

TMS 2018

147th Annual Meeting & Exhibition

THE WORLD COMES HERE.

MARCH 11-15, 2018

PHOENIX CONVENTION CENTER AND SHERATON GRAND PHOENIX
PHOENIX, ARIZONA



FINAL PROGRAM

CO-LOCATED
WITH



SEE PAGES 2-8
FOR MAPS AND
FLOORPLANS

Thermo-Calc Software

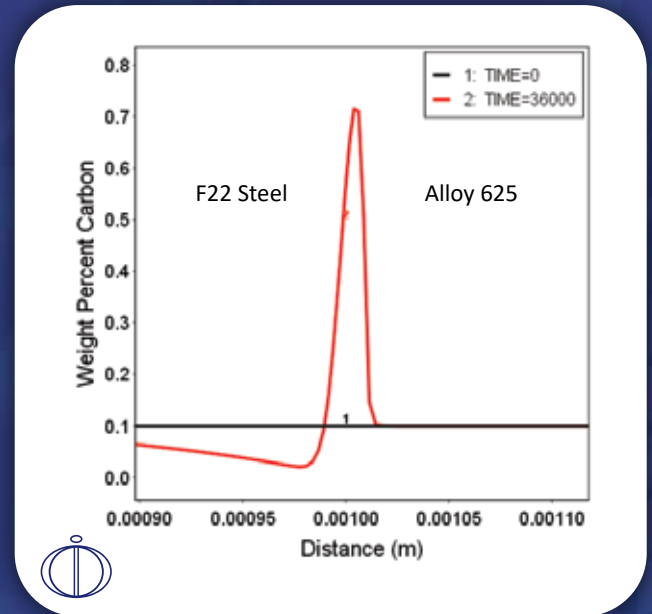
Powerful Software for Thermodynamic and Diffusion Calculations

Software packages:

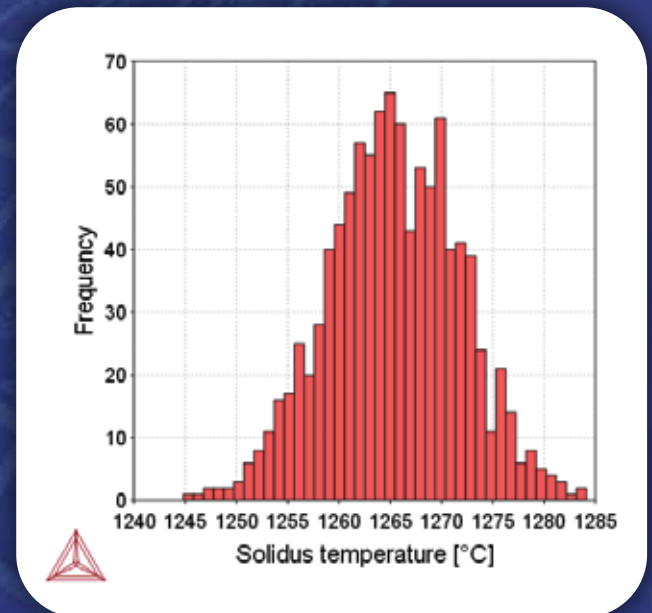
- ✓ **Thermo-Calc** for thermodynamics and phase equilibria in multicomponent systems
- ✓ **Diffusion module (DICTRA)** for modelling diffusion controlled transformations
- ✓ **Precipitation module (TC-PRISMA)** for modelling precipitation kinetics
- ✓ **Software development kits** for linking Thermo-Calc to your own software codes
- ✓ **Over 30 Databases** for thermodynamic and mobility applications

Benefits:

- ✓ **Predict** what phases form as a function of composition, 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



Carbon pileup at dissimilar metal weld interface during service



Variation in solidus temperature over 1000 compositions within alloy 718 specification

Better Materials through Better Understanding

Visit us at booth #401

www.thermocalc.com
info@thermocalc.com



David H. DeYoung
2017 TMS President

WELCOME TO TMS2018!

Thank you for joining us at the TMS 2018 Annual Meeting & Exhibition (TMS2018). Whether it's your first annual meeting or your 20th, we're glad to have you here with us in Phoenix, Arizona, for the 147th installment of our distinguished event! This year, we have some enhancements planned that I think you'll appreciate.

NEW FOR TMS2018: MONDAY PLENARY

We're excited to introduce a new feature to this year's annual meeting—a single-speaker, all-conference plenary session on Monday afternoon. Charlie Kuehmann, head of materials engineering for both Tesla and SpaceX, will speak on the future of materials and manufacturing innovation. To complement his presentation, Tesla and SpaceX have displays of their technology on the third floor of the convention center.

WELCOME TO OUR INTERNATIONAL PROGRAMMING PARTNERS

The 2nd International Conference on Computational Design and Simulation of Materials (CDSM 2018), organized jointly by TMS and the Chinese Society for Metals (CSM), is co-located with this year's annual meeting. All TMS2018 registrants have access to the exciting technical program of CDSM 2018.

TMS also welcomes the Federation of European Materials Societies (FEMS) as a programming partner at TMS2018. FEMS has invited materials leaders from Europe for a keynote symposium: Energy and Transportation from a European Materials Perspective.

ENJOY LUNCH IN THE EXHIBIT HALL

As part of your registration, TMS will be providing lunches in the Exhibit Hall so that you can enjoy a meal between sessions while continuing to network with colleagues. Lunches will be available on Monday, Tuesday, and Wednesday.

FIND YOUR WAY WITH SCHEDULING TOOLS AND LOCATION MAPS

With nearly 4,000 presentations planned for TMS2018, determining what to attend and how to find your next location can be daunting. Here are some steps to make getting around easier: First, download the TMS2018 App for your mobile device. It includes maps and a scheduling tool that may prove a valuable and convenient way to structure your week. Second, make use of the TMS2018 Location Maps strategically placed throughout the convention center. They're color-coded by topic area to help you find your next presentation.

ENJOY YOUR WEEK IN PHOENIX!

Phoenix is a TMS location new to many attendees, so be sure to take in some of the sights of our host city while you're here. The VisitPhoenix Mobile Visitor Info Center on the 300 Level in the North Building can provide you with maps, visitors guides, and dining recommendations.

VISIT THE TMS MEMBER WELCOME CENTER

Please take a few minutes to meet some of the TMS staff at the TMS Member Welcome Center, which is located next to Registration on the north third floor of the convention center. If you are a first-time attendee or someone who has attended ten or more consecutive TMS annual meetings, stop by to pick up your free gift. I also encourage everyone to add to the mentorship artwork that the TMS Foundation is creating there.

If you have any questions for me, I'll be available at the TMS Member Welcome Center from 5:00 p.m. to 6:00 p.m. on Monday evening and would be happy to discuss the present and future of TMS with any of you. I will also be at the President's Welcoming Reception from 6:00 p.m. to 7:00 p.m. on Sunday. Check the VIP Meet & Greet schedule on page 15 of this program and at the TMS Member Welcome Center to see who else from TMS leadership you might want to connect with during the week.

Please use some of the valuable information you learn during this week to improve materials, products, and processes at your organization and to move the global minerals, metals, and materials community forward. Learn as much as you can, meet as many new people as possible, and enjoy your time at TMS2018 in Phoenix!

