick Section Aluminium Alloys - New Techniques: Jonathan Martin; TWI Technology Centre (Yorkshire)

8:55 AM
Effect of Friction Stir Processing on the Damage Resistance of 6xxx Series Aluminium Alloys: Florent Hannard; Aude Simar; Thomas Pardoën; Eric Maire; UCL; INSA-Lyon

9:15 AM
Effect of Process Parameters on the Residual Stress Distribution in Stationary Shoulder T-Joints: Tsanzhu Sun; Matt Roy; Phil Withers; Phil Prangnell; The University of Manchester

9:35 AM Invited
Friction Stir Weld Lap Joint Properties in Aeronautic Aluminum Alloys: Egoitz Aldanondo; Ekaitz Arruti; Alberto Echeverria; IK4-LORTEK

9:55 AM
Flow Features in Shoulder Zone during Scroll Tool Friction Stir Welding Thick 6061 Aluminium Plates: David Yan; Xiaoming Wang; Guy Littlefair; University of Wisconsin-Green Bay; Purdue University; Deakin University

10:15 AM Break

10:30 AM
Corrosion Fatigue Performance of Friction Stir Processed Magnesium Alloy AZ31B-H24: A Comparative Evaluation: Daniel Tapp; Joseph McDermid; Joseph Kishi; McMaster University

10:50 AM
High-speed FSW Aluminum Alloy 7075 Microstructure and Corrosion Properties: Jingyi Zhang; Piyush Upadhyay; Yuri Hovanski; David Field; Washington State University; Pacific Northwest National Laboratory

11:10 AM
Round Material Flow in Friction Stir Welding of Aluminum Alloy: Xiaochao Liu; Yufeng Sun; Yoshiaki Morisada; Hidetoshi Fujii; Osaka University

11:30 AM
Friction Stir Welding of Thick Aluminium Welds — Challenges and Perspectives: Marshid Imam; Yufeng Sun; Hidetoshi Fujii; Yasuhiro Aoki; Nishu Ma; Seiichiro Tsutsumi; Hidekazu Murakawa; Joining and Welding Research Institute, Osaka University; JSOL Corporation, Engineering Technology Division

Sponsored by: TMS Functional Materials Division, TMS: Biomaterials Committee, TMS: Electronic Packaging and Interconnection Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Fay Hua, Intel Corporation; Tae-Kyu Lee, Portland State University; Young-Ho Kim, Hanyang University; Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Choong-un Kim, University of Texas at Arlington; Nuggehalli Ravindra, New Jersey Institute of Technology

Wednesday AM
March 1, 2017
Room: 33B
Location: San Diego Convention Ctr

Session Chairs: Fay Hua, Intel; Seong Koh, University of Texas - Arlington

8:30 AM Introductory Comments
8:40 AM Invited
Enhanced Magnetic Properties and Spin-Seebeck Effect in Epitaxial Spinel Ferrite Thin Films Grown on Lattice-Matched Substrates: Arunava Gupta; University of Alabama

9:10 AM
Domain Mechanisms for Magnetization and Deformation Behaviors of Fe-Ga Alloys: Matt Tianer; Yongmei Jin; Michigan Tech

9:30 AM Invited

10:00 AM Break

10:20 AM Invited
Ohmic Contacts for High-efficiency GaN-based Light-emitting Diodes: How to Enhance Current Injection Efficiency: Tae-Yeon Seong; Korea University

10:50 AM Invited
State of the Art in Materials Enabled Optical Fiber Based Sensing for Harsh Environment Applications: Paul Ohodnicki; National Energy Technology Laboratory

11:20 AM
Mobile Ions in Dielectrics and Their Impacts to Integrity of Interconnects in Microelectronic Devices: Choong-un Kim; University of Texas at Arlington
Gamma (FCC)/Gamma-Prime (L1_2) Co-Based Superalloys II — Processing and Environmental Resistance
Program Organizers: Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology Beijing; Alessandro Moturra, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Wednesday AM
March 1, 2017
Room: Pacific 14
Location: Marriott Marquis Hotel
Session Chairs: Chantal Sudbrack, NASA Glenn Research Center; David Dye, Imperial College

8:30 AM Keynote
Developing Polycrystalline Ni-Co Rich Alloys, Strengthened by Co3AlW
L12 Gamma Prime Precipitates for High Temperature Applications: David Dye1; Farah Ismail1; Trevor Lindley1; Paul Mulvey1; Richard Chater1; Ioannis Bantounas1; Barbara Shollock2; Mark Hardy2; 1Imperial College; 2The University of Warwick; 3Rolls-Royce plc

9:10 AM Invited
Novel Cast and Wrought γ'/γ Cobalt Base Superalloys - Creep Properties, Deformation Mechanisms, and Oxidation: Mathias Göken1; Lisa Freund1; Steffen Neumeier1; 1Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

9:40 AM
Supersolvus Thermomechanical Processing of Cast Co–Base Superalloys: Donald Weaver1; Katelon Wertz1; S. Lee Semiatin1; Rajiv Shrivpuri2; Stephen Niezgoda1; Michael Mills2; 1Air Force Research Laboratory; 2The Ohio State University

10:00 AM Break

10:20 AM Invited
Coating Systems for New Cobalt Base Single Crystals: Wesley Jackson1; Mike Titus2; Tresa Pollock2; Matt Begley1; 1University of California Santa Barbara

10:50 AM
Role of Two Phase Microstructure during Early Stages of High Temperature Oxidation of Co-base Superalloys: Martin Weiser1; Sannakaisa Virtanen1; 1University of Erlangen-Nuernberg (FAU)

11:10 AM
Influence of Alloy Composition on Oxide Scale Formation in Novel Co-Based γ-γ' Superalloys: Colin Stewart1; Akane Suzuki2; Tresa Pollock2; Carlos Levi1; 1University of California Santa Barbara; 2GE Global Research

11:30 AM
A High-throughput Search for New Ternary Superalloys: Chandramouli Nyskadham2; Corey Oses3; Jacob Hansen1; Ichiro Takeuchi1; Stefano Curtarolo1; Gus Hart1; 1Brigham Young University Provo Utah; 2Duke University; 3University of Maryland, College Park

11:50 AM
Phase Stability, Element Partitioning and Atomic Site Location in Co-9Al-9W-2X Alloys: Li Wang1; Michael Oehring1; Uwe Lorenz2; Andreas Stark2; Florian Pyczak1; 1Helmholtz-Zentrum Geesthacht

GAT-2017 (Gamma Alloys Technology - 2017) — Processing-Microstructure-Property Relationships
Sponsored by: TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Gesestacht; Dennis Dimiduk, BlueQuartz Software, LLC

Wednesday AM
Room: Pacific 17
March 1, 2017
Location: Marriott Marquis Hotel
Session Chairs: Fritz Appel, Helmholtz-Zentrum Geestacht; Juraj Lapin, IMMM, Slova Academy of Science

8:30 AM Invited
Control of Microstructure and Mechanical Property and Superplasticity for High Nb-TiAl Alloy Sheet: Junping Liu1; Yongfeng Liang1; Laiqi Zhang1; Guojian Hao1; Xiangian Xu1; 1University of Science and Technology Beijing; 2Zhongyuan University of Technology

8:55 AM Invited
Methodological Discussion on Enhancing the Temperature Tolerance of TiAl Alloys: Ji Zhang1; Xiweng Zhang2; Jing Zhu1; 1China Iron and Steel Research Institute Group; 2Tsinghua University

9:20 AM Invited
Gamma Alloy Process-Microstructure Combinations vs. Deformation and Fracture at Ambient as well as Elevated Temperatures: Young-Won Kim1; Sang-Lan Kim2; 1Gamteck LLC

10:05 AM Break

10:20 AM Invited
Research Progress on Gamma TiAl Alloy Technology in NPU: Hongchao Kou1; Bin Tang1; Liang Cheng1; Zhiyang Sun1; Jinshan Li1; 1State Key Laboratory of Solidification Processing, Northwestern Polytechnical University; 2Shaanxi Engineering Research Center for Advanced Materials and Solidification Processing

10:45 AM
Microstructure-sensitive Computational Scheme for Fatigue Resistance of Gamma-TiAl NMI Alloys: Adrienne Math1; Paul Kern1; Aaron Tallmant1; Thomas Payne1; Don Shih2; Ben Smith2; David McDowell2; 1Georgia Institute of Technology; 2Boeing Research and Technology

11:05 AM Invited
R-curve Behaviour of Different Nearly Lamellar Microstructures in an Intermetallic Ti-43.5Al-4Nb-1Mo-0.1B Alloy: Martin Schloffer1; Thomas Leitner1; Svea Mayer1; Helmut Clemens1; Jörg Esslinger1; Wilfried Smarsly1; Reinhard Pippa1; 1MTU Aero Engines AG; 2Erlich Schmid Institute of Material Science, Austrian Academy of Sciences; 3Montanuniversität Leoben

11:30 AM
Mechanical Behavior and Microstructure Evolution of Fine-grained High Nb Containing TiAl Alloy under Isothermal Compression: Yadong Cui1; Jinshan Li1; Bin Tang1; Hongchao Kou1; 1Northwestern Polytechnical University

11:50 AM
Fracture and Fatigue Crack Growth Behavior of Wrought Gamma Titanium Aluminide Ti-43Al-4Nb-1Mo in Different Microstructure Conditions: Matthew Dahar1; Thomas Podbesek2; Sesh Tamirisanakadala3; John Lewandowski1; 1Case Western Reserve University; 2Alcoa Titanum & Engineered Products
High Temperature Electrochemistry III — Nuclear Materials
Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee

Wednesday AM  Room: 16A
March 1, 2017  Location: San Diego Convention Ctr

Session Chairs: Jerome Downey, Montana Tech of the Univ of Montana; Michael Simpson, University of Utah

8:30 AM
Optimized Voltammetry Methods for Measuring Concentration of Multiple Rare Earths and Actinides in Molten LiCl-KCl: Michael Simpson; Devi Rappleye; Chao Zhang; 1 University of Utah

9:00 AM
Zirconium Management in the Mk-IV Electrorefiner: Guy Fredrickson; 1 Idaho National Laboratory

9:30 AM
Initial Operation of Kg-Scale Electrolytic Reduction and Salt Distillation Equipment for the Pyroprocessing of Uranium Oxide in a Hot Cell: Steven Herrmann; 1 Idaho National Laboratory

10:00 AM
Break

10:20 AM
Thorium and Uranium Electrodeposition from Molten LiCl-KCl onto Alpha Spectroscopy Semiconductor Detector Surface: Milan Stika; Joshua Jarrell; Thomas Blue; Lei Cao; Michael Simpson; 1 University of Utah; 2 The Ohio State University

10:50 AM
Electrochemical Techniques for Nuclear Safeguards in Molten Salt: Vickram Singh; Dev Chidambaram; 1 University of Nevada, Reno

11:20 AM
Electrochemistry in Molten 2LiF-BeF2 Salt for the Fluoride Salt-Cooled High Temperature Reactor Applications: William Doniger; Thomas Chrobak; Brian Kelleher; Kieran Dolan; Guoping Cao; Mark Anderson; Kumar Sridharan; 1 University of Wisconsin-Madison

11:50 AM
Stability of Ordered Precipitates in Face Centered Cubic based High Entropy Alloys-Al0.3 CoFeCrNi and Al0.3 CuFeCrNi 2 and their Effect on Mechanicalproperties: Bharat Gwalani; Vishal Soni; J.Y. Hwang; Deep Choudhuri; Rajasri Banerjee; 1 University of North Texas Denton; 2 Institute of Advanced Composite Materials, Korea Institute of Science and Technology
Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session V
Sponsored by:TMS Functional Materials Division, TMS Structural Materials Division, TMS: Alloy Phases Committee, TMS: Nuclear Materials Committee, TMS: Phase Transformations Committee
Program Organizers: Wei Xiong, University of Pittsburgh; Shuanglin Chen, CompuTherm LLC; Frederic Danoix, Université de Rouen; Indrajit Charit, University of Idaho

Wednesday AM
Room: 31C
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Frederic Danoix, CNRS - Université de Rouen; Michael Moody, University of Oxford

8:30 AM Invited
Outlooks for Atom Probe Microscopy: Simon Ringer1; 1The University of Sydney

9:00 AM Invited
Combining Small Angle Scattering, Atom Probe Tomography and Differential Calorimetry for a Better Characterization of Solid Solution Decomposition: Frederic De Geuser1; Rosen Ivanov1; Laurent Couturier1; Alexis Deschamps1; Baptiste Gaul1; SIMAP - CNRS - Univ. Grenoble Alpes; Max-Planck Institut für Eisenforschung

9:30 AM Invited
Kinetic Pathways in Phase Separation Processes: Atom-Probe Tomography versus Modeling: Didier Blavette1; Isabelle Mouton2; Thomas Philippe2; Manon Bonvallet1; Normandie University; CEA; CNRS; KTH

10:00 AM Break

10:20 AM Invited
Atomic Scale Modeling of Phase Separation in Fe-Cr Alloys: Frederic Soisson1; CEA Saclay

10:50 AM Invited
Spinodal Decomposition in FeCr Alloys: From Fundamental to Applications: Frederic Danoix1; Alexander Dahlstrom1; Didier Blavette1; Helena Zapolsky1; CNRS - Université de Rouen

11:20 AM Invited
Phase Decomposition in Fe-Cr Alloys under Irradiation: Mukesh Bachhav1; Elaina Anderson1; G. Robert Odette2; Emmanuelle Marquis3; University of Michigan; University of California - Santa Barbara

11:50 AM Concluding Comments

Magnesium Technology 2017 — Solidification and Processing II
Sponsored by:TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Wednesday AM
Room: 5A
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Norbert Hort, Helmholtz-Zentrum Geesthacht; Tracy Berman, University of Michigan

8:30 AM
Processing of Mg-sheet via Twin Roll Casting: Dietmar Letzig1; Roland Hoppe1; Jonas Isakovic1; Gerrit Kurz1; MagIC - Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht

8:50 AM
Effects of Mn and Zn Solutes on Grain Refinement of Commercial Pure Magnesium: Jia Gu1; Yuanding Huang1; Mingxing Zhang2; Karl Ulrich Kainer2; Norbert Hort1; Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht; School of Mechanical and Mining Engineering, The University of Queensland

9:10 AM
Experimental Investigation of Continuous Magnesium Production by Carbothermal Reduction: Boris Chubukov1; Scott Rowe1; Aaron Palumbo1; Illias Hischier5; Alan Weimer5; CU-Boulder
9:30 AM  Grain Refinement of Mg-Gd-Y-(Zr) Alloys through Squeeze Casting: Cunlong Wang; Kaka Ma; Enrique J. Lavernia; Guohua Wu; Wencai Liu; Wenjiang Ding; 1Shanghai Jiao Tong University; 2University of California, Irvine

9:50 AM  Precipitation Behavior of Mg-Al-Sn-Zn-(Na) Alloys: Sumi Jo; Yohan Go; Kwang Seon Shin; Bong Sun You; Young Min Kim; 1Korea University of Science and Technology; 2Seoul National University; 3Korea Institute of Materials Science

10:10 AM  Break

10:30 AM  Study on the Direct Oxidation Thermal Decomposition of Magnesium Chloride byproduct in the Sponge Titanium Production Process to Prepare Magnesium Oxide: Liping Niu; Zhang Ting’an; Guozhi Lv; Aiping Zhou; 1Northeastern University

10:50 AM  Thermal Decomposition Kinetics of Pre-prepared Pellets for the Novel Silicothermic Process: Lukai Guan; Zhang Ting’an; Zhihe Dou; Daxue Fu; Ming Wen; 1Northeastern University

11:10 AM  Thermal Stability of Cryomilled Mg Alloy Powder: Dikai Guan; Mark Rainforth1; Joanne Sharp; Jinheng Gao; 1University of Sheffield

11:30 AM  Thermomechanical Processing of Thixomolded Alloys: Raymond Decker; Stephen LeBeau1; Tracy Berman; Tori Miller; Wayne Jones; Tresa Pollock; Nir Moskovich1; Boris Bronfin; 1Thixomat, Inc/nanoMAG LLC; 2Univ of Michigan; 3North Carolina State University; 4Univ of California Santa Barbara; 5ICI Magnesium

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Structural Materials II

Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Nuclear Materials Committee, TMS: Mechanical Behavior of Materials Committee, Program Organizers: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Wednesday AM  Room: 25B  Location: Marriott Marquis Hotel

Session Chairs: Clarissa Yablinsky, Los Alamos National Laboratory; Indrajit Charit, University of Idaho

Wednesday AM  Room: 25B  Location: Marriott Marquis Hotel

Session Chairs: Clarissa Yablinsky, Los Alamos National Laboratory; Indrajit Charit, University of Idaho

8:30 AM  Irradiation-Induced Microstructure of Proton Irradiated Commercial Austenitic Alloys: Miaoj Song; Gary Was; 1University of Michigan

8:50 AM  Neutron Irradiation-induced Creep of IG-110 Nuclear Graphite: Anne Campbell; Eiji Kimmoto; Yutai Kato1; 1Oak Ridge National Laboratory; 2Toyo Tanso Co. Ltd.

9:10 AM  Role of Localized Deformation and Grain Boundary Plane Orientation on Crack Initiation in Irradiated Stainless Steels: Drew Johnson; Bryan Kuhl; Diana Farkas; Gary Was; 1University of Michigan; 2Virginia Tech

10:10 AM  Break

10:30 AM  The Effect of Low-fluence Neutron Irradiation on Cast Austenitic Stainless Steels: Shier Chen; Yuichi Miyahara; Akiyoshi Nomoto; Kenji Nishida; 1Central Research Institute of Electric Power Industry

10:50 AM  Effects of Thermal Aging and Neutron Irradiation on Cast Austenitic Stainless Steels: Wei-Ying Chen; Yiren Chen; Chi Xu; Zhangbo Li; Yong Yang; Nicholaos Demas; 1Argonne National Laboratory; 2University of Florida

11:10 AM  Utilizing In-situ Microtensile Testing to Evaluate Mechanical Property Changes Due to Ion-beam Irradiation: Hi Yo; Stuart Maloy; Peter Hosemann; 1University of California, Berkeley; 2Los Alamos National Laboratory

11:30 AM  In-situ High Energy X-ray Characterization of Neutron Irradiated HT-UPS Stainless Steel under Tensile Deformation: Chi Xu; Xuan Zhang; Meimei Li; Jun-Sang Park; Peter Kenseel; Jonathan Almer; Yong Yang; 1Argonne National Laboratory / University of Florida; 2Argonne National Laboratory; 3University of Florida

Materials Engineering of Soft Magnets for Power and Energy Applications — Nanocomposite Soft Magnetic Alloys for Power Electronics, Transformers, and Inductors

Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee, TMS: Magnetic Materials Committee

Program Organizers: Paul Ohodnicki, National Energy Technology Laboratory; Francis Johnson, GE Global Research; Alex Leary, Carnegie Mellon University; Tanjore Jayaraman, University of Michigan; Lajos Varga, Wigner Research Center for Physics

Wednesday AM  Room: 25B  Location: San Diego Convention Ctr

Session Chair: Paul Ohodnicki, NETL

8:30 AM  Invited  Challenges to the Commercial Acceptance of Amorphous and Nanocrystalline Soft Magnetic Materials: Eric Thiesen; Jerry Allen; Naoki Ito; 1Metglas Inc.

9:00 AM  Invited  Magnetic Material Excited by Power Electronics in Electrical Engineering: Kaisuke Fujisaki; 1Toyota Technological Institute

9:30 AM  Nanocomposite Soft Magnetic Materials for High Frequency and High Power Conversion Applications: Paul Ohodnicki; Vladimir Keylin; Alex Leary; Michael McHenry; Subhadeep Bhattacharya; 1National Energy Technology Laboratory; 2Carnegie Mellon University; 3North Carolina State University

9:50 AM  Break

10:05 AM  Invited  Structure-Processing-Property Relationships in High Temperature Nanocomposite Soft Magnets: Matthew Willard; Song Lan; Bowen Dong; Anthony Martone; 1Case Western Reserve University
Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Intermetallics and Additive Manufacturing of Superalloys

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee

Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmairer, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Session Chairs: Helmut Clemens, Montanuniversitaet Leoben; Haruyuki Inui, Kyoto University

Materials Processing Fundamentals — Steelmaking

Sponsored by: TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee

Program Organizers: Antoine Allanoire, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

Session Chairs: Guillaume Lambotte, Boston Electromet; Antoine Allanoire, Massachusetts Institute of Technology

Iron Aluminides: Recent Alloy Developments and Industrial Processing

Martin Palm

Directionally Solidified Ni-Al-X Ternary Eutectics for High-Temperature Applications

G. Liu; P. Hallensleben; J. Frenzel; X. Liu; J. Pletzing-Micklich; E. P. George; Ruhr University Bochum

Novel High Strength Eutectic Intermetallics: Chandrasekhar Tiwary; Vilas Gunjal; Abhishek Sharma; Kamano Chattopadhyay; Dipankar Banerjee; Indian Institute of Science

9:50 AM Break

Plasticity of Hard and Brittle Materials at Micron-meter Size Scales

Haruyuki Inui; Kyouko Kishida; Norihiko Okamoto; Kyoto University

Advanced γ-TiAl Based Alloys: Helmut Clemens; Svea Mayer; Montanuniversitaet Leoben

Microstructure–property Relationship in Next Generation TiAl Alloys

Soumya Nag; Akane Suzuki; Manuel Acosta; Michael Weimer; Bernard Bewlay; GE Global Research; GE Aviation

Additive Manufacturing of High Temperature Alloys: An Emphasis on the Current State and Future Direction of Ni-base Superalloy Processability in AM: Michael Kirka; Ryan Dehoff; Oak Ridge National Laboratory

Microstructure Characterization of Single-crystal René N5 Fabricated through Scanning Laser Epitaxy: Anmitra Basak; Suman Das; Georgia Institute of Technology

8:30 AM Invited

Iron Aluminides: Recent Alloy Developments and Industrial Processing

Martin Palm; Max-Planck-Institut für Eisenforschung GmbH

9:00 AM Invited

Directionally Solidified Ni-Al-X Ternary Eutectics for High-Temperature Applications

G. Liu; P. Hallensleben; J. Frenzel; X. Liu; J. Pletzing-Micklich; E. P. George; Ruhr University Bochum

9:30 AM Novel High Strength Eutectic Intermetallics: Chandrasekhar Tiwary; Vilas Gunjal; Abhishek Sharma; Kamano Chattopadhyay; Dipankar Banerjee; Indian Institute of Science

9:50 AM Break

10:10 AM Invited

Plasticity of Hard and Brittle Materials at Micron-meter Size Scales

Haruyuki Inui; Kyouko Kishida; Norihiko Okamoto; Kyoto University

Advanced γ-TiAl Based Alloys: Helmut Clemens; Svea Mayer; Montanuniversitaet Leoben

Microstructure–property Relationship in Next Generation TiAl Alloys

Soumya Nag; Akane Suzuki; Manuel Acosta; Michael Weimer; Bernard Bewlay; GE Global Research; GE Aviation

11:10 AM Microstructure–property Relationship in Next Generation TiAl Alloys

Soumya Nag; Akane Suzuki; Manuel Acosta; Michael Weimer; Bernard Bewlay; GE Global Research; GE Aviation

Additive Manufacturing of High Temperature Alloys: An Emphasis on the Current State and Future Direction of Ni-base Superalloy Processability in AM: Michael Kirka; Ryan Dehoff; Oak Ridge National Laboratory

Microstructure Characterization of Single-crystal René N5 Fabricated through Scanning Laser Epitaxy: Anmitra Basak; Suman Das; Georgia Institute of Technology

8:30 AM Invited

Iron Aluminides: Recent Alloy Developments and Industrial Processing

Martin Palm

Directionally Solidified Ni-Al-X Ternary Eutectics for High-Temperature Applications

G. Liu; P. Hallensleben; J. Frenzel; X. Liu; J. Pletzing-Micklich; E. P. George; Ruhr University Bochum

9:00 AM Invited

Directionally Solidified Ni-Al-X Ternary Eutectics for High-Temperature Applications

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Microstructure Characterization of Single-crystal René N5 Fabricated through Scanning Laser Epitaxy: Anmitra Basak; Suman Das; Georgia Institute of Technology
9:35 AM
Magnetic Anisotropy and Crystallographic Alignment in d-HDDR Process of Nd-Fe-B-Ga-Nb Powders: Takashi Horikawa; Masashi Matsuura; Satoshi Sugimoto; Masao Yamazaki; Chisato Mishima; Tohoku University; Aichi Steel Corporation

9:55 AM Break

10:10 AM Invited
Recent Developments in RFe_{12}-type Compounds for Permanent Magnets: A.M. Gabay; George Hadjipanayis; University of Delaware

10:35 AM
Temperature Dependence of the Magnetization and Magnetic Anisotropy Measured on the Epitaxial RF_{12}i (N) (R = Sm and Nd) Thin Films with ThMn\text{\textsubscript{2}} Structure: Yuiko Hiroiyama; Yukiko Takahshi; Satoshi Hiroawa; Kazuhiro Hono; National Institute for Materials Science

11:55 AM Invited
New Hard Magnetic ThMn\text{\textsubscript{2}}-type phases with Low Rare Earth Contents for Permanent Magnet Applications: Andrés Martín-Cid; Daniel Salazar; Aleksander Gabay; Ana María Schönöhöl; Jose Garitaonandia; Jose Manuel Barandiaran; George Hadjipanayis; BCMaterials; University of Delaware; University of the Basque Country (UPV/EHU)

12:15 PM Invited
First-principles Study of ThMn\text{\textsubscript{2}}-type Iron-based Rare-earth Intermetallics: Takashi Miyake; AIST

**Mechanical Behavior of Nanostructured Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Materials for Nuclear Environments**

**Sponsored by:** TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

**Program Organizers:** Xinghang Zhang, Purdue University; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

**Session Chairs:** Jacob Eapen, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory

**Location:** San Diego Convention Ctr Room: 24A

**Wednesday AM**

**March 1, 2017**

**Funding support provided by:** AJA International; Hysitron Inc.

**Session Chairs:** Yuntian Zhu, North Carolina State University; Cynthia Volkert, Universität Göttingen; Marc Legros, CEMES-CNRS

8:30 AM Keynote
Enhanced Radiation Tolerance of Single Phase Solid Solution Alloys: Shi Shi; Mo Rigen; Shuai Wang; Ian Robertson; University of Wisconsin-Madison

9:00 AM Invited
Deformation and Fracture Behavior of Irradiated and Nonirradiated Austenitic Stainless Steels: Thak Sang Byun; Maxim Gussev; Timothy Lach; Pacific Northwest National Laboratory; Oak Ridge National Laboratory

9:20 AM Invited
A Rate Theoretic Approach to Modeling Irradiation Creep: Jacob Eapen; NC State University

9:40 AM Invited
Anisotropic Biaxial Creep of Textured Nb-modified Zircaloy-4 Tubing: Nilesh Kumar; Kaitlin Grundy; Boopothy Kombaiah; Baifeng Luan; K Murty; NC State University; Carnegie Mellon University; Chongqing University

10:00 AM Break

10:20 AM Keynote
The Enhanced Radiation-resistance of Ultrafine-grained Metals Produced by SPD Processing: Ruslan Valiev; Nariman Enikeev; Marina Abramova; Bertrand Radiguet; Auriane Etienne; Xavier Sauvage; Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; Ufa State Aviation Technical University; Université et INSIA de Rouen

10:50 AM Keynote
High Temperature Behavior of Zirconium Alloys in Air: Brian Jaques; Jordan Vandegrift; Patrick Price; Jataporn Buns; Isabella van Rooyen; Darryl Butt; Micron School of Materials Science and Engineering, Boise State University; Center for Advanced Energy Studies; Micron School of Materials Science and Engineering, Boise State University; Idaho National Laboratory; Micron School of Materials Science and Engineering, Boise State University; Center for Advanced Energy Studies; University of Utah

11:20 AM Invited
Synergistic Effects of Neutron Irradiation and Interstitial Nitrogen on Strain Aging in Ferritic Steels: Nilesh Kumar; Ahmad Alsabbagh; C. Seok; K Murty; NC State University; SungKyunKwan University

11:40 AM Study of High Temperature Deformation Behavior of Graded Transition Joints (GTJs) (Relevance to Nuclear Power Plant Components): Mohan Subramanian; Sudarsanan Babu; Jonathan Galler; John DuPont; Xinghua Yu; Zhih Feng; University of Tennessee; Lehigh University; Oak Ridge National Laboratory

**Mechanical Behavior of Nanostructured Materials — Mechanical Properties of Thin Films, Low Dimensional Material**

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

**Program Organizers:** Xinghang Zhang, Purdue University; Yuntian Zhu, North Carolina State University; Joseph Poon, University of Virginia; Suryanarayana Challapalli, University of Central Florida; Enrique Lavernia, University of California, Irvine; Haiyan Wang, Texas A&M University

**Wednesday AM**

**March 1, 2017**

**Location:** San Diego Convention Ctr Room: 30D

8:30 AM Invited
Experimental Observations of the Mechanical Behavior of Nanocrystalline Thin Films: Kevin Henkæ; Suman Dasgupta; Paul Rottmann; Johns Hopkins University

8:55 AM
Exploring Nanoindentation Induced Stress Field Propagation in Nanoporous Thin Films: Tyler Vanover; Nicolas Briot; Thomas Balk; University of Kentucky

9:15 AM Invited
In-Situ Electron Microscopy of Fracture and Flow: Bahne Kapelle; Andreas Kelling; Florian Süß; Cynthia Volkert; University of Göttingen

9:40 AM
Grain Boundaries Shear-migration Coupling and Its Impact on Plastic Deformation in Nanocrystalline Metals: Marc Legros; Frédéric Momp permanent; Nicolas Combe; Elsah Hosseini; Olivier Pierron; CEMES-CNRS; Georgia Institute of Technology

10:00 AM Break

10:20 AM Invited
Strength and Deformation of Far-from-Equilibrium Metallic Systems at the Nano-scale: High-Entropy Alloys and Metallic Glasses: Julia Greer; Rachel Liontas; Adenike Giwa; H. Diao; Peter Liaw; California Institute of Technology; UTennessee
10:45 AM
Grain Size or Film Thickness? Influence of the Two Main Length Scale Parameters on the Mechanical Reliability of Polymer-supported Metal Films: Oleksandr Glushko1; Megan Cordill1; Erich Schmid Institute

11:05 AM Invited
The Mechanical Behavior of Highly Oriented, Nano-layered HCP/BCC Composites: Irene Beyerlein1; Milan Ardeljan2; Marko Knezevic2; Nathan Mara1; Daniel Savage3; Sven Vogel3; Rodney McCabe1; John Carpenter2; 1Los Alamos National Laboratory; 2University of New Hampshire

11:30 AM
Structure Dependent Creep Behavior of CuNb Nanolaminates: Jaclyn Avallone1; Thomas Nizolek1; Irene Beyerlein1; Nathan Mara2; Tresa Pollock2; 1University of California Santa Barbara; 2Los Alamos National Laboratory

11:50 AM
Influence of Severe Plastic Deformation on the Local Deformation Behavior of Nanostructured Metals under Extreme Conditions: Verena Maiser-Kiener1; Alexander Leitner1; Reinhard Pippan2; Daniel Kiener1; 1Montanuniversität Leoben - Physical Metallurgy & Materials Testing; 2Montanuniversität Leoben - Materials Physics; 3Austrian Academy of Sciences - Erich-Schmid-Institute for Materials Science

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Microstructural Processes in Irradiated Materials — Austenitic Alloys

Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee

Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dan Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Wednesday AM
Room: Del Mar
Location: Marriott Marquis Hotel

Session Chairs: Djamel Kaoumi, North Carolina State University; Zhijie Jiao, University of Michigan

8:30 AM Invited
The Role of Deformation in Irradiation Assisted Stress Corrosion Cracking: Gary Was1; 1University of Michigan; Ian Robertson2; 2University of Wisconsin; Virginia Tech

9:00 AM
Plastic Deformation Mechanisms Accompanying Stress Corrosion Cracking in Highly Irradiated Austenitic Steels: Maxim Gussev1; Kevin Field1; Donovan Leonard2; Gary Was2; Keith Leonard2; 1Oak Ridge National Laboratory; 2University of Michigan

9:20 AM
Study of Microstructural Evolution of 304 Stainless Steels by Atom Probe Tomography: Bertrand Radiguet1; Bertrand Michaut1; Brigitte Décaux1; Faiza Sefri2; Joël Malaplate2; 1GPM UMR CNRS 6634 - Université de Lyon 1; 2CEA Saclay, DEN/DANS/DMN/SRMA; 3CSNSM Orsay; 4EDF R&D, département MMC, Groupe Métallurgie

9:40 AM
Post-irradiation Annealing Effect on the Irradiated Microstructure of a BWR-irradiated 304L Stainless Steel: Zhijie Jiao1; Justin Hesterberg2; Gary Was1; 1University of Michigan; 2Virginia Tech

10:00 AM Break

10:15 AM Invited
Role of Grain Boundary Phenomena on Stress Corrosion Cracking in LWR Environments: Daniel Schreiber1; Matthew Olszta1; Stephen Brueummer2; 1Pacific Northwest National Laboratory; 2University of South Carolina

10:45 AM
Mechanical Characterization of In Service Inconel X-750 Annulus Spacers: Cameron Howard1; Peter Hosemann2; Scott Parker1; Malcolm Griffiths3; Colin Judge4; David Poft4; 1UC Berkeley; 2Canadian Nuclear Laboratories

11:05 AM
Microstructural Evolution and Mechanical Fracture Behavior of CASS under Accelerated Thermal Aging: Timothy Lach1; Thay Byun1; 1Pacific Northwest National Laboratory

11:25 AM
Irradiation-induced Nanoclusters in Cu-Nb and Cu-Nb-Si: Jae Yel Lee; Pascal Bellon1; Robert Averback1; University of Illinois at Urbana-Champaign

11:45 AM Introductory Comments DOE-BES Program/Mechanical Behavior & Radiation Effects

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Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Materials with Architectured Structures

Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huaqian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Wednesday AM
Room: 24B
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Yves Brechet, Grenoble Institute of Technology; Ruth Schweiger, Karlsruhe Institute of Technology

8:30 AM Invited
Materials by Design: 3-Dimensional Nano-Architected Meta-Materials: Julia Greer; Lucas Meza1; Alessandro Maggi2; Victoria Chernov2; Xiaoxing Xia2; 1California Institute of Technology; 2University of Lyon; 3Université Grenoble Alpes - CNRS

8:55 AM
Mechanics of Single-wire Entangled Architectured Materials: David Rodnyj1; Sabine Rolland du Rosco1; Laurent Orgéas2; 1Univrsité de Lyon; 2Université Grenoble Alpes - CNRS

9:15 AM Designing Lightweight Composite Cellular Structures: Glenn Hibbard; 1University of Toronto

9:35 AM Development and Compressive Deformation of Polymer-metallic Microcellular Structures: Theresa Juarez1; Almut Schroer2; Ruth Schweiger2; Andrea Hodge2; 1University of Southern California; 2Karlsruhe Institute of Technology

9:55 AM Break

10:15 AM Invited
High-strength, Light-weight Hierarchical Materials Based on 3D Direct Laser Writing: Ruth Schweiger; 1Karlsruhe Institute of Technology (KIT)

10:40 AM Toughening of Meso-structured Materials in Additive Manufacturing: Hang Yu; Virginia Tech
11:00 AM
Chemical Etching of Ti Lattice Structures Manufactured by Electron Beam Melting: Influence on the Stiffness of the Octet-Truss Structures and Modeling of the Dissolution Kinetics at the Scale of Individual Struts: Pierre Lhuissier; Charlotte De Fornaman; Guilhem Martin; Rémy Dendievel; Stephane Goder
1 Université Grenoble Alpes
2 Université Libre de Bruxelles

11:20 AM
Surface Gradient Architectured Materials Processed by Severe Plastic Deformation via Surface Abrasion Torsion: Ji Hyun Moon; Ho Yong Um
See Am Lee; Jae Ik Yoon; Jaimyun Jung; Hyoung Seop Kim
1 POSTECH

Nanostructured Surfaces for Improved Functional Properties — Session I
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Surface Engineering Committee
Program Organizers: Rajeev Gupta, The University of Akron; Hommero Casaneda, Texas A&M University; Sandip Harimkar, Oklahoma State University; Arvind Agarwal, Florida International University; Bobby Mathan, James Cook University

Wednesday AM March 1, 2017 Room: Pacific 23 Location: Marriott Marquis Hotel

Session Chairs: Rajeev Gupta, The University of Akron; Sandip Harimkar, Oklahoma State University

8:30 AM Invited
Surface Alloying, Grain Refinement and Corrosion Response in Grain Size Gradient Microstructures: Heather Murdoch; Joseph Labukas; Jim Catalano; Kristopher Darling
1 Army Research Laboratory

8:50 AM
Advanced Laser Surface Processing of Thermally-Stable Nanocrystalline Alloys: Kendrick Mensing; Guillermo Aguilar; Suveen Mathaudhu
1 University of California Riverside

9:10 AM Invited
Temporary Implants for Bone Fracture Healing: Nanosurface Engineering: Bobby Kannan Mathan
1 James Cook University

9:30 AM
Corrosion Resistance and Chemical Stability of Super-hydrophobic Electrodeposited Nickel-cobalt Film: ShokrEH KhorSAn; Keyvan Raeissi; Fahreddin Ashrafizadeh; Maria Arenas
1 Brunel University London
2 Isfahan University of Technology
3 National Center for Metallurgical Research

9:50 AM Break

10:05 AM Invited
Nanostructured Coatings for Wear and Corrosion Resistance: Gary Dolf
1 The University of Akron

10:25 AM
The Effects of Mn Addition on the Tribocorrosion Behavior of Al-Mn Coatings: Hesham Maied; Wenjun Cai
1 University of South Florida

10:45 AM
Plasma Spray Deposition of Aluminum-Boron Nitride Nanotube Composite: Pranjal Nautiyal; Cheng Zhang; Arvind Agarwal
1 Plasma Forming Laboratory, Florida International University

11:05 AM
Corrosion Behavior of Boron Nitride Nanosheet Reinforced Copper Matrix Composite Coatings: Shui Shu; Cengiz Yegin; Winson Kuo; Mustafa Akbulut; Homero Casaneda
1 Texas A&M University

Pan American Materials Congress Plenary — Session III
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizer: Marc Meyers, UCSD

Wednesday AM Room: Marina G March 1, 2017 Location: Marriott Marquis Hotel

8:30 AM Plenary
Recent Progress in High Entropy Alloy Research: Zhiqiang Fu; Benjamin MacDonald; Baolong Zheng; Weiping Chen; Yaqun Lin; Fei Chen; Lian Zhang; Yulia Ivanisenko; Yizhang Zhou; Horst Hahn; Enrique J. Lavenda
1 University of California, Irvine
2 South China University of Technology
3 Wuhan University of Technology
4 Karlsruhe Institut of Technology
5 Karlsruhe Institute of Technology

9:10 AM Plenary
High Temperature Solutions through Materials and Processes for Engines under Heavy Thermal Fatigue Conditions: Salvador Valtierra
1 Nemak

9:50 AM Break

Pan American Materials Congress: Advanced Biomaterials — Bioinspired, Drug Delivery and Biomimetic Materials
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Wednesday AM Room: Mission Hills March 1, 2017 Location: Marriott Marquis Hotel

Session Chairs: Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ); Po-Yu Chen, National Tsing Hua University

10:10 AM Invited
Bioinspired Phase Transforming Cellular Materials: Pablo Zavattieri;
David Restrepo; Yunlan Zhang; Nilesh Mankame
1 Purdue University
2 General Motors Research & Development

10:40 AM
An Approach to Study Materials-structure Relationships in Bio-inspired Microstructures: Alejandro Gutierrez; Lilian Davila
1 University of California, Merced

11:00 AM
Heparin-based Self-assemblies for Controllable Drug Delivery Application: Lin Ye
1 Beijing Institute of Technology

11:20 AM
Synthesis and Characterization of Bioinspired Freeze-Cast Alumina With A Zr-Based Bulk Metallic Glass Matrix: Amy Wat; Jin Lee
2 Bernd Gludovatz; Eun Soo Park
3 Lawrence Berkeley National Laboratory

11:40 AM
Analysis of Biomimetic Surgical Clip Using Finite Element Modeling for Geometry Improvement and Biomaterials Selection: Thays Brito; Bianca dos Santos
4 Leonardo Araújo
5 Luiz de Almeida
6 Marysilvia da Costa
7 Universidade Federal do Rio de Janeiro

12:00 PM Invited
Multiscale Bio-inspired Design of Nanocomposites: Horacio Espinosa
1 Northwestern University
Pan American Materials Congress: Advanced Manufacturing — Polymer, Composites, and Metals

Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Holza, UFSC

Wednesday AM
March 1, 2017
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

10:10 AM
Comparative Mechanical Analysis between Epoxy Composite Reinforced with Random Short Curaua Fibers and Aligned Long Curaua Fibers: Natália Maciel; Carolina Ribeiro; Jordana Ferreira; Janaina Vieira; Frederico Margem; Carlos Maurício Vieira; Sérgio Monteiro; 'UNEF

10:30 AM
Damage Evaluation of Impact by Low-speed on Fiberglass Composite with Laminates Aluminum 2024-T3: Eduardo Jose Trujillo; 'Centro de Ingeniería y Desarrollo Industrial

10:50 AM
Numerical Modeling of High-Velocity Impact Welding: Ali Nassiri; Shunyi Zhang; Tim Abke; Brad Kinsey; Glenn Daehn; 'The Ohio State University; 'University of New Hampshire; 'Honda R&D, North America

11:10 AM
Reducing Radiation Exposure to the Rectum during Prostate Cancer Radiation Therapy using NiTi Shape Memory Alloy: Hassen Lavafi; Ayush Tiwari; Ahmadreza Jahadakbar; Mahbod Pouriahi; Mohammad Elahinia; Vijaya Devabhattauni; E. Ishmael Parsai; 'University of Toledo Medical Center; 'University of Toledo; 'University of Toledo Medical Center

11:30 AM
Selective Laser Sintering of Polyamide/ Hydroxyapatite Scaffolds: Frederic Dubaji; Steffson Stares; Jose Mascheroni; Duchamir Holza; Gean Salomiria; 'UFSC; 'Alkimat

Pan American Materials Congress: Materials for Green Energy — Battery Technologies for Green Energy

Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Wednesday AM
March 1, 2017
Location: Marriott Marquis Hotel

Session Chair: Hector Calderon, ESFM-IPN

10:10 AM
A Novel Air Electrode Using Core-Shell Particles for Metal Hydride/Air Rechargeable Battery: Hideyuki Sano; Masatsugu Morimitsu; 'Doshisha University

10:30 AM
Effect of Mo6+ Substitution on Microstructure and Lithium Ionic Conductivity of Garnet-Type Li7La3Zr2012 Solid Electrolytes by Field Assisted Sintering Technology: Fei Chen; Junyang Li; Yanyu Zhang; Dunjie Yang; Qiang Shen; Lianmeng Zhang; 'Wuhan University of Technology

10:50 AM
Development of Air Electrodes Using Different Types of Carbon Materials for Metal Hydride/Air Secondary Battery: Yisuke Ujino; Masatsugu Morimitsu; 'Doshisha University

11:10 AM
Study of the Influence on the Thermodynamic Properties of Replacing V by Zr in Alloys for Hydrogen Storage: Daniela Bellon Monsalve; 'Universidad de Santander

11:30 AM
Cycle Performance of Air Electrode and Metal Hydride/Air Secondary Battery: Tsukasa Gejo; Kenji Kawaguchi; Masatsugu Morimitsu; 'Doshisha University

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Microstructure Evolution

Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politècnica de Catalunya

Wednesday AM
Room: Marina F
March 1, 2017
Location: Marriott Marquis Hotel

Session Chairs: Shima Sabbaghiannrad, University of Southern California; Laszlo Toth, Université de Lorraine

10:10 AM
Quantitative Modeling of Grain Fragmentation during Severe Plastic Deformation Featuring Grain Size Distribution, Texture, Strain Hardening, and Disorientation Distribution: Laszlo Toth; 'Université de Lorraine

10:30 AM
Continuous Dynamic Recovery in Pure Aluminum Deformed to High Strain by Accumulative Press Bonding: Sajjad Amirkhanlou; Mostafa Ketabchi; Nader Parvin; Fernando Carreño; 'Brunel University London; 'Amirkabir University of Technology; 'Amirkabir University of Technology; 'CENIM-CSIC

10:50 AM
Static Recrystallization and Grain Growth of Accumulative Roll Bonded Aluminium Laminates: Laura Lienshoeft; Paul Chekhonin; Juliane Scharnweber; Tom Marr; Tina Hausöl; Heinz Werner Hoeppel; Werner Skrotzki; 'TU Dresden; 'IFW Dresden; 'Universität Erlangen-Nürnberg

11:10 AM
Evaluation of the Hardening and Softening Effects in Zn-21Al-2Cu with As Cast and Homogenized Microstructure Processed by Equal Channel Angular Pressing: Esperanza Elizabeth Martinez Flores; Jose Luis Hernandez Rivera; Jorge Garcia Rocha; Jose de Jesus Cruz Rivera; 'Gabriel Torres Villaseñor; 'Instituto de Metalurgia-Universidad Autonoma de San Luis Potosi; 'Instituto de Investigaciones en Materiales-Universidad Nacional Autonoma de Mexico
11:30 AM  
Microstructure Evolution of Ti-6Al-7Nb with Different Initial Microstructures Processed by High-Pressure Torsion: Jorge Cubero-Sesín; Joaquín González-Hernández; Elena Ulate-Kolitski; Stephen Petretti; Luis Rojas-Morales; José Vega-Baudrit; Zenji Horita; Instituto Tecnológico de Costa Rica; Laboratorio Nacional de Nanotecnología (LANOTEC-CeNAT); Kyushu University / I2CNER

11:50 AM  
Limit of Grain Refinement after Processing by a Combination of Severe Plastic Deformation Techniques: Shima Sabbaghianrad; Seyed Alireza Torbati-Sarraf; Terence Langdon; University of Southern California

12:10 PM  
Influence of SPD in Phase Transformation of Duplex Steels: Naria Llorca-Isern; Isabel Lopez; Jose Maria Cabrera; Mohan Chand; Irene Calliari; Antoni Roca; Universitat de Barcelona; Universitat Politècnica de Catalunya; Università degli Studi di Padova

**Pan American Materials Congress: Steels — Thermomechanical Processing and Properties**

*Sponsored by:* Third Pan American Materials Congress Organizing Committee

*Program Organizers:* Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - Universidade Federal Fluminense

**Wednesday AM Room:  Marina E**

**March 1, 2017 Location: Marriott Marquis Hotel**

**Session Chair:** To Be Announced

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**10:10 AM Invited**

New Challenges in Thermomechanical Processing: Applications in the Cold Mill: Yu Gong; M. Hua; J. Uusitalo; Anthony DeArdo; University of Pittsburgh; University of Oulu

**10:40 AM**

Microstructural Evolution in Microalloyed Steels during Thermomechanical Rod Rolling: Lijia Zhao; Robert Cryderman; John Speer; Colorado School of Mines

**11:00 AM**

Modeling Precipitation and Dissolution of Microalloying Carbonitrides in Steels Using Computational Thermodynamics-techniques, Possibilities and Present Challenges: Andre Costa E Silva; EEIMVR - Universidade Federal Fluminense

**11:20 AM**

Evolution of Austenite Dislocation Density during Hot Deformation using a Physical Dynamic Recrystallization Model: Peng Zhou; Qingxian Ma; Tsinghua University

**11:40 AM**

The Research on the Relationship between Gas Movement Behaviors and Circulating Flow of the Molten Steel in RH: Jialiang Xu; Yanping Bao; Lihua Zhao; Min Wang; Lu Lin; Yadi Li; Xingle Fan; University of Science and Technology Beijing

**12:00 PM**

Influence of a Rapid Heating on the Microstructure and Properties of Press-hardening Steel Sheets: Anatoli Andreiev; Mirko Schaper; Oleksandr Grydin; Paderborn University

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**Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Electrochemistry & Pb-free Soldering**

*Sponsored by:* TMS Functional Materials Division, TMS: Alloy Phases Committee

*Program Organizers:* Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Cheng University; Jae-Hee Lee, Hongik University; luuo Ohnuma, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

**Wednesday AM Room:  25A**

**March 1, 2017 Location: San Diego Convention Ctr**

**Session Chairs:** Shien Ping Tony Feng, The University of Hong Kong; Jae-Hee Lee, Hongik University

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**8:30 AM**

Effects of Pretreatments on the Adhesion of Cu/Non-conductive Substrates in Electroless Copper Plating: Ju-Seek Kang; Jinuk Lee; Hyun-Woo Kwon; Jae-Hee Lee; Hongik University; Samsung Electro-Mechanics

**8:50 AM**

Etching Behaviors of Copper and Invar in via Hole of Copper-Invar-Copper Clad Substrate: Jong-Chan Choi; Jinuk Lee; Hyun-Woo Kwon; Jae-Hee Lee; Hongik University; Samsung Electro-Mechanics

**9:10 AM**

Sulfurization Effect on the Ag and Ag-Pd Reflectors: Erh-Ju Liu; Yan-Hao Chen; Cheng-Yi Liu; National Central University

**9:30 AM**

Interfacial Characterizations of an Electroless Nickel Layer on a Polyimide Film: Pei-Yu Wu; Chih-Ming Chen; National Chung Hsing University

**9:50 AM**

Strong Effect of Cu Electroplating Formulas on the Electroplated-Cu/ Sn Interfacial Reactions: Hsuan Lee; Chih-Ming Chen; National Chung Hsing University

**10:10 AM Break**

**10:25 AM**

Electrochemical Fabrication of Functional Ag Nanocrystals with Highly Electrocatalytic Activity: Shien Ping Feng; Yu-Heui Chang; Chang Liu; The University of Hong Kong

**10:45 AM**

Controlling Interfacial IMC Phase via Modifying Bi Composition in Low Temperature Bi-33In/Cu Solder Joint: Rui-Wen Song; Jenq-Gong Duh; National Tsing Hua University

**11:05 AM**

High-speed Cu Electrodeposition and Its Solid-state Reaction with Sn-3Ag-0.5Cu: Pei-Tzu Lee; Ying-Syuan Wu; Cheng-Hsien Yang; Hung-Cheng Liu; Cheng-En Ho; Yuan Ze University; Kinsus Interconnect Technology Corp.

**11:25 AM**

Crystallization Kinetics of Amorphous Chalcogenide-based Phase Change Materials and Elemental Semiconductors and Studied with Multi-frame, Nanosecond-scale Dynamic TEM: Mark Winseck; Huai-Yu Cheng; Geoffrey Campbell; Melissa Santala; Oregon State University; Macromix International Co., Ltd.; Lawrence Livermore National Laboratory
Phase Transformations and Microstructural Evolution — Shape Memory Alloys, and General

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee

**Program Organizers:** Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

**Wednesday AM**

**8:30 AM**

**Phase Transformations in NiTi Alloys under Biaxial Stress:** Ethymios Polatidis; Wei-Neng Hsu; Steven Van Petegem; Helena Van Swygenhoven; 1 Paul Scherrer Institute; 2 Paul Scherrer Institute & EPFL

**8:50 AM**

**The Effect of the Heat Treatment Temperature on the Thermodynamic Properties of the 55.89wt%Ni-Ti Shape Memory Alloy:** Ben Fraj Bouteina; Zoubir Tourki; 1 Mechanical Laboratory of Sousse

**9:10 AM**

**Revealing Transformation and Deformation Mechanisms in Nital-based High Temperature Shape Memory Alloys through Microstructural Investigations:** Lee Casalenca; Fan Yang; Daniel Coughlin; Glen Bigelow; Darrell Gaydosh; Santu Padula; Othmane Benafan; Ronald Noebe; Peter Anderson; Yunzhi Wang; Michael Mills; 1 The Ohio State University; 2 Los Alamos National Laboratory; 3 NASA Glenn Research Center

**9:30 AM**

**Microstructural Effects on Stress-Induced Martensite in NCAXB Alloys:** Cheng Zhang; Kenneth Vecchio; 1 Department of NanoEngineering and Materials Science and Engineering Program, University of California, San Diego

**9:50 AM**

**Role of Granular Constraint and Surface Effects on the Phase Transformation Mechanisms in Shape Memory Alloys:** Harshad Paranjape; Partha Paul; Hemant Sharma; Jun-sang Park; Peter Kenebel; Catherine Brinson; Aaron Stebner; 1 Colorado School of Mines; 2 Northwestern University; 3 Argonne National Laboratory

**10:10 AM Break**

**10:30 AM Invited**

**Characterization of Microstructural Evolution in a High Entropy Alloy with a Complex Nanoscale Microstructure:** Jacob Jensen; John Sosa; Dan Huber; Gopal Viswanathan; Robert Williams; Hamish Fraser; 1 The Ohio State University

**10:50 AM**

**Tailoring the Microstructure of Intermetallic Films by Seed Layer Mediated Crystallization from an Amorphous Phase:** Rohit Sarkar; Jagannathan Rajagopalan; 1 Arizona State University

**11:10 AM**

**Unraveling the Growth Process of an Irregular Eutectic:** Ashwin Shahani; Xianghui Xiao; Peter Voorhees; 1 Northwestern University; 2 Argonne National Laboratory

**11:30 AM**

**A Combinatorial Assessment of AlCrCuFeNi (0<x<1.5) High Entropy Alloys: Microstructure, Microhardness, and Magnetic Properties:** Tushar Borkar; 1 Bharat Gwalani; 2 Deep Choudhuri; Calvin Mikler; Chris Yannetta; Xi Chen; Raju Ramanujan; Mark Styles; Mark Gibson; Rajarshi Banerjee; 1 Cleveland State University; 2 University of North Texas; 3 Nanyang Technological University; 4 CSIRO Manufacturing

**11:40 AM**

**Deviations from the Classical Thermodynamics and Earlier Observations in Ni-Ti Shape Memory Alloys:** Boutheina Boutheina; 1 Boutheina Boutheina, 2 University of North Texas; 3 Boutheina Boutheina, University of North Texas; 4 Boutheina Boutheina, University of North Texas; 5 Boutheina Boutheina, University of North Texas

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**The John Cahn Memorial Symposium — Session I**

**Sponsored by:** TMS Materials Processing and Manufacturing Division

**Program Organizers:** James Warren, National Institute of Standards and Technology; W. Craig Carter, MIT; Carol Handwerker, Purdue University; Y. Mishin, George Mason University

**Wednesday AM**

**Room: 22**

**Location: San Diego Convention Ctr**

**Session Chairs:** James Warren, National Institute of Standards and Technology; W. Craig Carter, MIT

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**8:30 AM Introductory Comments:** James A. Warren, chair

**8:40 AM Invited**

**Dislocations, Trijunctions and Grain Rotation:** Kevin McReynolds; Akinori Yamanaka; Peter Voorhees; 1 Northwestern University; 2 Tokyo University of Agriculture and Technology

**9:10 AM Invited**

**A DSC Model for Grain Boundary Migration and Properties:** David Srolovitz; Jian Han; Spencer Thomas; Vachal Vitek; 1 University of Pennsylvania

**9:40 AM Invited**

**Thin Film Grain Growth for Twin Related Orientations of Grains:** John Blundell; Jean Taylor; John Cahn; R. Edwin Garcia; Daniel Lewis; Purdue University; Professor Emerita at Rutgers University and Visiting Faculty at Courant Institute, NYU; 1 NIST and University of Washington

**10:10 AM Break**

**10:30 AM Invited**

**Experimental Measurements of Stress-coupled Boundary Migration and the Attendant Mechanical Behavior of Nanocrystalline Films:** Paul Rottmann; Suman Dasgupta; Kevin Henkner; 1 Johns Hopkins University

**11:00 AM Invited**

**Energetic Trends for Twin Boundaries in HCP Metals:** Maarten de Jong; Liang Qi; Axel van de Walle; Mark Asta; 1 University of California, Berkeley; 2 University of Michigan; 3 Brown University

**11:30 AM Invited**

**Molecular Dynamics Simulations of Faceted, Incoherent Twin Boundaries:** Elizabeth Holm; Jonathan Humberson; 1 Carnegie Mellon University

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**2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Low Dimensional Nanomaterials**

**Sponsored by:** TMS Functional Materials Division, TMS: Nanomaterials Committee

**Program Organizers:** Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

**Wednesday PM**

**Room: Pacific 26**

**March 1, 2017**

**Location: Marriott Marquis Hotel**

**Session Chairs:** Nitin Chopra, University of Alabama; Jiyoung Kim, University of Texas at Dallas

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**2:00 PM Invited**

**Ultrathin Organic-inorganic Hybrid Dielectric Engineering on 2D MoS2 Using Molecular Atomic Layer Deposition:** Lanxia Cheng; Jaebeom Lee; Hui Zhu; Arul Vigneswar Ravichandran; Qiaoxiao Wang; Zifan Che; Antonio Lucero; Moon Kim; Robert Wallace; Luigi Colombo; Jiyoung Kim; 1 University of Texas at Dallas; 2 Texas Instruments
2:30 PM  
Effect of Substrate-film Interface in Mid-IR Photothermal Response of PLD Grown MoS\textsubscript{2}: Ankar Goswami\textsuperscript{1}; Souptik Pal\textsuperscript{1}; \textsuperscript{1}University of California Santa Barbara

2:50 PM  
Scanning Photocurrent Microscopy of Epitaxial Graphene Heterostructures: Bobby Barker\textsuperscript{1}; Venkata Surya Chava\textsuperscript{1}; MVS Chandrashekhar\textsuperscript{1}; Andrew Greytak\textsuperscript{1}; \textsuperscript{1}University of South Carolina

3:10 PM  
Microwave Imaging of Plasma Etched CVD Graphene Using Scanning Microwave Microscope: Kathleen Brodkorb\textsuperscript{2}; Joshua Myers\textsuperscript{2}; Zhonghang Ji\textsuperscript{2}; Hong Huang\textsuperscript{2}; Nick Engel\textsuperscript{2}; Yan Zhuang\textsuperscript{2}; \textsuperscript{2}Wright State University

3:30 PM  
Carbon Nanotube Coated Conductors: Terry Holesinger\textsuperscript{3}; \textsuperscript{3}Los Alamos National Laboratory

3:50 PM  
Break

4:10 PM  
Highly Aligned Electronic-type Purified Semiconducting Carbon Nanotube Array Field Effect Transistors with Current Density That Exceeds Silicon and Gallium Arsenide: Gerald Brady\textsuperscript{4}; Austin Way\textsuperscript{4}; Yongho Joo\textsuperscript{4}; Katherine Jinkins\textsuperscript{4}; Harold Evensen\textsuperscript{4}; Padma Gopalan\textsuperscript{4}; Michael Arnold\textsuperscript{4}; \textsuperscript{4}University of Wisconsin-Madison; \textsuperscript{4}University of Wisconsin-Platteville

4:30 PM  
Synthesis of Pd Nanoparticles on Graphene Oxide Supports by X-ray Irradiation: Dustin Clifford\textsuperscript{5}; Jessika Rojas\textsuperscript{5}; Carlos Castano\textsuperscript{5}; \textsuperscript{5}Virginia Commonwealth University

4:50 PM  
Synthesis and Interface Boundary Characteristics of Gold/Cobalt Janus Nanoparticles: Kyungah Seo\textsuperscript{6}; Olivia Graeve\textsuperscript{6}; \textsuperscript{6}University of California, San Diego

5:10 PM  
On Effects of Geometric Nonlinearity and Mechanical Anisotropy in Strain-engineered Helical Nanoribbons: Zi Chen\textsuperscript{7}; Shicheng Huang\textsuperscript{7}; Ian Trase\textsuperscript{7}; Lina Zhang\textsuperscript{7}; Nan Hu\textsuperscript{7}; \textsuperscript{7}Dartmouth College

5:30 PM  
Electrochemical Actuation of Dealloyed Bulk Nanoporous Nickel: Chuan Cheng\textsuperscript{8}; Jörg Weissmüller\textsuperscript{8}; \textsuperscript{8}Technische Universität Hamburg-Harburg; \textsuperscript{9}Technische Universität Hamburg-Harburg

2:20 PM  
FT-IR Investigation of H Content in SiN\textsubscript{x} Thin Film Grown by PEALD Using HCDS as Precursor; Achieving Low WER: Harrison Kim\textsuperscript{1}; Young-Chul Byun\textsuperscript{1}; Xin Meng\textsuperscript{1}; Jiyoung Kim\textsuperscript{1}; B. K. Kwang\textsuperscript{1}; \textsuperscript{1}The University of Texas at Dallas; \textsuperscript{2}Dow Corning Corporation

2:40 PM  
Effects of Surface Treatments on the Electrical Characteristics of AlGaN/GaN MOS Capacitors Using ALD Grown Epitaxial ZnO as Interfacial Gate Dielectric: Xin Meng\textsuperscript{1}; Young-chul Byun\textsuperscript{1}; Jaegi Lee\textsuperscript{1}; Jiyoung Kim\textsuperscript{1}; \textsuperscript{1}University of Texas at Dallas; \textsuperscript{2}University of Texas Dallas

3:00 PM  
The Effect of H\textsubscript{2}O vs. O\textsubscript{3} as the ALD Oxidant on the Ferroelectric Phase Transition of Hafnium – Zirconium Oxide: Dushyant Narayan\textsuperscript{1}; Si Joon Kim\textsuperscript{1}; Jae-Gil Lee\textsuperscript{1}; Young-Chul Byun\textsuperscript{1}; Joy Lee\textsuperscript{1}; Antonio Lucero\textsuperscript{1}; Scott Summerfelt\textsuperscript{1}; Jiyoung Kim\textsuperscript{1}; \textsuperscript{1}The University of Texas at Dallas; \textsuperscript{2}Texas Instruments

3:20 PM  
Break

3:40 PM  
Gas Condensation of Fe65Co35-Ag/Au Core-Shell Nanoparticles for Biomedical Applications: Mark Koten\textsuperscript{1}; Marlam Patterson\textsuperscript{1}; Jeffrey Shield\textsuperscript{1}; \textsuperscript{1}University of Nebraska - Lincoln; \textsuperscript{2}University of Wisconsin - Stout

4:00 PM  
Thermal and Electrical Transport in Glassy Carbon Nanowires: Laia Ferrer-Argermi\textsuperscript{1}; Arnoldo Salazar\textsuperscript{1}; Marc Madou\textsuperscript{1}; Jaeho Lee\textsuperscript{1}; \textsuperscript{1}University of California Irvine

4:20 PM  
Synthesis and Consolidation of Nanocrystalline Bulk Aluminum Nitride: Matthew Duarte\textsuperscript{1}; Yasuhiko Kodera\textsuperscript{1}; Javier Garay\textsuperscript{1}; \textsuperscript{1}University of California San Diego

4:40 PM  
Plasmon Induced Interfacial Engineering of Nanowires Heterojunctions for Nanoelectronics with Femtosecond Laser Radiation: Luchan Liu\textsuperscript{2}; Lei Liu\textsuperscript{2}; Guisheng Zou\textsuperscript{2}; Walt Duley\textsuperscript{2}; Norman Zhou\textsuperscript{2}; Tsinghua University; \textsuperscript{2}University of Waterloo

8th International Symposium on High Temperature Metallurgical Processing — Ironmaking and Steelmaking

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee
Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Attilim University

Wednesday PM  
Room: 18  
March 1, 2017  
Location: San Diego Convention Ctr

Session Chairs: Dean Gregurek, RHI AG; Guanhhui Li, Central South University

2:00 PM  
Introductory Comments

2:05 PM  
Evolution of Oxide and Sulfide Inclusions in the Ladle Furnace during Calcium Injection: Seyed Yousef Tabatabaei Majid\textsuperscript{1}; Kenneth Coley\textsuperscript{1}; Gordon Irons\textsuperscript{2}; Stanley Sun\textsuperscript{2}; \textsuperscript{1}McMaster University; \textsuperscript{2}ArcelorMittal Dofasco

2:25 PM  
Formation Mechanisms of Inclusions in Spring Steels: Sha Lv\textsuperscript{3}; Zongze Huang\textsuperscript{3}; Yan Yao\textsuperscript{3}; Xiaodong Ma\textsuperscript{3}; Geoff Wang\textsuperscript{3}; Zhiouhua Jiang\textsuperscript{3}; Jin Zou\textsuperscript{3}; Baojun Zhuo\textsuperscript{3}; \textsuperscript{3}The University of Queensland; \textsuperscript{4}Baosteel; \textsuperscript{5}Northeastern University
Additive Manufacturing: Establishing Location-Specific Processing-Microstructure-Property Relationships — Defects and Fatigue

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: Håkan Brodin, Siemens Industrial Turbomachinery AB

Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Novel Techniques

Sponsored by: TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Powder Materials Committee, TMS: Process Technology and Modeling Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: John Carpenter, Los Alamos National Laboratory; David Bourrell, University of Texas - Austin; Allison Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

2:00 PM Invited
An Integrated Platform for Predicting the Mechanical Behavior of Additive Manufactured Metal Parts: Jian Cao; Wing Liu; Sarah Wolf; Steven Lin; Wei Xiong; Puikei Cheng; Gregory Wagner; Eric Faierson; Federico Sciammarella; Kornel Ehmann; Greg Olson; 1Northwestern University; 2Quad City Manufacturing Laboratory & Western Illinois University; 3Northern Illinois University

2:30 PM Microstructural Evolution and Fatigue Behavior of SLM Processed Alloy IN625: John Samuel Dilip Jangam; Md Anam; Deepankar Pal; Brent Stucker; 1University of Louisville; 23D SIM LLC

2:50 PM Investigating the Role of Porosity in DMLS IN718 by Crystal Plasticity Modeling with Experimental Validation: Veerappan Prithivirajan; Todd Book; Diwakar Naragani; Michael Sangid; 1Purdue University

3:10 PM Anisotropic Mechanical Behavior of AlSi10Mg Parts Produced by Selective Laser Melting: Ming Tang; Petrus Pistorius; 1Carnegie Mellon University

3:30 PM Break

3:50 PM Microstructure Evolution, Tensile and Dynamic Properties, and Computational Modeling in Ti-6Al-4V and Inconel 718 Alloys Manufactured by Laser Engineered Net Shaping: Yuwei Zhai; Diana Lados; Eric Brown; Greg Vigilante; Robert Warren; 1Worcester Polytechnic Institute; 2Benet Labs

4:10 PM Fracture and Fatigue Behavior of Additively Manufactured Austenitic Stainless Steel: Chris San Marchi; Josh Sugar; Michael Maguire; Dorian Balch; 1Sandia National Laboratories


4:50 PM Investigating Strain Localization in DMLS Ti-6Al-4V Using CPFE Modeling and DIC: Kartik Kapoor; Todd Book; Michael Sangid; 1Purdue University

5:10 PM Mechanical Properties of SS316L Manufactured by Laser Powder Bed Additive Manufacturing: Håkan Brodin; 1Siemens Industrial Turbomachinery AB

Additive Manufacturing: Establishing Location-Specific Processing-Microstructure-Property Relationships — Defects and Fatigue

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Semiatin, AFR; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poorganji, YTC America Inc.

Wednesday PM Room: 7B Location: San Diego Convention Ctr

Session Chairs: Kinga Unocic, Oak Ridge National Laboratory; Michael Kirka, Oak Ridge National Laboratory

2:00 PM Aerospace Applications for Additive Manufacturing: Andrew Shapiro; John Paul Borgonia; Nataly Chen; R. Peter Dillon; Bryan McEnerny; Raul Polic-Casillas; Lewis Soloway; 1Jet Propulsion Laboratory, California Institute of Technology

2:20 PM Additive Friction Stir: A New Additive Manufacturing Technology for Metallic Structural Materials Including Ti64: Jianqing Su; Nanci Hardwick; 1Aeroprobe Corporation

2:40 PM Nanomechanical and EBSD Characterization of Additive Manufactured Mg Alloys: Paul Allison; Oscar Rivera; Wilburn Whittington; Brian Jordan; Jianqing Su; Nanci Hardwick; 1University of Alabama; 2Mississippi State University - Center for Advanced Vehicular Systems; 3Aeroprobe Corporation

3:00 PM Scaling Relationships for Direct Ink Writing with Acoustic Focusing: Leanne Friedrich; Rachel Collino; Tyler Ray; Matthew Begley; 1University of California Santa Barbara
3:20 PM Break

3:40 PM Invited
Statistical Design Guidelines for Powder Bed Fusion: Carolyn Seepersad; Jared Allison; Conner Sharpe; Steven Kubat; 1University of Texas at Austin; 2Stratasys Direct Manufacturing

4:10 PM Characterization of Additive Manufactured IN718 Using Ultrasonic Measurements: Paul Panetta; 2Hualong Du; Waled Hassan; 1Applied Research Associates, Inc.; 2Rolls-Royce Corporation

4:30 PM Control of Deposition Interface Quality in Additive Manufacturing: Cameron Knapp; John Carpenter; Desiderio Kovar; 1Los Alamos National Laboratory; 2University of Texas at Austin

4:50 PM Matrix Grain Refinement in Functionally Graded Ti-6Al-4V/TiB Composite Fabricated by LENS Additive Manufacture: Denver Seely; Hongjoo Rhee; Mark Horstemeyer; 1Mississippi State University/Center for Advanced Vehicular Systems

5:10 PM A Highly Fracture and Fatigue Resistant Optimized As-deposited EBM Ti-6Al-4V: Mohsen Seifi; Jesse Boyer; William Brindley; John Lewandowski; 1Case Western Reserve University; 2Pratt & Whitney

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session VI

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee

Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Pantleon, DTU; Irene Beyrerlein, Los Alamos National Laboratory

Wednesday PM Room: 33C
March 1, 2017 Location: San Diego Convention Ctr

Session Chairs: M. Arul Kumar, Los Alamos National Lab; Kelvin Xie, Johns Hopkins University

2:00 PM Invited
Atomic-scale Characterization of Boron Carbide with Advanced TEM and Atom Probe Techniques: Kelvin Xie; Paul Rottmann; Luoning Ma; Kevin Hemker; 1Johns Hopkins University; 2Johns Hopkins University

2:20 PM Characterization of the Mechanistic Responses of Three Silicon Carbide Variants to Knoop Indentation by TEM: Scott Walck; Samuel Hirsch; Kristopher Behler; Jerry LaSalvia; 1U.S. Army Research Laboratory

2:40 PM Measuring Residual Stresses in Boron Carbide in TEM: Luoning Ma; Paul Rottmann; Kelvin Xie; Kevin Hemker; 1Johns Hopkins University

3:00 PM Investigating the On-set of Amorphization in Single Crystal Boron Carbide: Jonathan Ligda; Jefffrey Lloyd; Brian Schuster; 1Army Research Laboratory

3:20 PM Break

3:40 PM 3D Dislocation Structure Evolution Underneath Indentations in Single Crystalline: Karsten Durl; 1Technical University Darmstadt

4:00 PM Effect of Indentation Load on Deformation Mechanisms in Boron Carbide: Jerry LaSalvia; Scott Walck; Kristopher Behler; 1U.S. Army Research Laboratory

4:20 PM From Micro-Cantilever Testing to Deformation Patterning in Hexagonal Polycrystals: Jicheng Gong; Rajesh Korla; Mitchell Cuddihy; T Ben Britton; Fionn Dunne; Angus Wilkinson; 1University of Oxford; 2Indian Institute of Technology - Hyderabad; 3Imperial College London

4:40 PM Influence of Elastic Anisotropy and Local Texture on the Onset of Plastic Slip in Ti-6Al-4V: Samuel Hemery; Patrick Villechaize; Loic Signor; 1ENSMA; 2CNRS

5:00 PM Modeling the Evolution of Slip System Strength in a-Phase Ti-7Al Using High-Energy Diffraction Microscopy Data: Darren Pagan; Nathan Barton; Paul Shade; Joel Bernier; 1Lawrence Livermore National Laboratory; 2Air Force Research Laboratory

Advanced High-Strength Steels — Microstructure Property Relationship

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GMBH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Millitzer, The University of British Columbia

Wednesday PM Room: 17A
March 1, 2017 Location: San Diego Convention Ctr

Session Chairs: Cem Tasan, MIT; Matous Mrovce, ICAMS - Ruhr University Bochum

2:00 PM Invited
Influence of the Initial Microstructure on the Reverse Transformation Kinetics and Microstructural Evolution in TRIP-assisted Steel: Jeong In Kim; Joo Hyun Ryu; Sea Woong Lee; Kyooyoung Lee; Dong Woo Suh; 1Pohang University of Science and Technology; 2POSCO

2:30 PM Observation of Low Cycle Fatigue Dislocation Structures in a TWIP, TRIP and MBIB Steel, Using Electron Channelling Contrast Imaging (ECCI): Dayong An; Stefan Zaeflerrer; 1Max-Planck-Institut für Eisenforshung GMBH

2:50 PM Microstructural Evolution and Mechanical Behavior of Medium Mn Steels Intercritical Annealed from Different Starting Structure: Binhan Sun; Fateh Fazeli; Colin Scott; Stephen Yue; 1McGill University; 2CanmetMATERIALS, Natural Resources Canada

3:10 PM In-situ Synchrotron X-ray Diffraction Investigation on Strain Hardening Behavior of Fe-17Mn-1.5Al-0.3C Steel: Yan Ma; Wenwen Song; Wolfgang Bleck; 1RWTH Aachen University

3:30 PM Break

3:50 PM Effect of Microstructure on Formability and Micro Fracture Mechanism in DP Steel for Automotive Outer Panel: Yeon-sang Ahn; Chang-hyo Seo; Sang-Ho Han; In-Shik Suh; John Smeer; 1POSCO Technical Research Laboratories; 2Colorado School of Mines
Advanced Materials for Energy Conversion and Storage — Functional Materials I
Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee

Wednesday PM
March 1, 2017
Room: 15A
Location: San Diego Convention Ctr

Session Chairs: Corinne E Packard, CSM; Ritesh Sachan, ORNL

2:00 PM Invited
Pressure-induced Phase Transformation in Xenotime Rare-earth Orthophosphates: Corinne Packard1; ‘Colorado School of Mines

2:25 PM
Starch Mediated Syntheses of Zinc Oxide and Hydrogenated Zinc Oxide (ZnO:H) Phases: Joshua Konne1; Bright Christopher1; ‘Rivers State University of Sci. & Tech.