Sincerely,
David H. DeYoung
2017 TMS President



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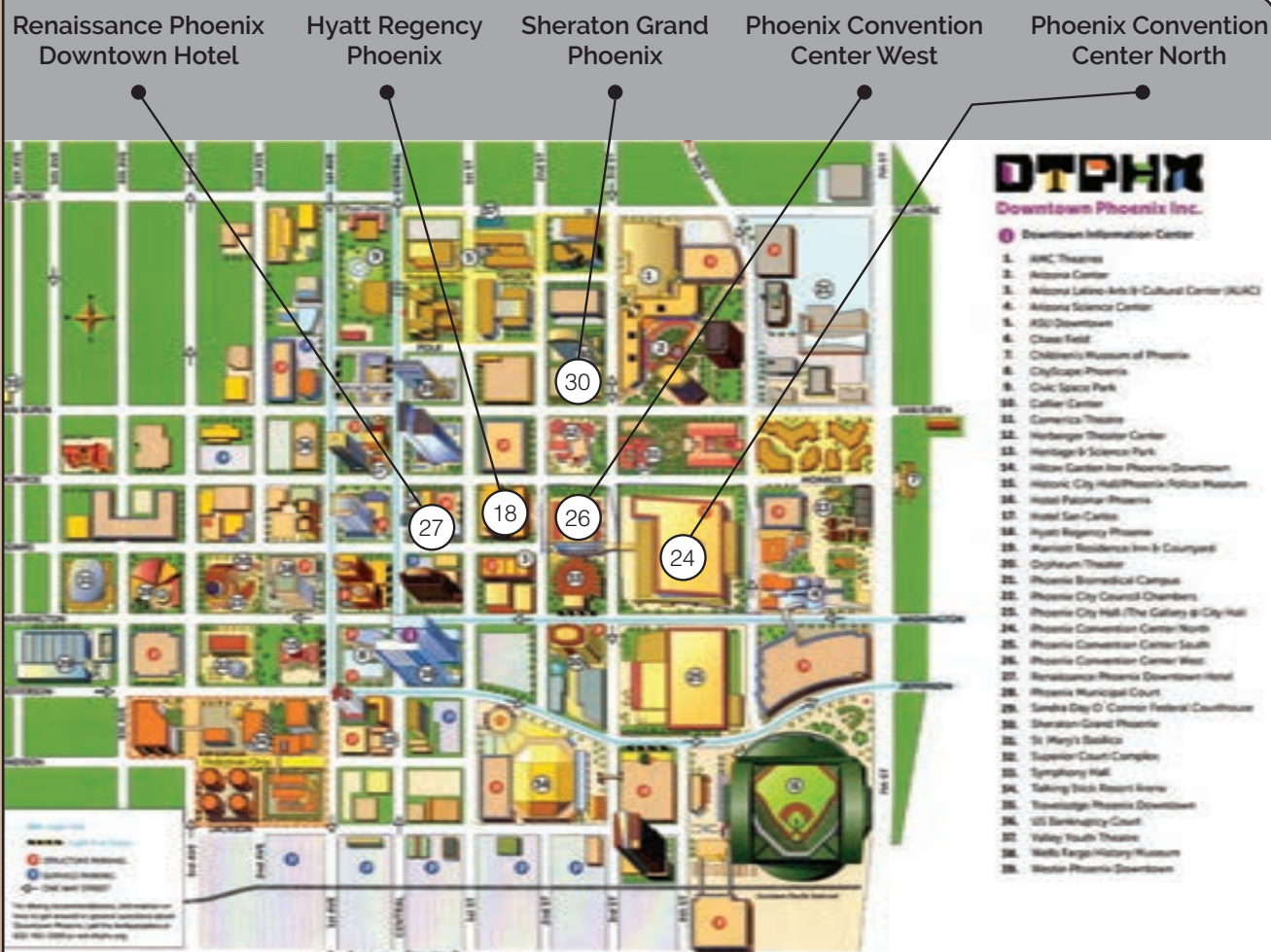
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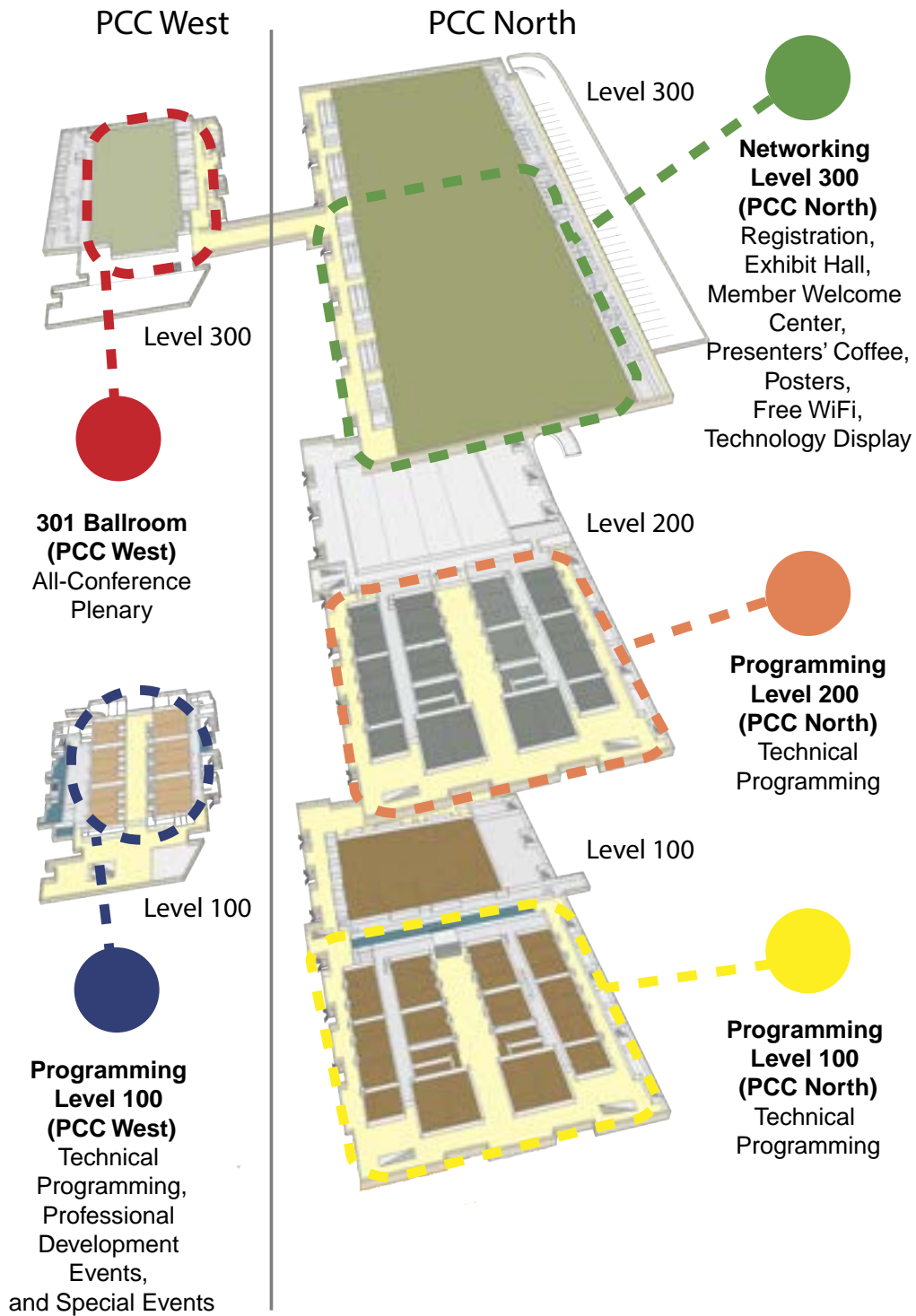
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MAP OF DOWNTOWN PHOENIX





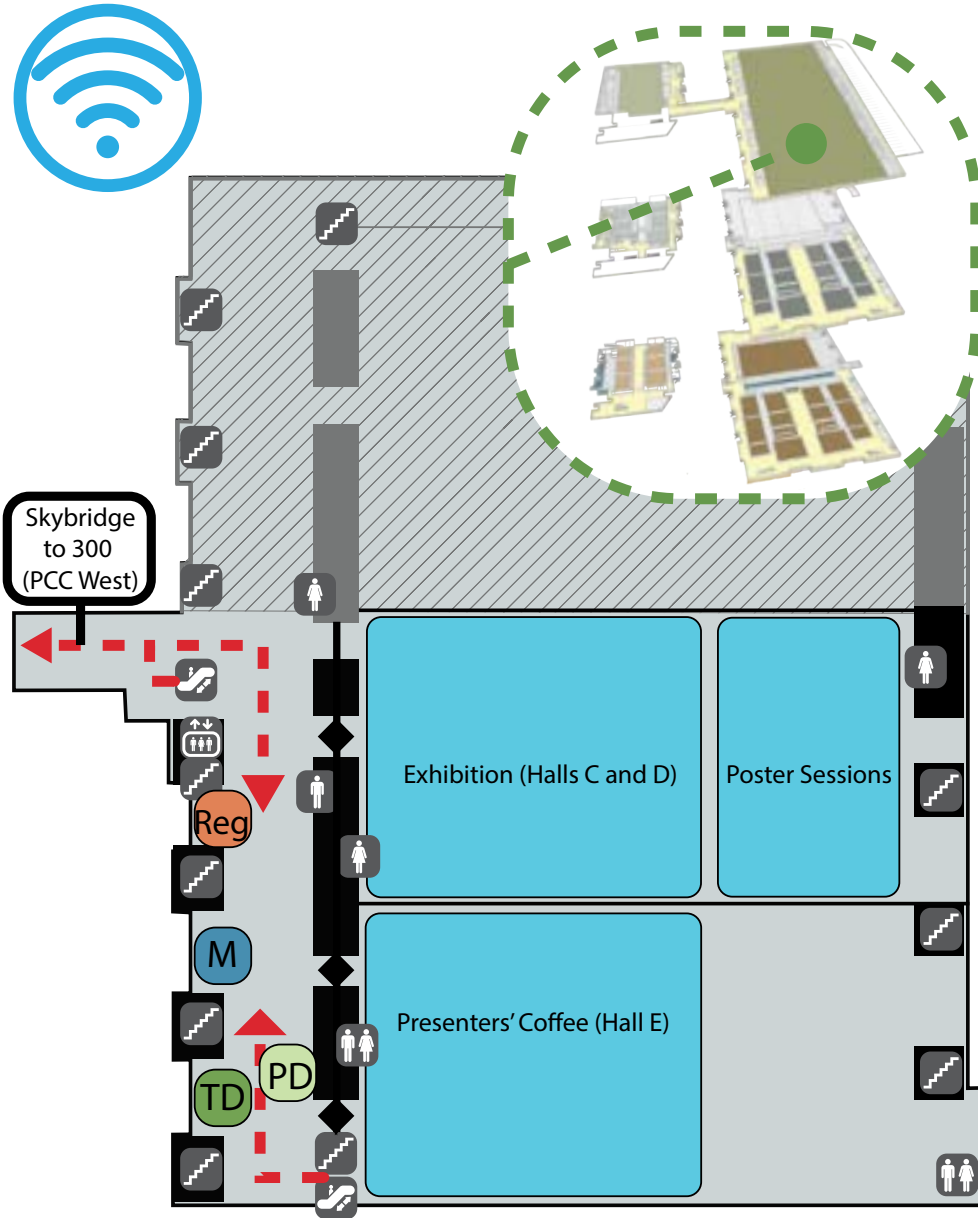
OVERVIEW OF PROGRAMMING LEVELS



Phoenix Convention Center (PCC)



NETWORKING LEVEL 300 (THIRD FLOOR, PCC NORTH)

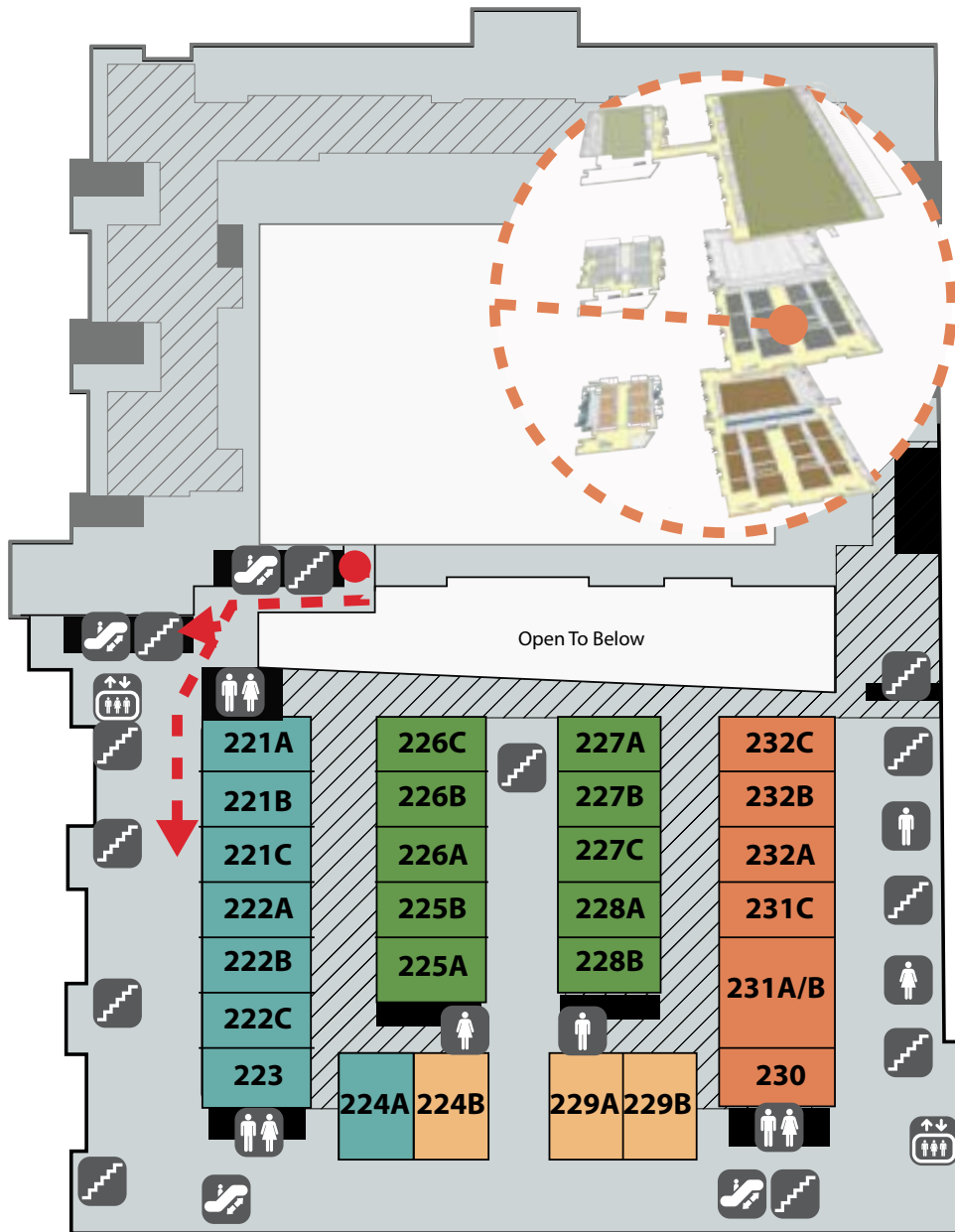


- Reg Registration
- M Member Welcome Center
- TD Technology Display
- PD Programming Desk