2:45 PM
Synthesis and Characterization of Spinel Copper Cobalt Oxide Catalyst for Oxygen Evolution Reaction(OER) in Anion Exchange Membrane Electrolyzer: Kyu Hwan Lee1; Sung Mook Choi1; Myung Je Kang1; Andreas Bund2; ‘Korea Institute of Materials Science; ‘Technische Universität Ilmenau

3:05 PM
Synthesis and Processing of NaSICON/Polymer Membranes: Shan-Ju Chiang1; Caihong Liu1; Leon Shaw2; ‘Wagner Institute for Sustainable Energy Research / Illinois Institute of Technology

3:25 PM Break

3:45 PM Invited
Understanding the Disordered Structure in Energetic Ion Radiation Induced Fast Ion Conducting Nanofibers: Ritesh Sachan1; Yanwen Zhang1; Matthew Chisholm1; William Weber2; ‘Oak Ridge National Laboratory; ‘University of Tennessee

4:10 PM
Utilization of Silver Nanowires in Supercapacitors: Recep Yüksel1; Sahin Coskun1; ‘Husnu Unal1; ‘Middle East Technical University

4:30 PM Invited
Mapping the Kinetic Modes of Phase Transformation in Intercalation Compounds: Ming Tang1; Liang Hong1; LinSen LiF; Song Jin1; ‘Rice University; ‘MIT; ‘University of Wisconsin-Madison

4:10 PM
High Speed Tensile Test with Infrared Thermography and Microstructure Analysis on a High Mn TWIP Steel: Sebastian Wesselmecking1; Harald Hofmann1; Thorsten Beier1; Thorsten Rössler1; Maximilian Nagel1; Klaus Unruh1; Wolfgang Bleck1; ‘RWTH Aachen; ‘ThyssenKrupp Steel Europe; ‘Hoesch Holenumig GmbH; ‘Faurecia Autositze GmbH

4:30 PM
Microstructure and Mechanical Properties of a 0.2C-5Mn TRIP Steel after Continuous Intercritical Annealing: Wei Ding1; Yan Li1; ‘Inner Mongolia University of Science and Technology

Aluminum Alloys, Processing and Characterization — Characterization
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Wednesday PM
March 1, 2017
Location: San Diego Convention Ctr

Session Chair: Tongguang Zhai, University of Kentucky

2:00 PM Introductory Comments

2:05 PM
Algorithm for Finding the Correlation between the Properties of Wrought Aluminum Alloys, the Chemical Composition and the Processing Parameters: Vardan Kevozian1; Branko Hmelak2; Peter Cvalt3; Sara Hmelak2; Vukasin Drugojivic1; Uroš Kovace1; Marina Jelen3; Darja Volak4; ‘Impol R in R d.o.o.; ‘Acad d.o.o.; ‘Impol 2000 d.d.; ‘Impol PCP d.o.o.; ‘Impol LLL d.o.o.; ‘Impol FT d.o.o.

2:30 PM
Analysis of an Aluminum Alloy Containing Trace Elements: Christian Sørensen1; Stephan Kubowicz2; Borge Holme3; Joachim Greff4; ‘SINTEF

2:55 PM
Determination of Aluminum Oxide Thickness on the Annealed Surface of 8000 Series Aluminum Foil by Fourier Transform Infrared Spectroscopy: Onur Birbasar1; Özlem Uçar1; Ayten Mez1; Durmus Özdemir3; Murat Dündar1; ‘Assan Alüminyum; ‘İzmir Institute Of Technology

3:20 PM
Using Guard Bands to Accommodate Uncertainty in the Spark AES Analysis of Aluminum or Aluminum Alloys When Determining Compliance with Specified Composition Limits: John Weritz1; Denis Choquette1; Thomas Belliveau1; Rebecca Wys1; Michael Ruschak1; Albert Wills1; Olivier Gabis1; John Sieber1; ‘The Aluminum Association; ‘Rio Tinto; ‘Novelis; ‘Alcoa, Inc.; ‘Sapa Industrial Extrusions; ‘Wagstaff Inc.; ‘National Institute of Standards and Technology

3:45 PM Break

4:00 PM
Laser Marking and 3D Imaging of Aluminum Products: Alex Fraser1; Michael Dallaire2; Martin Hartlieb3; ‘Laserax Inc.; ‘Viami International Inc.

4:25 PM

4:50 PM
Characterization of Large Strain Extrusion Machining (LSEM) of AA7050: Daniel Klenosky1; David Johnson2; Srivinasan Chandrasekar3; Kevin Trumble4; ‘Purdue University

5:15 PM
Rare-earth Modified Aluminum Alloys for High-temperature Applications: Zachary Sims1; David Weiss2; Orlando Rios3; Scott McCall4; Ryan Ott5; Michael McGuire5; Tony Van-Burren5; Ke An5; Yan Chen5; ‘Oak Ridge National Laboratory; ‘Eck Industries; ‘Lawrence Livermore National Laboratory; ‘Ams National Laboratory
Aluminum Reduction Technology — Modelling and Cell Design, Potroom Operations  

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee  
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland  

Wednesday PM  
March 1, 2017  Location: San Diego Convention Ctr

Session Chairs: Marc Dupuis, GeniSim; Olivier Martin, Rio Tinto

2:00 PM  Introductory Comments

2:05 PM
Improving the Understanding of Busbar Design and Cell MHD  
Performance: Alexander Arkhipov1; Abdalla Zarouni1; Amal Al Jasmi2; Vinko Potocnik1; 1Emirates Global Aluminium (EGA)

2:30 PM
MHD of Large Scale Liquid Metal Batteries: Valdis Bujarevics1; Andrejs Tucs1; 1University of Greenwich

2:55 PM
Low Energy Consumption Cell Designs Involving Copper Inserts and an Innovative Busbar Network Layout: Marc Dupuis1; 1GeniSim Inc

3:20 PM
LES Turbulence Modeling Approach for Molten Aluminium and Electrolyte Flow in Aluminium Electrolysis Cell: Moumin Baiteche1; Seyed Mohammad Taghavi1; Donald Ziegler2; Mario Fafardi1; 1Aluminium Research Center REGAL, University Laval; 2Alcoa Primary Metals, Alcoa Technical Center

3:45 PM  Break

4:00 PM
Surviving an Extended Power Outage after a Break Down in the Sub Station: Till Reek1; Roman Düssel1; 1TRIMET Aluminium SE

4:25 PM
Retrofit of Damaged Corner Risers by Means of Bolted Connections: Andre Felipe Schneider1; Donald Ziegler2; Maxime Poulion1; Daniel Richard1; Jason Robillard1; Jeremie Blais1; Olivier Charette1; Pouya Zangeneh1; 1HATCH Ltd.; 2Alcoa Primary Metals

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee  
Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor; Colorado School of Mines  

Wednesday PM  
March 1, 2017  Location: San Diego Convention Ctr

Session Chair: Rauf Eric, University of the Witwatersrand

2:00 PM
Plasma Processing of Thin Films for Data Storage and Future Non-Volatile Memory: Subhadra Gupta1; 1University of Alabama

2:20 PM
DuraStell PTA Cladding for Wear Application: Jack Zheng1; Robert Vasinko1; 1Kennametal

2:40 PM
Plasma Processing of Neodymium Oxide: Hunter Sceats1; Patrick Taylor1; 1Colorado School of Mines

3:00 PM
Characterization and Feasibility Study of Thermoelectric CoSi2: Jacob Young1; Ramana Reddy1; 1University of Alabama

3:20 PM  Break

3:40 PM
Production of SiMn-alloys by Natural Gas and Carbon Black: Xiang Li1; Merete Tangstad1; 1Norwegian University of Science and Technology (NTNU)

4:00 PM
Effect of Flux Ratio on the Products of Self Propagating High Temperature Synthesis-Casting in WO3-Si-Al System: SuthamNIYOMواسان1; Tawat Chanadee1; 1Prince of Songkla University

4:20 PM
Enhanced Reducing Sugar Yield by Combining Alkaline Solution and Ionic Liquid Pretreatment of Biomass: Samuel Kassaye1; Kamal Pant1; Sapan Jain1; 1Indian Institute of Technology Delhi; 1Alabama State University

Biological Materials Science — Functional Biological Materials  
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee  
Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah  

Wednesday PM  
March 1, 2017  Location: Marriott Marquis Hotel

Session Chairs: Po-Yu Chen, National Tsing Hua University; Michael Porter, Clemson University

2:00 PM  Keynote
Bioinspired Adhesive Surfaces - Designs for Non-Smooth Contact Surfaces: Eduard Arzt1; René Hensel1; 1INM - Leibniz Institute for New Materials; New Materials at Saarland University

2:40 PM
Exploring the Structural Diversity of Seahorse Tails: Nakul Ravikumar1; Jack Harrison1; Celine Neutens1; Dominique Adriaens1; Michael Porter1; 1Clemson University; 2Ghent University

3:00 PM
Capturing the Geometry, Microstructure and Mechanical Properties of Marine Diatom Frustules Using Nanoscale Silica Structures: Shi Luo1; Julia Greer1; 1California Institute of Technology

3:20 PM
A Functional Natural Adhesive: The Feather Vane and Inspired Designs: Tarah Sullivan1; Marc Meyers1; 1UC San Diego

3:40 PM  Break

4:00 PM Invited  
Smart Bio coatings for Tunable Bioactivity at the Bio-Material Site: Candan Tamerler1; 1University of Kansas

4:30 PM
Biological Martensitic Phase Transformations in Bacterial Flagella and other Helical Protein Crystals: Ricardo Komai1; Greg Olson1; 1Northwestern University
2:00 PM Invited
Nucleation and Metastable Phase Formation Studied via Calorimetry at Ultrafast Heating and Cooling Rates: Jörg Löfler; ETH Zurich

2:20 PM Invited
In-situ Synchrotron High-energy X-ray Diffraction Study of an Amorphous/Nanocrystalline NiTi Alloy during Recrystallization Process: Cun Yu; Bachir Aoun; Lishan Cui; Yinong Liu; Yang Ren; China University of Petroleum; Argonne National Laboratory; The University of Western Australia

2:40 PM Invited
Medium-range Structure and Glass-forming Ability of Metallic Glasses: Jason Maldonis; Pei Zhang; Paul Voyles; University of Wisconsin, Madison

3:00 PM Invited
The Early Stages of Shear Band Development: Gerhard Wilde; University of Muenster

3:20 PM
Combinatorial Assessment of Metallic Glasses Using High-throughput Characterization: Ryan Ott; Fanqiang Meng; Jie Geng; Matthew Besser; Matthew Kramer; Ames Laboratory (USDOE); Ames Laboratory (USDOE)

3:40 PM Break

4:00 PM Invited
Nanoscale Crystallization in Bulk Metallic Glasses and Its Implications on Glass-forming Ability: Dong Ma; Alexandre Stoica; ORNL

4:20 PM Invited
Entropy Contributions in Strong and Fragile Metallic Glasses: Hillary Smith; Andrew Hoff; Chen Li; Tabitha Swan-Wood; Fred Yang; Dennis Kim; Marios Demetriou; Brent Fultz; California Institute of Technology; University of California, Riverside; California State University, Channel Islands

4:40 PM
Atomic Dynamics in La-based Metallic Glasses by X-ray Photo Correlation Spectroscopy: Xiaodong Wang; Jin Zhang; Qing Yu; Qingping Cao; Jianzhong Jiang; Zhejiang University

5:00 PM Invited
Real-time Studies of the Evolution of Atomic Structures of Bulk Metallic Glasses: Wei Zhang; Jiawei Mi; University of Hull

5:20 PM Invited
Tracing the Pathway of Metallic Liquids to Vitrification: Kostas Georgarakis; Cranfield University

Cast Shop Technology — Grain Refining and Solidification
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: David Gildemeister, Alcoa Technical Center

Wednesday PM Room: 1A
March 1, 2017 Location: San Diego Convention Ctr

Session Chair: Stephen Instone, Hydro Aluminium Rolled Products GmbH

2:00 PM Introductory Comments

2:05 PM
Effect of Ultrasonic Processing on a Direct Chill Cast AA6082 Aluminium Treatment: Waleed Khalifa; Mahmoud Abdu; Maiada Abdelrahman; Yoshiki Tsunekawa; Cairo University; Toyota Technological Institute

2:55 PM
Shear Induced Grain Refinement of a Continuously Cast Ingot: Samuel Wagstaff; Antoine Allaire; Massachusetts Institute of Technology

3:20 PM
Grain Refiner Settlement in the Launder System of Twin Roll Casting and Application of Electromagnetic Stirring: Onur Birbasar; Vedat Topaloglu; Murat Can Erdemir; Cemil Isiksaçan; Onur Meydanoglu; Mert Günyüz; Hatice Mollaoglu Altuner; Murat Dündar; Assan Alümİnum

3:45 PM Break

4:00 PM
Thermal Analysis of Grain Refining in A319 Alloys: Waleed Khalifa; Cairo University

4:25 PM
Peritectic Coupled Growth Solidification - A Review: Peiman Shabbeig Roodposhti; Harold Brody; University of Connecticut
Ceramic Materials for Nuclear Energy Research and Applications — Non-oxide Ceramics for Nuclear Applications II
Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khatziov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany
Wednesday PM Room: Palomar March 1, 2017 Location: Marriott Marquis Hotel Session Chair: Andrew Nelson, Los Alamos National Laboratory

2:00 PM Invited
Multi-scale Coupled Radiation Damage and Heat Transport Modeling for Dispersed Nuclear Fuels: Daniel Schwen; Sebastian Schmemdt; 1 Idaho National Laboratory
2:30 PM Invited
Neutron Irradiated SiC Advanced Analysis to Understand Fission Product Transport: Safety Tested TRISO Coated Particles: Isabell van Rooyen; Tom Lillo; Karen Wright; Jeffery Aguiar; Terry Holesinger; 1 Idaho National Laboratory
3:00 PM Processing Routes for Improving Purity and Theoretical Density of UN Microwhospheres: Jacob McMurray; Terry Lindeman; Rodney Hunt; Jack Collins; Chinthaka Silva; Jim Kiggans; Kurt Terrani; 1 Oak Ridge National Laboratory
3:20 PM Evolution of Irradiation Defects in Ti2AlC Ceramics During Heavy Ion Irradiation: Bai Cai; Fei Wang; Qing Su; Michael Nastasi; 1 University of Nebraska–Lincoln

Characterization of Minerals, Metals, and Materials — Ferrous Metals
Sponsored by:TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Ferrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute
Wednesday PM Room: 31A March 1, 2017 Location: San Diego Convention Ctr Session Chairs: Ferrao Donato, Politecnico di Torino - DISAT; Mingming Zhang, ArcelorMittal Global R&D

2:00 PM Effects of Alumina and Magnesia on Microstructure and Mineralogy of Iron Ore Sinter: Mingming Zhang; Marcelo Andrade; 1 ArcelorMittal Global R&D
2:20 PM Isothermal Reduction Kinetics of CaO-2Fe2O3 by Thermogravimetric Analysis: Cheng Yi Dong; Xuewei Lv; Senwei Xuan; Kai Tang; Yun Chen; Jie Qiu; 1 Chongqing University

2:40 PM Phase Transformation of MnO2 and Fe2O3 Briquettes Roasted under CO-CO2 Atmospheres: Bingbing Liu; Yuanbo Zhang; Zijian Su; Guanghui Li; Tao Jiang; 1 Central South University
3:00 PM Application of X-ray Computed Tomography for the Characterization of Graphite Morphology in Compact-graphite Iron: Dileep Singh; Chilpin Chuang; John Hryn; Jonathan Almert; Peter Kenesei; Richard Huff; 1 Argonne National Laboratory; 1 Caterpillar, Inc.
3:20 PM Nitrogen Quantification in Steels by Atom Probe Tomography: Raphaelle Danoux; Mohamed Gouné; Andrius Martinavičius; Hugo Van Landeghem; Frederic Danois; 1 CNRS - Université de Rouen; 1 ICMBE Bordeaux; 1 SIMAP Grenoble
3:40 PM Break
3:55 PM Effect of Grain Boundary Plane on the Sensitization of Austenitic Stainless Steel: Matthew Hartshorne; Christopher Barr; Mitra Taheri; 1 Drexel University
4:15 PM Estimation of Dislocation Density in Metals from Microhardness Test: Ali Ameri; Nancy Elewa; Juan Escobedo-Diaz; Mahmod Ashraf; Paul Hazel; 1 University of New South Wales-Canberra
5:15 PM Contact Angle of Iron Ore Particles with Water: Measurements and Influencing Factors: Kai Tang; Senwei Xuan; Wei Lv; Xuewei Lv; Chenguang Bai; 1 Chongqing University

Characterization of Minerals, Metals, and Materials — Material Processing and Corrosion
Sponsored by:TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Ferrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute
Wednesday PM Room: 31B March 1, 2017 Location: San Diego Convention Ctr Session Chairs: Jian Li, CanmetMATERIALS; Brett Sanborn, Sandia National Laboratories

2:00 PM Optimizing Polishing Parameters of Chemical Mechanical Planarization for C-plane (0001) GaN Using Taguchi-based Grey Relational Analysis: Khushnuma Asghar; Tanjore Jayaraman; Dibakar Das; 1 University of Hyderabad, India; 1 University of Michigan - Dearborn
2:20 PM Corrosion Behavior of Super-Ferritic Stainless Steels in NaCl Media: Natalia Zadorozhne; Alicia Ares; Raúl Rebak; 1 IMAM (CONICET-UNaM); 1 CONICET/FCEQyN-UNaM; 1 GE Global Research
2:00 PM
Influence of Corrosion on Dynamic Tensile Properties of 304 and 304L Stainless Steel: Brett Sanborn1; Eric Hicks1; Bo Song1; Miguel Atencio1; Sandia National Laboratories

3:00 PM
Characterization of Recrystallization and Twin Evolution Mechanisms Using In Situ TEM: Asher Left1; Austin Nye1; Ryan Demott1; Mitra Taheri1; Drexel University

3:20 PM
Effect of Bromide Ions on the Pitting Corrosion of Hafnium in Anhydrous T-butanol and Acetonitrile: Chang Hong Wang1; Shenghai Yang1; Yongming Chen1; Xiyun Yang1; Yanzeng Wu1; Jing He1; Chaobo Tang1; Central South University

3:40 PM Break

3:55 PM
Compression Behavior of Semi-Closed Die Forged AZ80 Extrusion: Andrew Gryguc1; Sugrib Shah1; Hamid Jahed1; Mary Wells1; Bruce Williams1; Jonathan McKinley1; University of Waterloo; CamnetMATERIALS

4:15 PM
Dislocation Densities Evolution and Similitude Behavior from Severe Plastic Deformation in Machining: Sepideh Abolghasem1; Saurabh Basu1; M. Ravi Shankar1; Universidad de los Andes; Georgia Institute of Technology; University of Pittsburgh

4:35 PM
Fatigue Fracture Surface Morphologies in Controlled Crack Growth Rail Steel Specimens: Donato Firrao1; Roberto Doglione1; Paolo Mattei1; Stefano Rossi1; Raffaella Sesana1; Politecnico di Torino - DISAT; Rete Ferroviaria Italiana SpA; Politecnico di Torino - DMEAS

4:55 PM
Nondestructive Characterization of Microstructures of Heat-Treated Steels by Magnetic Barkhausen Noise Technique: C. Hakan Gur1; Ankara

5:15 PM
Automated Optical Characterization of Inconel 100 Using Computational Microstructural Toolsets: Sundar Veeraraghavan1; Satya Ganti1; Bryan Turner1; Brian Hayes1; John Porter1; Dennis Dimiduk1; Michael Jackson1; Michael Uhrich1; UES, Inc; BlueQuartz Software, LLC; Air Force Research Laboratory

Computational Approaches to Materials for Energy Applications — Session II

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee

Program Organizer: Laurent Chaput, LEMTA

Wednesday PM Room: 7A Location: San Diego Convention Ctr

Session Chair: Laurent Chaput, Lorraine University

2:00 PM Invited
Optimizing Materials for Solar Energy Conversion: In Search for Descriptors: Giulia Galli1; The University of Chicago

2:30 PM Invited
Different Aspects of Disorder in Materials for Energy Conversion Studied by the KKR-CPA Calculation: Janusz Tobola1; Bartlomiej Wiendlocha1; Janina Molenda1; Jakub Cieslak1; Stanislaw Kaprzyk1; AGH University of Science and Technology

3:00 PM
Ab Initio Calculations of Carrier Radiative Lifetimes: Marco Bernardi1; Caltech

3:20 PM
Design of Heteroepitaxial Grown Quantum Dots Under External Force Fields: Nur Seda Aydin1; Ervin Emre Oren1; Bionanodesign Laboratory, Department of Biomedical Engineering, TOBB University of Economics and Technology, Ankara, Turkey

3:40 PM Break

4:00 PM Invited
Structure Prediction in Novel Energy Materials Design: Maximilian Ansler1; Chris Wolverton1; Northwestern University

4:30 PM
Energy Landscape of Point Defects in Body-centered-cubic Metals: Mihai-Cosmin Marinica1; NDN-Service de Recherches de Metallurgie Physique, CEA, Universite Paris-Saclay

4:50 PM
Systematic Search for Lithium Ion Conducting Compounds by Screening of Compositions Combined with Atomistic Simulation: Daniel Mutter1; Daniel Urban1; Christian Elsaesser1; FMF, University of Freiburg; Fraunhofer IWM Freiburg; Fraunhofer IWM, and FMF, University of Freiburg

Computational Materials Discovery and Optimization — From Bulk to Materials Interfaces and 2D Materials — Bulk Material Structures and Properties

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Computational Materials Science and Engineering Committee

Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Wednesday PM Room: 11A Location: San Diego Convention Ctr

Session Chair: Elif Ertekin, University of Illinois

2:00 PM
Cluster Expansion Statistical Models to Resolve the Thermochemistry of Ti Alloys: Naga Sri Harsha Gunda1; Anton Van der Ven1; University of California Santa Barbara

2:20 PM
Predicting Novel Spinels Using Density Functional Theory Assisted Machine Learning: Joshua Schiller1; Elif Ertekin1; University of Illinois at Urbana-Champaign

2:40 PM
Efficient Ab initio Modeling of Random Multicomponent Alloys: Chao Jiang1; Blas Uberuaga1; Idaho National Laboratory; Los Alamos National Laboratory

3:00 PM
Predicting Raman Spectrum of Boron Carbide Polyhmers Using Density Functional Theory: Ghatu Subhash1; Cody Kunka1; Amnaya Awasti1; University of Florida

3:20 PM
First-principles Statistical Mechanics as Applied to High Temperature Ni-superalloys: John Gour1; Anton Van der Ven1; UCSB

3:40 PM Break

3:55 PM
Free Energy Calculation of Austenite Phase in PtTi and NiTi: Sara Kadkhodaei1; Axel van de Walle1; Brown University

4:15 PM
Automatic and Database of First Principles Phonon Calculations: Atsushi Togo1; Isao Tanaka1; Kyoto University
4:35 PM  
**Study of Aluminum-Silicon in the Liquid State**: Tara Power; Sumanth Shankar; Jeffrey Hoyt; McMaster University

4:55 PM  
**ICME-tailored Sensitivity Analysis of a Prescriptive Precipitation Framework**: Luke Johnson; Raymundo Arroyave; Department of Materials Science and Engineering, Texas A&M University

5:15 PM  
**Development of Numerical Methods for the Thermal Characterization of Materials**: Jonathan Sèverin; Philippe Jund; ICGM-Montpellier University

### Computational Thermodynamics and Kinetics — Microstructure Evolution II, Thermodynamics and Alloys II

- **Sponsored by**: TMS: Chemistry and Physics of Materials Committee, TMS: Computational Materials Science and Engineering Committee
- **Program Organizers**: Niaz Abdolahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A&M University

**Wednesday PM**  
Room: 11B  
Location: San Diego Convention Ctr

**Session Chairs**: Thien Duong, Texas A&M University; Mark Asta, UC Berkeley

#### 2:00 PM Invited

- **First-Principles Calculations of Coherent Phase Equilibria and Short-Range-Order Hardening in the Alpha-Ti-O System**: David Olmsted; Maarten de Jong; Mark Asta; University of California, Berkeley

#### 2:30 PM

- **Microstructural Pattern Formation during Eutectoid Transformation in Fe-Mn-C Steels: Phase-field Simulations**: Leslie Mushongera; Kumar Ankit; Britta Nestler; Karlsruhe University of Applied Sciences; Karlsruhe Institute of Technology

#### 2:50 PM

- **Joint Formation and Microstructural Evolution in the Microbumps of Three Dimensional Integrated Circuits (3DICs)**: Vahid Attari; Raymundo Arroyave; Texas A&M University

#### 3:10 PM Invited

- **First-Principles Evaluation of Ti2AlC-Cr2AlC Pseudo-binary Phase Diagram**: Thien Duong; Anjana Talapatra; Woongrak Son; Huili Gao; Miladin Radovic; Raymundo Arroyave; Texas A&M University

#### 3:40 PM Break

#### 4:00 PM

- **Atomic Scale Modeling of Fe-Al-Mn-C Alloy Using Pair Models and Monte-Carlo Calculations**: Jérôme Dequeker; Alexandre Legris; Rémy Besson; Ludovic Thuinet; Université Lille 1

#### 4:20 PM

- **Microstructure Evolution and Deformation Behavior of Powder Materials during Sintering**: Sadegh Biswas; Vikas Tomar; Purdue University

#### 4:40 PM

- **Kinetics of Phase Transformations Using Quasi-Coarse-Grained Dynamics Simulations**: Sumit Suresh; Terrance O’Ragan; Avinash Dongare; University of Connecticut; US Army Research Laboratory

#### 5:00 PM

- **Kinetics Study of Thin Film Phase Transformation via Level-Set Method Simulation**: Mahyar M. Moghadam; Peter Voorhees; Northwestern University
<table>
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<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>2:00 PM</td>
<td>Introductory Comments</td>
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<tr>
<td>2:05 PM</td>
<td>Keynote</td>
<td>Laurens Katgerman, Delft University</td>
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<tr>
<td>2:25 PM</td>
<td>Invited, The Influence of Mould Lubrication Index on Defect Formation during Continuous Casting of Steel</td>
<td>Pavel Ramirez Lopez, Baoshan Iron &amp; Steel Co. Ltd.</td>
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<tr>
<td>2:45 PM</td>
<td>Thermal-Mechanical Model of Depression Formation in Steel</td>
<td>Matthew Zappulla, Brian Thomas, University of Illinois; Wolfgang Bleck, RWTH Aachen</td>
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<tr>
<td>3:05 PM</td>
<td>Effect of Continuous Casting Processing Parameters on the Hot Ductility of Micro-alloyed Steels</td>
<td>Hosam Ibrahim, Mohamed Soliman, Heinz Palkowski, Clausthal University of Technology</td>
</tr>
<tr>
<td>3:25 PM</td>
<td>Break</td>
<td></td>
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<tr>
<td>3:45 PM</td>
<td>Evaluation of Hot Cracking Sensitivity Using Multiphase Field and FE Methods during Continuous Casting of Nb Microalloyed Gear Steels</td>
<td>Viktor Kripaev, Ulrich Prahl, Wolfgang Bleck, RWTH Aachen</td>
</tr>
<tr>
<td>4:05 PM</td>
<td>Study for the Initiation Locations of Longitudinal Surface Cracks on Beam Blank in the Mold of Continuous Casting</td>
<td>Wei Chen, North China University of Science and Technology</td>
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<tr>
<td>4:45 PM</td>
<td>Concluding Comments</td>
<td></td>
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**Deformation and Transitions at Interfaces**

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<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
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</thead>
<tbody>
<tr>
<td>2:00 PM</td>
<td>Invited, The Atomic Level Structure and Chemistry of Interfaces Between Iron and Cementite</td>
<td>Christopher Weinberger, Matthew Guziewski, Shawn Coleman, Drexel University</td>
</tr>
<tr>
<td>4:40 PM</td>
<td>Influence of Grain Boundary Transport on Transient Oxidation</td>
<td>Pralav Shetty, Jessica Krogsrud, University of Illinois, Urbana-Champaign</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Strong Nonlinear Increase in the Yield Strength Due to Solute Segregation at Grain Boundaries in FCC Nano-crystalline Metals</td>
<td>Valery Borovikov, Mikhail Mendelev, The Ames Laboratory</td>
</tr>
<tr>
<td>5:20 PM</td>
<td>Invited, Atomistic Study of Fundamental Character and Motion of Dislocations in Intermetallic Al2Cu</td>
<td>Jian Wang, Amit Misra, University of Nebraska-Lincoln</td>
</tr>
</tbody>
</table>
Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, REWAS Organizing Committee, TMS: Energy Committee, TMS: Recycling and Environmental Technologies Committee
Program Organizers: John Howarter, Purdue University; Elsa Olivetti, Massachusetts Institute of Technology; Mingming Zhang, ArcelorMittal Global R&D; Randolph Kirchain, Massachusetts Institute of Technology; Henry Colorado, Universidad de Antioquia

Wednesday PM Room: 14B
March 1, 2017 Location: San Diego Convention Ctr

Session Chairs: Elsa Olivetti, MIT; Mingming Zhang, Arcelor Mittal Global R&D

2:00 PM
Maximizing the Values of Steelmaking Slags: Naiyang Ma; 1ArcelorMittal

2:20 PM
Direct Preparation of Metal Doping Ni-Zn Ferrite from Zn-containing Electric Arc Furnace Dust by Calcination Method: Hui-gang Wang; Min Guo; Mei Zhang; 1University of Science and Technology Beijing

2:40 PM
Separation and Comprehensive Utilization of Valuable Elements in Ti-bearing Electric Arc Furnace Molten Slag: Yang Li; 1Wuhan University of Science and Technology

3:00 PM Invited
Recycling in the Real World -- Challenges and Functional Approaches for the Recycling of Complex Products and Hazardous Materials: Mark Kennedy; C. Landaas; P. Hellinckx; 1Proval Partners, NTNU; 2Proval Partners

3:30 PM Break

3:50 PM
Recovery of Iron From Red Mud By Magnetic Roasting and Direct Reduction: Zhenhong Luo; 1Changsha Research Institute of Mining and Metallurgy Co.,Ltd

4:10 PM
Recycling of Spent Pot Lining by Vacuum Distillation Process: Wang Yuawu; 1Northeastern University of China

Electrode Technology — Operation/Practice
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee Program Organizer: Houshang Alamdari, Laval University

Wednesday PM Room: 1B
March 1, 2017 Location: San Diego Convention Ctr

Session Chair: Mario Fafard, Laval University

2:00 PM Introductory Comments

2:05 PM
Vibrocompactor: Vincent Philippaas; Bastien Aymard; 1Fives Solios

2:30 PM
Hexapod Fleet Migration in Order to Upgrade to AP40LE Technology: Jonathan Reichelson; Marc Gagnon; 1Hatch Ltd; 2Alumine Alouette inc.

2:55 PM
The Impact of Increased Anode Size and Amperage Creep on Anode Management: James Anson; René Trudel; Bertrand Vincent; 1Hatch; 2Alcoa, Deschambault Smelter

3:20 PM
Anode Quality Improvement at INALUM Smelter: Edi Mugiono; Firman Ashad; Ade Buandra; Sahala Sijabat; 1PT Inalum (Persero)

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Tin Whisker and Wettability
Sponsored by: TMS Functional Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T WU, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Wednesday PM Room: 12
March 1, 2017 Location: San Diego Convention Ctr

Session Chairs: Babak Arfaei, Binghamton University; Eric Cotts, Binghamton University

2:00 PM
Influences of Wettability and Volume of Sn-based Solder Alloys on Self-Alignment Accuracy: Hwan-Pil Park; Gwancheol Seo; Young-Ho Kim; 1Hanyang University

2:20 PM
Role of Indium Doping on Whisker Mitigation in Electroplated Sn: Bhaskar Majumdar; Sherin Bhaskyysanthan; 1New Mexico Tech

2:40 PM
Impact of In Addition to Electroplated Sn in Mitigating Whisker Growth: Susmita Das Mahapatra; Bhaskar Majumdar; Indranath Dutta; 1Washington State University; 2New Mexico Tech

3:00 PM
Quantifying the Role of Stress in Whisker Nucleation and Growth: Eric Chason; Fei Pei; Justin Vasquez; Andrew Hirt; 1Brown University

3:20 PM Break

3:40 PM
Sn Whisker Growth in Air HAST: Chulmin Oh; Won sik Hong; 1KETI

4:00 PM
Sn Film Microstructure on the Kinetics of Spontaneous Whisker Growth: Albert T. Wu; Hao Chen; Wen-Chih Lin; 1National Central University

Energy Materials 2017: Materials for Coal-Based Power — Session III
Sponsored by: Chinese Society for Metals Program Organizers: Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Zhengdong Liu, China Iron & Steel Research Institute Group; Sebastien Dryepondt, Oak Ridge National Laboratory

Wednesday PM Room: 12
March 1, 2017 Location: San Diego Convention Ctr

Session Chairs: Kyle Rozman, NETL; Richard Oleksak, National Energy Technology Laboratory

2:00 PM Invited
Developing a Crystal Plasticity Model for Nickel Based Turbine Alloys Based on the Discrete Element Method: Jamie Krasie; Agnieszka Truszewska; Qin Yu; Alex Greenay; Matthew Evans; 1UNSW Australia; 2Oregon State University; 3University of California, Riverside

2:30 PM Invited
Predicting Microstructure-Creep Resistance Correlation in High Temperature Alloys Over Multiple Time Scales: Vikas Tomar; 1Purdue University
3:00 PM Invited
The SMARTER Project – Science of Multicomponent Alloys: Roadmap for Theoretical and Experimental Research: M. Kramer1; Pratik Ray2; Duane Johnson; 1Iowa State University

3:30 PM Break

3:50 PM Invited
Modeling Long-term Creep Performance for Welded Nickel-base Superalloy Structures for Power Generation Systems: Chen Shen1; Monica Soare1; Pengyang Zhao1; vipul Gupta1; Shenyan Huang; Suzuki Akane1; Yunzhi Wang2; 1GE Global Research

4:20 PM Invited
Solid State Joining of Creep Strength Enhanced Ferritic Steels: Glenn Grant1; Jens Darsell1; Arun Devaraj1; 1Pacific Northwest National Laboratory

Sponsored by: Chinese Society for Metals
Program Organizers: Raul Rebak; GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Hosemann, University of California Berkeley; Jian Li, CanmetMATERIALS

Wednesday PM
Room: Miramar
March 1, 2017
Location: Marriott Marquis Hotel

Session Chair: Jian Li, CanmetMATERIALS

2:00 PM Invited
Fuel Cladding Materials for Supercritical Water Cooled Reactor: Wenye Zheng1; 1Canmet Materials

2:30 PM Invited
Development of the 12Cr2Mo1R Steel Plate for Metal Internal Equipment: Hanqian Zhang1; Huibin Liu; 1Baoshan Iron & Steel Company

3:00 PM
EBSD and TEM Assessment of Deformation Localization in 718 Alloy: Aida Amroussia1; Keith Leonard1; Maxim Gussev2; Jacqueline Stevens1; 1Michigan State University; 2Oak Ridge National Laboratory; 3AREVA Inc.

3:20 PM
Microstructure Evolution of a Reactor Pressure Vessel Steel during High-temperature Tempering: Chuanwei Li1; Jianfeng Gu1; Lizhan Han1; Qingdong Liu1; 1Shanghai Jiao Tong University

3:40 PM Break

3:55 PM
Thermal Conductivity Reduction of Tungsten Plasma Facing Material Due to Helium Plasma and Cu2+ Ion Irradiation: Shuang Cui1; Michael Simmonds1; Joseph Barton1; Yongqiang Wang2; Russ Doerner1; George Tynan1; Renkun Chen1; 1UCSD; 2LANL

4:15 PM
Effects of Fe Concentration on Ion-irradiation Induced Defect Evolution and Hardening in Ni-Fe Binary Alloys: Ke Jin1; Wei Guo1; Mohammad Ullah1; Yanwen Zhang1; William Weber1; Jonathan Pоплавский1; Hongbin Bei1; 1Materials Science & Technology Division, Oak Ridge National Laboratory; 2Center for Nanophase Materials Sciences, Oak Ridge National Laboratory; 3University of Tennessee

4:35 PM
Impact of Neutron Irradiation on Helium Desorption Behavior in Iron: Xianxiang Hu1; Kevin Field1; David Woodley2; Yutai Katoh1; 1ORNL; 1University of Michigan

4:55 PM
Size Effects in Ion-irradiated 800H Steel at High Temperatures Utilizing Nanoindentation and Microcompression Testing: Anya Prasitthipayong1; Shraddha Vachhani2; Scott Tumey1; Andrew Minor1; Peter Hosemann1; 1Department of Materials Science and Engineering, University of California, Berkeley; 2Hystron, Inc.; 3Center of Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory; 4Department of Materials Science and Engineering, University of California, Berkeley; National Center for Electron Microscopy, The Molecular Foundry, Lawrence Berkeley National Laboratory; 5Department of Nuclear Engineering, University of California, Berkeley

5:15 PM
Understanding Transuranic Binding Mechanisms and Speciation on Stainless Steel: Tim Kerry1; Clint Sharrad2; Andreas Geist1; Dieter Schild1; 1University of Manchester; 2Institute for Nuclear Waste Disposal

Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Materials, Interfaces and Innovations for Hostile Oil and Gas / Energy II
Sponsored by: Chinese Society for Metals
Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Wednesday PM
Room: 14A
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Ramatou Ly, University Texas A&M; Leonid Rapoport, MIT

2:00 PM Invited
Development of Polymer-based Composite Coatings for the Gas Exploration Industry: Brajendra Mishra1; Ali Chaudhry1; 1Worcester Polytechnic Institute

2:30 PM
Where the Polymer Meets the Oilfield: Hullin Tu1; 1Schlumberger

2:55 PM
Mineral Scale Fouling Under Boiling: Fundamentals to Mitigation: Susmita Dash1; Leonid Rapoport1; Navdeep Dhillon2; Kripa Varanasi1; 1Massachusetts Institute of Technology

3:20 PM
Interfacial Engineering for Suppressing Mineral Scale Fouling: Samantha McBride1; Susmita Dash1; Sami Khan1; Kripa Varanasi1; 1Massachusetts Institute of Technology

3:45 PM Break

4:00 PM
Co-relation of Microstructural Features with Tensile and Toughness Characteristics of X70 Grade Steel: Tushal Kyada1; Raghu Shant Jonnalagadda1; Rajesh K Goyal1; Tribhuvan Singh Kathayat1; 1Welspun Corp. Ltd

4:25 PM Invited
Development and Applications of New Generation Ni-containing Cryogenic Steels in China: Zhen-yu Liu1; Ming Wang1; Jun Chen1; Guo-dong Wang1; 1Northeastern University

4:50 PM
Anisotropic Behaviors for X100 High Grade Pipeline Steel under Stress Constraints: Kun Yang1; Ting Sha1; Ming Yang1; Chen Shang2; Qiang Chi1; 1Tube Goods Research Institute; 2The No.771 Institute of Ninth Academy of China Aerospace Science and Technology Corporation; 3Petroleum West Pipeline Company
5:15 PM
Material Selection-Evaluation Testing and Challenge of the Aluminum Alloy Drill Pipe in China: Chuan Feng; Caihong Lu; ’China National Petroleum Corporation

5:40 PM Invited
The Research and Development of Low Cost 21.4mm/22mm X80 Hot Rolled Strip Based on Austenite Grain Condition Optimizing: Chengan Liu; Chengxia Shang; Zheng Chen; Fei Li; Yang Cui; Xiaohai Yang; ’Shougang Research Institute of Technology; ’University of Science and Technology; ’Shougang Jingtang United Iron & Steel Co. Ltd.; ’Shougang Research Institute of Technology

Energy Technologies — Novel Technologies
Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Pyrometallurgy Committee
Program Organizers: Lei Zhang, University of Alaska Fairbanks; Jaroslav Drellich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu, Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Åbo Akademi University

Wednesday PM  Room: 13  Location: San Diego Convention Ctr
Session Chairs: Neale Neelameggham, Ind LLC; Jingxi Zhu, Sun Yat-Sen University; Tao Wang, Nucor Steel

2:00 PM Invited
Modeling Anthropogenic Heat Flux in Climate Models: Ganesan Subramanian; Neale Neelameggham; ’Independent Consultant; Ind LLC

2:30 PM Invited
Development of a Fluidized-Bed Ash Agglomeration Modeling Methodology to Include Particle-Level Heterogeneities in Ash Chemistry and Granular Physics: Aditi Khadikar; Peter Rozelle; Sarma Pisupati; ’Penn State University; ’US Department of Energy

2:50 PM Invited
In-situ Microscopic Study of Morphology Changes in Natural Hematite and Cu-spinel Particles during Cyclic Redox Gas Exposures for Chemical Looping Applications: Anna Nakano; Jinichiro Nakano; James Bennett; ’US Department of Energy National Energy Technology Laboratory/AECOM; ’US Department of Energy National Energy Technology Laboratory

3:10 PM
Thermodynamic Stability of Condensed Phases in theTERNary System CaO-Cu-O by the EMF Method: Joseph Hamayuni; Pekka Taskinen; Dmitry Sukhomlinov; Mari Lundström; ’Aalto University School of Chemical Technology

3:30 PM Break

3:45 PM
[1]Zr][NiSn - based High ZT Spinodal Thermoelectrics: Peter Rogl; Andrij Grytsiv; Matthias Gürth; Philip Sauerschlag; Jan Vrestal; Vitalij Romaka; Gerda Rogl; Kunio Yubuta; Ernst Bauer; ’University of Vienna; ’Masaryk University; ’Lviv Polytechnic National University; ’Tohoku University; ’Vienna University of Technology

4:05 PM
Experimental Study on Electro-spraying of Ethanol Based on PDA Measurement: Haige Li; Yinhua Gan; Xiaowen Chen; Yang Tong; Meilong Hu; ’South China University of Technology; ’Chongqing University

Environmentally Assisted Cracking: Theory and Practice — Environmentally Assisted Embrittlement and Cracking II
Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Bai Cui, University of Nebraska–Lincoln; Raul Rebak, GE Global Research; Sebastien Dryepondt, Oak Ridge National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

Wednesday PM  Room: 31C  Location: San Diego Convention Ctr
Session Chairs: James Burns, University of Virginia; Ilaksh Adlakha, Arizona State University

2:00 PM Invited
The Effect of Composition, Temper, and Crack Orientation on the Stress Corrosion Cracking Behavior of Al-Mg Alloys: James Burns; Amber Lass; Michael McMurrey; Matthew McMahon; Patrick Steiner; Sarah Fakler; ’University of Virginia

2:40 PM
Effect of Mechanical Stresses on the Pitting Corrosion Behavior of an Al7075 Alloy: Scott Turnage; Ilaksh Adlakha; Amm Hasib; Sridhar Nivety; Nikhil Chawla; Kiran Solanki; ’Arizona State University

3:00 PM
Relationships between the Galvanic Driving Force and Strain Energy Density Accumulation: Andrea Nicolas; Alberto Da Silva Mello Junior; Michael Sangid; ’Purdue University

3:20 PM
The Effects of Alloy Chemistry on Localized Corrosion of Austenitic Stainless Steels: David Sapiro; Bryan Webler; ’Carnegie Mellon University

3:40 PM Break

4:00 PM
Intergranular Hydrogen Embrittlement: Hydrogen Diffusion in Nickel Singles Crystals and Bi-crystals: Jiuxi Li; ’University of La Rochelle

4:20 PM
Diffusion, Trapping Mechanisms and Some Implications on Local Approach of Fracture in Martensite Steel: Stéphane Cohendoz; Cyril Berzio; Christelle Rebere; Remy Milet; Catherine Savalli; Abdelali Oudri; Jaaam Bouhattate; Juan Creus; Xavier Feaugas; ’Université de la Rochelle

4:40 PM
Effect of Chemical Composition on Embrittlement of High Manganese TWIP Steel: Young-Ha Kim; Tae Jin Song; Sung Kyu Kim; Il Jeong Park; Yon-Kyun Song; ’POSCO

5:00 PM
Concluding Comments - Speakers: Prof. Ian Robertson / Bai Cui
Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Fatigue Behaviors of Engineering Alloys


Program Organizers: Ashley Spear, University of Utah; Jean-Briac Le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Wednesday PM Room: 23C
March 1, 2017 Location: San Diego Convention Ctr

Session Chair: Tongguang Zhai, University of Kentucky

2:00 PM Invited
Non-local Stored Energy and J-integral Methods for Microstructure-sensitive Crack Growth: Fionn Dunne1; David Wilson1; ‘Imperial College

2:20 PM Invited
A Physically Based Law for S-N Fatigue Behavior of Metals: K. S. Ravi Chandran2; ‘University of Utah

2:40 PM
Fatigue Mediated Lattice Rotation in Al Alloys at Room Temperature: Ramanis Goswami1; Syed Qadir1; Chandra Pande1; ‘Naval Research Laboratory

3:00 PM Invited
Effects of Induced Surface Defects on Crack Initiation and Fatigue Strength for HCF and VHCF of a Structural Steel: Youshi Hong1; Qingqing Jiang1; Chengqi Sun1; ‘LNMM, Institute of Mechanics, Chinese Academy of Sciences

3:20 PM
Strain Mapping and Mining to Quantify the Extent of Cyclic Damage and Transverse Necking in Thin Metallic Sheets: James Collins2; Wade Lanning1; Yoon Joo Na1; Syed Javaid1; Christopher Muhlstein1; ‘Georgia Institute of Technology

3:40 PM Break

4:00 PM
A Microstructure-Sensitive Fatigue Crack Growth Study Based on Experimental Measurements and Computational Modeling in Al-Si Cast Alloys: Tiantian Zhang1; Anthony Spangenberg1; Diana Lados1; ‘Worcester Polytechnic Institute

4:20 PM
Identifying Failure Locations in Nickel Based Superalloy R88DT under Cyclic Loadings, via Crystal Plasticity Simulations: Monica Soare1; Shenyan Huang1; Shakhrukh Iamonov1; Andrew Detor1; ‘GE Global Research

4:40 PM
Grain Size Effects on Fatigue Crack Growth in Nanocrystalline NiTi: William LePage1; Aslan Ahadi1; Q.P. Sun1; John Shaw1; Samantha Daly1; ‘University of Michigan; ‘National Institute for Materials Science; ‘The Hong Kong University of Science and Technology; ‘University of California, Santa Barbara

5:00 PM
Slip Transmission between Primary Alpha Grains during the Low Cycle Fatigue of Ti6242Si: Sudha Joseph1; Ioannis Bantounas1; Trevor Lindley1; Hamide Reza Abdolvand1; Angus Wilkinson1; David Dye1; ‘Imperial College London; ‘University of Oxford

5:20 PM
Fatigue Assessment of a Railway Wheel Steel in the VHCF-regime: Dietmar Effer1; Michael Koster1; ‘University of Kaiserslautern; ‘European Patent Office

Fracture Properties and Residual Stresses in Small Dimensions — In Situ Fracture Testing Methodologies

Sponsored by: TMS Structural Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Characterization, Testing, and Simulation Committee, TMS: Computational Materials Science and Engineering Committee, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Daniel Kiener, University of Leoben; Marco Sebastiani, Roma TRE university; Nagamani Jaya Balila, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Wednesday PM Room: 21
March 1, 2017 Location: San Diego Convention Ctr

Session Chairs: Andrew Minor, UC Berkeley; Jeffrey Wheeler, ETH Zurich

2:00 PM Introductory Comments

2:05 PM Invited
Nanoscale Strain Mapping of Individual Defects during In Situ Deformation: Thomas Pekin1; Colin Ophus2; Christoph Gummer2; Jim Ciston3; Andrew Minor3; ‘UC Berkeley & LBNL; ‘LBNL; ‘Erich Schmid Institute

2:35 PM
Studying Plasticity during Fracture at the Micron Scale by Means of Cantilever Experiments in Single-crystalline NiAl and W – HR-EBSD Analyses and Elevated Temperature Measurements: Johannes Ast1; Juri Wehrs1; Johann Michler1; Xavier Maeder1; ‘EMPA

2:55 PM
In Situ Stable Crack Growth at the Micron Scale: Giorgio Sernicola1; Tommaso Giovannini2; Punit Patel1; James Kermode1; Daniel Balint1; T Ben Britton1; Finn Giuliani1; ‘Department of Materials, Imperial College; ‘Department of Mechanical Engineering, Imperial College London; ‘Warwick Centre for Predictive Modelling, University of Warwick

3:15 PM Invited
In Situ Micron Scale Fracture Toughness Testing and Modeling of a Chevron Notched Bowtie-shaped Beam: Fiona Yuwei Cui1; Richard Vinci1; ‘Lehigh University

3:45 PM Break

4:05 PM Invited
Liquid Metal Embrittlement at the Micro-scale: Gallium FIB vs. Xenon FIB: Yuan Xiao1; Jeffrey Wheeler2; ‘ETH Zurich

4:35 PM
Micro-Compression Testing of Mg-Nb Multilayered Nano-Composites for Ultra-High Strength, Formability and Ductility: Manish Jain1; Marko Knezevic2; Nathan Mara2; Irene Beyerlein2; Siddhartha Pathak1; ‘University of Nevada Reno; ‘University of New Hampshire; ‘Los Alamos National Laboratory

4:55 PM
High Temperature Mechanical Properties of Materials Synthesized from Graphene and Carbon Nanotubes: Sanjit Bhowmick1; Chandra Tiwarya2; Syed Asif1; Pulickel Ajayan1; ‘Hysitron Inc.; ‘Rice University
Friction Stir Welding and Processing IX — Dissimilar Applications
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Wednesday PM
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Yuri Hovanski, Brigham Young University; Guntram Wagner, University of Chemnitz, Germany

2:00 PM Invited
Joining Aluminum Alloys to High Strength Steels by Friction Spot Welding: Uceu Suhudditi; Vanessa Fischer; Jorge dos Santos; Helmholtz-Zentrum Geesthacht; Federal University Rio Grande do Sul

2:20 PM Invited
Joining Dissimilar Material Using Friction Stir Scribe Technique: Piyush Upadhyay; Yuri Hovanski; Leo Fifield; Blair Carlson; Eric Boettcher; Robert Ruokolainen; Peter Busuttli; Pacific Northwest National Laboratory; General Motors; Honda R & D Americas; FCA; Kuka Systems North America, LLC

2:40 PM
Influence of Stir Flow on Joint Quality during Friction Stir Lap Al-to-Cu Welding: Doddy Parningotan; M. Tarrant; Z.W. Chen; A. Hilton; T. Pasang; Auckland University of Technology; National Aluminium Ltd

3:00 PM
Process Force Reduction during Robotic Friction Stir Welding of Aluminium Alloys with Reduced Tool Aspect Ratios: Anna Regenshurg; René Schirrer; Michael Grützle; Michael Hasieber; Jean Pierre Bergmann; Technische Universität Ilmenau

3:20 PM
Intermetallic Phase Formation at Al-steel Solid-state Joints — A Comparison between FSW and VFAW Processes: Genevieve Lee; Kaleb Ponder; Ali Nassiri; Bert Liu; Glenn Daehn; Antonio Ramirez; The Ohio State University

3:40 PM Break

4:00 PM Invited
Avoiding Melting in Friction Stir Welds of Highly Dissimilar Melting Temperature Materials: Christian Widener; Bharat Jasthi; Todd Curtis; MD. Shamsujoha; South Dakota School of Mines and Technology; University of Massachusetts, Amherst

4:20 PM
Automated Optical Visualization of Materials Flow in Dissimilar Metal Friction Stir Welds: John Sosa; Hamish Fraser; Rajiv Mishra; Satya Ganti; Bryan Turner; Brian Hayes; Veeraraghavan Sundar; The Ohio State University; University of North Texas; UES Inc.

4:40 PM
Realization of Ultrasound Enhanced Friction Stir Welded (USE-FSW) Al/Mg- and Al/Steel-Joints: Process and Robustness, Mechanical and Corrosive Properties: Marco Thoma; Guntram Wagner; Benjamin Strauss; Bernd Wolter; Sigrid Benfer; Wolfram Fuerbeth; University of Chemnitz; Fraunhofer Institute for Nondestructive Testing IZFP Saarbrücken; DEHEMA-Forschungsinstitut

5:00 PM
A Numerical Simulation for Dissimilar Aluminum Alloys Joined by Friction Stir Welding: Carter Hamilton; Mateusz Kopycianski; Aleksandra Weglowksa; Stanislaw Dymek; Adam Pietras; Miami University; AGH University of Science and Technology; Institute of Welding

Sponsored by: TMS Functional Materials Division, TMS: Biomaterials Committee, TMS: Electronic Packaging and Interconnection Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Fay Hua, Intel Corporation; Tae-Kyu Lee, Portland State University; Young-Ho Kim, Hanyang University; Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Choong-un Kim, University of Texas at Arlington; Nuggehalli Ravindra, New Jersey Institute of Technology

Wednesday PM
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Young-Ho Kim, Hanyang University; Sufian Abedrabbo, The Petroleum Institute

2:00 PM Introductory Comments

2:10 PM Invited
Harvesting Light from Silicon via Colloid-induced Stressed Interface Processed by Deposition of Sol-Gel-based Silica: Sufian Abedrabbo; Anthony Fiory; Nuggehalli Ravindra; The Petroleum Institute; New Jersey Institute of Technology

2:40 PM Invited
Cold-Electron Transport at Room Temperature for Beyond CMOS Electronics: Seong Jin Koh; University of Texas at Arlington

3:10 PM Invited
Reliability Issues of Lead (Pb)-free Solder Technology in Microelectronic Applications: Sung Kang; IBM Corporation

3:40 PM Break

3:55 PM Invited
An Integrated Computational Materials Engineering Approach to Electronic Packaging in Pb-free Interconnects: Raymond Arroyave; Texas A & M University

4:25 PM Invited
Synthesis of Nanocomposites Consisting of High Density Nanoparticles in the Polyimide Films and Their Applications: Young-Ho Kim; Hanyang University
Gamma (FCC)/Gamma-Prime (L12) Co-Based Superalloys II — Mechanical Behavior I
Program Organizers: Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology Beijing; Alessandro Moturra, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Wednesday PM
March 1, 2017
Room: Pacific 14
Location: Marriott Marquis Hotel
Session Chairs: Michael Titus, Purdue University; David Dunand, Northwestern University

2:00 PM Invited
Mechanical Properties of Co-based Superalloys with FCC+L12 Two-phase Microstructures: Haruyuki Inui; Norihiko Okamoto; 1Kyoto University
2:30 PM Invited
Mechanical Behavior of Polycrystalline (L12) gamma-prime-strengthened Co-base Superalloys: Peter Bocchini; Daniel Sauza; James Coakley; Qinyuan Liu; David Seidman; 2David Dunand; 2Northwestern University; 1Northwestern University Center for Atom Probe Tomography (NUCAPT)
3:00 PM Planar Defect Formation in the γ’ Phase during High Temperature Creep in Single Crystal CoNi-base Superalloys: Yolita Eggeler; 1Julian Müller; Mike Titus; Akane Suzuki; Tesa Pollock; 2Erasmus Spiecker; 2Friedrich Alexander Universität Erlangen-Nürnberg; 1Purdue University; 2GE Global Research Center; 1University of California Santa Barbara
3:30 PM Load Transfer Between Phases during Deformation of Superalloys: James Coakley; 1Eric Lass; 2David Seidman; 2Howard Stone; 2David Dunand; 2University of Cambridge; 1National Institute of Standards and Technology; 1Northwestern University
3:40 PM Break
4:00 PM Invited
Deformation Microstructures of L12, Ordered Intermetallic Phases in Ni-, Co- and Co-Ni-base Superalloys: Duchao Lv; 2Robert Rhein; 2Michael Titus; 2Tesa Pollock; 2Yunzhi Wang; 1The Ohio State University; 1University of California, Santa Barbara
4:30 PM Superlattice Intrinsic Stacking Fault Energies and Solute Segregation to Planar Defects in Co-based Superalloys: Michael Titus; 2Robert Rhein; 1Alessandro Mottura; 1Min-Hua Chen; 1Anton Van der Ven; 2Tesa Pollock; 2Purdue University; 1University of California Santa Barbara; 1University of Birmingham
4:50 PM Solid Solution Strengthening of Co,(Al, TM) L12, Phase: An Integrated First-principles Calculations and Experimental Study: William Yi Wang; 2Bin Gan; 2Fei Xue; 2Shun-Li Shang; 2Yi Wang; 2HongChao Kou; 1JinShan Li; 1Xi-Dong Hui; 2Qiang Feng; 2Zi-Kui Liu; 2Northwestern Polytechnical University; 1University of Science and Technology Beijing; 1The Pennsylvania State University
5:10 PM Multi-scale Modelling of High-temperature Deformation Mechanisms in Co-Al-W-based Superalloys: Hikmatyar Hasan; 1David Dye; 1Peter Haynes; 1Vassili Vorontsov; 1Imperial College London

GAT-2017 (Gamma Alloys Technology - 2017) — Microstructure Development and Directional Solidification
Sponsored by: TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Young-Won Kim, Gamtech LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Wilhey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Wednesday PM
March 1, 2017
Room: Pacific 17
Location: Marriott Marquis Hotel
Session Chairs: Pierre Sallot, Safran Tech; Ulrike Hecht, ACCESS

2:00 PM Invited
Gamma Alloy Materials-Process-Microstructure Combinations for Greater Service Temperatures: Young-Won Kim; 1Sang-Lan Kim; 2Gamtech LLC; 1Gamtech LLC
2:25 PM Solidification of TiAl Alloys with Low Contents of Si: Antoine Paris; 1Mikael Perrut; 1Dominique Daloz; 1Anne Denquin; 2Onera; 2Université de Lorraine
2:40 PM Microstructure Evolution of Ti-45Al-8.5Nb-(W, B, Y) Alloy during Continuous Cooling and Thermal Aging: Jieren Yang; 1Bei Cao; 2Xuyang Wang; 1Rui Hu; 1Lin Song; 2Jinshan Li; 2Northwestern Polytechnical University
3:05 PM High-energy Synchrotron Radiation Investigation of the Massive Transformation in a Ti-Al-Nb Alloy: Marcus Willi Rachel; 1Andreas Stark; 2Gleb Dovzhenko; 1Florian Pyczak; 1Helmholtz-Zentrum Geesthacht
3:25 PM Invited
Study on Preparation of Larger Size TiAl Ingot with Oriented Lamellar Microstructure: Jun Shen; 1Northwestern Polytechnical University
3:50 PM Break
4:05 PM Invited
High Temperature Mechanical Properties of Polysynthetic Twinned TiAl-Nb Alloys: Zhiqiang Qi; 2Guang Chen; 1Yingbo Peng; 2Gong Zheng; 1Nanjing University of Science and Technology
4:30 PM Invited
Microstructure and Mechanical Properties of TiAl Alloys Prepared by Cold Crucible Directional Solidification: Ruirun Chen; 2Jingjie Guo; 1Hongsheng Ding; 2Hengzhi Fu; 1Harbin Institute of Technology
4:55 PM Seeded Growth of Ti-46Al-(3~10)Nb PST Crystals: Hao Jin; 1Ronghua Liu; 1Yuyou Cui; 1Quangang Xian; 1Dongsheng Xu; 1Rui Yang; 1Institute of Metal Research, Chinese Academy of Sciences
High Entropy Alloys V — Mechanical and Other Properties
Sponsored by: TMS Structural Materials Division, TMS Functional Materials Division, TMS: Alloy Phases Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Wednesday PM Room: 32A Location: San Diego Convention Ctr
Session Chairs: Sundeep Mukherjee, University of North Texas; Qingfeng Xing, Ames Laboratory

2:00 PM Invited
Weldability and Welding Solidification of an HEA Alloy: Joshua Burgess¹; Carl Lundin²; Zhi Tang³; Peter Liaw⁴; ¹GE Power; ²The University of Tennessee; ³Alcoa

2:20 PM Invited
Bringing High-entropy Alloys Close to High-temperature Applications: Single Crystal Growth, Microstructure Characterization, and Mechanical Tests: Qingfeng Xing¹; Haoyan Diao²; Deborah Schlagel¹; Trevor Riedemann³; Peter Liaw⁴; Thomas Lograsso⁵; ¹Ames Laboratory; ²University of Tennessee - Knoxville

2:40 PM Degradation Behavior of High Entropy Alloys – Corrosion, Erosion, and Wear: Ayyagari Aditya¹; Sundeep Mukherjee²; ¹University of North Texas

3:00 PM Investigation of Equiatomic AlNbtIMoV and AlNbtTaTIV Alloys for High Temperature Applications: Anne Denquin¹; Arnaud Grimonprez²; ³AGNÈS BACHELIER-LOCQ; ²ONERA

3:20 PM Irradiation Resistance of Low Activation High Entropy Alloys: David Armstrong¹; John Waite²; Angus Wilkinson³; ¹University of Oxford

3:40 PM Break

4:00 PM Weldability of Single-phase and Multi-phase High Entropy Alloys: Zhenggang Wu¹; Stan David²; Zhili Feng³; Hongbin Bei⁴; ¹Oak Ridge National Laboratory

4:20 PM Radiation-induced Segregation in Ni-based Concentrated Solid Solution Alloys: Mo-Rigen He¹; Shuai Wang¹; Shi Shi²; Ke Jin³; Hongbin Bei⁴; Kazuhiro Yasuda⁵; Syo Matsumura⁶; Kenji Higashida⁷; Ian Robertson⁸; ⁹University of Wisconsin-Madison; ¹Oak Ridge National Laboratory; ²Kyushu University

4:40 PM Development of High Entropy Alloy Foam with Ultra-low Thermal Conductivity and High Strength: Kook Noh Yoon¹; Je In Lee²; Eun Soo Park³; ¹Research Institute of Advanced Materials, Department of Materials Science and Engineering, Seoul National University

5:00 PM On the Influence of Crystal Orientation and Testing Temperature on the Local Mechanical Properties of High Entropy Alloys: Verena Maier-Kiener¹; Benjamin Schub¹; Helmut Clemens¹; Anton Hohenwarter¹; ¹Montanuniversität Leoben - Physical Metallurgy & Materials Testing; ²Montanuniversität Leoben - Materials Physics

5:20 PM Invited
Pre-osteoblastic Cell Responses to High-entropy Alloys: Jinbo Dou¹; Haoyan Diao²; Yunzhu Shi²; Peter K. Liaw³; Shanfeng Wang⁴; ¹University of Tennessee

High Entropy Alloys V — Structures and Mechanical Properties II
Sponsored by: TMS Structural Materials Division, TMS Functional Materials Division, TMS: Alloy Phases Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Wednesday PM Room: 32B Location: San Diego Convention Ctr
Session Chairs: Paul Jablonski, National Energy Technology Laboratory; Zhongwu Zhang, Harbin Engineering University

2:00 PM Invited
Microstructural Response of High Entropy Alloy under Extreme Environments: H.S. Oh¹; Y.J. Kim²; E.S. Park³; H.J. Chang⁴; C.C. Tan⁵; D. Raabe⁶; ¹Seoul National University; ²Korea Institute of Science and Technology; ³Massachusetts Institute of Technology; ⁴Max-Planck Institut für Eisenforschung GmbH

2:20 PM Invited
Effect of Process Changes in the Manufacture and Mechanical Properties of High Entropy Alloys: Paul Jablonski¹; Michael Gao²; Jeffrey Hawk³; ¹U.S. Department of Energy, National Energy Technology Laboratory; ²AECOM

2:40 PM Mechanisms Underlying the Remarkable Strength and Toughness of CrCoNi-based Medium- and High-Entropy Alloys at Ambient to Cryogenic Temperatures: Bernd Gludovatz¹; Qian Yu²; Easo George³; Robert Ritchie⁴; ¹Lawrence Berkeley National Laboratory; ²Zhejiang University; ³Ruhr University; ⁴University of California Berkeley

3:00 PM Invited
Effects of Preparation Methods on the Microstructures and Properties of High Entropy Alloys: Zhongwu Zhang¹; Mingxing Qiu²; ¹Harbin Engineering University

3:20 PM Break

3:40 PM Invited
The Strengthening Mechanisms for a Family of High-entropy and Equiatomic Solid-solution Alloys: Zhenggang Wu¹; Yanfei Gao²; Hongbin Bei³; ¹Oak Ridge National Laboratory

4:00 PM Invited
Size Effects and Thermal Stability of High-entropy Alloys: Single Crystalline vs. Nanocrystalline: Yu Sou¹; Jeffrey Wheeler¹; Huan Ma²; Roksolana Kozak³; Soumyadipta Maiti³; Walter Steurer³; Ralph Spolenk¹; ¹ETH Zurich

4:20 PM Irradiation Responses of High-entropy Alloys at Elevated Temperatures: Songjin Xie¹; Michael Gao²; Tengfei Yang³; Peter Liaw²; Yong Zhang³; ¹University of Science and Technology Beijing; ²National Energy Technology Laboratory; ³Peking University; ⁴The University of Tennessee

4:40 PM Invited
Strong Grain-size Effect on Deformation Twinning of an Al0.1CoCrFeNi High-entropy Alloy: Shweii Wu¹; G. Wang²; J. Yi³; Q. J. Zhai³; P. K. Liaw¹; ¹Shanghai University; ²The University of Tennessee

5:00 PM Invited
Interatomic Potential Function Development for the FeNiCoCr High Entropy Alloy: J. Wei¹; Y. Zhuang¹; PJ Yu²; Alice Hu³; ¹City University of Hong Kong
### High Temperature Electrochemistry III — Materials Electrochemistry I

**Sponsored by:** TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee

*Program Organizers:* Prabhat Tripathy, Idaho National Laboratory; Guy Fredrickson, Idaho National Lab; Boyd Davis, Kingston Process Metallurgy Inc.

**Session Chairs:** Uday Pal, Boston University; Steven Herrmann, Idaho National Laboratory

**March 1, 2017**  
**Room: 16A**  
**Location: San Diego Convention Ctr**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>2:00 PM</td>
<td>Molten Flux Design for Solid Oxide Membrane Based Electrolysis of Si from Silica: Thomas Villalon1; Uday Pal2; Soumendra Basu3; 1Boston University</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>Electrochemical Deposition into Liquid Bismuth from BaCl2-LiCl-CaCl2-NaCl Electrolyte: Hojong Kim1; Nathan Smith1; Timothy Lichtenstein1; Kuldeep Kumar1; 'The Pennsylvania State University</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>Electrochemical Behavior of Sn/SnCl2 Cathode in NaCl-NaCl-CaCl2 as an Electrolyte: Takamari Ouchi1; 1Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>3:30 PM</td>
<td>Break</td>
</tr>
<tr>
<td>3:50 PM</td>
<td>Impurity Removal from Titanium Oxycarbide: Farzin Fatollahi-Fard1; Petrus Pistorius1; 'Carnegie Mellon University</td>
</tr>
<tr>
<td>4:20 PM</td>
<td>Thermal Imaging Furnace Technique for Ultra-high Temperature Electrochemical Measurements: Bradley Nakanishi1; Erick Hernandez1; Antoine Allare1; 'Massachusetts Institute of Technology</td>
</tr>
</tbody>
</table>

### Magnesium Technology 2017 — Mechanical Behavior: Twinning, Plasticity, Texture, and Fatigue II

**Sponsored by:** TMS Light Metals Division, TMS: Magnesium Committee

*Program Organizers:* Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

**Wednesday PM**  
**Room: 5B**  
**Location: San Diego Convention Ctr**

**Session Chairs:** JB Jordon, The University of Alabama; Alec Davis, University of Manchester

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>2:00 PM</td>
<td>Dynamic Behavior of an AZ31 Alloy under Varying Strain Rates and Stress Triaxialities: Chaitanya Kale1; Mansa Rajagopal1; Scott Turnage1; Billy Hombuckle1; Kris Darling1; Suveen Mathaudhu1; Kiran Solanki1; 'Arizona State University; 'Army Research Laboratory; 'University of California, Riverside</td>
</tr>
<tr>
<td>2:20 PM</td>
<td>Enhancing the Tensile Response of Magnesium through Simultaneous Additions of Aluminium and Alumina Nanoparticles: Eugene Wong1; Manoj Gupta1; 'Newcastle University International Singapore; 'National University of Singapore</td>
</tr>
</tbody>
</table>

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### Magnesium Technology 2017 — Solidification and Processing III and Magnesium-Rare Earth Alloys I

**Sponsored by:** TMS Light Metals Division, TMS: Magnesium Committee

*Program Organizers:* Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

**Wednesday PM**  
**Room: 5A**  
**Location: San Diego Convention Ctr**

**Session Chairs:** Mark Easton, Royal Melbourne Institute of Technology University; Vineet Joshi, Pacific Northwest National Laboratory

<table>
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<tr>
<th>Time</th>
<th>Title</th>
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<tbody>
<tr>
<td>2:00 PM</td>
<td>Scaled-Up Fabrication of Thin-Walled ZK60 Tubing using Shear Assisted Processing and Extrusion (ShAPE): Scott Whalen1; Vineet Joshi1; David Catalini1; Curt Lavender1; David Field1; 'Pacific Northwest National Laboratory; 'Pacific Northwest National Laboratory; 'Washington State University</td>
</tr>
<tr>
<td>2:20 PM</td>
<td>Biocompatible Magnesium Alloy ZNdK100 — Adaptation of Extrusion Parameters to Tailor the Mechanical Properties to Different Implant Applications: Rainer Eiffer1; Florian Schäfke2; Hans Jürgen Maier2; Christian Klose1; 'Leibniz Universität Hannover</td>
</tr>
</tbody>
</table>
Wednesday PM

2:00 PM
Characterization of Semi-closed Die-forged ZK60 Mg Alloy Extrusion: Seyyedmohamadhasan Karparvarfard; Sugrib Shaha; Amir Hadadzadeh; Hamid Jahan; Mary Wells; Bruce Williams; University of Waterloo; CneverMATERIALS, Natural Resources Canada

3:00 PM
Optimization of Nitrogen Bubbling Conditions for Extruded Mg Alloy with Balanced Mechanical Properties: Woonseok Yang; Youngkyun Kim; Taeyang Kwak; Shae K. Kim; Hyunkyu Lim; Do Hyang Kim; KITECH; Yonsei University

3:20 PM
Effects of Gadolinium and Neodymium Addition on Young’s Modulus of Magnesium-based Binary Alloys: Yuling Xu; Jie Li; Zhengye Zhong; Karl Kainer; Norbert Hort; Helmholtz Zentrum Geesthacht; Shanghai University

3:40 PM Break

4:00 PM
Aging Behavior of Mg Alloys Containing Nd and Y: Ellen Solomon; Timothy Chan; Andrew Chen; Benjamin Uttal-Veroff; Emmanuelle Marquis; University of Michigan

4:20 PM
Variation of Rare Earth Elements in the Magnesium Alloy ME21 for the Sheet Production: Gerrit Kurz; Tom Petersen; Dietmar Letzig; Helmholtz-Zentrum Geesthacht

4:40 PM
Phase Stability and Formation in Mg–Gd–Zn Alloys – Key Data for ICME of Mg Alloys: Rainer Schmid-Fetzer; Joachim Gröbner; Suning Zhu; Jian-Feng Nie; Mark Gibson; Clausthal University of Technology; RMIT University; Monash University; CSIRO

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Structural Materials III
Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Nuclear Materials Committee, TMS: Mechanical Behavior of Materials Committee Program Organizers: Ravprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Wednesday PM Room: Cardiff March 1, 2017 Location: Marriott Marquis Hotel

Session Chairs: Kumar Sridharan, University of Wisconsin; Walter Luscher, Pacific Northwest National Laboratory

2:00 PM
Seamless Thin-wall Tube Production of ATF Wrought FeCrAl Alloys: Yukinori Yamamoto; Sun Zhijian; Maxim Gussev; Kevin Field; Bruce Pint; Lance Snead; Stuart Maloy; Kurt Terrani; Oak Ridge National Laboratory; Massachusetts Institute of Technology; Los Alamos National Laboratory

2:20 PM
Charged Particle Irradiation Studies of High Dose Precipitation in Reactor Pressure Vessel Steels: Nathan Armstrong; Takuya Yamamoto; Peter Wells; G. R. Odette; Nicholas Cunningham; Souptik Pal; Scott Tumeay; Keith Williams; Tim Williams; University of California Santa Barbara; Lawrence Livermore National Laboratory; Rolls Royce

2:40 PM
Effect of Different Processing Routes on the Microstructure and Texture of 6061 Al Alloy Produced by Ultrasonic Additive Manufacturing: Maxim Gussev; Kurt Terrani; Chad Parish; Aaron Selby; Niyanth Sridharan; Dana McClurg; Zachary Thompson; Mark Norfolk; Sudarsanam Babu; Oak Ridge National Laboratory; Fabrisonic LLC; University of Tennessee

3:00 PM
Impact of the Neutron Irradiation on the Structure and Properties of the 6061 Al Alloy Produced by Ultrasonic Additive Manufacturing: Maxim Gussev; Kurt Terrani; Chad Parish; Aaron Selby; Niyanth Sridharan; Dana McClurg; Zachary Thompson; Mark Norfolk; Sudarsanam Babu; Oak Ridge National Laboratory; Fabrisonic LLC; University of Tennessee

3:20 PM
Creep Fatigue Crack Growth of T91: Test Design and Data Analysis: Marta Serrano; Rebeca Hernandez Pascual; CIEMAT

3:40 PM Break

4:00 PM
Property Evolution Due to Thermal Aging of Cast Duplex Stainless Steels As Measured by Multi-Scale Mechanical Methods: Samuel Schwarn; Sarah Mburu; R. Prakash Kolli; Carl Cary; Stuart Maloy; Sreeramamurthy Ankem; University of Maryland, College Park; Los Alamos National Laboratory

4:20 PM
Microstructural Heterogeneity of Deformed and Annealed FeCrAl Alloys with Nb Addition: Zhiqian Sun; Philip Edmondson; Yukinori Yamamoto; Oak Ridge National Laboratory

4:40 PM
Complex SiC-SiC Composite Structures for Nuclear Applications: Ekaterina Novitskaya; Hesham Khalifa; Alexander Kritskii; Olivia Graeve; University of California, San Diego; General Atoms, Corp.