- Restrooms
- Elevator
- Escalator
- Stairs



PROGRAMMING LEVEL 200 (SECOND FLOOR, PCC NORTH)

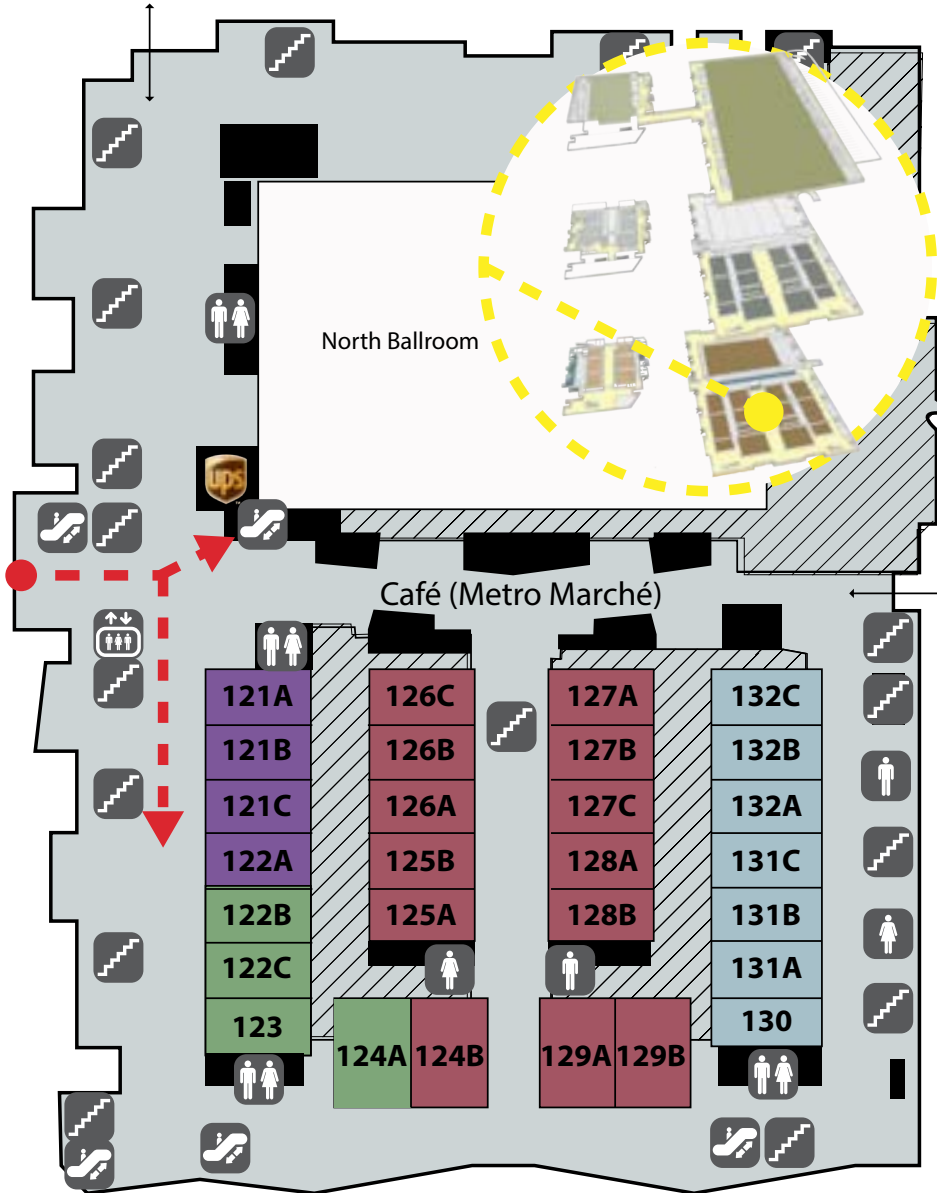


- Light Metals (Al & Mg)
- Materials Processing, Corrosion & Functional Materials
- Energy & Environment
- Additive Manufacturing

- Restrooms
- Elevator
- Escalator
- Stairs



PROGRAMMING LEVEL 100 (FIRST FLOOR, PCC NORTH)

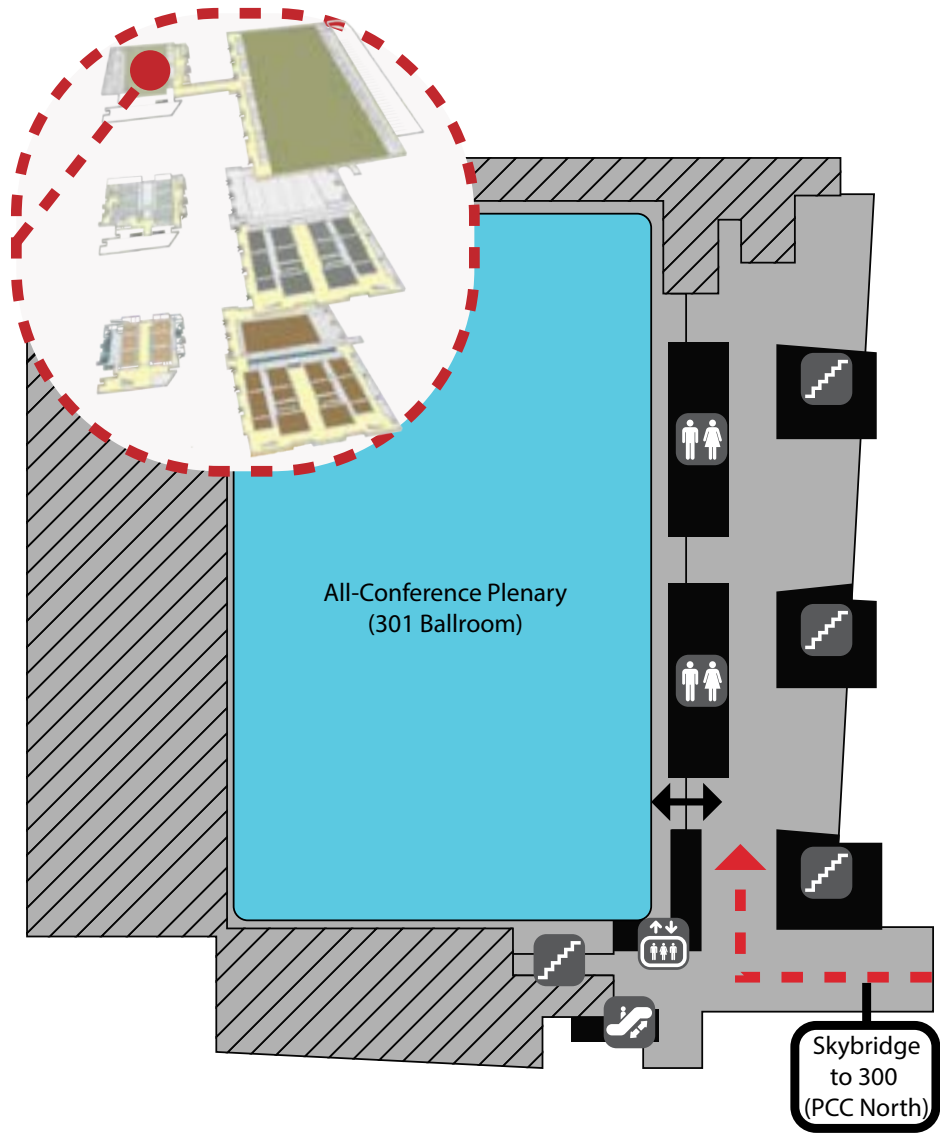


- Advanced Materials
- Mechanics and Physical Metallurgy
- Characterization
- CDSM & Materials Design

Restrooms
 Elevator
 Escalator
 Stairs



301 BALLROOM (THIRD FLOOR, PCC WEST)



Restrooms



Elevator



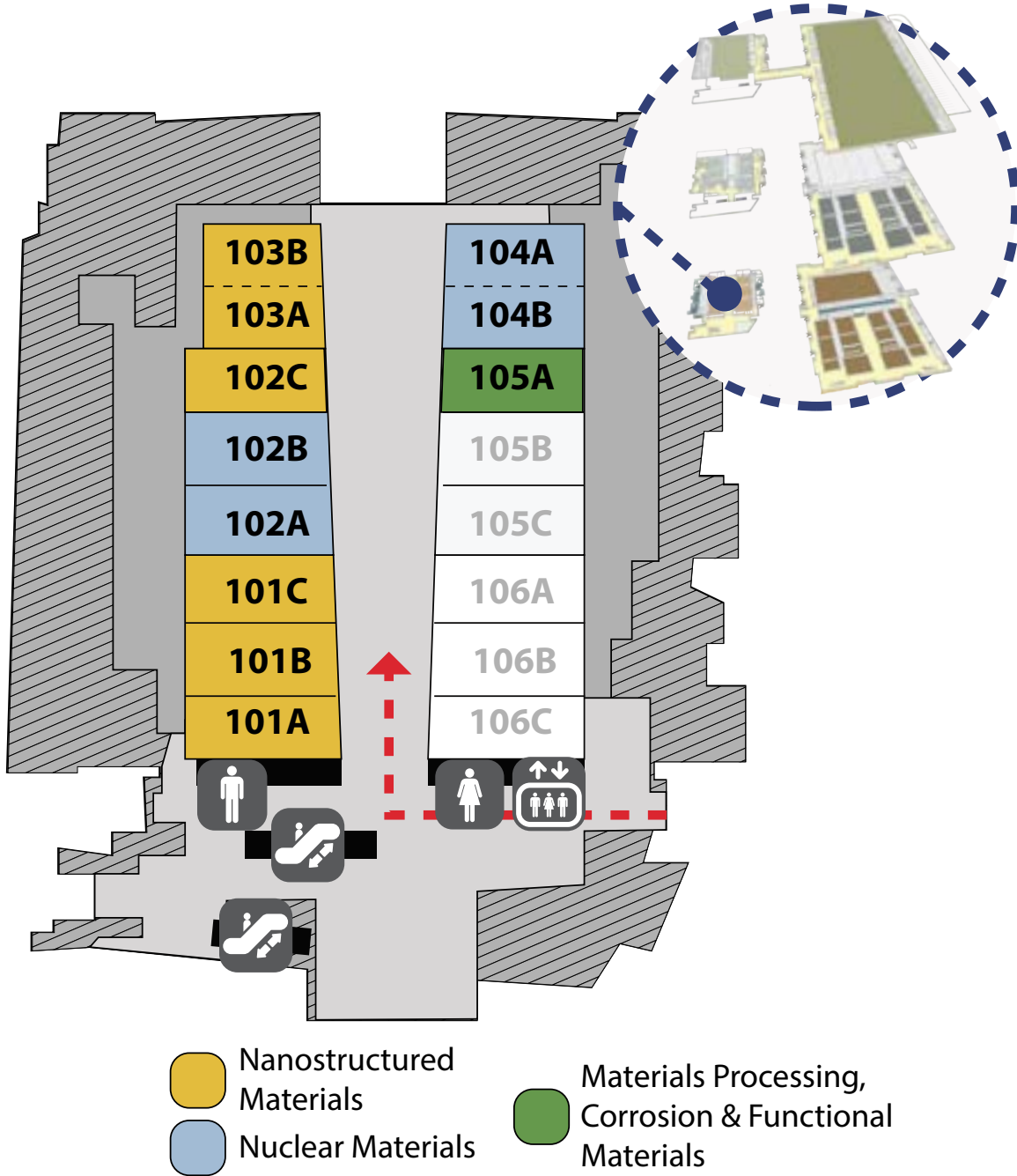
Escalator



Stairs



PROGRAMMING LEVEL 100 (FIRST FLOOR, PCC WEST)



Restrooms
 Elevator
 Escalator
 Stairs



EMERGENCY PROCEDURES



The chances of an emergency situation occurring at TMS2018 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 TMS2018 facilities, on pages 2-8 of this program and also available on the TMS2018 App. When you enter these buildings, familiarize yourself with the exits and the stairs leading to those exits. When you arrive at your session or event location, look for the emergency exits that are in proximity to you.

53 Automatic External Defibrillators (AED) are distributed around the Phoenix Convention Center (PCC) campus. AED cabinets are alarmed and opening a cabinet will generate a response from Security. Take the time to locate the nearest AED to your location.

First Aid rooms are available on every exhibition level of the PCC.

HOW TO REPORT AN EMERGENCY

Emergencies may be reported in one of three ways at the PCC:

1. By calling House Security at 1-602-262-7271 or by dialing 85 from any house phone. House Security will call 9-1-1 for Phoenix Fire Department and/or Phoenix Police Department and coordinate their arrival.

2. By calling 9-1-1 directly. If 9-1-1 is called directly, please inform the nearest security guard so that they can work with first responders to expedite their arrival.
3. Contacting any PCC security guard or staff member.

EMERGENCY EVACUATION

Should the fire alarm sound, all attendees should immediately evacuate the building using the nearest exit. Move away from the building, at least across the street and await instructions.

Persons with disabilities should gather at ADA Assistance locations marked with blue signs if they require evacuation assistance.

LOCKDOWN

The convention center is prepared to lockdown the campus in response to a threat outside the building. A lockdown is initiated with a building-wide announcement asking occupants to remain inside and providing information about the threat outside. Security and PCC staff members will staff and lock all exterior doors to prevent entry. Follow-up announcements will be made to keep everyone informed. Please note that staff and security will not physically prevent anyone from leaving the building during a lockdown.

HOSPITALS, URGENT CARE CENTERS, AND PHARMACIES

A listing of hospitals, urgent care centers, and pharmacies can be found in the Attendee Toolbox section of the TMS2018 website and on the TMS2018 App.

PHOENIX DOES NOT OBSERVE DAYLIGHT SAVINGS TIME.

Phoenix uses Mountain Standard Time (MST) throughout the year, and will not be changing to US Daylight Savings Time on March 11.



Phoenix, Arizona, USA
12:00 p.m. (MST)
March 11, 2018



New York, USA
3:00 p.m. (MST +3:00)
March 11, 2018



Beijing, China
3:00 a.m. (MST +15:00)
March 12, 2018



Brussels, Belgium
8:00 p.m. (MST +8:00)
March 11, 2018



Greenwich Mean Time
7:00 p.m. (MST +7:00)
March 11, 2018



REGISTRATION & TICKETS

REGISTRATION BADGES



The TMS 2018 Annual Meeting & Exhibition (TMS2018) name badge you received at registration 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:

- More than 85 symposia in 15 technical tracks
- Technical sessions of the 2nd International Conference on Computational Design and Simulation of Materials (CDSM 2018)
- A three-day pass to the TMS2018 Exhibition:
 - Exhibit Hall Opening Reception and Poster Session
 - Exhibit Hall Happy Hour and Poster Session
 - Complimentary Lunches
- President's Welcoming Reception
- All-conference plenary session, featuring Charlie Kuehmann of Tesla and SpaceX
- 2018 TMS-AIME Awards Ceremony
- Online access to the complete collection of TMS2018 proceedings publications
- Networking Level on the third floor of the convention center, which offers free WiFi and informal networking opportunities

Attached to your name badge you will find tickets that will allow you access to select functions at TMS2018.

Please keep your badge with you at all times during the meeting. Replacement badges can be printed at the TMS2018 registration desk for a fee of \$25.

TICKETED EVENTS

Certain receptions, luncheons, and other activities at TMS2018 require purchase of 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.

Most ticket sales will be closed by 10:00 a.m. the day before the event. For example, tickets for the awards banquet on Wednesday evening should be purchased by 10:00 a.m. on Tuesday. An exception is the Fresh Coffee, Fresh Ideas: Diversity and Inclusion Breakfast on Wednesday morning. Ticket sales for this event will close at 5:00 p.m. on Monday.

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."



COMMEMORATIVE PINS

Each TMS2018 attendee received a commemorative pin in their registration bag, the first in a series to be issued through 2021 to celebrate the 150th anniversary of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME). This year's pin recognizes the 30th anniversary of the TMS technical divisions and provides some background on their founding.





FREE PROCEEDINGS ACCESS

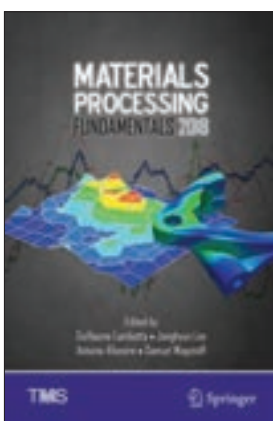
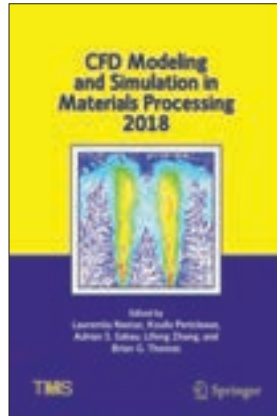
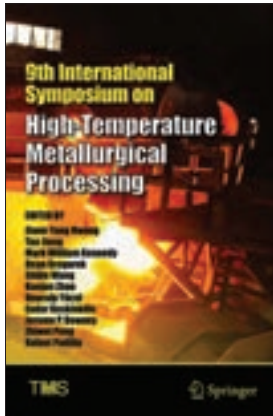
TMS2018 attendees in selected registration classes receive free online access to the complete collection of proceedings publications. For details on how to download the proceedings publications, see the instructions attached to your name badge.

Please note that complimentary proceedings content must be downloaded by **April 30, 2018**, at which time standard pricing will take effect.

INDIVIDUAL VOLUMES FOR PURCHASE

TMS members receive a 40% discount off hard copies of the TMS2018 proceedings volumes presented on this page. These books will be available for purchase at the Springer booth, located near the TMS2018 registration area at the Phoenix Convention Center.

Visit the online TMS Bookstore to search the complete inventory of available TMS publications, including past proceedings volumes at www.tms.org/Bookstore.





WiFi ACCESS

Free wireless internet access will be available throughout the Networking Level on the 300 floor of the Phoenix Convention Center North Building, which includes the registration, presenters' coffee, and TMS Member Welcome Center areas. Complimentary WiFi is also available in the public areas on the 100 level of the convention center (in the food court and atrium/lobby areas). **Select the TMS2018 WiFi network; no password is needed.**

Free wireless internet access will also be available in the lobby of the Sheraton Grand Phoenix hotel. If you booked in the TMS2018 room block, you will also have access to complimentary WiFi in your hotel guest room at the Sheraton.

COFFEE SHOPS

There is a Starbucks located in the West Building and free-trade City Central Coffee in the North Building. Starbucks is open on the weekend from 7:00 a.m. to 2:00 p.m. and weekdays from 6:30 a.m. to 5:00 p.m. City Central Coffee is open weekdays from 7:00 a.m. to 2:30 p.m. Also, there are more than 15 unique coffee shops within a few blocks of the convention center.

LUNCHES

Tickets for lunches in the TMS2018 Exhibit Hall (included as part of your registration) are attached to each full-conference attendee's name badge. Please take advantage of these complimentary lunches as a convenient option during busy days. Lunch will be available in the exhibit hall at the following days and times:

MONDAY, MARCH 12: 1:00 p.m. to 2:30 p.m.

TUESDAY, MARCH 13: 11:30 a.m. to 1:30 p.m.

WEDNESDAY, MARCH 14: 11:30 a.m. to 1:30 p.m.

On Thursday, when lunch is not available in the exhibit hall, attendees can visit the Metro Marché in the North Building from 11:00 a.m. to 2:00 p.m. The Metro Marché is the Phoenix Convention Center's food court, offering salads, sandwiches, pizzas, and Mexican-style tortillas. Attendees can access free WiFi in this area.

For more information on convention center and local area dining and maps visit www.phoenixconventioncenter.com/dining.

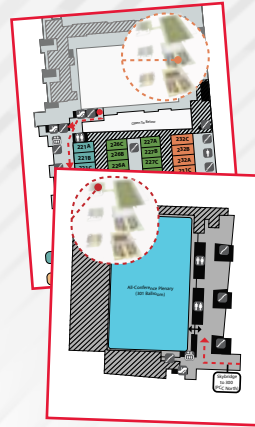
BUSINESS CENTER

There is a UPS Store located at the Phoenix Convention Center. They are closed on Sundays but open Monday through Friday from 7:00 a.m. to 6:00 p.m.

For more information on available services, please visit <https://phoenix-az-5750.theupsstorelocal.com/>, call 1-602-251-0135, or e-mail store5750@theupsstore.com.



MEETING LOCATION MAPS



Look for our color-coded maps located throughout the convention center to help you find your way! Similar programming topics are grouped by zones and assigned colors to help you quickly determine where you can find the programming topics you seek.



NOTE ABOUT TIME

All times printed in this program refer to Mountain Standard Time. (Phoenix does not observe Daylight Savings Time.) **See page 9 graphic for detailed information related to Mountain Standard Time.**



TMS2018 MOBILE APP

A convenient alternative to this printed at-meeting program, the TMS2018 mobile application can serve as your hand-held guide to the meeting. To download the app, search "TMS Annual Meeting" in the App Store or the Google Play™ Store.