5:00 PM
Effects of Ion-irradiation Damage on Mechanical Behavior in Silicon Carbide: David Armstrong; Helen Pratt; Steve Roberts; Yevhen Zayachuk; University of Oxford

5:20 PM
Study on the Microstructure and Mechanical Behavior of the New Type SA508-IV Reactor Pressure Vessel (RPV) Steel by Different Methods: Xue Bai; Sujun Wu; Peter K. Liaw; Lin Shao; Beihang University; University of Tennessee, Knoxville; Texas A&M University

Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee, TMS: Magnetic Materials Committee Program Organizers: Paul Ohodnicki, National Energy Technology Laboratory; Francis Johnson, GE Global Research; Alex Leary, Carnegie Mellon University; Tanjore Jayaraman, University of Michigan; Lajos Varga, Wigner Research Center for Physics

Wednesday PM Room: 25B March 1, 2017 Location: San Diego Convention Ctr

Session Chair: Francis Johnson, General Electric

2:00 PM Invited
Advanced Magnetic Polymer Nanocomposites for High Frequency Device Applications: Harinathan Srinathan; University of South Florida

2:30 PM
Development of Mold Inductor for Power Conversion System: Hyungsuk Kim; Hyundai Motors

2:50 PM
Development of Fe-based Bulk Metallic Glasses with Both High Saturation Flux Density and High Glass Forming Ability: Shuangqin Chen; Kefu Yao; Tsinghua University

3:10 PM
Ferrite-coated Fe Soft Magnetic Composites: Balance of Magnetic Permeability and Electrical Resistivity: Katie Jo Sunday; Mitra Taheri; Drexel University
3:30 PM Break

3:45 PM Invited

4:15 PM
Study of Temperature Dependent Magnetic Properties of Zr+4 and Ti+4 Substituted Cobalt Ferrites: *Monajj Vinita Reddy*; Sudhindra Rayaprol; Shara Sowmyaa; *A. Srinivas*; *Dibakar Das*; 1University of Hyderabad; 2UGC-DAE-Consortium for Scientific Research; 3Defence Metallurgical Research Laboratory

4:35 PM
Consolidation and Behavior of Bulk Iron Nitride Soft Magnets via Spark Plasma Sintering: *BaoLong Zheng*; Todd Monson; Yizhang Zhou; Jean-Pierre Delplanque; *Stanley Atcitty*; *Enrique Lavernia*; 1University of California at Irvine; 2Sandia National Laboratories; 3University of California at Davis

4:55 PM
Consolidation of Bulk Ferrimagnetic Rare Earth Iron Garnets: *Chad Warren*; Pathikumar Sellappan; Yasuhiro Koderi; Javier Garay; 1University of California, San Diego; 2University of California, Riverside

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Coatings and Environmental Resistance

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee

Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmairer, Karlsruhe Institute of Technology (KIT); Pierre Salot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Wednesday PM Room: Pacific 16 Location: Marriott Marquis Hotel

Session Chairs: Carlos Levi, University of California, Santa Barbara; Daniel Monceau, CNRS, CIRIMAT laboratory

2:00 PM Invited
Design of Next Generation Intermetallic Bond Coatings: David Jorgensen; Wesley Jackson; Akane Suzuki; *Tresa Pollock*; 1University of California, Santa Barbara; 2General Electric Global Research

2:30 PM Invited
Modelling of Kirkendall Pores Formation during the Fabrication and the Ageing of Pt-based Diffusion Coatings on Nickel Base Superalloys: *Daniel Monceau*; Pauline Audigé; Clara Desgranges; Aurélie Rouaux Vande-Put; 1CNRS, CIRIMAT Laboratory; 2CIRIMAT Laboratory; 3CEA

3:00 PM
The Influence of Bond Coats on Crack Progression during Sustained Peak Low-Cycle Fatigue: *Marissa Lafata*; Tresa Pollock; 1University of California, Santa Barbara

3:20 PM
Design of Nickel-base Superalloys with High Creep and Oxidation Resistance: *Franck Tancret*; Edem Menou; Daniel Monceau; Gérard Ramstein; *Pedro Rivera-Diaz-del-Castillo*; 1Université de Nantes; 2CNRS; 3University of Cambridge

3:40 PM Break

4:00 PM
Kinetic and Structural Processes Affecting Alumina-scale Establishment during Early-stage Oxidation of Ni-base Alloys: Yihong Kang; Juan Alvarado-Orozco; Judith Yang; *Brian Gleeson*; 1University of Pittsburgh; 2CIDESI

4:20 PM Invited
A Perspective on the Challenges to Thermal Barrier Coatings: *Carlos Levi*; 1University of California, Santa Barbara

4:50 PM Invited
The Effect of Borosilica Pack-Cementation Coatings on the Oxidation Resistance of Mo-Si-B Based Alloys: *John Perepezko*; Daniel Schliephake; Camelia Gombola; Martin Heilmairer; 1University of Wisconsin-Madison; 2Karlsruhe Institute of Technology

5:20 PM
Oxidation Behavior of Silicide Coatings Produced by Molten Salt Technique on the Nb-1Zr-0.1C Alloy: *Megha Tyagi*; Vishwanadh B; S. K. Ghosh; Raghvendra Tewari; 1Bhabha Atomic Research Centre

5:40 PM
Functionally Graded Tungsten/EUROFER Coating for Plasma Facing Components of Fusion Power Plants: *Jarit Aktaad*; Dandan Qu; Robert Værst; Marius Wirtz; Jochen Linke; 1Karlsruhe Institute of Technology (KIT); 2Forschungszentrum Jülich (FZJ)

Materials Processing Fundamentals — Metal Extraction

Sponsored by: TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee

Program Organizers: Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

Wednesday PM Room: 17B Location: San Diego Convention Ctr

Session Chairs: Antoine Allanore, Massachusetts Institute of Technology; Guillaume Lambotte, Boston Electromet

2:00 PM
Applied Statistical Analysis on the Calcination Process in the Ferronickel Production: *Fabio Soares*; Denis Shevechenko; Alexey Levehkenko; Alexey Avdeev; Alexander Vodin; Vitaly Rudik; Stanislav Kovalchuk; 1Pronico

2:20 PM
Kinetics of Manganese Reductive Alloying with Carbon and Silicon: *Brian Jamieson*; Kenneth Coley; 1McMaster University

2:40 PM
Study for Leaching Process of Low Grade Copper Ore: *Dong Jia Shun*; Sung Ho Joo; Chang Hyun Oh; Shun Myung Shin; 1Korea Institute of Geoscience and Mineral Resources

3:00 PM

3:20 PM Break

3:35 PM
Predominant Areas on a Partial Pressure Diagram for Multi-Component Systems: II. Applications, Gibbs Phase Rule and 3D Visualization: *H.H. Huang*; 1Drexel University

3:50 PM

4:10 PM
Antoine Allanore, Massachusetts Institute of Technology; Guillaume Lambotte, Boston Electromet

4:30 PM Break

4:50 PM
Antoine Allanore, Massachusetts Institute of Technology; Guillaume Lambotte, Boston Electromet
Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Creep, Creep-Fatigue and Related High Temperature Mechanical Behavior

Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nuclear Materials Committee

Program Organizers: Indrajit Charit, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

Wednesday PM Room: 24A
March 1, 2017 Location: San Diego Convention Ctr

Session Chairs: M. Mathew, Saintgits College of Engineering; Nilesh Kumar, North Carolina State University

2:00 PM Keynote
Applying Conventional Creep Mechanisms to Ultrafine-grained Materials: Megumi Kawasaki\(^1\); Terence Langdon\(^2\); Hanyang University; \(^1\)University of Southern California

2:30 PM Invited
Multiaxial Creep and Creep-fatigue: James Stubbins\(^1\); Kuan-Che Lan\(^1\); John Sanders\(^1\); Mohsen Dadfarinia\(^1\); Petros Sofronis\(^1\); Hsiao-Ming Tung\(^1\); Xiang Liu\(^1\); Calogero Sollima\(^1\); Kun Mo\(^1\); Guiseppe Brunetti\(^1\); University of Illinois

2:50 PM Invited
Creep and Creep Fatigue of Alloy 709 Using In situ Heating during SEM and EBSD Observation: Afaneh Rabiei\(^1\); Hangyue Li\(^2\); Paul Bowen\(^2\); North Carolina State University; \(^2\)Birmingham University

3:10 PM Invited
Cyclic Deformation Behavior of Modified 9Cr-1Mo Steel at Elevated Temperatures: Fakil Singh\(^1\); Preeti Verma\(^1\); Indian Institute of Technology (Banaras Hindu University)

3:30 PM Break

3:45 PM Keynote
Environmentally-benign Pb-free Solder Alloys: Complex Load Bearing Materials in Electronic Packaging: Nikhilesh Chawla\(^1\); Arizona State University

4:15 PM Invited
Effect of Thermo-mechanical History on the Creep Behavior of Sn-Ag-Cu Solders: Babak Talebanpour\(^1\); Indranath Dutta\(^1\); Washington State University

4:35 PM Invited
Modelling of the Fracture of Precipitate and Austenitic Matrix Interfaces During Creep: Liang Huang\(^1\); Maxime Saazay\(^1\); French Alternative Energies and Atomic Energy Commission

4:55 PM Invited
Characterisation of Mechanical Properties Using Ball Indentation, Small Punch Creep and Impression Creep Methods: MD Mathew\(^1\); Saintgits College of Engineering (formerly at Indira Gandhi Center for Atomic Research)

Mechanical Behavior of Nanostructured Materials — Modeling and Thermal Stability, Radiation, Corrosion of Nanocrystals

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Xinghang Zhang, Purdue University; Yuntian Zhu, North Carolina State University; Joseph Poon, University of Virginia; Suryanarayana Challapalli, University of Central Florida; Enrique Lavermia, University of California, Irvine; Haiyan Wang, Texas A&M University

Wednesday PM Room: 30D
March 1, 2017 Location: San Diego Convention Ctr

Funding support provided by: AJA International; Hysitron Inc.

Session Chairs: Xinghang Zhang, Purdue University; John Balk, University of Kentucky; Aashish Rohatgi, Pacific Northwest National Laboratory

2:00 PM Invited
Computational Studies of Materials Properties at the Nanometer Scale: Donald Brenner\(^1\); North Carolina State University

2:25 PM Invited
Toward Quantitative 3D Microstructure-property Relations in Nano- and Poly-crystalline Materials: Mo Li\(^1\); Georgia Institute of Technology

2:50 PM
Understanding, Controlling, and Creating Martensitic Phase Transformations in Nanostructured Polycrystals and Metamaterials: Sam Reeve\(^1\); Yang Wang\(^1\); Kartik Guda Vishnu\(^1\); Alejandro Strachan\(^1\); Purdue University

3:10 PM
Electromechanical Coupling Enhanced by Polar Nanoregion Vibrations: Michael Manley\(^1\); Douglas Abernathy\(^1\); Raffi Sahu\(^1\); Jeff Lynn\(^1\); Andy Christianson\(^1\); Paul Stonaha\(^2\); John Budai\(^2\); Oak Ridge National Laboratory; \(^2\)Meggitt Sensing Systems; \(^3\)National Institute of Standards and Technology

3:30 PM Break

3:50 PM Invited
Development of Age-hardenable Nanolaminate Thin Films: David Bahr\(^1\); Chang-Eun Kim\(^1\); Nicolas Briot\(^1\); T. Balk\(^2\); Purdue University; \(^3\)University of Kentucky

4:15 PM Invited
Mechanical Properties and Thermal Stabilization of Nanocrystalline Aluminum and Aluminum Alloys: Khaled Youssef\(^1\); Ronald Scattergood\(^2\); Carl Koch\(^2\); Qatar University; \(^3\)North Carolina State University

4:40 PM
Thermal Stability and Grain-boundary Segregation in Al-Alloy Thin Films: Aashish Rohatgi\(^1\); Anun Devaraj\(^1\); Rama Vemuri\(^1\); Libor Kovařík\(^1\); Xiujian Jiang\(^1\); Giridhar Nandipati\(^1\); Suveen Mathaudhu\(^1\); Wenbo Wang\(^2\); Jason Trelewicz\(^2\); Pacific Northwest National Laboratory; \(^3\)Stony Brook University

5:00 PM
Enhanced Thermal Stability of Ultrafine-grained Aluminum Fabricated by Applying a Fast Cooling Rate after Hot Rolling: Pei-Ling Sun\(^1\); National Sun Yat-Sen University

5:20 PM
Effects of Ultrafine Grain Structure on Al Alloy Response to Corrosive Environments: Troy Topping\(^1\); California State University, Sacramento
Microstructural Processes in Irradiated Materials — Fusion Materials and High-Temperature Alloys
Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l'énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmoud Manimvand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Wednesday PM  Room: Del Mar  Location: Marriott Marquis Hotel
Session Chairs: Gary Was, University of Michigan; Chad Parish, Oak Ridge National Laboratory

2:00 PM Invited
ION/Mehl Award Lecture: Microstructure of Irradiated Materials
Steven Zinkle; ‘University of Tennessee; Oak Ridge National Laboratory

2:50 PM
Microstructural Processes in Neutron-irradiated Tungsten: Chad Parish; Xunxiang Hu; Laurent Garrison; Philip Edmondson; Kun Wang; Lance Sneed; Yutai Katoh; ‘Oak Ridge National Laboratory; ‘Massachusetts Institute of Technology

3:10 PM
Evolution of Microstructure of Tungsten under Irradiation with Tungsten Ions: Emmanuel Autissier; Marie-France Barthe; Pierre Desagrdin; Cécile Genevois; Brigitte Decamps; Robin Schaüblin; Yves Serruys; ‘CNRS; ‘ETH Zurich; ‘CEA

3:30 PM
Understanding the Effects of Helium Implantation Damage in Tungsten: Combining Multi-technique Experiments and Atomistic Modeling: Felix Hofmann; Duc Nguyen-Manh; Daniel Mason; Mark Gilbert; Sergei Dudarev; Isare de Broglie; Jeffrey Eliason; Ryan Duncan; Alexei Maznev; Keith Nelson; Christian Beck; Wenjun Liu; ‘University of Oxford; ‘Culham Centre for Fusion Energy; ‘Ecole Polytechnique; ‘University of Minnesota; ‘Massachusetts Institute of Technology; ‘Argonne National Laboratory

3:50 PM Break

4:05 PM
Microstructure and Mechanical Properties of Neutron-irradiated Tungsten Foil for Laminate Composites: Lauren Garrison; Chad Parish; Xunxiang Hu; Taehyun Huang; Takaaki Koyanagi; Jens Reiser; Lance Sneed; Yutai Katoh; ‘Oak Ridge National Laboratory; ‘Karlsruhe Institute of Technology; ‘Massachusetts Institute of Technology

4:25 PM Invited
Mechanism of Reduced Radiation Damage Identified in Equiaxiated Multicomponent Single Phase Alloys: Flyura Djurabekova; Fredric Granberg; Kai Nordlund; William J. Weber; Yanwen Zhang; ‘University of Helsinki; ‘Oak Ridge National Laboratory

4:55 PM
Comparison of Neutron and Ion Irradiation Effects on Microstructure of MA957: Jing Wang; Nathan Bailey; Mychailo Tolocek; Daniel Schreiber; Frank Garner; Y. Kupriianova; A. Kalchenko; V. Voyevodin; Lin Shao; ‘Pacific Northwest National Laboratory; ‘University of California at Berkeley; ‘Radiation Effects Consulting; ‘Kharkov Institute of Physics and Technology; ‘Texas A&M University

5:15 PM
Neutron Irradiation Damage in Ferritic ODS Steel MA957: Xiang Liu; Yinbin Miao; Wei-Ying Chen; Yaqiao Wu; James Stubbins; ‘University of Illinois at Urbana Champaign; ‘Argonne National Laboratory; ‘Center for Advanced Energy Studies

5:35 PM
Impact of He Concentration on the Microstructure of W Using TEM with In Situ Ion Irradiation: Robert Harrison; Mathues Tunes; Graeme Greaves; Jonathan Hinks; Stephen Donnelly; ‘University of Huddersfield

Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Yunlai Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huaqian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Wednesday PM  Room: 24B  Location: San Diego Convention Ctr
Session Chairs: Xavier Sauvage, Normandy University; Mingxin Huang, The University of Hong Kong

2:00 PM
Engineering the Ductile Crack Path by Controlling the Microstructure: Ankit Srivastava; Shmuel Osovski; Alan Needleman; ‘Texas A&M University; ‘Technion-Israel Institute of Technology

2:20 PM
Improved Balance of Mechanical Properties in Cryomilled Al-Mg Alloy Through Thermomechanical Processing: Holden Hyer; Clara Hofmeister; Yongho Sohn; Bhaskar Majumdar; ‘New Mexico Tech; ‘University of Central Florida

2:40 PM
Stabilization of Nanocrystalline Fe-Zr Alloys by Nanoscale Zr-rich Clusters: Hizeng Chen; ‘Northwestern Polytechnical University

3:00 PM
Improving Composite Ductility through Corrugated Reinforcement Architecture: Mark Fraser; Hatem Zurob; Peidong Wu; ‘McMaster University

3:20 PM Break

3:35 PM Invited
Ultra-strong and Ductile Nanotwinned Steel: Peng Zhou; Rendong Liu; Xu Wang; Bingxin Huang; ‘The University of Hong Kong; ‘Ansteel Group

4:00 PM
Multi Scale Modeling of Mechanical Behavior of Covalently Cross-linked SWCNT Aerogels: Ankit Gupta; Andy Jiang; Elizabeth Holm; ‘Carnegie Mellon University

4:20 PM Invited
Multiscale and Multihype Structures Obtained by Large Deformation Processes to Achieve Unique Properties Combinations: Xavier Sauvage; ‘Normandy University

4:45 PM
Designing Optimal Bimodality in Harmonic Architectured Materials Using Statistical Synthetic Model: Hyung Keun Park; Jaimyun Jung; Hyong Soep Kim; ‘Pohang University of Science and Technology
Nanostructured Surfaces for Improved Functional Properties — Session II
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Surface Engineering Committee
Program Organizers: Rajeev Gupta, The University of Akron; Homero Casaneda, Texas A&M University; Sandip Harimkar, Oklahoma State University; Arvind Agarwal, Florida International University; Bobby Mathan, James Cook University

Wednesday PM  Room: Pacific 23
March 1, 2017  Location: Marriott Marquis Hotel

Session Chairs: Debrupa Lahiri, Indian Institute of Technology Roorkee; Rajeev Gupta, The University of Akron

2:00 PM  Fabrication of Mesoporous Gold-coated Polystyrene Particles for Enzyme Immobilization: Seongchel Choi; Rafael Vazquez-Duhalt; Olivia Graeve; ‘University of California, San Diego; ‘Universidad Nacional Autónoma de Mexico

2:20 PM  Directional Wetting at the Nano Scale: Mohammad Khalkhalli; Hao Zhang; Qingxia (Chad) Liu; ‘University of Alberta

2:40 PM  Fabrication of Au-coated Ag Nanowires for OLED Applications: Sunho Kim; Hoo-Jeong Lee; ‘Sungkyunkwan University

3:00 PM  Thermally Reduced Graphene Oxide Film on Soda Lime Glass and Its Temperature-time Dependence of de-bonding Energy: Raj Kumar; R. Manoj Kumar; Debrupa Lahiri; Indranil Lahiri; ‘Indian Institute of Technology Roorkee

3:20 PM  Break

3:35 PM  Effect of Slurry Flow Rate on Planarization of c-plane (0001) GaN Surface by Chemical Mechanical Planarization (CMP) Method: P Parthiban; Dibakar Das; ‘University of Hyderabad

3:55 PM  Development of Nano-sized Intra-precipitates in Nanostructured Materials Using the Pre-existing Embryo and Desired Texture: Hongyun Luo; Pingwei Xu; ‘Beihang University

4:15 PM  Effect of Surface Nanostructuring on the Liquid Aluminizing Behavior of Ti6Al4V: Qingsong Mei; Ye Ma; Juying Li; Feng Chen; ‘Wuhan University; ‘Wuhan Polytechnic University

Pan American Materials Congress: Advanced Biomaterials — Scaffolds and Nanobiomaterials
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Wednesday PM  Room: Mission Hills
March 1, 2017  Location: Marriott Marquis Hotel

Session Chairs: Carlos Schvezov, Instituto de Materiales de Misiones - IMAM; Horacio Espinosa, Northwestern University

3:40 PM Invited Presentation: Synthesis of Fish Scale Extracted Hydroxyapatite and Chitosan Composite Scaffolds by Freeze Casting for Biomedical and Environmental Applications: Wen-Kuang Liu; Bor-Shuang Liaw; Haw-Kai Chang; Po-Yu Chen; ‘National Tsing Hua University

4:10 PM  Chemical Composition Effect of Sol-gel Derived Bioactive Glass Over Bioactivity Behavior: Lindsey Quintero; Diana Escobar; ‘Universidad de Antioquia

4:30 PM  Injectable Evaluation of Bone-graft Substitutes Based on Carrageenan and Hydroxyapatite Nanorods: Jazmín González Ocampo; Claudia Ossa Orozco; ‘University of Antioquia

4:50 PM  Comparative Analysis of Neural Cell Behaviour on Carbon Nanofiller Reinforced Polymeric Substrates: Pallavi Gupta; Murali Kumaraswamy; Partha Roy; Debrupa Lahiri; ‘IIT Roorkee

5:10 PM  Comparative Spectroscopic Studies on the Interaction of Nickel Selenide and Hydroxyapatite Nanorods: Jazmín González Ocampo; Claudia Ossa Orozco; ‘University of Antioquia

Pan American Materials Congress: Materials for Infrastructure — Session I
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en Quimica Aplicada

Wednesday PM  Room: Pacific 21
March 1, 2017  Location: Marriott Marquis Hotel

Session Chair: Oliverio Rodriguez, Centro de Investigacion en Quimica Aplicada

3:00 PM  Plenary
What Do Snakes Have to Say About Tribology? Biomimetics Applied to Friction and Wear Studies: Alejandro Toro; ‘National University of Colombia

4:30 PM  Porous Cement Paste Blended With Pulverized Coconut Fibers: Tialith Loaita Lopera; ‘Universidad de Santander

4:30 PM  Physical and Mechanical Properties of Bricks with Added Industrial Waste: Alejandro Martinez; ‘Universidad de Antioquia
TECHNICAL PROGRAM

Pan American Materials Congress: Materials for Oil and Gas Industry — Next Generation of Metallic and Non-metallic Materials Design, Manufacture and Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

Wednesday PM
March 1, 2017
Room: Marina D
Location: Marriott Marquis Hotel

Session Chair: Mary Wells, University of Waterloo

3:40 PM Introductory Comments

3:45 PM
The Role of Light Weight Materials in Energy Efficiency in the Transportation Industry: Fernand Marquis1; San Diego State University

4:05 PM
Current Lightweight Design Trends in Mobile IT Products: Mesut Varlioglu1; Chalam Kashyap1; Jack Hui He1; HP Inc.

4:25 PM
Effect of the Thermal Processing History on the Age Hardening Behaviour of 7000 Series Aluminum Alloys: Atekeh Abolhasani1; Tirdad Niknejad1; Kaab Omer1; Shahrazad Esmazili2; Mary Wells1; Michael Worswick1; University of Waterloo

4:45 PM
Microstructures, Precipitation Sequence, and Hardening of Al-Mg-Zn Alloys with High Mg/Zn Ratio: Yangyang Fan1; Diran Apelian1; Worcester Polytechnic Institute

5:05 PM
Metallurgical Bond Formation During Multimaterial Metal Casting: Carl Soderhjelm1; Diran Apelian1; Worcester Polytechnic Institute

5:25 PM
Synthesis of Energetic Composites in Ti-Al-B-C System by Adiabatic Explosive Compaction: Mikhail Chikhradze1; Fernand Marquis2; G.S. Isulekide Mining Institute/ F.Tavadze Institute of Metallurgy and Materials Science/Georgian Technical University; San Diego State University

Pan American Materials Congress: Minerals Extraction and Processing — Waste Treatment and Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalggaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Wednesday PM
March 1, 2017
Room: Marina E
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

3:40 PM
Comparative Study of Gas Reduction of Pure Zinc Ferrite and Zinc Ferrite Contained into Electric Arc Furnace Dusts: Mery Gómez-Marroquin1; Jose Carlos D’Abreu1; University Nacional de Ingenieria; Pontificia Universidad Catolica do Rio de Janeiro
4:00 PM
Biotechnological Recycling of Precious Metals Sourced from Post-consumer Products: Norizo Saito1; Toshiyuki Nomura2; Yasuhito Konishi3;
1Osaka Prefecture University

4:20 PM
Extraction of Gold from Sands and Slimes Tailings Dump from Mazowe Mine, Zimbabwe: Alain Bantishi1; "Baldwin Projects

4:40 PM
Reduction Kinetics and Characterization Study of Synthetic Magnetite Micro Fines: Saikat Kuila1; Ritayan Chatterjee2; Dinabandhu Ghosh2; Jadavpur University

5:00 PM
Novel Adsorbent from Iron Ore Concentration Tailings for Toxic Cationic Dye Removal from Water: Yongmei Wang4; Alejandro Lopez Valdivieso3; Teng Zhang3; Teza Mwamulima1; Changsheng Peng4; 1College of Environmental Science and Engineering, Ocean University of China; 3Instituto de Metalurgia, Universidad Autonoma de San Luis Potosi; 4Instituto de Metalurgia, Universidad Autonoma de San Luis Potosi; 2College of Environmental Science and Engineering, Ocean University of China

5:20 PM
Removal of Heavy Metals from Water with Nano-Sheet Molybdenite as Adsorbent: Feifei Jia1; Shaoxian Song2; 1Wuhan University of Technology

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Superplasticity, Wear, Corrosion, Magnetic, Electric and Functional Properties
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Wednesday PM
Room: Marina F
March 1, 2017
Location: Marriott Marquis Hotel

Session Chairs: Roberto Figueiredo, Universidade Federal de Minas Gerais; Kaveh Edalati, Kyushu University

3:40 PM
Achieving Superplasticity in a Bi-Sn Alloy Processed by Equal-channel Angular Pressing: Fariba Naghd1; Roberto Figueiredo2; Terence Langdon3; 1University of Southampton; 2Universidade Federal de Minas Gerais; 3University of Southern California

4:00 PM
Formation of Ultrafine-Grained Structure in NiTi alloys by ECAP-“Conform”: Egor Prokofiev1; Ivan Lomakin1; Dmitry Gunderov1; Ruslan Valiev1; 1Saint Petersburg State University; 2Ufa State Aviation Technical University

4:20 PM
Evaluation of the Effect of Grain Refinement by Severe Plastic Deformation on Biocompatibility and Corrosion Rate of Pure Magnesium: Claudio Silva1; Ana Celeste Oliveira1; Cintia Costa1; Roberto Figueiredo2; Maria de Fátima Leite2; Marivalda Magalhães2; Vanessa Lins2; Terence Langdon3; 1Federal University of Minas Gerais; 2Federal University of Minas Gerais; 3University of Southern California

4:40 PM
Wear Resistance of an Ultrafine-grained Cu-Zr Alloy Processed by High-pressure Torsion: Jitraporn Wongsa-Ngam1; Jianwei Li1; Jie Xu1; Terence Langdon2; 1King Mongkut’s Institute of Technology Ladkrabang; 2Harbin Institute of Technology; 3University of Southern California

5:00 PM
Wear Resistance and Electroconductivity of Copper and CuCrZr Alloy Subjected to Severe Plastic Deformation: Alexander Zhilyaev1; Anna Morozova2; Jose Maria Cabrera3; Rustam Kaidyshev4; 1Fundació CTM Centre Tecnologic; 2Belgorod State University; 3Universitat Politecnica de Catalunya

5:20 PM
High-Pressure Torsion of Ceramics with Functional Properties: Kaveh Edalati1; Hadi Razavi-Khoroshashi2; Masayoshi Fujii3; Zenji Horiita4; 1Kyushu University; 2Nagoya Institute of Technology

5:40 PM
Nanostructured Al-Mg-Si Alloys for Electrical Conductors: Ilchat Sabirov1; Ruslan Valiev4; Georgiy Raab3; Alexandre Arutunyan1; Maxim Murashkin1; 1IMDEA Materials Institute; 2Ufa State Aviation Technical University; 3Saint Petersburg State University

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials
XVI — Pb-free Soldering & UBM
Sponsored by: TMS Functional Materials Division, TMS: Alloy Phases Committee
Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Cheng University; Jae-Ho Lee, Hongik University; Ikuo Ohumba, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Wednesday PM
Room: 25A
March 1, 2017
Location: San Diego Convention Ctr

Session Chairs: Yee-wen Yen, National Taiwan University of Science and Technology; Cheng-En Ho, Yuan Ze University

2:00 PM
One-step Electrodeposition of Gold Dendrites in Aminosilane-contained Electrolyte and Their Applications: Hau Ngo Yu; Shien Ping Feng; 1The University of Hong Kong

2:20 PM
Development of Sn-free and Sn-containing Low Melting Solder Alloys: Chih-Hao Chen1; Albert T. Wu2; BoonHo Lee2; HsiangChuan Chen2; ChangMeng Wang2; 1National Central University; 2SHENMAO Technology Inc.

2:40 PM
A Colorful Titanium Foil as a Photoanode Substrate for Dye-sensitized Solar Cells under Back-side Illumination: Chih-Hsiang Huang; Chih-Ming Chen1; 1National Chung Hsing University

3:00 PM
Solderability of Ultrathin-Ni(P)-type Au/Pd(P)/Ni(P)/Cu Pd: P Content Effect of the Pd(P) Film: Ying-Syuuan Wu5; Pei-Tzu Lee6; Ming-Kai Lu6; Tsai-Tung Kuo2; Cheng-En Ho2; 1Yuan Ze University; 2Uyemura Limited Company

3:20 PM
Niobium Pentoxide Hole-blocking Layer for Perovskite Solar Cell: Rui Cheng1; Yu Ting Huang2; Shien Ping Feng2; 1The University of Hong Kong

3:40 PM
Break

3:55 PM
Thermal Capacitive Electrochemical Cycle on Supercapacitor: Xun Wang1; Shien Ping Feng2; 1The University of Hong Kong
4:15 PM
Analysis of Electrochemical Impedance Spectroscopy of Dye-sensitized Solar Cells with a Blocking Layer: Yen-Chiao Chen; Chih-Ming Chen; ¹National Chung Hsing University

4:35 PM
Pulse Ph-UPD to Achieve a High Gap-filling of Cu Film Deposited on Trenched Ru/p-SiOCH/Si Substrate: Jih-Tyan Wong; Tai-Lin Wu; Jau-Shiang Fang; ¹National Chiao Tung University

4:55 PM
Thermomigration of Cu-Sn and Ni-Sn Intermetallic Compounds during Reliability Test in SnAg Solder Joints: Po-Ning Hsu; ¹National Chiao Tung University

5:15 PM
Using Sn-Bi-Zn Solder Layer as the LED Die-attach Material by Controlling Position of Zn in the Solder Layer: Yue Kai Tang; Chengyi Liu; ¹National Central University

Phase Transformations and Microstructural Evolution — Ti & Zr
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

Wednesday PM
Room: 16B
March 1, 2017
Location: San Diego Convention Ctr
Session Chair: Deep Choudhuri, University of North Texas

2:00 PM
Investigation of Alpha/Beta Interface Structure in a Titanium Alloy Using Aberration-Corrected Scanning Transmission Electron Microscope: Yufeng Zheng; Robert Williams; William Clark; Hamish Fraser; ¹The Ohio State University

2:20 PM
Influences of Pre-existing Defects on the Morphology and Variant Selection of Precipitates in Alpha/Beta Ti-alloys: Di Qiu; Rongpei Shi; Pengyang Zhao; Weijie Lyu; Yunzhi Wang; ¹Shanghai Jiao Tong University; ²The Ohio State University

2:40 PM
Microstructure Evolution and Recrystallization in Linear Friction Welded Titanium Alloys: Riddhiman Bhattacharya; Thomas Broderick; John Allison; ¹University of Michigan, Ann Arbor; ²GE Aviation

3:00 PM
Primary Alpha Plate Growth in Ti6246: Abigail Ackerman; David Rugg; David Dye; ¹Imperial College, London; ²Rolls-Royce plc.

3:20 PM Break

3:40 PM
Study on Phase Stability, Correlated Deformation Microstructure and Mechanical Properties in a Metastable β-type Ti-Nb-Zr-Ta-O Alloy: Sumin Shin; Kenneth Vecchio; ¹University of California, San Diego

4:00 PM
Phase Formation in Cu - Zn Powder Mixtures Subjected to Ultrasonic Powder Consolidation: Azin Houshmand; Teiichi Ando; ¹Northeastern University

4:20 PM
The Effect of Aluminum Content on Recrystallization and Grain Growth in Binary Alpha Titanium Alloys: Anna Trump; John Allison; ¹University of Michigan

Solar Cell Silicon — Silicon Production, Crystallization, and Properties
Sponsored by: TMS Extraction and Processing Division, TMS: Recycling and Environmental Technologies Committee, TMS: Energy Committee
Program Organizers: Shadia Ikhmayies, Al Isra University; Neale Neelameggham, Ind LLC

Wednesday PM
Room: 19
March 1, 2017
Location: San Diego Convention Ctr
Session Chairs: Shadia Ikhmayies, Al Isra University; Huayi Yin, MIT

2:00 PM
Electrodeposition of Solar Grade Silicon on Graphite in Molten CaCl₂: Huayi Yin; Allen Bard; Donald Sadoway; ¹MIT; ²University of Texas at Austin

2:20 PM
Solar Silicon by Direct Carbothermic Reduction - Review and Outlook: Jan-Philipp Mai; ¹JPM Silicon GmbH

2:40 PM
Study on Producing Solar Grade Silicon by Carbothermic Reduction of Andalusite Ore: Shilai Yuan; Huimin Lu; Panpan Wang; ²Beihang University

3:00 PM
Phase Analysis of the Si-O₂ System: Shadia Ikhmayies; ¹Al Isra University

3:20 PM
Characterization of Composition, Morphology, and Structure of Disilicide Films grown in Low Pressure Chemical Vapor Deposition (LPCVD) on TiN Surface: Nouran A. Elsanossy; Alaa H. Shaikh; ²Texas A&M University

Solid State Precipitation — Session I
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Seth Imhoff, Los Alamos National Laboratory; Robert Hackenberg, Los Alamos National Laboratory; Gregory Thompson, University of Alabama

Wednesday PM
Room: 24C
March 1, 2017
Location: San Diego Convention Ctr
Session Chair: Seth Imhoff, Los Alamos National Laboratory

2:00 PM Invited
Understanding the Precipitation and Orientation Relationships in Transition Metal Carbides and Nitrides: Christopher Weinberger; Hang Yu; Bradford Schulte; Robert Morris; Xiao-Xiang Yu; Gregory Thompson; ¹Drexel University; ²University of Alabama

2:30 PM
An Experimental and Modelling Study on Precipitation during Tempering of Martensitic Alloys: Tao Zou; Joakim Odqvist; Peter Hedstrom; ¹KTH Royal Institute of Technology

2:50 PM
Carbide Precipitation during Heating in Martensitic Steels: Xiaojing Cai; Richard Sisson; ¹Worcester Polytechnic Institute, Center for Heat Treating Excellence

3:10 PM
Precipitation Behavior in Ni-Ti-Zr Shape Memory Alloys: Suzanne Kornegay; Monica Kapoor; B. Chad Hornbuckle; Othmane Benafan; Ronald Noebe; Mark Weaver; Gregory Thompson; ¹University of Alabama; ²National Energy Technology Laboratory; ³Army Research Laboratory; ⁴NASA Glenn Research Center
3:30 PM Break

3:50 PM Kinetics of Discontinuous Precipitation upon Age-hardening of Deformed and Recrystallized Invar-Sn Alloys: Maryam Akhlaghi1; Olena Volkova1; 1Institute of Iron and Steel Technology, Technische Universität Bergakademie Freiberg

4:10 PM Invited Prediction of Size, Temperature and Composition-dependent Precipitate/Matrix Interfacial Energies: Ernst Kozeschnik1; Bernhard Sondergäger1; 1TU Wien; 2TU Graz

4:40 PM Predicting Orientation Relationships: A Simple Algorithm for Generating Near-coincidence Site Lattices in General Bravais Lattice Systems: Srikanth Patala1; Arash Banadaki1; 1North Carolina State University

5:00 PM Investigating the Formation Path of Delta Hydrides in Zirconium Fuel Rod Claddings by Multi-Phase Field Modeling: Jacob Bair1; Molsen Asle Zaeem1; 1Missouri University of Science and Technology

5:20 PM Morphology and Phase Stability of Pt Nanostructures in Dense Transition Alumina Formed by Solid-state Precipitation: Arielle Clauser1; Zachary McClure1; Raquel Giuliani1; Andreas Glasier1; Melissa Santala1; 1Oregon State University; 2Universidade Federal do Rio Grande do Sul; 3University of California, Berkeley

The John Cahn Memorial Symposium — Session II
Sponsored by: TMS Materials Processing and Manufacturing Division Program Organizers: James Warren, National Institute of Standards and Technology; W. Craig Carter, MIT; Carol Handwerker, Purdue University; Y. Mishin, George Mason University

Wednesday PM Room: 22
March 1, 2017 Location: San Diego Convention Ctr

Session Chairs: Carol Handwerker, Purdue University; Y. Mishin, George Mason University

2:00 PM Invited Beyond the Gorysk Effect — Exploring Larché-Cahn Open System Elasticity in Experiment: Shan Shi1; Jörg Weisssmüller1; 1Helmholtz-Zentrum Geesthacht; 2Hamburg University of Technology

2:30 PM Invited Phase Transition and Anomalous Diffusion in Metastable B2 Ti-Mo: Srinivasan Srivilliputhur1; Niraj Gupta1; Sri Kumar Banerjee1; 1University of North Texas

3:00 PM Invited How Some Quasicrystals Might Grow: Jean Taylor1; 1Rutgers University and Courant Institute, NYU

3:30 PM Break

3:50 PM Invited John Cahn and Aesthetics of Materials: Leonid Bendersky1; 1NIST

4:20 PM Invited Quasi-history of Quasi-crystallinity: Olivier Hardouin Duparc1; 1Ecole Polytechnique

4:50 PM Invited John Cahn’s Boss, Really?: Lyle Schwartz1; 1Courtesy Professor at the University of South Florida

5:20 PM Concluding Comments

8th International Symposium on High Temperature Metallurgical Processing — Treatment and Recycling of Slag/Wastes
Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee
Program Organizers: Jian-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onur alp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinlikilic, Atılım University

Thursday AM Room: 18 Location: San Diego Convention Ctr

Session Chairs: Baojun Zhao, The University of Queensland; Matthew Andriese, Michigan Technological University

8:30 AM Introductory Comments

8:35 AM Introduction of Matte Droplets in Copper Smelting Slag: Xiangfeng Cheng1; Zhihui Cui1; Leonel Leonel Contreras1; Mao Chen1; Anh Nguyen1; Baojun Zhao1; 1The University of Queensland; 2Dongying Fangyang Nonferrous Metals; 3Codelco

8:55 AM Dissolution Behavior of Fe from Glassy Oxide Phase in Steelmaking Slag: Shohei Koizumi1; Xu Gao2; Shigeru Ueda2; Shin-ya Kitamura2; 1Tohoku University; 2Institute of Multidisciplinary Research for Advanced Materials, Tohoku University

9:15 AM Penetration Depth of Microwave in Tire Rubber: Yuche Zhang1; Jian-Yang Hwang1; Zhiwei Peng1; Matthew Andriese1; Bowen Li1; Xiaodi Huang1; Xinli Wang1; Xin Yan1; 1Michigan Technological University; 2Michigan Technological University; 3Central South University; 4Michigan Technological University; 5Advanced Materials R&D Center of WISCO

9:35 AM Effect of FeO and CaO/SiO2 on the Degree of Metallization during Carbothermic Reduction of EAF Slag: Jongbae Kim1; II Sohn1; 1Yonsei University

9:55 AM Effect of TiO2 on Thermophysical Properties and Structure of P-bearing Steelmaking Slags: Zhanjun Wang1; Zuoai Zhang1; Mei Zhang1; Min Guo1; 1University of Science and Technology Beijing; 2South University of Science and Technology of China

10:15 AM Break

10:35 AM Analysis for Optimum Conditions for Recovery of Valuable Metals from E-Waste through Black Copper Smelting: Mohammad Ali Hossaini Shuva1; M Akbar Rhamdhani1; Geoffrey A Brooks1; Syed Masood1; Markus A Reuter1; Mihamad Firdaus1; 1Swinburne University of Technology; 2Helmholtz Institute Freiberg for Resource Technology

10:55 AM The Reduction of Chromite or Chromium Slag with Silicon Wafer Kerfloss: Jong Ho Kim1; 1Research Institute of Industrial Science and Technology

11:15 AM Precipitation Behavior of MxTi3-xO5 in the Titanium-Bearing Electric Furnace Slag: Fuqiang Zheng1; Xiaoming Qu1; Guanzhou Qu1; Yufeng Guo1; Tao Jiang1; 1Central South University

11:35 AM Research on the Slag Type of Laterite Ores Smelting Reduction: Liu Chang1; 1Shanghai University
Additive Manufacturing: Establishing Location-Specific Processing-Microstructure-Property Relationships — Aerospace and Aluminum Alloys
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee
Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Semiatin, AFRL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poorganji, YTC America Inc.

Thursday AM Room: 7B Location: San Diego Convention Ctr
Session Chairs: Behrang Poorganji, YTC America Inc.; Kenta Yamanaka, Tohoku University

8:30 AM Invited
Alcoa Additive Manufacturing: A Revolution in the Making: John Barnes1; Chris Aldridge2; 1Alcoa

9:00 AM
Evolution of Aluminum Alloys Structure at Production Phases of 3D Products by Methods of Additive Technologies: Ivan Redkin1; Victor Mann1; Aleksandr Krokhin2; Aleksandr Alabin1; Sergey Zmanovskiy1; Valentin Konkevich1; 1RUSAL Global Management B. V.

9:20 AM
Characterization of Multiperforated Plates Manufactured by SLM and EBM for Aeroengine Applications: Marc Thomas1; Océane Lambert1; Cécile Davoine1; Fabienne Popoff1; Corinne Dupuy1; Patrice Peyre1; Rémy Dendievel1; 1ONERA; 2ENSAM ParisTech; 3SIMaP

9:40 AM
The Effect of Heat Treatments and Micro-mechanism Investigation on Anisotropic Creep and Low Cycle Fatigue properties of IN718 Processed by Selective Laser Melting: Changpeng Li1; Guofeng Chen1; Zhiqi Yao1; Zhongjiao Zhou1; 1Corporate Technology, Siemens; 2Tsinghua University

10:00 AM Break

10:20 AM
Emerging High-strength Aluminum Alloys for Selective Laser Melting: Todd Mower1; Jason Jones1; 1MIT Lincoln Laboratory; 2Moog Inc.

10:40 AM
AlSi10Mg Lattice Structures Processed by Selective Laser Melting: Influence of the Geometry and the Heat Treatments on the Microstructure: Pauline Delbeau1; Olivier Rigol1; Pascal Jacques1; Aude Simar1; 1Université Catholique de Louvain; 2Siris

11:00 AM
Porosity Determination in Powder Bed Aluminum Alloy: Lisa Deibler1; Jay Carroll1; Jeff Rodelas1; 1Sandia National Laboratories

11:20 AM
Understanding the Columnar-to-Equiaxed Transition in Additive Manufacturing: Mark Easton1; Dong Qiu1; Mitesh Patel1; Gui Wang2; Milan Brandt1; David StJohn1; 1Royal Melbourne Institute of Technology University; 2University of Queensland

11:40 AM
Direct Laser Metal Deposition of Eutectic Al-Si Alloy for Automotive Applications: Amrinder Singh1; Abhishek Ramakrishnan1; Guru Dinda1; 1Wayne State University

Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Feedstock
Sponsored by: TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Powder Materials Committee, TMS: Process Technology and Modeling Committee, TMS: Additive Manufacturing Bridge Committee
Program Organizers: John Carpenter, Los Alamos National Laboratory; David Bourell, University of Texas - Austin; Allison Beece, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Thursday AM Room: 8 Location: San Diego Convention Ctr
Session Chairs: Chantal Sudbrack, NASA Glenn Research Center; Bryan McEnerney, Jet Propulsion Laboratory

8:30 AM Invited
Investigation of Powder Feedstock Variability for SLM Alloy 718: Chantal Sudbrack1; David Ellis1; 1NASA Glenn Research Center

9:00 AM
The Influence of Gas Cooling in Context of Wire Arc Additive Manufacturing: A Novel Strategy of Affecting Grain Structure and Size: Philipp Henckell1; 1Technische Universität Ilmenau

9:20 AM
Tomography and 3D Grain Mapping for Additive Manufacturing Qualification: Leah Lavery1; Irishikesh Bale1; Jeff Gelb1; Arno Merkle1; 1Carl Zeiss X-ray Microscopy, Inc.

9:40 AM Invited
Qualification Development for AlSi10Mg for Robotic Spaceflight: Bryan McEnerney1; R. Dillon1; John Paul Borgonia1; Daniel Weinstock1; Andrew Shapiro-Scharlotta1; 1Jet Propulsion Laboratory

10:10 AM Break

10:30 AM
Numerical Investigations of the Coating Process during Powder Bed Additive Manufacturing: Mustafa Megahed1; Wolfgang Ottow1; 1ESI Group

10:50 AM
In-process Monitoring of Cross Contamination in Laser Powder Bed Fusion Additive Manufacturing: Mahdi Janshidiinia; Paul Boulware1; Jacob Marchal1; Heimdall Mendoza1; Lance Cronley1; Scott Newhouse1; 1EWI

11:10 AM
Microstructure and Mechanical Properties of Laser Deposited Ni/WC Metal Matrix Composite Coatings: Abhishek Ramakrishnan1; Amrinder Singh1; Guru Dinda1; 1Wayne State University

11:30 AM Invited
Phase-field Modeling of Microstructure Evolution during Additive Manufacturing of Ti-6Al-4V Alloys: Yanzhou Ji1; Lei Chen1; Long Qiong Chen1; 1Penn State University; 2Mississippi State University
Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session VII

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee

Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Panteleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Thursday AM  Room: 33C
March 2, 2017  Location: San Diego Convention Ctr

Session Chairs: Asher Leff, Drexel University; Veronica Livescu, Los Alamos National Laboratory

8:30 AM
Representation of Materials Microstructure for Modeling: Veronica Livescu; Curt Bronkhorst; George Gray; Carl Trujillo; Daniel Martinez; James Valdez; Bineh Ndefru; Olivia Dippo; Roberta Beal; ‘Los Alamos National Laboratory

8:50 AM
Determination for Dynamic Fracture Toughness of Linear Elastic Materials Using the Large Dimensional Hopkinson Tube: Chunhuai Guo; Ding Yuan; Peijian Zhou; Kenneth S. Vecchio; Fengchun Guo; ‘Harbin Engineering University; University of California, San Diego; ‘Los Alamos National Laboratory

9:10 AM
Determination of Geometrically Necessary Dislocations in Large Shear Strain Localization in Metals: Chaoyi Zhu; Veronica Livescu; Tyler Harrington; Olivia Dippo; George T. Gray H2; Kenneth Vecchio; ‘UC San Diego; ‘Los Alamos National Laboratory

9:30 AM
High Temperature Dynamic Mechanical Behavior Characterization of Ti-6Al-4V Using a NEW Compression Kolsky Bar Technique: Sindhura Gangireddy; Steven Mates; ‘NIST

9:50 AM Break

10:10 AM
Dissecting Dislocation Dynamics Simulations: The Search for the Origins of Dislocation Microstructure Evolution: Ahmed Hussein; Brahim Akdim; Edwin Antillon; Christopher Woodward; Satish Rao; Triplicane Parthasarathy; ‘Air Force Research Laboratory; ‘UES Inc.; ‘EPFL

10:30 AM
Toward a Description of Disinclination Densities Using Orientation Imaging Data: Asher Leff; Christopher Weinberger; Mitra Taberi; ‘Drexel University

10:50 AM
Effects of Crystal Orientation on Shock Induced Dislocation Dynamics of Single Crystalline Copper: Anoopam Neogi; Nilanjan Mitra; ‘IIT Kharagpur

11:10 AM
Dislocation Interaction and Fatigue Damage Evolution at Grain Boundaries Studied by In-situ Cyclic Loading of Bi-crystalline Micro Samples: Christian Mož; Jorge Rafael Velayarce; ‘Saarland University

11:30 AM
On the Optimization of a Biaxial Tensile Test Specimen Design: Dilip Banerjee; Mark Iadicola; Adam Creuziger; ‘NIST

11:50 AM
Microstructure Characterisation of Drilled Chips of 316L Stainless Steel: Guocai Chai; Raveendra Sriki; Fritz Yah; ‘Sandvik Materials Technology; ‘Sandvik Coromant

Advanced High-Strength Steels — Processing of Advanced Steels

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee

Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Miltizer, The University of British Columbia

Thursday AM  Room: 17A
March 2, 2017  Location: San Diego Convention Ctr

Session Chairs: Dirk Ponge, Max-Planck-Institut fur Eisenforschung; Mingxin Huang, The University of Hong Kong

8:30 AM
Properties and Applications of Industrially Processed Hot Rolled High-manganese TWIP Steels: Thorsten Roessler; Maximilian Nagel; Johan Driessen; Andreas Tomitz; Jens Overath; Harald Hofmann; Helmut Richter; Hans Ferkel; ‘Thyssenkrupp Hohenlimburg; ‘Thyssenkrupp Steel Europe

8:50 AM
Hot Stamping Process for Steel Parts with Higher Ductility: Ersoy Erisir; Oğuz Bilir; ‘Kocaeli University

9:10 AM
Process Window for Heavy Plastic Deformation of a Ferritic-austenitic Steel: Katharina Schwarz; Timo Müller; Anton Hohenwarter; Reinhard Pippan; ‘Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; Department of Materials Physics, University of Leoben, Austria

9:30 AM
Microstructure and Mechanical Properties of Nano/ultra-fine Structured High Strength Steels for High Temperature Structural Applications: Hasan Kotan; Kris Darling; ‘Konya NEU; U.S. Army Research Laboratory

9:50 AM
Quantitative Analysis of the Precipitate Coarsening in HSLA Steels: Yiqiang Wang; Clark Samuel; Janik Vit; Richard Heenan; Kun Yan; ‘U.S. Army Research Laboratory

10:10 AM Break

10:30 AM
Related Mechanisms in Athermal and Deformation-induced Martensitic Transformation in Austenitic Fe-Cr-Ni Alloys: Ye Tian; Annika Borgenstam; ‘KTH Royal Institute of Technology

10:50 AM
Thermodynamic-mechanical Modeling of Deformation-induced Martensitic Transformation Aided by In-situ Magnetic Measurements during Tensile Tests: Michael Hauser; Marco Wendler; Olena Volkova; Javad Mola; ‘TU Bergakademie Freiberg

11:10 AM
Computational Design of Metastable Retained Austenite in Advanced High Strength Steels: Hao Chen; Zhiyang Yang; Chi Zhang; Zongbiao Dai; ‘Tsinghua University

11:30 AM Concluding Comments
Advanced Materials for Energy Conversion and Storage — Functional Materials II
Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee

Thursday AM  Room: 15A  Location: San Diego Convention Ctr
March 2, 2017

Session Chairs: Reza Shahbazian-Yassar, University of Illinois at Chicago; Paul Ohodnicki, NETL

8:30 AM Invited
Free the Electron: Mitigating Polaronic Bottlenecks in Cathode Materials: Sarbajit Banerjee1; 1Texas A&M University

8:55 AM
Increasing Ionic Conductivity with Highly Ionizing Radiation: Jacob Shanblatt2; Cameron Tracy3; Rodney Ewing3; Joshua Sangoro4; Caitlin Taylor5; Maulik Patel6; William Weber6; Raul Palomares7; Eric O’Quinn7; Maik Lang9; 1The University of Tennessee; 2Stanford University

9:15 AM Invited
Mechanical Degradation and Optimization of Solid Electrolyte Interphases in Li Ion Batteries: Brian Sheldon1; Ravi Kumar1; Anton Tokranov1; Xingcheng Xiao2; 1Brown University; 2General Motors

9:35 AM Invited
Multifunctional Graphene-based Hybrid Nanomaterials for Renewable Energy: Sanja Gupta1; 1Western Kentucky University

9:55 AM Break

10:15 AM Invited
Nanoscale Electrochemistry with In Situ Transmission Electron Microscopy: Reza Shahbazian-Yassar1; 1University of Illinois at Chicago

10:40 AM Preparation and Characterization of Euporiumium Adenophorium-derived Activated Carbon by Microwave-heating KOH and K2CO3 Activation: Li Chongyang1; Zhang Libo1; Xia Hongying1; Cheng Song1; Shu Jianhua1; 1Kunming University of Technology and Science

11:00 AM Invited
High Energy Density Lithium Ion Battery Based on Li2O Activation: Ali Abouimrane1; Yanjie Cui2; Zhonghai Chen3; Ilias Belfarouak4; Hamdi Yahia4; Huiming Wu5; Rajeev Assary1; Larry Curtiss1; Khalil Amine1; 1Hamad Bin Khalifa University; 2Argonne National Laboratory

Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session V
Sponsored by: TMS Functional Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-wen Chen, National Tsing Hua University; Franck Gascoin, Ensicaen University of Caen; Soon-jik Hong, Kongju National University; Philippe Jund, Université de Montpellier; Lan Li, Boise State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-sen University

Thursday AM  Room: 22  Location: San Diego Convention Ctr
March 2, 2017

Session Chairs: Franck Gascoin, Laboratoire CRISMAT; Yang-yuan Chen, Academia Sinica

8:30 AM Invited
Diamond-like and “Diamond-Unlike” Ternary Copper Based Semiconductors for Thermoelectrics: Donald Morelli1; 1Michigan State University

8:50 AM Invited
Intrinsic Thermoelectric Properties of SnSe Single Crystals and Its Associates: Yang-Yuan Chen1; P.C. Wei1; 1Institute of Physics, Academia Sinica

9:10 AM
Engineering High-zT In-doped GeTe: The Phase Equilibria and Thermoelectric Properties: Jie-Ru Deng1; Hisn-jay Wu1; 1Department of Materials and Optoelectronic science, National Sun Yat-sen University

9:30 AM
Thermoelectric Properties of PbTe-based Materials Fabricated by a Melt Spinning Method: Preetyakarn Eaksunwanchai1; Ken Kuosaiki1; Michihiro Ohta1; Priyanka Jood1; Yuji Ohishi1; Hiroaki Muta1; Shinsuke Yamanaka1; 1Osaka University; 1AIST

9:50 AM
Thermoelectric Properties of Amorphous Half-Heusler Thin Films Synthesized by Magnetron Sputtering: Liangliang Li1; 1Tsinghua University

10:10 AM Break

10:30 AM Invited
Exploratory Research of New Polar Chalcogenides: Robin Lefèvre1; Stefan Maier2; David Berthebaud1; Franck Gascoin1; 1CRISMAT Laboratory

10:50 AM Invited
Theoretical and Experimental Investigation of the Electronic Structure and Thermoelectric Properties of the Fe2V Al Heusler Compound: Subrahmanyam Bandaru1; Florence Rouessac2; Philippe Jund3; 1ICGM-Montpellier University

11:10 AM
Thermoelectric Properties of MnTe- and MnTe2-based Materials: Quansheng Guo1; Takao Mori1; 1NIMS

11:30 AM
Thermoelectric Performance of Undoped and Ag Doped Mg2Sn Alloys: Ramesh Kumar Varma1; Sitarama Kada1; Matthew Barnett1; 1Deakin University

11:50 AM
The Impact of Various Wafer Cleans on Surface Recombination in Crystalline Silicon: Haider Ali1; Kristopher Davis1; Winston Schoenfeld1; 1University of Central Florida

12:10 PM Concluding Comments

Aluminum Reduction Technology — Technology Development
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Thursday AM  Room: 2  Location: San Diego Convention Ctr
March 2, 2017

Session Chair: Till Reek, Trimet Aluminium SE

8:30 AM Introductory Comments

8:35 AM
Implementation of D18+ Cell Technology at EGA Jebel Ali Smelter: Daniel Whitfield1; Sergey Akhmetov1; Jose Blasques1; Harishchandra Devadiga1; 1Emirates Global Aluminium (EGA)

9:00 AM
Enabling Efficient Heat Recovery from Aluminium Pot Gas: Daniel Clos1; Trond Andresen1; Petter Nekså1; Sverre Johnsen1; Ragnhild Aune2; 1SINTEF Energy research; 2SINTEF Materials and Chemistry; 3Norwegian University of Science and Technology
Bulk Metallic Glasses XIV — Mechanical and Other Properties I
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University
Thursday AM Room: 33B Location: San Diego Convention Ctr

Session Chairs: Koichi Tsujiya, NIMS; Uapdrastama Ramamurty, Indian Institute of Science

8:30 AM Invited
Thermal and Mechanical Properties of Deformation-Induced Amorphous Phase in Zr-Cu-Al Alloys: Koichi Tsujiya1; Jian Qiang2; Fanqiang Meng2; NIMS; NIMS; University of Tsukuba; Ames Laboratory, University of Iowa
8:50 AM Invited
Crystallization Behavior and Soft Magnetic Properties of (FeCr2Co4B4Si2Sn2)0.705(Nb1.05Cu0.5)0.295 Bulk Metallic Glass: Mihai Stoica1; Parthiban R.; Ivan Kaban; Sergio Scudino; Jürgen Eckert1; IFW Dresden, Germany; ESI Leoben, Austria
9:10 AM Structural Rejuvenation in Bulk Metallic Glasses with Varying Fictive Temperature: Hui Wang1; Wojciech Dmowski3; Jittisa Ketkaew2; Jan Schroers1; Zengquan Wang1; Takeshi Egami1; ‘University of Tennessee, Knoxville; Yale University
9:30 AM
Controllable Thermal Stress and Micro-cracking in Processing Metallic Glasses by Selective Laser Melting: Ning Li1; Di Ouyang1; Jianji Zhang1; Lin Liu1; Huzhong University of Science and Technology
9:50 AM Invited
On the Fracture Toughness and Fatigue Strength of Ni-based Glasses: Bernd Gludovatz1; Edwin Chang1; Mingxi Zheng1; Jong Na2; Maximilien Launey1; Marios Demetriou3; William Johnson; Robert Ritchie1; Lawrence Berkeley National Laboratory; Glassimetal Technology Inc; Caltech
10:10 AM Break
10:30 AM
Bulk Metallic Glasses Composites Produced via Severe Plastic Deformation – Microstructure and Mechanical Properties: Lisa Kraemer1; Verena Maier-Kiener2; Karoline Kormout1; Yannick Champion1; Reinhard Pippani1; Erich Schmid-Institute of Materials Sciences, Austrian Academy of Sciences; Department Physical Metallurgy and Materials Testing, Grenoble INP
10:50 AM
The Origins of Excellent Soft Magnetism in Fe65.5Cr4Mo4Ga4P12B5.5C5 Bulk Metallic Glasses: T. D. Shen1; S. W. Xin1; J. Yi1; I. Omelyanenko1; J. K. Zheng1; H. Lebedeva1; G. Shen1; T. Tsuchiya, NIMS; Upadrasta Ramamurty, Indian Institute of Science

8:25 AM DX+ Ultra – EGA High Productivity, Low Energy Cell Technology: Nadia Ahl1; Abdalla Zarouni1; Michel Reverdy1; Emirates Global Aluminium (EGA)
9:50 AM Break

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee
Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Thursday AM Room: 15B Location: San Diego Convention Ctr
Session Chair: Maurits Van Camp, Umicore Group Research & Development

8:30 AM
Corrosion Mitigation Approaches for High Temperature Energy Production: Judith Vidal1; National Renewable E
8:50 AM
9:10 AM
Thermal Energy Storage in Orientationally Disordered “Plastic Crystals”: Dhanesh Chandra1; Renhai Shu1; Murli Tirumala1; Daryl Nelson1; Uni. of Nevada, Reno
9:30 AM
Corrosion Mechanism of Haynes 230 with Ni Crucible in MgCl2-KCl: Yuxiang Peng1; Ramana Reddy2; ‘The University of Alabama
9:50 AM Break

10:10 AM
Functional Syntactic Foams: Titania Coated Glass Microballoons for Environmental Cleanup: Krishan Chawla1; University of Alabama at Birmingham
10:30 AM
Conceptualization of Doped Black P Thin Films for Potential Use in Photovoltaics with Validation from First Principle Calculations: Sayan Sarkar1; Weizhi Zeng1; Michael Free1; University of Utah
10:50 AM
Energy Efficiency and Sustainability in Steel Production: Lauri Holappa1; Aalto University
11:10 AM
Application of Surface Effect on Metallurgical Processes: Kuo-Chih Chou1; University of Science & Technology Beijing
Bulk Metallic Glasses XIV — Structures and Modeling I

Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yufeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Thursday AM
Room: 33A
Location: San Diego Convention Ctr

Session Chairs: Karin Dahmen, University of Illinois at Urbana Champaign; Xie Xie, The University of Tennessee, Knoxville

8:30 AM Invited
Modeling Slips in Solids and Comparison to Experiments: Karin Dahmen1; Michael LeBlanc2; Peter Liaw3; Robert Maass4; Jonathan Uhl5; Wendelin Wright6; Xie Xie7; 1 University of Illinois at Urbana Champaign; 2University of Illinois at Urbana Champaign; 3The University of Tennessee, Knoxville; 4Retired; 5Bucknell University

8:50 AM Invited
On the Proper Determination of Power Law Exponents for Slip Statistics Using Experimental Data from Bulk Metallic Glasses: Wendelin Wright8; Michael LeBlanc9; Aya Nawano10; Xiaojun Gu11; J.T. Uhl12; Karin Dahmen13; Bucknell University; 10University of Illinois at Urbana-Champaign; 12Retired

9:10 AM Invited
‘Crystal Genes’ in Metallic Liquids and Glasses: M. Kramer1; Y. Sun1; F. Zhang1; Z. Ye1; Y. Zhang1; X. Fang1; Z. Ding1; C. Z. Wang1; M.I. Mendelev1; R.T. Orr2; K.M. Ho3; R.E. Napolitano4; 1Iowa State University; 2University of Science and Technology of China

9:50 AM Break

10:10 AM Invited
A Comprehensive Study of the Deformation Mechanism of Amorphous CzZr/Nanocrystalline Cu Nanolaminates via Integrated Experiments and Computations: Bin Gao1; William Yi Wang1; Bin Tang2; Jun Wang3; Hongchao Kou4; Maosen Fu5; Jinshan Li6; 1Northwestern Polytechnical University

10:30 AM Invited
Modelling and Experimental Assessment of Residual Stress Distribution in Zr-based Bulk Metallic Glass: Marco Sebastiani7; Alexander Korsunkey8; Enrico Salvati9; Tan Su10; Easo George11; 7Roma TRE University; 8University of Oxford; 9Baur-Universität Bochum

10:50 AM Invited
University of Slip Avalanches in a Ductile Bulk Metallic Glass: Junweii Qiao1; Jianjun Li2; Huijun Yang3; 1Taiyuan University of Technology

11:10 AM
Structural Stabilities and Mechanical Responses of Ni-transition Metal Binary Glass-forming Alloys: Hehsang Ahn1; Jinwoo Kim3; Soyeon Kim4; Eun Soo Park5; 1Seoul National University

Cast Shop Technology — Cashtags Management and Automation

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: David Gildefteister, Alcoa Technical Center

Thursday AM
Room: 1A
Location: San Diego Convention Ctr

Session Chair: Jean Francois Desmeules, Dynamic Concept

8:30 AM Introductory Comments

8:40 AM
Overpressure Due to a Molten Aluminum and Water Explosion in a Casthouse: Jennifer Woloshyn1; Andrew Gerber2; Tom Plikas3; Duane Baker4; Adam Blackmore5; 1Hatch Ltd.; 2Envenio Inc.

9:05 AM
Automation and Optimization of Sow Casting in Alouette: Jean-Francois Desmeules6; Jean-Benoit Néron7; Jean-Pierre Bérubé8; 1Dynamic Concept; 2Alumine Inc Alouette Inc.

9:30 AM
Radio Frequency Identification (RFID) Technology for the Aluminum Industry: Valérie Langelier9; 1Hatch

9:55 AM Break

10:10 AM
Semi Finished Products Traceability Improvement with Laser Marking: Jean-Francois Desmeules10; Benoit Côté11; Jean-Daniel Dufour12; 1Dynamic Concept

10:35 AM
Structural Integrity Assessment of Pressurized Ladles for Aluminum Smelting: Maher Al-Dojayli13; Pouya Zangenehi14; Alexandre Lamoureux15; Daniel Richard16; Pierre-Louis Allaire17; Hamid Ghorbani18; 1Hatch

11:00 AM
Have Recent Advances in Direct Chill Casting Made Us Less Safe?: Alex Lowery19; 1WISE CHEM LLC

11:25 AM Concluding Comments

Characterization of Minerals, Metals, and Materials Composites

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Shadia Ikhmaybeh, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kayal, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Thursday AM
Room: 31A
Location: San Diego Convention Ctr

Session Chairs: Jiann-Yang Hwang, Michigan Technological University; Marcos Fernandes, USP

8:30 AM
Study on Mechanical Property of Porous Titanium by Adding Powder TiB2: Lu TengFei; 1College of Materials Science and Engineering, Chongqing University
8:50 AM
Portland Cement-Fique Fibers Composites: Henry Colorado1; Frederico Muyalart Margem2; Sergio Monteiro3; 1Universidade de Antioquia; 2Universidade Estadual do Norte Fluminense Darcy Ribeiro; 3Military Institute of Engineering, IME

9:10 AM
High Thermal Conducting Composites Using Percolation Theory: Kenji Monden1; Denka Co., Ltd.

9:30 AM
Sorption Characteristics of Low Density Polyethylene/Kola Nut Composite: Genevive Omuegbu1; Gerald Onyedika1; Martin Obidiegwu2; 1Federal University of Technology, Owerri

9:50 AM Break

10:05 AM
Tensile Behavior of Epoxy Matrix Composites Reinforced with Pure Ramie Fabric: Caroeline Gomes de Oliveira1; Janine Feitosa de Deus1; Ygor Macabu de Morais1; Marcos Vinícius Fonseca Ferreira1; Frederico Margem Muyalart2; Sérgio Neves Monteiro2; Luiz Xavier Borges3; 1UNEF - Universidade Estadual do Norte Fluminense; 2Faculdade Redentor; 3IME - Instituto Militar de Engenharia

10:25 AM
Hemp Fiber Density Using the Pycnometry Technique: Lázaro Rohden1; Frederico Margem2; Sérgio Monteiro3; Anna Neves4; Carlos Vieira4; Janaína Vieira1; Dhyemila Mantovani1; Jean Margem1; 1State University of Northern Rio de Janeiro; 2Military Institute of Engineering; 3ISECENSA

10:45 AM
Bending Tests in Polyester Composites Reinforced with Palf Fibers: Maria Carolina Teles1; Frederico Margem2; Sérgio Neves3; 1State University of the Northern Rio de Janeiro; 2Faculdade Redentor; 3Instituto Militar de Engenharia

11:05 AM
Influence of EB Radiation on the Mechanical Properties of Organic Bentonites-HIPS Nanocomposites: Francisco Mondelo Garcia1; Amanda Roban1; Giselle Colls2; Jesus Eduardo Ruiz2; Esperidiana Moura3; Maria das Graças Valenzuela4; Tania Moliner5; Jose Luis Valin Rivera6; Francisco Valenzuela-Diaz7; 1Instituto Superior Politecnico Jose Antonio Echeverria; 2Centro de Biomateriales Universidad de la Habana; 3Instituto de Pesquisas Energeticas e Nucleares; 4Universidade Federal do ABC; 5Universidade de Sao Paulo

11:25 AM
Preparation and Characterization of Clay Exfoliation and vegetal fibre on Properties of recycled low density polyethylene (rLDPE): Anaucbe Achosin-Udenko1; Coida Renata2; Francisco Valenzuela-Diaz2; Gerald Onyedika1; Moura Esperidiana1; Martin Ogwuegbu1; Graca Valenzuela1; 1Federal University of Technology, Owerri; 2Universidade de Sao Paulo Escola Politonica; 3Instituto de Pesquisas Energeticas e Nucleares, IPEN-CNEN/SP

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**Characterization of Minerals, Metals, and Materials — Method Development**

**Sponsored by:** TMS Extraction and Processing Division, TMS: Materials Characterization Committee

**Program Organizers:** Shadia Ithmeyies, AI Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, GammelMATERIAS; Jian-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, Collejgio Universitario, Italy; Mingming Zhang, Aarcolor/Mittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramas Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

**Session Chairs:** Jeongguk Kim, Korea Railroad Research Institute; Tomoko Sano, US Army Research Laboratory

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8:30 AM
Characterizing Ballistic Resistance: Legacy Methods Versus Novel Statistical Tools: Frederik Coghe1; Royal Military Academy (BE MoD)

8:50 AM
A Forward Modeling Approach to Defect Characterization in a Scanning Electron Microscope: Saransh Singh1; Marc De Graef2; 1Carnegie Mellon University

9:10 AM
In-Situ Femtosecond Laser Milling Technique for Microstructural Characterization: Tomoko Sano1; Jonathan Ligda2; 1US Army Research Laboratory

9:30 AM
Development of A New Recycling Process of PGM from Metal-supported Catalyst Using Complex Oxide: Takashi Nagai1; Hiroki Kumakura1; Kenji Abe2; Rentaro Seki3; Daiki Noguchi4; 1Chiba Institute of Technology

9:50 AM
In Situ Mechanical and Thermal Damage Mechanisms Investigation in Asteoridal Rocks: Jefferson Cuadra1; Kavan Hazeli2; Harry Martz3; KT Ramesh1; 1Lawrence Livermore Nation Laboratory; 2University of Alabama in Huntsville; 3Johns Hopkins University

10:10 AM Break

10:25 AM
Nondestructive Characterization of Railway Materials and Components with Infrared Thermography Technique: Jeongguk Kim1; Korea Railroad Research Institute

10:45 AM
Nondestructive Materials Characterization in 3D by Laboratory Diffraction Contrast Tomography: Erik Lauridsen1; Christian Holzner1; Florian Bachmann1; Allan Lyckegaard1; Hrishikesh Bale2; Leah Lavery2; 1Xnovo Technology ApS; 2Carl Zeiss X-ray Microscopy Inc.

11:05 AM
Five Dimensional Microanalysis of In-situ Reactions in Solution: Tyler Ley1; Qiang Hu1; Mohammed Aboustait2; Masoud Moradian1; Tae-hwan Kim1; Taehwan Kim1; Jay Hanan1; Jeff Bullard2; George Scherer2; Robert Winarski3; Volker Rose4; Jeff Gehb4; 1Oakland State University; 2University of New South Wales; NIST3; Princeton; 4Argonne National Laboratory; 5Zeiss Xradia Inc

11:25 AM
Improvements in High Speed Simultaneous EDS-EBSD Mapping: Matt Nowell1; 1EDAX-TSL

11:45 AM
Measuring Bauschinger Effects in Rolled Sheet Metal: Christopher Calhoun1; Evan Rust1; Dilip Banerjee1; Tim Foeckele1; NIST
Characterization of Minerals, Metals, and Materials — Welding and Solidification

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, College Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Rami G. Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Thursday AM

Room: 31B

Location: San Diego Convention Ctr

Session Chairs: Chenguang Bai, Chongqing University; Pasquale Spena, Free University of Bozen-Bolzano

8:30 AM

Characterization of Explosively Bonded Interfaces for High Contaminant Sensitivity Environments: Olivia Underwood1; Jonathan Madison1; Lisa Deibler2; Jeffrey Rodelas3; Sandia National Laboratories

8:50 AM

Investigation on the Local Mechanical Behavior of Laser Weldments in AHSS TWBs: Pasquale Russo Spena1; Luca Cortese2; Filippo Nalli2; Daniel Reiterer3; Free University of Bozen-Bolzano; Sapienza - Università di Roma; IBM Südtirol-Alto Adige

9:10 AM

Microstructural Evolution of Porous Materials by Magnetic Freeze Casting: Pooya Niksar1; Michael Frank1; Joanna McKitterick2; Michael Porter3; Department of Mechanical Engineering, Clemson University, Clemson; Materials Science and Engineering Program, University of California, San Diego

9:30 AM

Mechanical Characterization of Weldment Zones of Selected Oil and Gas Pipeline Steel: Bodude Adebayo1; University of Lagos

9:50 AM Break

10:05 AM

Reconstruction of Solidification History from the Cast Microstructure of a Vacuum Arc Remelted Nickel Alloy 718 Ingot: Thomas Ivanoff1; Trevor Watt2; Eric Tuleff3; University of Texas at Austin; Stratays

10:25 AM

The Effects of Refractory Element Addition on the Long Term Stability and Microstructural Characteristics of Nickel-Based Superalloys: Rasim Eras1; M. Vedat Akdeniz2; Amdulla O. Mekhrabov3; Novel Alloys Design and Development Laboratory (NOVALAB), Department of Metallurgical and Materials Engineering, Middle East Technical University

10:45 AM

Interfacial Strength Characterization in a High-modulus Low-density Steel-based Fe-TiB2 Composite: Yehuang Li1; Mingxin Huang2; The University of Hong Kong

Computational Materials Discovery and Optimization — From Bulk to Materials Interfaces and 2D Materials — Kinetics and Processing

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Computational Materials Science and Engineering Committee

Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Horner, Brigham Young University

Thursday AM

Room: 11A

Location: San Diego Convention Ctr

Session Chair: To Be Announced

8:30 AM

Solute Transport in Mg: Beyond the 8-frequency Model: Ravi Agarwal1; Dallas Trinkle2; University of Illinois, Urbana-Champaign

8:50 AM

Elucidating Ordering and Decomposition Processes in Alloys from First-principles: Anirudh Raja Narayanan1; John Thomas2; Brian Puchala3; Anton Van der Ven1; University of California; University of Michigan

9:10 AM

Exploration of Amorphous Silica Glass Using Molecular Dynamics: William Schill1; Michael Ortiz2; California Institute of Technology

9:30 AM

The Evolution of 0° Precipitates in an Al-Cu Alloy Investigated with Phase Field Theory: Patrick Shower1; Balasubramaniam Radhakrishnan2; James Morris3; Amit Shyam3; Oak Ridge National Laboratory

9:50 AM

Phase Field Crystal Modeling of Grain Boundaries in Two-dimensional Binary Materials: Doaa Taha1; Simiso Mkhonta2; Ken Elder3; Zhi-Feng Huang3; Wayne State University; University of Swaziland; Oakland University

10:10 AM Break

10:25 AM

Compliant Substrate Epitaxy: Au on MoS2: Yuzhi Zhou1; Daisuke Kiriya1; Eugene Haller2; Joel Ager2; Ali Javey2; Daryl Chrustan3; University of California, Berkeley and Lawrence Berkeley National Laboratory

10:45 AM

Effects of Rarefied Atmospheres on Freezing and Sublimation: Rahul Basu1; VTU

11:05 AM

Modelling of Ni Nanohoneycomb Actuation in Water: Yuqi Zhang1; Alfonso Hing Wan Ngan2; The University of Hong Kong

11:25 AM

Modeling the Hydroforming of Large Grain Niobium Tube: Aboozar Mapar1; Thomas Bieler2; Farhang Pourboghrat3; Michigan State University; The Ohio State University

11:45 AM

Band Gap Opening in 2D Bi-layered Silicon Film: Zhonghang Ji1; Yan Zhaung1; Wright State University

www.tms.org/TMS2017
Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions — Uncertainty Quantification and Model Validation for Classical Force Fields
Program Organizers: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida; Li Ma, NIST; Shawn Coleman, ARL; Jeff Doak, QuesTek Innovations, LLC; Fadi Abdeljawad, Sandia national Laboratory

Thursday AM Room: 10
March 2, 2017 Location: San Diego Convention Ctr

Session Chairs: Shawn Coleman, U.S. Army Research Laboratory; Lucas Hale, National Institute of Standards and Technology

8:30 AM Invited
Advancements in Parameterization and Validation of Empirical Potentials: Tao Liang1; Kamal Choudhary1; Susan Sinnott1; ‘Pennsylvania State University; ‘NIST

9:00 AM Development of Semi-Empirical Potentials Suitable for Simulation of Phase Transformations in Titanium: Mikhail Mendelev1; Tom Underwood2; Graeme Ackland2; ‘Aames Laboratory; ‘University of Bath; ‘University of Edinburgh

9:20 AM Evaluation and Comparison of Classical Interatomic Potentials through a User-friendly Interactive Web-interface: Kamal Choudhary1; Faical Congo1; Francesca Tavazza1; ‘National Institute of Standards and Technology

9:40 AM Invited
Evaluation of Atomatic Potentials for Silicon: Ganga P. Purja Pun1; Y. Mishin1; ‘George Mason University

10:10 AM Break

10:30 AM Invited
Uncertainty Quantification of Classical Interatomic Potentials: Eugene Ragaia1; Christopher O’Brien1; Richard Hennig1; Stephen Foiles2; Simon Phillpot1; ‘University of Florida; ‘Sandia National Laboratories

11:00 AM Invited
Molecular Dynamics, Dislocation Interactions and Uncertainty: Lucas Hale1; Zachary Trautt1; Chandler Becker1; ‘National Institute of Standards and Technology

Deformation and Transitions at Interfaces — Grain Boundary Interactions with Dislocation and Twins in Hexagonal Metals
Sponsored by: TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Computational Materials Science and Engineering Committee, TMS: Mechanical Behavior of Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Sanyu Fensin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaliya Barabash, Oak Ridge National Lab; Shen Dillon, University of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Thursday AM Room: 23B
March 2, 2017 Location: San Diego Convention Ctr

Session Chair: To Be Announced

8:30 AM Invited
Influence of Twin-grain Boundary Interactions on Further Twin Growth and Twin Transmission in HCP Metals: Carlos Tome1; M. Arul Kumar1; Irene J Beyerlein1; ‘Los Alamos National Lab

8:50 AM Investigation of Dislocation Activities during Slip Transmission across Alpha/Beta Interface in Ti-alloy Using Microscopic Phase-Field: Pengyang Zhao1; Chen Shen2; Ji Li2; Michael Mills2; Yunzhi Wang2; ‘The Ohio State University; ‘GE Global Research, US; ‘Massachusetts Institute of Technology

9:10 AM Invited
Slip-induced Twinning in Ti: Maryam Ghazisaeidi1; ‘Ohio State University

9:30 AM
[1012] Twin Faceting on Non-tilt Interfaces: Christopher Barrett1; Haitham El Kadiri1; ‘Mississippi State University

9:50 AM Invited
Intergranular and Transgranular Fracture Modes in H.C.P. Alloys: Ismail Mohamed1; S. Ziaei1; Mohammed Zikry1; ‘North Carolina State University
10:00 AM Break

10:30 AM Invited
Dislocation/Boundary Interaction in Titanium: Molecular Dynamics Study
Mohammad Shahriar Hooshmand; Maryam Ghazisaeidi; 'The Ohio State University

10:50 AM Invited
Imaging and Analyzing Slip in Three Dimensions: Rulin Chen; Jonathan Lind; Reeu Pokharel; David Menasche; Anthony Rollett; Robert Suter; 'Carnegie Mellon University; 'Lawrence Livermore National Laboratory; 'Los Alamos National Laboratory

11:00 AM Invited
Early Stages of Microstructure and Texture Evolution during Beta Annealing of Ti-6Al-4V: Adam Pilchak; Gordon Sargent; Lee Semiatin; 'Air Force Research Laboratory; 'UES, Inc.