The App's features include:

- Latest programming schedule
- Complete abstracts
- Ability to build a personalized schedule
- Speaker information
- Exhibit map
- Exhibitors and sponsors
- Venue information
- Access to *TMS2018 News*
- NEW! See if speakers and attendees have checked in onsite

PLEASE NOTE: LOG IN REQUIRED

The first time you open the TMS2018 App, you will be asked to log in using your TMS2018 registration confirmation number. This number will be in your e-mailed registration confirmation and is conveniently printed on the front of your badge. Please remember to use the hyphen when entering your unique confirmation code (18-xxxxx).

TMS2018 NEWS: YOUR DAILY MEETING NEWSLETTER

Want to stay informed of everything that's happening at the TMS 2018 Annual Meeting & Exhibition?

TMS2018 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 TMS2018 app at any time, through the TMS2018 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 TMS2018, sit down with a cup of coffee and skim *TMS2018 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 **#TMSAnnualMeeting** to tweet your observations to **@TMSociety**.



TMS2018 MOBILE APP DASHBOARD

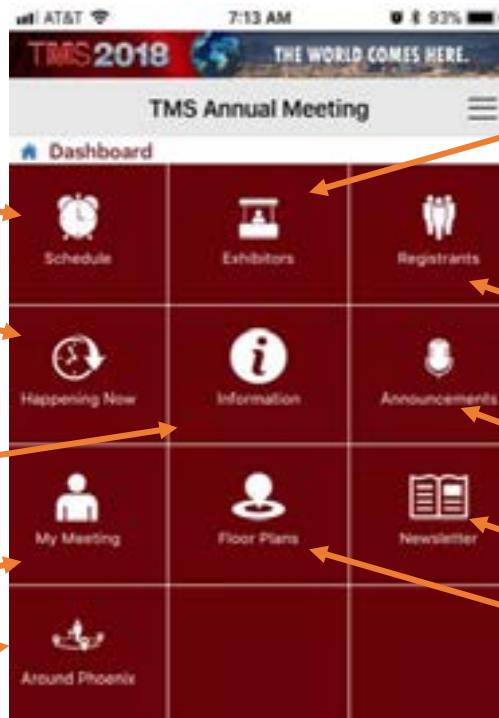
Get the full TMS2018 schedule including technical sessions/presentations, socials, business meetings, and exhibition.

Expedite your planning by viewing what's going on within the current hour.

Find updates and information about special events, Collected Proceedings, and general TMS2018 information.

Access saved sessions you want to attend, exhibitors you wish to visit, notes, and more.

Need transportation, restaurant options, or the nearest pharmacy? See what's nearby.



View a complete list of exhibiting companies, exhibit hall map, and schedule appointments.

Search names of other TMS2018 attendees and send messages.

Receive important advisories and opt in or out to receive notification pop-ups.

Keep up with the latest TMS2018 news!

Get your bearings with full color maps of the Phoenix Convention Center



MEMBER SERVICES & INFORMATION

MEETING INFORMATION

VISIT THE TMS MEMBER WELCOME CENTER

Location: Phoenix Convention Center, 300 Level - North

If you are a full-conference attendee of TMS2018, you are either already a member of TMS, or will be receiving membership after the meeting as part of your non-member registration. 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, located on the third floor of the Phoenix Convention Center near registration.

HOURS OF OPERATION

Sunday: 7:00 a.m. to 7:00 p.m.
Monday: 6:30 a.m. to 6:00 p.m.
Tuesday: 7:00 a.m. to 6:00 p.m.
Wednesday: 7:00 a.m. to 5:00 p.m.
Thursday: 7:00 a.m. to 5:00 p.m.

FIRST-TIME ATTENDEES

If this is your first time attending a TMS annual meeting, visit the TMS Member Welcome Center to pick up your First-Time Attendee Welcome Packet. This resource offers practical tips on making the most of the meeting, a guide to your new TMS membership, tools to help you get more involved in the society, and a small gift to thank you for joining us at TMS2018.

REPEAT ATTENDEES

If you have attended ten or more consecutive TMS annual meetings, stop by the TMS Member Welcome Center for your free gift—our small way of saying thank you for your loyalty to us and our conference. Eligible attendees received an e-mail in advance of the meeting and can use the ticket attached to their name badge to claim their gift.

ROOMS FOR NURSING MOTHERS

A private, designated room is available at the convention center for nursing mothers. To access the private room, contact TMS staff at the Member Welcome Center, located on the third floor of the convention center.



CELEBRATE YOUR MENTORS

To kick off its 25th anniversary year, the TMS Foundation invites you to stop by the TMS Member Welcome Center to help us honor the roles that mentors play in the development of young scientists and engineers. Take a few moments to recognize those who have helped shaped your career by adding their name(s) to the TMS "family tree" that represents how these important individuals have helped to grow our professional community.



WANT TO SEE MORE OF PHOENIX?



Stop by the **VisitPhoenix Mobile Visitor Information Center**, located on the 300 Level in the North Building for:

- Downtown Phoenix Maps
- Tour & Dining Reservations Assistance
- Visitor Guides & Local Business Brochures

Photo Credit: www.visitphoenix.com



Visit the **TMS Member Welcome Center** throughout the week to meet with TMS leadership and to discuss different aspects of TMS involvement.

SUNDAY, MARCH 11

Bringing MSE to High Schools

Date: Sunday, March 11

Time: 10:00 a.m. to Noon

Location: TMS Member Welcome Center, Phoenix Convention Center

Guests: Rebecca Connelly, Curriculum Advisor, *Materials Explorers™*; André Phillion, Chair, *Materials Explorers™* Committee; Lily Nguyen, *Materials Explorers™* Committee; and Iver Anderson, Advisor to the *Materials Explorers™* Committee

Explore TMS's new high school STEM outreach program, *Materials Explorers™*, and learn how you can make a difference in your local community

Meet the Incoming TMS Vice President

Date: Sunday, March 11

Time: 2:00 p.m. to 3:00 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: James C. Foley, Incoming TMS Vice President

MONDAY, MARCH 12

Explore the TMS Foundation

Date: Monday, March 12

Time: 9:00 a.m. to 10:00 a.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: Garry W. Warren, Chair, TMS Foundation

Learn about the important work of the TMS Foundation, now celebrating its 25th year, and what you can do to help further its mission.

Bringing MSE to High Schools

Date: Monday, March 12

Time: 10:00 a.m. to 11:00 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guests: Rebecca Connelly, Curriculum Advisor, *Materials Explorers™*; André Phillion, Chair, *Materials Explorers™* Committee; and Eric Brown, Vice Chairperson, Public and Governmental Affairs Committee

Discuss ABET with the TMS Accreditation Committee

Date: Monday, March 12

Time: 1:30 p.m. to 2:30 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: Gregg Janowski, Vice Chairperson, TMS Accreditation Committee

Find out more about becoming an ABET Program Evaluator & discuss the ABET Criteria 3 & 5 revisions.

Bringing MSE to High Schools

Date: Monday, March 12

Time: 2:30 p.m. to 3:30 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guests: Rebecca Connelly, Curriculum Advisor, *Materials Explorers™*; André Phillion, Chair, *Materials Explorers™* Committee; and Eric Brown, Vice Chairperson, Public and Governmental Affairs Committee

How Can Early Career Professionals Benefit from TMS?

Date: Monday, March 12

Time: 4:00 p.m. to 5:00 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: Edward D. Herderick, Trustee, TMS Foundation

Why engage with TMS as an early career professional? Learn how to leverage volunteerism in building a career.

Meet the 2017 TMS President

Date: Monday, March 12

Time: 5:00 p.m. to 6:00 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: David DeYoung, 2017 TMS President

TUESDAY, MARCH 13

Meet the 2018 TMS President

Date: Tuesday, March 13

Time: 11:00 a.m. to Noon

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: Kevin Hemker, 2018 TMS President

Discover Bladesmithing with TMS

Date: Tuesday, March 13

Time: 1:00 p.m. to 2:00 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: Michael West, Member, Bladesmithing Committee



Volunteering with TMS

Date: Tuesday, March 13

Time: 2:00 p.m. to 3:00 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: Thomas Battle, Extractive Metallurgy Consultant, Senior Advisor, Extraction & Processing Division

Discover how TMS is led by its members and explore the many opportunities for volunteering with the Society.

TMS's Engagement with Public and Governmental Affairs

Date: Tuesday, March 13

Time: 3:00 p.m. to 4:00 p.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: John Howarter, TMS Director/Chair, Public & Governmental Affairs

Find out more about the role and recent activities of the TMS Public and Governmental Affairs Committee.

WEDNESDAY, MARCH 14

TMS's Technical Divisions Structure

Date: Wednesday, March 14

Time: 10:00 a.m. to 11:00 a.m.

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: Cynthia Belt, TMS Director/Chair, Extraction & Processing Division

Discuss Diversity and Inclusion in MSE

Date: Wednesday, March 14

Time: 11:00 a.m. to Noon

Location: TMS Member Welcome Center, Phoenix Convention Center

Guest: Megan Cordill, Vice Chair, Diversity Committee

Explore diversity and inclusion issues facing materials science and engineering and learn more about TMS initiatives to advance diversity.

www.fritsch-us.com



Worldwide standard in industry and research

High-performance mills Sieve Shakers Particle Sizing Instruments Sample Dividers








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 18 permitted. Please provide the names of the guests who will be attending your presentations when picking up your badge.

GUEST FUNCTION TICKETS

You may purchase additional tickets to social functions for your guests at the registration desk.

REFUND POLICY

The deadline for all refunds was February 1, 2018. 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.

PHOTOGRAPHY AND AUDIO/VIDEO 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 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.

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 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.

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 in advance at 1-724-776-9000 or on-site 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.

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Event / Function	Date	Time	Facility	Room	Access
Saturday, March 10					
Committee & Business Meetings					
Professional Registration Item Writers Workshop and Committee Meeting	10-Mar	9:00 AM to 5:00 PM	Sheraton	Ahwatukee A	R
Financial Planning Committee	10-Mar	2:00 PM to 5:00 PM	Sheraton	Arcadia Boardroom	R
Professional Registration Committee Dinner	10-Mar	6:00 PM to 8:00 PM	Offsite	Mancuso's	R
Sunday, March 11					
All-Conference Events					
Registration	11-Mar	7:00 AM to 7:00 PM	PCC	300 Level - North	O
TMS Member Welcome Center	11-Mar	7:00 AM to 7:00 PM	PCC	300 Level - North	O
Programming Support Desk	11-Mar	2:00 PM to 6:00 PM	PCC	Outside Hall E	O
President's Welcoming Reception	11-Mar	6:00 PM to 7:00 PM	PCC	Hall E	O
Exhibition					
Exhibit Move In	11-Mar	8:00 AM to 5:00 PM	PCC	Hall CD	R
Professional Development & Special Lectures					
Introduction to Alloy Thermodynamics: the CALPHAD Approach and Beyond Course	11-Mar	8:30 AM to 12:00 PM	PCC	101B	T
Hands On Interactive Materials Data Visualization and Selection Tools for Research and Teaching Workshop	11-Mar	8:30 AM to 12:00 PM	PCC	103A	T
Design of Novel Magnetic Materials by Modelling and Advanced Synthesis and Characterization Workshop	11-Mar	8:30 AM to 4:30 PM	PCC	101A	T
Modeling the Coevolution of Microstructure and Properties using the MOOSE Framework Workshop	11-Mar	8:30 AM to 4:30 PM	PCC	101C	T
Best Practices in Bauxite and Alumina Processing and Production Course	11-Mar	8:30 AM to 4:30 PM	PCC	105A	T
Metal Treatment for Aluminum Ingot Casting Workshop	11-Mar	8:30 AM to 4:30 PM	PCC	105C	T
14th Annual Advanced Microelectronic Packaging, Emerging Interconnection Technology, and Pb-free Solder Workshop	11-Mar	8:30 AM to 4:30 PM	PCC	106A	T
Improving Culture & Business Performance: Going Beyond the Warm and Fuzzy Workshop	11-Mar	8:30 AM to 4:30 PM	PCC	106C	T
An Introduction to Computational Modelling in Materials Processing Course	11-Mar	1:00 PM to 4:30 PM	PCC	101B	T
Avizo 3D Analysis Software for Materials Science Workshop	11-Mar	1:00 PM to 4:30 PM	PCC	103A	T
Young Professionals Workshop on Preparing a Winning Application Package to Find Your Future Job	11-Mar	1:00 PM to 4:30 PM	PCC	104A	T
Additive Manufacturing Materials and Processes Workshop	11-Mar	1:00 PM to 5:30 PM	PCC	106B	T
TMS101: Fundamentals of TMS	11-Mar	3:00 PM to 4:00 PM	PCC	121B	O
Student & Young Professional Functions					
Materials Bowl	11-Mar	12:00 PM to 5:45 PM	PCC	221ABC	O
Elimination Rounds	11-Mar	12:00 PM to 3:00 PM	PCC	221ABC	O
Championship Round	11-Mar	5:00 PM to 5:45 PM	PCC	221ABC	O
Student Networking Mixer	11-Mar	7:00 PM to 8:30 PM	PCC	Hall AB Foyer	O

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CALENDAR OF EVENTS

Event / Function	Date	Time	Facility	Room	Access
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Social Functions

TMS Fellows and Invited Guests Reception	11-Mar	4:30 PM to 6:30 PM	Sheraton	The District Wine Room	I
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Committee & Business Meetings

New Board Member Orientation	11-Mar	8:00 AM to 9:30 AM	Sheraton	Arcadia Boardroom	I
TMS Board of Directors Meeting	11-Mar	10:00 AM to 1:00 PM	Sheraton	Encanto B	I
Accreditation Committee Meeting	11-Mar	12:30 PM to 2:30 PM	Sheraton	Maryvale A	O
Magnesium Committee Meeting	11-Mar	1:30 PM to 3:00 PM	PCC	103B	O
Nominating Committee Meeting	11-Mar	1:30 PM to 3:00 PM	Sheraton	Arcadia Boardroom	R
Recycling and Environmental Technologies Committee Meeting	11-Mar	1:30 PM to 3:00 PM	Sheraton	Estrella	O
<i>Metallurgical and Materials Transactions</i> Board of Review	11-Mar	2:00 PM to 3:00 PM	Sheraton	Camelback B	I
Aluminum Committee Meeting	11-Mar	2:00 PM to 4:00 PM	Sheraton	Maryvale B	O
Materials Characterization Committee Meeting	11-Mar	2:30 PM to 4:00 PM	Sheraton	Encanto B	O
Pyrometallurgy Committee Meeting	11-Mar	3:00 PM to 4:30 PM	Sheraton	Camelback A	O
ABET Refresher Training	11-Mar	3:00 PM to 5:00 PM	Sheraton	Maryvale A	O
Public & Governmental Affairs Committee Meeting	11-Mar	3:30 PM to 5:30 PM	Sheraton	Estrella	O
Hydrometallurgy and Electrometallurgy Committee Meeting	11-Mar	4:00 PM to 5:00 PM	Sheraton	Camelback B	O
TMS Program Committee Meeting	11-Mar	4:00 PM to 6:00 PM	Sheraton	Encanto B	I
JOM Advisor Briefing	11-Mar	4:30 PM to 5:30 PM	PCC	121C	I
Diversity Committee Meeting	11-Mar	4:30 PM to 6:00 PM	Sheraton	Maryvale B	O
Process Technology and Modeling Committee Meeting	11-Mar	5:00 PM to 6:00 PM	Sheraton	Laveen A	O
Thin Films and Interfaces Committee Meeting	11-Mar	5:00 PM to 6:00 PM	Sheraton	Camelback A	O
<i>Integrating Materials and Manufacturing Innovation</i> Editorial Board	11-Mar	5:00 PM to 6:00 PM	Sheraton	Camelback B	I
Additive Manufacturing Committee Meeting	11-Mar	5:30 PM to 7:00 PM	PCC	230	O
Nanomechanical Materials Behavior Committee Meeting	11-Mar	6:00 PM to 7:30 PM	PCC	103B	O
Mechanical Behavior of Materials Committee Meeting	11-Mar	7:30 PM to 9:00 PM	PCC	103B	O
Phase Transformations Committee Meeting	11-Mar	7:30 PM to 9:00 PM	Sheraton	Estrella	O

Monday, March 12

All-Conference Events

Programming Support Desk	12-Mar	6:30 AM to 6:00 PM	PCC	Outside Hall E	O
Registration	12-Mar	6:30 AM to 6:00 PM	PCC	300 Level - North	O
TMS Member Welcome Center	12-Mar	6:30 AM to 6:00 PM	PCC	300 Level - North	O
Presenters' Coffee	12-Mar	6:45 AM to 7:45 AM	PCC	Hall E	O
Technical Programming Sessions	12-Mar	8:00 AM to 6:00 PM	See Technical Program section for complete schedule and locations		O
Morning Break	12-Mar	9:20 AM to 10:00 AM	PCC	Various	O
All-Conference Plenary Session	12-Mar	12:00 PM to 1:00 PM	PCC	West Ballroom 301 A-D	O
Afternoon Break	12-Mar	3:50 PM to 4:30 PM	PCC	Various	O

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Event / Function	Date	Time	Facility	Room	Access
Exhibition					
Exhibit Move In	12-Mar	8:00 AM to 10:00 AM	PCC	Hall CD	R
TMS2018 Exhibition	12-Mar	11:00 AM to 7:30 PM	PCC	Hall CD	O
Poster Session I Poster Set-up	12-Mar	12:00 PM to 2:00 PM	PCC	Hall CD	O
Lunch in the Exhibit Hall	12-Mar	1:00 PM to 2:30 PM	PCC	Hall CD	T
Poster Session I Gallery Viewing	12-Mar	2:00 PM to 6:00 PM	PCC	Hall CD	O
Exhibit Opening Reception & Poster Session I Presentations	12-Mar	6:00 PM to 7:30 PM	PCC	Hall CD	O
Poster Session I Dismantle	12-Mar	7:30 PM to 7:45 PM	PCC	Hall CD	O
Student & Young Professional Functions					
Meet-a-Mentor	12-Mar	5:00 PM to 6:30 PM	PCC	105C	R
Technical Division Student Poster Contest	12-Mar	6:00 PM to 7:30 PM	PCC	Hall CD	O
Social Functions					
SMD Luncheon	12-Mar	1:00 PM to 2:30 PM	PCC	106ABC	T
University of Florida Alumni & Friends Social	12-Mar	7:00 PM to 9:00 PM	Sheraton	Camelback B	O
Committee & Business Meetings					
REWAS 2019 Organizing Team Meeting	12-Mar	6:45 AM to 7:45 AM	Sheraton	Arcadia Boardroom	I

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CALENDAR OF EVENTS

Event / Function	Date	Time	Facility	Room	Access
Membership & Student Development Committee Meeting	12-Mar	8:15 AM to 9:45 AM	Sheraton	Maryvale A	R
TMS Executive Committee Meeting	12-Mar	10:00 AM to 11:00 AM	Sheraton	Arcadia Boardroom	R
EPD Council Meeting	12-Mar	1:00 PM to 3:00 PM	Sheraton	Encanto B	I
Integrated Computational Materials Engineering Committee Meeting	12-Mar	1:15 PM to 2:30 PM	PCC	221A	O
Powder Materials Committee Meeting	12-Mar	1:15 PM to 2:30 PM	PCC	225A	O
International Affairs Committee Meeting	12-Mar	3:00 PM to 4:30 PM	Sheraton	Arcadia Boardroom	I
ICSMA18 Organizing Committee Meeting	12-Mar	3:00 PM to 5:00 PM	Sheraton	Maryvale A	I
Superalloys 2020 Organizing Committee Meeting	12-Mar	5:30 PM to 7:00 PM	Sheraton	Maryvale A	I
Advanced Characterization, Testing and Simulation Committee Meeting	12-Mar	6:00 PM to 7:00 PM	PCC	122B	O
Biomaterials Committee Meeting	12-Mar	6:00 PM to 7:00 PM	PCC	225B	O
Chemistry and Physics of Materials Committee Meeting	12-Mar	6:00 PM to 7:00 PM	PCC	128A	O
Solidification Committee Meeting	12-Mar	6:00 PM to 7:00 PM	PCC	232B	O
Steels Committee Meeting	12-Mar	6:00 PM to 7:00 PM	PCC	121C	O
Surface Engineering Committee Meeting	12-Mar	6:00 PM to 7:00 PM	PCC	227A	O
Materials Innovation Committee Meeting	12-Mar	6:00 PM to 7:30 PM	Sheraton	Camelback A	R
Nuclear Materials Committee Meeting	12-Mar	6:00 PM to 7:30 PM	PCC	102A	O
Shaping and Forming Committee Meeting	12-Mar	6:00 PM to 7:30 PM	PCC	103B	O
Composite Materials Committee Meeting	12-Mar	6:30 PM to 7:30 PM	PCC	102C	O
Refractory Metals & Materials Committee Meeting	12-Mar	6:30 PM to 7:30 PM	PCC	124A	O
LMD Council Meeting	12-Mar	6:30 PM to 8:30 PM	Sheraton	Encanto B	I
3DMS 2018 Organizing Committee Meeting	12-Mar	7:00 PM to 8:00 PM	PCC	122B	I
Alloy Phases Committee Meeting	12-Mar	7:00 PM to 8:30 PM	PCC	127C	O
Computational Materials Science & Engineering Committee Meeting	12-Mar	7:30 PM to 8:30 PM	PCC	102B	O

Tuesday, March 13

All-Conference Events

Presenters' Coffee	13-Mar	7:00 AM to 8:00 AM	PCC	Hall E	O
Registration	13-Mar	7:00 AM to 5:30 PM	PCC	300 Level - North	O
Programming Support Desk	13-Mar	7:00 AM to 6:00 PM	PCC	Outside Hall E	O
TMS Member Welcome Center	13-Mar	7:00 AM to 6:00 PM	PCC	300 Level - North	O
Technical Programming Sessions	13-Mar	8:30 AM to 5:30 PM	See Technical Program section for complete schedule and locations		O
Morning Break	13-Mar	9:50 AM to 10:30 AM	PCC	Various	O
Afternoon Break	13-Mar	3:20 PM to 4:00 PM	PCC	Various	O