11:30 AM
In-situ Probe of Twinning Dynamics at a Tensile Twin Tip in Mg: Lin Jiang; M. Anil Kumar; Irene Bayerlein; Dalong Zhang; Xin Wang; Subhash Mahajan; 'Enrique Lavermia; 'Julie Schoenung; 'University of California Irvine; 'Los Alamos National Laboratory; 'University of California-Davis

11:50 AM Invited
Mesoscale Response of Titanium Alloy Tensile Samples Measured through High Energy X-ray Experiments: Joel Bernier; Paul Shade; Todd Tumer; Darren Pagan; David Menasche; Robert Suter; 'Peter Knessei; Jun-Sang Park; Jonathan Almer; 'Lawrence Livermore National Laboratory; 'Air Force Research Laboratory; 'Carnegie Mellon University; 'Argonne National Laboratory

12:10 PM Invited
Heterogeneous Deformation in Polycrystalline Mg-Y by In Situ 3D-XRD: Leyun Wang; Zhonghe Huang; Xiaojin Zeng; Sangbong Yi; Erica Lilleoedden; Peter Knessei; Jun-Sang Park; 'Shanghai Jiao Tong University; 'Helmholtz-Zentrum Geesthacht; 'Argonne National Laboratory

Thursday AM

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, REWAS Organizing Committee, TMS: Energy Committee, TMS: Recycling and Environmental Technologies Committee
Program Organizers: John Howarter, Purdue University; Elsa Olivetti, Massachusetts Institute of Technology; Mingming Zhang, ArcelorMittal Global R&D; Randolph Kirchain, Massachusetts Institute of Technology; Henry Colorado, Universidad de Antioquia

Thursday AM

8:30 AM
Evaluation Of Battery Waste As Pigment: Henry Colorado; German Ricaurte; 'Universidad de Antioquia

8:50 AM
Understanding Variability in Industrial Boiler Ash Waste for Use in Alkali Aluminosilicate Systems: Hugo Uveji; Piyush Chaunsali; Rachel Osmundsen; John Ochsendorf; Elsa Olivetti; 'Massachusetts Institute of Technology

9:10 AM
Value-Added Processing of Tannic Acid and Related Waste Materials for Halogen-Free Flame Retardants: John Howarter; Matthew Korey; Gamini Mendis; 'Purdue University

9:30 AM
Synthesis of New Arsenic Adsorbents from Waste Water of Steel Processing Plant: H Sheng; J. Shang; 'University of Illinois

9:50 AM Break

10:10 AM
Recycling of Glass Polishing Sludge into Heavy Clay Ceramic: Carlos Mauricio Vieira; Pamela Busch; Juliana Licurgo; Sergio Monteiro; 'State University of the North Fluminense

10:30 AM
Synthesis and Characterization of Ferrochromium Slag Based Glass-ceramics: Zhitaio Bai; Mei Zhang; Min Guo; 'University of Science and Technology Beijing

10:50 AM
Reducing the Silica Content of Copper Slag by Flocculation and Reverse Floation: Zhenya Xu; 'Shanghai University

11:10 AM
Hydrometallurgical Processing of Copper Smelter Dust for Copper Recovery as Nanoparticles: A Review: Daniel Okanigbe; 'Tshwane University of Technology (TUT)

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Transient Liquid Phase Bonding and Nanosolder
Sponsored by: TMS Functional Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghampton University; Kazuhiro Nogita, The University of Queensland

Thursday AM

Session Chairs: Fan-Yi Ouyang, National Tsing Hua University; Tae-Kyu Lee, Portland State University

8:30 AM
Transient Liquid Phase Processing of Sn-Cu Alloys for Soldering Applications: Stuart McDonald; Syeda Mehreen; Flora Somidin; Arif Mohd Salleh; Kazuhiro Nogita; 'Nihon Superior Centre for the Manufacture of Electronic Materials

8:50 AM
Low Thickness Au-In TLP Hermetic Encapsulation: Eyup Can Demir; Oguzhan Temel; Tayfun Akin; Eren Kalay; 'METU; 'METU MEMS

9:10 AM
Microstructural Evolution and Mechanical Performance of High-Bi, Sn-Bi Transient Liquid Phase Bonds: John Holaday; Carol Handwerker; 'Purdue University

9:30 AM
Microstructure and Thermomechanical Properties of Nanoparticle-added Sn-Ag-Cu Solder Paste: Kyoungho Kim; Jung-Hwan Bang; Junichi Koike; Jonghyuk Yoon; Songhee Yim; Bum-Gyu Baek; Jae-Pil Jung; Sehoon Yoo; 'Korea Institute of Industrial Technology; 'Tohoku University; 'KD One; 'University of Seoul

9:50 AM Break

10:10 AM
Effect of Lead-free Nanosolder Additions on the IMC Formation and Growth of Solder Paste on Cu Substrate: Evan Wernicki; Zhiyong Gu; 'University of Massachusetts Lowell
Energy Materials 2017: Materials for Coal-Based Power — Session IV

Sponsored by: Chinese Society for Metals
Program Organizers: Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Zhengdong Liu, China Iron & Steel Research Institute Group; Sebastien Dryepondt, Oak Ridge National Laboratory

Thursday AM Room: 12 Location: San Diego Convention Ctr

Session Chair: Gordon Holcomb, National Energy Technology Laboratory

8:30 AM Invited
A New Austenitic Heat-Resisting Steel SP2215 for 620-630°C USC Boiler Tubing Application: Xinhan Xie; University of Science and Technology Beijing

9:00 AM Invited
Austenitic Stainless Steel in High Temperature Environment: Yun Hang Hu; AECOM Energy Technology and Environment

9:30 AM Invited
Effect of Steam Pressure on the Oxidation Behaviour of Alloy 625: Shengli Jiang; Xiaojun Huang; Wenjing Li; Pei Liu; Institute of Metal Research, Chinese Academy of Science; Carleton University; Canadian Nuclear Laboratories; CANMET

9:50 AM
First Principles Investigations of Alternative Nuclear Fuels: Barbara Szpunar; Linu Malalakkal; Ericmoore Jessou; J.A. Szpunar; University of Saskatchewan

10:10 AM Break

10:25 AM Calculation of Phase Equilibria and Properties in Multi-Component Molten Salt Systems: Shuanglin Chen; Weisheng Cao; Fan Zhang; Chuan Zhang; Jun Zhu; CompuTherm LLC

10:45 AM
IASCC Behavior of Nickel-based Alloys in Light Water Reactors (LWRs): Mi Wang; Miao Song; Gary Was; University of Michigan

11:05 AM Oxidation of Alloy 690 in Simulated Pressurized Water Reactor Primary Environment: Wenjun Kuang; Miao Song; Feng Wang; Gary Was; University of Michigan

11:25 AM Compatibility Research of Fission Product Tellurium and Alloy N in Molten Salt Reactor: Z.J. Li; Shanghai Institute of Applied Physics CAS

11:45 AM
Friction Stir Processing of Degraded Austenitic Stainless Steel Nuclear Fuel Dry Cask Storage System Canisters: Ben Sutton; Kenneth Ross; Glenn Grant; Gary Cannell; Greg Frederick; Robert Cough; Electric Power Research Institute; Pacific Northwest National Laboratory; Flur Enterprises, Inc.

Energy Technologies — CO2 Management and Sustainable Metallurgical Processes
Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Pyrometallurgy Committee
Program Organizers: Lei Zhang, University of Alaska Fairbanks; Jaroslav Drellich, Michigan Technological University; Neale Neilameggam, Ind LLC; Donna Guillian, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu, Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fisheha Tesfaye, Abo Akademi University

Thursday AM Room: 13 Location: San Diego Convention Ctr

Session Chairs: Donna Guillen, Idaho National Laboratory; Cong Wang, Northeastern University; Fisheha Tesfaye, Abo Akademi University

8:30 AM Invited
Large Scale Energy Storage through Heat Balance Shifts at Aluminium Smelters: Mark Taylor; University of Auckland

9:00 AM Invited
Transforming the Way Electricity is Consumed during the Aluminium Smelting Process: Mark Dorreen; Linda Wright; Geoff Matthews; Pretesh Patel; David Wong; Light Metals Research Centre, The University of Auckland; One World Consulting Limited; Energia Potior Limited; Auckland Uniservices Limited

9:20 AM Invited
Disordered 3D Multi-layer Graphene Anode Material from CO2 for Sodium-Ion Batteries: Hai (Claire) Xiong; Kassiopeia Smith; Wei Wei; Yun Hang Hu; Boise State University; Michigan Technological University
9:40 AM
Power Generation Using Combined In-situ Combustion with CO₂ Separation and Sequestration: Subodh Das; Jeff Saey; 1Phinix, LLC; 2University of Kentucky

10:00 AM Break

10:15 AM Invited
The Thermodynamics of Slag Forming Inorganic Phases in Biomass Combustion Processes: Daniel Lindberg; Fischa Tesfaye; 1Åbo Akademi University

10:35 AM Leaching of Sb from TROF Furnace Doré Slag: Petteri Halli; Simon Jolivet; Andreas Klöfverskjöld; Petri Latostennmaa; Benjamin Wilson; Mari Lundström; 1Aalto University; 2Polytech Grenoble; 3Boliden Harjavalta

10:55 AM Invited
Potential CO₂ Emission Reduction and H₂ Production Using Industrial Slag Wastes Originating from Different Industrial Sectors: Jinchiro Nakano; James Bennett; Anna Nakano; 1US Department of Energy National Energy Technology Laboratory

11:15 AM Absorption of Atmospheric CO₂ Using Banana Peel Waste: Ajit Gaikwad; Krishna Vootla; Likhith Nalluri; A.K.M. Monayem Mazumder; Ramesh Guduru; 1Lamar University

Fracture Properties and Residual Stresses in Small Dimensions — Fracture Testing Methodologies
Sponsored by: TMS Structural Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Daniel Kienzer, University of Leoben; Marco Sebastiani, Roma TRE university; Nagamani Jaya Bailla, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Thursday AM Room: 21 Location: San Diego Convention Ctr

Session Chairs: Nathan Mara, Los Alamos National Laboratory; Richard Vinci, Lehigh University

8:30 AM Invited
SEM-based In-situ Fracture Measurements of Ceramics and Metals: Richard Vinci; 1Lehigh University

9:00 AM
In Situ Stable Fracture of Sapphire-Niobium Interfaces: Rui Hao; Giorgio Sernicola; Eduardo Saiz; Finn Giulianii; 1University of Illinois at Urbana-Champaign; 2Imperial College London

9:20 AM Measurement of the Fracture Toughness of Thin Films by Pillar Splitting: Effect of Materials Structure and Indenter Geometry: Matteo Ghidelli; Marco Sebastiani; 1University of Roma Tre

9:40 AM Invited
Enhancing Ductility of Metal-Metal (BCC-HCP) and Metal-Ceramic Multilayered Nanocomposites: Nathan Mara; Siddhartha Pathak; William Mook; Youxing Chen; Nan Li; Jon Baldwin; Jian Wang; Irene Beyerlein; 1Los Alamos National Laboratory; 2University of Nevada, Reno; 3Sandia National Laboratories; 4University of Nebraska, Lincoln

10:10 AM Break

10:30 AM Indentation Fracture Experiments on Single Crystal Olivine from 300K to 1100K: David Armstrong; Kate Kumamoto; David Wallis; Steve Roberts; Angus Wilkinson; Jessica Warren; Lars Hansen; 1University of Oxford; 2Stanford University; 3University of Delaware

10:50 AM Small-scale Testing Methodology to Study Fracture Toughness of Interfaces in Multilayered Systems: Adnan Oezckin; Richard Vinci; Srinivasan Rajagopalan; 1ExxonMobil Research and Engineering Company; 2Lehigh University

11:10 AM Orientation Dependent Fracture Behaviour of LiTaO₃ and LiNbO₃ Single Crystals: Manuel Gruber; Raul Bermejo; Jeroen Bielen; Peter Supancic; Robert Danzer; Daniel Kienzer; 1Montanuniversität Leoben; 2Epos Netherlands B.V., A TKD Group company

11:30 AM Extraordinary Stability of Clamped Beam Fracture Toughness Specimen: Stress Intensity Factor Solutions and New Insights on Possibilities at Small Dimensions: Nagamani Jaya Balila; Vikram Jayaram; 1MPIE GmbH; 1Indian Institute of Science, Bangalore

Friction Stir Welding and Processing IX — Industrial Applications
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Thursday AM Room: 9 Location: San Diego Convention Ctr

Session Chairs: Anthony Reynolds, University of South Carolina; Lars Cederqvist, SKB

8:30 AM Keynote
Growth of Friction Stir Welding and Processing: Contributions of Murray W. Mahoney: Rajiv Mishra; 1University of North Texas

9:10 AM Invited
Industrial Application of FSW at HFW: Bryan Tweedy; 1HFW

9:30 AM Invited
Friction Stir Welding Parameter Development of AA7075 for Hot Stamping Applications: Francois Nadeau; Nia Harrison; 1National Research Council of Canada (NRC); 2Ford Motor Company

9:50 AM Invited
Friction Stir Welding, Development Approach and Feedback for Aerospace Applications: Amarilys Ben Attar; Jean-Pierre Bonnafe; 1Institut de Soudure; 2Airbus Safran Launchers

10:10 AM Break

10:30 AM
A Novel Approach for Joining EN AW 1070 Stranded Wire and EN CW 004A Contact Elements by Friction Stir Spot Bonding: Anna Regensburg; René Schüer; Jean Pierre Bergmann; Helmut Steinberg; Jan Ansger Gerken; 1Technische Universität Ilmenau; 2Nexans Autoelectric GmbH

10:50 AM Joining Al 6061 to ZE41A Mg Alloy by Friction Stir Welding Using a Cold Spray Transition Joint: Todd Curtis; Victor Kenneth Champagne, III; Michael West; Christian Widener; 1South Dakota School of Mines and Technology; 2University of Massachusetts

11:10 AM Invited
Refill Friction Stir Spot Welding Aerospace Aluminum Alloys: Eekslaikkun Boldsaikhan; Shintaro Fukada; Mitsuo Fujimoto; Kenichi Kamimuki; Hideki Okada; Brent Duncan; Brian Brown; 1Wichita State University; 2Kawasaki Heavy Industries
11:30 AM
Effect of Tool Runout in Friction Stir Welding of Aluminum Alloy for Structural Applications: Luqman Hakim Ahmad Shah; Shi Hui Guo; Scott Walbridge; Adrian Gerlich; 'University of Waterloo

**Gamma (FCC)/Gamma-Prime (L1₂) Co-Based Superalloys II — Mechanical Behavior II**

**Sponsored by:** TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Integrated Computational Materials Engineering Committee, TMS: Phase Transformations Committee

**Program Organizers:** Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology Beijing; Alessandro Moturma, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Thursday AM
Room: Palomar
Location: Marriott Marquis Hotel

Session Chairs: Qiang Feng, University of Science and Technology Beijing; Eric Lass, NIST

8:30 AM Invited
Creep Behavior in a γ’ Strengthened Co-Al-W-base Single Crystal Superalloys: Song Lu; Haijing Zhou; Fei Xue; Wendao Li; William Yi Wang; Zi-Kui Liu; Qiang Feng; 'University of Science & Technology Beijing; 'Northwestern Polytechnical University; 'The Pennsylvania State University

9:00 AM
Dislocation Interactions during High-temperature Creep and Yield of Polycrystalline Co-Ni-Al-W-based Superalloys and L₁₂ γ’ Phases: Vassili Vorontsov; Caroline Taylor; Henry Chan; Paul Mulvey; Mark Hardy; David Dye; 'Imperial College London; 'Rolls-Royce plc

9:20 AM
Double Minimum Creep of a Ta-containing Single Crystal Co-base Superalloy: Fei Xue; Christopher Zenk; Steffen Neumeier; Mathias Göken; 'Friedrich-Alexander-Universität Erlangen-Nürnberg

9:40 AM
The Influence of Cr in γ’ Strengthened Co-base Superalloys: Christopher Zenk; Ivan Povstugar; Steffen Neumeier; Mathias Göken; 'FAU Erlangen-Nürnberg; 'MPIE Düsseldorf

10:00 AM Break

10:20 AM
Analyzing the Tension/Compression Asymmetry in Creep Deformed Single Crystal Co-base Superalloys: Malte Lenz; Yolita Eggeler; Christopher Zenk; Steffen Neumeier; Mathias Göken; Philip Wollgramm; Gunther Eggeler; Erdmann Spiecker; 'FAU Erlangen-Nürnberg; 'Ruhr-Uni Bochum

10:40 AM
The Grain Boundary Pinning Effect of the γ-phase in Polycrystalline L₁₂ Hardened Co-base Superalloys: Lisa Freund; Steffen Neumeier; Mathias Göken; 'Friedrich-Alexander-Universität Erlangen-Nürnberg

11:00 AM
Solute-vacancy Binding Energies and Diffusion Rates in fcc Cobalt: A First-principles Database: Shahab Naghavi; Vinay Hgede; Chris Wolverton; 'Northwestern University

11:20 AM
Influence of Replacement of Ta by Nb in a γ’γ”-structure Co Base Superalloys: Alex Costa; Marcus Salgado; Eder Lopes; Carlos Nunes; Andre Tschiptchin; 'LNAN-CNPEM; 'The Engineering School of Lorena (EEL-USP); 'Faculty of Mechanical Engineering of University of Campinas; 'Metallurgical and Materials Department of University of Sao Paulo

11:40 AM Concluding Comments

**GAT-2017 (Gamma Alloys Technology - 2017) — Novel Processing - Additive Manufacturing and SPS**

**Sponsored by:** TMS Structural Materials Division, TMS: Titanium Committee

**Program Organizers:** Young-Won Kim, Gamtech LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Salloit, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Thursday AM
Room: Solana
Location: Marriott Marquis Hotel

Session Chairs: Rui Yang, Institute of Metal Research; Rob Haun, Retech Systems

8:30 AM Invited
Advantages of PM Processing for Gamma Titanium Aluminides: Andrzej Wójcieszynski; Joseph Muha; 'ATI Powder Metals

8:55 AM Invited
Fatigue Thresholds in γ-TiAl Alloys Produced by Additive Manufacturing: Mauro Filippini; Stefano Beretta; Luca Patriarca; 'Politecnico di Milano

9:20 AM
Effect of Homogenization on Microstructure and Mechanical Properties of EBM Ti-48Al-2Cr-2Nb: Mohsen Seifi; Ayman Salem; Daniel Safko; John Lewandowski; 'Case Western Reserve University; 'Materials Resources LLC

9:40 AM
Characterization of a High Nb-TiAl Alloy Components Fabricated by Additive Manufacturing Using Electron Beam Melting: Wenbin Kan; Junpin Lin; Yongfeng Liang; Hui Peng; Hongbo Gu; 'University of Science and Technology Beijing; 'Beihang University of Aeronautics and Astronautics

10:00 AM
Repair of γ-TiAl Turbine Blades by Use of Laser Additive Manufacturing: Silja-Katherina Rittinghaus; Andreas Weisheit; Michael Mathes; 'Fraunhofer ILT (Institute for Laser Technique); 'Access e.V.

10:20 AM Break

10:35 AM Invited
Spark Plasma Sintering of a TiAl Alloy and of Near-net Shape Blades: Alain Courlet; Jean-Philippe Monchoux; Thomas Voisin; Marc Thomas; 'CEMES/CNRS; 'BBMP/ONERA

11:00 AM
In-situ Experiments to Determine the Creep Law Describing the SPS Densification of a TiAl Powder: Martins David; Grumbach Fanny; Maniere Charles; Sallot Pierre; Bellet Michel; Mocellin Katia; Estournes Claude; 'SAFRAN; 'CIRIMAT; 'CEMef; 'CNRS CIRIMAT

11:20 AM Invited
Manufacturing Issues in Rapid Thermal Processing of γ-TiAl Alloys: Marc Thomas; Alain Courlet; Jean-Philippe Monchoux; 'ONERA; 'CEMES

11:45 AM
Properties at High Temperatures of the IRIS Alloy Densified by Spark Plasma Sintering: Soumaya Naanani; Jean-Philippe Monchoux; Catherine Mabra; Alain Courlet; 'CEMES; 'ICa (Institut Clément Ader), ISAE, Université de Toulouse
High Entropy Alloys V — Structures and Characterization
Sponsored by: TMS Structural Materials Division, TMS Functional Materials Division, TMS: Alloy Phases Committee, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Thursday AM  Room: 32A  Location: San Diego Convention Ctr
Session Chairs: Mitra Taheri, Drexel University; E-Wen Huang, National Chiao Tung University

8:30 AM Invited
In Situ TEM Investigation of the Thermal, Mechanical, and Corrosion Stability of High Entropy Alloys: Mitra Taheri1; Elaf Anber1; Daniel Scotto-D’Antuono1; Wayne Harlow2; Haoyan Diao3; Peter Liaw1; 1Drexel University; 2University of Illinois; 3University of Tennessee

8:50 AM Invited
Uncovering the Dislocation Dynamics Leading to Planar Slips in High-entropy Alloy Nanopillars: Yang Hu1; Li Shu2; Peter Liaw3; Karin Dahmen4; Jian Min Zuo5; 1University of Illinois at Urbana-Champaign; 2University of Tennessee; 3University of Illinois at Urbana-Champaign; 4University of Illinois; 5University of Illinois at Urbana-Champaign

9:10 AM Invited
Nanoscale Phase Separation in Al0.5CoCrFeNiCu High Entropy Alloys, as Studied by Atom Probe Tomography: Keith Knopfing1; Joshua Tharpe2; Peter Liaw3; 1U.S. Naval Research Laboratory; 2University of Tennessee

9:30 AM
Plastic Deformation Mechanisms in A3S and Cantor’s HEA Alloys Investigated by In Situ TEM Straining Experiments: Marc Legros1; Michal Mroz2; Anna Fraczkiewicz3; 1CEMES-CNRS; 2Ecole des Mines de St-Étienne; 3University of Illinois

9:50 AM Invited
Small Angle Neutron Scattering Study of HEA Microstructure Evolution with Temperature and Applied Magnetic Field: Louis Santodanato1; Lisa DeBeer-Schmitt2; Kenneth Littrell1; Peter Liaw3; 1Oak Ridge National Laboratory; 2The University of Tennessee

10:10 AM Break

10:30 AM Invited
Structural Transition in High Entropy Alloy CoCrFeMnNi under High Pressure: E-Wen Huang1; Yi-Hung Chen2; Chin-Ming Lin3; Chia-En Hsu4; Jien-Wei Yeh5; Ke An6; 1National Chiao Tung University; 2National Hsinchu University of Education; 3National Tsing Hua University; 4Oak Ridge National Laboratory

10:50 AM Invited
Complex Structural Factors Governing Unique Properties of FCC High Entropy Alloys Studied by Theory and Experiment: Hyun Seok Oh1; Eun Soo Park2; Fritz Kümml2; Gerard Leyson3; Duancheng Ma4; Sang Jun Kim5; Blazej Grabowski6; Cemal Cem Tasan7; Dierk Raabe8; 1Seoul National University; 2Delft University of Technology; 3Max-Planck Institut für Eisenforschung GmbH; 4Massachusetts Institute of Technology

11:10 AM Invited
Composition, Temperature, and Crystal Size Effects on the Mechanical Response of AlCoCrFeNi High Entropy Alloy: Gi-Dong Sim1; Quan Jiao2; Peter K. Liaw3; Rajiv Mishra4; Jaafar El-Awady5; 1Johns Hopkins University; 2University of Tennessee; 3University of North Texas

11:30 AM
An In Situ TEM Observation on Thermal Stability of High Entropy Alloys: Elaf Anber1; Dan Scotto D’Antuono2; Andrew Lang3; Haoyan Diao4; Peter Liaw5; Mitra Taheri6; 1Drexel University; 2The University of Tennessee; 3Knoxville

11:50 AM
Corrosion-resistant Nobility of AlxCoCrFeNi High-entropy Alloys: Yunzhu Shi1; Liam Collins2; Rui Feng3; Bin Yang4; Peter Liaw5; 1University of Science and Technology Beijing; 2Oak Ridge National Laboratory; 3The University of Tennessee
Thursday AM

11:30 AM
Investigation of High Entropy Alloys based on Continuum Dislocation Dynamics: Navid Kermanshahimonfared1; Hesam Askari2; Ioannis Mastorakos1; 1Clarkson University; 2University of Rochester

11:50 AM
Ordering Effects and Dislocation Structures in High Entropy Alloys: A Computational Approach: Leonie Koch1; Alexander Stukowski1; Karsten Albe1; 1TU Darmstadt

High Temperature Electrochemistry III — Materials Electrochemistry II
Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee

Thursday AM Room: 16A
March 2, 2017 Location: San Diego Convention Ctr

Session Chairs: Guy Fredrickson, Idaho National Lab; Prabhat Tripathy, Idaho National Laboratory

8:30 AM
Electrochemical and Thermodynamic Properties of Gadolinium Chloride in LiCl-KCl Eutectic Salt: Prashant Bagri1; Michael Simpson1; 1University of Utah

9:00 AM
Electrochemical Synthesis of TaC in Molten Salt: Xin Li1; Lingli Zou1; Shangshu Li1; Kai Zheng1; Yinshuai Wang1; Qian Xu1; Xionggang Lu1; 1Shanghai University

9:30 AM
Thermochemical Properties of Barium-Bismuth Alloys Determined by Emf Measurements: Timothy Lichtenstein1; Nathan Smith1; Hojong Kim1; 1Penn State University

10:00 AM Break

10:20 AM
Next-generation Molten Oxide Energy Materials R&D: Valery Belousov1; 1Baikov IMET RAS

10:50 AM
Effects of Oxide Precursor Preparation Parameters on the Electrochemical Reduction of Tantalum Pentoxide in Calcium Chloride Melt: Maureen Chorney1; Bridger Hurley1; Prabhat Tripathy2; Jerome Downey1; 1Montana Tech of the University of Montana; 2Idaho National Laboratory

Magnesium Technology 2017 — Magnesium-Rare Earth Alloys II
Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Thursday AM Room: 5A
March 2, 2017 Location: San Diego Convention Ctr

Session Chairs: Wim Sillekens, European Space Agency; Dmytro Orlov, Lund University

8:30 AM
Microstructure and Mechanical Properties of Mg-Zn-Gd Alloys after Rolling or Extrusion Processes: Rongshi Chen1; M.G. Jiang1; J. Luo1; H. Yan1; C. Xu1; S. Kamado1; 1Institute of Metal Research Chinese Academy of Sciences; 2Nagaoka University of Technology

8:50 AM
A Comparative Study on the Microstructure, Mechanical Properties, and Hot Deformation of Magnesium Alloys Containing Zinc, Calcium and Yttrium: K.P. Rao1; K. Suresh1; Hajo Dieringa2; Norbert Hort3; 1City University of Hong Kong; 2Bharathiar University; 3Helmholtz-Zentrum Geesthacht

9:10 AM
Addition of Holmium & Erbium and Hot-rolling effects on the Microstructure and Mechanical Properties of Mg-Li based Alloys: Charles Maga1; Zhang Zhongwu1; Zhao Yu1; Hao Guo1; Songsong Xu1; 1Harbin Engineering University
9:30 AM
Bonding Environments in a Creep-resistant Mg-RE-Zn Alloy: Deep Choudhuri; S. Srinivasan; Mark Gibson; Rajarshi Banerjee; University of North Texas; 'CSIRO

9:50 AM
Wear Study Comparison of Accident Tolerant FeCrAl Cladding, Zircaloy-2 and SS304 against X750: Raghunath Kanakala; Christian Williams; Sobhan Patnaik; Raul Rebak; University of Idaho; 'GE Global Research

10:10 AM Break

10:30 AM
Creep-Fatigue Deformation of 9Cr-1MoV Steel and Weldments: Harrison White; Tyler Payton; Wei Zhang; Michael Mills; The Ohio State University

11:10 AM
The Role of Stoichiometry on Ordering Phase Transformations in NiCr Alloys for Nuclear Applications: Fei Teng; Julie Tucker; Benjamin Spencer; Larry Aagesen; Yongfeng Zhang; Pritam Chakraborty; Octav Ciucă; Grace布鲁克; Emmanuelle Marquis; Mukesh Bachhav; Oregon State University; Idaho National Laboratory; University of Manchester; University of Michigan – Ann Arbor

11:30 AM
Peugeot: How Ion Beam Irradiations Simulate the Radiation Aging of Nuclear Glass: Sylvain Peugeot; 'CEA

Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee, TMS: Magnetic Materials Committee
Program Organizers: Paul Ohodnicki, National Energy Technology Laboratory; Francis Johnson, GE Global Research; Alex Leary, Carnegie Mellon University; Tanjore Jayaraman, University of Michigan; Lajos Varga, Wigner Research Center for Physics

Thursday AM Room: 25B Location: San Diego Convention Ctr
Session Chairs: Lajos Varga, Wigner Research Centre for Physics; Tanjore Jayaraman, University of Michigan

8:30 AM Invited

9:00 AM Multi-parameter Magnetic Material Characterization for High Power Medium Frequency Converters: Richard Beddingfield; Subhashish Bhattacharya; North Carolina State University

9:20 AM Invited
Unique Magnetostriiction of Fe68.8Pd31.2 Attributable to De-twinning Mechanism: Jake Steiner; Abdelah LiSi; Tomoyuki Kakeshita; Takashi Fukuda; Manfred Wuttig; University of Maryland; Morgan State University; Osaka University

9:50 AM Break

10:05 AM Large Magnetocaloric Effect in Ga Substituted NiMnIn Metamagnetic Shape Memory Alloys: Jasson Estalayo; Christian Aguilar; Daniel Salazar; Pablo Alvarez-Alonso; Patricia Zapata; Juan Carmarillo; Horacio Flores-Zúñiga; Volodymyr Chernenko; Dept. Electricity & Electronics, University of the Basque Country; 'IPICYT; 'BCMaterials
**Materials Processing Fundamentals — Solid-state Processing**

**Sponsored by:** TMS Extraction and Processing Division, TMS:
Process Technology and Modeling Committee

**Program Organizers:** Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

**Thursday AM**

**Room:** 17B  
**Location:** San Diego Convention Ctr

**Session Chairs:** Jonghyun Lee, University of Massachusetts; Samuel Wagstaff, Massachusetts Institute of Technology

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**8:30 AM**

**Microstructural and Mechanical Behavior Evolution of Uranium During Thermal-Mechanical Deformation Processing:**  
*Daniel Coughlin*¹; Rodney McCabe²; Kester Clarke³; Jeffrey Scott⁴; Robert Forsyth⁴; Donald Brown⁵; Bjorn Clausen¹; David Alexander⁵; 'Los Alamos National Laboratory;  
'Colorado School of Mines

**9:00 AM**

**Gleedle Sintering Simulations of Cryomilled Aluminum AA5083:**  
*Kellan Kellogg*¹; Jennifer Seitzns¹; Brandon McWilliams¹; Anit Gir¹; Steven Kilczewsk¹; Kyu Cho²; 'Bowhead Science Engineering;  
'TUS Army Research Laboratory;  
'SURVICE Engineering Company;  
'Bennett Aerospace

**9:10 AM**

**Phase Transformation and Precipitation Modeling of Hypereutectic Al-Mn Alloy during Solidification:**  
*Ji Won Park*¹; Jae-Gil Jung¹; Chang-Seok Oh¹; 'Korea Institute of Materials Science

**9:30 AM**

**Experimental Study and Modeling of the Stress Field in Macroscopic Creep Feed Grinding Process:**  
*Zhenguo Nie¹; Gang Wang¹; Yiming (Kevin) Rong¹; 'Tsinghua University

**9:50 AM**

**Break**

**10:10 AM**

**Mathematical Modelling of Residual Stresses in End Milling:**  
*Sunday Ojulo¹; 'University of Lagos

**10:30 AM**

**Study on Microstructure of Ferritic Stainless Steel Joints Using Electrically Assisted Brazing:**  
*Viet Tien Luu¹; Yong-Ha Jeong¹; Ju-Ri Kim²; Gi Dong Park¹; Sung-Tae Hong¹; Hyun-Min Sung¹; Heung Nam Han¹; Kwang-Sun Yu¹; Seok-Hyun Kim¹; 'University of Ulsan;  
'Seoul National University;  
'Se Jong Industrial Co. Ltd.

**10:50 AM**

**Preliminary Investigations into the Nano/Microstructural Design of Nanocomposites for Combustion Synthesis Processing:**  
*Mehul Chauhan*¹; Prathmesh Mod⁴; Vanessa Budy⁴; K. Morsi⁴; 'San Diego State University

**11:10 AM**

**Machining Behaviour of Biodegradable Polymer: Force, Damage and Temperature Analysis:**  
*Mridusmita Roy Choudhury¹; Kishore Debnath¹; 'National Institute of Technology Meghalaya

**11:30 AM**

**Evaluation Feature of Nano Grain Growth of TiO2 Thin Film via Sol-gel Route:**  
*Habibollah Amiriastabi¹; ZZ. Weng¹; Z.X Xiong¹; G Ji²; H Xue²;  
'Xiamen University

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**Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Ir Alloys and Next Generation Superalloys**

**Sponsored by:** TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee

**Program Organizers:** Akane Suzuki, GE Global Research; Martin Heilmair, Karlsruhe Institute of Technology (KIT); Pierre Salot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

**Session Chairs:** Govindarajan Muralidharan, Oak Ridge National Lab; Stephen Coryell, Special Metals Corporation

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**8:30 AM Invited**

**Weldability and Weld Properties in Iridium Alloys:**  
*Roger Miller¹; George Ulrich²; Govindarajan Muralidharan³; 'Oak Ridge National Laboratory

**9:00 AM Invited**

**Oxidation Resistance of Aluminized Ir-based Refractory Alloys:**  
*Hideyuki Murakami¹; Masahide Yamashina¹; Kazuya Shimoda¹; 'National Institute for Materials Science

**9:30 AM**

**Effect of Trace Levels of Si on Grain Boundary Segregation in an Ir Alloy:**  
*Dean Pierce¹; Govindarajan Muralidharan¹; Lee Heatherly¹; Cecil Carmichael¹; George Ulrich¹; 'Oak Ridge National Laboratory

**9:50 AM Break**

**10:10 AM**

**Long Term Grain Growth Behavior of Ir-Alloy DOP-26:**  
*Govindarajan Muralidharan¹; Dean Pierce¹; Ethan Fox³; Seth Lawson¹; Cecil Carmichael¹; Easo George¹; George Ulrich¹; 'Oak Ridge National Laboratory;  
'Rahr University Bochum

**10:30 AM**

**Atom Probe Tomography Study of Sigma Phase in Long Term-thermally Exposed High Refractory Ni-based Superalloy:**  
*Stoichko Antonov¹; Hadjie Hau²; Qiang Feng³; Dieter Ishchim⁴; David Seidman⁴; Sammy Tim⁴; 'Illinois Institute of Technology;  
'State Key Laboratory for Advanced Metals and Materials;  
'Northwestern University Center for Atom Probe Tomography (NUCAPT)

**10:50 AM**

**The Effect of Molybdenum on the Microstructure and Properties of Model Quinary Nickel-based Superalloys:**  
*Amy Goodfellow¹; Enrique Galindo-Nava¹; Nick Jones¹; Mark Hardy¹; Howard Stone¹; 'University of Cambridge;  
'Rolls Royce plc

**11:10 AM**

**Portevin-Le Chatelier Effect in a Ni-Co Based Superalloys with Different Gamma Prime Content:**  
*Qiuyang Cui¹; 'Institute of Metal Research

**11:30 AM**

**Nanosized TaC Precipitates for Strengthening High-Temperature Co-Re Based Alloys:**  
*Ralph Gilles¹; Debashis Mukherji²; Pavel Strunz³; Lukas Karge³; Premysl Beran³; Armin Kriele³; Michael Hofmann³; Joachim Roesler³; 'TU Muenchen;  
'TU Braunschweig;  
'Nuclear Physics Institute of the CAS;  
'Nuclear Physics Institute of the CAS;  
'Helmholtz Zentrum Geesthacht
Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Miscellaneous Structure-property Correlations
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nuclear Materials Committee
Program Organizers: Indrajit Chariit, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville
Thursday AM Room: 24A Location: San Diego Convention Ctr
Session Chairs: Koteswararao Rajulapati, University of Hyderabad; Walid Mohamed, Argonne National Laboratory

8:30 AM Keynote
Structure-property Relationships in Steel Fibers: Krishan Chawla
1 University of Alabama at Birmingham

9:00 AM Invited
Indentation Probes for Measurements of Localized Materials Properties: David Bahr
1 Michael Maughan; Raheleh Mohammad Rahimi
1; 1 Purdue University; 1 University of Idaho

9:20 AM Invited
Spherical Nanoindentation Stress-strain Curves: Surya Kalidindi
1 Georgia Institute of Technology

9:40 AM Invited
Surface Finish Effects on Fracture Behavior of Sn-4Ag-0.5Cu Solder Joints: Jamie Kruzic
1; Dick Casali
1; UNSW Australia; 1 Intel Corporation

10:00 AM Break

10:15 AM Invited
The Wigner Energy Spectral Fingerprints of Radiation Damage: Penghui Cao
1; Sean Lowder
1; Ki-Jana Carter
1; Michael Short
1; Massachusetts Institute of Technology

10:35 AM Invited
Mechanical and Microstructural Effects of Thermal Aging on Cast Duplex Stainless Steels by Experiment and Finite Element Method: Samuel Schwarm
1; Sarah Mburu
1; R. Prakash Kolli
1; Daniel Perce
1; Jia Liu
1; Sreeramanamurthy Ankem
1; University of Maryland, College Park; 1 Pacific Northwest National Laboratory

10:55 AM Invited
Digital Stress Imaging in Mesoscale Microstructure Dependent Deformation Visualized Using Nano-mechanical Raman Spectroscopy: Role of Initial Manufacturing Originated Residual Stresses: Vikas Tomar
1; Purdue University

11:15 AM Fracture Behavior and Grain Boundary Sliding during High-temperature Low-stress Deformation of AZ31 Magnesium Alloy: Peiman Shulbeigi Roodposhti
1; Korukonda Murty
2; 1 University of Connecticut; 2 North Carolina State University

11:35 AM Invited
On the Strain Rate Sensitive Characteristics of Nanocrystalline Aluminum Alloys: Koteswararao Rajulapati
1; University of Hyderabad

8:55 AM Invited
Towards High-performance Permanent Magnets without Rare Earths: Konstantin Skokov
1 Technische Universität Darmstadt

9:20 AM Invited
Bulk High-throughput Experimentation to Discover New Hard Magnets: Dagmar Golč
1; Gerhard Schneider
1; 1 Aalen University

9:45 AM Search for New Rare-earth-free Hard Magnetic Materials Using Solution Growth: Valentin Tausfour
1; Tej Lamichhane
1; Michael Onysczcak
1; Olena Palasyuk
1; David Parker
1; Sergey Bud’ko
1; Paul Canfield
1; University of California-Davis, Critical Material Institute; 1 Ames Laboratory, Critical Material Institute; 1 Oak Ridge National Laboratory, Critical Magnetic Institute

10:05 AM Break

10:20 AM L10-FeNi Films with Coercivity in Excess of 1 kOe: A Combinatorial Sputtering Approach: Christian Elsässer
1; Wolfgang Kömer
1; Georg Krugel
1; Daniel Urban
1; 1 Fraunhofer IWM Freiburg

10:40 AM Structure and Magnetic Properties of Fe3Sn1-xMx (M=Sb, P): Dimitris Niarchos
1; NCSR Demokritos; 1 ISM-CNR; 1 Faculty of Physics and Center for Nanointegration (CENIDE)

10:40 AM Structure and Magnetic Properties of Fe3Sn1-xMx (M=Sb, P): Margarit Gjoka
1; Vasilis Psycharis
1; Charalambos Sarafidis
1; Eamonn Devlin
1; Dimitris Niarchos
1; NCSR Demokritos; 1 Department of Physics, Aristotle University of Thessaloniki

11:00 AM Magnetic Anisotropy of Epitaxially Grown Li,Mn-(Ga,Al) Alloy Thin Films: Takao Suzuki
1; Siqian Zhao
1; 1 University of Alabama

11:20 AM Microstructural Characterization of Magnetic MnAlAlloys: Merve Gene
1; Ozgun Acar
1; Ilkay Kalay
1; Eren Kalay
1; 1 METU; 1 Cankaya University

11:40 AM Magnetic Anisotropy and Microstructure Interplay in Fe16N2 Based Permanent Magnets: Md Mehdidi
1; Yanfeng Jiang
1; Jian-Ping Wang
1; 1 University of Minnesota

Materials Science for High-Performance Permanent Magnets — Search for New Hard Magnets / Non-Rare Earth Magnets
Sponsored by: TMS Functional Materials Division, TMS: Magnetic Materials Committee
Program Organizers: Satoshi Hirotsawa, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Gutfleisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University
Thursday AM Room: 24C Location: San Diego Convention Ctr
Funding support provided by: Elements Strategy Initiative for Magnetic Materials

Session Chairs: Takashi Miyake, National Institute of Advanced Industrial Science and Technology; Christian Elsässer, Fraunhofer-Institut für Werkstoffmechanik

8:30 AM Invited
Search for Substitutes of Magnetic Materials Containing Critical Elements by High-throughput Screening and Multi-scale Modeling Approaches: Christian Elsässer
1; Wolfgang Kömer
1; Georg Krugel
1; Daniel Urban
1; 1 Fraunhofer IWM Freiburg

8:55 AM Invited
Approaches: L10-FeNi Films with Coercivity in Excess of 1 kOe: A Combinatorial Sputtering Approach: Christian Elsässer
1; Wolfgang Kömer
1; Georg Krugel
1; Daniel Urban
1; 1 Fraunhofer IWM Freiburg

9:20 AM Invited
Towards High-performance Permanent Magnets without Rare Earths: Konstantin Skokov
1 Technische Universität Darmstadt
Microstructural Processes in Irradiated Materials — Zr-Alloys and Advanced Modeling

Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l'Énergie Atomique et aux Énergies Alternatives (CEA); Djamel Kacoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Thursday AM Room: Del Mar
March 2, 2017 Location: Marriott Marquis Hotel

Session Chairs: Enrique Martinez Saez, Los Alamos National Laboratory; Fabien Onimus, CEA-Saclay

8:30 AM Invited
Deformation Mechanisms and Radiation Induced Damage in Zirconium Alloys: A Multi-scale Approach: Fabien Onimus1; L. Dupuy2; Frederic Moupiou3; M. Bono3; 1CEA; 2CEMES-CNRS
9:00 AM
Quantifying Irradiation-induced Defect Densities in Zr Through Changes in X-ray Diffraction Line Profiles - Insights from Atomistic Modeling: Rory Hulse1; Christopher Race1; Michael Preuss1; 1University of Manchester
9:20 AM
Effects of Heavy-ion (Zr+) Irradiation on Zr-2.5Nb Alloy Studied by X-ray Diffraction, Nanoindentation, and TEM: Qiang Wang2; Levente Balogh3; Mark Daymond4; Zhongwen Yao5; 1Queen’s University
9:40 AM
In-Situ TEM Triple Beam Irradiation of Zirconium Alloys at Elevated Temperature: Brittany Minturninger1; Khalid Hattar1; David Senor2; Clark Snow1; 1Sandia National Laboratories; 2Pacific Northwest National Laboratory
10:00 AM Break
10:15 AM Invited
Thermal Activation of Dislocations in Large Scale Obstacle Bypass: Enrique Martinez Saez; Cameron Sobie; David MacDowell; Laurent Capolungo; 1Los Alamos National Laboratory; 2Georgia Institute of Technology
10:45 AM
Dynamics of Interaction between Point Defects and Dislocations in bcc Iron Using SEAKMC Simulations: Hailuan Xu; 1University of Tennessee
11:05 AM
Multi-scale Modeling of Vacancy-mediated Solute Diffusion Near an Edge Dislocation under Irradiation: Zebo Li; Trinkle Dallas; Thomas Garnier; Venkateswara Manga; Maylis Nastar; Pascal Bellon; Robert Averbach; 1Department of Nuclear, Plasma, Radiological Engineering, University of Illinois, Urbana-Champaign; 2Department of Materials Science and Engineering, University of Illinois, Urbana-Champaign; 3Materials Science and Engineering, University of Arizona; 4CEA, DEN, Service de Recherches de Métallurgie Physique
11:25 AM
Multi-scale Simulation of Fast Neutron Damage in Beryllium: Pavel Vladimirov; Vladimir Borodin; 1Karlsruhe Institute of Technology; 2National Research Center “Kurchatov Institute”
11:45 AM
Multi-scale Modelling of Patterned Microstructures in Irradiated Mmatериалы: Application to AgCu Alloy: Gilles Demange; David Simeone1; Laurence Luneville; Vassilis Pontikis1; 1GPM/ERAFEN, Université de Rouen; 2DEN/DMN/SMR/LLPR, CEA Saclay; 3DEN/SMR/LLPR, CEA Saclay

Multiscale Architected Materials (MAM II):
Tailoring Mechanical Incompatibility for Superior Properties — Novel and Complex Materials II

Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huaqian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Thursday AM Room: 24B
March 2, 2017 Location: San Diego Convention Ctr

Session Chairs: Hyo Seop Kim, POSTECH; X. Wendy Gu, UC Berkeley

8:30 AM Invited
Properties of Metallic Lattices Used as Hosting Structures: Guilhem Martin1; Oleg Liashenko2; Damien Fabrègue3; Didier Bouvard1; Rémy Dendievel1; Jean-Jacques Blandin4; 1Univ. Grenoble Alpes; 2Univ. Lyon
8:55 AM
Multiscale Architected Materials with Composition and Grain Size Gradients Manufactured Using High-pressure Torsion: Hyo Seop Kim1; 1POSTECH
9:15 AM
A Design Concept for Tough, Strong and Damage-tolerant Composites by Utilizing the Yield Stress Inhomogeneity Effect: Masoud Sustaininia; Omar Kolednik; 1Materials Center Leoben Forschung GmbH; 2Erich Schmid Institute of Materials Science, Austrian Academy of Sciences
9:35 AM
Self-assembled Nanoparticle Superlattices with High Elastic Modulus: X. Wendy Gu2; David Koshy1; Xingchen Ye2; Paul Alivisatos1; 1UC Berkeley
9:55 AM
Multi-scale Modelling of Mechanical Behavior and Deformation in Materials with Gradient Microstructures: Hao Lyu; Mehdi Hamid1; Annie Ruim1; Hussein Zbib2; 1Washington State University; 2Texas A&M at Qatar
10:15 AM Break
10:30 AM Invited
Multi-scale Cu/Nb Nanocomposite Wires Processed by Severe Plastic Deformation for High Pulsed Magnets: Assessing Size and Architecture Effects on the Resistance to High Stress: Ludovic Thil1; Florence Lecouturier1; Jean Rony Medy2; Patrick Villechaisse3; Pierre-Olivier Renault3; 1Pprime Institute - University of Poitiers; 2LNCMI
10:55 AM Invited
The Thermal-mechanical Compromise for Insulation Materials: Bernard Yrieix1; 1ÉDF R&D
11:20 AM
Impact Behavior of Lattice Structures Produced by Selective Laser and Electron Beam Melting: Pauline Delroisse1; Nicolas Bruzy1; Olivier Rigo2; Sébastien Michotte1; Eric Maire3; Jérôme Adrien4; Pascal Jacques1; Thierry Massart1; Aude Simar1; 1Université Catholique de Louvain; 2Ecole Centrale de Nantes; 3S’iris; 4Institut National des Sciences Appliquées de Lyon; 5Université Libre de Bruxelles
Pan American Materials Congress: Advanced Biomaterials — Antibacterial and Nanostructured Materials
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Thursday AM
Room: Mission Hills
March 2, 2017
Location: Marriott Marquis Hotel

Session Chairs: Xiaodong Li, University of Virginia; Pablo Zavattieri, Purdue University

8:30 AM Invited Carboxyl-functionalized Zinc Oxide Nanoparticles and Its Antiproliferative Effect in Cervical Cell Lines: Lisbeth Almeida-Ramón1; Mayra Alvarez-Lemus1; Erick De la Cruz Hernández2; Rosendo López-González1; Gilberto Torres-Torres1; Socorro Oros-Ruíz2; Patricia Quintana-Owen1; Juarez Autonomous University of Tabasco; 2Autonomous Metropolitan University-Iztapalapa; 3CINVESTAV-Merida

9:00 AM Investigation on Passive Film Structure and Antibacterial Property of 316L Stainless Steel by Cu-added Nitric Acid Passivation Treatment: Jin-Long Zhao1; Da-Ke Xu1; Xin-Rui Zhang1; Chenguang Yang1; Ke Yang1; Institute of Metal Research, Chinese Academy of Sciences

9:20 AM An Experimental Study on 304L Cu-bearing Antibacterial Stainless Steel for Its Integrated Performance Optimization as a Versatile Biomaterial: M. Babar Shahzad1; Tong Xi; Chenguang Yang1; Ke Yang1; Institute of Metal Research, Chinese Academy of Sciences

9:40 AM Effects of Dialium Guineense Based Zinc Nanoparticle Material on the Inhibition of Microbes Inducing Microbiologically Influenced Corrosion: Joshua Okeniyi1; Gbadebo John1; Taiwo Owoseye1; Elizabeth Okeniyi1; Deborah Akinlabu1; Olugbenga Taiwo1; Olufisayo Awotoye1; Ojo Ige1; Yemisi Obofemi1; Covenant University, Ota, Nigeria

10:00 AM Evaluation of Doped SiO2-TiO2 Nanoparticles as Possible Agents in Photodynamic Therapy: Rosendo López-González1; Mayra Alvarez-Lemus; Jose de la Rosa Vázquez2; Erick De la Cruz Hernández2; Dora Frías Marquez2; Juarez Autonomous University of Tabasco; 3ESIME

10:20 AM Break

10:35 AM Invited Laser Based 3d Printing of Biomaterials: Roger Narayan1; 2UNC/NCSU Joint Department of Biomedical Engineering

11:00 AM Invited Nature’s Multiscalar Design and Additive Manufacturing: Xiaodong Li1; 1University of Virginia

11:25 AM Miniaturization of Medical Implants Made from Nanostructured Metals: Alexander Polyakov4; Irina Semenova1; Georgy Raab2; Evgeny Parfenov2; Ruslan Valiev4; Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; 2Ufa State Aviation Technical University

11:50 AM Mechanical Properties and Biocompatibility of Nanostructured Titanium: Carlos Elias1; Daniel Fernandes1; Jochen Roestel1; Instituto Militar de Engenharia; 1Conexao Sistemas e Protese

Pan American Materials Congress: Materials for Oil and Gas Industry — Welding Technology, Corrosion Protection, Non-Destructive Evaluation, and Structural Integrity
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

Thursday AM
Room: Marina G
March 2, 2017
Location: Marriott Marquis Hotel

Session Chairs: Lorenzo Gomez, UNAM; Adriana Rocha, UFRJ

8:30 AM Effect of Heat Input on the Microstructure and Toughness of Welded API Pipelines: Fernando Gazmán1; Moisés Hinojosa1; Eduardo Frias1; Elisa Schaeffer1; 1UANL, FIME; 2Tubacero

8:50 AM The Corrosion Behavior of Newly Developed API X120 Pipeline Steel in H2S and Moderate Temperature Environments: Paul Okonkwo1; R. Shakoor2; A Mohamed3; Qatar University; 4Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering

9:10 AM Adsorption of Organosulfur Compounds on Doped Boron Nitride Nanostructures: Francisco Villanueva1; Jose Rivera1; Pedro Navarro Santos1; Universidad Michoacana de San Nicolas de Hidalgo

9:30 AM Evaluation of Non-Destructive Techniques (Thermography, Ultrasound and Eddy Current) for Detection of Failures in Metallic Substrates with Composite Anticorrosive Coatings: Marcella Grosso1; Priscila de Almeida1; Clara Johanna Pacheco1; Jane Soares1; João Marcos Rebelo2; Sergio Soares2; Isabel Cristina Margarit-Mattos1; Gabriela Pereira1; 1UFPR, 2Petrobras

9:50 AM Break

10:05 AM A Study on the Mechanisms Responsible for Dynamic Strain Aging Phenomenon in Inconel 718 Superalloy: Monica Renzede1; Sinara Gabriel2; Leonardo Araújo2; 1Comision Nacional de Energia Atomica; 2Instituto Tecnologico de Buenos Aires

10:45 AM Panel Discussion
## Pan American Materials Congress: Materials for Transportation and Lightweighting — Composite Materials I

**Sponsored by:** Third Pan American Materials Congress Organizing Committee  

**Program Organizers:** Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo Leon  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>Session Chair</td>
<td>Elvi Dalgaard, Pratt and Whitney Canada</td>
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<tr>
<td>8:30 AM</td>
<td>8:30 AM</td>
<td>Ized Impact Tests in Polyester Matrix Composites Reinforced with Fique Fabric: Artur Campoao Pereira; Foluke Salgado de Assis; Sergio Neves Monteiro; Henry Colorado; Instituto Militar de Engenharia; Universidad de Antioquia</td>
</tr>
<tr>
<td>8:50 AM</td>
<td>8:50 AM</td>
<td>Nanodiamond: A Potential Reinforcement for Epoxy Composites: Ankita Bish; Pallavi Gupta; Debrupa Lahiri; Indian Institute of Technology Roorkee</td>
</tr>
<tr>
<td>9:10 AM</td>
<td>9:10 AM</td>
<td>Tailored Carbide Particle Morphologies: Synthesis, Sintering, and Mechanisms of Formation: Tianqi Ren; Olivia Graeve; University of California, San Diego</td>
</tr>
<tr>
<td>9:30 AM</td>
<td>9:30 AM</td>
<td>Nano-Additive Reinforcement of Thermoplastic Microballoon Epoxy Syntactic Foams: Kerrick Dando; David Salem; CAPE Lab, SDSM&amp;T</td>
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<td>9:50 AM</td>
<td>9:50 AM</td>
<td>Advantages of Hot Compression in the Manufacture of AlB4C Composites: Lucio Vacquez; Dulce Velázquez; Ángel Muñoz; David Luna; Gilberto Torres; Elizabeth Garfias; Manuel Vite; Universidad Autonoma Metropolitana</td>
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</tbody>
</table>

## Pan American Materials Congress: Minerals Extraction and Processing — Hydrometallurgical Processing

**Sponsored by:** Third Pan American Materials Congress Organizing Committee  

**Program Organizers:** Mery Gómez Marroquín, Asociacion Peruana de Metalurgia Materiales y Minerales-APMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosi; Carlos Sampaio, UFRGS  

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<tr>
<th>Time</th>
<th>Session Chair</th>
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<tr>
<td>8:30 AM</td>
<td>To Be Announced</td>
<td>Marriott Marquis Hotel</td>
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<td>8:30 AM</td>
<td>Investigating the Dissolution Characteristics of Strontium Sulfide: Ibrahim Gökşel Hızlı; Ayşegül Bilen; Rasit Sezer; Emre Yilmaz; Selim Ertürk; Cüneyt Arslan; Istanbul University; Istanbul Technical University; Karadeniz Technical University</td>
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<tr>
<td>8:50 AM</td>
<td>Dissolution Thermodynamics of Smithsonite in Alkaline Immidocacetate Aqueous Solution: Dou Aichun; YU Lei; Jiangsu University, China</td>
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</table>

## Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Additional Topics in SPD Processing and Mechanical Properties

**Sponsored by:** Third Pan American Materials Congress Organizing Committee  

**Program Organizers:** Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politécnica de Catalunya  

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<th>Time</th>
<th>Session Chair</th>
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<tr>
<td>8:30 AM</td>
<td>Maria Teresa Pérez Prado, IMDEA Materials Institute, Andrea Bachmaier, Erich Schmid Institute of Materials Science</td>
<td>Marriott Marquis Hotel</td>
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<tr>
<td>8:30 AM</td>
<td>Effect of Annealing of ZK60 Magnesium Alloy after Processing by High-pressure Torsion: Seyed Alireza Torbati Sarraf; Shima Sabbaghianrad; Terence G. Langdon; University of Southern California</td>
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<tr>
<td>8:50 AM</td>
<td>Severe Plastic Deformation as a Tool to Tune Magnetic Properties: Carmen M. Cepeda-Jimenez; Juan Ignacio Beltrán; Antonio Hernandez; Miguel Angel Garcia; Félix Ynduráin; Alexander Zhilyaev; María Teresa Pérez Prado; IMDEA Materials Institute; Instituto de Magnetismo “Salvador Velayos”, UCM, ADIF, CSIC; Instituto de Cerámica y Vidrio, CSIC; Universidad Autónoma de Madrid; Fundació CTM Centre Tecnologic</td>
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</tbody>
</table>
### Technical Program

**March 2, 2017**

**Thursday AM**

**9:10 AM**  
Investigation of Crystallographic Texture and Stored Energy after Cross Accumulative Roll-bonding of Fe-36Ni (Invar) Alloy: *Hiba Azeddine*; Kamel Tirsatine; Thiery Baudin; Marie-Hélène Mathon; Anne-Laure Helbert; François Brisset; Djamel Bradai; University of M’sila; USTHB; Université Paris-Saclay; Laboratoire Léon Brillouin

**9:30 AM**  
Microstructure and Mechanical Behavior of UFG Mg-2Zn-2Gd: Sunkulp Goel; 9:30 AM  
Microstructure and Mechanical Behavior of UFG Mg-2Zn-2Gd: Sunkulp Goel

**9:50 AM**  
Microstructural Evolution of TWIP Steels during ECAP: Jessica Calvo; Wang Lei; José Antonio Benito; José María Cabera; Universitat Politècnica de Catalunya (UPC)

**10:10 AM**  
Current-assisted-extrusion of Structural Amorphous Metals: Insight into Microstructure Formation and Mechanical Properties: Ekaterina Novitskaya; Sebastian Díaz de la Torre; Tzipayt Esquivel-Castro; Guillermo Dieguez-Trejo; Olivia Graeve; University of California, San Diego; Instituto Politecnico Nacional

**10:50 AM**  
Effect of Annealing on Microstructure and Magnetic Properties of Nanocrystalline Metastable Cu-Co Solid Solutions: Andrea Bachmaier; Stefan Hartl; Jörg Schmauch; Hisham Aboulafia; Andreas Verch; Heinz Krenn; Reinhard Pippat; Erich Schmid Institute, Austrian Academy of Sciences; Experimentalphysik, Saarland University; Chair of Functional Materials, Saarland University; IMN-Leibniz Institute for New Materials; Institute of Physics, Karl-Franzens University Graz

**11:10 AM**  
Mechanical Behavior and Adiabatic Shear Localization of Ultrafine-grained Titanium: Zechou Li; Bingfeng Wang; Shiteng Zhao; Ruslan Z. Valiev; Kenneth S. Vecchio; Marc A. Meyers; University of California, San Diego; Central South University; Institute of Physics of Advanced Materials

**11:30 AM**  
Dynamic Tensile Failure of Nanocrystalline Tantalum: Eric Hahn; University of California, San Diego

**Phase Transformations and Microstructural Evolution — Steels and Shape Memory, and General**

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee

**Program Organizers:** Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarshanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

**Session Chair:** Monica Kapoor, National Energy Technology Lab

**Thursday AM**  
Room: 16B  
Location: San Diego Convention Ctr

**March 2, 2017**

**8:30 AM**  
Thermal Stabilization of Bainite: Sk Hasan; Shiv Singh; IIT Kharagpur

**8:50 AM**  
A Preliminary In-situ TEM Study of Migration Properties of Interfaces between Austenite and Ferrite in a Duplex Stainless Steel: Juan Du; Frederic Mompoul; Wen-Zheng Zhang; Tsinghua University; CEMES-CNRS and University of Toulouse

**9:10 AM**  
Characterizing Ni-Ti-Ga Shape Memory Alloys: Oscar Figueroa; Michele Manuel; University of Florida

**9:30 AM**  
The Kinetics of Ferromagnetic Tau Phase Formation in Mn-Al Alloys: Ozgun Acar; Merve Genc; Ilkay Kalay; Eren Kalay; METU; Cankaya University

**9:50 AM**  
Break

**10:10 AM**  
Orientational Dependence of Shock Induced Phase Transition of Single Crystal Copper: Anupam Neogi; Nilanjan Mitra; IIT Kharagpur

**10:30 AM**  
The Microstructure Evolution of HAVAR Co-Base Alloy during Cold Rolling: Daniel Moreno; Shlomo Haroush; Louisa Mashi; S Remmenick; Vladimir Ezersky; Ido Silverman; Yaniv Gelbstein; Roni Shneck; Ben-Gurion University

**Solar Cell Silicon — Silicon Impurity Removal and Refining**

**Sponsored by:** TMS Extraction and Processing Division, TMS: Recycling and Environmental Technologies Committee, TMS: Energy Committee

**Program Organizers:** Shadia Ikhmayies, Al Isra University; Neale Neelameggham, Ind LLC

**Thursday AM**  
Room: 19  
Location: San Diego Convention Ctr

**March 2, 2017**

**Session Chairs:** Neale Neelameggham, Ind LLC; Christian Liebscher, Max-Planck-Institut für Eisenforschung GmbH

**8:30 AM**  
Effect of Magnesium Addition on Removal of Impurities from Silicon by Hydrometallurgical Treatment: Stine Espelien; Gabriella Tranell; Jafar Safarian; NTNU

**8:50 AM**  
Evaporation Removal of Boron in Molten Silicon Using Reactive Fluxes: Ye Wang; Kazuki Morita; Sichuan University; The University of Tokyo

**9:10 AM**  
Study on the Segregation Behavior of Impurities during Solvent Refining Process: Li Jiayan; Tan Yi; Dalian University of Technology

**9:30 AM**  
Topological Impurity Segregation at Faceted Silicon Grain Boundaries: Christian Liebscher; Andreas Stoffers; Oana Cojocaru-Mirédin; Baptiste Gault; Christina Schue; Gerhard Dehm; Dierk Raabe; Max-Planck-Institut für Eisenforschung GmbH; RWTH Aachen University

**Solid State Precipitation — Session II**

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee

**Program Organizers:** Seth Imhoff, Los Alamos National Laboratory; Robert Hackenberg, Los Alamos National Laboratory; Gregory Thompson, University of Alabama

**Thursday AM**  
Room: 25A  
Location: San Diego Convention Ctr

**March 2, 2017**

**Session Chair:** Seth Imhoff, Los Alamos National Laboratory

**8:30 AM**  
Invited

Self-organization by Strain Accommodation in the Formation of Long-range Stacking Order Structure in Mg-RE-TM Alloys: Tadashi Furuhara; Xinfu Gu; Tohoku University
THURSDAY PM

9:00 AM
Effects of Clustering and Trace Elements on Precipitation Hardening of Al-Mg-Si Alloys: Stefan Pogačnik; Marion Werner; Peter Uggowitzer; 1Montanuniversitaet Leoben; ETH Zürich

9:20 AM Invited
Clustering and Precipitation in Al-Cu-Li Alloys: Influence of Minor Solute Additions on the Competition between Kinetic Paths: Alexis Deschamps; Frederic De Geuser; Eva Gumbmann; Rosen Ivanov; Christophe Sigli; 1Grenoble Institute of Technology; 2Constellium Technology Centre

9:50 AM
Effect of Ca Additions on the Ageing Behaviour of Mg-15Gd-0.5Zr Alloy: Houwen Chen; Chenglong Liu; Jian-Feng Nie; 1Chongqing University; 2Monash University

10:10 AM Break

10:30 AM Invited
The Role of Electron Microscopy in the Understanding of Precipitation in Light Alloys: Jian-Feng Nie; 1Monash University

11:00 AM
The Effects of ECAP on the Precipitation Behavior of Al 2024: Guher Tan; Eren Kalay; Hakan Gur; 1Mersin University; 2METU

11:20 AM
Analysis of Crystal Structures with Icosahedral Local Order in Al-Fe-V-Si Alloys After Solidification at Intermediate Cooling Rates: Joseph Jankowski; 2Michael Kaufman; 2Amy Clarke; 2Stephen Midson; 2Krish Krishnamurthy; 3Colorado School of Mines; 4Honeywell

11:40 AM
Precipitate Structures in Mg Alloys Containing Nd and Y: Ellen Solomon; Emmanuelle Marquis; 2University of Michigan

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Microstructure and Microstructural Evolution
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee
Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onurul Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurak, RHI AG; Ender Keskinlik, Altilim University

Thursday PM
Location: San Diego Convention Ctr

Session Chairs: Tao Jiang, Central South University; Hongxu Li, University of Science and Technology Beijing

2:00 PM Introductory Comments

2:05 PM
Intensification of Gold Leaching from a Multi-refractory Gold Concentrate by the Two-stage Roasting-alkaline Sulfide Washing-cyanidation Process: Li Qian; Zhang Yan; Li Xishan; Xu Bin; Yang Yongbin; Jia Tao; Li Hongwei; 1Central South University

2:25 PM
Evolution of Cr and Fe Species during Carbothermic Reduction of Chromite Ores: Dogan Paktunc; Dawei Yu; Samira Sokhanvaran; Yves Thibault; 1CANMET

2:45 PM
Phase Transformation of High Calcium Type Tin, Iron-bearing Tailings during Magnetizing Roasting Process: Zijian Su; Yuanbo Zhang; Yingming Chen; Bingbing Liu; Guanghui Li; Tao Jiang; 1Central South University

3:05 PM
Roasting of Celestite in Laboratory Scale Rotary Furnace: Selim Ertürk; Rasit Sezer; Goksel Hızlı; Aysegul Bilici; Cuneyt Arslan; 1Istanbul Technical University; 2Karadeniz Technical University

3:25 PM Break

3:45 PM
The Experimental Study of CaCO3 in the Vanadium Extraction Process: Shu-Chao Wang; Yu Wang; Wei-tong Du; Peng-cheng Li; 1Chongqing University

4:05 PM
Effect of Reduced Flux Iron Ore Pellets on Removal of Sulfur and Phosphorous in Single Step by Plasma and Induction Melting: Raj Dishvar; Arup Kumar Mandal; Shavi Agrawal; Om Prakash Sinha; Girija Shankar Mahobia; 1Indian Institute of Technology, BHU

4:25 PM
The Extraction of Zinc from Zinc Ferrite by Calcined Roasting and Ammonia Leaching Process: Ziqiang Xie; Yufeng Guo; Tao Jiang; Feng Chen; Lingzhi Yang; 1Central South University, School of Minerals Processing and Bioengineering

4:45 PM
The Recovery of Cobalt from Copper Converter Slag by Reduction-sulfurization Smelting at High Temperature: Shi Sun; Hongxu Li; Jiaqi Fan; Chao Li; Qi Liu; Zhaobo Liu; 1University of Science and Technology Beijing; 2University of Science & Technology Beijing
| 3:30 PM | Break |
| 3:50 PM | In Situ Characterization of Defects Formation and Microstructure Evolution in Selective Laser Melting of Metals: Lianyi Chiu; 'Missouri University of Science and Technology |
| 4:10 PM | Size Dependence of Deformation Response of 316 Steel Made by Additive Manufacturing: Minh-Son (Son) Pham; 'Imperial College London |
| 4:30 PM | Microstructure and Mechanical Behavior of Additively Manufactured Austenitic Stainless Steel: Thale Smith; 'Kaka Ma; 'Baolong Zheng; 'Joshua Sugar; 'Chris San Marchi; 'Julie Schoenuing; 'University of California, Davis; 'Colorado State University; 'University of California, Irvine; 'Sandia National Laboratories |
| 4:50 PM | Massive Transformation in Ti-6Al-4V Additively Manufactured by Selective Electron Beam Melting: Ma Qian; 'Zheng Lu; 'Huiping Tang; 'David StJohn; 'Royal Melbourne Institute of Technology University; 'State Key Laboratory of Porous Metal Materials, Northwest Institute for Nonferrous Metal Research; 'The University of Queensland |
| 5:10 PM | Concluding Comments |

### Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Defects and Mechanical Properties

**Sponsored by:** TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Powder Materials Committee, TMS: Process Technology and Modeling Committee, TMS: Additive Manufacturing Bridge Committee

**Program Organizers:** John Carpenter, Los Alamos National Laboratory; David Bourell, University of Texas - Austin; Allison Beebe, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate Materials Research

**Thursday PM**

**Room:** 8  
**Location:** San Diego Convention Ctr

**Session Chairs:** Brad Boyce, Sandia National Laboratory; Robert Warren, Worcester Polytechnic Institute

| 2:00 PM | Invited |
| 2:20 PM | High-throughput Testing Reveals Rare, Catastrophic Defects: Brad Boyce; 'Brad Salzbrenner; 'Bradley Jared; 'Jeffrey Rodelas; 'Jonathan Madison; 'Jay Carroll; 'Sandia National Laboratories |
| 2:30 PM | Characterization of the Elastic Properties and Microstructure of SLM Al-10Si-Mg: David Wikkin; 'Scott Siztan; 'Yong Kim; 'Paul Adams; 'Robert Castaneda; 'The Aerospace Corporation |
| 2:50 PM | Normal Track Size Related and Abnormal Lack of Fusion Defects Formed during Selective Laser Melting of CoCrMo Alloy: Kouros Darvish; 'Z. Chen; 'T. Pasang; 'Auckland University of Technology |
| 3:10 PM | Stress State, Strain Rate and Temperature Dependence of an Electron Beam Additive Manufactured Ti6Al4V: Omar Rodriguez; 'Paul Allison; 'Wilburn Whittington; 'David Francis; 'Oscar Rivera; 'Y. Kevin Chao; 'Bo Cheng; 'The University of Alabama; 'Mississippi State University |

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### Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session VIII

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee

**Program Organizers:** Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

**Thursday PM**

**Room:** 33C  
**Location:** San Diego Convention Ctr

**Session Chairs:** Cody Miller, Los Alamos National Laboratory; Fulin Wang, Department of Materials Science and Engineering, University of Virginia

| 2:00 PM | Progress on Measuring the Transient Dynamic Strength of Rapidly Heated Plain Carbon Steels: Steven P. Mates; 'Sindhura Gangireddy; 'Mark Stoudt; 'National Institute of Standards and Technology |
| 2:20 PM | Parameter Estimation in Crystal Plasticity Based Material Models: Aritra Chakraborty; 'Philip Eisenlohr; 'Michigan State University |

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### TECHNICAL PROGRAM

**Location:** San Diego Convention Ctr  
**Session Chairs:** Cody Miller, Los Alamos National Laboratory; Fulin Wang, Department of Materials Science and Engineering, University of Virginia

| 2:40 PM | High Resolution Strain Mapping around Hydrides in Zirconium Alloy: Rhyi Thomas; 'David Lunt; 'Philipp Frankel; 'Michael Preuss; 'Aidan Cole-Baker; 'School of Materials, University of Manchester; 'Rolls-Royce Plc |
| 3:00 PM | Modeling of Matrix-precipitate Interactions in NiTi Using FFT-based Constitutive Modeling: Shivram Kashyap Sridhar; 'Anthony Rollett; 'Carnegie Mellon University |
3:20 PM Break

3:40 PM
Microstructural Characterization of Inconel 600 Tubes after Tensile Tests at Various Temperatures and Strain Rates: Cécile Devoine; Vincent Marcardon; David Leveque; Fabienne Popoff; Nicolas Horezan; Denis Boivin; Gerald Portemont; ‘Onera the French Aerospace Lab

4:00 PM
Formability Enhancement and Damage Initiation Mechanisms under Static and Dynamic Loading Conditions in Bainitic Steels: Behnnum Shakerifard; Jesus Galan Lopez; Denis Jorge Badiola; Frank Hisker; Stefan Van Bohemen; Kangying Zhu; Viktorija Savran; Leo Kestens; ‘TU Delft; ‘M2i; ‘CEIT; ‘Thyssenkrupp Steel Europe AG; ‘TATA steel; ‘AMMR; ‘Ugent

4:20 PM
Multi-scale Modeling of Microstructural Spin in Crystal Plasticity for Phenomenological Models: Christopher Kohar; John Bassani; Raja Mishra; Kaan Inal; ‘University of Waterloo; ‘University of Pennsylvania; ‘General Motors Research & Development Center

4:40 PM
Physics Based-crystal Plasticity Modeling of Single Crystal Niobium: Tuo Maiti; Philip Eisenlohr; Di Kang; Thomas Bieler; ‘Michigan State University

5:00 PM
Effect of 3D Crystallographic Orientation on Evolution of Corrosion in Aluminum Alloys: Hrishikesh Bale; Tyler Stannard; Jeff Gelb; Erik Lauridsen; Leah Laverty; Arno Merkle; Nikhilesh Chawla; ‘Carl Zeiss X-ray Microscopy, Inc.; ‘Arizona State University; ‘Xnovo Technology ApS

Advanced Materials for Energy Conversion and Storage — Energy Storage III
Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee
Thursday PM
Room: 15A
March 2, 2017
Location: San Diego Convention Ctr
Session Chairs: Partha Mukherjee, Texas A&M University; Leela Arava, Wayne State University

2:00 PM Invited
Computational Design of the Nanostructure of CNT-encapsulated-S Cathodes: Yusiao Lin; Jeremy Ticey; Vladimir Oleshko; Chunsheng Wang; John Cumings; Yue Qi; ‘Michigan State University; ‘University of Maryland