Exhibition

TMS2018 Exhibition	13-Mar	11:00 AM to 7:30 PM	PCC	Hall CD	O
Lunch in the Exhibit Hall	13-Mar	11:30 AM to 1:30 PM	PCC	Hall CD	T
Poster Session II Set-up	13-Mar	12:00 PM to 2:00 PM	PCC	Hall CD	O
Poster Session II Gallery Viewing	13-Mar	2:00 PM to 6:00 PM	PCC	Hall CD	O
Exhibit Hall Happy Hour & Poster Session II Presentations	13-Mar	6:00 PM to 7:30 PM	PCC	Hall CD	O

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Event / Function	Date	Time	Facility	Room	Access
Poster Session II Dismantle	13-Mar	7:30 PM to 7:45 PM	PCC	Hall CD	O
Student & Young Professional Functions					
Young Professional Tutorial Luncheon	13-Mar	12:00 PM to 12:45 PM	PCC	105BC	T
Young Professional Tutorial Lecture	13-Mar	12:45 PM to 2:00 PM	PCC	105BC	O
Student Career Forum	13-Mar	2:00 PM to 4:00 PM	PCC	221A	O
Social Functions					
EPD/MPMD Luncheon	13-Mar	12:00 PM to 2:00 PM	PCC	106ABC	T
CDSM Banquet	13-Mar	6:00 PM to 8:30 PM	Offsite	Canyon Café	T
Committee & Business Meetings					
Energy Conversion and Storage Committee Meeting	13-Mar	7:30 AM to 8:30 AM	PCC	229B	O
Fellow Award Subcommittee Meeting	13-Mar	7:30 AM to 8:30 AM	Sheraton	Arcadia Boardroom	R
TMS Foundation Board of Trustees Meeting	13-Mar	7:30 AM to 10:00 AM	Sheraton	Maryvale A	I
Young Professionals Committee Meeting	13-Mar	8:15 AM to 9:45 AM	Sheraton	Encanto B	O
Honors & Professional Recognition Committee Meeting	13-Mar	8:30 AM to 9:30 AM	Sheraton	Arcadia Boardroom	R
Professional Development Committee Meeting	13-Mar	10:30 AM to 12:00 PM	Sheraton	Camelback B	R
TMS Past Presidents Meeting	13-Mar	11:30 AM to 1:00 PM	Sheraton	Maryvale A	I
Aluminum Course Planning Session	13-Mar	12:00 PM to 1:30 PM	Sheraton	Arcadia Boardroom	I
SMD Council Meeting	13-Mar	12:00 PM to 2:00 PM	Sheraton	Encanto B	I
Electronic Packaging and Interconnection Materials Committee Meeting	13-Mar	12:30 PM to 1:30 PM	PCC	226C	O
Education Committee Meeting	13-Mar	12:30 PM to 2:00 PM	Sheraton	Camelback B	O
Extraction 2018 Organizing Committee Meeting	13-Mar	4:00 PM to 5:00 PM	Sheraton	Arcadia Boardroom	I
Superalloy 718 Organizing Committee Meeting	13-Mar	5:00 PM to 6:00 PM	Sheraton	Maryvale A	I
Content Development and Dissemination Committee Meeting	13-Mar	5:00 PM to 7:00 PM	Sheraton	Camelback B	I
Corrosion and Environmental Effects Committee Meeting	13-Mar	6:00 PM to 7:00 PM	PCC	227A	O
Energy Committee Meeting	13-Mar	6:00 PM to 7:00 PM	PCC	224B	O
Nanomaterials Committee Meeting	13-Mar	6:00 PM to 7:00 PM	PCC	101B	O
Titanium Committee Meeting	13-Mar	6:00 PM to 7:00 PM	PCC	231C	O
High Temperature Alloys Committee Meeting	13-Mar	6:00 PM to 7:30 PM	Sheraton	Maryvale A	O

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ANNOUNCING THE 2018 TMS MEETING OF THE MEMBERSHIP AND OPEN BOARD OF DIRECTORS MEETING

The Minerals, Metals & Materials Society, Inc. (TMS), in accordance with its bylaws (Article II, Section 2.6, and Article III, Section 3.7) will hold its 2018 Annual Meeting of the Membership with an open Board of Directors Meeting, on Thursday, March 15, 2018, from 8:00 a.m. to 8:30 a.m. in the Camelback A room of the Sheraton Grand Phoenix during the TMS 2018 Annual Meeting & Exhibition. All TMS members are welcome to attend this meeting.



CALENDAR OF EVENTS

MEETING INFORMATION

Event / Function	Date	Time	Facility	Room	Access
MPMD Council Meeting	13-Mar	6:30 PM to 8:30 PM	Sheraton	Encanto B	I
Magnetic Materials Committee Meeting	13-Mar	7:00 PM to 8:00 PM	PCC	229A	O
Wednesday, March 14					
All-Conference Events					
Presenters' Coffee	14-Mar	7:00 AM to 8:00 AM	PCC	Hall E	O
Registration	14-Mar	7:00 AM to 5:00 PM	PCC	300 Level - North	O
TMS Member Welcome Center	14-Mar	7:00 AM to 5:00 PM	PCC	300 Level - North	O
Programming Support Desk	14-Mar	7:00 AM to 6:00 PM	PCC	Outside Hall E	O
Technical Programming Sessions	14-Mar	8:30 AM to 5:30 PM	See Technical Program section for complete schedule and locations		O
Morning Break	14-Mar	9:50 AM to 10:30 AM	PCC	Various	O
Scientific Publishing Workshop: Excelling as an Author, Reviewer, or Editor	14-Mar	2:30 PM to 5:00 PM	PCC	105BC	O
Afternoon Break	14-Mar	3:20 PM to 4:00 PM	PCC	Various	O
Exhibition					
TMS2018 Exhibition	14-Mar	10:00 AM to 2:00 PM	PCC	Hall CD	O
Lunch in the Exhibit Hall	14-Mar	11:30 AM to 1:30 PM	PCC	Hall CD	T
Exhibitor Move-out	14-Mar	2:00 PM to 7:00 PM	PCC	Hall CD	R
Social Functions					
Fresh Coffee, Fresh Ideas: Diversity and Inclusion Breakfast	14-Mar	7:00 AM to 8:00 AM	PCC	106ABC	T
LMD Luncheon	14-Mar	12:00 PM to 2:00 PM	PCC	106ABC	T
JOM Advisor Mixer	14-Mar	5:00 PM to 6:00 PM	Sheraton	Camelback B	I
25th Foundation Anniversary VIP Reception	14-Mar	5:00 PM to 6:00 PM	Sheraton	Oculus	I
TMS-AIME Awards Reception	14-Mar	5:30 PM to 6:00 PM	Sheraton	Valley of the Sun Foyer	O
TMS2020 Program Planning Mixer	14-Mar	5:30 PM to 7:00 PM	Sheraton	Camelback A	I
TMS-AIME Awards Ceremony	14-Mar	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun DE	O
TMS-AIME Awards Banquet	14-Mar	7:30 PM to 8:30 PM	Sheraton	Valley of the Sun ABC	T
Committee & Business Meetings					
Leadership Meeting	14-Mar	9:00 AM to 10:30 AM	Sheraton	Arcadia Boardroom	I
Extraction 20XX Meeting	14-Mar	11:30 AM to 12:30 PM	Sheraton	Arcadia Boardroom	I
FMD Council Meeting	14-Mar	12:00 PM to 2:00 PM	Sheraton	Encanto B	I
TMS SMM Leadership Meeting	14-Mar	1:00 PM to 2:00 PM	Sheraton	Arcadia Boardroom	I
DGM - TMS Leadership Meeting	14-Mar	2:30 PM to 3:30 PM	Sheraton	Arcadia Boardroom	I

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Event / Function	Date	Time	Facility	Room	Access
Thursday, March 15					
All-Conference Events					
Presenters' Coffee	15-Mar	7:00 AM to 8:00 AM	PCC	Hall E	O
Registration	15-Mar	7:00 AM to 2:00 PM	PCC	300 Level - North	O
TMS Member Welcome Center	15-Mar	7:00 AM to 5:00 PM	PCC	300 Level - North	O
Programming Support Desk	15-Mar	7:00 AM to 6:00 PM	PCC	Outside Hall E	O
Technical Programming Sessions	15-Mar	8:30 AM to 5:30 PM	See Technical Program section for complete schedule and locations		O
Morning Break	15-Mar	9:50 AM to 10:30 AM	PCC	Various	O
Afternoon Break	15-Mar	3:20 PM to 4:00 PM	PCC	Various	O
Committee & Business Meetings					
The Annual Meeting of the Membership and Open Board of Directors Meeting	15-Mar	8:00 AM to 8:30 AM	Sheraton	Camelback A	O
TMS Board of Directors Meeting	15-Mar	8:30 AM to 1:00 PM	Sheraton	Encanto B	I

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TECHNICAL COMMITTEE MEETING SCHEDULE