2:25 PM Invited
Cotton-textile-enabled Flexible Energy Storage Devices: Xiaodong Li; ‘University of Virginia

2:50 PM
Monodisperse Titanium-based Perovskite Colloidal Nanocrystals for Application in Flexible Electronics: Kavey Benard; Gabriel Caruntu; Salemizadeh Saman; Axel Mellinger; ‘Central Michigan University

3:10 PM
Defect Engineering of Li4Ti5O12 Anode with Enhanced Electrochemical Properties for Li Ion Batteries by Thermal Reduction: Ralph Nicolai Nasara; Shih-kang Lin; Ping-chun Tsai; ‘National Cheng Kung University

3:30 PM Break

3:50 PM Invited
Challenges and Opportunities for Rechargeable Magnesium Batteries: Donald Siegel; ‘University of Michigan

4:15 PM Invited
Suppressing Dendrite Growth in High Energy Density Batteries through Anisotropic Transport: Emily Ryan; Jinwang Tan; ‘Boston University

4:40 PM
Electrospun Separators for Structural Battery Applications: Wisawat Keaswejareenusok; Jianyu Liang; ‘Worcester Polytechnic Institute

5:00 PM Invited
Stabilization of Layered Battery Electrodes through Chemical Pre-intercalation of Inorganic Ions: Ekaterina Pomerantseva; ‘Drexel University

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee
Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Thursday PM
Room: 15B
March 2, 2017
Location: San Diego Convention Ctr
Session Chair: Mingming Zhang, ArcelorMittal Global R&D

2:00 PM
Phase-Field Modeling of Internal Oxidation: Youhai Wen; ‘National Energy Technology Laboratory

2:25 PM
HPC4 Manufacturing Program: A National Laboratory - Industry Partnership in High Performance Computational Simulations for Energy Efficiency Untitled: Robin Miles; Peg Folta; Jeff Roberts; ‘Lawrence Livermore National Laboratory

2:50 PM
Metal Silicides for High-Temperature Thermoelectric Application: Mallikharjuna Bogala; Ramana Reddy; ‘The University of Alabama

3:15 PM
Computational Fluid Dynamic Based Process Modeling of Reverberatory Furnaces Used for Lead Recycling: Alexandra Anderson; Patrick Taylor; Gregory Bogin; ‘Colorado School of Mines

3:40 PM Break

4:00 PM
CFD Modeling of Slag-Metal Reactions and Sulfur Refining Evolution in an Argon Gas-Stirred Ladle Furnace: Qing Cao; April Pitts; Laurentiu Nastac; ‘University of Alabama

4:25 PM
Numerical Study of the Fluid Flow and Temperature Distribution in DC Non-transferred Arc Thermal Plasma Reactor: Yudong Li; Ramana Reddy; ‘University of Alabama

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hydrometallurgy and Electrometallurgy Committee

Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shaftiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Thursday PM
March 2, 2017
Location: San Diego Convention Ctr

Session Chair: Michael Free, University of Utah

2:00 PM
Vaporization Thermodynamics of Mg, K, and Rb Using Knudsen Torsion Diffusion Thermogravimetry Method: L.-N. N. Nforbi; Anjali Talekar; Dhanesh Chandra; Wen-Ming Chien; Kai Lau; Hans Hagemann; Yaroslav Filinchuk; J-C Zhao; Uni. of Nevada, Reno; SRI International (Retired); Uni. of Geneva; Uni. of Louvain (Belgium); Other

2:20 PM
Thermodynamic Studies on the Mg-B System using Solid State Electrochemical Cells: Muhammad Imame; Ramana Reddy; The University of Alabama

2:40 PM
Reduction Behavior and Kinetics of Comilog-based SiMn Slags: Trine Larssen; Merete Tangstad; Norwegian University of Science and Technology

3:00 PM
Empirical Activation Energies of MnO and SiO2 Reduction In SiMn Slags between 1500 and 1650°C: Pyunghwa Kim; Ryosuke Kawamoto; Trine Larssen; Merete Tangstad; Norwegian University of Science and Technology; The University of Tokyo

3:20 PM Break

3:40 PM
Experimental Evaluation of Thermodynamic Interactions between Tellurium and Various Elements in Molten Iron: Shun Ueda; Yuichi Matsuki; Kazuki Morita; The University of Tokyo

4:00 PM
Thermodynamics of Simultaneous Desulfurization and Dephosphorization of SiMn Alloy: Jong-Min Jeong; Jaehong Shin; Chul-Woo Nam; Kyung-Ho Park; Joohyun Park; Hanyang University; Korea Institute of Geoscience and Mineral Resources (KIGAM)

4:20 PM
Isothermal Reduction Behavior of CaO-Fe2O3-8wt%SiO2 System at 1123K, 1173K and 1223K with CO–N2 Gas Mixtures: Cheng Yi Ding; Xuewei Lv; Kai Tang; Senwei Xuan; Yun Chen; Jie Qiu; Chongqing University

4:40 PM
A Review of Some Studies on Impurity Capacity Predictions in Molten Melts: Bora Derin; Istanbul Technical University

Bulk Metallic Glasses XIV — Mechanical and Other Properties II
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfang Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Thursday PM
March 2, 2017
Room: 33B
Location: San Diego Convention Ctr

Session Chairs: Rainer Wunderlich, Ulm University; Gary Shiflet, University of Virginia

2:00 PM Invited
Thermophysical Properties of the Zr-based Bulk Metallic Glass Forming Alloy VIT106a in the Liquid Phase on the Ground and on ISS: Rainer Wunderlich; Anup Gangopadhyay; Christopher Pueblo; Kenneth Kelton; Hans Fecht; Ulm University; Washington University

2:20 PM Invited
Degradation Behavior of Bulk Metallic Glasses — Corrosion, Erosion, and Wear: Ayyagari Aditya; Sundeepr Mukherjee; University of North Texas

2:40 PM Invited
Effects of Ion Irradiation on the Mechanical and Microstructural Properties of Two Different Bulk Metallic Glass Alloys: Jamieson Brecht; Hongbin Bi; Steven Zinkle; University of Tennessee; Oak Ridge National Laboratory

3:00 PM Invited
Electronic Mechanism of Ductile-to-Brittle Transformation in Amorphous Calcium-based Alloys: Andrew Cheung; Gary Shiflet; University of Virginia

3:20 PM Break

3:40 PM
Material Behavior in Micro Milling of Zirconium based Bulk Metallic Glass: Boyuan Xie; Maroju Kumar; David Yan; Xiaolong Jin; Oklahoma State University; University of Wisconsin-Green Bay

4:00 PM
The Corrosion and Wear Behaviors of a ZrCuNiAl Bulk Metallic Glass in Simulated Groundwater: Yongjiang Huang; Hongbo Fan; Jing Liu; Zhihong Ning; Jianfei Sun; Harbin Institute of Technology

4:20 PM
The Effect of Phase Transformation on the Magnetocaloric Effect in Co-based Heusler Alloys: A-Young Lee; Song Yi Kim; Hye Ryeeong Oh; Hyun-ah Kim; Young Do Kim; MinHa Lee; Korea Institute of Industrial Technology; Hanyang University

4:40 PM
Effect of Sm Micro-alloying on the Mechanical Behavior and Crystallization Kinetics of Cu-Zr-Al BMGs: Fatih Sikan; Ilkay Kalay; Sezer Ozerine; Eren Kalay; METU; Cankaya University

www.tms.org/TMS2017
### TECHNICAL PROGRAM

**Orientation Dependent Energy and Strength of Metallic Crystalline**

4:40 PM

**Technology**

The Origin of Alloy Compositions

3:20 PM  Invited

Neng Wang

Transformation Zone Dynamics Simulationszone Dynamics Simulations:

Shear Banding of Metallic Glass under Multi-axial Stress States by Shear

3:00 PM

Needleman

Modeling Deformation in Amorphous Materials via Evolution of Discrete

Shear Transformation Zones

Modeling the Mechanics Responsible for Strain Delocalization in Metallic

Glass Matrix Composites

2:40 PM Invited

Casey Messiah; Eric Homer; Brigham Young University

3:00 PM

Shear Banding of Metallic Glass under Multi-axial Stress States by Shear

Transformation Zone Dynamics Simulationszone Dynamics Simulations:

Neng Wang; Lin Li; University of Alabama

3:20 PM Invited

The Origin of Alloy Compositions

Chuang Dong; Qing Wang; Dalian University of Technology

3:40 PM Break

4:00 PM Invited

Deformation Behavior of Metallic Glasses with Shear Band Like Atomic

Structure: A Molecular Dynamics Study

Cheng Zhong; Qiping Cao; Xiaodong Wang; Dongxian Zhang; Jianzhong Jiang; Zhejiang University

4:20 PM Invited

Subtle Influence of the Factors on Mechanical Properties of Nanoscale

Metallic Glasses

Qi Zhang; Mo Li; Qian Xuesen laboratory of Space Technology, China Academy of Space Technology; Georgia Institute of Technology

4:40 PM

Orientation Dependent Energy and Strength of Metallic Crystalline-
amorphous Interface

Ekasen Aliashahi; Chuang Deng; University of Manitoba; University of Manitoba

5:00 PM

The Multiple Shear Bands and Plasticity in Metallic Glasses: An Origin

from Stress Inhomogeneity

Guanan Yang; Yang Shao; Kefu Yao; Tsinghua University

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### CHARACTERIZATION OF MINERALS, METALS, AND MATERIALS — MATERIALS EXTRACTION

**Sponsored by:** TMS Extraction and Processing Division, TMS: Materials Characterization Committee

**Program Organizers:** Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CnmetMATERIALS; Jian-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Ferrao Donato, Collegio Universitario, Italy; Mingming Zhang, Arcelormittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobero-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramos Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

**Session Chairs:** Zhiwei Peng, Central South University; Bo Lan, Imperial College London Department of Mechanical Engineering

2:00 PM

Leaching of Copper-Cobalt Tailings from the Democratic Republic of Congo: Yonguara Hara; Yotamu Hara; Shadreck Chama; Douglas Muswowa; Golden Kaluva; Jimmy Machona; Stephen Parirenyatwa; Tina Chanda; Paul Chishimba; Leeds University; Copperbelt University

2:20 PM

Optimum Operating Conditions for Extraction of Lignin Precursors from Palm Fruit Bunch: Emmanuel Akpan; Samson Adeosun; M. Usman; Ambrose Ali Aliu University; University of Lagos

2:40 PM

Experimental Determination of Macro-texture in hcp and Cubic

Materials Using Ultrasound

Bo Lan; Fionn Dunne; Michael Lowe; Imperial College London

3:00 PM

Selection on the Process for Enriching Gold from Refractory Gold Ores by Smelting: Weifeng Liu; Shuai Rao; Central South University

3:20 PM

Selection on the Process for Removing and Recovering Antimony from

Antimonial Refractory Gold Ores: Weifeng Liu; Shuai Rao; Central South University

3:40 PM Break

3:55 PM

Characterization of Spent Printed Circuit Boards from Computers: Zhiwei Peng; Jiaxing Yan; Hongjin Zhang; Xiaolong Lin; Jian-Yang Hwang; Guanghui Li; Yuanbo Zhang; Tao Jiang; Central South University

4:15 PM

Study of the Effect of the Initial Nucleation Mechanism of Lead Anode

Oxidation Film on Internal Stress in Chromic Acid Electrolyte: Yunkai Wang; Jiangzhong Li; Northeastern University

4:35 PM

In Situ Observation of the Precipitation of Copper Sulfate Hydrate on the Copper Based Anode Surface: Iona Ninomiya; Hideaki Sasaki; Takeshi Yoshikawa; Masafumi Maeda; The University of Tokyo; Ehime University

4:55 PM

Upgrading of Copper and Cobalt from the Democratic Republic of Congo Tailings: Yotamu Hara; Shadreck Chama; Mazwi Doglas Muswowa; Golden Kaluva; Jimmy Machona; Kawunga Nyirenda; Paul Chishimba; Stephen Parirenyatwa; Copperbelt University; Leeds University
Characterization of Minerals, Metals, and Materials — Non-Ferrous Metals
Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Shadia Ikhmayies, Al Irsa University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jian-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firaoo Donato, College Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Thursday PM  Room: 31A
March 2, 2017  Location: San Diego Convention Ctr

Session Chairs: Ramasis Goswami, Naval Research Laboratory; Farzad Foadian, Clausthal University of Technology

2:00 PM
Defect Structures in the Intermetallic Compounds Ag3Sn and Cu3Sn: Haibo Liu; Yu Sun; Seok-Woo Lee1; Paul Cantfield2; S. Pamir Alpay3; Mark Aindow4; 1University of Connecticut; 2Ames Laboratory & Iowa State University

2:20 PM
Mechanical Behavior of Light Metal Alloys with Grain Size Distribution in a Wide Range of Strain Rates: Vladimir Skripnyak1; Vladimir V. Skripnyak2; Evgenia Skripnyak3; Irina Vaganova4; Natalia Skripnyak5; 1National Research Tomsk State University

2:40 PM
Microstructure Evolution during Thermo-mechanical Processing of Low-symmetry Metals: Rodney McCabe1; Miroslav Zecevic2; Daniel Coughlin3; Sven Vogel3; Bjorn Clausen4; Donanld Brown5; 1Los Alamos National Laboratory

3:00 PM
A Comparison of Gallium and Xenon Plasma Focused Ion Beam Techniques for the Interrogation of Aluminum Alloy Microstructures: Alexis Ernst1; Mei Wei2; Mark Aindow3; 1University of Connecticut

3:20 PM
Effect of Alloying Elements on Diffusing Bonding Parameters in Al6063 Alloy: Sila Atabay1; Arcan Dericioglu2; 1Middle East Technical University

3:40 PM  Break

3:55 PM
Composition Dependent Martensitic Transformation and Softening of Elastic Constants: Le Zhou1; Abhishek Mehta2; Anit Giri3; Kyu Cho2; Yongho Sohn1; 1University of Central Florida; 2SURVICE Engineering Company; 3US Army Research Laboratory

4:15 PM
Study of Texture Evolution in Copper Tubes Due to the Tilting of the Die during Drawing: Farzad Foadian1; Mohammad Masafi2; Adele Carrado2; Heinz-Günter Brokmeier3; Heinz Palkowski4; 1Clausthal University of Technology; 2Institut de Physique et Chimie des Matériaux de Strasbourg

4:35 PM
Recrystallization Behavior of Al Added Low Density Medium Mn Steel: Arnab Sarkar1; Tapas Bandhopadhyay2; 1Indian Institute of Technology,Kharagpur

4:55 PM
Texture Patterns in Orientation Gradient Ta Thin Films: Elizabeth Ellis1; Markus Chmielusz2; Marissa Linne3; Shefford Baker4; 1Cornell University; 2University of Pittsburgh; 3University of Michigan

5:15 PM
Characterization of Surface Microstructure and Passive Film Formed on Nanostructured Ti-6Al-4V Alloy Produced by Cryogenic Burning: Jun Tang1; Hongyan Luo2; 1Beijing University of Aeronautics and Astronautics

5:35 PM
Formation of Three Dimensional ZnO Micro Flowers from self Assembled ZnO Micro Discs: Shadia Ikhmayies1; 1Al Irsa University

Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions — Uncertainty Quantification for Multiscale and Continuum Methods (FEM, Crystal Plasticity, etc.)
Program Organizers: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida; Li Ma, NIST; Shawn Coleman, ARL; Jeff Doak, QuesTek Innovations, LLC; Fadi Abdeljawad, Sandia national Laboratory

Thursday PM  Room: 10
March 2, 2017  Location: San Diego Convention Ctr

Session Chair: Li Ma, National Institute of Standards and Technology

2:00 PM
A Novel Method of Analyzing Constitutive Model Parameters Using Canonical Correlation Analysis: Sudipto Mandal1; Anthony Rollett2; 1Carnegie Mellon University

2:20 PM
A Statistical FEA Method for Predicting Glass Fracture in Consumer Electronic Products: Marc, Zampino1; Shankar Ganapathysubramanian2; Ben Tan3; Guru Ramanathan4; 1Amazon/Lab126

2:40 PM
Finite Element Analysis of Influence of Phase Distribution and Shape Variation of Phases on Charge Transport in a Dual Phase System: Fazle Rabbi1; Kenneth Reifsnider2; 1University of South Carolina; 2University of Texas at Arlington

3:00 PM
An Integrated Microstructure Development and Crystal Plasticity Approach with Uncertainty Quantification for Multi-scale Constitutive Model Development: Maxwell Pinz1; George Weber2; Somnath Ghosh3; 1Johns Hopkins University

3:20 PM  Break

3:40 PM  Invited
Uncertainty Quantification in the Multiscale Simulation of Materials: Richard LeSa1; 1Iowa State University

4:10 PM
Hierarchical Multiscale Modeling and Parametric Analysis of Polyvinyl Alcohol/Montmorillonite Nanocomposites: William Lawrimore1; Justin Hughes2; Bhasker Paliwal3; Mei Chandler4; Kyle Johnson5; David Francis6; Mark Horstemeyer7; 1Engineer Research and Development Center; 2Center for Advanced Vehicular System

4:30 PM
Quantifying Material Variability and Uncertainty for Welded and Additively-manufactured Structures Using Multiscale A Posteriori Error-estimation Techniques: Joseph Bishop1; Judith Brown2; 1Sandia National Laboratories
4:50 PM
Community-driven Benchmark Problems for Phase Field Modeling: Andrea Jokisaari¹; Peter Voorhees¹; Jonathan Guyer²; James Warren²; Olle Heinonen⁴;¹; Northwestern University; ⁴;¹; National Institute of Standards and Technology; ¹; Argonne National Laboratory

5:10 PM
Functional Uncertainty Quantification in Materials Modeling: Sam Reeve¹; Alejandro Strachan¹;¹; Purdue University

Computational Thermodynamics and Kinetics — Diffusion and Kinetics II
Sponsored by: TMS: Chemistry and Physics of Materials Committee, TMS: Computational Materials Science and Engineering Committee
Program Organizers: Niaz Abdolrahim, University of Rochester; Stephen Folles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

Thursday PM Room: 11A Location: Sand Diego Convention Ctr

Session Chairs: Ebrahim Asadi, University of Memphis; Hesam Askari, University of Rochester

2:00 PM Invited
A Molecular Simulation Study of the Effect of Composition Gradients on Intermetallic Nucleation: Peng Yi¹; Michael Falk¹; Timothy Weilts¹;¹; Johns Hopkins University

2:30 PM
Defect Migration Using Atomistic-continuum Coupling: Liam Huber¹;¹; Dorte Jensen¹;¹; DTU Risø

2:50 PM
Diffusion Mechanisms of ‘Fast Diffusers’ in Ti Alloys: Alessandro Mottura¹;¹; Luca Scotti¹;¹; University of Birmingham

3:10 PM
Measurement of Diffusion Coefficients and Investigation on Precipitation in Mg-based Systems Using Diffusion Experiments: Wei Zhong¹;¹; Ji-Cheng Zhao¹;¹; The Ohio State University

3:30 PM Break

3:50 PM
Quasiparticle Approach to Diffusional Atomic-scale Kinetics in Complex Structures: Helena Zapolyski²;²; Mykola Lavrskyi²;²; Gilles Demange²;²; Armen Khachatryan²;¹; Renaud Patte¹;¹; University of Normandy, Rouen; ¹; University of California and Rutgers University

4:10 PM
Dissimilar Solid-Liquid Interface Free Energy and Anisotropy of Metals Using Molecular Dynamics Simulations: Seyed Alireza Etesami¹;¹; Ebrahim Asadi¹;¹; University of Memphis

4:30 PM
Kinetic Monte Carlo Simulations of the Growth of Gold Thin Films: Michele Fullarton¹;¹; Darnel Allen¹;¹; Aleksandr Chernatsynski¹;¹; Simon Phillpot¹;¹; University of Florida; ¹; University of Wyoming; ¹; Missouri University of Science and Technology

4:50 PM
Theory and Simulation of Quantum Dot Formation in Heteroepitaxial Grown Thin Films under External Forces: Nur Seda Aydin¹;¹; Ersin Emre Ozen¹;¹; Bionanodesign Laboratory, Department of Biomedical Engineering, TOBB University of Economics and Technology, Ankara, Turkey

Deformation and Transitions at Interfaces — Deformation and Grain Growth in Polycrystalline Materials
Sponsored by: TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Computational Materials Science and Engineering Committee, TMS: Mechanical Behavior of Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Saryu Fensin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaliya Barabash, OakRidge National Lab; Shen Dillon, University of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Thursday PM Room: 23B Location: San Diego Convention Ctr

Session Chair: To Be Announced

2:00 PM Invited
The Zero-energy Grain Boundary and Consequences to Grain Growth: Ricardo Castro¹; Nazia Nafsin¹;¹; University of California, Davis

2:20 PM Invited
Exploring the Role of Texture, Grain Boundary Character, and Grooving on Grain Growth in Metallic Thin Films: Khalid Hattar¹;¹; Daniel Bufford¹;¹; Stephen Folles¹;¹; Fadi Abdeljawad¹;¹; Sandia National Laboratories

2:40 PM Invited
Electric Field Effects on Grain Boundary Formation and Grain Growth: Klaus van Benthen¹;¹; University of California, Davis

3:00 PM Invited
Blocky Alpha Grain Growth in Zircalloy4: Vivian Tong¹;¹; T Ben Britton¹;¹; Department of Materials, Imperial College

3:20 PM Invited
EBSD Observations of Deformation at Grain Boundaries: David Field¹;¹; Washington State University

3:40 PM Break

4:00 PM
Transformation, Deformation and Special Grain Boundary Generation – Theoretical Analysis and Phase Field Simulations: Yipeng Gao¹;¹; Yunzhi Wang¹;¹; The Ohio State University

4:20 PM
Deformation at Grain Boundaries and Triple Junctions in Oligocrystalline Nickel: Ying Chen¹;¹; Mingjie Li¹;¹; Rensselaer Polytechnic Institute

4:40 PM
Correlating Dislocation Configurations to Deformation Behavior in Cyclically Deformed Additive Manufactured IN718: Yung Suk Yoo¹;¹; Todd Book¹;¹; Michael Sangid¹;¹; Josh Kacher¹;¹; Georgia Tech; ¹; Purdue University

5:00 PM Invited
Effects of Materials and Processing Parameters on the Roughness of Recrystallization Boundaries: Dorte Jensen¹;¹; YuBin Zhang¹;¹; Jun Sun¹;¹; DTU Risø
**Deriving Value from Challenging Waste Materials: Recycling and Sustainability Joint Session — Deriving Value from Challenging Waste III**

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, REWAS Organizing Committee, TMS: Energy Committee, TMS: Recycling and Environmental Technologies Committee

Program Organizers: John Howarter, Purdue University; Elsa Olivetti, Massachusetts Institute of Technology; Mingming Zhang, ArcelorMittal Global R&D; Randolph Kirchain, Massachusetts Institute of Technology; Henry Colorado, Universidade de Antioquia

Thursday PM
Room: 14B
Location: San Diego Convention Ctr

Session Chairs: Henry Colorado, Universidade de Antioquia; Elsa Olivetti, MIT; John Howarter, Purdue University

2:00 PM
**Kinetic Studies on the Recovery of Chromium from Stainless Steel Slags:**
Manuel Leuchtenmueller1;  University of Leoben

2:20 PM
**Chromium Removal from Iron-rich Waste Generated during Processing Lateritic Nickel Ores:**
Hong Fu1; Petr Dvorak1; Tomas Frydl1; Jana Selucka1; Petra Starkova1; University of Chemistry and Technology Prague; Aero Vodochody Aerospace a.s.

2:40 PM
**Synthesis of Magnesium Oxide from Ferronickel Smelting Slag through Hydrochloric Acid Leaching-Precipitation and Calcination:**
Mohammad Mubarak1; Andlik Yudiarto1; Institut Teknologi Bandung; PT. Antam, Tbk.

3:00 PM
**Investigating the Use of Recycled Machining Waste as an Alternative Feedstock for Metal Additive Manufacturing:**
Parnian Kiani1; Haoyang He1; Jessica Bui1; Kaka Ma1; Julie Schoenung1; University of California, Irvine; Colorado State University

3:20 PM Break

3:40 PM
**Thermodynamic Analysis of the Recycling of Aircraft Al Alloys:**
Senlin Cui1; In-Ho Jung1; McGill University

4:00 PM
**Lithium-ion Battery Recycling Through Secondary Aluminum Production:**
Reza Beheshti1; Ali Tabeshian1; Ragnhild Aune1; NTNU


Sponsored by: Chinese Society for Metals

Program Organizers: Raul Rebak, GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Housemann, University of California Berkeley; Jian Li, CanmetMATERIALS

Thursday PM
Room: Miramar
Location: Marriott Marquis Hotel

Session Chair: Peter Housemann, University of California Berkeley

2:00 PM
**Advanced ODS FeCrAl Alloys for Accident-tolerant Fuel Cladding:**
Sebastien Dryepond1; Caleb Massey1; Philip Edmondson1; Kurt Terrani1; Oak Ridge National Laboratory

2:20 PM
**Minimizing Hydrogen Diffusion through FeCrAl Alloy Accident Tolerant Fuel Cladding:**
Raul Rebak1; Young Kim1; GE Global Research

2:40 PM
**The Mechanical Response of Advanced Claddings during Proposed Reactivity Initiated Accident Conditions:**
Muhmur Cinbize1; Nicholas Brown1; Kurt Terrani1; Rick Lowden1; Donald Erdman III1; Oak Ridge National Laboratory

3:00 PM
**Systematic Studies on Dispersoid Stability and Swelling Resistance in ODS Alloys under Ion Irradiation Conditions:**
Hyosim Kim1; Jonathan Gigax1; Tianyi Chen1; Frank Garner1; Lin Shao1; Texas A&M University

3:20 PM
**In-situ Observation on the Oxides Stability under Laser and/or Electron Beams Irradiations in 9Cr-ODS Steel:**
Wang Hui1; Yang Zhanbing1; Yang Subing1; Watanabe Seiichi1; Shibayama Tamaki1; University of Science & Technology Beijing; School of Metallurgical and Ecological Engineering, State Key Laboratory of Advanced Metallurgy,University of Science and Technology Beijing; Centre for Advanced Research of Energy and Materials, Faculty of Engineering, Hokkaido University
3:40 PM Break

3:55 PM
A Preliminary Investigation on the Phase Transformation Kinetics Behavior of an U-10wt%Mo Cast and Homogenized Alloy: Saumyadeep Jana1; Arun Devaraj; Vineet Joshi; Curt Lavender; 1PNNL

4:15 PM
First Principles Study of Electronic Structure and Thermo-mechanical Properties of the Components of Accident Tolerant Nuclear Fuel: UO2 and UB; Ericmore Jossou1; Linu Malakkal1; Dotun Oladimeji1; Barbara Szpunar2; Jerzy Szpunar2; 1University of Saskatchewan

4:35 PM
Irradiation Defects in UO2, CeO2 and (U, Ce)O2 Leached in Oxidizing Water: An In-situ Raman Study: Ritesh Mohan1; Lionel Desgranges1; Christophe Jégou1; Sandrine Miro1; Patrick Simon1; Aurélien Canizarès1; Nicole Raimboux1; 1CEA (French Alternative Energies and Atomic Energy Commission), France; 2CNRS(French National Centre for Scientific Research), France

4:55 PM
Comparative Study of Thermal Conductivity of SiC and BeO from Ab Initio Calculations: Linu Malakkal1; Barbara Szpunar2; Jerzy Szpunar2; 1University of Saskatchewan

5:15 PM
Morphology of Y-Ti Nano-oxides in ODS Alloys Irradiated with High Energy Heavy Ions: Vladimir Skuratov1; Alexander Sohatsky1; Jacques O’Connell1; Kateryna K. Korneiev1a; Jan Neethling1; Alexey Volkov1; Maxim Zdorovets1; 1FLNR JINR; 2CHIERTM, Nelson Mandela Metropolitan University; 3Nazarbaev University; 4Institute of Nuclear Physics, Astana, Kazakhstan

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Energy Technologies — Heat Recovery

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS Energy Committee, TMS: Pyrometallurgy Committee

Program Organizers: Lei Zhang, University of Alaska Fairbanks; Jaroslav Drelich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillon, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingui Zhu, Carnegie Mellon University; ZiQ Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Abo Akademi University

Thursday PM Room: 13 Location: San Diego Convention Ctr

Session Chairs: ZiQ Sun, Queensland University of Technology; Nawshad Haque, CSIRO

2:00 PM Invited
Integrated Utilization of Sewage Sludge and Coal Gàngue in Clinker Manufacture: Zhenzhou Yang1; Zuotai Zhang1; 1Peking University

2:30 PM
High Efficiency Thermoelectric Materials (Sputteradics, Half Heusler Alloys and Clathrates) and their Mechanical Properties: Gerda Rogl1; Andriy Grytsiv2; Ernst Bauer2; Michael Zehetbauer2; Peter Rogl2; 1Christian Doppler Laboratory for Thermoelectricity, Univ. Vienna and Vienna Univ. of Technology; 2Institute of Solid State Physics, University of Technology; 3Faculty of Physics, University of Vienna; 4Institute of Materials Chemistry and Research, University of Vienna

2:50 PM
Valuable Metals and Energy Recovery from Electronic Waste Streams: Fiseha Tesfaye1; Daniel Lindberg2; Joseph Hamuyuni2; 1Abo Akademi University; 2Aalto University School of Chemical Technology

3:10 PM
Energy Recovery of Livestock Waste in Taiwan: Escher Hsa1; Chen-Ming Kuo2; 1National Taipei University; 2I-Shou University

3:30 PM Break

3:45 PM
Thermal Transport in High ZT Bulk Silicon Thermoelectric Materials: Seyed Aria Hosseini1; Jackson Harter2; Todd Palmer2; Lorenzo Mangolini1; P. Alex Greaney1; 1University of California, Riverside; 2Oregon State University

4:05 PM
High-efficiency Natural-gas Generators for Residential Combined Heat and Power: Ji-Cheng Zhao; 1The Ohio State University

4:25 PM
Life Cycle Assessments of Incineration Treatment for Sharp Medical Waste: Maryam Ghodrat1; Bijan Samali1; Maria Rashidi1; 1Western Sydney University

Fracture Properties and Residual Stresses in Small Dimensions — Interface Dominated Fracture

Sponsored by: TMS Structural Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Daniel Kiener, University of Leoben; Marco Sebastiani, Roma TRE university; Nagamani Jaya Balila, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Thursday PM Room: 21 Location: San Diego Convention Ctr

Session Chairs: Rafael Soler, MPIE; Nan Li, Los Alamos National Laboratory

2:00 PM Invited
Temperature-Dependent Delamination Failure of Metal-Ceramic Interfaces: Rafael Soler1; Srima Venkatesan1; Johannes Zechner2; Michael Nellihebel1; Roman Roth1; Josef Fugger1; Gerhard Dehm1; 1Max-Planck-Institut für Eisenforschung GmbH; 2KAI - Kompetenzzentrum Automobil- und Industrieelektronik; 3Infinicon Technologies AG

2:30 PM
Oxide-induced Substrate Cracking in Ti and Stainless Steels Driven by Pulsed Laser Irradiation: Jesus Morales Espejo1; David Bahre1; 1Purdue University

2:50 PM
Fracture Toughness of Beryllium Using In Situ X-ray and Digital Image Correlation Techniques: Carl CadY; Cheng Liu; George Gray; Neil Bourne1; 1Los Alamos National Laboratory; 2University of Manchester

3:10 PM
Improved Fracture Resistance of Brittle Molybdenum Thin Films on Polymide with Stress Tailoring: Megan Cordill1; Tanja Jörg; Oleksandr Glushko1; Robert Franz2; Jörg Winkler3; Christian Mitterer3; 1Erich Schmid Institute of Materials Science; 2Department of Physical Metallurgy and Materials Testing, Montanuniversität Leoben; 3Business Unit Coating, PLANSEE SE

3:30 PM Break

3:50 PM Invited
Enhanced Fracture Toughness of Mg/Nb Laminated Composites: Nan Li1; Youxing Chen1; Siddhartha Pathak1; Jian Wang1; Jon Baldwin1; Amit Misra1; Nathan Mara1; 1Los Alamos National Laboratory; 2University of Nevada, Reno; 3University of Nebraska-Lincoln; 4University of Michigan, Ann Arbor

4:20 PM
The Surface Residual Stress of High-frequency Induction Brazing of Cemented Carbide to Alloy Steel: Jia Ju1; Zhuang Liu2; Shuting Lou1; Ting Ruan1; 1Nanjing Institute of Technology

4:40 PM Concluding Comments
Friction Stir Welding and Processing IX — Control and Simulation

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee

**Program Organizers:** Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

**Session Chairs:** Enkhsaikhan Boldsaiikh, Wichita State University; John Baumann, Boeing Research & Technology

**Thursday PM**

**Room:** 9  
**Location:** San Diego Convention Ctr

**2:00 PM** Introductory Comments

**2:10 PM Invited**

Depth and Temperature Control during Friction Stir Welding of 5 cm Thick Copper Canisters: Lars Cedervist; Olof Garpinger; ’Swedish Nuclear Fuel and Waste Management Company’; ’Alten’

**2:30 PM**

Direct Pin Tool Temperature Measurements in Friction Stir Welding: Xiaoqian Ma; Stanley Howard; ’South Dakota School of Mines and Technology’

**2:50 PM**

Effect of Pin Tool Profile on Metal Flow, Torque and Forces during Friction Stir Welding—limiting Friction Cases: Nargis Dialami; Miguel Cervera; Michele Chiumenti; Carlos Agelet de Saracibar; ’CIMNE’

**3:10 PM Invited**

Measuring the Advancing Side Separation Forces during Self-reacting FSW of Al: Scott Rose; John Baumann; Sean Thuston; Eric Thomas; Brian Martinik; ’The Boeing Company’

**3:30 PM** Break

**3:50 PM**

Predicting Lap Shear Strength for Friction Stir Scribe Joining of Dissimilar Materials: Erin Barker; Piyush Upadhyay; Yuri Hovanski; Xin Sun; ’Pacific Northwest National Lab’

**4:10 PM Invited**

Simultaneous Independent Control of Tool Axial Force and Temperature in Friction Stir Processing: Kenneth Ross; Glenn Grant; Jens Darsell; David Catalini; ’Pacific Northwest National Laboratory’

**4:30 PM**

Prediction of Mechanical Properties of Friction Stir Welds through Microstructural Data: Akbar Heidarzadeh; Hexam Askari; ’Azarbaijan Shahid Madani University’; ’University of Rochester’

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**GAT-2017 (Gamma Alloys Technology - 2017) — Technologically Critical Areas - Discussions**

**Sponsored by:** TMS Structural Materials Division, TMS: Titanium Committee

**Program Organizers:** Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesighthouse; Dennis Dimiduk, BlueQuartz Software, LLC

**Thursday PM**

**Room:** Solana  
**Location:** Marriott Marquis Hotel

**Session Chairs:** Junpin Lin, Univ. of Science and Technology Beijing; Wilfried Smarsly, MTU Aero Engines GmbH

**2:00 PM** Panel Discussion Topic 2 (Additive Manufacturing Processes for Gammalloys)

Discussion Lead Team: S-K. Rittinghaus (Fraunhofer), Marc Thomas (ONERA), Dennis Dimiduk (BlueQuartz), Mohsen Selfi (Case Western), Wenbin Kan (USTB), Mauro Filipinni (Polimi), Andrzej Wojcieszynski (ATI Metals), Young-Won Kim (Gamteck).

**2:35 PM** Panel Discussion Topic 3 (Directional Processing)

Discussion Lead Team: Mauro Filipinni (Polimi), Martin Schloffer (MTU), Ernie Crist (Alcoa), Rob Haun (Retech), Adrienne Muth (Gattech), Thomas Edwards (Cambridge), Matthew Dahar (Case Western), Dennis Dimiduk (BlueQuartz), Young-Won Kim (Gamteck).

**3:00 PM** Panel Discussion Topic 4 (Microstructure-Defects-Life)

Discussion Lead Team: Mauro Filipinni (Polimi), Martin Schloffer (MTU), Ernie Crist (Alcoa), Rob Haun (Retech), Adrienne Muth (Gattech), Thomas Edwards (Cambridge), Matthew Dahar (Case Western), Dennis Dimiduk (BlueQuartz), Young-Won Kim (Gamteck).

**3:35 PM** Break

**3:50 PM** Panel Discussion Topic 5 (Industrial Turbine Blade Gammalloys and Processes)

Discussion Lead Team: Siavash Zamani (MAPNA), Fritz Appel (HZG), Jun Zhang (Siemens), Florian Pyczak (HZG), Thomas Broderick (GE), Young-Won Kim (Gamteck).

**4:15 PM** Panel Discussion Topic 6 (Aero and Automotive Engines Components Gammalloys)

Discussion Lead Team: Mikael Perrut (ONERA), Martin Schloffer (MTU), Wilfried Smarsly (MTU), Mark Dixon (RR), Pierre Sallot (SAFRAN), Rui Yang (IMR), Tom Broderick (GE), Matthias Buencok (ACCESS), Jan Schievenbusch (ACCESS), Langping Zhu (BIAM), Todor Stoyanov (ACCESS), Junpin Lin (IMM), Dennis Dimiduk (Blue Quartz), Ultrike Hecht (ACCESS), Fritz Appel (HZG), Guido Keijzers (Del West), Al Sommer (Del West), Young-Won Kim (Gamteck).

**5:15 PM** Panel Discussion Topic 7 (Application-specific R&D Processes)

Young-Won Kim (Gamteck).

**5:45 PM** Concluding Comments: Young-Won Kim, Gamteck
High Entropy Alloys V — Structures and Modeling II
Sponsored by: TMS Structural Materials Division, TMS Functional Materials Division, TMS: Alloy Phases Committee, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigam Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Thursday PM  Room: 32B  Location: San Diego Convention Ctr

Session Chairs: Karin Dahmen, University of Illinois at Urbana Champaign; James Morris, The University of Tennessee, Knoxville

2:00 PM Invited
A Computational Investigation on Diffusion in High-entropy Alloys: Chuan Zhang1; Fan Zhang2; Shuanglin Chen3; Weisheng Cao4; Jun Zhu5; Haoyan Diao6; ‘CompuTherm LLC; ‘University of Tennessee

2:20 PM Invited
Modeling Slips in Slowly Deformed High Entropy Alloys and Comparison to Experiments: Karin Dahmen1; Xi Gu2; Li Shu3; Aya Nawano4; Shuying Chen1; Peter Liaw5; ‘University of Tennessee; ‘University of Tennessee; ‘University of Southern California

2:40 PM Invited
Modeling Fundamental Properties of High Entropy Alloys: James Morris1; ‘Oak Ridge National Laboratory

3:00 PM
Using a Large Scale Modelling Technique for Selection of HEAs Containing Atypical Elements: Rob Snell1; Iain Todd2; Russell Goodall3; ‘University of Sheffield

3:20 PM Invited
Atomistic Modeling of Solid-solution Structures of High Entropy Alloys: Guofeng Wang1; Zhenyu Liu2; Yinkai Lei3; ‘University of Pittsburgh

3:40 PM Break

4:00 PM Invited
Predicted Properties of NiFeCrCo Based HEAs from First Principles: Douglas Irving1; Changning Niu2; Alex Zaddach2; Adedapo Oni3; James LeBeau4; Carl Koch5; ‘North Carolina State University

4:20 PM Invited
The Serrations of TiZrTM1TM2 (TM=Hf, Mo, Ta, V and W) High Entropy Alloys: An Integrated First-principles Calculation and Finite-elements Method Study: William Yi Wang1; FengBo Han2; Yi Dong Wu3; Deyi Lin4; Bin Tang5; Jun Wang6; Shun-Li Shang7; Yi Wang8; HongChao Kou9; Xi-Dong Hui10; Karin Dahmen11; Peter Liaw12; JinShan Li13; Zi-Kai Liu14; ‘Northwestern Polytechnical University; ‘University of Science and Technology Beijing; ‘Institute of Applied Physics and Computational Mathematics; ‘The Pennsylvania State University; ‘University of Illinois at Urbana Champaign; ‘The University of Tennessee

4:40 PM Invited
Understanding and Designing High-entropy Alloys using a Cluster-plus-Glue-Atom Model: Qiang Wang1; Xiaona Li2; Chuan Dong3; Peter K. Liaw4; ‘Dalian University of Technology; ‘The University of Tennessee

5:00 PM Invited
A Multifaceted Approach to Analyze the Serration Behavior in High Entropy Alloys and Other Material Systems: Jamieson Brechtl1; Xie Xie2; Shuying Chen2; Haoyan Diao3; Yunzhu Shi4; Tengfei Wang5; ‘University of Illinois; ‘University of Tennessee; ‘University of Tennessee; ‘University of Illinois at Urbana-Champaign

5:20 PM
New Deformation Twinning Mechanism in Equimolar Multi-component Alloys with Low Stacking Fault Energy: Qingjie Li1; Evan Ma2; ‘Johns Hopkins University

5:40 PM
Fatigue Behavior of High-entropy Alloys: Peiyong Chen1; Bilin Chen2; Michael Hemphill3; Zhi Tang4; Tao Yuan5; Gongyao Wang6; Che-Wei Tsai7; Andrew Chuang8; Carl D Lundin9; Jien-Wei Yeh10; Mohsen Seifi11; Dongyue Li12; John J Lewandowski13; Karin A Dahmen14; Peter K Liaw15; ‘University of Tennessee; ‘University of Tennessee; ‘University of Tennessee; ‘National Tsing Hua University; ‘Case Western Reserve University; ‘State Key Laboratory for Advanced Metals and Materials; ‘University of Illinois at Urbana-Champaign

High Entropy Alloys V — Thermal and Other Properties
Sponsored by: TMS Structural Materials Division, TMS Functional Materials Division, TMS: Alloy Phases Committee, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigam Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Thursday PM  Room: 32A  Location: San Diego Convention Ctr

Session Chairs: Nobuhiro Tsuji, Kyoto University; Thanh Tran, NSWC Carderock

2:00 PM Invited
Recrystallization and Grain Growth in High Entropy Alloys: Nokeun Park1; Tilkah Bhattacharjee2; Yoshihiko Nakamura3; Xian Li4; Rajeshwar Eleti5; Yu Bai5; Akinobu Shibata6; Nobuhiro Tsuji7; ‘Yeungnam University; ‘Kyoto University

2:20 PM Invited
Aluminum Diffusion in High Entropy Alloys: K. Michael Mathies1; Thanh Tran2; Peter Liaw3; ‘University of Tennessee; ‘Naval Surface Warfare Center - Carderock Division

2:40 PM Invited
Deformation Characteristics and Thermomechanical Processing of Complex Concentrated Alloys: Mageshwari Komarasamy1; Rajiv Mishra2; ‘University of North Texas

3:00 PM Invited
Structural and Thermodynamic Properties of a Lightweight AlTiVCr High Entropy Alloy: Yong-Jie Hu1; Yong-Jie Qiu1; N Birbilis2; Zi-Kai Liu3; ‘The Pennsylvania State University; ‘Monash University

3:20 PM Invited
High-entropy Alloys Properties and Short- and Long-range Ordering Predicted via Electronic-Structure-based Thermodynamics: Duane Johnson1; Prashant Singh2; Andrei Smirnov3; ‘Ames Laboratory/Iowa State University

3:40 PM Break

4:00 PM Invited
Dynamic Behavior and Grain Refinement of AlxCoCrFeNi High-entropy Alloy: Zechou Li1; Shiteng Zhao2; Haoyan Diao3; Shima Sabbaghandrad4; Terence G. Langdon5; Peter K. Liaw6; Marc A. Meyers7; ‘University of California,San Diego; ‘The University of Tennessee, Knoxville; ‘University of Southern California

4:20 PM Invited
Stress State, Strain Rate and Temperature Sensitivity of Alx(CrCoFeNi)1-x High Entropy Alloys (HEAs): Omar Rodriguez1; Paul Allison2; Haoyan Diao3; Peter Liaw4; Neng Wang5; Lin Li6; ‘University of Alabama; ‘University of Tennessee
Materials Science; Neale Neelameggham, Ind LLC

Kiran Solanki, Arizona State University; Dmytro
Committee

Magnesium Technology 2017 — Mechanical Behavior: Twinning, Plasticity, Texture, and Fatigue III
Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Thursday PM Room: 5B
March 2, 2017 Location: San Diego Convention Ctr

Session Chairs: Christopher Barrett, Mississippi State University; Scott Whalen, Pacific Northwest National Laboratory

2:00 PM Microstructure and Texture Evolution during Hot Deformation of Cast-Homogenized ZK60 Magnesium Alloy: Amir Hadadzadeh1; Sargib Shaha2; Mary Wells3; Hamid Jahed4; Bruce Williams2; University of Waterloo; CanmetMATeRials, Natural Resources Canada

2:20 PM Development of <10-10> Texture during Tensile Test at Room Temperature: Zhuroan Zeng1; Mingzhe Bian1; Shiwei Xu2; Chris Davies3; Nick Birbilis4; Jian-Feng Nie5; Monash University; Baosteel Group Corporation

2:40 PM Effect of Ca on the Microstructure, Texture and Mechanical Properties in Mg-Zn-Mn Based Alloy: Byeong-Chan Suh1; Taisuke Sasaki2; Taiki Nakata3; Shigeharu Kamado4; Kazuhiro Hono5; National Institute for Materials Science; Nagaoka University of Technology

3:00 PM Evaluation of In Vitro Fatigue Properties of Biodegradable Mg-0.3at.%Ca Alloy: Naoko Ikeo1; Akhiro Taguma1; Taichi Uemura1; Toshiji Mukai1; Kobe University

3:20 PM Mechanical Properties and Fatigue Strength of Extruded Cobalt-containing Magnetic Magnesium Alloys: Christian Demminger1; Christian Klose2; Leibniz Universitaet Hannover

3:40 PM Break

4:00 PM Neutron Diffraction and Acoustic Emission Measurement during Loading and Unloading of Magnesium Aluminium Binary Alloys: Jan Capek1; Kristian Mathis2; Charles University in Prague

4:20 PM Texture Weakening and Grain Refinement by High Speed Rolling and Annealing of an AZ31 Magnesium Alloy: Jing Su1; Stephen Yue2; McGill University

4:40 PM The Relative Contributions of Deformation Modes to AZ31 Rolling Textures in Different Temperature Regimes: Matthew Steiner1; Jishnu Bhattacharyya2; Sean Agnew2; University of Virginia

5:00 PM Effects of Texture and Triaxiality on the Plasticity of Magnesium Alloys: Balaji Selvarajou1; Shailendra Joshi1; Amine Benzerga2; National University of Singapore; Texas A & M University

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Modeling
Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Nuclear Materials Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Ramesh Prabahakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Thursday PM Room: Point Loma
March 2, 2017 Location: Marriott Marquis Hotel

Session Chairs: Shenyang Hu, Pacific Northwest National Laboratory; David Andersons, Los Alamos National Laboratory

2:00 PM Density Functional Theory Investigation of Defect and Fission Gas Diffusion in U-Si: David Andersson1; Los Alamos National Laboratory

2:20 PM A Grand-Potential Phase Field Model for Bubble Formation and Growth in U-Si Fuel: Karim Ahmed1; Larry Angesen2; Daniel Schwen1; Yongfeng Zhang1; Idaho National Laboratory

2:40 PM A Modified Embedded-Atom Method Interatomic Potential for U-Si: Benjamin Beeler1; Michael Baskes1; David Andersson2; Yongfeng Zhang1; Idaho National Laboratory; University of California, San Diego; Los Alamos National Laboratory

3:00 PM Cluster Dynamics Modeling of Cu Precipitation Hardening in Reactor Pressure Vessel Steels: Xian-Ming Bai1; Huibin Ke2; Pritam Chakraborty3; Yongfeng Zhang1; Virginia Tech; University of Wisconsin - Madison; Idaho National Laboratory

3:20 PM Monte Carlo Modeling of Recrystallization Processes in a-Uranium: Matthew Steiner1; Rod McCabe2; Elena Garlea3; Sean Agnew2; University of Virginia; Los Alamos National Laboratory; Y-12 National Security Complex

3:40 PM Break

4:00 PM Continuum-level Modeling of Irradiation Damage Cascades with Explicit Microstructure Representation: Jesse Carter1; Jared Tannenbaum2; Richard Smith3; Bettis Laboratory, BMPC

4:20 PM Phase Field Modeling of PWR Cladding Corrosion with the HOGNOSE Code: Andrew Dykhuis1; Michael Short1; Massachusetts Institute of Technology

4:40 PM Thermodynamic Modeling and Continuum Scale Fuel Performance Simulations: Jacob McMurray1; Srđjan Simunovic2; Theodore Besmann3; Benjamin Gaston4; Markus Piro5; Oak Ridge National Laboratory; University of South Carolina; Canadian Nuclear Laboratories
Materials Engineering of Soft Magnets for Power and Energy Applications — Advanced Silicon Steels and Soft Magnetic Alloys for Rotating Electrical Machinery

Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee, TMS: Magnetic Materials Committee

Program Organizers: Paul Ohodnicki, National Energy Technology Laboratory; Francis Johnson, GE Global Research; Alex Leary, Carnegie Mellon University; Tanjore Jayaraman, University of Michigan; Lajos Varga, Wigner Research Center for Physics

Thursday PM  Room: 25B  Location: San Diego Convention Ctr

Session Chair: Alex Leary, Carnegie Mellon University

2:00 PM  Invited
Advanced Soft Magnetic Materials for Highly-efficient Electric Motors: Josefin Silveyra1; Vladimir Keylin2; Michael McHenry2; 1INTECIN, Facultad de Ingeniería, Universidad de Buenos Aires - CONICET; 2Carnegie Mellon University

2:30 PM  Invited
Opportunities and Challenges in the Additive Manufacture of Soft Magnetic Silicon Steel Parts: Processing, Material Properties and Component Design: Michele Garibaldi1; Ian Ashcroft1; Richard Hague1; 1The University of Nottingham

3:00 PM  Invited
Effect of Annealing Time on the Texture of a 2.8% Si Non-Oriented Electrical Steel after Inclined and Skew Rolling: Mehdi Mehdi1; Youzialiang He2; Erik Hilinski2; Alisanhe Edrisy1; 1University of Windsor/Canmet Materials; 2Carnet Materials; 3Carnet Materials; 4Tempel Steel; 5University of Windsor

3:30 PM  Break

3:45 PM  Invited
Effects of Cooling Rate on 6.5% Silicon Steel Ordering: Brandt Jensen1; Chad Macziewski1; Kevin Dennis1; Lin Zhou1; Wei Tang1; Olena Palasyuk1; Levitas Valery1; Matthew Kramer1; Jun Cui1; 1Ames Laboratory; 2Iowa State University

4:15 PM  Novel Silicon Steel Nanocomposites via Severe Shear Deformation Approaches: Trevor Clark1; Hellen Jiang1; Nicole Overman1; Suveen Mathaudhu1; 1University of California, Riverside; 2Pacific Northwest National Laboratory

4:35 PM  Magnetic Properties of Shear-textured Fe-Si Sheet Produced by Simple Shear Deformation: Andrew Kustas1; Srinivasan Chandrasekar1; Kevin Trumble1; 1Purdue University

Materials Processing Fundamentals — Molten & Gas State Processing

Sponsored by: TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee

Program Organizers: Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

Thursday PM  Room: 17B  Location: San Diego Convention Ctr

Session Chairs: Samuel Wagstaff, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts

2:00 PM  Thermal Analyses of Silver-based Sulfosalts in Air: Fiseha Tesfaye1; Daniel Lindberg1; 1Åbo Akademi University

2:20 PM  Influence of Oxygen on Surface Tension of Zr: Jonghyun Lee1; Jie Zhao2; Michael SanSoucie3; Rainer Wunderlich4; Jan Rogers5; Hans Fecht6; Robert Hyers7; 1University of Massachusetts; 2NASA Marshall Space Flight Center; 3Ulm University

2:40 PM  Oscillation of a Zirconium Droplet — Experiments and Numerical Simulations: Jonghyun Lee1; Kaushal Sumaria1; Robert Hyers1; 1University of Massachusetts

3:00 PM  Gallium Evaporation Behavior for Purification in Molecular Beam Epitaxy (MBE): Kyongjean Min1; David Johnson1; Kevin Trumble1; 1Purdue University

3:20 PM  Break

3:40 PM  Investigation of Mixing Process in a Steel Ladle with Top Stirring Lance Using CFD: Guangwu Tang1; Armin Silaen2; Hoyong Hwang3; Megan Pratt4; Russell Mulligan5; Chenn Zhou1; 1Purdue University; 2Purdue University; 3University of Mississippi; 4ArcelorMittal; 5Toyota Motor Manufacturing Indiana

4:00 PM  Mass Transfer of Al and Ca between Silicon and Synthetic SiO2-CaO-Al2O3 Slags: Erlend Bjørnstad1; Gabriella Tranell1; 1NTNU

Materials Science for High-Performance Permanent Magnets — Synthesis and Processing

Sponsored by: TMS Functional Materials Division, TMS: Magnetic Materials Committee

Program Organizers: Satoshi Hirozawa, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Gutfeisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Thursday PM  Room: 24C  Location: San Diego Convention Ctr

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Matthew Kramer, Ames Laboratory; Hae-Woong Kwon, Pukyong National University

2:00 PM  Invited
Fabrication of Submicrometer-sized SmFe12N14 Hard Magnetic Particles: Toshiharu Teranishi1; Hsin-Lun Wu2; Ryo ía Sato3; 1Kyoto University
2:30 PM Coercivity and Strength Enhancement of a Binder Jetted NdFeB Bonded Magnet by (Pr,Nd)-Cu-Co Alloy Infiltration: Ling Li; Angelica Tirado; Benjamin Conner; Amy Elliott; Orlando Rios; Haidong Zhou; M. Parsons Paranthaman; 1 Oak Ridge National Laboratory; 2University of Tennessee

2:50 PM Recent Developments in High Coercivity Nd-lean Nd-Fe-B Infiltrated Magnets: Daniel Salazar; André Martin-Cid; Jose Garitaanadita; Rajashekar Madugundo; Jose Manuel Barandiaran; George Hadjipanayis; 1BMC Materials; 2University of the Basque Country (UPV/EHU); 3University of Delaware

3:10 PM High Magnetic Field Processing of Melt-spun Permanent Magnet Alloys: Michael McGuire; Orlando Rios; Ben Conner; William Carter; Lin Zhou; Brandt Jensen; Kewei Sun; Manliang Huang; Olena Palasyuk; Kevin Dennis; Ikenna Nlebedim; 1Oak Ridge National Laboratory; 2The Ames Laboratory

3:30 PM Break

3:50 PM Structural Evolution in Alnico -- A Transmission Electron Microscopy and Atom Probe Tomography Study: Lin Zhou; Wei Guo; Jon Poplawsky; Wei Tang; Iver Anderson; Matt Kramer; 1Ames Lab; 2Oak Ridge National Laboratory, Center for Nanophase Materials Sciences

4:10 PM Powder-processed High-performance Alnico Magnets by Thermal Gradient Control: Emma White; Aaron Kassen; Wei Tang; Matthew Kramer; Iver Anderson; 1Ames Laboratory

4:30 PM Reduced Cobalt Energy Efficient “Green” Alnico: Andrey Palasyuk; Brandon Kiel; Kevin Dennis; Wei Tang; Lin Zhou; Aaron Kassen; Emma White; Mathew Kramer; Iver Anderson; 1Ames Laboratory; 2Iowa State University, DMSE

4:50 PM Reconsidering Substitutions in Sr-Ferrite Magnets: Waleed Khalifa; Omayma El-Kady; 1Cairo University; 2CMRDl

5:10 PM Synthesis and Processing of Hard Iron Oxide Nanocomposites for Rare Earth Free Permanent Magnets: Kyle Chan; Yasuhito Kodera; Javier Garay; 1University of California, San Diego

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Mechanical Behavior of Titanium and Zirconium Containing Alloys

Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee

Program Organizers: Indrajit Chait, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Malby, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

Thursday PM  Room: 24A  Location: San Diego Convention Ctr

Session Chairs: Raj Vaidyanathan, University of Central Florida; Indrajit Chait, University of Idaho

2:00 PM Keynote Microstructure-property Interrelationships in Metastable Beta Titanium Alloys with Refined Distributions of the Alpha Phase: Yufeng Zheng; Gopal Viswanathan; Rajashri Banerjee; Hamish Fraser; 1The Ohio State University; 2University of North Texas

2:30 PM Invited Increasing the Elevated-temperature Strength of a Beta Titanium Alloy through Thermomechanically-induced Phase Transformation: Vahid Khademí; Carl Boehlert; Masahiko Ikeda; 1Michigan State University; 2Kansai University

2:50 PM Invited In Situ Neutron Diffraction Studies of Crystallographic Texture at Stress and Temperature with Implications for Training Shape Memory Alloys: Raj Vaidyanathan; 1University of Central Florida

3:10 PM Correlating Variability in Fatigue Life with Fracture Mechanisms in a Near-α Titanium Alloy: Vikas Sinha; Sushant Jha; Adam Pichak; Reji John; James Larsen; 1Air Force Research Laboratory/UES, Inc.; 2Air Force Research Laboratory/Universal Technology Corporation; 3Air Force Research Laboratory

3:30 PM Break

3:40 PM Invited Creep of Zirconium and Zirconium Alloys: Troy Hayes; Michael Kassner; 1Exponent; 2University of Southern California

4:00 PM Study of Accelerated Creep Behaviour of Zr-2.5Nb Pressure Tubes: Avinash Gopalav; Harshit Khandelwal; Sandeep Chandanish; Ram Singh; 1Bhabha Atomic Research Center

4:20 PM Concluding Comments

Microstructural Processes in Irradiated Materials — Nuclear Fuels and Ceramics

Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee

Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuoshi Nagai, Tohoku University

Thursday PM  Room: Del Mar  Location: Marriott Marquis Hotel

Session Chairs: Mark Asta, University of California Berkeley; William Weber, University of Tennessee

2:00 PM Invited Amorphization and Recrystallization in Ion-irradiated Ceramics: William Weber; Eva Zarkadoula; Ritesh Sachan; Haizhou Xue; Yanwen Zhang; 1University of Tennessee; 2Oak Ridge National Laboratory

2:30 PM Insights on Dramatic Radial Fluctuations in Track Formation by Energetic Ions: Ritesh Sachan; Yanwen Zhang; 1Eva Zarkadoula; Matthew Chisholm; William Weber; 1Oak Ridge National Laboratory; 2University of Tennessee

2:50 PM Characterization of Radiation Effects in Complex Oxides: New Application of Neutron Total Scattering Techniques: Jacob Shamblin; Eric O’Quinn; Raul Palomares; Maik Lang; 1University of Tennessee

3:10 PM Invited Energetics of Trivalent Substitutional Elements in Uranium Dioxide: Combined Computational and Experimental Investigations: Jonathan Solomon; Lei Zhang; Alexandra Nuvotksy; 1University of California, Berkeley; 2University of California, Davis
**Pan American Materials Congress: Advanced Biomaterials — Implants, Bone Draft and Drug Delivery**

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

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**Thursday PM**

**Room:** Mission Hills

**Location:** Marriott Marquis Hotel

**Session Chairs:** Mayara Alvarez-Lemus, Juarez Autonomous University of Tabasco; Ke Yang, Institute of Metal Research, Chinese Academy of Sciences

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### 2:00 PM

**In Vivo Study on New Coronary Stents Made of Nickel-free High-nitrogen Stainless Steel:** Qingchuan Wang; Shanshan Chen; Hui Yang; Bingchun Zhang; Ke Yang; 'Institute of Metal Research, Chinese Academy of Sciences

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### 2:20 PM

**Effect of Rapid Solidification on the Microstructure of a Biomaterial Co-Cr-Mo-C Alloy:** Hugo Lopez; **Hamid-Reza Erfanian-Naziftoosi**; 'University of Wisconsin-Milwaukee

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### 3:00 PM

**Optical Properties of CeO2@ZnO Core@shell Nanostructures Synthesized by Solvothermal Method:** Saeed Farhang; Felipe Sanhueza; Pandiyarajan Thangaraj; Mangalaraja Ramalinga Viswanathan; 'Concepcion University

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### 3:20 PM

**Break**

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### 3:40 PM

**Investigation of Properties in Glass-ceramics Based on Li2O-SiO2 System during Li2O-SiO2-Li2SiO3 Transformation:** Bruno Simha; Marcos Ribeiro; Claudinei Santos; Paulo Suzuki; Luis Hein; Manuel Alves; 'Unesp-FEG - Universidade Paulista-Faculdade de Engenharia de Guaratinguetá; 'UERJ-FAT - Universidade do Estado do Rio de Janeiro-Faculdade de Tecnologia; 'USP-EEL - Universidade de São Paulo-Escola de Engenharia de Lorena

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### 4:00 PM

**Structure and Toughening Mechanism of Carp Fish Scales:** Huocheng Quan; Wen Yang; Robert Ritchie; Marc Meyers; 'UCSD; 'ETH-Zurich; Lawrence Berkeley National Laboratory

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### 4:20 PM

**Synthesis and Characterization of Ni0.5Zn0.5Fe2O4@mSiO2 Core Shell Nanocarrier for Drug Delivery Applications:** Mohd Qasim; Khushnuma Asghar; Dibakar Das; 'University of Hyderabad

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### 4:40 PM

**Zirconium Alloys for Orthopaedic & Dental Implants: A Review:** Afrin Mehjabeen; Ma Qian; 'RMIT

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**Pan American Materials Congress: Materials for Infrastructure — Session II**

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** Henry Colorado, Universidad de Antioquia; Olivia Rodriguez, Centro de Investigacion en Quimica Aplicada

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**Thursday PM**

**Room:** Palomar

**Location:** Marriott Marquis Hotel

**Session Chair:** Henry Colorado, Universidad de Antioquia

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### 2:00 PM Invited

**Jigs, Hydro-cyclones and Sensor-based Sorting to Value Recycled Aggregates:** Regis Paranhos; Carlos Sampiao; Bogdan Cazacliu; Raul Neto; Maria Liendo; Unipampa; UFRGS; IFSTTAR

### 2:30 PM

**Effect of C5H11NO2S on Reinforcing-steel Corrosion in Concrete Immersed in Industrial/Microbial Simulating-environment:** Joshua Okeni; Abiodun Abioye; Zechariah Adikpewun; Adeola Otesanya; Michael Eleshin; Olugbenga Omotosho; Olanrewaju GAbriel; Oluyori Adeoye; 'Covenant University

### 2:50 PM

**Development of Co-B-SIC Coatings for Use on Aeronautical and Automobile Industries:** Alba Martinez; Gabriel Trejo; 'CIDETEQ

### 3:10 PM Invited

**Colombian Natural Fibers for Structural Materials:** Henry Colorado; Juan M Velez; 'Universidad de Antioquia; 'Universidad Nacional de Colombia

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### 3:40 PM Break

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### 4:00 PM

**Anticorrosion and Adsorption Mechanism of Rhizosphere Mangle L. Leaf extract on Steel-reinforcement in 3.5% NaCl-immersed Concrete:** Joshua Okeni; Olugbenga Omotosho; Cleophas Loto; Abimbola Popoola; 'Covenant University, Ota, Nigeria; 'Tshwane University of Technology, Pretoria

### 4:20 PM

**Cassia Fistula Leaf-extract Effect on Corrosion-inhibition of Stainless-steel in 0.5 M HCl:** Olugbenga Omotosho; Joshua Okeni; Cleophas Loto; Abimbola Popoola; Omokolade Ajibola; Adebanji Ogbiye; 'Covenant University, Ota; 'Tshwane University of Technology, Pretoria, South Africa
Pan American Materials Congress: Materials for Transportation and Lightweighting — Composite Materials II
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernando Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo León

Thursday PM Room: Marina D Location: Marriott Marquis Hotel

Session Chair: To Be Announced

2:00 PM
An Improved Silicon Carbide Monofilament for the Reinforcement of Metal Matrix Composites: Michael Rix1; TISICS

2:20 PM
Effect of Al2O3 Volume Percentage on the Mechanical Properties and Strengthening Effect in Al Alloy Nano Composites Fabricated by Ultrasound Assisted Solidification Technique: Neeraj Srivastava1; G.P. Chaudhuri2; Indian Institute of Technology Roorkee

2:40 PM
Effect of Annealing on the Electrical Properties of PA6/MWNT/CU Composites: Saeed Doagou Rad1; A Islam1; J. Jensen1; Technical University of Denmark

3:00 PM
Experimental and Density Functional Theory Studies of SmMnO3, Mullite-type Oxide as NO Oxidation Catalyst: Sampreetha Thampy1; Yongping Zheng1; Sean Dillon1; Kui Tan1; Ka Xiong2; Yun-Ju Lee1; Yves Chabal1; Kyeongjoo Cho1; Julia Hsu1; University of Texas at Dallas; Dongguan Innovative New Materials Co. Ltd.; University of Texas at Dallas and Dongguan Innovative New Materials Co. Ltd.

3:20 PM Break

3:40 PM
Investigation on Mechanical Properties of Sic, Al2O3 and B4C Micro Particulates Reinforced in Aluminium Matrix Composite: Gopal Kumaresan1; K Kalaichelvan1; A Rajadurai1; Production Technology, MIT Campus, Anna University.

4:00 PM
Nanocomposites Mechanical and Tribological Properties using Graphene Coated Ceramic Nanoparticles for Light Weight Applications: Ahmed Glazaly1; Mohamed Shokeir2; Sandy El-Moghazi1; Ahmed Fathy2; Mohamed Emara3; Hamadi Salem3; American University in Cairo; ‘Canadian College

Pan American Materials Congress: Materials for Transportation and Lightweighting — Joining
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernando Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo León

Thursday PM Room: Marina G Location: Marriott Marquis Hotel

Session Chair: To Be Announced

2:00 PM
Joining of Sandwich Materials – Concepts for Local Force Transmission into Innovative Vehicle Structures: Carmen Scholz1; Sebastian Wagner2; Gundolf Kopp3; Horst Friedrich4; German Aerospace Center; NMI Natural and Medical Sciences Institute at the University of Tübingen

2:20 PM
Influence of Robotic GMAW Welding Parameters on the Mechanical Properties of Thick Structural Steel Plates: Manuel Vizquez Esteban1; Angelita Miranda Perez1; Rolando Praga Alejandro1; Gladys Perez Medina2; Corporación Mexicana de Investigación en Materiales; Universidad Autonoma de Coahuila

2:40 PM
Joining Dissimilar Materials across Varying Length Scales by Impact Welding: Anupam Vivek1; Taeseon Lee1; Glenn Daehn2; Ohio State University

3:00 PM
Evaluation of Distortion in Pulse Spray Welding Joints of Hsla A572 Steel for Heavy Agricultural Equipment: Estuardo Raymundo Rivera Sanchez1; Gladys Yerania Perez Medina1; Eduardo Hurtado Delgado2; Leonardo Carrasco Gonzalez2; Angelita Fabiola Miranda Perez2; COMIMSA

3:20 PM Break

3:40 PM
Comparison of the Single Pulse and the Second Pulse Current on the Fusion Zone Microstructural and Mechanical Properties of the TRIP Steel Welds: Miguel Fernando Delgado Pamanes1; Sergio Rodriguez2; Victor Hugo Hernandez1; IPN - UPIIZ; ‘UAZ

4:00 PM
Vaporizing Foil Actuator Welding as a Solution for Joining Automotive Steel and Aluminium Alloys: Anupam Vivek1; Bert Liu1; Glenn Daehn2; Ohio State University

4:20 PM
Study of the Discontinuities Generated by GMAW Process Applied in AISI 1018 Steel using NDT-phased Array and their Microstructural Correlation: Luis Aguilar-Pérez1; Gladys Pérez-Medina1; Angela Miranda-Pérez2; Rolando Praga-Alejo2; Corporación Mexicana de Investigación en Materiales; Universidad Autónoma de Coahuila
Pan American Materials Congress: Minerals Extraction and Processing — Ore Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mery Gómez Marroquín, Asociacion Peruana de Metalurgia y Minerales-APMMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdívieso, U.A. of San Luis Potosí; Carlos Sampaio, UFRGS

Thursday PM
March 2, 2017
Room: Marina E
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

2:00 PM
Preparation Conditions and Performance of Nano/Amorphous Hybrid Oxide Coated Titanium Anode for Oxygen Evolution in Electrowinning: Masafumi Yasuno1; Masatsugu Morimitsu1; 'Doshisha University

2:20 PM
Process of Improving the Flotation Using Ultrasonic Bombardment: Evirleto Souza1; Orimar Reis2; Denise Pereira1; Luis Borges3; Jeisa Rodrigues4; 'UFFJ; 'IFMG-OP; 'QTEC; 'UFOP/DEMIN

2:40 PM
Preliminary Analysis of the Application of Sensor Based Sorting on a Limestone Mine in the Region Caçapava do Sul, Brazil: Régis Paranhos1; Evandro Santos1; Carlos Petter2; Aaron Young3; Moacir Veras3; 'Unipampa; 'Dagoberto Barcelos SA; 'UFRGS

3:00 PM
The Compact Flowsheet for Ore Comminution and Processing: George Mover3; Volodymyr Golovan1; 'Black Iron Inc.

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Phase, Interface and Crystalline Defects Evolution during SPD

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Thursday PM
March 2, 2017
Room: Marina F
Location: Marriott Marquis Hotel

Session Chairs: Ruslan Valiev, Ufa State Aviation Technical University; Gerhard Wilde, University of Muenster

2:00 PM
Ultrafine Grain Structure and Thermal Stability of Al-Fe Alloys Processed by Severe Plastic Deformation: Amandine Duchaussoy1; Xavier Sauviage1; Kaveh Edalati1; Zenji Horita1; Gilles Renou1; Alexis Deschamps2; Frédéric De Geuser3; 'Normandy University; 'WPI, International Institute for Carbon-Neutral Energy Research; 'Univ. Grenoble Alpes, SIMAP

2:20 PM
Grain Boundary Structure and Diffusivity of Severely Strained Metals and Alloys: Gerhard Wilde1; 'University of Muenster

2:40 PM
Insights into Deformation Induced Grain Boundary Migration in Ultrafine-grained Metals: Oliver Renk1; Pradipta Ghosh1; Reinhard Pippan1; 'Erich Schmid Institute of Materials Science

3:00 PM
A High Resolution X-ray Diffraction Line Profile Analysis of Mg-Ce and Mg-Al Alloys after HPT Processing: Hiba Azzeddine1; Yousf Islem Bourezg2; Zdenek Matej1; Yi Huang3; Djamel Boudia4; Terence G. Langdon1; 'University of M'sila; 'USTHB; 'Max IV Laboratory; 'University of Southampton

3:20 PM Break

3:40 PM
Interface Phenomena in SPD-processed Nanomaterials: Ruslan Valiev1; Maxim Murashkin2; Dmitry Gundev2; 'Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; 'Ufa State Aviation Technical University

4:00 PM
Outstanding Mechanical Properties of High-Pressure Torsion Processed Multiscale Clad Layer of Twinning Induced Plasticity Steel and Interstitial Free Steel: Hyoung Seop Kim1; 'POSTECH

4:20 PM
Bulk Nano Lamellar Materials by Severe Plastic Deformation: Fan Liu1; Sunkulp Goel1; Yue Wang1; Ya Ming Zhu1; Hao Yuan3; Jing Tao Wang1; 'Nanjing University of Science and Technology

4:40 PM
Thermal Stability of Defect Structure and Phase Composition in Ultrafine-grained 316L Stainless Steel Processed by High-pressure Torsion: Moustafa El-Tahawy1; Jeno Gubicza1; Yi Huang2; Hyelim Choi2; Heeman Cho1; János Lábár3; Terence Langdon1; 'Eötvös Loránd University; 'University of Southampton; 'Kookmin University; 'Centre for Energy Research, Hungarian Academy of Sciences

5:00 PM
Mechanical Properties of Laminated Titanium-Aluminum-Composites Processed by Accumulative Roll Bonding: Christopher Schack1; Heinz Werner Höppel1; Mathias Göken1; 'Friedrich-Alexander Universität Erlangen-Nürnberg

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Student Session

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Thursday PM
March 2, 2017
Room: Balboa
Location: Marriott Marquis Hotel

Session Chairs: Jose-Maria Cabrera, Universidad Politecnica de Catalunya; Yi Huang, University of Southampton

2:00 PM
Microstructural Changes and Mechanical Behavior of AA6061 Al Alloy Severely Deformed at Cryogenic Temperatures: Danielle Magalhães1; Andrea Kliauga1; Vitor Sordi1; Maurizio Ferrante1; 'Federal University of São Carlos

2:20 PM
Examining the Microhardness Evolution and Thermal Stability of an Al-Mg-Sc Alloy Processed by High-pressure Torsion at a High Temperature: Pedro Henrique Pereira1; Yi Huang1; Terence Langdon1; 'Materials Research Group, Faculty of Engineering and the Environment, University of Southampton
2:00 PM Invited
Atomic Theory of Spinodal Decomposition: Maylise Nastar1; ‘CEA

2:30 PM
Spinodal Decomposition and Ordering Transformation in U6Nb Alloy: Luke Heiung1; ‘Lawrence Livermore National Laboratory

2:50 PM
Atom Probe Characterization of Phase Separation during Age Hardening of a U-6wt.%Nb Alloy: Clarissa Yablinsky1; Seth Imhoff1; Yaqiao Wu1; Amy Clarke3; Robert Hackenberg1; ’Los Alamos National Laboratory; ’Center for Advanced Energy Studies / Boise State; ’Colorado School of Mines

3:10 PM
Understanding the Decomposition Process of Immiscible Fe-Cu-Ag Alloy: B. Hornbuckle1; Anthony Roberts1; Tom Luckenbaugh1; Kris Darling1; ’U.S. Army Research Laboratory

3:30 PM Break

3:50 PM Invited
Hydride Precipitates in Zirconium Alloys: Evolution of Dissolution and Precipitation Temperatures during Thermal Cycling Correlated to Microstructure Features: Egle Conforto1; Stephane Cohendoz1; Patrick Girault1; Cyril Berziou1; Xavier Feaugas1; ’University of La Rochelle

4:20 PM
Effect of Metalloid Addition on Anomalous Primary Crystallization of Al-RE Metallic Glasses: Mustafacan Kutsal1; Bureau Cam1; Eren Kalay1; ’METU

4:40 PM
Formation of Complex Intermetallic Phases from Supersaturated Co Solid Solution in a Co-3.9Nb Alloy: Yoshiaki Horiuchi1; Frank Stein1; Kohei Abe1; Shunsuke Taniguchi1; ’Hokkaido University of Science; ’Max-Planck-Institut für Eisenforschung GmbH; ’Nippon Steel & Sumitomo Metal Corporation

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**Solid State Precipitation — Session III**

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee

**Program Organizers:** Seth Imhoff, Los Alamos National Laboratory; Robert Hackenberg, Los Alamos National Laboratory; Gregory Thompson, University of Alabama

Thursday PM
Room: 25A
Location: San Diego Convention Ctr

**Session Chair:** Seth Imhoff, Los Alamos National Laboratory

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**Solid State Precipitation — Session III**

2:40 PM
Defect Structure and Hardness in Ultrafine-grained Ni-Mo Alloys Processed by High Pressure Torsion: Jie-Kyang Han2; Han-Joo Lee3; Daekuen Han1; Byungmin Ahn3; Megumi Kawasaki1; Terence Langdon2; ‘Hanyang University; ’University of Science and Technology Beijing; ’Korea Institute of Science and Technology; ’Indian Institute of Science; ’University of Southern California

3:20 PM
Fatigue Behavior of Friction Stir Processed Ultrafine Grained 5024 Al Alloy: Shivakant Shukla1; Mageshwari Komarasamy1; Rajiv Mishra1; ’University of North Texas

4:00 PM
Wear Properties of Various Bulk Hybrid Materials Processed by High Pressure Torsion: Jie-Kyang Han2; Han-Joo Lee3; Daekuen Han1; Byungmin Ahn3; Megumi Kawasaki1; Terence Langdon2; ’Hanyang University; ’Indian Institute of Technology Madras

4:40 PM
Fatigue Behavior of Friction Stir Processed Ultrafine Grained 5024 Al Alloy: Shivakant Shukla1; Mageshwari Komarasamy1; Rajiv Mishra1; ’University of North Texas

5:00 PM
Shock Compression Behavior of Ti-Based Monolithic Bulk Metallic Glass and its Composite: Rene Diaz1; Manny Gonzales1; Greg Kennedy1; David Scripka1; Ali Khosravani1; Surya Kalidindi1; Douglas Hofmann1; Naresh Thadthani1; ’Georgia Institute of Technology; ’NASA Jet Propulsion Laboratory

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**Solar Cell Silicon — Silicon Photovoltaics**

**Sponsored by:** TMS Extraction and Processing Division, TMS: Recycling and Environmental Technologies Committee, TMS: Energy Committee

**Program Organizers:** Shadia Ikhaymayies, Al Isra University; Neale Neelameggham, Ind LLC

Thursday PM
Room: 19
Location: San Diego Convention Ctr

**Session Chair:** York Smith, University of Utah

2:00 PM
Electrodynamic Eddy Current Separation of End-of-Life PV Materials: York Smith1; James Nagel1; Raj Rajamani1; ’University of Utah

2:20 PM
Investigation on Quartz Crucibles for Monocrystalline Silicon Ingots for Solar Cells: Marisa Di Sabatino1; John Bones2; ’NTNU; ’SINTEF, Norway

2:40 PM
Influence of Oxygen Content on the Wettability of Silicon on Graphite: Zineb Benouahmane1; Lifeng Zhang1; Yaqiong Li1; ’University of Science and Technology Beijing

3:00 PM
Particle Separation in Silicon Ingot Casting Using AC Magnetic Field: Valdis Bogarevics1; Georgi Djambazov1; Koulis Pericleous1; ’University of Greenwich

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**Solid State Precipitation — Session III**

2:00 PM Invited
Atomic Theory of Spinodal Decomposition: Maylise Nastar1; ‘CEA

2:30 PM
Spinodal Decomposition and Ordering Transformation in U6Nb Alloy: Luke Heiung1; ‘Lawrence Livermore National Laboratory

2:50 PM
Atom Probe Characterization of Phase Separation during Age Hardening of a U-6wt.%Nb Alloy: Clarissa Yablinsky1; Seth Imhoff1; Yaqiao Wu1; Amy Clarke3; Robert Hackenberg1; ’Los Alamos National Laboratory; ’Center for Advanced Energy Studies / Boise State; ’Colorado School of Mines

3:10 PM
Understanding the Decomposition Process of Immiscible Fe-Cu-Ag Alloy: B. Hornbuckle1; Anthony Roberts1; Tom Luckenbaugh1; Kris Darling1; ’U.S. Army Research Laboratory

3:30 PM Break

3:50 PM Invited
Hydride Precipitates in Zirconium Alloys: Evolution of Dissolution and Precipitation Temperatures during Thermal Cycling Correlated to Microstructure Features: Egle Conforto1; Stephane Cohendoz1; Patrick Girault1; Cyril Berziou1; Xavier Feaugas1; ’University of La Rochelle

4:20 PM
Effect of Metalloid Addition on Anomalous Primary Crystallization of Al-RE Metallic Glasses: Mustafacan Kutsal1; Bureau Cam1; Eren Kalay1; ’METU

4:40 PM
Formation of Complex Intermetallic Phases from Supersaturated Co Solid Solution in a Co-3.9Nb Alloy: Yoshiaki Horiuchi1; Frank Stein1; Kohei Abe1; Shunsuke Taniguchi1; ’Hokkaido University of Science; ’Max-Planck-Institut für Eisenforschung GmbH; ’Nippon Steel & Sumitomo Metal Corporation
2017 Technical Division Student Poster Competition — Extraction and Processing Division (EPD) Graduate Students
Monday PM  Room: Hall B1  February 27, 2017  Location: San Diego Convention Ctr

SPG-1: Additive Manufacturing of Clay Modified with Electric Arc Furnace Steel Dust (EAF Dust): Edisson Ordóñez; Henry Colorado; 1Universidad de Antioquia

SPG-2: Application of Zr and Ti as Anode Material in Metal-Air Batteries at Elevated Temperatures: Seyed Amirhossein Saiedi; Emilio Ramirez; Daniel Mummi; 1University of California at Irvine

SPG-3: Beneficiation of Ancylite: Hao Cui; Corby Anderson; 1Colorado School of Mines

SPG-4: Investigation Phase Transformation Route in Mn-Al Alloys: Özgün Acar; Ayse Genc; Yunus Kalay; Iklay Kalay; 1Middle East Technical University; 2Cankaya University

SPG-5: On the Microstructure of Magnesium Alloy AZ91/SiC Matrix Composites: Seyyedeh Nooshin Mortazavi; 1Chalmers University of Technology

SPG-6: SiMn Reduction with Comilog Ore: Trine Larsen; 1Norwegian University of Science and Technology

SPG-7: Single Phase Cementite Synthesizes by Mechanical Alloying: Ahmed Al-Joubori; C. Suryanarayana; 1University of Central Florida

SPG-9: Trace Elements Analysis of Ultrahigh-purity Gallium by Direct and Indirect Method: Kyungjean Min; David Johnson; Kevin Trumble; 1Purdue University

2017 Technical Division Student Poster Competition — Extraction and Processing Division (EPD) Undergraduate Students
Monday PM  Room: Hall B1  February 27, 2017  Location: San Diego Convention Ctr

SPU-1: Silicon Carbide (SiC) Adsorption and Carburization onto an Activated Carbon Matrix: Alaina Malland; 1Montana Tech of the University of Montana

SPU-2: Synthesis of Silicates on the Micro-scale: Alec Affolter; 1University of Tennessee

2017 Technical Division Student Poster Competition — Functional Materials Division (FMD) Graduate Students
Monday PM  Room: Hall B1  February 27, 2017  Location: San Diego Convention Ctr

SPG-13: Interfacial Reactions in Co/In/Cu Joints by Transient Liquid Phase Bonding in Thermoelectric Modules: Tsu-Ching Yang; Sinn-Wen Chen; 1National Tsing Hua University

SPG-14: Interfacial Reactions in Transient Liquid Phase Bonding of Cu/Ga/NI and Cu/Ga/Co: Jin-min Lii; Sinn-wen Chen; 1National Tsing Hua University

SPG-15: The Role of Morphology in the Supercapacitance of Rare Earth Oxides: Aaditya Jayarajan; Tamil Selvan Sakhthivel; Sudipta Seal; 1University of Central Florida

SPG-16: The Thermal Stability of Copper Nanotwinned Thin Film with Different Interlayers: Le-Hong Chang; Hsin-Yuan Chen; Fan-Yi Ouyang; 1National Tsing Hua University

SPG-17: Wettability-based Mitigation of Scale Formation: Leonid Rapoport; Susmita Dash; Kripa Varanasi; 1MIT

SPG-18: Why and How the Electromigration Effect Occurs?: Yi-cheng Liu; Shih-kang Lin; Shang-Jui Chiu; Yen-Ting Liu; Hsin-Yi Lee; 1National Cheng Kung University; 2National Synchrotron Radiation Research Center

2017 Technical Division Student Poster Competition — Functional Materials Division (FMD) Undergraduate Students
Monday PM  Room: Hall B1  February 27, 2017  Location: San Diego Convention Ctr

SPU-3: Development of High Gain and Self-Deployable CubeSat Antennas Using Nickel-Titanium Shape Memory Alloys: Brittani Maskley; Hunter Henderson; Harry Shaw; Michele Manuel; 1University of Florida; 2NASA

SPU-4: Discovery of NewTERNary Compounds and Scintillators of the A4B6X6 Family: Jesse Johnson; Luis Stand; Bryan Chakoumakos; Mariya Zhuravleva; Mary Koschen; Chuck Melcher; 1University of Tennessee-Knoxville; 2Department of Energy-Oak Ridge National Lab

SPU-5: Single Crystal Synthesis of Multiferroic Metal-organic Frameworks: Nicholas Combs; Quentin Eustace; 1University of Tennessee - Knoxville

SPU-18: Porous-Wall Hollow Glass Microspheres for Security Printing Applications: Abigail McBride; Forest Thompson; George Wicks; Grant Crawford; 1South Dakota School of Mines and Technology; 2Applied Research Center

2017 Technical Division Student Poster Competition — Light Metals Division (LMD) Graduate Students
Monday PM  Room: Hall B1  February 27, 2017  Location: San Diego Convention Ctr

SPG-19: Application of Computational Thermodynamics & Kinetics to Rare Earth Reduction in Magnesium Alloys: Kyle Fitzpatrick-Schmidt; Danielle Cote; Diran Apelian; 1Worcester Polytechnic Institute

SPG-20: Effect of Strontium and Calcium Concentration on Microstructure and in vitro Degradation Rate: David Christianson; Hunter Henderson; Alex Wilson-Heid; Michele Manuel; 1University of Florida

SPG-21: Feedstock Powder Analysis for Additive Manufacturing Applications: Caitlin Walde; Danielle Cote; Richard Sisson; Victor Champagne; 1WPI; 2US Army Research Laboratory

SPG-22: Numerical Investigation on Gas Bubble Behaviors in Aluminum Reduction Cell with Slotted Anode: Meijia Sun; Baokuan Li; Jian-ping Peng; 1Northeastern University

SPG-10: Effect of Different Aging Heat Treatments on Microstructural Evolution and Transformation Temperatures in a NiTiHfAI Shape Memory Alloy: Flavia Gallo; Hunter Henderson; Michael Kesler; Brittani Maskley; Brandon Saraydar; Michele Manuel; 1Cidade Universitaria

SPG-11: Enhancing Li+ Interfacial Charge-transfer by Highly Oxygen-deficient Lithium Titanate Oxide with Conformal Amorphous Carbon for Lithium-ion Batteries: Ralph Nicolas Nasara; Shih-kang Lin; 1National Cheng Kung University

SPG-12: Evaluation on Reliability of Ag-alloy Wire under CI-environment: Yan Wen Tsau; Jui-Nung Wang; Fan Yi Ouyang; 1National Tsing Hua University
2017 Technical Division Student Poster Competition — Light Metals Division (LMD) Undergraduate Students

Monday PM  
February 27, 2017  
Room: Hall B1  
Location: San Diego Convention Ctr

SPU-6: Fabrication of Novel Aluminum Welding Fillers Reinforced with NbB2 Nanoparticles: Lourdes Cruz1; Andres Calle1; Victoria Nadal1; 1University of Puerto Rico at Mayaguez

SPU-7: Influence of Mn on Mechanical Properties in Aluminum Alloy 6082: Aedan Callaghan1; Jasmine Majdpour1; Lucas Alexander1; Amir Farkoosh1; Mihriban Pekguleryuz1; 1Department of Materials Engineering, McGill University

SPU-8: Phase Stability of bcc MgSc Alloys via Cluster Expansion and Monte Carlo Methods: Adam Shaw1; Gregory Pomrehn1; Aurora Pilbram-Jones1; Patrick Conway1; Michael Ferry1; Kevin Laws1; Lori Bassman1; Harvey Mudd College; The Boeing Company; Lawrence Livermore National Lab; University of New South Wales

SPU-9: Thermodynamic Assessment and Microstructural Analysis of AA 6082 with Increased Addition of Manganese: Lucas Alexander1; Jasmine Majdpour1; Aedan Callaghan1; Amir Farkoosh1; Mihriban Pekguleryuz1; 1McGill University

2017 Technical Division Student Poster Competition — Materials Processing and Manufacturing Division (MPMD) Graduate Students

Monday PM  
February 27, 2017  
Room: Hall B1  
Location: San Diego Convention Ctr

SPG-25: A Study on the Development of High Efficiency Cooling Channel Fabricated by Explosive Welding Process in the High Pressure Die Casting Mold: Sang Soo Shin1; Chang Yong Choi1; 1PNU; Ohsung Tech

SPG-26: Bulk Metallic Glass Casting: Insights into Critical Cooling Using High-speed IR Monitoring and Fast DSC: Fabian Haag1; Güven Kurtuldu1; Jörg Löfler1; 1ETH Zurich

SPG-27: Design of New Ni-Based Superalloys for Electron Beam Additive Manufacturing Process: Curtis Frederick1; Ryan Dehoff1; Michael Kirk1; Edwin Schwabach1; Michael Haines1; Austin Staub1; Suresh Babu1; 1University of Tennessee, Knoxville; 1Oak Ridge National Laboratory; 1Air Force Research Laboratory

SPG-28: Dynamic Transformation of Austenite to Ferrite during Rolling above the Ae3 Temperature: Samuel Rodrigues1; Claudaldo Aranas Jr1; John Jonas1; 1McGill University

SPG-29: Effect of Beam Oscillation on Electron Beam Welding of Ti-6Al-4V Alloy: Jyotirmaya Kar1; Sanat Kumar Roy2; Gour Gopal Roy2; 1IIT Kharagpur

SPG-30: Ex-situ and In-situ TEM Investigation of Texture Dependent Strain Rate Sensitivity of Bauschinger Effect in Ultrafine-grained Al Films: Ehsan Isfahani1; Jagannathan Rajagopalan1; 1Arizona State University

SPG-31: Grain Size Effect on the Deformation of Nanograined Metallic Multilayers: Sixie Huang1; Caizhi Zhou1; 1Missouri University of Science and Technology

SPG-32: In-situ Observation of Diffusion Behavior and Microstructural Evolution on Interfaces in Au/Cu Bimetal: Fei Cao1; Fenfen Yang1; Huijun Kang1; Zongning Chen1; Tiziao Xiao1; Tongmin Wang1; 1Dalian University of Technology; 1Dalian University of Technology; 1Shanghai Institute of Applied Physics, Chinese Academy of Sciences

SPG-33: Iron’s Role in the Refinement of Aluminum-silicon by Trace Amounts of Strontium: Tara Power1; Sumanth Shankar1; Jeffrey Hoyt1; 1McMaster University

SPG-34: Mechanical and Microstructural Evaluation of Ultra High Speed FSW of Aluminum Alloys: Jyoggi Zhang1; Piyush Upadhyay2; Yuri Hovanski1; David Field1; 1Washington State University; 1Pacific Northwest National Laboratory; 1Bradley University

SPG-35: Non Equilibrium Thermodynamics of Quench and Partition Steels: Amit Behera1; 1Northwestern University

SPG-36: Preparation of TiB2 by Mechanochemical Reaction between Al, B2O3 and TiO2: Petra Hanusova1; Brno University of Technology, Faculty of Mechanical Engineering

SPG-37: Seed Layer Mediated Crystalization of Amorphous Structural Thin Films to Yield Gradient Microstructures: Rohit Sarkar1; Jagannathan Rajagopalan1; 1Arizona State University

SPG-38: The Effects of Transition Metal Element Addition on the Temporal Evolution and Microstructural Characteristics of Nickel-based Superalloys: Rasin Eriş1; M. Vedat Akdeniz2; Amudulla O. Mekhirabov1; 1Middle East Technical University

2017 Technical Division Student Poster Competition — Materials Processing and Manufacturing Division (MPMD) Undergraduate Students

Monday PM  
February 27, 2017  
Room: Hall B1  
Location: San Diego Convention Ctr

SPU-10: A Cellular Bioactivity of Sol-Gel Derived Borate Glass-Polyacrylamide Electrospun Scaffolds: William Lepry1; Sophia Smith1; Liliana Liverani1; Aldo Boccaccini1; Showan Nazhat1; 1McGill University; 1University of Erlangen-Nuremberg

SPU-11: Development of Bimodal Ferrite Grain Distribution to Enhance the Ductility of Dual Phase 600 (DP 600) Steel: Jisha Krishnan1; Monideepa Mukherjee1; Anish Karmakar1; Shiv Brat Singh1; 1Indian Institute of Technology Kharagpur; 1Tata Steel

SPU-12: Use of Carbon Fiber Laminates for the Manufacture of Leg Prosthetics: Javier Pascasio Chávez1; Benjamin González Vizcarra1; Miriam Siqueiros Hernández1; Universidad Autónoma de Baja California

2017 Technical Division Student Poster Competition — Structural Materials Division (SMD) Graduate Students

Monday PM  
February 27, 2017  
Room: Hall B1  
Location: San Diego Convention Ctr

SPG-39: A Novel Approach for Forming Ductile and Strong Cu-to-Cu Interconnection Using Ga-based Pastes: Che-yeu Yeh1; Shih-kang Lin1; 1National Cheng Kung University

SPG-40: A Preliminary Study on the High Energy Ball Milling and Spark Plasma Sintering of Fe-9Cr Alloy: Arnab Kundu1; 1University of Idaho

SPG-41: Corrosion Behavior of Alloy 800H in Supercritical CO2: Lucas Teeter1; Benjamin Adam1; Jacob Mahaffey1; Mark Anderson1; Julie Tucker1; 1Oregon State University; 1University of Wisconsin Madison
SPG-42: Evaluation of Interfacial Layer of Friction Stir Welded Joint of AA6022-T4 and DP600 Sheets: Tianhao Wang; Harpeet Sidhar; Rajiv Mishra; Piyush Upadhyay; Yuri Hovanski; Glenn Grant; Blair Carlson; 1University of North Texas; 2Pacific Northwest National Lab; 3General Motors

SPG-43: Evaluation on Oxidation Behavior of Nanocrystalline CrN Deposited Zr-4 Alloys at High Temperature: Cheng-Wei Shou; Fan-Yi Ouyang; Kai-Ping Chang; 1National Tsing Hua University

SPG-44: Formation of Large-sized and Ductile CuZr-based Bulk Metallic Glass Composite: Wenli Song; Yuan Wu; Jie Zhou; Di Cao; Fei Zhang; Qing Du; Hui Wang; Xiongjun Liu; Zhaoping Lu; 1University of Science and Technology Beijing

SPG-45: Frequency, Hold Time and Overload Effects on Crack Growth Rates in Al 6071 at 800°C in Air: Dylan Addison; Jamie Kruzie; 1Oregon State University; 2University of New South Wales

SPG-46: High Strain Rate Deformation and Work Hardening in Ti-1Al-4V Alloy: Zachary Kloenne; Gopal Viswanathan; Matthew Thomas; Michael Lorreto; Hamish Fraser; 1Center for Accelerated Maturated of Materials; 2TIMET; 3University of Birmingham

SPG-47: Medium-Range Correlations and Its Impact on Properties in Al-RE Marginal Glass Forming Alloys: Mustafacan Katsal; Eren Kalay; 1Middle East Technical University

SPG-48: Non-destructive 3D Characterization of the Microstructural Evolution of Additively Manufactured Materials: Tayye Ozturk; David Menasche; Robert Suter; Anthony Rollett; 1Carnegie Mellon University; 2Hamiltonian Group LLC

SPG-49: Optimization of the Diffusion Bonding Process for Al 6063 Alloy: Sila Atabay; Gopinath Dericoglu; 1Middle East Technical University

SPG-50: Nanocrystallization in Cu-Zr-Al-Sm Metallic Glasses: Fatih Sikan; Ilkay Kalay; Yunus Eren Kalay; 1Middle East Technical University; 2Cankaya University

SPG-51: The Activity of Pyramidal Slip Systems in a Mg-3Al-1Zn Alloy during High Cycle Fatigue: Li Tuo; Xiyian Zhang; Guangjie Huang; Qing Liu; 1Chongqing University

SPG-52: The Effect of Plasma Mark on Steel Structural Integrity: Sujeelty Soto; Jeffrey Rossin; Michael Kesler; Edward George; Steve Duke; Michele Manuel; 1University of Florida; 2E&S Consulting, Inc; 3Florida Department of Transportation

SPG-53: TRIP Titanium Alloy Design: Fan Meng; Jia-Yi Yan; Wei Xiong; Gregory Olson; 1Northwestern University; 2KTH Royal Institute of Technology; 3University of Pittsburgh

2017 Technical Division Young Professional Poster Competition — Functional Materials Division (FMD)

Monday PM Room: Hall B1 Location: San Diego Convention Ctr

YP-1: Influence of Dissolved Oxygen Content on the Oxidation Behavior of Ni-based Alloys in High Temperature Water Vapor: Yang Zhen; 1Xi an Thermal Power Research Institute


2017 Technical Division Young Professional Poster Competition — Light Metals Division (LMD)

Monday PM February 27, 2017 Room: Hall B1 Location: San Diego Convention Ctr

YP-3: Effect of Hot Extrusion on Mechanical and Corrosion Properties of a MgCaSr Alloy: Hunter Henderson; Alex Wilson-Heid; Michele Manuel; 1University of Florida

YP-4: Increased Shear Deformation through Friction Stir Back Extrusion of Mg AZ31B: Textural Evolution and Its Relationship to Mechanical Properties: Justin Milner; Fadi Abu-Farha; 1NIST; 2Clemson University

2017 Technical Division Young Professional Poster Competition — Materials Processing and Manufacturing Division (MPMD)

Monday PM February 27, 2017 Room: Hall B1 Location: San Diego Convention Ctr

YP-5: A Study of Brittle Fracture Mechanism of Non-quenched and Tempered N80 Tubing Used in Gas and Oil Well: Caihong Lu; Chun Feng; 1Tubular Goods Research Institute of China National Petroleum Corporation

YP-6: Commercial-ready Large Scale Manufacturing of Light-weight Aluminum Metal Matrix Composite: Yizheng Zhang; Mark Sommer; Marco Curreli; Andrew Parker; Miguel Verduzzo; William Harrigan; Alfred Sommer; 1Gamma Alloys

YP-7: Octo-Strain: A Novel Multiaxial Loading Device for In-situ Stress Measurements through Neutron Diffraction: Justin Milner; Thomas Gnäupel-Herold; 1NIST

YP-8: The Materials Science behind Ice Cream Making: Dana Zöllner; 1TU Dresden

2017 Technical Division Student Poster Competition — Structural Materials Division (SMD) Undergraduate Students

Monday PM February 27, 2017 Room: Hall B1 Location: San Diego Convention Ctr

SPU-13: Austenite Stability Dependence of the Mechanical Properties in medium-Mn Steels: Neil Krich; Binhan Sun; Stephen Yue; 1McGill University

SPU-15: Lifetime Prediction of FeCrAl Alloys through Statistical Modeling and High-Temperature Cycling Testing: Christina Cox; Sebastien Dryepondt; Josh Turan; 1Oak Ridge National Laboratory

SPU-16: Optimizing Electron Tomography of Bone and Bone-implant Specimens: Madeline Perrin; Xiaoyue Wang; Kathryn Grandfield; 1McMaster University and McGill University; 2McMaster University
E-8: Melting Separation Slag and Metal Phases of High Grade of Vanadium-bearing Titanomagnetite Metallized Pellets: Chao Lv1; Kun Yang2; Shaojun Bai2; Shuming Wen2; 1 Kunming University of Science and Technology; 2 Kunming University of Science and Technology

E-12: Study on Vanadium-titanium Gas-based Direct Reduction-grinding and Separation Process: Jingkun Tang1; 1 Beijing Shenwu Environment & Energy Technology Co., Ltd.

E-13: Effect of Silicon on Removal of Phosphorus from High Phosphorus Si-Mn Alloy by CaO-Based Slag: Zhiqiang Zhou1; Zicong Zhu2; Yuchuan Ding1; Shengnan Zhou1; 1 Chongqing University

E-16: Cleanliness Control Technology of Cold Rolled Steel Sheets: Haibo Li1; Peng Yuan1; Bin Chen1; Xinhua Wang2; Guosun Zhu2; 1 Shougang Research Institute of Technology; 2 University of Science and Technology Beijing; 3 Shougang Jingtang Iron and Steel Co., Ltd.

E-18: Thermodynamics Study on Phosphorus Distribution between 2CaO·SiO2·3CaO·P2O5 Solid Solution and Liquid Slag: Chao Jiang1; Ming-Mei Zhu1; Rui-Rui Zhao1; Zhang-Guang Gao2; 1 Chongqing University

E-19: Effect of Super Gravity on the Solidification Structure and C Segregation of High Carbon Steel: Yuhong Yang1; Bo Song1; Gaoyong Song1; Zeyun Cai1; 1 University of Science and Technology Beijing

E-20: Burden Composition and Structure Optimization in Blast Furnace Operation Based on Multi-objective Programming: Baowang Wang1; 1 North China University of Science and Technology

E-17: Behaviour of Silicon in Nickel Laterite by Carbothermal Reduction in Vacuum: Lei Shi1; Tao Qu1; Dachun Liu1; Yang Tian1; Bin Yang1; Yongnian Dai1; Jian Wu1; 1 Kunming University of Science and Technology

E-26: Effect of CaO Addition on the Behavior of Vanadium and Phosphorus during Oxidation and Leaching Process: Zhang Tao1; Zhou Wang2; Li Dong-Wei1; Diao Jiang1; 1 Chongqing University of Education; 2 Chongqing University

8th International Symposium on High Temperature Metallurgical Processing — Poster Session II
Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee
Program Organizers: Jian-Hong Huang, University of Science and Technology Beijing; Proval Partners SA; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinlikilic, Altlam University
Monday PM Room: Hall B1 Location: San Diego Convention Ctr
Session Chair: Weifeng Liu, Central South University

E-27: Investigation on the Phase Transformation of Vanadium Slag during the Direct Reduction Process: Wen-Feng Tan1; Bing Xie1; Pan Gu1; Hong-Yi Li1; Jianqiao Wang1; 1 Chongqing University

E-28: Effect of Al2O3 Content on the Crystallization Behavior of Blast Furnace Slag Using Single Hot Thermocouple Technique: Qin Yi1; Pan Gu1; Yang Yinhua1; Zhang Qianying1; Deng Nengyun1; 1 Chongqing University Of Science and Technology

E-29: Investigation of the Carbothermal Reduction of Chromium-containing Vanadium Extraction Residue: Pan Gu1; Jianqiao Wang1; Wen-Feng Tan1; Bing Xie1; Wang Zhou1; Zhen Zhan1; 1 Chongqing University

E-31: Experimental Study on the Electrical Conductivity of CaO-SiO2-Al2O3-CaF2-Na2O-MgO Slag System: Li Zhao1; Yu Wang1; Shu-chao Wang1; 1 Chongqing University
E-32: Decarburization of Spent Petrochemical Catalysts via Microwave Oxidation Roasting: Bingguo Liu; Peng Liu; Libo Zhang; Haigang Dong; Jinhui Peng; 1Kunning University of Science and Technology; 2State Key Laboratory of Advanced Technology for Comprehensive Utilization of Platinum Metals

E-33: Removal of Methylened Blue by Copper Ion-modified Eupatorium Adenophorum-based Activated Carbon: Kinetic, Thermodynamics, Isotherm Investigation: Li Chunyang; Zhang Libo; Xia Hongying; Cheng Song; Shu Jianhua; 1Kunning University of Science and Technology Science

E-34: Effects of Blowing Conditions on the Dispersion States of Materials Charged into Bottom Blown Oxygen Smelting Furnace: Dongxing Wang; Yan Liu; Zhang Ting’an; Xiaolong Li; 1Northeastern University

E-35: Characteristic of Subsurface Hooks in Slabs And Behavior of Inclusions Entrapment at High Speed Continuous Casting: Peng Yuan; Harbo Li; Chenxi Ji; Bin Chen; 1Shougang Research Institute of Technology

E-36: Assessment of Crystallization Kinetic Study of Phosphate–enriched on Wasted Low Grade Phosphorus-containing Iron Ore: Jinyan Li; Zang Mei; 1Guo Min; 1University of Science and Technology Beijing

E-37: Research on the Flow Behavior of Molten Slag through Por: Yingli Liu; Qiangguo Xue; Jingsong Wang; Guang Wang; 1University of Science and Technology Beijing

E-38: Removal of Cd(II) Ion from Aqueous Solution by Adsorption on Wasted Low Grade Phosphorus-containing Iron Ore: Xiaoli Yuan; Wentang Xiai; Juan An; Xiaoyan Xiang; Yuejiao Zhou; Jianguo Yan; Wenzheng Yang; 1Chongqing University of Science and Technology

E-39: One-step Extraction of Lead from Spent Lead-acid Battery Paste via Rедuctive Sulfur-fixing Smelting:Thermodynamic Analysis: Yun Li; Chaobo Tang; Yongming Chen; Shenghai Yang; Lulu Guo; Jing He; Motang Tang; 1Central South University

E-40: Influence of Hot Charge on Blast Furnace Performance for Iron Making: Huiqing Tang; 1University of Science and Technology Beijing

E-41: Molecular Dynamics Study of the Structural Properties with Varying B2O3/SiO2 Ratios in the System CaO-SiO2-B2O3: Xiao-Ping Liang; Wei-Tong Du; Yu Wang; 1Chongqing University; 2Chongqing University

E-42: Influence of Converter Slag on Decomposition Behavior of Limestone during BOF Steelmaking Process: Hua Lu; Wen-Wen Mao; Chen-Xiao Li; Hong Li; 1University of Science and Technology Beijing

E-43: Study on the Effect of Liquid Core Reduction on Mechanical Properties of 50Mn2V Hot-rolled Strip: Min-feng Ye; Guang-liang Wu; Jian-hua Ren; 1Central South University

E-44: Comparison of the Ringing Characteristics between Acid and Alkaline Iron Ore Pellets Powder in Kiln: Ping-Bin Yang; Xin Min; Qian Li; Bin Xu; Tao Jiang; Xiao-liang Liu; Yan Zhang; 1Central South University

E-45: Ab-initio Molecular Dynamics Simulation of High Temperature Sulfur Evaporating Behavior in Vacuum: Fongsong Liu; Yuezen Zhou; Douchun Liu; Xiaomin Chen; Chongfang Yang; Wei Li; 1Kunning University of Science and Technology

E-46: Precipitation of Arsenic as Scordrite both at Atmospheric and Hydrothermal Conditions: Zhonglin Ye; 1Yunnan Copper Smelting & Processing Complex

E-47: An Energy Consumption Theory for Coke Degradation in Blast Furnace: Qihang Liu; 1Xi’an University of Architecture and Technology


E-49: Microwave Assisted Regeneration of Spent Activated Carbon from Paracetamol Wastewater Plant Using Steam: Song Cheng; 1Kunning University of Science and Technology

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Poster Session
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: High Temperature Alloys Committee, TMS: Shaping and Forming Committee, TMS: Additive Manufacturing Bridge Committee Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Semiatin, AFRFL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poorangji, YTC America Inc.

Monday PM
February 27, 2017
Room: Hall B1
Location: San Diego Convention Ctr

A-1: A Study of Multiple Interfaces in Stainless Steel 316L Components Fabricated by Laser Powder Injection Deposition: Baolong Zheng; Nancy Yang; Joshua Yee; Thale Smith; James Haley; Yizhang Zhou; Enrique LaVerinia; Julie Schoonung; 1University of California Irvine; 2Sandia National Laboratories; 3University of California Davis

A-2: Additive Manufacturing of Ti6Al4V with GMAW: Correlation between Processing and Homogeneous Microstructural Properties: Philipp Henckell; 1Technische Universität Ilmenau

A-4: Aiming for Modeling-assisted Tailored Designs for Additive Manufacturing: Dayalan Gunasegaran; Anthony Murphy; Sharen Cummins; Vincent Lemiaille; Gary Delaney; Vu Nguyen; Yuqing Feng; Daniel East; 1CSIRO

A-5: Alloy Design for Additive Manufacturing: Preliminary Results for Al-Ce Alloys: Alex Plotkowski; Niyanth Sridharan; Zachary Sims; Ryan Ort; Ryan Dehoff; Sudarsanam Babu; Orlando Rios; 1University of Tennessee - Knoxville; 2Oak Ridge National Laboratory; 3Ams National Laboratory

A-6: Bonding Features and Microstructural Evolution in Cold Sprayed Metallic Coatings and Bulks: A New Materials Perspective: Yu Zou; Eric Irissou; Jean-Gabriel Legoux; Stephen Yue; 1Massachusetts Institute of Technology; 2National Research Council Canada (NRC); 3McGill University

A-7: Build Theme Modifications to Investigate Microstructural Development in Additively Manufactured 17-4PH Stainless Steel Parts: Yu Su; Mark Awodow; Rainer Hebert; 1University of Connecticut

A-8: Characterization of Carbide Precipitates in Nickel-Base Superalloy MAR-M247 Fabricated through Scanning Laser Epitaxy: Amrita Basak; Suman Das; 1Georgia Institute of Technology

A-9: Characterization of Dissimilar Joint between Inconel 718 and Alloy Steel by Laser Engineered Net Shaping: Hoyoul Kim; Zhichao Liu; Yingge Zhou; Weilong Cong; Hong-Chao Zhang; 1Texas Tech University

A-10: Cold Gas Dynamic Spray Deposition for Additive Repair of AA7075 and AA2024 Structures: Luke Brewer; William Story; Sieglind Ngai; Florian Vogel; Benjamin White; James Jordon; Gregory Thompson; 1University of Alabama

A-11: Additive Manufacturing of High Performance NdFeB Bonded Permanent Magnets: M. Parans Paranthaman; Ling Li; Orlando Rios; Brian Post; Vlastimil Kunc; Caietan Nlebedim; 1Oak Ridge National Laboratory; 2Ams Laboratory

A-12: Development of Diffusion Mobility Descriptions for Additive Manufactured Ti-6Al+4V: Greta Lindwall; Kil-Won Moon; Yaakov Idell; Maureen Williams; Fan Zhang; Andrew Allen; Nikolas Hrabe; Lyle Levine; Corey Campbell; 1National Institute of Standards and Technology

A-15: Direct Metal Writing: Controlling the Rheology through Microstructure: Wen Chen; Luke Thorndale; Hannah Coe; Eric Duoss; Andrew Pascal; Joshua Kuntz; Christopher Spadaccini; Lawrence Livermore National Laboratory
A-16: Effect of Build Orientation on the Microstructure and Mechanical Properties of Select Laser Melted Ti-6Al-4V Alloys: Patrick Hartman; Mohsen Eshraghi; California State University, Los Angeles

A-18: Effect of Microstructure on the High-temperature Oxidation Behavior of Inconel 718 Manufactured via Electron Beam Melting: Alfred Okello; Michael Kirka; Ryan Dehoff; Oak Ridge National Laboratory

A-19: Effect of Print Parameters on Microstructure of EBM Printed Ti-6Al-4V: Colleen Hillia; Sean Yoder; Peeyush Nandwana; Ryan Dehoff; Kinga Unocic; University of Pittsburgh; Oak Ridge National Laboratory

A-20: Effects of Recycled Powder on Build Integrity in Metal Based Additive Manufacturing: Katherine Wellmon; Nancy Yang; Julie Schoening; University of California, Irvine; Sandia National Laboratories

A-21: Electron Microscopy Study of Non-metallic Inclusions in Additively Manufactured 17-4PH Stainless Steel Parts: Yu Sun; Mark Aindow; Rainer Hebert; University of Connecticut

A-22: Fatigue and Fracture in Additive Manufacturing Metals: Findings from a Recent NIST/ASTM Workshop: Nikolas Hrade; Steve Daniewicz; Nima Shamsaei; Nicholas Barbosa; National Institute of Standards and Technology; Mississippi State University

A-23: Finite Element Analysis of Hybrid Additive Manufacturing to Print Location Specific Mechanical Properties by Sequential Laser Melting: Henry Geerlings; B.K. Runnels; Steve Daniewicz; University of Maryland; The University of Alabama

A-24: Grain Growth and Heat Flux Direction during Selective Laser Melting of CoCrMo Alloy: Zhan Chen; M.A.L. Phan; K. Darvish; Auckland University of Technology

A-25: High-strength, Corrosion-resistant, Weldable Aluminum Powders for Additive Manufacturing: Nhon Vo; Amirreza Sanaty-Zadeh; Davadador Bayansan; Evander Rumos; David Seidman; David Dunand; NanoAl LLC

A-27: In Operando Synchrotron X-ray Imaging of Selective Laser Melting: Chu Lun Alex Leung; Robert Atwood; Michael Towrie; Philip Withers; Peter Lee; University of Manchester; Diamond Light Source Ltd; Science Technology Facilities Council

A-28: Incorporating Complex Thermal Histories in Grain Microstructure Simulations of Additively Manufactured 316L SS: Kyle Johnson; Theron Rodgers; Joseph Bishop; Sandia National Laboratories

A-29: Laser Additive Manufacturing of Nanoparticles Reinforced Aluminum: Ting Chiang Lin; Jingzhou Zhao; Chezheng Cao; Xiaochun Li; University of California Los Angeles

A-30: Machine Learning Approaches to Optimize Additive Manufacturing Parameters for SLM of Inconel 718: Branden Kappen; Henry Geerlings; Senthilmaranu Moorthy; Andrew Petersen; Douglas Van Bossuyt; Aaron Stebner; Colorado School of Mines

A-31: Microstructure vs. Mechanical Properties for Different Al Alloys Deposited by Cold Spray Process: Reza Rokni; Steve Nult; University of Southern California

A-32: Modeling the Effects of Texture on Process-structure-property Evolution in Additively Manufactured Metals: Judith Brown; Joseph Bishop; Theron Rodgers; Sandia National Laboratories

A-33: Phase Field Modeling of Solidification Microstructure during Laser Sintering of Inconel 625: Supriyo Ghosh; Jonathan Gayer; National Institute of Standards and Technology

A-34: Physics Based Modeling of Laser Powder Bed Fusion Process Applied to Inconel 718: Ranadip Acharya; John Sharon; Alexander Starsolsky; Tahany El-Wardany; Vijay Jagdale; Gajawalli Srinivasan; William Tredway; United Technologies Research Center

A-35: Prediction of the Balling Defect by a Mesoscale Transient Model Combining Heat Transfer and Fluid Flow: Yi Li; Yousub Lee; Ji-Cheng Zhao; Wei Zhang; The Ohio State University

A-36: Progress toward Predicting Rapidly Solidified Microstructures of Metallic Alloys: John Roehling; Aurelien Perron; Jean-Luc Fattebert; Gabe Guss; Manyalibho Matthews; Patrice Turchi; Joseph McKeown; Lawrence Livermore National Laboratory

A-37: Role of Grain Orientation and Prior Beta Grain Structures on the Anisotropic Behavior of Additively Manufactured Ti-6Al-4V Components: Jay Keist; Dauda Waryoba; Todd Palmer; Applied Research Laboratory Penn State; Penn State DuBois

A-38: Strengthening of 316L Stainless Steel by the Addition of Nanoparticles: Bandar AlMangour; Dariusz Grzesiak; Jenn-Ming Yang; University of California Los Angeles; West Pomeranian University of Technology

A-39: Sub-surface Material Interactions in Laser Polishing Electron Beam Additive Manufactured Ti6Al4V Components: Yingtao Tian; Wojciech Gora; Aldara Pan Cabor; Lakshmi Parimi; Duncan Hand; Philip Prangnell; University of Manchester; Heriot-Watt University; GK Aerospace

A-40: Sulfuric Acid Corrosion to Simulate Microbial Influenced Corrosion on Stainless Steel 420: Jacob Miller; Holly Martin; Youngstown State University

A-41: Synchrotron X-ray Characterization of Powder-bed Fusion Laser Melt Traces on Solid Nickel-based Super Alloy Plates: Thien Phan; Lyle Levine; Mark Stoudt; Jarred Heigel; National Institute of Standards and Technology

A-43: Utilization of In Situ Process Monitoring for Determining Consistency in Additive Manufacturing and Flaw Detection: Jake Raplee; Suresh Babu; Michael Kirka; Ralph Dimwiddie; Ryan Dehoff; University of Tennessee Knoxville; Oak Ridge National Laboratory

Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Powder Materials Committee, TMS: Process Technology and Modeling Committee, TMS: Additive Manufacturing Bridge Committee

Program Organizers: John Carpenter, Los Alamos National Laboratory; David Bourell, University of Texas - Austin; Allison Beese, Penn State Laboratory; David Bourell, University of Texas - Austin; Allison Beese, Penn State Laboratory; David Bourell, University of Texas - Austin; Allison Beese, Penn State Laboratory; David Bourell, University of Texas - Austin; Allison Beese, Penn State Laboratory

Monday PM

February 27, 2017

Location: San Diego Convention Ctr

A-44: A Partial Solution to Modeling the Anisotropic Material Properties of Fused Deposition Modeling ABS: Part 2 of 2: Ross Fischer; Keenan Jewkes; Scott Kessler; Colorado Mesa University

A-45: A Simulation Framework for Quantifying Uncertainty in the Mechanical Performance of Additively Manufactured Parts: Kai Wing Kelvin Leung; Azadeh Keshtgar; Nagaraja Iyyer; Technical Data Analysis Inc.

A-46: Composite Powder Consolidation Using Selective Laser Melting: Input Energy/porosity Morphology/Balling Effect Relation: Hala Salem; Hanadi Salem; Moataz Attallah; The American University in Cairo; University of Birmingham

A-47: Current Process Limitations of Synthetic Rock Fabrication Using Additive Manufacturing: Kevin Hodder; John Nychka; Rick Chalaturnyk; University of Alberta

A-48: Design and Additive Manufacturing of a Scale Model Heat Exchanger for Geothermal Applications: Adrian Sabau; James Klett; Derek Byrd; Keith Carver; Frederick List III; Yarom Polsky; Oak Ridge National Laboratory
A-49: Qualification of Products Manufactured by Additive Manufacturing as per DNVGL-SE-0160: Harsharn Tathgar; Hanne Hjerpepetjon; Sastry Kandukuri; ‘DNVGL – Section of Materials Technology

A-50: Evaluation of Graphene Reinforced Aluminum Prepared by Ball Milling and Selective Laser Melting: Yachao Wang; Jing Shi; Shiqiang Lu; ‘University of Cincinnati; ‘Nanchang Hangkong University

A-51: Experimental Technique for Extracting Local Mechanical Behavior from AM Components with Spatially Varying Mechanical Properties for Correlation with FEA Modeling: Denver Seely; David Francis; ‘Mississippi State University/Center for Advanced Vehicular Systems


A-54: In Situ Neutron Diffraction Measurements on Additively Manufactured Stainless Steel: Bjorn Clausen; Donald Brown; John Carpenter; Kester Clarke; Amy Clarke; John Bernardin; Dusan Spernjak; James Thompson; ‘Los Alamos National Laboratory; ‘Colorado School of Mines

A-55: In Situ Nondestructive Evaluation for Achieving Closed Loop Feedback Control of Ultrasonic Additive Manufacturing: Venkata Karthik Nadimpalli; Li Yang; Peter Nagy; ‘University of Louisville; ‘University of Cincinnati

A-56: Microstructure-property Relations of Additively Manufactured 17-4 PH and 316L Steels: John Smageryeski; Josh Sugar; David Keicher; ‘Additive Manufacturing Materials Consultants; ‘Sandia National Laboratories


A-58: Microstructure Evolution in Additively Manufactured Ti-6Al-4V Alloys: Joseph McKeown; Rupakul Mulay; Jeffrey Florando; Mukul Kumar; ‘Lawrence Livermore National Laboratory

A-59: Microstructure, Mechanical and Electrical Properties of Pure Metallic Microstructures Fabricated Using 3D Localized Electrodeposition: Majid Minyard; ‘University of Texas at Dallas

A-60: Modeling and Testing of ‘Fundamental Primitives’ in Metal Lattices Fabricated via Electron Beam Melting (EBM): Rachel Collino; Tyler Ray; Steven Wehmeyer; Matthew Begley; ‘University of California, Santa Barbara

A-61: Nanomechanical Characterization of Functionally Graded Al-Fe MMC Processed by Additive Friction Stir Processing: Paul Allison; Oscar Rivera; Zack McClelland; Jianqiang Su; Nanci Hardwick; ‘University of Alabama; ‘US Army ERDC; ‘Aeroprobe Corporation

A-62: Numerical Investigation of Surface Morphology with Different Laser Scanning in Selective Laser Melting: Yu Che Wu; Weng Sing Hwang; Cheng Hung Sari; Yang Shan Lin; Chih Hsiang Chang; ‘National Cheng Kung University (NCKU); ‘Industrial Technology Research Institute (ITRI)

A-64: Physics-based Surrogate Model for Uncertainty Quantification of Single Track Geometry in Selective Laser Melting: Alexander Wolfen; Umberto Scipioni Bertoli; Kevin Wheeler; Dogan Timucin; Manyalbo Matthews; Saad Khairallah; Andrew Anderson; Rose McCallen; Julie Schoening; Jean-Pierre Delplanque; ‘University of California, Davis; ‘University of California, Irvine; ‘NASA Ames Research Center; ‘Lawrence Livermore National Laboratory

A-65: Plasticity and Damage Modeling Capturing Strain-rate and Stress-state Effects of Solid State AFS Additive Manufactured Aluminum Alloys: Oscar Rivera; Omar Rodriguez; J. Brian Jordan; Zackery McClelland; Jianqiang Su; Nanci Hardwick; Paul Allison; ‘The University of Alabama; ‘US Army ERDC; ‘Aeroprobe Corporation

A-66: Post-processing Effects on AM Pore Geometry: Richard Fonda; Amanda Levinson; David Rowenhorst; ‘Naval Research Laboratory

A-68: Process Parameter Optimization Strategy for Ni-based Superalloy in Electron Beam Melting Additive Manufacturing: As-built Part Quality and Microstructure: Yousub Lee; Mike Kirka; Alfredo Okello; Jake Butman; Naren Raghavan; John Turner; Ryan Dehoff; ‘Oak Ridge National Laboratory; ‘University of Tennessee

A-69: Processing-structure-property Correlation for Fused Deposition Modeling of Graphene-polyactic Acid Composites: Pranjali Nautiyal; Daniela Montero Zambrano; Benjamin Boesl; Arvind Agarwali; ‘Florida International University

A-71: Recyclability Study on a Gamma-TiAl Alloy for use in Electron Beam Melting Additive Manufacturing: Peeyush Nandwana; Ryan Dehoff; William Peter; ‘Oak Ridge National Laboratory

A-72: Relating Crack Formation to Process Parameters in MarM-247 Fabricated by Electron Beam Melting: Christopher Romanoski; Michael Kirka; ‘Vanderbilt University; ‘Oak Ridge National Laboratory

A-73: Report on a Large Collaborative Project Focused on Capturing all AM Process and Build Data for Combination with an ICME Ready Software Environment Driving towards Certification: Will Marsden; Deborah Mies; ‘Granta

A-74: Stainless 316L Powder Recyclability and Oxygen Pickup as Applicable to Selective Laser Melting (SLM): Daniel Galicki; Fred List; ‘University of Tennessee/Oak Ridge National Laboratory; ‘Oak Ridge National Laboratory

A-75: Systematic Approach to Quantifying the Anisotropic Elastic Modulus of FDM Materials: Sven Voigt; James McGuffin-Cawley; Jennifer Carter; ‘Case Western Reserve University

A-76: The Effect of Laser Energy Density on the Microstructure and Mechanical Properties of Ti-6Al-4V alloys by Selective Laser Melting: Dung Khoa Do; Peifeng Li; ‘Nanyang Technological University

A-77: The Effect of Surface Finish on Performance in Additive Manufacturing: Joy Gockel; ‘Wright State University

A-79: Understanding the Role of Process Variables on Mechanical Properties: Wes Everhart; Paul Korinko; John Bobbitt; Marissa Reigel; Michael Morgan; ‘Honeywell National Security Campus; ‘Savannah River National Laboratory

A-80: Vapor Bath Treatment of Fused Filament ABS for Fatigue Life Improvement: Taylor Tosaya; ‘Michael Maughan; ‘University of Idaho

A-82: In-Process Layer-by-layer Surface Characterization of Metals Fabricated using Laser Engineered Net Shaping (LENS): Andrew Kustas; David Keicher; Michael Brumbach; Brendan Nation; Nicolas Argibay; ‘Sandia National Laboratories
Advanced High-Strength Steels — Poster Session
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee
Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Militzer, The University of British Columbia
Monday PM
February 27, 2017
Room: Hall B1
Location: San Diego Convention Ctr

F-1: 3D Micromechanical Modeling of Dual Phase Steels Using the Representative Volume Element Method and Response Surface Methodology: Parametric Study: Tarek Belgasam1; Hussein Zbib1; Washington State University

F-2: Atom Probe Tomography Studies of Complex Oxide Formations in Oxide Dispersion Strengthened Steels: Dallin Bartow1; Monica Kapoor2; Florian Vogel1; B. Chad Hornbuckle1; Kris Darling2; Gregory Thompson2; University of Alabama; National Energy Technology Laboratory; Army Research Laboratory; Army Research Laboratory

F-3: Carbide Banding Formation and Prevention in 52100 Bearing Steels: Ersoy Erisir1; Ozgu Bilir1; Ahmet Gencizoglu1; Kocaeli University

F-4: Cold Deformation Behaviour of Ultrafine-grained Dual Phase Steel Manufactured with Use of a Dynamic Austenite-ferrite Transformation: Dominik Dzierdzic1; Krzysztof Muszka1; Janusz Majta1; Peter Hodgson2; University of Cambridge; AGH University of Science and Technology; Deakin University

F-5: Controlling Springback in Dual-Phase Steels: Milan Aghani1; Peter van Liempt2; Jilt Sietsma1; Zaloo Arefchabala1; Delphi University of Technology; Tata Steel Research, Development and Technology

F-6: Design of Ultra-high-strength Fe-Cr-Mn-Ni-N-C Stainless Steels with Enhanced Ductilities: Marco Wendler1; Michael Hauser1; Olena Volkova1; Javad Mola2; TU Freiberg

F-7: Effect of Austenite Grain Size on Deformed Microstructures and Tensile Properties of Austenitic Fe-24.5Mn-4Cr-0.45C Alloy: Sang-In Lee1; Seung-Yong Lee2; Hwan Gyo Jung3; Seoul National University of Science and Technology; POSCO

F-8: Effect of Initial Microstructure on the Grain Size of “Warm Deformed” 4140 Steel: Sammy Tin1; Illinois Institute of Technology

F-9: Effect of Plastic Deformation at Elevated Temperatures on the Hardenability of Boron Steels: Mehmet Özyiğit1; Eregli Iron & Steel Works, Co

F-10: Effects of Deformation on Hydrogen Solubility and Diffusion in Al-alloyed Fe-Mn Alloys: Claus Hüter1; Siaufang Dong1; Xie Zhang2; Albert Glensk2; Robert Spatschek1; Forschungszentrum Jülich; MPIE

F-11: Effects of Microstructure on the Strain Rate Sensitivity of Advanced Steels: Rukan Alturk1; Steven Mates1; Fadi Abu-Farha1; Zeren Xu1; Clemson University; National Institute of Standards and Technology

F-12: Excellent Mechanical Properties Balance of Fine 0.1C-2Si-5Mn Fresh Martensite and Ferrite+Austenite Steels: Rakan Alturk1; 1; Army Research Laboratory; Argonne National Laboratory

F-13: In-situ Synchrotron X-ray Diffraction Study on the Micromechanical Behavior of Medium Manganese Transformation-induced Plasticity Steel at Low Temperature: Minghe Zhang1; Yandong Wang2; Longfei Li3; Qingbao Wu1; Fangmin Guo2; Yang Ren1; University of Science and Technology Beijing; Argonne National Laboratory

F-14: Influence of Asymmetrical Cold Rolling on Crystallographic Texture of α-TRIP Steels: Ramón Botelho1; Eustáquio Baêta1; Leonardo Araujo1; Luiz Paulo Brandao1; 1IME; Coppe, UFRJ

F-15: Investigating Deformation Mechanisms in TWIP by Marciniak Multiaxial Testing: Brian Liu1; Adam Creuziger1; Timothy Foecke1; National Institute of Standards and Technology

F-16: Mechanical Evaluation of Hypo and Hypereutectic Chromium Carbide Hard Facing Steel: Yasser Fouad1; Bakr Rabebi1; Hamad Alharbi1; King Saud University; German University in Cairo

F-17: Microstructure-based Modeling of Tensile Properties in High-strength Pipeline Steels: Byungchul Hwang1; Sang-In Lee2; Seung-Yong Lee1; Seoul National University of Science and Technology; POSCO

F-18: Microstructure and Mechanical Properties of GMAW Welds in TWIP Steels: Alexander Zaddach1; Yen-Chih Liao1; Zhaqian Liu1; Carlos Cardenas1; Diego Lozano1; Lincoln Electric; Metalas

F-19: Modeling the Interplay between Transformation and Plasticity in Low-carbon Steels. A Micro-level Constitutive Model / RVE Approach: Manuel Petersmann1; Georges Caillaud2; Thomas Antretter1; Montanuniversitaet Leoben; Minex ParisTech

F-20: Modelling of Hot Deformation Behavior during Ingot Breakdown Process of Medium Carbon Low Alloy Steel Using Hansel-Spittel Approach: Kanwal Chaudha1; Davood Shariari1; Mohammad Jahazi2; ETS

F-21: Multi-stage Martensitic Phase Transformation in Steel/Copper Nanolaminates: An In Situ X-ray Study: Kiyuuan Yu1; Yadong Rui1; Yang Ren2; Lishan Cui1; China University of Petroleum-Beijing; APS, Argonne National Laboratory

F-22: Orientation Dependence of Microstructure and Texture Evolution during Tensile Testing of a TWIP Stainless Steel: Reza Rahimi1; Olena Volkova1; Horst Biermann1; Javad Mola2; Technical University of Freiberg-Institute of Iron and Steel Technology; Technical University of Freiberg-Institute of Materials Engineering

F-23: Review of Bake Hardening Mechanisms of Ultra Fine Grained and Coarse Grained Low Carbon Steel Sheets: Uma Gupta1; Vishnu Sharma2; Malay Banerjee1; MNIT Jaipur

F-24: Role of Initial Microstructure in Micro Constituents of Dual Phase Steels: Ersoy Erisir1; Ozgu Bilir1; Kocaeli University

F-25: Tension-Compression Symmetry and Relationships to the Microstructure in Advanced High Strength Steels: Jun Hu1; Fadi Abu-Farha1; Clemson University

F-27: Nano-sized Intermetallic Kappa Phase Strengthening in Al-alloyed Steels for Automotive Applications: Wenwen Song1; Wolfgang Bleck1; RWTH Aachen University

Advanced Materials for Energy Conversion and Storage — Poster Session
Sponsored by: TMS Functional Materials Division, TMS: Energy Conversion and Storage Committee
Monday PM
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Room: Hall B1
Location: San Diego Convention Ctr

D-1: Perylene Polymides-based Cathode Materials for High-capacity and Long-cycle Secondary Lithium-ion Batteries: Michael Ruhrig1; Ramalinga Viswanathan Mangalaraja2; Sambandam Anandan3; University of Concepcion; National Institute of Technology

D-2: Tunable Oxygen-deficient Li4Ti5O12 Structure for High-performance Rechargeable Li-ion Batteries: Ralph Nicolai Nasara1; Shih-kang Lin1; National Cheng Kung University
Computational Thermodynamics and Kinetics — Poster Session

Sponsored by: TMS: Chemistry and Physics of Materials Committee, TMS: Computational Materials Science and Engineering Committee

Program Organizers: Niaz Abdolrahim, University of Rochester; Francesca Tavazza, National Institute of Standards and Technology; TMS: Integrated Computational Materials Engineering Committee

Monday PM Room: Hall B1 Location: San Diego Convention Ctr

B-9: A Mathematical Model for the Heat Preservation of Torpedo Ladle: Shiwei Liu1; Xi’an University of Architecture and Technology

B-11: Control Technique Study of Non-metallic Inclusions in Low Carbon Steel by Rare Earth Final Deoxidization: Peng Bowen1; Shanghai University

B-12: Developing Iridium-based Alloys as Effective Catalysts for Direct Ethanol Fuel Cells: Lida Mehdizadegan Namin1; Nathaniel Deskins1; Koretaka Yuge2; Worcester Polytechnic Institute; Kyoto University

B-13: Effect of Cooling Rate on Phase Transformation and Microstructure Evolution in a Large Size Forged Ingot of Medium Carbon Low Alloy Steels: Emma Ben Pred1; Hadi Ghasemi Naneva2; Davood Shahriari1; Jean-Benoit Morin2; Mohammad Jahazi1; ÉTS, FINKEL STEEL - SOREL

B-14: First-principles Study on Interface Segregation for MoSi2-MoS3 Pseudobinary Alloys: Koretaka Yuge1; Toshihiro Yamazaki2; Yuichiro Koizumi3; Kyosuke Kishida4; Haruyuki Inui5; Department of Materials Science and Engineering, Kyoto University; Tohoku University

B-15: Formation and Control of Ca Inclusion in Gear Steel 20MnCr5: Xu Jie1; Fu Jianxun1; Wu Yanxin1; Li Xu1; Shanghai University

B-16: Kinetics of the a/γ Interface Migration in Fe-Mn and Fe-Ni Alloys: Jianing Zhu1; Hadi Chen1; Chi Zhang1; Zhigang Yang1; Haiven Luo1; Tsinghua University; University of Science&Technology Beijing

B-17: Investigations on the Mechanical Deformation of Amorphous Alloy Nanowires Using Phase-field Modeling and Thermodynamics Avalanche Models: G. P. Zheng1; Hong Kong Polytechnic University

B-18: Modeling of the Molar Volume of the Al-Co-Ni-W System: Ursula Kattner1; Eric Lass1; Peisheng Wang1; National Institute of Standards and Technology

B-19: Morphological Stability of Rods: Fei Wang1; Oleg Tsukhin2; Michael Selzer3; Britta Nestler4; Karlsruhe Institute of Technology

B-20: Role of the Particle Morphology on the Zener Pinning Effect: A Phase-field Approach: Kunok Chang1; Junhyun Kwon2; Chgan-Kyu Rhee1; Korea Atomic Energy Research Institute

B-22: Studies on the Effect of Solution Heat Treatment on Surface and Subsurface Microstructure in Single Crystal Superalloys: Dimitra Sputhara1; Duncan Putman1; Nils Wamken1; University of Birmingham; Rolls-Royce Plc.

*Sponsored by:* Chinese Society for Metals, TMS: Recycling and Environmental Technologies Committee

**Program Organizers:** Subodh Das, Phinixi, LLC; Zhancheng Guo, University of Science and Technology Beijing; Minfang Han, China University of Mining and Technology, Beijing; Teruhisa Horiita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Xingbo Liu, West Virginia University

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**C-1:** Preparation of Battery-grade Ferric Oxalate by Screening of Reaction Conditions  
*Keyu Zhang*¹; Xiaoyan Yang²; Jian Wu¹; *Yaochun Liu*³; 
¹Kunming University of Science and Technology  
²Beijing University of Chemical Technology  
³Lamar University

**C-2:** Synthesis and Characterization of Electrodes Made from Banana Peel for Multivalent Batteries  
*Tazmin Mumu*¹; *Ramesh K. Guduru*²; 
¹Lamar University  
²University of Massachusetts

**Energy Materials 2017: Materials for Coal-Based Power — Poster Session**

*Sponsored by:* Chinese Society for Metals  
**Program Organizers:** Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Zhengdong Lou, China Iron & Steel Research Institute Group; Sebastien Dryepondt, Oak Ridge National Laboratory

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**C-3:** Atomic-scale Modeling of Point Defects, Phase Stability, and the Formation Mechanism of Z Phases CrM (M=V, Nb, Ta)  
*Daniel Urban*¹; *Christian Elsaesser*²; 
¹Fraunhofer IWM Freiburg  
²University of Marburg

**C-5:** Fireside Corrosion Behaviors of Inconel 740 H Superalloy in Various SO2 Contents  
*Jintao Lu*¹; *Xi'an Thermal Power Research Institute Co., Ltd.*

**C-6:** High Cycle Fatigue Behavior of HAYNES282 Superalloy  
*Ming Yang*¹; *Dongfang Electric Corporation, Don gfang Turbine Co.LTD*

**C-7:** Recent Development in the Characteristics of Alloy 625 for a-USC Steam Turbine Castings  
*Wenlong Yu*¹; *Songfeng Liu*¹; *Yu Wang*¹; *Lingen Sun*¹; *Shanghai Turbine Company, Ltd.*

**C-8:** The Effect of W and Mo Addition on the Microstructure and Mechanical Properties of GY200 Ni-based Alloy  
*Zhihua Gong*¹; *Gang Yang*²; *Inner Mongolia University of Science & Technology; ³Central Iron and Steel Research Institute*

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**B-23:** The Environment Dependent Dynamic Charge Potential for III-V Materials: *Abduljabar Alsayoud*¹; Abu Asaduzzaman²; Keith Runge³; Pierre Deymier²; Krishna Murakharan²; ¹University of Arizona

**B-24:** Thermodynamic Modeling of Al-Fe-Cr Ternary System: *Shusen Wang*¹; Zhui Li¹; Zhewei Qin¹; Shihua Wang¹; Xiongguang Lu¹; Chonghe Li¹; ¹Shanghai University

**B-25:** Thermodynamically Based Comparisons of GMCE Refrigerant Performance: *Timothy Brown*¹; Patrick Shamberger¹; ¹Texas A&M University

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**Deriving Value from Challenging Waste Materials: Recycling and Sustainability Joint Session — Poster Session**

*Sponsored by:* TMS Extraction and Processing Division, TMS Light Metals Division, REWAS Organizing Committee, TMS: Energy Committee, TMS: Recycling and Environmental Technologies Committee

**Program Organizers:** John Howarter, Purdue University; Elsa Olivetti, Massachusetts Institute of Technology; Mingming Zhang, ArcelorMittal Global R&D; Randolph Kirchain, Massachusetts Institute of Technology; Henry Colorado, Universidad de Antioquia, Brazil

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**D-10:** Indium Extraction of Obsolete LCD Screen: *Gabrielle Jimenez*¹; Viviane Moraes¹; Jorge Tenório¹; Denise Espinosa¹; ¹USP

**D-11:** Alternative Method for Materials Separation from Crystalline Silicon Photovoltaic Modules: *Pedro Forastieri de Almeida Prado*¹; Jorge Alberto Soares Tenório¹; Denise Croce Romano Espinosa¹; ¹University of São Paulo

**D-12:** Calcium Aluminate Cement Paste Blended with Steel Slag: *John Zapata*¹; Alexandra Loaiza¹; Henry Colorado¹; ¹Universidad de Antioquia

**D-13:** Structure-Property Relation Of Asphalt Blended With Electric Arc Furnace Dust (EAFD): *Tauluth Loaiza Lopera*¹; Henry Colorado Lopera¹; ¹Universidad de Antioquia

**D-14:** Preparation Study of Ceramic Materials with Red Mud and Flying Ash as Raw Materials: *Chen Shichao*¹; *Beijing Shenuw Environment & Energy Technology Co., Ltd.*

**D-15:** Research on Optimization of Sintering Mixture with Low-grade Complex Ore: *Yuhuan Ding*¹; *Zixiong Zhu*¹; *Zhiqiang Zhou*¹; Hao Xiong¹; ¹College of Material Science and Engineering, Chongqing University

**D-16:** Bioleaching Process for Metal Recovery from Waste Materials: *Solange Utimura*¹; *Carlos Rosario*¹; Jorge Tenório¹; Denise Espinosa¹; ¹Universidade de São Paulo

**D-17:** The Characterization of Hydrotalcite-like Compounds Derived from Blast Furnace Slag: *Synthesis, Flame Retardancy: Jian Peng*¹; Hongwei Guo¹; Kang Wan¹; Peng Li¹; Bingji Yan¹; Jinyue Wang¹; ¹Soochow University

**D-19:** Study on Adsorption Performance of Ammonia by Zeolite Synthesized from Blast Furnace Slag: *Li Sheng*¹; *Hongwei Guo*²; *Kang Wan*¹; *Peng Li*¹; *Bingji Yan*¹; Jinyue Wang¹; ¹University of Science and Technology of China; ²Soochow University; ³Soochow University

**D-18:** Preparing Ferrosilicon Alloy with Copper Slag: *Ruirui Wei*¹; ¹Chongqing University

**D-20:** Chemical Analysis of Sludge Originating from Industrial Painting Performed in Brazil: *Rita Alvarenga*¹; Henrique Santos¹; Beattriz Mendes¹; ¹Universidade Federal de Vicontosa

**D-21:** Removal of Magnesium from Liquor Produced by Nickel Mining by Crystallization: *Kristine Wanderley*¹; Jorge Tenório¹; ¹University of São Paulo (USP)
Sponsored by: Chinese Society for Metals
Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Kyle Brinkman, Clemson University; Teruhisa Horita, AIST; Minfang Han, China University of Mining and Technology; Beijing

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C-9: Composition Effects on the Characteristics of Glass Sealants for Intermediate Temperature Solid Oxide Fuel Cell Applications: Sea-Fue Wang1; Yung-Fu Hsu1; Zu-You Liu1; 1National Taipei University of Technology

C-10: Effect of Sn on the Microstructure and Mechanical Properties of AM90 Extruded Alloy: K Song1; FS Pan1; LB Wang1; CH Du1; Hua Du1; Ying Luo1; J She1; L Wu1; 1Nuclear Power Institute of China; 2Chongqing University

Energy Materials 2017: Materials for Gas Turbines — Poster Session
Sponsored by: Chinese Society for Metals
Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group

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Session Chair: Jeffrey Fergus, Auburn University

C-11: Effect of Thermal Debinding and Sintering Conditions on Mechanical Properties of Silica-based Ceramic Cores: Jeong-gu Ye2; JeongSo Park1; Young-Hwan Kim1; 1Korea Institute of Energy Research

C-12: Microstructures and Deposition Mechanisms of Thermal Barrier Coatings Produced by PS-PVD: XiaoChao Yuan1; DongFang Turbine Co., Ltd., DongFang Electric Corporation

C-13: Mullitization of Fused Silica on Silica-based Ceramic Cores by Colloidal Alumina Infiltration: Jeong-gu Ye2; JeongSo Park1; Young-Hwan Kim1; 1Korea Institute of Energy Research

C-14: Solidification Behavior and Microstructure of Inconel 625 Superalloy under Electromagnetic Field: Tao Wang1; Fei Wang1; Engang Wang1; 1Northeastern University, China

C-15: Study on the Undercoolability and Single Crystal Castability of Nickel-Based Superalloys: Wang Huiwei1; Ma De-Xin1; Yang Gong-xian1; Gong Xiu-fang1; Zhang Qiong-yuan1; 1Dongfang Turbine Co., Ltd.

C-16: Temperature Dependence of the Fracture Behavior of X-750 Alloy and Effect of Heat Treatment: Christopher Marsh1; Djamel Kaoumi1; 1University of South Carolina; 2North Carolina State University

Sponsored by: Chinese Society for Metals
Program Organizers: Raul Rebak, GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Hosemann, University of California Berkeley; Jian Li, CanmetMATERIALS

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Session Chair: Raul Rebak, GE Global Research

C-17: Effect of Heat Treatments on the Microstructure and Mechanical Properties of Zr-1Nb-1Sn-0.1Fe Alloy used in the Nuclear Industry: Dielle Costa1; Daniele Baeta1; Monica Rezende1; Neil Medeiros1; 1UFF

C-18: Effects of Irradiation on Thermal Conductivity of Nickel Alloys: Mandeep Singh1; Lina Malakhov2; Asem Sopian2; Michael Brady2; M Coinche2; 1PEN University of Technology; 2University of Saskatchewan; 3University of Montreal

C-19: Reduced Deuterium Retention in Simultaneously Damaged and Annealed Tungsten: Michael Simmonds1; Yongqiang Wang2; Russell Doerner3; Joseph Barton2; Matthew Baldwin3; George Tynan3; 1Center for Energy Research at UCSD; 2Los Alamos National Laboratory

C-20: Studies of the Differential Thermal Analysis and Microstructural Characterization of Gd-containing Stainless Steel: Wu Zhaoyu1; Xiao Xueshan1; 1Panzhihua University; 2Shanghai University

Sponsored by: Chinese Society for Metals, TMS: Corrosion and Environmental Effects Committee
Program Organizers: Sebastien Dryepondt, Oak Ridge National Laboratory; Zhengdong Liu, China Iron & Steel Research Institute Group; Jeffrey Fergus, Auburn University; Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Ji Zhang, China Iron and Steel Research Institute Group

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C-21: Novel Hydrogen Storage Reaction Pathway of LiBH4+MgH2 Mixtures Enabled by Ball Milling and Aerosol Spraying: Zhao Ding1; Leon L. Shaw1; Jie Li1; 1Illinois Institute of Technology

C-22: Pyrolysis of Different Wood Species Investigated by TGA-GC-MS: Ekkehard Post1; 1NETZSCH Geraetebau GmbH

Energy Technologies — Poster Session
Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Pyrometallurgy Committee
Program Organizers: Lei Zhang, University of Alaska Fairbanks; Jaroslaw Drellich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu, Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Abo Akademi University

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D-22: AC Analysis of Impedancemetric, Electrochemical NOx Sensors for Emission Control: Andrew Marshall1; Ling Cui2; Joe Fitzpatrick3; Brett Henderson2; Robert Novak2; Jaco Visser2; Victor Wang2; Leta Woo2; Jud Ready3; 1Georgia Institute of Technology; 2CoorsTek Sensors; 3Ford Motor Company
D-23: Effect of Granularity on Pretreatment of Coke with Microwave Irradiation: Qing-hai Pang1; Zhi-jun He2; 1University of Science and Technology Liaoning

D-24: Effect of Microwave and Ultrasonic Coupling Treatment on Granularity and Microstructure of Pulverized Coal: Zhi-jun He1; Qing-hai Pang2; 1University of Science and Technology Liaoning

D-25: Influence of Sodium on Coke Microstructure in Different Reaction Atmosphere: Zhijun He1; Wenlong Zhan1; Junhong Zhang1; Qinghai Pang2; Sen Zhang1; Chen Tian1; 1University of Science and Technology Liaoning

D-26: The Energy Efficiency Studies Of Aluminium Electrolysis Cells: Eda Ergun Sungul1; Ismail Duman2; 1Istanbul University; 2Istanbul Technical University

Friction Stir Welding and Processing IX — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Titanium Committee

Program Organizers: Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Gesesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Monday PM

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Session Chairs: Lin Song, Northwestern Polytechnical University; Todor Stoyanov, ACCESS; Jieren Yan, Northwestern Polytechnical University

F-29: Effect of Crack Location, Size and Shape on the Machanical Behavior of TiC/4TiAl Welded Joints: Chengli Dong1; 1AECC/BIAM

F-30: Flow Stress Behavior of Ti-45Al-12Nb Alloy with Ultrafine Grains during Hot Compression Deformation: Hua Chen1; Xue Bo Gong1; 1Changchun University of Technology

F-31: Influence of Hot Processing Parameters on Dynamic Recrystallization Behavior of Ti-47Al-2Nb-2Cr Alloy: Lianxi Hu1; Zhipeng Wan1; Yu Sun1; 1Harbin Institute of Technology

F-32: Study on the Lamellar Boundary Orientation of Ti-46Al-8Nb Alloy with Various Growth Rate: Jongmoon Park1; Ho Seung Park1; Seoongwoong Kim1; Seungeun Kim2; Youngwhan Hong2; Myunghoon Oh2; 1Kumoh National Institute of Technology; 2Korea Institute of Materials Science; 1Suwon Science College

F-33: Vacuum Brazing of Ti-48Al-2Cr-2Nb: Yuheung Cui1; Renci Liu1; Dong Liu1; Yuyou Cui1; Rui Yang1; 1Institute of Metal Research, Chinese Academy of Sciences

F-34: Joining Process of Gamma-TiAl and Structural Steel with Insert Metals by Friction Welding: Myunghoon Oh1; Jongmoon Park1; Kiyoun Kim1; Kyoungkyun Kim1; Ho Seung Jang1; Youngwhan Hong2; 1Kumoh National Institute of Technology; 2Asan Friction Welding Co., Ltd; 1Suwon Science College

F-35: Microstructure and Mechanical Properties of Powder Metallurgy Ti-22Al-25Nb Alloy Fabricated by Hot-pressing Sintering: In Sun1; Heng Zhang1; Siqiu Wang1; Lianxi Hu1; 1Harbin Institute of Technology

F-36: Microstructure and Mechanical Evaluation of Mechanical Behaviors of the Cast Ti-Al-Mo-Nb-(B, Mm) Alloys: Kwang Soo Choi1; Joon Sik Park1; S. Yi1; Fan Zhang; Y. B. Song1; 1Hanbat National University; 1Kwangpook National University; 1CompaTerm, LCC; 1Agency for Defense System

F-40: TiAl-based Intermetallic Alloy with Addition of Zirconium: Sangwoo Kim1; Hyoun-Chon Kwon1; Hyo-soo Lee1; 1Korea Institute of Industrial Technology

F-42: Interfacial Reaction between TiAl Alloy and Ca(Y)-doped BaZrO3 Crucible: Hao Zhang1; Mingyang Li1; Baotong Li1; Guangyao Chen1; Zhiwei Qin1; Xionggang Lu1; Chonghe Li1; 1Shanghai University

F-43: Atom Probe Investigation of the Partitioning of Impurities in TiAl Alloy: Gong Zheng1; Zhixiang Qi1; Yingbo Peng1; Guang Chen1; 1Nanjing University of Science and Technology

F-44: Fine Structure of Ordinary Dislocation Dipoles and their Evolution in Deformed Gamma-TiAl via Atomistic Simulations: Yan He1; Zhao Liu1; Hao Wang1; Dongsheng Xu1; Rui Yang1; 1Institute of Metal Research, Chinese Academy of Sciences

F-46: Hot Working Behavior and Microstructural Evolution of As-cast Ti-42Al-5.5Mn Alloy: Hao Xu1; Bo Chen1; Yingche Ma1; Lei Shu1; Kui Liu1; 1Institute of Metal Research
F-48: Gamma Phase Nucleation from Stacking Fault in TiAl Alloys: Chunyi Teng; Yonghong Li; Zhanpeng Ren; Dongsheng Xu; Rui Yang; 1China Aero-Polytechnology Establishment; 2Institute of Metal Research, Chinese Academy of Sciences

F-51: Characterization of Thermal Deformation Behavior of a Novel Ti-47Al-2Cr-0.5Fe-0.05Y Alloy: Xiaoping Wang; Fantao Kong; Qin Sun; Yu Zhang; Shouzhen Cao; Yuyong Chen; 1Harbin Institute of Technology

F-52: Microstructure and Mechanical Properties of High Nb Containing TiAl Alloy Sheets: Fantao Kong; 1Harbin Institute of Technology

F-55: Effect of Al Content on the Microstructure and Tensile Properties of Cast Ti-xAl-15Nb-1Mo Alloy: Liangliang Liu; Dong Liu; Yuyou Cui; Rui Yang; 1The Institute of Metal Research (IMR), Chinese Academy of Sciences (CAS)

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**Job Candidate Poster Session — Job Candidate Poster Session**

**Program Organizers:** Ebrahim Asadi, University of Memphis; Michael Tonks, Pennsylvania State University; E-Wen Huang, National Chiao Tung University

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**Room:** Hall B1
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**JOB-1:** About Me, Yi-Hung Chen: E-Wen Huang; Yi-Hung Chen; 1National Chiao Tung University

**JOB-2:** Computational Researcher Specialized in Phase Formation Theory and Characterization of Multi-component Alloys: Changning Niu; 1Ohio State University

**JOB-3:** Experimental Material Scientist with Microscopy and Diffraction Tools: Raghavendra K G; 1Indira Gandhi Centre for Atomic Research, Homi Bhabha National Institute

**JOB-4:** Exploration of Structure Property Relationships as Seen by a Beyond Her Years Millennial: Christina Cox; 1Oak Ridge National Laboratory

**JOB-5:** Future Reliability Engineer of Lead-Free System: Cong Zhao; 1Auburn University

**JOB-6:** Looking for a Faculty Position in Material Modeling: Shengfeng Yang; 1University of California San Diego

**JOB-7:** Looking for a doctoral position in Computational Shock-physics: Anupam Neogi; 1IIT Kharagpur

**JOB-9:** Microstructural Evolution and Mechanical Response of Materials by Design and Modeling: Aniket Dutt; 1University of North Texas

**JOB-10:** My Aspirations, My Background, My World: Alec Affolter; 1University of Tennessee

**JOB-11:** My Background and Ability: Tsung-Ruei Su; 1National Chiao Tung University

**JOB-12:** Silicon Purification and Growth from Si-based Alloy: Lifeng Zhang; Yaqiong Li; 1University of Science and Technology Beijing

**JOB-13:** Solidification Microstructures in Nickel Alloy 718 and Other Materials Research: Thomas Ivanoff; 1University of Texas at Austin

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**Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Poster Session**

**Sponsored by:** TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Nuclear Materials Committee, TMS: Mechanical Behavior of Materials Committee

**Program Organizers:** Ramprasad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

**Monday PM**
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**G-1:** Effects of Added Molybdenum on Corrosion of 316L Stainless Steel: Tahsin Rahman; J. E. Indacochea; 1University of Illinois at Chicago; 2Argonne National Laboratory

**G-2:** Fabrication and Microstructures of Burnable Absorber-cored Oxide Pellets for Advanced Nuclear Fuel: Qusai Mistarihi; Yong Kim; 1Korea Advanced Institute of Science and Technology

**G-3:** Diffusion Studies in the Development of an FCCI Barrier for High-Burnup Metallic Nuclear Fuel: Daniel Etchel; 1University of Texas at Austin; 2TerraPower, LLC

**G-4:** Irradiated Materials Characterization Laboratory at Idaho National Laboratory: Lingfeng He; Brandon Miller; 1Korea Advanced Institute of Science and Technology; 2Korea Atomic Energy Research Institute

**G-5:** Quantification of the Stress-Stabilization of Tetragonal ZrO2: Mitra Taheri; Wayne Harlow; 1University of California

**G-6:** Steam Oxidation Resistance of Silicide and Aluminide-coated Refractory Metals: Wooin Lim; Hyun Gil Kim; 1Korea Advanced Institute of Science and Technology; 2Korea Atomic Energy Research Institute

**G-7:** Advanced Electron Microscopy of Fission Products in Irradiated TRISO Fuel: Rachel Seibert; 1Oak Ridge National Laboratory; 2Korea Atomic Energy Research Institute

**G-8:** Phase Field Modeling of Fission Gas Behavior in Metallic Nuclear Fuel: Sun-Qiang Shi; Pengchuan Liu; Xin Wang; 1Korea Atomic Energy Research Institute; 2Oak Ridge National Laboratory

**G-9:** Asymptotic Expansion Homogenization of Thermal Conductivity and Elasticity of Irradiated Hafnium-Aluminum Composite Performed on Reconstructed and Synthetic Microstructures: William Harris; 1North Carolina State University; 2Idaho National Laboratory

**G-11:** A Composite Waste Form for Radiochemical Processing Wastes: Xin Chen; J. Ernesto Indacochea; William Ebert; 1University of Illinois at Chicago; 2Argonne National Laboratory

**G-12:** A Proposed Mechanism of Corrosion of Nickel by Tellurium on Reconstructed and Synthetic Microstructures: Nathaniel Smith; 1Pennsylvania State University
Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Poster Session
Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee
Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmair, Karlsruhe Institute of Technology (KIT); Pierre Salloit, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory
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F-56: An In-situ Synchrotron X-ray Scattering Study of Microstructural Evolution in a Model Ni-based Alloy: Govindarajan Muralidharan; Dean Pierce; Ross Andrews; Jan Ilavsky; Saul Lapidus; 'Oak Ridge National Laboratory
F-57: Long-term Thermal Stability of Nickel-base Superalloys: Alison Wilson; Mark Hardy; Howard Stone; 'University of Cambridge; 'Rolls-Royce plc
F-59: Physics-based Creep Model of Ni-based Alloy Welds in High Temperature and Pressure Applications using Crystal Plasticity: Wen Jiung; Pritam Chakraborty; Thomas Lillo; 'Idaho National Laboratory
F-61: Physical Simulation of Skin Formation during Investment Casting of Nozzle Guide Vanes Made of Ni-based Superalloys: Mehdi Rahimian; Srđjan Milenković; Laura Maestro; Aitor Egizkuntza Ruiz De Azúa; Ilchat Sabirov; 'BCAST, Brunel University London; 'IMDEA Materials Institute; 'Precicast Bilbao Co.
F-62: Surface Tension and Viscosity of the Ni-based Superalloys L6K94 and CMSX-10 Measured by the Oscillating Drop Method on Board a Parabolic Flight: Rainer Wunderlich; Georg Lohöfer; Hans Fecht; 'Ulma University; 'Deutsches Zentrum Luft- und Raumfahrt (DLR)
F-63: Mechanism of Eutectic Growth in Directional Solidification of an AI2O3-Y3Al5O12 Crystal: Xu Wang; Dong Wang; Jingyang Wang; Langhong Lou; Jian Zhang; 'Institute of Metal Research, Chinese Academy of Sciences

Materials Processing Fundamentals — Poster Session
Sponsored by: TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee
Program Organizers: Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Électromet
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E-53: Control of Low Melting Point MnO-SiO2-AI2O3 Inclusions in Low Carbon Thin-Strip Continuous Casting Steel: Jing Chen; 'Shanghai University
E-54: Effect of Modeling Flows on Mixing Time in 40t Ladle with Bottom Gas Blowing Process: Le Wang; Liu Liu; Bingyi Yan; 'Central Iron and Steel Research; 'Soochow University School of Iron and Steel
E-55: Effect of Temperature, Concentration and Particle Size of the Solid Solution of Potassium-aminonammonium Arsenojorarsita Medium NaOH: J. Eliecer Méndez Reyes; Francisco Patiño Cardona; Julio Cesar Juárez Tapia; 'Mirem Uivel Flores Guerreiro; Iván A. Reyes Dominguez; Martín Reyes Pérez; 'Asilinn Teja Ruiz; 'Universidad Autónoma del Estado de Hidalgo; 'Universidad Politécnica Metropolitana de Hidalgo; 'Universidad Tecnológica de Tulancingo; 'Universidad Autónoma de San Luis Potosí
E-56: Effects of Zr on the Microstructure and Mechanical Properties of EH36 Shipbuilding Steel: Dapeng Zhao; Xiaodong Zou; Cong Wang; 'Northeastern University, China
E-57: Genetic Influence of Mold Corner Structure on the Strand Corner Temperature in Secondary Cooling Zone during Slab Continuous Casting: Sheng Yu; Dengfu Chen; Pei Xu; Mujun Long; Kui Lv; Huamei Duan; 'Chongqing University
E-58: Growth Kinetics on Boriding Process and Mechanical Behaviour of AISI P20 Steel: Martín Ortiz; Miguel Flores; Milton Espinosa; Oscar Gómez; Daniel Sánchez; 'Universidad Autónoma del Estado de Hidalgo; 'Instituto Tecnológico y de Estudios Superiores de Monterrey-ITESM
E-60: Numerical Simulation and Experimental Study on Electromagnetic Field and Heat Flow in Electromagnetic Cold Crucible (EMCC): Hyun-Jae Lee; Hyun-Do Jung; Byung-Moon Moon; 'Korea Institute of Industrial Technology
E-61: Recent Progress of Blast Furnace Cooling Stave in China: Yong Denga; Jian Liang Zhang; Ke Xin Jiao; Bing Ji Yan; 'University of Science and Technology Beijing
E-62: Separately Copper Recovery from Iron by Using Solvent Extraction Process: Shun Myung Shin; Dong Ju Shin; Sung Ho Joo; Chang Hyun Oh; 'Korea Institute of Geoscience & Mineral Resources (KIGAM)
E-64: Study of a Filter-press Electrochemical Reactor for the Treatment of Industrial Waste: Pedro Ramirez Ortega; Jose Martinez Vasquez; Marissa Vargas Ramirez; 'Universidad Tecnológica de Tulancingo; 'Universidad Autónoma del Estado de Hidalgo
E-65: The Effect of Ti Addition and Aging Treat on Microstructure and Mechanical Properties of a Nb-microalloyed Crack Arrest Steel: Dan Chen; 'Harbin Engineering University
E-66: The Interface Characteristics of High-temperature Melt of CaO-Al2O3-MgO-SiO2 System: Chen Tian; Qing-hai Pang; 'University of Science and Technology Liaoning

Microstructural Processes in Irradiated Materials — Poster Session
Sponsored by: TMS Structural Materials Division, TMS: Nuclear Materials Committee
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l'énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University
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Session Chairs: Mahmood Mamivand, University of Wisconsin-Madison; Ryuta Kasada, Kyoto University

G-18: Atom Probe Tomography Investigations of Archival Surveillance Steels from the UCSB ATR-2 Irradiation: Nathan Almirall; Peter Wells; Takuya Yamamoto; David Gragg; Kirk Fields; G. R. Odette; Randy Nanstad; Philip Edmondson; 'Oak Ridge National Laboratory
G-20: Characterization of Nanoscale Intermetallic Precipitates in Highly Irradiated Reactor Pressure Vessel Steels: David Sprooster; E Dooyehe; S Ghose; P Wells; T Stani; N Almirall; G. R. Odette; L Ecker; 'Brookhaven National Laboratory; 'University of California Santa Barbara
G-21: Development of Standard Protocols for the Analysis of Atom Statistics Data of Radiation Damage in Light Water Reactors: Bertrand Radiguet1; Gérard Da Costa1; John Hyde2; Constantinus Hatzoglu1; Hannah Weeks1; Paul Styan1; François Vurpillot1; Cristelle Pareige1; Auriane Etienne1; Giovanni Bonny1; Nicolas Castin1; Lorenzo Malerba1; Philippe Pareige1; 1GPM UMR CNRS 6634 - Université et INSA de Rouen; 2National Nuclear Laboratory; 3SCK-CEN

G-22: Effect of Helium/dpa Ratio on Microstructure Evolution in Dual Ion Irradiated HT9 Steel: David Woodley1; Elizabeth Getto1; Zhijie Jiao1; Kai Sun1; Gary Was1; 1University of Michigan

G-23: Energetic Study of Helium – Nanoparticle Interaction within Nanostructured Ferritic Alloy: Yingye Gan1; Huijuan Zhao1; David Hoelzer2; Di Yun1; 1Clemson University; 2Oak Ridge National Laboratory; 3Xi’an Jiao Tong University

G-24: Evolution of Irradiation-induced Precipitates in Reactor Pressure Vessel Steels under High-Dose Irradiation: Mikhail Sokolov1; Michael Miller1; Randy Nanstad1; Ken Littrell1; Lynne Ecker1; David Sprouster1; Enrico Lucon1; 1Oak Ridge National Laboratory; 2Brookhaven National Laboratory; 3National Institute of Standards and Technology

G-25: On the Effects of Helium-dpa Interactions on Microstructural Evolution in Tempered Martensitic Steels: Analyses of Dual Ion Beam Irradiation Databases: Takuya Yamamoto1; G. Robert Odette1; Yuan Wu1; Kiyohiro Yabuch1; Soosuke Kondo1; Akihiko Kimura1; 1University of California Santa Barbara; 2Kyoto University

G-26: In-situ Ion Irradiation Induced Microstructure Evolution in Ferritic/Martensitic Steel T91: Djamel Kazoumi1; Ce Zheng1; 1North Carolina State University

G-27: In Situ TEM Cantilever Testing of Irradiated ODS to Determine Grain Boundary Embrittlement and Cohesion: Kayla Yano1; Janelle Wharry1; Xianming Bai1; 1Boise State University; 2Purdue University; 3Virginia Tech

G-28: Microstructural Evaluation of Ion Irradiated Model Binary Alloys: Ling Wang1; 1University of Tennessee

G-29: Neutron Irradiation and Post Irradiation Annealing Effects on the Microstructure of HT-UPS Austenitic Stainless Steel: Chi Xi1; Xuan Zhang1; Wei-Ying Chen1; Meimei Li1; Jun-Sang Park1; Jonathan Almer1; Yaqiao Wu1; Yong Yang1; 1Argonne National Laboratory / University of Florida; 2Argonne National Laboratory; 3Idaho National Laboratory / Boise State University; 4University of Florida

G-30: Numerical Estimation of Phosphorus Transport for Different Migration Modes in Alpha-iron: Ken-ichi Ehibara1; Tomoki Suzudo1; Masatake Yamaguchi1; 1Japan Atomic Energy Agency

G-31: The Effect of Pre-implanted Helium on Cavity Nucleation and Swelling Rate in Ion-irradiated T91: Anthony Monterrosa1; Zhijie Jiao1; Gary Was1; 1University of Michigan

G-33: The Evolution of Laves Phase in Ferritic-Martensitic Steel Grade 92 under Thermal Aging and Sodium Exposure: Wei-Ying Chen1; Meimei Li1; Krishnamurthi Natesan1; 1Argonne National Laboratory

G-34: TEM Observations on He Bubble Nano Oxide Associations in As-Processed and Annealed Nanostructured Ferritic Alloys: Yuan Wu1; Tiberiu Stan1; Takuya Yamamoto1; Jim Cistone1; G. Odette1; 1University of California Santa Barbara; 2NCEM at Lawrence Berkeley National Laboratory

G-35: In Situ Studies of Nanopore Shrinkage during Heavy Ion Irradiation of Nanoporous Au: Jin Li1; Cuncui Fan1; Jie Ding1; Sichuang Xue1; Youxing Chen1; Qiang Li1; Haiyan Wang1; Xinghang Zhang1; 1Texas A&M University; 2Los Alamos National Laboratory; 3Purdue University

G-36: Irradiation Effects on Diffusivity of Copper in Ferromagnetic Iron Studied by Atom Probe Tomography: Takeshi Toyama1; Masaki Shimodaira1; Keiko Tomura1; Naoki Ebisawa1; Kazuaki Nagumo1; Yasuo Shimizu1; Koji Inoue1; Yasuyoshi Naga1; 1Tohoku University

G-38: Nickel Ion Irradiation Damage In GH3535 Alloy Weld Metal and the Temperature Effect: Hefei Huang1; Xiaolong Zhou1; Zhiyong Zhu2; 1Shanghai Institute of Applied Physics, Chinese Academy of Sciences; 2University of Michigan

G-39: Radiation-induced Segregation in Proton Irradiated Commercial Fe-Cr-Ni Base Austenitic Alloys: Miao Song1; Chad Parish2; Gary Was1; 1University of Michigan; 2Oak Ridge National Laboratory

G-40: Study of Neutron and Ion Irradiation Damage in Aluminum Alloys: Ziv Ungarish1; Benedicte Kaputsa2; Pierre Gavotille2; 1NRRC; 2IDEN-Servic d’Etudes des Matériaux Irradiés, CEA, Université Paris-Saclay

G-42: Ion Irradiation-induced Structural Damage in Different Multi-component Alloys at Elevated Temperatures: Tengfei Yang1; Songjin Xiu1; Yuan Fang1; Yong Zhang1; Congyi Li1; Yuguang Wang1; Steven Zinkle1; 1Department of Nuclear Engineering, The University of Tennessee; 2State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing; 3State Key Laboratory of Nuclear Physics and Technology, Center for Applied Physics and Technology, Peking University

G-43: Effect of Proton Irradiation on Deformation Mechanisms in Model Alloy Fe-20Cr-25Ni: Tianyi Chen1; Liqian Tan1; Kumar Sridharan1; Haixuan Xu1; 1Oak Ridge National Laboratory; 2University of Wisconsin–Madison; 3The University of Tennessee

G-44: Deformation of He Bubble Superlattice in FCC Cu: Ian Winter1; Daryl Chrzan1; 1University of California, Berkeley

G-45: Simulations of Irradiation-induced Segregation and Phase Separation in Fe-Cu-Mn Alloys: Boyan Li1; Ben Xu1; Wei Liu1; Chuck Henager2; Shenyang Hu1; 1Tsinghua University, Pacific Northwest National Laboratory; 2Tsinghua University; 3Pacific Northwest National Laboratory

G-46: A Study on Irradiation Induced Microstructure Dependent Thermal Conductivity Change of Zircaloy using Nanomechanical Raman Spectroscopy: Hao Wang1; Vikas Tomar2; 1Purdue University

G-47: Oxide Texture as Cause and Effect in the Corrosion of Zirconium Fuel Cladding - An Atomic Simulation Study: Maria Tarkova1; Christopher Race1; 1Materials Performance Centre, University of Manchester

G-48: The Effect of Niobium on the Irradiation Induced Growth Properties of Zr-Nb Binary Alloys Used for Nuclear Applications: Rebecca Jones1; Elisabeth Francis1; Philipp Frankel1; Aidan Cole-Baker1; 1University of Manchester; 2Rolls Royce Plc.

G-49: Ex-situ and In-situ Investigation of Heavy Ion Irradiation Damage in Ti-6Al-4V: Aida Amrous11; Carl Bohleit1; Florent Durante1; Carl Grigd1; Wolfgang Mittig1; Isabelle Monnet1; Frédérique Pellemeolle1; 1Michigan State University; 2CIMAP CEA/CNRS/ENSICAEN/UCN; 3National Superconducting Cyclotron Laboratory-Michigan State University; 4Facility for Rare Isotope Beams-Michigan State University

G-50: Quantification of Dislocation Densities in Zirconium Hydride by X-ray Line Profile Analysis: Miguel Vicente Alvarez1; Javier Santisteban1; Pablo Vizcaíno1; Gábor Ribár1; Tamás Ungár2; 3Centro Atómico Bariloche; 1Centro Atómico Ezeiza, Argentina; 2Eötvös University Budapest

G-51: Microstructural Effects on Helium Plasma-materials Interaction in Tungsten: Kun Wang1; Chad Parish1; Mark Bannister1; 1Oak Ridge National Laboratory, UT-Battelle

G-52: Enhanced Radiation Tolerance and Thermal Fatigue Properties of Nanochannel W Films: Feng Ren1; Wenjing Qin1; 1Wuhan University

G-53: Impact of Low Dose ion Irradiation on Raman Spectra and Thermal Conductivity in Beta-SiC: Vinay Chauhan1; M Faisal Riyad1; Xinpeng Du1; Changdong Wei1; Beata Tyburska-Püschel1; Ji-Cheng Zhao1; Marat Khafizov1; 1Ohio State University; 2University of Wisconsin

G-54: Microstructural Response of Si,N, and AlN to Swift Heavy Ion Irradiation: Arno Janse van Vuuren1; Vladimir Skuratov2; Alexey Volkov2; Maxim Zdorovets3; 1Nelson Mandela Metropolitan University; 2Joint Institute for Nuclear Research; 3Nazarbayev University; 4University of Wisconsin

G-55: Temperature and Se Dependence of Latent Track Morphology in Carbon: David Woodley1; Elizabeth Getto1; Zhijie Jiao1; Kai Sun1; Gary Was1; 1University of Michigan; 2Oak Ridge National Laboratory
Phase Transformations and Microstructural Evolution — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee

Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

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F-65: Effects of Microstructural Features on CTOD in Coarse-grained and Inter-critically-heated HAZs of Mn- and Ni-added HSLA Steels: Seok Gyu Lee1; Dong Ho Lee2; Seok Su Sohn3; Woo Gyeom Kim4; Kyung-Keun Um3; Sung-Hak Lee4; ‘POSTECH; ‘POSCO

F-66: Relationship between Reverse Ferrite Transformation and Recrystallization in Low-carbon Al-containing Steels: Shih-Che Chen1; Yuan-Tsang Wang1; Chun-Te Wu1; Hung-Wei Yen2; ‘National Taiwan University; ‘China Steel Corporation

F-67: Solidification Microstructures in Ag3Sn-Cu3Sn Pseudo-Binary Alloys: Haibo Yu1; Yu Sun1; S. Pamir Alpay2; Mark Aindow3; ‘University of Connecticut

F-68: Morphology of Order-disorder Structures in Rapidly Solidified L12 Intermetallics: Najatul Hasque1; ‘University of Leeds

F-69: Phase Transformation Kinetics of Fe16N2 Based Rare-earth-free Permanent Magnets: Md Meheddi1; Yanfeng Jiang1; Jian-Ping Wang1; ‘University of Minnesota

F-70: The Role of Grain Size Distribution in Nano-crystalline Shape Memory Alloys: Jakub Mikula1; Jerry Quck Siu Sin1; Shailendra P. Joshi1; David T. Wu1; Rajeev Ahluwalia1; ‘A*Star; ‘NUS

F-71: W, Nb, and Cr Effects on High-temperature Tensile Properties in Heat-resistant Austenitic Cast Steels: Yong Hee Jo1; SeungMun Jung1; Seok Su Sohn1; Won-Mi Choi1; Byeong-Joo Lee1; Yong-Jun Oh2; Gi-Yong Kim1; Seongsik Jang1; SungHak Lee1; ’Pohang University of Science and Technology; ‘Hanbat National University; ‘Key Yang Precision

F-72: Controlling of Mechanical Properties on SUS310S Substrate Used at Superconducting Wire: Seung-gyu Kim1; Najang Kim1; Sung-gi Choi1; Oh-min Kwon1; Dongilk Kwon1; ‘Seoul National University

F-73: Study on the High Temperature Phase Equilibrium Relationship in CaO-SiO2-10%La2O3-Nb2O5 System: Jiyu Qiu1; Chenjian Liu2; Zhaoyun Wang1; Junjie Shi1; Lifeng Sun1; ’School of Metallurgy, Northeastern University

F-74: Improved Electrochemical Discharge Kinetics of V-based BCC Metal Hydrides via Microstructure Reduction: Nicholas Woodcock1; Heng Yang1; Hongjin Tan2; Brent Fultz2; ’California Institute of Technology; ’Liox

F-75: Structure-Property Relations in Doped Ni-Mn-Ga Heusler Alloys for Magnetocaloric Applications: Michael McLeod1; Zafer Turgut1; Bhaskar Majumdar1; ’New Mexico Tech; ‘Wright Patterson AFB

F-76: In-situ High Energy XRD Study of Optimal Annealing for a Novel Nb/NiTi Nanocomposite: Fangmin Guo1; Shijie Hao1; Lishan Cui1; Yang Ren1; ’China University of Petroleum (Beijing)

F-77: Relationship of Microstructural Evolution to Magnetic Properties of Alnico Magnets: Wei Tang1; Lin Zhou1; Andry Palasuyk1; Kevin Dennis1; Jun Cui1; Matthew Kramer1; Iver Anderson1; ‘Ames Lab of DOE

F-78: Microstructure Evolution in Martensitic NiTi Using High Energy Diffraction Microscopy: Ashley Buscek1; Harshad Paranjape1; Branden Kappes1; Darren Dale2; Peter Ko2; Margaret Koke2; Aaron Stebner2; ’Colorado School of Mines; ’Cornell High Energy Synchrotron Source

F-79: Phase Equilibria in the Al-Co-Ni Alloy System: Yang Zhou1; Philip Nash1; ‘Illinois Institute of Technology

F-81: Effect of Composition and Thermal Processing on Transformation Characteristics and Equilibrium Phase Stability in NiTiH High Temperature Shape Memory Alloys: Tejas Unale1; Bradley Tomes1; Ibrahim Karaman1; Anjana Talapatta1; Raymundo Arroyave1; Ruben Santamarta1; ‘Texas A&M University; ‘Univesitat de les Illes Balears, Palma de Mallorca, Spain

F-82: Application of ASTAR/PED Orientation Microscopy Technique in Grain Boundary Character Distribution of Nano-size Pure Zirconium: Iman Ghomari1; Peyman Samimi1; Gregory Rohrer1; Peter Collins1; ‘Iowa State University

Pioneers in Additive Manufacturing — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee

Program Organizers: James Foley, Los Alamos National Laboratory; Paul Prichard, Kennametal Inc; Iver Anderson, Iowa State University/ Ames Laboratory; David Bourell, University of Texas

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A-94: 3D Additive Manufacturing of Metals at Micro/Nanoscale Using Localized Electrodeposition: Majid Minarya1; ‘University of Texas at Dallas

A-95: Direct Metal Write Additive Manufacturing of Rare-earth Modified Aluminum Alloys Using Electromagnetic Heating Systems: William Carter1; Zachary Sims1; Orlando Rios1; Lonnie Love1; ‘Brian Post1; Randall Lind1; ‘Max Neckau1; ‘Oak Ridge National Laboratory

A-96: FEM Modeling of Steel Additive Manufacturing Using Laser Hot-Wire Process: Zhenguo Nie1; Gang Wang1; James McGiffin-Cawley1; Badri Narayanayan1; Yiming (Kevin) Rong1; ‘Tsinghua University; ‘Case Western Reserve University; ‘The Lincoln Electric Company

A-97: Microstructure Evolution and Galling Properties of Hard Facing Coatings Deposited Using Laser Directed Energy Deposition: Nyiynth Sudharan1; Brian Jordan1; Ryan Dehoff2; Sudarsanam Babu2; ‘University of Tennessee Knoxville; ‘Oak Ridge National laboratory

A-98: Novel High Temperature Drop on Demand Liquid Metal-jetting for the Production of Complex 2D and 3D objects: Marco Simonelli1; Mark East1; Nesma Aboulkhair1; Richard Hague1; ‘University of Nottingham

Rare Metal Extraction & Processing — Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS: Hydrometallurgy and Electrometallurgy Committee

Program Organizers: Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Osterhof, Umicore; Naole Neelemeggham, Ind LLC; Takani Ouchi, Massachusetts Institute of Technology

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Session Chairs: Xiaofei Guan, Harvard University; Hojong Kim, The Pennsylvania State University
F-85: The Recovery of Bismuth from Bismuthinite Concentrate through Membrane Electrolysis: Lei Jie; Yang Jian-guang; Central South University

F-89: Selective Recovery of Scandium from Sulfating Roasting Red Mud by Water Leaching: Zhabo Liu; Hongta Li; Zihan Zhao; University of Science and Technology Beijing

F-90: Study of a Synergistic Solvent Extracting System to Separate Yttrium and Heavy Rare Earths: A Deep Investigations on System Behavior: Alessandro Blast; Corradino Spasato; Assunta Romanelli; Giacobbe Braccio; Massimo Morgana; ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Poster Session
Sponsored by: TMS Functional Materials Division, TMS: Nanomaterials Committee
Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

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Session Chairs: Jiyoung Kim, University of Texas at Dallas; Nitin Chopra, Univ. of Alabama; Chang-Yong Nam, Brookhaven National Laboratory; Stephen McDonnell, University of Virginia; Vinu Unnikrishnan, University of Alabama

J-1: Adsorption of Fluoride Gases in Aluminum Production Using Nano Technology: Mohsen Amerisahagoei; Khiorollah Mehriani; Mohammad Yousefi; Kamibiz Bordbar; Islamic Azad University; Shahid Bahonar University of Kerman

J-2: 12-tungstophosphoric Acid Load on SBA-15 Mesoporous Materials by Ultrasound-assisted Impregnation Method: Li Dong Wei; Zhang Tao; Yang Qiu Ju; Chongqing University of Education; Chongqing Institute Of Engineering

J-3: Applying Nano Technology to Separation Fluorides Emissions with Oxygen for Aluminum Smelter: Mohsen Amerisahagoei; Khiorollah Mehriani; Mohammad Yousefi; Kamibiz Bordbar; Islamic Azad University; Shahid Bahonar University of Kerman


J-5: Electrochemical Corrosion Study in Organic Films Containing Processed Vermiculite and Zinc Oxide Nanometric: Goncalo Siqueira; Helio Wiebeck; Paulo Kanayama; Jose Mauro Oliveira; Fabio Esper; University of Sao Paulo; University of Sao Paulo

J-7: Green Synthesis Gold Nanoparticles by the Silybum Marianum Extract: Laura Garcia-Hernandez; Pedro Ramirez; Mzaimz Flores; Diana Arenas; J. Marlen Lemus; Mireya Escorcia; Universidad Tecnológica De Tulancingo

J-8: Investigation of Microstructure Evolution in 3-D Memory Devices: Chloe Director; Purdue University

J-9: Mechanical Properties of Bio-inspired Nanocomposites: Anthony Shank; Scott Muller; Arun Nair; University of Arkansas

J-11: Novel Synthesis of Variable Size BaTiO3 Colloidal Nanocrystals Doped with Transition Metals as Multiferroic Material: Tommaso Costanzo; Gabriel Caruntu; Central Michigan University

J-12: Prospects of Semimetalf Microwires for Thermoelectric Applications: Leonid Konopko; Albina Nikolaeva; Tito Huber; Anna Kobylianskaya; IIEE D.Gihu; Howard University

J-13: Study of Ferric Phosphate Cathode Material for Lithium-ion Battery: Jinhua Li; Yaoshun Yao; Kumming University of Science and Technology

J-14: Study on the Bonding Strength of the Copper Circuit Layer(Metal) and Anodic Aluminum Oxide Layers(Ceramic): Shin Hyewong-won; Hyo-So Lee; Seung-Boo Jung; KITECH/Rare metal group/Emotional Materials & Components Research Center; Sungkyunkwan University

J-15: Synthesis of AgNP’S from Industrial Wastes: Pedro Ramirez Ortega; Jose Elizalde Mata; Jose Navarro Jimenez; Rodrigo Islas Hernandez; Laura Garcia Hernandez; Mizrain Flores Guerrero; Universidad Tecnológica de Tulancingo

J-16: Synthesis of Vertical Si Nanowire Arrays Fabricated by Nanoimprinting Lithography and Magnetically Guided Metal-assisted Chemical Etching: Dong Won Chun; Tae Kyoung Kim; Korea Institute Science and Technology; University of California at San Diego

J-17: The Effect of In Situ Magnetic Field and Film Thickness on Magnetic Properties and Residual Stress for Fe-based Amorphous Films: Sibo Wang; Hoe Joon Kim; David Laughlin; Gianluca Piazza; Jingxi Zhu; Carnegie Mellon University; Sun Yat-sen University

J-18: Theoretical Study of Sulfur Gases Adsorption in Aluminum Smelter with Carbon Nano Tube by Monte Carlo Simulation: Mohsen Amerisahagoei; Khiorollah Mehriani; Mohammad Yousefi; Kamibiz Bordbar; Islamic Azad University; Shahid Bahonar University of Kerman

J-20: Production of Nano Calcium Silicates by Alternative Methods of Synthesis: Juan Restrepo; Oscar Restrepo; Jorge Tobon; Universidad Nacional de Colombia

J-21: Simple Green Synthesis of Amino Acid Functionalized CdTe/CdSe/ZnSe Core-multi Shell with Improved Cell Viability for Cellular Imaging: Vuyelwa Ncaphayi; Sindile Songale; Oluwafemi Olatunbo; Walter Sisulu University; University of Johannesburg

J-22: Synthesis of MnO3 Nanopowders with Urea and Citric Acid by Solution Combustion Route: Esma Yilmaz; M. Seref Sonmez; Bora Derin; Filiz Cinar Sahin; Onuralp Yucel; Istanbul Technical University

J-23: Effect of Additives on the Microstructures of Highly-oriented (111) Nanotwinned Cu: Kuang-Ju Chen; National Chiao Tung University

J-27: Mechanical Properties of Highly (111)-oriented Nanotwinned Cu Lines: Wei-Ling Lai; Chih Chen; National Chiao Tung University

J-28: Phosphorus Gasification from High-phosphorsiron Ore during Carbothermic Reduction: Yuanxuan Zhang; Qingguo Xue; Jingsong Wang; Zhenfeng Zhou; University of Science and Technology Beijing

J-29: Study of Nano-twinned Cu Prepared by Low-temperature Electrodeposition and ItsThermal Stability: Yen-Chieh Chen; Chih Chen; National Chiao Tung University

J-31: Two-step Annealing of Bilayer Cu and the Mechanism of Grain Growth on (100)-oriented Cu Film: Hsin Yong Liu; Chih Chen; National Chiao Tung University

J-32: Electrical Property Improvement in Cu@Graphitic-carbon Nanocables: Danmin Liu; Fu-Jie Lin; Tian Tian; Bo Zhang; Yongzhe Zhang; Beijing University of Technology

J-33: The Size-dependent Melting Behaviour of Al-12Si/AlN Intelligent Systems: Jaebeom Lee; Jolanta Janczak-Rusch; Mariusz Andrzejczuk; Gunther Richter; Lars Jeurgens; Warsaw University of Technology; Empa, Swiss Federal Laboratories for Materials Science and Technology; Max Planck Institute for Intelligent Systems

J-34: Thin Hybrid Dielectric Film Engineering on MoS2 Using Molecular Electrodeposition and ItsThermal Stability: Sun-Kyu Lee; Jae-Ho Lee; University of California, Irvine

J-35: Thermoelectric Cooling by Holey Silicon and the Role of Thermal Conductivity Anisotropy: Zongqing Ren; JaeHo Lee; University of Texas Dallas
Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Shaping and Forming Committee

*Program Organizers:* Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

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**L-1:** Analysis of Compact Forced Simple-Shear and Compact Forced Double-Shear Specimens for Shear Localization in Materials: *Thomas Lebrun*; ¹Los Alamos National Laboratory

**L-2:** Characterization of a Biocompatible Co-Cr-W Alloy by means of Correlative Microscopy and Nanoindentation Experiments: *Irmgard Weissensteiner*; Patrick Voigt¹; Helmut Clemens¹; Verena Maier-Kiener¹; ¹Montanuniversität Leoben; ²Titanium Solutions GmbH

**L-3:** Displacement Rate and Temperature Equivalence in Stochastic Cluster Dynamics Simulations of Irradiated Pure alpha-Fe: *Aaron Dunn*¹; Brittany Muntifering¹; ²Remi Dingreville; Khalid Hattar¹; Laurent Capolungo¹; ¹TMS; ²Sandia National Laboratories; ³Los Alamos National Laboratory

**L-4:** Error Analysis of the Dictionary Approach to Electron Backscatter Diffraction Indexing: *Farangis Ramei*¹; Saransh Singh¹; Marc De Graef²; ¹Carnegie Mellon University

**L-5:** Microstructural Development During Particle/Substrate Impacts in Cold Spray of Gas Atomized Aluminum Alloy Powders: *Benjamin Bedard*¹; Tyler Flanagan¹; Sumit Suresh¹; Avinash Dongare¹; Seok-Woo Lee¹; Harold Brody¹; Xuemei Wang¹; Victor Champagne¹; Mark Aindow¹; ¹University of Connecticut; ¹University Technologies Research Center; ¹U.S. Army Research Laboratory

**L-6:** NiAl Oxidation Reaction Processes Studied In Situ Using MEMS-Based Closed-Cell Gas Reaction Transmission Electron Microscopy: *Kinga Unocic*¹; Dongwon Shin¹; Raymond Unocic¹; Lawrence Allard¹; ¹ORNL

**L-8:** The Thermal Stability of Cr-Cu Nanostructured Materials Revealed at the Atomic Resolution: *Zaoli Zhang*¹; Jiming Guo¹; Julian Rosalie³; ¹Erich Schmid Institute of Materials Science, Austrian Academy of Sciences

**L-9:** Unidirectional Fibre Composite Characterisation from X-ray Tomography: *Monica Emerson*¹; Ying Wang¹; Kristine Jespersen¹; Lars Mikkelsen¹; Philip Withers¹; Knut Conradson¹; Vedrana Dahl¹; Anders Dahl¹; ¹Technical University of Denmark; ¹The University of Manchester

**Advanced Materials in Dental and Orthopedic Applications — Poster Session**

*Sponsored by:* TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee

*Program Organizers:* Tolou Shokuhfar, University of Illinois at Chicago; Grant Crawford, South Dakota School of Mines and Technology; Terry Lowe, Colorado School of Mines; Luis Rocha, UNESP, Univ. Estadual Paulista, Faculdade de Ciências; Rajendra Kasinath, DePuy Synthes Products, LLC

**Tuesday PM**

**February 28, 2017**

**Room:** Hall B1

**Location:** San Diego Convention Ctr

**H-1:** Changing in the Elastic Modulus of Ti-10Mo-Zr System Alloys by Specific Heat Treatments: *Raul Araújo*¹; Gabriela Suárez¹; Carlos Grandini¹; ¹UNESP/Bauru

**H-2:** Correlation between the Presence of Martensitic Phase and Mechanical Properties of Ti-15Mo-xZr Alloys with Potential Orthopedic Application. Alloys with Potential Orthopedic Application: *Fábio Vicente¹; Marília Buzalaf¹; Carlos Grandini¹; ¹UNIP; ¹USP - Universidade de São Paulo; ¹UNESP - Univ. Estadual Paulista

**H-5:** Titanium-magnesium Composite for Dental Implants (BIACOM): *Martin Balog¹; Mateja Snajdar²; Peter Krizik²; Zdravko Schauperl²; Zlatko Stance²; Amir Catic²; ¹The Slovak Academy of Sciences; ²Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb; ³School of Dental Medicine, University of Zagreb

**Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — Poster Session**

*Sponsored by:* TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Nanomechanical Materials Behavior Committee, TMS: Thin Films and Interfaces Committee

*Program Organizers:* Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjib Bhownick, Hysitron; Jeffrey Wheeler, ETH Zurich; Maria Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

**Tuesday PM**

**February 28, 2017**

**Room:** Hall B1

**Location:** San Diego Convention Ctr

**L-10:** Deformation Characteristics of NiTi Alloys: *Sujith S¹; Indrani Sen¹; ¹IIT Kharagpur

**L-11:** High Temperature Dynamic Mechanical Response of Titanium Alloys: *Sindhuja Gangireddy²; Steven Mates²; ²NIST
Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Student Poster Session

**Sponsored by:** TMS Functional Materials Division, TMS: Alloy Phases Committee

**Program Organizers:** Sinn-wen Chen, National Tsing Hua University; Franck Gascoin, Enscena University of Caen; Soon-jik Hong, Kongju National University; Philippe Jund, Université de Montpellier; Lan Li, Bose State University; Takaori Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University

**Session Chair:** Sinn-wen Chen, National Tsing Hua University

**Tuesday PM**

**February 28, 2017**

**Room:** Hall B1

**Location:** San Diego Convention Ctr

**L-12:** Bi0.5Sb1.5Te3 Thin Films with Bulk-like Thermoelectric Properties on Glass and Flexible Substrates: Elli Symeon1; Christiania Nicolaou1; Ioannis Giapintzakis1; ‘University of Cyprus

**L-13:** Contribution Percentages of Electromigration and Diffusion on Interfacial Reactions at Joints in Thermoelectric Modules: Jing-wei Chen2; Sinn-wen Chen1; Yi-cheng Lin1; Tao-chih Chang3; ’National Tsing Hua University; ‘Industrial Technology Research Institute

**L-14:** Effect of Microstructure of the Thermoelectric Properties of Al-based Intermetallic Compounds Prepared by a Melt-spinning Method: Akira Umeda1; Ken Kurosaki1; Masaya Kumagai1; Yuji Ohishi1; Hiroaki Muta1; Shinsuke Yamanaka1; Osaka University

**L-15:** Electronic Structure and Thermoelectric Properties of Pseudogap Intermetallic Compound Al5Co2 with Scandium: Alexander Alabin2; Hiroaki Muta1; ‘University of Tokyo; ‘University of Tsukuba; ‘National Institute for Materials Science; ‘University of Houston

**L-16:** Micro Energy Harvesting Characteristics of Thermoelectric Thin-film Devices Fabricated Using Flip-chip Process: Jae Hwan Kim1; Tae-Yeol Lee1; Dong-Hwan Kim1; Jae-Ho Lee1; Tae-Sang Oh1; Hongik University; ‘DGIST

**L-17:** Rapid Synthesis of Zinc and Nickel Co-Doped Tetrahedrite Thermoelectrics by Mechanical Alloying and Reactive Spark Plasma Sintering: Daniel Weller1; Donald Morelli1; ‘Michigan State University

**L-18:** Synthesis and Thermoelectric Properties of ZnSnSb, with Chalcocypite Structure: Ami Nomura1; Ken Kurosaki1; Seongho Choi1; Yuji Ohishi1; Hiroaki Muta1; Shinsuke Yamanaka1; Osaka University

**L-20:** Synthesis of Ge-germanide Nanocomposites by Melt-spinning Technique: Takayuki Sasaki1; Ken Kurosaki1; Yuji Ohishi1; Hiroaki Muta1; Shinsuke Yamanaka1; Osaka University

**L-21:** Thermoelectric Properties of Amorphous Ti50Cu28Ni15Sn7-dispersed Bi0.4Sb1.6Te3 Nanocomposite Prepared by Mechanical Alloying and Vacuum Hot Pressing: Pee-Yew Lee1; ‘National Taiwan Ocean University

**L-22:** Thermoelectric Properties of Bulk Al(FeSi)1−xYasutaka Shio1; Kunio Yamamoto1; Hiroaki Muta1; Yuji Ohishi1; Ken Kurosaki1; Shinsuke Yamanaka1; Osaka University

**L-23:** Thermoelectric Properties of Nanostructured HfMS5/Si Eutectic Alloy Prepared by a Melt Spinning Method: Saori Wadagaki1; Yuji Ohishi1; Hiroaki Muta1; Ken Kurosaki1; Shinsuke Yamanaka1; Osaka University

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Alumina & Bauxite — Poster Session

**Sponsored by:** TMS Light Metals Division, TMS: Aluminum Committee

**Program Organizer:** Yanjun Li, Norwegian University of Science and Technology

**Tuesday PM**

**February 28, 2017**

**Room:** Hall B1

**Location:** San Diego Convention Ctr

**I-1:** Investigation of Structure and Properties of New Aluminum Alloys with Scandium: Mikhail Motkov1; Viktor Mann1; Alexander Krokkin1; Alexander Alabin1; Viktor Frolov1; Igor Kostin1; ‘LLC “RUSAL ITC”; ‘LLC “RUSAL ITC”

**I-2:** Corrosion of Al-Mg Alloys in Ethanol: Gustavo Kramer1; Estefania Gauto1; Roberto Rozicki1; Claudia Méndez1; Alicia Ares1; ‘IMAM (CONICET-UnA)

**I-3:** Effect of Ni Addition on Microstructure and Tensile Properties of Squeeze Cast Aluminum Alloy A380: Li Fang1; Xuezi Zhang1; Juxiang Zhou1; Henry Hu1; Xueyuan Nie1; Jimi Tong1; ‘University of Windsor; ‘Ford Powertain Engineering Research & Development Centre

**I-4:** Creep Behavior of Cast Aluminum-Copper Alloys at 300° C: Brian Milligan1; Shihayan Roy1; Shane Hawkins1; Patrick Shower1; Amit Shyam1; ‘Oak Ridge National Laboratory, Colorado School of Mines; ‘Oak Ridge National Laboratory; ‘Oak Ridge National Laboratory, Bresden Center for Interdisciplinary Research and Graduate Education

**I-5:** Warm Pressing of Al Powders: An Alternative Consolidation Approach: Peter Križik1; Martin Balog1; Oto Bajana1; Maria Victoria Riglos1; Peter Švec Sr1; ‘Institute of Materials & Machine Mechanics SAS; ‘Centro Atómico Bariloche

**I-6:** Influence of Reinforcement Particle Size and Spatial Distribution on Microstructure and Mechanical Behavior of Precipitation Strengthened Al Matrix Composites: Chuandong Wu1; Kaka Ma1; Enrique Lavernia1; Guoqiang Luo1; Fei Chen1; Qiang Shen1; lianmeng Zhang1; ‘UC Irvine; ‘Wuhan University of Technology

**I-7:** Hot Deformation Characteristics of Modified AA5052: Kwangtae Son1; Jiwoon Lee1; Shaeckwang Kim1; Youngok Yoon1; Soongkeun Hyun1; ‘Inha University; ‘Korea Institute of Industrial Technology

**I-8:** Study on the Anodic Oxide Film Formation on Die Casting Aluminum Alloy: Jadish Kim1; Jongmoon Park1; Sungmo Moon1; Minso Park1; Noin Park1; Myungoon Oh1; ‘Kumoh Institute of Technology; ‘Korea Institute of Material Science; ‘Jangwontech. CO.LTD

**I-9:** Mechanical Properties of Miniature Samples of Additive Manufactured Aluminum: An Experimental and Computational Study: Matan Tubul1; Itzhak Park1; ‘Bar-Ilan University; ‘Technion

**I-10:** Modification of Intermetallic Compounds in Aluminum Alloys by Using Ultrasonic Vibrations: Tomohiko Ishii1; Sergey Komarov1; ‘Tohoku University

**I-11:** Structure and Microhardness Analysis in Samples Directionally Solidified: Alex Kocibuczyk1; Roberto Rozicki1; Gustavo Kramer1; Alicia Ares1; ‘IMAM (CONICET-UnA); ‘CONICET/FCEyN-UnA
I-12: Fatigue and Tensile Properties of Hypoeutectic Al-Si-Mg Alloys with Excess Mg Contents: Young-Ok Yoon; Su-Young Lee; Seong-Ho Ha; Bong-Hwan Kim; Hyun-Kyu Lim; Shae K. Kim; ‘Korea Institute of Industrial Technology

I-13: Microstructure and Mechanical Properties of Al Alloys with Mn and AlTiB Addition: Hyo-Sang You; Yong-Ho Kim; Chang-Gi Jung; Seong-Hee Lee; Hyeon-Tack Son; ‘Korea Institute of Industrial Technology; ‘Mokpo National University

I-14: Mechanical Properties of Near Surface Microstructures (NSM) of Hot Rolled and Cold Rolled 5xxx Aluminum Alloys: Septedeh Parvinian; ‘Georgia Institute of Technology


I-16: Friction Welding Process Between 6351-T6 Aluminum Alloy And 1020 Steel: Sheron Tavares; Alexandre Bracarense; ‘Federal University of Minas Gerais

I-17: Quantifying Beta Phase Precipitation Rate in Marine Grade 5xxx Alloys: William Golubmbski; Jennifer Gaies; Emily Holcombe; Dan Scotto D’Antuono; Mitra Taheri; ‘Naval Surface Warfare Center, Carderock Division; ‘Drexel University

I-18: Effect of Different Temperature Sintered SiC Particles on Microstructure and Mechanical Properties of SiC Reinforced Aluminum Matrix Composites: Bo Zhang; Menghan Ao; Long Wang; Kaillin Long; Jienan Liu; Guangxin Wu; ‘Guangyang Industrial Technology Institute; ‘Guangyang Vocational and Technical College; ‘Shanghai University


Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Committee, TMS: Hdyrometallurgy and Electrometallurgy Committee

Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shaifq Alan, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Tuesday PM
Location: San Diego Convention Ctr

Session Chair: Brad Westrom, Freeport-McMoRan

N-1: Effect of Particle Size of Coal and Pyrolysis Temperature on Combustion Reactivity of Coal Char: Implications for Granular Coal Char Injection in a Blast Furnace: Chong Zou; Cheng Ma; Junxue Zhao; ‘Xi’an University of Architecture and Technology

N-2: Influence of Diluents Dosage on the Performance of High Solid Anti-corrosion Coating by Converter Dust: Jinglong Liang; Hui Li; Ramana Reddy; Yungang Li; ‘North China University of Science and Technology; ‘The University of Alabama

N-3: Treatment of Blast Furnace Gas Washing Water by Utilization of Coagulation Associated with Microwave: Jun-hong Zhang; Qing-hai Pang; ‘University of Science and Technology Liaoning

N-4: Permeselectivity Study of Ion-exchange Membranes in the Presence of Cu-HEDP Complexes from a Copper Plating Wastewater Treatment: Juliana Jesus; Tatiana Scarazzato; Jorge Tenório; Denise Espinosa; ‘University of São Paulo

N-5: High Temperature Properties of Molten Nitrate Salt for Solar Thermal Energy Storage Application: Mehedi Mohammad; Geoffrey Alan Brooks; Muhammad Akbar Rhamdhan; Muhammad Firdaus; ‘Swinburne University of Technology

Bio-Nano Interfaces and Engineering Applications — Poster Session

Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee

Program Organizers: Candan Tamerler, University of Kansas; John Nyckha, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

Tuesday PM
Room: Hall B1
Location: San Diego Convention Ctr


H-7: Regeneration Sands Foundry for Deterioration Bacterial in Industrial Scale: Viviane Rodrigues; Bruno Karolski; Jorge Tenório; ‘University of São Paulo

H-8: Effect of Doped Magnesium in Titanium Nitride Coatings on Behavior of Mesenchymal Stem Cells: Sakip Onder; Ayse Calikoglu-Koyuncu; Kursat Kazmanli; Mustafa Urgen; Fatma Nese Kok; Gamze Torun-Kose; ‘Isik University; ‘Yeditepe University; ‘Istanbul Technical University

H-9: Determination of Cell Adhesion on Supported Lipid Bilayers by Quartz Crystal Microbalance Sensor: Abdulhalim Kiliç; Majid Jaddi; Hakak Ozgur Ozer; Fatma Nese Kok; ‘Istanbul Technical University

Biological Materials Science — Biological Materials Science Poster Session

Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee

Program Organizers: Po-Yun Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Tuesday PM
Room: Hall B1
Location: San Diego Convention Ctr

H-10: Effect of Cu Content on the Antimicrobial Properties of Copper Alloys: Monika Walkowicz; Piotr Osuch; Beata Smyrak; Andrzej Mamala; Tadeusz Knych; Anna Rozanska; Agnieszka Chmielarczyk; Dorota Romaniszyn; Malgorzata Bulanda; ‘AGH University of Science and Technology; ‘Jagiellionian University Medical College

H-11: Effect of the Oxidation of Copper and its Alloys on the Antimicrobial Efficacy of Touch Surfaces: Monika Walkowicz; Piotr Osuch; Beata Smyrak; Andrzej Mamala; Tadeusz Knych; Anna Rozanska; Agnieszka Chmielarczyk; Dorota Romaniszyn; Malgorzata Bulanda; ‘AGH University of Science and Technology; ‘Jagiellionian University Medical College

H-12: Investigating Biochemical Constituents of Cymbopogon Citratus Leaf: Prospects on Total Corrosion of Concrete Steel-rebar in Acidic Sulphate Medium: Joshua Okeniyi; Elizabeth Okeniyi; Olubanke Oggunlana; Taiwo Owoeye; Oluseyi Oggunlana; ‘Covenant University, Ota, Nigeria; ‘Crawford University, Igbesa, Nigeria

H-14: Structure-Property Relations of the Ironclad Beetle (Zopherus nodulus haldemani) Exoskeleton: Vina Nguyen; Parker Berthelsen; Hongjoo Rhee; Melanie Garrett; Mark Horstmeyer; Lakiesha Williams; Jun Liao; Robert Moser; Rajkumar Prabhu; ‘Mississippi State University; ‘U.S. Army Engineer Research and Development Center

H-15: Synthesis and Characterization of Mesoporous Forsterite/Magnesium Oxide Composite Powder: Seyed Mehdi Mirhadi; Forsiborz Tavangarian; ‘Shahreza Branch, Islamic Azad University; ‘Penn State Harrisburg
H-16: The Protective Scales of Atractosteus Spatula and the Production of a Bioinspired Armor: Vincent Sherman; Nicholas Yaraghi; Marc Meyers; David Kisailus; University of California, San Diego; University of California, Riverside

H-17: Microstructural Characterization of Freeze-casted AI2O3 Scaffold: Guan-Lin Liu; Yi-Ting Liao; Joe-Ming Chang; Hsiao-Ming Tung; Institute of Nuclear Energy Research

H-18: Two-step Sintering Effects on the Microstructure and Mechanical Properties of Forsterite Scaffolds: Fariborz Tavangarian; Lindsay Childs; Gueqiang Li; Dakota Wootten; Bryant Cornwall; Penn State Harrisburg; Morehead State University; Louisiana State University

Biological Materials Science — Biological Materials Science Student Poster Contest
Sponsored by: TMS Functional Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Tuesday PM  Room: Hall B1  Location: San Diego Convention Ctr

February 28, 2017

H-19: Aligned Carbon Nanotubes Reinforced Electrospun Polymeric Scaffolds for Peripheral Nerve Repair: Pallavi Gupta; Murahi Kumaraswamy; Partha Roy; Debraja Lahiri; IIT

H-20: Bioinspired by Porcupine Quills: Freeze Cast Porous Scaffolds Strengthened by Shrink Wrap and Infiltration with Biodegradable Materials: Michael Frank; Ali Ismail; Louis Guibert; Jerry Ng; Joyce Mok; Cindy Ayala; Sze Hei Siu; Joanna McKittrick; UC San Diego; Ecole Polytechnique de l’Université de Nantes

H-21: Bone Remodeling under Tooth Loading: Kangning Su; Jing Da; Li Yuan; Pennsylvania State University; Shenzhen People’s Hospital, 2nd Clinical Medical College of Jinan University

H-22: Design and Analysis of Beetle Wings Inspired Foldable Materials by the Origami Approach: Chi-Huan Tung; Cheng-Chun Shih; Po-Yu Chen; National Tsing Hua University

H-23: Development of 3D Template Freeze Casted Hydroxyapatite/Magnesium Alloy Biodegradable Implants: Yajir Maker; Jae-Young Jung; Kathryn Kang; Michael Frank; Joanna McKittrick; UC San Diego


H-25: Mammal Horns as Natural Weapons: Yuchen Zhang; UCSD

H-26: Microstructural Origins of the Dynamic Behavior of Wood and Bioinspired Designs: Albert Matsushita; Damian Gonzalez; Michael Frank; Jae-Young Jung; Joanna McKittrick; University of California, San Diego

H-27: Porous 45S5 Bioglass®-based Scaffolds Using Stereolithography: Effect of Partial Pre-sintering on Structural and Mechanical Properties of Scaffolds: Boonlom Thavornvithakarn; Terence Turney; Passakorn Tesavibul; Krishrii Sithisaraphat; Nattapon Chatarapanich; Bryce Fritts; Monash University; National Metal and Materials Technology Center; Kasetsart University; RMIT University

H-28: Production of Zinc-Magnesium Alloy Wires by Thermal Drawing for Pediatric Bioabsorbable Stent Applications: Injo Hong; Daniel S. Lee; Xiaochun Li; Department of Mechanical and Aerospace Engineering, University of California, Los Angeles; Division of Pediatric Cardiology, Mattel Children’s Hospital, University of California Los Angeles

H-29: Structure-Property Quantification for the Bio-Inspiration of the Great White (Carcharodon carcharias) and the Tiger (Galeocerdo cuvier) Shark’s Teeth: John Wood; Hongjoo Rhee; A. C. McIntosh; R. D. Moser; M. Horstmeyer; R. Prabhul; Mississippi State University; Center for Advanced Vehicle Systems; U.S. Army Engineer Research and Development Center

H-30: Structure and Mechanical Behavior of Human Hair: Yang Yu; Wen Yang; Bin Wang; Marc Meyers; University of California, San Diego

H-31: Structure and Mechanical Implications of the Pectoral Fin Skeleton in Longnose Skates: Wei Huang; Vladu Lubarda; Watcharapong Hongjamrassil; Jae-Young Jung; Phil Hastings; Joanna McKittrick; University of California, San Diego

H-32: Study of Formation of Passivating Oxides in Thin Films of Ti-Nb for Biomedical Applications: Ernesto Gonzalez Cruz; Pedro Nascentes; Patricia Sato; Universidade Federal de Sao Carlos

H-33: Surface Magnetized Hydroxyapatite for Multi-Axis Strengthened Bone Implants with Magnetic Freeze Casting: Michael Frank; Cindy Ayala; Louis Guibert; Keyur Karandikar; Chin-Hung Liu; Sze Hei Siu; Olivia Graeve; Joanna McKittrick; UC San Diego; Ecole Polytechnique de l’Université de Nantes

H-34: Comparison of Deproteinization Methods for Porcine Femoral Cortical Bone: Frances Su; Peter Shyu; Yik Tung Tracy Ling; Ekaterina Novitskaya; Kyungah Seo; Sofia Lambert; Kimberlin Zarate; Olivia Graeve; Iwona Jasiuk; Joanna McKittrick; University of California, San Diego; University of Illinois at Urbana-Champaign; Centro de Enseñanza Técnica y Superior - Campus Mexicali; Hilltop High School

H-35: Integration of Biodegradable Materials to Enhance Magnetic Properties of Nodule-Free Biomechanical Magnets: Xiao Li; Heyi Ryeong; Young-Chul Jeong; University of California, San Diego; University of Science and Technology, Ulsan

H-36: Structural and Mechanical Properties of the Large Teeth of the Great White (Carcharodon carcharias): John Wood; Hongjoo Rhee; A.C. McIntosh; R.D. Moser; M. Horstmeyer; R. Prabhul; Mississippi State University; Center for Advanced Vehicle Systems; U.S. Army Engineer Research and Development Center

H-37: Shape Memory Effect in Teeth of Shortnose Skate: Wei Huang; Vladu Lubarda; Watcharapong Hongjamrassil; Jae-Young Jung; Phil Hastings; Joanna McKittrick; University of California, San Diego

Bulk Metallic Glasses XIV — Poster Session
Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Tuesday PM  Room: Hall B1  Location: San Diego Convention Ctr

February 28, 2017

L-24: Deformation Behavior of a Ti-Zr-based Bulk Metallic Glass Matrix Composite: Kevin Kaufmann; Laura Andersen; Kenneth Vecchio; University of California, San Diego

L-25: Effect of Annealing on the Magnetic Properties of Fe-based Amorphous Alloys: Song Yi Kim; HyeRyeong On; A Young Lee; Hyun Ah Kim; Min Ha Lee; Kitech

L-26: Micro-imprinting of High Strength Hf-based Bulk Metallic Glass Using by Athermal Method: Song Yi Kim; Min Ha Lee; Korea Institute of Industrial Technology

L-27: Phase Separation in Cu47.5Zr48Al4Co0.5 Bulk Metallic Glass: Song Yi Kim; Min Ha Lee; Korea Institute of Industrial Technology

L-28: Solid-state Amorphization of W-containing Alloy Powders: Young Jun Kwon; Christopher A. Schult; Hoon Kwon; Ki Sub Choi; Kookmin University; Massachusetts Institute of Technology

L-30: The Effects of Nitrogen Addition on the Magnetic Properties of Fe-based Amorphous Alloy: HyeRyeong Oh; Minha Lee; SONGYI Kim; A-Young Lee; Gyu Hyeon Park; Hyun-ah Kim; Jongryoul Kim; KITECH; Hanyang University

L-31: Thermal Induced Reversible Devitrification in Zr-Pt Binary Alloy: Hyun Ah Kim; A Young Lee; Hye Ryeong Oh; Gyu Hyeon Park; Song Yi Kim; Ryan T. Ooi; Do Hyang Kim; Min Ha Lee; Korea Institute of Industrial Technology; Ames Laboratory (USDOE); Yonsei University
Characterization of Minerals, Metals, and Materials — Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee

Program Organizers: Shadia Ikthaymens, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; FIraro Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Gospwami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Tuesday PM
Room: Hall B1
Location: San Diego Convention Ctr

Session Chairs: Eren Kalay, METU; Jian Li, CanmetMATERIALS

K-1: Characteristics of Stamp Charging Coke and Top Charging Coke: Bing Gao1; 1University of Science and Technology Beijing

K-2: Contribution to the B Relaxation Study of the HDPE, LDPE and LLDPE: Washington Oliani1; Luis Filipe Lima1; Harumi Otaguro2; Hélio Ferreto3; Ademar Lugao1; Duclerc Parra1; 1Nuclear Energy Research Institute — IPEN/USP; 2Universidade Federal de Uberlândia

K-3: Synthesis and Structural Characterization of BaTiO3 Doped with Gd3+: Juan Pablo Hernandez Lara1; Miguel Perez Labra1; Francisco Raúl Barrientos Hernández2; Alberto Arenas Flores3; José Antonio Romero Serrano1; Aurelio Hernández Ramírez2; Pandiyan Thangarasu3; 1Autonomous University of Hidalgo State; ESIQIE-IPN; 3National Autonomous University of Mexico.

K-5: Accelerated Degradation of the Polypropylene Inducing Thermal Aging: Rebeca Romero1; Washington Oliani1; Duclerc Parra1; Ademar Lugao1; 1Nuclear Energy Research Institute — IPEN/USP

K-7: Automated Optical Microstructural Characterization of Thermal Spray Coatings: Satya Ganti1; Elizabeth Jenkins1; Rabi Bhattacharya1; Veeraraghavan Sundar1; 1UES Inc.

K-8: Effect of Exposure to Salt Spray in Multiple-use Mortars with Addition and Waste from Paper Production: Afonso Azevedo1; Jonas Alexandre2; Niander Aguilar1; Gustavo Xavier1; Sergio Monteiro1; Victor Souza3; Markssuel Marvila3; 1IF; 2UEFN; 3IME; 4UFF

K-9: Effects of Wet Grinding on the Structure and Granularity of Biological Origin Aragonite and Its Polymeric Transformation into Calcite: Tang Yinhui1; He Mingsheng2; 1Beijing University of Technology; 2R&D Center of WISCO

K-10: A Kinetic Model for the Growth of FeB and Fe3B Phases on the AISI M2 Borided Steel during the Powder-pack Boriding: Miguel Flores1; Martin Ortiz2; Oscar Gómez2; Milton Espinosa2; Joaquín Osegueda3; 1Escuela Superior de Ciudad Sahagún-Universidad Autónoma del Estado de Hidalgo; 2Instituto Tecnológico y de Superiores de Monterrey campus Estado de México; 3Instituto Tecnológico y de Estudios Superiores de Monterrey-ITESM Campus Santa Fe

K-11: Addition of Cellulose Nanofibers in Reactive Powder Concrete: Felipe Machado1; Leonardo Pedrotti1; João Vitor Lemes1; Gustavo Lima2; Lucas Flores3; Wellington Fernandes3; Rita Alvarenga1; Jonas Alexandre2; 1Universidade Federal de Vícuia; 2Universidade Estadual Norte Fluminense

K-12: Alkaline Decomposition of Synthetic Thallium Jarosite in NaOH and CaO Medium: Hernán Islas1; Francisco Patiño3; Iván Reyes1; Mizraim Flores2; Sayra Ordóñez2; Martin Reyes1; Elia Palacios2; Victor Flores3; 1Universidad Autónoma del Estado de Hidalgo; 2Universidad Politécnica Metropolitana de Hidalgo; 3Universidad Autónoma de San Luis Potosí; 4Universidad Tecnológica de Tulancingo; 5Instituto Politécnico Nacional; 6Escuela Superior de Zimapán Universidad Autónoma del Estado de Hidalgo

K-13: Application of Membrane Separation Technology in Wastewater Treatment of Iron and Steel Enterprise: Lei Zhang1; 1Wuhan Iron and Steel Company

K-14: Boiler Ashes Incorporation in Mixed Mortar Using Experimental Planning in Simplex Network: Marina Caetano1; Leonardo Pedrotti1; Gustavo de Lima1; Igor Andrade1; Wellington Fernandes1; Rita Alvarenga1; Gustavo Xavier1; Afonso Azevedo1; Caio Torres1; Ricardo Almeida1; 1UFV; 2UEFN

K-15: Brillouin Scattering Study on Elastic Properties of Bulk hcp ZnO Single Crystal: Pingying Fan1; Yongquan Wu1; 1Shanghai University

K-16: Characterization and Leaching Proposal of Ag (I) from a Zn Concentrate in a O2− -O2 Medium: Aislinn Teja Ruiz1; Julio Juárez Tapia2; Leticia Hernández Cruz2; Martín Reyez Pérez2; Uríel Flores Guerrero3; Iván Reyes Domínguez1; Eliecer Mendez1; 1Universidad Autónoma del Estado de Hidalgo

K-17: Characterization of Mercury Jarosite: Sayra Ordóñez1; Francisco Patiño3; Mizraim Flores2; Iván Reyes1; Elia Palacios2; Victor Flores3; Martin Reyes1; Ister Mireles1; Hernán Islas1; 1Universidad Autónoma del Estado de Hidalgo; 2Universidad Politécnica Metropolitana de Hidalgo; 3Universidad Tecnológica de Tulancingo; 4Universidad Autónoma de San Luis Potosí; 5Instituto Politécnico Nacional; 6Escuela Superior de Zimapán Universidad Autónoma del Estado de Hidalgo

K-18: Chemical and Mineralogical Characterization of a Mixed Sulphide Ore at Zimapán, Hidalgo: Laura Angeles1; Martín Reyes2; Miguel Pérez2; Elia Palacios1; Francisco Patiño3; Iván Reyes1; Mizraim Flores2; 1Universidad Autónoma del Estado de Hidalgo; 2Instituto Politécnico Nacional; 3Universidad Politécnica Metropolitana de Hidalgo; 4Universidad Autónoma de San Luis Potosí; 5Universidad Tecnológica de Tulancingo

K-19: Brazilian Bentonite Characterization Aiming Their Use in Clay/ Polymer Nanocomposites: Francisco Valenzuela-Diaz1; Djalma Dias2; Rogerio Sakahara3; Guilherme Cardoso1; Kilca Botelho1; Gabriel Machado1; Maria das Graças Silva-Valenzuela1; Julio Harada3; 1Universidade de Sao Paulo1; IPEN; 2UNIGRAN/USP; 3UFABC

K-20: Characterization of a Bentonitic Clay amd Its Use in Bleaching Brazilian Nut Oil: Alexandre Machado1; Jivaldo Matos1; Flavio Carvalho1; Adriano Araujo1; Christiano Andrade1; Maria das Graças Silva-Valenzuela1; Francisco Valenzuela-Diaz1; 1Universidade de Sao Paulo; 1Universidade Federal do ABC

K-21: Characterization of Biodegradable Mulch Black Films Incorporated with Organics Fertilizers and Rice Husk Ash: Julio Harada1; Camila Amorim1; Paula Braga1; Abner Cabral Neto1; José Ricardo Macedo1; Luci Diva Machado1; Leonardo Silva1; Derval Rosa1; 1IPEN-CNEN/SP; 2Universidade Presbiteriana Mackenzie; 3Universidade Federal do ABC

K-22: Characterization of Steel Production Dust and Their Use in Incorporation with Organics Fertilizers and Rice Husk Ash: Washington Oliani1; Luis Filipe Lima1; Harumi Otaguro2; Hélio Ferreto3; Ademar Lugao1; Duclerc Parra1; 1Nuclear Energy Research Institute — IPEN/USP; 2Universidade Federal de Sergipe; 3Universidade Federal do ABC
K-24: Charpy Toughness Behavior of Jute Fabric Reinforced Polyester Matrix Composites: Fabio de Assis1; Sergio Monteiro1; Artur Pereira1; Fabio Braga1; 1Military Institute of Engineering

K-25: Clay: Characterization and Evaluation of the Application Potential: Gustavo Lima1; Leonardo Pedroti1; Wellington Fernandes1; Jonas Alexandre1; Afrozo Azevedo2; Carlos Maurício Vieira2; 1Universidade Federal de Viçosa - UFV; 2Universidade Estadual do Norte Fluminense Darcy Ribeiro

K-26: Determination of Ten Impurity Elements in Tin Concentrate and Smelting Products by ICP-AES: Junke Wang1; Ping Long2; Jian Wu1; Wenh Zhong1; Peipei Liu1; Xinlin Ren1; Bin Yang1; 1Kuming University of Science and Technology

K-27: Effects of Magnetic Field Curing on Microstructure of Magneto rheological Elastomers Based on Iron-natural Rubber Nanocomposites: Inamad Al-Omari1; M P Vasudevani2; P M Sadeep3; Philip Kurianova4; P M Ajayan5; T N Narayanan6; M R Anantharaman7; 1Sultan Qaboos University; 2Sree Sankara Vidya Peetom College; 3Cochin University of Science and Technology; 4Rice University; 5TIFR Centre for Interdisciplinary Sciences

K-28: Electron Beam Effect on Mechanical and Thermal Properties of DGEBA/EPDM Composite: Anderson Mesquita1; Ivan Cavalcante1; Traian Zaharescu1; Leonardo Silva1; 1Instituto de Pesquisas Energéticas e Nucleares - IPEN/USP; 2INCIDIE, ICPE-CA

K-29: Efficient High-Resolution Study of Dissimilar Metal Interfaces: Genevieve Lee1; Jonathan Orsborn1; Antonio Ramirez1; 1The Ohio State University

K-30: Evaluation of Ballistic Armor Behavior with Epoxy Composite Reinforced with Malva Fibers: Lucio Nascimento1; Luane Ferreira Holanda1; Luís Henrique Leme Louro1; Sérgio Neves Monteiro1; Ałaeslon Vieira Gomes1; Edio Pereira Lima Júnior1; Fábio Braga1; 1Instituto Militar de Engenharia

K-31: The Non-Isothermal Crystallization Behavior of Polyethylene/Calcium Carbonate Composite: Andre Colosse1; Mônica Andrade1; Ana Silva1; Fernanda Silva1; 1INCSQ-Fiocruz; 2IPRJ_UERJ; 3IMA-UFRJ; 4IQ-UFRJ

K-32: Evaluation of Durability of Red Ceramic Incorporated with Ornamental Stone Waste: Gustavo Xavier1; Jonas Alexandre1; Afrozo Azevedo1; Sérgio Monteiro1; Leonardo Pedroti1; Helioa Ferreira1; 1UNEF

K-33: Evaluation of Elastic Properties by Impulse Excitation Technique in Epoxy Composites Reinforced with Coir Fiber: Fernanda da Luz1; Sérgio Monteiro1; 1Military Institute of Engineering,IME

K-34: Wood-to-concrete Joints Using Steel Connectors: Experimental Evaluation: Juliano Correa1; Rita de Cássia Alvarenga1; Beatriz Mendes1; Márcio Moreira1; 1Universidade Federal de Viçosa

K-35: Evaluation of the Pozzolanic Activity of Residue from the Paper Industry: Afrozo Azevedo1; Jonas Alexandre1; Lucio Petrucci1; Eusébio Zanelato1; Thaís Oliveira1; 1UFF; 2UENF

K-36: Evaluation of the Properties of the Adhesive Mortar in the Fresh State with Addition of Glass Waste: Diogo Santos1; Afrozo Azevedo1; Jonas Alexandre1; Sérgio Monteiro1; Gustavo Xavier1; Beatriz Mendes1; Leonardo Pedroti1; Lucio Petrucci1; Marta Przewlitz1; 1UFF; 2UFV; 3UCAM

K-37: Experimental Evaluation of the Influence of Mortar’s Mechanical Properties on the Behavior of Clay Masonry: Rita Alvarenga1; Gustavo Nalon1; Lucas Fiorets1; Mônica Pinto1; Leonardo Pedroti1; José Carlos Ribeiro1; 1Universidade Federal de Viçosa

K-38: Experimental Study on Limestone Gypsum Desulfurization Agent with SDA Desulfurization Ash: Lu Li1; 1Wisco

K-40: X-ray and Microstructural Study of a Set of Cast Aluminum Alloys: Thomas Watkins1; Shibayan Roy2; Lawrence Allard Jr1; Amit Shyam1; Dongwon Shin1; J. Allen Haynes1; 1ORNLI; 2Indian Institute of Technology

K-41: Porosity of Soil Pigments Based Paints: Reinaldo Santos1; Beatriz Mendes1; Rita de Cássia Alvarenga1; Fernando Cardoso1; Anôr Carvalho1; 1Universidade Federal de Viçosa

K-42: Use of Gamma-alumina Nanoparticles for Drug Delivery System: Antonio Manhó Jr1; Leila Miranda1; Leonardo Silva1; Mariana Oliveira1; Raphael Andrades1; Renato Peres1; 1U.P.Mackenzie

K-43: The Mineralogical and Gemmological Characteristics of Turquoise from Luol Nan, Shan Xi, China: Luo Yuanfei1; 1China University of Geoscience

K-44: Mechanical Properties of Nanocomposites High Melt Strength Polypropylene (HMSPP) Obtained by Gamma Radiation in Comparison to Conventional Polypropylene Nanocomposites with Smeectite Nanoclay: Danilo Fermino1; Washington Oliani1; Christiano Bastos Andrade1; Duclerc Parra1; Maria Silva Valenzuela1; Francisco Valenzuela Díaz1; 1IPEN; 2UENF

K-45: Polymer Blend Based on Recycled Polyethylene and Ethylene Vinyl Acetate Copolymers Reinforced with Natural Fibers from Agricultural Wastes: Renata Cioal1; Gisele Lazo1; Rêne Oliveira1; Rita Rodrigues1; Esperidiana Moura1; 1Instituto de Pesquisas Energéticas e Nucleares; 2Escola de Engenharia de Lorena, Departamento de Biotecnologia. Universidade de Sao Paulo

K-46: Mechanical, Thermal and Electrical Properties of Polymer (Ethylene Terephthalate - PET) Filled with Carbon Black: Anderson Mesquita1; Leonardo Silva1; Leila Miranda1; 1Instituto de Pesquisas Energéticas e Nucleares - IPEN/USP; 2Universidade Presbiteriana Mackenzie

K-47: The Use of Network Simplex Method for Planning the Incorporation of Recycled Paper Mill Sludge in Manufacturing of Ceramic Bodies: Andreiva Carmo1; Nirlane Silva1; Anna Sartori1; Ana Rezende1; Leonardo Pedroti1; Wellington Fernandes1; Benício Ribeiro1; 1Universidade Federal de Viçosa

K-48: Nd3+ Doping Effect on the Structure, Microstructure, Lattice Distortion and Electronic Properties of TiO2 Nanoparticles: Balier Trujillo-Navarrete1; Edgar Alonso Reynoso-Soto1; Maria del Pilar Haro-Vázquez1; Henry Alvarez-Huerta1; Rosa María Félix-Navarro1; Sergio Pérez-Sicairos1; 1Instituto Tecnológico de Tijuana; 2Universidad Autónoma de Baja California

K-49: Nanostructural Evolution of Ni-Superalloys during Hot Rolling and Thermal Aging: Matjaz Godec1; Simon Malej1; Jaká Burja1; Franc Tehovnik1; Bojan Podgornik1; 1Institute of Metals and Technology

K-50: Optical Marker Synthesis for Use in Polymer Processing Based on the Doping with Europium Complex: Luiz Komatsu1; Washington Oliani1; Ademar Lugo1; Duclerc Parra1; 1Nuclear and Energy Research Institute

K-51: Plasmmonic Behavior of Nonstoichiometric Alumina on Al: Hansoo Kim1; 1Texas A&M University

K-52: Nanostructural Evolution of Ni-Superalloys during Hot Rolling and Thermal Aging: Matjaz Godec1; Simon Malej1; Jaká Burja1; Franc Tehovnik1; Bojan Podgornik1; 1Institute of Metals and Technology

K-53: Use of Alkaline Solid Wastes from Kraft Pulp and Paper Mills, Dregs and Grits in Cement Production: Caio Torres1; Leonardo Pedroti1; Claudio Silva1; Wellington Fernandes1; Natália Viana1; Gustavo Lima1; Roseli Martins1; Roseli Martins1; Lorena Sathler1; Marina Caetano1; Igor Andrade1; 1UFF / DEC

K-55: Synthesis and Characterization of PVA/Bio-hydroxyapatite Nanoparticle for Sunscreen Application: Karine Sousa1; Pedro Reis1; Rêne Oliveira1; Esperidiana Moura1; 1Instituto de Pesquisas Energéticas e Nucleares

K-56: Research on the Advanced Treatment of Coking Wastewater with Semi-coke Modified with Water Vapor: Lina Wang1; 1Wuhan Iron and Steel Co.

K-57: Preparation and Characterization of Polyethylene Nanocomposites with Clay and Silver Nanoparticles: Washington Oliani1; Danilo Fermino1; Luiz Komatsu1; Ademar Lugo1; Vijaya Rangari1; Nilson Lincopan1; Duclerc Parra1; 1Nuclear Energy Research Institute – IPEN/USP; 2Department of Metallurgical and Materials Engineering; 3Center for Advanced Materials Science and Engineering Tuskegee University; 4Department of Microbiology-Institute of Biomedical Sciences, University of São Paulo

K-58: Radiation Effects in the Crystal Poly(styrene) Composite with Clays: Djalma Dias1; Elaine Silva1; Francisco Valenzuela-Diaz2; Mariana Sartori1; Leonardo Silva1; 1IPEN/CNEN-SP; 2Universidade de Sao Paulo
K-59: Production of Concrete Interlocking Blocks with Partial Replacement of Sand in Bulk by Waste Glass Machined: Niander Cerqueira; Victor Souza; Igor Pereira; Rondinelli Ribeiro; Afonso Azvedo; Victor Bartolazzi; Mairynne Souza; Glencio Daniel; "Universidade Estadual do Norte Fluminense Darcy Ribeiro - UENF; "UFF; "Faculdade Redentor

K-60: Steel Slag: Application of Analysis in Cementitious Materials: Gustavo Lima; Leonardo Pedroti; José Carlos Junior; Wellington Fernandes; Sergio Monteiro; "Universidade Federal de Viçosa - UFV; "Universidade Federal de São João del Rei; "Instituto Militar de Engenharia

K-61: Reactive Powder Concrete Production with the Addition of Granite Processing Waste: Joao Vitor Lemes; Gustavo Lima; Felipe Gabriel Machado; Leonardo Pedroti; Lucas Fioretti; Wellington Fernandes; Rita Alvarenga; Sergio Monteiro; "Universidade Federal de Viçosa; "Instituto Militar de Engenharia

K-62: Study of Synergistic Effect of Light Stabilizer Additive, Conventional and Nanoparticles, Applied to Polyethylene Films Submitted to Ultraviolet Radiation: Patricia Poveda; Leonardo Silva; "Instituto de Pesquisas Energéticas e Nucleares - IPEN/CNEN-SP

K-64: Saw Dust of Waste as Partial Substitute Fine Aggregate in Structural Concrete: Niander Cerqueira; Victor Souza; Victor Bartolazzi; Henri Gazzal; João Victor Silveira; Mairynne Souza; Olivia Campinholo; André Gomes; Glencio Daniel; "Universidade Estadual Do Norte Fluminense Darcy Ribeiro - UENF; "UFF; "Faculdade Redentor

K-65: Study of Calcined Mixtures from Industrial Residues for Production of Agglomerates: Letícia Fernandez; Leonardo Pedroti; Ellisson Ferreira; Rita Alvarenga; Larice Justino; Wellington Fernandes; "Universidade Federal de Viçosa

K-66: Study of the Effect of Surface Liquid Flow during Column Flotation of Mining Tailing of the Dos Carlos Dam: Javier Flores Badillo; Juan Hernández Ávila; Eleazar Salinas Rodríguez; Isauro Rivera Landero; María Reyes Valderrama; Eduardo Cercpedo Saenz; Martín Reyes Pérez; Mauricio Guerrero Rodríguez; "Universidad Autónoma del Estado de Hidalgo


K-69: Study on Bending Test on Concrete Structural Use Crumb Rubber as Substitute in Fine Aggregate: Niander Cerqueira; Victor Souza; Bruno Padilha; Pâmela Berço; Afonso Azvedo; Victor Bartolazzi; Glencio Daniel; "Universidade Estadual do Norte Fluminense Darcy Ribeiro - UENF; "UFF; "Faculdade Redentor

K-71: Surface Characterization of FeS2 and Pulp during Grinding in an Inert Mill: Martín Reyes; Elia Palacios; Francisco Patiño; Miguel Pérez; Maximil Flores; Iván Reyes; Laura Angeles; Aislim Teju; "Universidad Autónoma del Estado de Hidalgo; "Instituto Politécnico Nacional; "Universidad Politécnica Metropolitana de Hidalgo; "Universidad Tecnológica de Tulancingo; "Universidad Autónoma de San Luis Potosí

K-72: Synthesis of ZnO and TiO2 Nanocomposites for Antibacterial Activity: Luiz Komatsu; Washington Oliani; Ademar Lugaio; Ducler Parra; "Nuclear and Energy Research Institute

K-73: Texture Analysis and Anisotropic Properties of a Rolled CuZn36 Brass Alloy: Athanasios Vazdirvandis; George Pantazopoulos; Anagnostis Toufalias; Andreas Rikos; "ELKEME; "ELKEME

K-75: Weibull Analysis of the Behavior on Flexural Strength of Claye Ceramic Incorporated with Fluorescent Lamp Glass Waste Powders for Different Firing Temperature: Alline Morais; Carlos Mauricio Vieira; Sergio Monteiro; "Instituto Federal Fluminense - IFF; "State University of the North Fluminense Darcy Ribeiro; "Military Institute of Engineering - IME, Materials Science Department

K-76: Advanced Ion Column Solution for Low Ion Damage Characterization and Ultra-Fine Process: Sang Hoon Lee; Mostafa Maazouz; Liang Zhang; Mauricio Gordillo; Micah Ledoux; Jeff Blackwood; "FEI

K-77: Characterization and Mechanical Properties of Additively Manufactured Stainless Steel 316L: M.A. Bevan; A.A.H. Ameri; D. East; Juan P. Escobedo-Diaz; A.D. Brown; M.Z. Quadir; P.J. Hazell; "School of Engineering and Information Technology, UNSW Australia; "Manufacturing Flagship, CSIRO Clayton; "Microscopy and Microanalysis Facility (MMF), John de Laeter Centre (JdLC), Curtin University

Defects and Properties of Cast Metals — Poster Session
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee
Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester
Tuesday PM
Location: Hall B1
February 28, 2017

L-36: Effect of the Addition of Ce and Si on the Hot Cracking Behavior of SiMn Alloy during the Solidification Process: Zizong Zhu; Zhiqiang Zhou; Shengnan Zhou; Yuchuan Ding; "Chongqing University

L-37: Improved Wear Resistance of Hadfield Steel Through the Addition of Nb Containing Carbides: Vijay Bhatia; Gwenaelle Proust; Julie Cairney; "The University of Sydney

L-39: Influence of Different Cooling Microstructure on Surface Cracks of HSLA Steel Plate by DHCR: Banglu Wang; "Anhui Polytechnic University

L-42: Solidification Path of Fe Bearing Phases in the Effect of Sr and Cooling Rate in Al-Si Hypoeutectic Alloys: Jayakumar Munikaraj; Anton Gorny; Samanath Shankar; "McMaster University

Deformation and Transitions at Interfaces — Poster Session
Sponsored by: TMS Functional Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Computational Materials Science and Engineering Committee, TMS: Mechanical Behavior of Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Sanyu Fengin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaliya Barabash, Oakridge National Lab; Shen Dillon, Universe of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida
Tuesday PM
Location: Hall B1
February 28, 2017
L-48: Development of Synthetic Driving Force Methods in HCP Crystals and Comparison to Existing Techniques: Matthew Guziewski; Shawn Coleman; Ian Bakst; Mark Tschopp; Christopher Weinberger; Colorado State University; Army Research Lab

L-51: Effect of Deformation Heterogeneity of TWIP Steels on Near Boundary Twinning Behavior Using Crystal Plasticity Simulation: Jaimynn Jung; Jae Ik Yoon; Jung Gi Kim; Marat Latypov; Jin You Kim; Hyoung Seop Kim; POSTECH; Georgia Tech; POSCO

L-52: Effect of Electric Fields on Grain Boundary Characteristics in Ceramics: Wei Qiu; University of California, Davis

L-53: Grain Boundary Mechanisms in Nickel-based Superalloys: John Rotella; Martin Detroit; Sammy Tin; Michael Sangid; Purdue University; Illinois Institute of Technology

L-55: In-situ EBSD Study on Recrystallization Nucleation in Deformed AI: Guolin Wu; Chongqing University

L-56: Influence of Deformation Processing on the Superelastic Behavior of NCAXB Alloys: Chong Zhang; Kenneth Vecchio; Department of NanoEngineering and Materials Science and Engineering Program, University of California, San Diego

L-57: Interaction of Grain Boundaries with Nano-clusters in Immiscible Alloys: R. K. Kou; M. Rajagopalan; K. A. Darling; L. J. Keecskes; K. N. Solanki; Y. Mishin; George Mason University; Arizona State University; US Army Research Laboratory

L-58: Interface Controlled Work Hardening Ability in Ultrafine-grained Ti-6Al-4V Alloy with Bimodal Microstructure: Yan Chong; Tilak Bhattacharjee; Ruixiao Zheng; Tsuji Nobuhiro; Kyoto University

L-59: Mechanical Characterization of Ti-6Al-4V Titanium Alloy at Multiple Length Scales Using Spherical Indentation Stress-strain Measurements: Jordan Weaver; Surya Kalidindi; Los Alamos National Laboratory; Georgia Institute of Technology

L-60: Non-uniform Magnetostress in Magnetic Shape-memory Alloys: Anthony Hobza; Peter Mullner; Boise State University

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Poster Session

Sponsored by: TMS Functional Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee

Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Tuesday PM Room: Hall B1 Location: San Diego Convention Ctr

L-61: Effect of Component Surface Finish on the Thermochanical Reliability of Lead-free High Temperature Solder Alloys: Faramarz Hadian; Harry Schoeller; Eric Cotts; Binghamton University; Universal Instrument Corporation

L-62: Investigation of Melting Behavior and Morphology Change of Sn Nanowires based on Infra-red (IR) Heating Method: Jirui Wang; Fan Gao; Zhiyong Gu; University of Massachusetts Lowell

L-63: Study on Thermomechanical Properties of Graphene-added Solder Paste for Automotive Electronics: Sang Jun Park; Dong-Yurl Yu; Kyoung-Ho Kim; Junghwan Bang; Sooong-Keun Hyun; Yong-Ho Ko; Korea Institute of Industrial Technology; Dept. of Materials Science and Engineering, Inha University

L-64: Synchrotron X-ray Study of Sn Whisker Growth Induced by Electronimization: Cheng-En Ho; Wan-Zhen Hsieh; Pei-Tzu Lee; Cheng-Hsien Yang; Yaan Ze Univeristy

Environmental Assisted Cracking: Theory and Practice — Poster Session

Sponsored by: TMS Structural Materials Division, TMS: Corrosion and Environmental Effects Committee, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Bai Cui, University of Nebraska–Lincoln; Raul Rebak, GE Global Research; Sebastien Dryepondt, Oak Ridge National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

Tuesday PM Room: Hall B1 Location: San Diego Convention Ctr

L-65: High Pressure Hydrogen Embrittlement of Fe-30Mn-0.2C-(1.5)Al High-Mn Steel: Seung-Yong Lee; Han-Jin Kim; Jin-Yoo Seo; Jae-Hyeok Shim; Joonho Lee; Byoungchul Hwang; Seoul National University of Science & Technology; Korea University; Korea Institute of Science and Technology

L-66: The Characterization of Grain Boundary Precipitates in Aluminum-Magnesium Alloys at Mildly Elevated Temperatures: Sarah Fakler; University of Virginia

L-67: The Influence of Global Slip Behavior on Hydrogen Environment-Assisted Cracking in Monel K-500: Zachary Harris; James Burns; University of Virginia

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Poster Session


Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Tuesday PM Room: Hall B1 Location: San Diego Convention Ctr

L-68: A Strain Energy Based Damage Model for Fatigue Crack Initiation and Growth: Peter Huffman; John Deere

L-69: Acoustic Induced Vibration and Failure Assessment in Piping: Fluid-Structural-Interface: Bakr Rabeeh; Mariz Mattar; German University in Cairo, GUC

L-70: Crack Initiation and Propagation Modeling Using Extended Finite Element Method (XFEM): A Review: Mashhour Alazwari; Singiresu Rao; University of Miami

L-71: Crack Initiation in a Ni-based Superalloy Studied by Miniaturised Ultrasonic Fatigue Testing: Jicheng Gong; Isaac Cabrera; Angus Wilkinson; University of Oxford

L-72: Creep, Damage and Fatigue Failure of Sn3.0Ag0.5Cu Solder Joints: Travis Dale; Dennis Chan; Chaitra Chavali; Carol Handwerker; Ganesh Subbarayan; Purdue University

L-74: Effect of Laser Ablation Coating Removal (LACR) on the Fatigue Behavior of a Steel Substrate: Md Shamsujjoha; Sean Agnew; James Brooks; James Fitz-Gerald; University of Virginia; Newport News Shipbuilding

L-75: Effects of Deformation Behaviors on S-N Fatigue Properties of High-Mn Steels at Ambient and Cryogenic Temperatures: Hyoysung Sung; Daeho Jung; Wongyu Seo; Jehyun Lee; Sangshik Kim; Gyeongsang National University; Changwon National University
L-77: Fatigue Crack Initiation and Fatigue Crack Growth Behavior of Pre-Corroded AA7050-T7451: Noelle Easter Co; James Burns; "University of Virginia

L-79: Finite Element Analyses of Pure Ni Cold Spray Particles Impact Related to Coating Crack Behavior: Pasquale Cavaliere; "University of Salento

L-81: Micromechanical Analysis of Acoustically Induced Vibration; Piping Bulging and Thinning: Baku Rabeeh; Alaa Mazroua; Marwa Abdelbagi; "German University in Cairo, GUC

L-83: The Effect of Rare-earth Additions on Low-cycle Fatigue Behavior in Mg Alloys: Aerial Murphy; John Allison; "University of Michigan

L-84: The Effects of Microstructures on Fatigue in a Polycrystalline Nickel Base Superalloy at Intermediate Temperature: J.C. Stinville; M.P. Echlin; P.G. Callahan; W.C. Lenthal; E. Martin; J. Miao; T.M. Pollock; "University of California Santa Barbara; "GE Global Research; "University of Michigan

L-85: VHCF Strength of Spring Steel with Small Scratches: Yoshiro Nishimura; Masahiro Endo; Keiji Yanase; Yuichi Ikeda; Yuya Tanaka; Susumu Miyakawa; Nobuyuki Miyamoto; "Denso Corporation; "Fukuoka University

M-1: A Comparison between Quenching and Furnace Cooling after Sintering of Al-4Cu-1.5Mg Alloy: Byungmin Ahn; SeHwan Lee; "Ajou University; "Ehwa Diamond Industrial Co., Ltd.

M-2: Advances in Automated Optical 3D Materials Characterization: Satya Ganti; Brian Hayes; Veeraraghavan Sundar; "UES Inc.

M-3: Analyzing Polycrystalline Grain Microstructures in Thin Films: Ahu Öncü; Thomas Hempel; Bodo Kalkofen; Thorsten Halle; Dana Zöllner; "Otto von Guericke University Magdeburg

M-7: Determination of Retained Stress by Jominy Method in Al-Cu Alloys: Ibrāhim Ḥizlī; Burak Tasıli; Eray Erzial; Derya Dispinar; "Istanbul University

M-8: Development of Cu-Alloy Films for Energy-saving LED Applications: Chon-Hsin Lin; "Asia-Pacific Institute of Creativity/Biotechnology

M-9: Direct Conversion of Celestite to SrCO₃ by Wet Milling: Rasit Sezer; Ayşegül Bilen; İbrahim Göksel Hızlı; Selim Ertürk; Cüneyt Arslan; "Karadeniz Technical University; "Istanbul Technical University; "Istanbul University

M-10: Effect of Strontium on Surface Oxide Structure of Liquid Al-12Si Alloy: Ugur Alev; Gürcet Zeren; Derya Dispinar; Cem Kahruman; "Istanbul University

M-11: Enhancement of Strength and Formability for Super-light Mg-Li Alloys: Hyeon-Taek Son; Yong-Ho Kim; Hyo-Sang Yoo; "Korea Institute of Industrial Technology

M-12: Evaluation of Anodized Aluminum for Potential Use as an Interposer for the Test Socket Industry: Boon-Chai Ng; Will Allen; Dominique Tan-Ng; "Andrews University; "Andrews Academy

M-13: Fabrication of Cu-Be Alloy Matrix CNT Composite and Enhancement of Materials Properties: Kwang-jin Lee; Yeong-seok Kim; Sang-don Mun; "Korea Institute of Industrial Technology; "Chonbuk National University

M-14: Global Solar Radiation as an Alternative to Energy Production for Earth Climate System Using Common Meteorological Data: Bukola Dawodu; Hammed Ogunidaran; Isaa Elegbele; "University Of Lagos; "Fountain University; "Brandenburg University of Technology

M-15: Graphite Supported Template Synthesized Intermetallic Co-Ni Nanoparticles for Biomedical Applications: Mehmet Burcin Piskin; Ivania Markova; Emre Karadanum; Ivan Zahariev; "Yıldız Technical University; "University of Chemical Technology and Metallurgy-Sofia, Bulgaria; "Yıldız Technical University

M-16: Hot Deformation Properties of 5xxx Aluminum Alloys for Automotive Applications: Paul Ebenberger; Bodo Gerold; Ramona Prillhofer; Anna-Catharina Käß; Peter Uggowitzer; Stefan Pogatscher; "Montanuniversitaet Leoben; "AMAG rolling GmbH; "ETH Zürich

M-17: Improvement of Corrosion Resistance of Low Carbon Steel by Ni-electrodeposition with Reduced Graphene Oxide: Jung-Woo Choi; Gye-Won Kim; Bongyoung Yoo; Dong-Hyuk Shin; "Hanyang University

M-18: Influence of Addition of Alumina Nanoparticles on Thermoelectric Properties of Bi0.4Sb1.6Te3 Fabricated by Mechanical Alloying and Vacuum Hot Pressing: Pee-Yew Lee; "National Taiwan Ocean University

M-19: Influence of Microstructure and Strengthening on Rheological and Fatigue Resistance of Cu-Ag Alloys Wires: Artur Karwecki; Kinga Korzen; Eliza Sieja-Smaga; Andrzej Nowak; Tadeusz Krych; Andrzej Mamala; Beata Smyrak; Malgorzata Zasadzinska; "AGH University of Science and Technology

M-20: Role of ZnO Nanoparticle Reinforcing the Ductility of Al-Si Alloys: Sangjun Lee; Donghyun Baek; "Yonsei University

M-21: Sigma-phase Formation in the Reaction Zone between Mo-41Re Alloy and SiC during Diffusion Bonding: Seung-Sik Jang; Sun-Kyu Lee; Godwin Kwame Ahialie; Yong-Jun Oh; "Hanbat National University

M-22: Study on a Bipolar Plate Corrosion Properties for an SS316 and SS340 Specimen’s on the PEMFC Environment by the Surface Treatment through Low-temperature TiAlCrN PVD Process: Min Seok Moon; Myeong Han You; Joon Hyuk Song; Je Ha Oh; Jung Il Rho; Shin Jae Kang; Kee Do Woo; Sang Mo Yang; Young Choi; "Korea Institute of Carbon Convergence Technology; "Chonbuk National University; "KITech

M-23: Study on the Behavior of Ultrafine-grained, Precipitation Strengthened Steels at High Strain Rates: Janusz Majta; Remigiusz Bloniarch; "AGH University of Science and Technology

M-24: Study of the Effects of High Temperature Processing on Microstructure and Texture Evolution in Ti Alloys based on Reconstruction of Beta Phase Using EBSD Data: Maciej Szymula; Mateusz Sternalski; Lukasz Madaj; Brad Wynne; Krzysztof Muszka; "AGH University of Science and Technology; "The University of Sheffield

M-25: Structural Characterization of NaF–AlF₃ Melts Used in Aluminum Refining by High-temperature Raman Spectroscopy: Xianwei Hu; Jingjing Liu; Gaowei Li; Zhongsheng Shi; Bingshang Gao; Wenju Tao; Jiangyu Yu; Zhaowen Wang; "Northeastern University

M-26: Synthesis and Characterization of Al-B4C Powders by Mechanical Alloying: Hao Guo; ZhongWu Zhang; Yu Zhao; Songsong Xu; Junpeng Li; Jing Zhang; "College of Materials Science and Chemical Engineering, Harbin Engineering University

General Poster Session — General Poster Session
Sponsored by: TMS Extraction and Processing Division, TMS Functional Materials Division, TMS Light Metals Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division

Tuesday PM
February 28, 2017
Location: San Diego Convention Ctr
M-27: The Effect of Temperature on Fracture and Fatigue in the High-entropy Alloy CrMnFeCoNi: Keli Thurston; Bernd Gludovatz; Guillaume Laplanche; Anton Hohenwarter; Robert Ritchie; UC Berkeley; Lawrence Berkeley National Laboratory; Ruhr University; Montanuniversität Leoben

M-28: Thermomechanical Fatigue Behavior of Heat-resistant Cast Austenitic Stainless Steel for Automobile Turbocharger Housing: Godwin Kwame Ahiale; Seungmun Jung; Sung hak Lee; Yong Jun Oh; Hanbat National University; Pohang University of Science and Technology

M-29: Transitioning Ideas to Reality: Molding Casting and Additive Manufacturing to Advance Engineering Education: Matthew Willard; James McGuffin-Cowley; Case Western Reserve University

M-30: Ultrasonic Vibration Assisted Laser Surface Engineering of Aluminum Alloys: Sourabh Biswas; Seyyed Habib Alavi; Sandip Harimkar; Oklahoma State University

M-31: Variation of Thermal Diffusivity of Cu-RGO Composites by SPS Process: Hyo Soo Lee; Yeo-Reum Lee; Sangwoo Kim; KITECH

M-32: Correlation between Microstructure Evolution and Mechanical Properties of Al 6061 Alloy Fabricated by Differential Speed Rolling during Recrystallization in CoCrFeNiMn High Entropy Alloys: Eun Soo Park; J. Liu; E. Bing; Zou Lei; Jin Kyu Lee; Hong-Soon Hong; Chong-Soo Song; Sang Bae Park; Jeongyu Park; Jeongyong Yoon; Junsuk Oh; Hong Seok Roh; Dong Hyeon Lee; Su Hyeon Lee; Hee Jung Kim; Dohyung Lee; Dae Hee Hwang; Hong Hee Soo; Yong Hoon Han

M-33: Corrosion Characteristics of Ti-free B Grain Refined A360: Eda Ergun Songul; Cemre Bas; Derya Dispinar; Gokhan Orhan; Istanbul University

M-34: Correlation between Corrosion Resistance and Microstructure of AI-1281 Eutectic Alloy: Cemre Bas; Yurdanur Temel; Eda Ergun Songul; Derya Dispinar; Gokhan Orhan; Istanbul University

High Entropy Alloys V — Poster Session
Sponsored by: TMS Structural Materials Division, TMS Functional Materials Division, TMS: Alloy Phases Committee, TMS: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Tuesday PM
Room: Hall B1
Location: San Diego Convention Ctr

L-86: Annealing Twin Evolution and Grain Boundary Engineering during Recrystallization in CoCrFeNiMn High Entropy Alloys: Christopher Barr; Elaf Anber; J. Liu; Yong Zhang; Mitra Taheri; Drexel University; University of Science and Technology Beijing

L-87: Atomic-scale Homogenization in an fcc-based High-entropy Alloy via Severe Plastic Deformation: Hao Yuan; Ming-Hung Tsai; Gang Sha; Fan Liu; Zenji Horita; Yuntian Zhu; Jing Tao Wang; Nanjing University of Science and Technology; National Chung Hsing University; Kyushu University; North Carolina State University

L-88: Construction of Pseudo Binary Phase Diagram in FeCoCrNi-Cu High Entropy Alloy System: Kook-Noh Yoon; Khurram Yaqoob; Je In Lee; Jin Yeon Kim; Eun Soo Park; Research Institute of Advanced Materials, Department of Materials Science and Engineering, Seoul National University; School of Chemical and Materials Engineering, National University of Sciences and Technology

L-89: Hydrogen Effects on the Mechanical Behavior of CoCrFeMnNi High-entropy Alloy: Role of Pre-strain: Yakai Zhao; Dong-Hyun Lee; Jung-A Lee; Jin-Yoo Suh; Jae-il Jang; Hanyang University; Korea Institute of Science and Technology

L-90: Mechanical Properties of Entropy Stabilized Oxides: Tyler Harrington; Matthew Quinn; William Mellor; Joshua Gild; Jian Luo; Kenneth Vecchio; Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; Department of NanoEngineering, UC San Diego; Materials Science and Engineering Program, UC San Diego

L-91: Precipitation in High-entropy FeNiMnAlCr alloy: Margaret Wu; Zhangwei Wang; Paul Munroe; Ian Baker; Dartmouth College; University of New South Wales

L-92: The Fabrication and Oxidation Behavior of High-entropy Refractory Metal Carbides: Tyler Harrington; Lavina Backman; Joshua Gild; Jian Luo; Elizabeth Opila; Kenneth Vecchio; Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; Department of Materials Science and Engineering, University of Virginia; Materials Science and Engineering Program, UC San Diego

L-93: The Role of Mass Scattering on Thermal Transport across Multiple Component Systems: Ashutosh Girid; Jeffrey Braun; Lisa Liu; Zsolt Rak; Donald Brenner; Patrick Hopkins; University of Virginia; North Carolina State University

L-94: Microstructure and Properties of the VNbMoTaW High Entropy Alloy Prepared Powder Metallurgy: Jang Hwa Lim; Ki Buem Kim; Jin Kyu Lee; Kongju National University; Sejong University; Kongju National University

L-95: A Combinatorial Assessment of AlxCrCuFeNi2 (0 < x < 1.5) Complex Concentrated Alloys: Microstructure, Microhardness, and Magnetic Properties: Bharat Gwalani; Tushar Borkar; Deep Choudhuri; Rajarshi Banerjee; University of North Texas Denton

L-96: An Assessment of the Lattice Strain in the CrMnFeCoNi High-Entropy Alloy: Lewis Owen; Ed Pickering; Helen Playford; Howard Stone; Matthew Tucker; Nicholas Jones; University of Cambridge; University of Manchester; STFC ISIS Facility; Spallation Neutron Source

L-97: Deformation Behavior and Solid Solution Hardening of Al-containing Refractory High-entropy Alloys: Hans Chen; Alexander Kauffman; Bronislava Gorr; Daniel Schiephake; Christoph Seemüller; Julia Wagner; Hans-Jürgen Christ; Martin Heilmaier; Karlsruhe Institute of Technology (KIT); University of Siegen; University of Stuttgart

L-98: Development of Lightweight High Entropy Alloys using a CALPHAD Approach: Xuejun Huang; WeiHua Sun; Alan Luo; The Ohio State University

L-101: Exploring the Effects of Grain Refinement in Non-equiatomic High Entropy Alloys: Benjamín MacDonald; Zhiquang Fu; Baolong Zheng; Weiping Chen; Julia Ivanisenko; Yizhang Zhou; Horst Hahn; Enrique Lavermia; University of California Irvine; South China University of Technology; Karlsruhe Institute of Technology

L-102: High Throughput Exploration of High Entropy Alloys for High Temperature and Nuclear Applications via Diffusion Multiples: Ovais Waseem; Soon Hyung Hong; Ho Jin Ryu; Korea Advanced Institute of Science and Technology

L-103: Liquid Phase Separation in Equiatomic High-entropy Alloys Containing Copper: Nicholas Derimov; Abraham Munitz; Reza Abbashian; University of California, Riverside; Nuclear Research Center-Negev

L-104: Microstructural Investigations of a Nanocrystalline TiZrHfNbTa High-entropy Alloy: Benjamin Schub; Jean-Philippe Couzinié; Verena Maier-Kiener; Bernhard Völker; Anton Hohenwarter; Montanuniversität Leoben; CNRS & Université Paris-Est

L-105: Positron Annihilation Study on Equiatomic Multicomponent Alloys: Shadii Yoshida; Tilak Bhattacharjee; Yu Bai; Kazuki Sugita; Masataka Mizuno; Hideki Araki; Nobuhiko Tsuji; Kyoto University; Osaka University; Kyoto University / Elements Strategy Initiative for Structural Materials (ESISM)
In-situ Methods for Unraveling Structure-Property Relationships in Light Metals — Poster Session
Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee, TMS: Magnesium Committee
Program Organizers: Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

Tuesday PM
Room: Hall B1
Location: San Diego Convention Ctr
February 28, 2017

I-19: Development of Plasticity Models via Point-by-Point Comparison with HREBSD and Microscale DIC: Timothy Ruggles; Geoffrey Bonarto; Jacob Hochhalter; Saikumar Yeratapally; National Institute of Aerospace; NASA LaRC

I-20: Effects of Alloying Elements and Processing on Deformation Mechanisms and Properties of Mg-Li base Alloys: Zhonghua Zhang; Yun Zou; Jian Li; Hong Wang; Ke An; Harbin Engineering University; China Academy of Engineering Physics; Oak Ridge National Laboratory

I-21: Parameter Study and Experimental Validation of Crystal-scale Finite Element Analyses of Titanium Alloys: Kayleigh Nelson; Euan Wieselski; University of Glasgow

I-22: The Application of Synchrotron X-ray Tomography in the Solidification of Mg Alloys: Enyu Gao; Sansan Shuai; André Phillouïd; Tao Jing; Peter Lee; University of Manchester; Tsinghua University; McMaster University

Magnesium Technology 2017 — Poster Session
Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Tuesday PM
Room: Hall B1
Location: San Diego Convention Ctr
February 28, 2017
Session Chair: Dmytro Orlov, Lund University

I-23: A High-specific-strength and Corrosion-resistant Magnesium Alloy: Wanying Xu; Michael Ferry; University of New South Wales

I-24: A Study on the Mechanical Characteristic of Heat Dissipation Magnesium Alloy by Thixomolding Process: Ho Seung Jung; Jong Moon Park; Sueng Hoon Yang; No Jin Park; Min Su Park; Myung Hoon Oh; Kumoh National Institute of Technology/Materials Science and Engineering; Jangwontech Co. Ltd.

I-25: Characterization of Ultradine Grain WE43 Magnesium Alloy by Equal-channel Angular Pressing and High Pressure Torsion Process: Camila De Souza; Tang Nguyen; Marc Meyers; Bingfeng Wang; University of California, San Diego; Central South University, P.R. China

I-26: Constrained Groove Pressing of AZ31 and ZE10 Magnesium Alloys: Mariia Zimina; Jan Bohlen; Dietmar Letzig; Gerrit Kurz; Michaela Šlapková; Jan Bajer; Miroslav Cieslar; Charles University in Prague; Helmholtz-Zentrum Geesthacht

I-27: Damage and Fracture in Magnesium AZ31, Experiments and Modeling: Babak Kondori; Ahmed Benzerga; Texas A&M University

I-28: Development of High Strength Mg Alloys with Good Formability at Room Temperature: T.T.T. Trang; J. Zhang; A. Zargaran; J.H. Kim; J.H. Hwang; Nack J. Kim; Graduate Institute of Ferrous Technology (GIFT) and CAAM, Pohang University of Science and Technology (POSTECH); Harbin Engineering University

I-29: Effects of Alloying Elements on Mechanical and Corrosion Properties of Extruded Mg-Al-Ca Alloys: Hyunkyu Lim; Wonseok Yang; Tae yang Kwak; Youngkyun Kim; Young-Ok Yoon; Shae K. Kim; KITECH

I-30: Enhancement of Impact Fracture Toughness of Magnesium Alloys by Microstructure Modification: Toshiji Muku; Takayuki Hase; Naoko Ikeo; Masatake Yamaguchi; Kobe University; Japan Atomic Energy Agency

I-31: First-principles Model of Alloy-dependent Magnesium Corrosion: Krista Limmer; Joseph Labukas; Michael Garvey; Santanu Chaudhuri; Jan Andzelm; U.S. Army Research Laboratory; University of Illinois Urbana-Champaign

I-32: First Principles Modeling of <c+a> Dislocations in an Mg-Y Alloys: Daniel Buey; Maryam Ghazisaeidi; Ohio State University

I-33: Formability Analysis on Optimized Condition of Superplastic Forming of Magnesium Alloy Sheet: Gopal Kumaresan; K Kalaichelvan; Production Technology, MIT Campus, Anna University; Ceramic Technology, Anna University

I-34: Hot Blank – Cold Die (HB-CD) Stamping of Magnesium Alloy Sheets: Material Characterization and Modeling: Fadi Abu-Farha; Abdulrahim Lhal; Zeren Xu; Nan Zhang; Clemson University

I-35: Hydrogen Uptake by Magnesium Alloys during Aqueous Corrosion: Michael Brady; Anton Ievlev; Mostafa Fayek; Donovan Leonard; Harry Meyer III; Matthew Frith; Luke Daemen; Anibal Ramirez-Cuesta; Olga Ovchinikova; Lawrence Anovitz; Gernot Rother; Dongwon Shin; Guang-Ling Song; Bruce Davis; Oak Ridge National Laboratory; University of Manitoba; Xiamen University; Magnesium Elektron North America
I-36: Influence of Thermal Treatment on Corrosion Rates of Mg-RE and Mg-10%Zn-0.3%Ca Alloys in 3.5%NaCl Solution: Marilia Girardi Zorzato; Joseph Robson; Dirk Engelberg; Julie Gough; 'University of Manchester

I-38: Magnesium Based Biodegradable Composites for Orthopedic Application: Satish Jaiswal; Pallavi Gupta; Partha Roy; Debrupa Lahiri; 'Indian Institute of Technology Roorkee

I-39: Mechanical and Microstructural Characterization of a Multi-Axis Forged AZ31 Billet: Christian Roach; Lauren Oh; Xavier Hernandez; Suveen Mathaudhu; 'University of California, Riverside

I-40: Microstructures and Tensile Properties of As-cast Magnesium AM60-based Composite Containing Alumina Fibres and Nano Particles: Junxiang Zhou; Li Fang; Xuezhi Zhang; Henry Hu; 'University of Windsor

I-41: Negative Difference Effect of Mg Alloy AZ31D in NaCl Solutions: Shuoshuo Xi; 'University of Illinois at Chicago

I-42: Origin of Non-Schmid Behavior of [−1011] Deformation Twinning in Mg: Akio Ishii; Shigenobu Ogata; 'Osaka University

I-43: Phase Transformations of Long Periodic Stacking Ordered (LPSO) Phases at Finite Temperature in Magnesium-Gadolinium-Aluminium Ternary System: Hongyun Kim; Yi Wang; Laszlo Kekecs; Kristopher Darling; Zi-Kui Liu; 'Pennsylvania State University; 'US Army Research Laboratory

I-44: Production of Mg-Li Alloys by Vacuum Almnothermic Reduction Process: Wang Yaowu; Xuanwei Hu; 'Northeastern University of China; 'Northeastern University of China

I-45: Quasi-static and Dynamic Behavior and Microstructure Evolution of WE43 Rare Earth Magnesium Alloy: Experiments and Crystal Plasticity Modeling: Mohammad Jafedhi; Miroslav Zecevic; Brandon McWilliams; Irene Beyerlein; Marko Knezevic; 'Department of Mechanical Engineering, University of New Hampshire; 'Weapons and Materials Research Directorate, US Army Research Laboratory; 'Department of Mechanical Engineering, Materials Department, University of California at Santa Barbara

I-47: Strengthening Mechanism of AZ31 Magnesium with Gradient Structure: Maryam Jamalian; David P. Field; 'Washington State University

I-48: Study on Electric and Thermal Properties of Mg Alloys with Sn and Ca Elements: Yong-Ho Kim; Hyo-Sang Yoo; Chang-Gi Jung; Hyeon-Taek Son; 'Korea Institute of Industrial Technology

I-49: Study on the Reversion Reaction between Magnesium Vapor and CO in the Carbothermic Reduction of Magnesia under Vacuum: Yang Tian; Zortzato; 'University of California, Riverside; 'University of Virginia; 'University of Central Florida; 'Enrique Lavernia, University of California, Irvine; 'Haiyan Wang, Texas A&M University

I-50: Surface Integrity Characterization from Shot Peening a Biodegradable Magnesium Alloy: Michael Sealy; Yuebin Guo; Ziye Liu; Chao Li; 'University of Nebraska-Lincoln; 'The University of Alabama

I-51: Textural Contributions to Strengthening in Mg-RE Alloy with Nanopaced Stacking Faults: Heather Salvador; Vishnu Bhattacharya; Yuntian Zhu; Sean Agnew; Suveen Mathaudhu; 'University of California, Riverside; 'University of Virginia; 'North Carolina State University

I-52: The Deformation Behavior of Mg-2Zn Alloy Sheet Containing Oxygen Atoms: Seung Won Kang; Doghyun Bae; 'Yonsei University

I-53: The Effect of Annealing on the Properties of AW5754 Aluminium Alloy - AZ31 Magnesium Alloy Joints Produced with Explosion Welding: Martin Sahul; Miroslav Sahul; Ján Loka; Petr Nesvadba; 'Slovak University of Technology in Bratislava; 'OZM Research, Ltd.

I-54: Grain Refining in Mg Welds with Arc Oscillation: Tao Yuan; Shujun Chen; Sidon Kou; 'Beijing University of Technology

**Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Poster Session**

**Sponsored by:** TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nuclear Materials Committee

**Program Organizers:** Indrajit Charit, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

**Tuesday PM**

**Room:** Hall B1

**Location:** San Diego Convention Ctr

L-114: Effects of Blade Curvature on Fatigue Life of Nickel-based Single Crystal Structures with Film-cooling Holes: Zhisun Wen; Yamin Zhang; Youlang Li; Zhufeng Yue; 'Northwestern Polytechnical University

L-115: Understanding of Microstructure and Mechanical Properties of Friction Stir Processed Aluminum-bearing High-Chromium Ferritic Stainless Steel: Anumat Sittiho; Vedavyasa Tungala; Indrajit Chari; Rajiv Mishra; 'University of Idaho; 'University of North Texas

L-116: In Situ Investigation on the Micromechanical Behavior of the CuZr-based BMGC by Neutron Diffraction: Dongmei Wang; Ke An; Juan Mu; Yan Chen; Yandong Wang; Haijian Xu; '1.Northeastern University 2.Oak Ridge National Laboratory; 'Oak Ridge National Laboratory; 'Northeastern University

L-117: Mechanical and Creep Behavior of EPDM: Saeed Babamohammadi; Jahan Rasty; 'Texas Tech University

L-118: High Temperature Tensile Properties and Related Microstructural Evolution of Grade 92 Steel: Sultan Alsagabi; Somayeh Paseban; Indrajit Chari; 'King Abdulaziz City for Science and Technology - KACST; 'Oregon State University; 'University of Idaho

L-119: Mechanical Properties and Serrated Flow in Al-bearing, High-Cr Accident-tolerant Ferritic Steel: Ankan Guru; Indrajit Chari; 'University of Idaho

L-120: Spherical Nanoindentation Creep Behavior of Indium at Room Temperature: Woo-Jin Kim; Jung-A Lee; Yakai Zhao; Jae-il Jang; 'Hanyang University

**Mechanical Behavior of Nanostructured Materials — Poster Session**

**Sponsored by:** TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

**Program Organizers:** Xinghang Zhang, Purdue University; Yuntian Zhu, North Carolina State University; Joseph Poon, University of Virginia; Suryanarayana Challapalli, University of Central Florida; Enrique Lavernia, University of California, Irvine; Haiyan Wang, Texas A&M University

**Tuesday PM**

**Room:** Hall B1

**Location:** San Diego Convention Ctr

**Funding support provided by:** AUA International; Hysitron Inc.

**Session Chairs:** Joseph Poon, University of Virginia; Yuntian Zhu, North Carolina State University; Saurav Zhang, Shanghai Jiaotong University; Zhe Fan, Texas A&M University

L-121: Cyclic Response of Friction-stir Processed Ultra-fine Grained Copper: Salar Salahi; G. Guven Yapici; 'Ozyegin University
L-122: Projectile Induced Deformation Twinning in Nanocrystalline Aluminum: *Sichuang Xue*; Zhe Fan; Olawale Lawal; Thervaman Ramathan; Yue Liu; Kaiyuan Yu; Edwin Thomas; Xinghang Zhang; Texas A&M University; Rice University; Los Alamos National Laboratory; China University of Petroleum; Purdue University

L-123: Aluminum with High Modulus and Superior Strength by Self-Dispersed TiC Nanoparticles: Chezheng Cao; Abdolreza Javadl; Weiqing Liu; Xiaochun Li; University of California, Los Angeles; Harbin Institute of Technology

L-124: Multiscale Modeling of Deformation Behavior in Metal/Ceramic Multilayer Nanocomposites: Mohsen Damadum; Iman Salehinia; Georges Ayoub; Hussein Zbib; Washington State University; Northern Illinois University; University of Michigan-Dearborn

L-125: Competition between Slip and Martensitic Transformation of Retained Austenite in Carbon-steel/Copper Nanolaminates: Yadong Rui; Yang Ren; Lishan Cui; Kaiyuan Yu; China University Of Petroleum Beijing; X-ray Science Division, Argonne National Laboratory

L-126: The Influence of Glassy Phase on the Crack Healing Efficiency of Silicon Carbide/Spinel Ceramic: Faridhorz Tavangarian; Guojiang Li; Penn State Harrisburg; Louisiana State University

L-128: The Thermal Stability of Cryomilled 5083 Aluminum Containing Diamantane Nanoparticles: Walid Hanna; Khilany Maou; Mohammed Enayati; James Earnarth; Faragalli Mohamed; Military Technical College; Precision Castparts Corp.; Department of Materials Engineering, Isfahan University of Technology; Department of Chemical Engineering and Materials Science, University of California, Irvine

L-129: Dynamic Behavior of Ultra High Molecular Weight Polyethylene Reinforced with Ceramics Nanoparticles at High Strain Rates: Edito Lima Junior; Sergio Monteiro; Ricardo Weber; Alaelson Vieira; Military Institute of Engineering

L-130: Molecular Dynamics Study of the Creep Behavior of Metallic Glasses and Glass-composites: Constanze Kalcher; Tobias Brink; Jochen Rohrer; Alexander Stukowski; Karsten Albe; Technische Universität Darmstadt

L-131: Dislocation Engineering in Novel Nanowire Structures: Chris Chow; Sam Reeve; Alejandro Strachan; Purdue University

L-132: An Experimental Investigation of Deformation Mechanisms in FCC Thin Films: Marissa Linn; Samantha Daly; University of Michigan; University of California, Santa Barbara

L-133: Impact of Heat Treatments at Varying Temperature on the Strength and Ductility of Nanotwinned Inconel: Nathan Heckman; Andrea Hodg; University of Southern California

L-134: Mechanical Characterization of fcc and bcc Metals by Extraction of Nanoindention Stress-strain Curves: Alexander Leitner; Verena Maier-Kiener; Reinhard Fritz; Daniel Kiener; Montanuniversität Leoben

L-135: Multi-stages Spiral Twist Extrusion: A Novel Severe Plastic Deformation Technique for Bulk Nanostructured Materials: Waleed El-Garaihy; Dina Fouad; Hanadi Salem; Qassim University; American University in Cairo

L-136: Superal Hasticity, Micaceous Plasticity and Size Effects of Novel Intermetallic Compound CaFe2As, At Small Length Scales: John Sypek; Christopher Weinberger; Paul Canfield; Sergey Bud’ko; Seok-Woo Lee; University of Connecticut; Drexel University; Iowa State University

L-138: Manipulating the Grain Boundary Structure of an Ultrafine Grained Cu-Zr Alloy to Enhance Grain Hardening Capability and Strength: Dangshan Zhou; Deliang Zhang; Northeastern University

L-139: Enhanced Mechanical and Electrical Properties of Nanocrystalline Cu Matrix Nanocomposite with In-situ Formed NbC Nanoparticles: Wei Zeng; Dangshan Zhou; Deliang Zhang; Shanghai Jiaotong University

L-140: Effects of the Angle between Micro-crack and Loading Direction on Crack Propagation of Single Crystal γ-TiAl Alloy: Ruicheng Feng; Jiantao Lu; Haiyan Li; Hui Cao; Zhiyuan Rui; Lanzhou University of Technology

L-141: Tensile Properties of Perovskite in Flexible Solar Cells: Seung-min Aha; Eui Dae Jung; Myoung Hoon Song; Ju-Young Kim; UNIST

L-142: Fabrication and Characterization of Aluminum-carbon Nanotubes (Al-CNT) Functionally Graded Cylindrical Composites: Amal Esawi; Ehab Salama; Sherry Morad; American University in Cairo; American University in Cairo

L-143: High Strength and High Conductivity Wires Made from Cu-Ag Alloys Designed for the Construction of High Magnetic Fields Generators: Eliza Sieja-Smaga; Artur Kawecki; Tadeusz Knych; Andrzej Mamala; Krystian Franczak; Kinga Korzen; Grzegorz Kiesiewicz; Pawel Kwasniowski; AGH University of Science and Technology

L-144: Mechanical Characterization of Cold Sprayed Aluminum Alloy Using Micropillar Compression: Tyler Flanagan; Benjamin Bedard; Sumit Suresh; Mark Aindow; Avinash Dongare; Harold Brody; Xuemei Wang; Victor Champagne; Seok-Woo Lee; University of Connecticut; United Technologies Research Center; U.S. Army Research Laboratory

L-145: Development and Characterization of Sputter Deposited Nickel-Molybdenum-tungsten Thin Films for High Temperature Metal MEMS Applications: Gianna Valentini; Sidqi Gemis; Jessica Krogsstad; Timothy Weils; Kevin Hemker; Johns Hopkins University; University of Illinois at Urbana-Champaign

L-146: Mechanical Behavior of Sub-micron-sized Nanocrystalline Pillars under Monotonic and Cyclic Loading: Jang-A Lee; Brandon B. Seo; Moo-Young Seok; Yukai Zhao; Upadrasta Ramamurti; Ting Y. Tsui; Jae-il Jang; Hanyang University; University of Waterloo; Indian Institute of Science

L-147: Nanoindentation Response of Fe-10%Cr Structures with voids: An Atomicistic Study: Mohammad Abu-Shamsi; Ishraq Shahib; Central Michigan University

L-148: Preparation and High Temperature Deformation of Nanocrystalline MgO: Darren Dewitt; Yasuhiro Kodera; Harry Green; Javier Garay; University of California, San Diego; University of California, Riverside

L-149: Solute Atoms Enhance Tensile Ductility in a Nanostructured Al-Mg Alloy: Yaojun Lin; Shulei Li; Zhigang Yan; Haiming Wen; Enrique Lavermia; Wuhan University of Technology; Yanshan University; Idaho State University; University of California, Irvine

L-150: Strong, Ductile, Thermally Stable Cu-based Metal-intermetallic Nanostructured Alloys: Keith Dusoe; Srimat Vijayan; Thomas Bissell; Mark Aindow; Seok-Woo Lee; University of Connecticut

L-151: Synthesis of Bulk Single-crystalline Quasicrystal Approximant YCu4, and its Small-scale Mechanical Properties: Gyaho Song; Tai Kong; Paul Canfield; Seok-Woo Lee; University of Connecticut; Iowa State University

L-152: Flexibility of Perovskite LED Based on Mechanical Properties of Component Materials: Si Hoon Kim; Jae Choul Yu; Young-Cheon Kim; Yun-Seok Nam; Myoung Hoon Song; Ju-Young Kim; UNIST

L-153: The Influence of Severe Plastic Deformation on the Fatigue Crack Growth Behavior of Pure Metals and Alloys: Thomas Leitner; Anton Hohenwartner; Reinhard Pippau; Montanuniversität Leoben; Austrian Academy of Sciences

L-154: The Precipitation and Strengthening Behavior of Ultrafine Structured Al-7wt%Si-3wt%Mg Alloy: Jianiao Liang; Zhen Zhang; Xun Yao; Yifeng Zheng; Deliang Zhang; Shanghai Jiao Tong University
L-155: Towards an Understanding of Shear Band Formation in Nanocrystalline and Ultrafine-grained Single Phase Materials: Oliver Renk1; Pradipta Ghosh; Reinhard Pippan; Erich Schmid Institute of Materials Science

L-156: Effect of Annealing Temperature on Texture Transformation in FCC Thin Films: Nathaniel Rogers1; Rebeka King1; Margaret Kirkland1; Laurel Vinceti1; Brandon Hoffman2; Shefford Baker3; Cornell University; 2Houghton College

L-157: Anisotropy of Solute Effect on Dislocation Slip in an HCP Metal: A Molecular Simulation Study of Mg Alloys: Peng Yi1; Michael Falk1; Johns Hopkins University

L-158: A Study on Growth Nanotwins for CuZn Synthesized by Electrodeposition and Magnetron Sputtering: Chelsea Appleget1; Andrea Hodge1; University of Southern California

L-159: Atomic Simulation of Creep Deformation in Metallic Nanoglasses: Omar Adjoud; Karsten Albe1; Technische Universität Darmstadt; 2Technische Universität Darmstadt

L-160: Effects of the Processing Variables on Microstructural Homogeneity Manufactured by High Pressure Double Torsion: Mohammad Jabadi1; Irene Beyerlein1; Marko Knezevic1; Department of Mechanical Engineering, University of New Hampshire; 2Department of Mechanical Engineering, Materials Department, University of California at Santa Barbara

L-161: Grain Growth in Nanostructured Materials during Cyclic Loading: Is the Description Complete?: Marlene Kapp1; Oliver Renk1; Thomas Leitner1; Bo Yang1; Reinhard Pippan1; Erich Schmid Institute of Materials Science; 2Montanuniversität Leoben

L-162: Microstructural Influences on the Transition to Drag Dominated Dislocation Motion at High Rates of Strain: Scott Turnage1; Kristopher Darling1; Kiran Solanki1; Arizona State University; 2Army Research Laboratory

L-163: Low Temperature Compositional Patterning in Plastically-deformed Immiscible Alloys: Nibrat Pan1; Yinon Ashkenazy1; Pascal Bellon1; Robert Averback1; University of Illinois at Urbana-Champaign; 2The Hebrew University of Jerusalem

L-164: Effect of High Temperature Annealing Time and Temperature on Microcrack, Micro-nanostructures and Mechanical Properties of a 14YWT Nanostructured Ferritic Alloy: Md Ershadul Alam1; Soupitak Pal1; Yuan Wu1; G. R. Odette1; University of California, Santa Barbara

L-165: Microstructure and Mechanical Behavior of Nanostructured FeMn Bioreorbable Alloy: Anqi “Angel” Yu1; Michael Heiden1; Christian Roach1; Lia Stanciu1; Suveen Mathaudhu1; University of California Riverside; 2Purdue University

L-166: Stress-driven Microstructural Evolution and Grain Boundary Doping in Nanocrystalline Alloys: A Direct Link Revealed by Quantitative In Situ Electron Microscopy: Mo-Rigen He1; Gyuseok Kim2; Saritha Samudrala3; Peter Felfer4; Andrew Breen4; Julie Cairney4; Daniel Gianola5; University of Wisconsin-Madison; 2University of Pennsylvania; 3University of Sydney; 4University of California-Santa Barbara

L-168: Surface Rebound of Relativistic Dislocations Directly and Efficiently Initiates Deformation Twinning: Qiqing Li1; Ju Li2; Zhi-Wei Shao1; Evan Ma1; Johns Hopkins University; 2Massachusetts Institute of Technology; 3Xi’an Jiaotong University

L-169: Thermal Stability and Mechanical Behaviour of Electrodeposited Nanocrystalline Iron: Vijay Kumar D1; Prasad Mjn1; Indian Institute of Technology Bombay

L-170: Twinning-dominated Deformation in Body-centered Cubic Tungsten Nanowires: Jingwei Wang1; Zhejiang University

L-171: UV Light, Temperature and Humidity Effects on the Mechanical Behavior of Nanocomposites: Claudia Luhrs1; Stephanie Rockford1; Sarath Menon1; Hugo Zea2; Naval Postgraduate School; 2Universidad Nacional de Colombia

Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Poster Session

Sponsored by: TMS Structural Materials Division, TMS: Mechanical Behavior of Materials Committee

Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huali Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Tuesday PM
February 28, 2017
Location: Hall B1

L-172: Principle of One-step Synthesis for Multilayered Structures Using Tube High-pressure Shearing: Zheng Li1; Pin Fang Zhang1; Hao Yuan1; Kui Lin1; Ying Liu1; De Liang Yin1; Jing Tao Wang1; Terence Langdon1; Nanjing University of Science and Technology; University of Southampton

L-173: Fabrication of Functionally Graded Materials via Asymmetric Cold Rolling: Tyler Harrington1; Jordan Furlong1; Roxan Afshari1; Chaoyi Zhu1; Kenneth Vecchio1; Department of NanoEngineering and Materials Science and Engineering Program, University of California San Diego; 2Department of NanoEngineering, University of California San Diego

Nanostructures for Nuclear Applications II — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Nanomechanical Materials Committee

Program Organizers: Chengsoo Kim, University of Wisconsin-Milwaukee; Simona Murph, Savannah River National Laboratories; Muradilhanar Paramsothy, NanoWorld Innovations (NWI); Meisha Shofner, Georgia Institute of Technology

Tuesday PM
February 28, 2017
Location: Hall B1

J-37: Electrochemical Supercapacitor Based on the Hierarchical Coral-like ZnCo2O4 Nanowires: John Anthvan Rajesh1; Jae-Hong Kim1; Woo-Sik Jung1; Kwang-Soon Ahn1; Yeungnam University

Nanostructured Materials for Nuclear Applications II — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Nanomechanical Materials Behavior Committee, TMS: Nuclear Materials Committee

Program Organizers: Cheng Sun, Idaho National Laboratory; Khalid Hattar, Sandia National Laboratories; 2Celine Hin, Virginia Tech; Fei Gao, University of Michigan; Osman Anderoglu, Los Alamos National Laboratory; Mitra Taheri, Drexel University; Haiming Wen, Idaho State University

Tuesday PM
February 28, 2017
Location: Hall B1
Nanostructured Surfaces for Improved Functional Properties — Poster Session
Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Surface Engineering Committee
Program Organizers: Rajeef Gupta, The University of Akron; Hommero Casaneda, Texas A&M University; Sandip Harimir, Oklahoma State University; Arvind Agarwal, Florida International University; Bobby Mathan, James Cook University

Tuesday PM  February 28, 2017  Room: Hall B1  Location: San Diego Convention Ctr

J-39: Development of Economic Ta$_2$O$_5$-based Catalytic System towards Efficient Oxygen Evolution Reaction via Surface Engineering: Jun Ding; 1National University of Singapore

J-40: Novel Bilayered Nanostructured Ni-Co-Si/Zn-Ni Composite Coating with Exceptional Tribological and Corrosion Properties by Pulse Electrodeposition: Swastika Banthia; Saptarshi Das; Arbhyta Patra; Srijan Sengupta; Siddhartha Das; Karabi Das; 1IIT Kharagpur; 1Heritage Institute of Technology, Kolkatta

J-41: Surfactant Assisted Synthesis of Brown TiO$_2$ and Its Photocatalytic Activity: Swati Nauti; Gabriel Caruntu; 1Central Michigan University


Pan American Materials Congress: Advanced Biomaterials — Poster Session
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Tuesday PM  February 28, 2017  Room: Poster Area  Location: Marriott Marquis Hotel

Session Chair: Carlos Elias, Instituto militar de Engenharia

AN-1: Control of Shell Thickness on CoO$_2$-ZnO Core-shell by Surfactant Assisted Co-precipitation Methods: Felipe Sanhueza; Ramalinga Mangalaraja; Stephano Morales; Saeed Farhang; Elizabeth Elgueta; 1University of Concepcion

AN-2: Elastic Modulus of Ternary Titanium Alloys for Biomedical Applications: Marcos da Silva; Raul Araújo; Pedro Kuroda; Carlos Grandini; 1Unesp/Bauru

AN-5: Injectable Bone Substitute of Fibroin and Nanohydroxyapatite: Maritza Buitrago; Claudia Ossa; 1Universidad de Antioquia

AN-6: Metal-vitreous Biocide Coating: Felipe Santos; Sonia Mello-Castanho; Antonio da Silva; José Bartolome; Maria Teresa Prieto; Elisa Fernandez-Garcia; Claudinei Santos; 1IPEN - USP; 1CSIC - UAM; 1CINN - University of Oviedo; 1UERJ/FAT

AN-7: Nature’s Technical Ceramic: The Avian Eggshell: Eric Hahn; Andrei Pissarenko; Vincent Sherman; Daniel Fernandes; Marc Meyers; 1University of California, San Diego; 1Biomaterials Laboratory, Military Institute of Engineering, Rio de Janeiro, Brazil

AN-8: Preparation and Characterization of Biodegradable Polymer Blend Reinforced with Bio-hydroxyapatite Nanoparticle: Pedro Reis; Esperidiana Moura; Felipe Lourenço; Maria José Oliveira; 1Instituto de Pesquisas Energéticas e Nucleares; 1Faculdade de Ciencias Farmacêuticas

AN-9: Selective Laser Sintering of Co-Cr-Mo Alloy for Dental Applications: Claudinei Santos; Alexandre Habibe; Paula Silva; Bruno Simba; 1UERJ; 1USP-EEL

Pan American Materials Congress: Advanced Manufacturing — Poster Session
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Sonia Brühl, UTN - National University of Technology, Ricardo Castro, University of California, Davis; Dachamir Hotza, UFSC

Tuesday PM  February 28, 2017  Room: Poster Area  Location: Marriott Marquis Hotel

Panel-12: Influence of Dendritic Morphology on the Strand Field of Dendritic Solidification Structures: Alejandro Moreno; 1University of California, Davis; 1Carlo Schvezov; 1Facultad de Ciencias Exactas Químicas y Naturales - Universidad Nacional de Misiones; 1Instituto de Materiales de Misiones

Panel-13: Microhardness Assessment of 316L Stainless Steel Fabricated by Laser Engineered Net Shaping: Katherine Acool; Thale Smith; Julie Schoenung; 1University of California, Irvine; 1University of California, Davis

Pan American Materials Congress: Materials for Green Energy — Poster Session
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julio Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday PM  February 28, 2017  Room: Poster Area  Location: Marriott Marquis Hotel

Panel-14: Extrusion and Flash Sintering of Nickel Oxide-Samarium Doped Ceria (NIO-SDC) Nanostructure Composite Microtubular Anodes for Solid Oxide Fuel Cells: Ramalinga Viswanathan Mangalaraja; Jonathan Usaba; Hernán Valle; Jorge Durango; Marta Lopez; Chan Siew Hwa; 1University of Concepcion; 1Nanyang Technological University

Panel-15: Green Extract of Mate Tea as Corrosion Inhibitor of Copper and Aluminum: Ana Dema; Claudia Méndez; Liliana Gassa; Alicia Arex; 1FCEQyN-UnAM; 1IMAM (CONICET-UnAM); 1INIFTA; 1CONICET/FCEQyN-UnAM


Panel-17: Influence of Organic Solvent on Pt Nanoparticles Synthesis on MWCNT for ORR: Carolina Silva Carrillo; Edgar Reynoso-Soto; Rosa-María Felix Navarro; Balter Trujillo-Navarrete; Josef Chavez-Carvay; Francisco Paraguay-Delgado; Gabriel Alonso-Nuñez; 1Instituto Tecnologico de Tijuana; 1Instituto de Investigacion En Materiales, Universidad Nacional Autonoma de Mexico; 1Centro de Investigacion de Materiales Avanzados; 1Centro de Nanociencia Y Nanotecnologia, Universidad Autonoma de Mexico
Posters

Pan American Materials Congress: Materials for Infrastructure — Poster Session

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en Quimica Aplicada

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**Location:** Marriott Marquis Hotel

Pan American Materials Congress: Materials for Transportation and Lightweighting — Poster Session

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan, Mangalaraja University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo León

**Tuesday PM**  
**February 28, 2017**  
**Room:** Poster Area  
**Location:** Marriott Marquis Hotel

Pan American Materials Congress: Materials for Oil and Gas Industry — Poster Session

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

**Tuesday PM**  
**February 28, 2017**  
**Room:** Poster Area  
**Location:** Marriott Marquis Hotel

Pan American Materials Congress: Materials for Manufacturing and Light Weighting — Poster Session

**Sponsored by:** Third Pan American Materials Congress Organizing Committee

**Program Organizers:** John Zapata1, Henry Colorado1, Maryory Gómez1; Universidad de Antioquia

**Tuesday PM**  
**February 28, 2017**  
**Room:** Poster Area  
**Location:** Marriott Marquis Hotel

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**Pan-18:** One-pot “Green” Synthesis of Nitrogen Doped Porous Titania Nanospheres for Photocatalytic Degradation of Direct Blue-71: Nalandhiran Pugazhenthiran1; Panneerselvam Sathishkumar2; Ramalinga Mangalaraja1; Sambandam Anandan1; Seppermann Murugesan1; 1University of Concepcion; 2University of California Irvine

**Pan-19:** Plasmon-enhanced Solar Fuel Production with Gold-metal Oxide Hybrid Nanomaterials: Christian Engelbrekt1; Matt Law1; Jingdong Zhang1; Technical University of Denmark; University of California Irvine

**Pan-20:** Platinum Salts Synthesis as Precursors to Get Heterogeneous Catalysts for Biofuels Production: Adriana Martinez1; Sheryl Acosta1; Jonathan Sierra1; Carlos Guerrero1; 1Universidad Nacional de Colombia; 2Universidad Nacional de Colombia

**Pan-21:** Structural and Magnetic Properties of Nano Cobalt Ferrites for Green Refrigeration Technology: Prabhakaran Thandapani1; Mangalaraja R.V1; 1University of Concepcion; 2University of Concepcion

**Pan-22:** Structural and Optical Properties of Graphene-based Nanoarchitectures Decorated with (Ag,Cu) Metal Nanoparticles: Udayabhaskar Rednam1; Mangalaraja R. V1; Pandiyarajan Thangaraj1; Kirthikeyan B1; 1University of Concepcion; 2National Institute of Technology, Trichy

**Pan-23:** Synthesis of Mesoporous TiO2 for Photo-anode in Dyesynthesized Solar Cell: Victor Gonzalez1; Edgar Reynoso1; Balter Trujillo1; Rosa Felix1; 1Instituto Tecnologico de Tijuana

**Pan-24:** Tape Casting and Flash Sintering of Nickel Oxide-Gadolinium Doped Ceria (NIO-GDC) Nanostructure Composite Anode for Solid Oxide Fuel Cells: Jonathan Usuab1; Mangalaraja Ramalinga Viswanathan1; Miguel Niño1; Jorge Durango1; Marta Lopez1; Chan Siew Hwa2; 1Universidad de Concepcion; 2Nanyang Technological University

**Pan-25:** Calcium Aluminate Cements Under High Temperature Oxidation Environment: John Zapata1; Henry Colorado1; Maryory Gómez1; 1Universidad de Antioquia

**Pan-26:** Carbonation Study in Calcium Aluminate Cement Pastes: Jose Ivanag2; Henry Colorado1; John Zapata1; CComposites Lab, Universidad de Antioquia (UdeA); GISI. Institución Universitaria de Envigado (IUE)

**Pan-27:** Blends of PVDF with Its Processing Waste: Study of the Mechanical Properties of the Blends Thermally Aged: Leilane Cirilo1; Marysylvania Cost1; 1Programa de Engenharia Metalurgica e de Materiais - COPPE/UFRJ

**Pan-28:** Analysis of Coir Fiber Porosity: Fernanda da Luz1; Sérgio Monteiro1; 1Military Institute of Engineering, IME

**Pan-29:** Ballistic Performance in Multilayer Armor with Epoxy Composite Reinforced with Malva Fibers: Lucio Nascimento1; Luis Henrique Leme Lour1; Sérgio Neves Monteiro1; Aaleelson Vieira Gomes2; Édio Pereira Lima Júnior2; Rubens Marçal3; Fábio Braga4; 1Military Institute of Engineering; 2University of Concepcion

**Pan-30:** Curaura Non-woven Fabric Composite for Ceramic Multilayered Armors: A Lightweight, Natural, and Low Cost Alternative for KevlarTM: Fábio Braga1; Augusto Cabral2; Edio Lima Jr.3; Sergio Monteiro1; Foluke de Assis1; 1Military Institute of Engineering (IME)

**Pan-31:** Effect of Porosity and Bimodal Microstructure of Ti-based Alloy Foams Consolidated by Hot Pressing: Christopher Salvo1; Claudio Aguilar2; Sheila Lascano3; R.V. Mangalaraja1; 1University of Concepcion; 2Universidad Técnica Federico Santa Maria

**Pan-32:** Heat Treatment of Reaction Bonded Composites: Evgeni Ionash1; Helen Dilmam1; Shimulik Hayun1; Nachum Frage1; 1Ben Gurion University of Negev

**Pan-33:** Influence of Carbon Nanotube and Graphene on Mechanical and Damping Characteristics of Epoxy Matrix Composite- A Comparative Analysis: Ankita Bish1; Pallavi Gupta1; Debrupa Lahiri1; 1Indian Institute of Technology Roorkee

**Pan-34:** Izod Impact Tests in Polyester Matrix Composites Reinforced with Jute Fabric: Foluke de Assis1; Sergio Monteiro1; Artur Pereira1; Fábio Braga1; 1Military Institute of Engineering

**Pan-35:** Processing and Characterization of the Electromagnetic Wave Absorption Potential of Glass Fiberreinforced Thermoset Polymer Matrix Composites: Taje Aluntopy1; 1Middle East Technical University

**Pan-36:** Tensile and Impact Properties of Two Fiber Combinations for Curaura Reinforced Composites: Fábio Braga1; Noan Simonassi1; Augusto Cabral2; Sergio Monteiro1; Foluke de Assis1; 1Military Institute of Engineering (IME)

**Pan-37:** The Effect of Ni on the Structural, Hardness and Magnetic Properties of Cu90-xCo10Ni5 – 7.5% SmCo5 Composite Alloys Prepared by Powder Metallurgy Route: Marta Lopez1; Mangalaraja Ramalinga Viswanathan1; Christopher Salvo1; Felipe Sanhueza1; Jose Jiménez2; 1University of Concepcion; 2Centro Nacional de Investigaciones Metalurgicas, CENIM-CSIC

**Pan-38:** Thermo-mechanical Properties of Copolymer/Clay Nanocomposites: A Comparative Study of Production Method by In-situ and Solution Mixture: Oscar Hernández Guerrero1; Mireya Hernández Vargas2; Rubén Castillo Pérez2; Bernardo Campillo Illanes2; 1UAEM; 2Universidad Nacional Autónoma de México
Pan American Materials Congress: Minerals Extraction and Processing — Poster Session
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Mery Gómez Marroquiun, Asociación Peruana de Metalurgia Materiales y Minerales-APMMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosí; Carlos Sampaio, UFRGS
Location: Marriott Marquis Hotel
Room: Poster Area
Tuesday PM
February 28, 2017
American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Poster Session
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya
Location: Marriott Marquis Hotel
Room: Poster Area
February 28, 2017
Pan American Materials Congress: Minerals Extraction and Processing — Poster Session
Sponsored by: Third Pan American Materials Congress Organizing Committee
Program Organizers: Mery Gómez Marroquiun, Asociación Peruana de Metalurgia Materiales y Minerales-APMMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosí; Carlos Sampaio, UFRGS
Location: Marriott Marquis Hotel
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Tuesday PM
February 28, 2017

PAN-39: Thermo-Mechanical Behavior of Nanostructure Polyacrylic Polymer Based on Al₂O₃ and Bentonite Nanoparticles: Ruben Castillo-Pérez; Mireya Hernández-Vargas; Oscar Hernández-Guerrero; Bernardo Campillo-Illanes; Osvaldo Flores-Cedillo; 1Universidad Nacional Autónoma de México; 2Universidad Autónoma del Estado de Morelos

PAN-40: Thermo-Mechanical Properties of Waterborne Acrylate Hybrid Nanocomposites: Mireya Lizbeth Hernández-Vargas; Rubén Castillo-Pérez; Oscar Hernández-Guerrero; Bernardo Fabián Campillo-Illanes; Osvaldo Flores-Cedillo; 1Universidad Nacional Autónoma de México; 2Universidad Autónoma del Estado de Morelos

PAN-41: Ultra High Molecular Weight Polyethylene Reinforced with Ceramics Nanoparticles: Edio Lima Junior; Sergio Monteiro; Ricardo Weber; Alaelson Vieira; 1Military Institute of Engineering

PAN-39: Thermo-Mechanical Behavior of Nanostructure Polyacrylic Polymer Based on Al₂O₃ and Bentonite Nanoparticles: Ruben Castillo-Pérez; Mireya Hernández-Vargas; Oscar Hernández-Guerrero; Bernardo Campillo-Illanes; Osvaldo Flores-Cedillo; 1Universidad Nacional Autónoma de México; 2Universidad Autónoma del Estado de Morelos

PAN-40: Thermo-Mechanical Properties of Waterborne Acrylate Hybrid Nanocomposites: Mireya Lizbeth Hernández-Vargas; Rubén Castillo-Pérez; Oscar Hernández-Guerrero; Bernardo Fabián Campillo-Illanes; Osvaldo Flores-Cedillo; 1Universidad Nacional Autónoma de México; 2Universidad Autónoma del Estado de Morelos

PAN-41: Ultra High Molecular Weight Polyethylene Reinforced with Ceramics Nanoparticles: Edio Lima Junior; Sergio Monteiro; Ricardo Weber; Alaelson Vieira; 1Military Institute of Engineering
**TECHNICAL PROGRAM**

**TMS2017 FINAL PROGRAM**

**TECHNICAL PROGRAM**

- **Session Chair:** Jose Pacheco
  - **PAN-67:** Using CCT and TTT Diagrams Obtained by Simulation for Mines
  - **L-174:** Investigation on Interfacial Reactions between the Multi-walled Carbon Nanotubes Reinforced Sn-Ag-Cu Composite Solders with Cu: Gita Hermana; Sha Fu; Yee Yen; National Taiwan University of Science and Technology
  - **L-175:** Application of Computational Thermodynamics in SOFCs: Shadi Darvish; Yu Zhong; Florida International University
  - **L-176:** Stretchable Electronic Packaging: Donghyeon Park; Soo Jin Shin; Jae-Ho Lee; Tae-Sung Oh; Houghik University
  - **L-177:** Calorimetric Investigation of the Liquid Sn-3.8Ag-0.7Cu Alloy with Minor Additions of Mn and Ni: Andriy Yakymovych; Hans Flandorfer; Herbert Isper; University of Vienna
  - **L-178:** Degradation Mechanism of Piezoelectric Materials: Hooman Sabarouei; Yu Zhong; Florida International University
  - **L-179:** Effect of Silver Precursor Addition on Shear Strength of Cu-Cu Joints with Silver Nanoparticle Paste: Hung-Tao Chen; National Cheng Kung University
  - **L-180:** Investigating Mixed Crystal Solid Solution of High Performance Scintillators KBa215:Eu & KSr215:Eu: Jesse Johnson; Luis Stand; Mariya Zhuravleva; Merry Koschan; Chuck Melcher; University of Tennessee-Knoxville

**Session Chair:** Ramana Chintalapalle, University of Texas at El Paso, UTEP; Nuggehalli Ravindra, New Jersey Institute of Technology

**Session Chairs:** Ramana Chintalapalle, University of Texas at El Paso, UTEP; Nuggehalli Ravindra, New Jersey Institute of Technology

**Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Poster Session**

**Session Chair:** Ramana Chintalapalle, University of Texas at El Paso, UTEP; Nuggehalli Ravindra, New Jersey Institute of Technology

**H-35:** Effects of Carbon Coating on Magnetic Susceptibility of NiTi Alloy: Ari Shin; Sang Jin Park; In Hyun Han; Chungnam National University

**H-36:** Investigation of Mechanical Properties of W1-yMoyO Nanocomposite Thin Films: P. Dubey; G. Lopez; G. Martinez; C. Ramana; University of Texas at El Paso

**H-37:** Microstructure and Optical Properties of HfO2/Mo/HfO2 Based Heat Mirrors and Their Potential Use for Efficient Windows Applications: Juan Gomez; Parthosh Dubey; C. Ramana; University of Texas at El Paso

**H-38:** Preparation of Porous Titanium Oxide Film by Sol-gel Method: Baoqiang Xu; National Engineering Laboratory for Vacuum Metallurgy, Key Laboratory of Nonferrous Metals Vacuum Metallurgy of Yunnan Province, Kunming University of Science and Technology

**H-39:** Structure Property Relationship of Tannic Acid Based Copolymers for Anti-oxygen Infused Wound Dressing: Matthew Korey; John Howarter; Purdue University

**H-40:** Structural Property Relationship Studies of Electron Beam Welded Dissimilar Steel to Fe-Al Alloy Joints: Soumitra Kumar Dinda; Gour Gopal Roy; Prakash Siriramani; Indian Institute of Technology, Kharagpur; University of Warwick

**H-41:** Effect of Bias Induced Microstructure on Mechanical Properties of Nanocrystalline ZrWN Coatings: P. Dubey; S. Srivastava; R. Chandra; C. Ramana; University of Texas at El Paso; Indian Institute of Technology Roorkee
Solid State Precipitation — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Phase Transformations Committee

Program Organizers: Seth Imhoff, Los Alamos National Laboratory; Robert Hackenberg, Los Alamos National Laboratory; Gregory Thompson, University of Alabama

Tuesday PM Room: Hall B1
February 28, 2017 Location: San Diego Convention Ctr

Session Chair: Seth Imhoff, Los Alamos National Laboratory

L-183: Analysis of Beta’ Cu4Ti Precipitation in Cu-Ti Alloys by Conventional and Diffusion-couple Methods: Felipe Hernandez-Santiago¹; Victor Lopez-Hirata¹; Maribel Sauced-Muñoz²; Pamela Hernandez-Duran²; Erika Avila-Davila³; ¹Instituto Politecnico Nacional (ESIME); ²Instituto Politecnico Nacional (ESIQIE); ³Instituto Tecnologico de Pachuca

L-184: Carbide Precipitation in a Low-alloy Ferritic Steel: Maribel Saucedo-Muñoz¹; Victor Lopez-Hirata¹; Rodrigo Gomez-Martinez¹; Arturo Ortiz-Mariscal¹; Jose Villegas-Cardenas¹; Jorge Gonzalez-Velazquez¹; ¹Instituto Politecnico Nacional (ESIQIE); ²Universidad Politecnica (Valle de México)

L-185: Nanocomposites Ti/B/TiO₂ by Mechanical Alloy Synthesis: Diana Jaramillo¹; ¹Centro de Investigacion y Desarrollo Tecnologico en Electroquimica
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