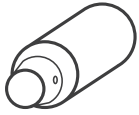
MEETING INFORMATION

	Date	Room Location	Time
Extraction & Processing Division (EPD)			
Division Council Meeting	Monday, March 12	SH – Encanto B	1:00 – 3:00 p.m.
Additive Manufacturing Cmte	Sunday, March 11	PCC – Room 230	5:30 – 7:00 p.m.
Energy Cmte	Tuesday, March 13	PCC – Room 224B	6:00 – 7:00 p.m.
Hydrometallurgy & Electrometallurgy Cmte	Sunday, March 11	SH – Camelback B	4:00 – 5:00 p.m.
Materials Characterization Cmte	Sunday, March 11	SH – Encanto B	2:30 – 4:00 p.m.
Process Technology & Modeling Cmte	Sunday, March 11	SH – Laveen A	5:00 – 6:00 p.m.
Pyrometallurgy Cmte	Sunday, March 11	SH – Camelback A	3:00 – 4:30 p.m.
Recycling & Environmental Technologies Cmte	Sunday, March 11	SH - Estrella	1:30 – 3:00 p.m.
Functional Materials Division (FMD)			
Division Council Meeting	Wednesday, March 14	SH – Encanto B	12:00 – 2:00 p.m.
Additive Manufacturing Cmte	Sunday, March 11	PCC – Room 230	5:30 – 7:00 p.m.
Alloy Phases Cmte	Monday, March 12	PCC – Room 127C	7:00 – 8:30 p.m.
Biomaterials Cmte	Monday, March 12	PCC – Room 225B	6:00 – 7:00 p.m.
Chemistry & Physics Of Materials Cmte	Monday, March 12	PCC – Room 128A	6:00 – 7:00 p.m.
Electronic Packaging & Interconnection Matls Cmte	Tuesday, March 13	PCC – Room 226C	12:30 – 1:30 p.m.
Energy Conversion & Storage Cmte	Tuesday, March 13	PCC – Room 229B	7:30 – 8:30 a.m.
Magnetic Materials Cmte	Tuesday, March 13	PCC – Room 229A	7:00 – 8:00 p.m.
Nanomaterials Cmte	Tuesday, March 13	PCC – Room 101B	6:00 – 7:00 p.m.
Thin Films & Interfaces Cmte	Sunday, March 11	SH – Camelback A	5:00 – 6:00 p.m.
Light Metals Division (LMD)			
Division Council Meeting	Monday, March 12	SH – Encanto B	6:30 – 8:30 p.m.
Additive Manufacturing Cmte	Sunday, March 11	PCC – Room 230	5:30 – 7:00 p.m.
Aluminum Cmte	Sunday, March 11	SH – Maryvale B	2:00 – 4:00 p.m.
Energy Cmte	Tuesday, March 13	PCC – Room 224B	6:00 – 7:00 p.m.
Magnesium Cmte	Sunday, March 11	PCC – Room 103B	1:30 – 3:00 p.m.
Recycling & Environmental Technologies Cmte	Sunday, March 11	SH - Estrella	1:30 – 3:00 p.m.
Materials Processing & Manufacturing Division (MPMD)			
Division Council Meeting	Tuesday, March 13	SH – Encanto B	6:30 – 8:30 p.m.
Additive Manufacturing Cmte	Sunday, March 11	PCC – Room 230	5:30 – 7:00 p.m.
Computational Materials Science & Engineering Cmte	Monday, March 12	PCC – Room 102B	7:30 – 8:30 p.m.
Integrated Computational Materials Engrg (ICME) Cmte	Monday, March 12	PCC – Room 221A	1:15 – 2:30 p.m.
Nanomechanical Materials Behavior Cmte	Sunday, March 11	PCC – Room 103B	6:00 – 7:30 p.m.
Phase Transformations Cmte	Sunday, March 11	SH - Estrella	7:30 – 9:00 p.m.
Powder Materials Cmte	Monday, March 12	PCC – Room 225A	1:15 – 2:30 p.m.
Process Technology & Modeling Cmte	Sunday, March 11	SH – Laveen A	5:00 – 6:00 p.m.
Shaping & Forming Cmte	Monday, March 12	PCC – Room 103B	6:00 – 7:30 p.m.
Solidification Cmte	Monday, March 12	PCC – Room 232B	6:00 – 7:00 p.m.
Surface Engineering Cmte	Monday, March 12	PCC – Room 227A	6:00 – 7:00 p.m.
Structural Materials Division (SMD)			
Division Council Meeting	Tuesday, March 13	SH – Encanto B	12:00 – 2:00 p.m.
Additive Manufacturing Cmte	Sunday, March 11	PCC – Room 230	5:30 – 7:00 p.m.
Advanced Characterization, Testing & Simulation Cmte	Monday, March 12	PCC – Room 122B	6:00 – 7:00 p.m.
Alloy Phases Cmte	Monday, March 12	PCC – Room 127C	7:00 – 8:30 p.m.
Biomaterials Cmte	Monday, March 12	PCC – Room 225B	6:00 – 7:00 p.m.
Chemistry & Physics of Materials Cmte	Monday, March 12	PCC – Room 128A	6:00 – 7:00 p.m.
Composite Materials Cmte	Monday, March 12	PCC – Room 102C	6:30 – 7:30 p.m.
Corrosion & Environmental Effects Cmte	Tuesday, March 13	PCC – Room 227A	6:00 – 7:00 p.m.
High Temperature Alloys Cmte	Tuesday, March 13	SH – Maryvale A	6:00 – 7:30 p.m.
Mechanical Behavior of Materials Cmte	Sunday, March 11	PCC – Room 103B	7:30 – 9:00 p.m.
Nuclear Materials Cmte	Monday, March 12	PCC – Room 102A	6:00 – 7:30 p.m.
Refractory Metals & Materials Cmte	Monday, March 12	PCC – Room 124A	6:30 – 7:30 p.m.
Steels Cmte	Monday, March 12	PCC – Room 121C	6:00 – 7:00 p.m.
Titanium Cmte	Tuesday, March 13	PCC – Room 231C	6:00 – 7:00 p.m.

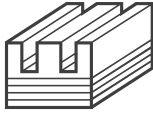


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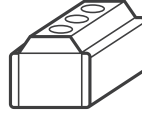
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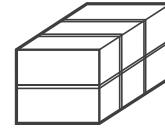
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MATERIALS AND ICME AS AN ENABLER FOR SUSTAINABLE ENERGY AND INTERPLANETARY TRAVEL

Date: Monday, March 12
Time: Noon to 1:00 p.m.
Location: Phoenix Convention Center, West Ballroom 301

Materials challenges abound in the pursuit of interplanetary settlement and the transition to sustainable energy here on Earth. The new materials and manufacturing methods enabling these ambitious goals will need to make greater leaps in capability and timeframes never before achieved. Fortunately, materials engineering has also made great strides in the last decade, embracing the integration of computational methods and advanced systems design into a framework we now call Integrated Computational Materials Engineering (ICME).

Don't miss this rare TMS Annual Meeting & Exhibition all-conference plenary session and the chance to preview a visionary future for materials science and engineering with one of the leaders in the computational materials design revolution.



Featured Speaker:
Charlie Kuehmann
Tesla and SpaceX

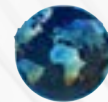
Charlie Kuehmann currently leads the materials engineering organizations at both Tesla and SpaceX, driving material solutions to enable the world's transition to a sustainable future, the commercialization of space, and a multi-planetary civilization.

Kuehmann has been a leader in computational materials design since its inception, creating one of the first companies dedicated to commercializing this new technology. As a result, he's innovated an array of alloys, including high-performance steels for race cars, aluminum alloys for aircraft, gear materials for helicopters, high-temperature alloys for turbine engines, and even bubble-gum. Kuehmann has more recently brought computational materials design technology to the consumer electronics industry, and through his current positions, to electric vehicles and spacecraft.

GET UP CLOSE WITH THE TECHNOLOGY

In support of the TMS2018 All-Conference Plenary, Tesla and Space X have coordinated a display of technologies related to Charlie Kuehmann's talk, located at the entrance of the Exhibit Hall, Phoenix Convention Center, 300 Level North. While you are there, plan to explore the materials and manufacturing innovations presented inside the Exhibit Hall during TMS2018 Exhibition hours.





2ND INTERNATIONAL CONFERENCE ON COMPUTATIONAL DESIGN AND SIMULATION OF MATERIALS (CDSM 2018)



Co-located with TMS2018 and organized jointly by TMS and the Chinese Society for Metals (CSM), the 2nd International

Conference on Computational Design and Simulation of Materials (CDSM 2018) focuses on computational simulation and modeling to accelerate materials discovery and design. All TMS2018 registrants are invited to attend CDSM's technical programming, including the Monday afternoon plenary session.

PLENARY SESSION

Date: Monday, March 12

Time: 2:30 p.m.

Location: Phoenix Convention Center, Room 131B

Session Chair: Alan Luo, The Ohio State University



"Genomic Materials Design: From CALPHAD to Space"

Greg Olson, Northwestern University



"Theoretical Modeling and Atomistic Calculation Verifications of Size-dependent Mechanical and Thermal Behaviors in Nanomaterials"

Tong-Yi Zhang, Shanghai University

CDSM SYMPOSIA

Throughout the week, CDSM will hold the following symposia. More details are available in the technical presentation portion of this program.

Atomistic Simulations

This symposium will focus on simulation approaches, tools, and materials properties at the atomistic scale and will include presentations on state-of-the-art capabilities, challenges, and future directions.

Meso/Macroscale Simulations

Microstructural attributes to processing and property modeling of materials play a central role in materials design and multi-scale modeling. This symposium seeks to advance progress in this area through discussion of topics at scales above atoms, with a particular interest in integration of scales.

Computational Design of Materials

Optimal and robust design of materials involves selection of chemistry and processing for desired microstructure and targeted properties. In addition to tools and databases, uncertainty quantification is central for its broad acceptance—a topic of particular interest for this symposium.

CDSM 2018 BANQUET

Tickets required. Tickets must be purchased by Monday at 10:00 a.m. at the Registration Desk.

Date: Tuesday, March 13

Time: 6:00 p.m. to 8:30 p.m.

Location: Canyon Café in Phoenix, Arizona

Spend an evening with colleagues from CDSM 2018 at the Canyon Café in Phoenix, Arizona, located approximately .25 miles from the Phoenix Convention Center. Your banquet ticket includes a buffet-style dinner and a selection of coffee, tea, or soda beverages. In addition, each guest will receive one drink ticket for wine or beer.

CDSM 2018 ORGANIZING COMMITTEE

TMS



Chair: Zi-Kui Liu, Pennsylvania State University

Co-Chair: Alan Luo, The Ohio State University

Representing TMS:

- Raymundo Arroyave, Texas A&M University
- Suveen Mathaudhu, University of California, Riverside
- Panthea Sepehrband, Santa Clara University
- Katsuyo Thornton, University of Michigan
- Dallas Trinkle, University of Illinois
- Ting Zhu, Georgia Institute of Technology
- Mohsen Asle Zaeem, Missouri University of Science and Technology
- Richard Hennig, University of Florida

Representing CSM:

- Xinqiu Chen, Institute of Metal Research
- Yong Du, Central South University
- Qing Jiang, Jilin University
- Dianzhong Li, Institute of Metal Research
- Chengjia Shang, University of Science and Technology, Beijing
- Tong-Yi Zhang, Shanghai University



FEDERATION OF EUROPEAN MATERIALS SOCIETIES

KEYNOTE SYMPOSIUM

ENERGY AND TRANSPORTATION FROM A EUROPEAN MATERIALS PERSPECTIVE

This special keynote session of invited talks is organized by FEMS as part of its ongoing collaboration with TMS to support international collaboration on important science and engineering topics.

Date: Wednesday, March 14

Time: 8:30 a.m. to 5:00 p.m.

Location: Phoenix Convention Center, Room 228A

Organizer: Brett Suddell, FEMS

Morning Session



"Materials and Energy: The Need for a Systemic Approach"
Yves Bréchet,
Grenoble INP and High
Commissioner to Atomic Energy,
France



"A European Corporate R&D View:
New Materials and Processes in
Transportation and Energy"
Winfried Keiper,
Bosch Corporate Research,
Germany



"Third Generation Solar Cells from
Laboratory to Factory: Developing a
Scale-up Route for Perovskite Solar
Cells to Turn 'Buildings into Power
Stations'"
David Worsley,
Swansea University, United Kingdom



"European Efforts in the
Development of High-Quality
Metallic Components for Energy and
Transport Applications"
David Jarvis,
HIPtec, Norway



"Fatigue Micromechanisms and
Failure Analysis of Rail Steels"
Donato Firrao,
DISAT, Politecnico di Torino, Italy

Afternoon Session



"Magnesium Alloys in
Transportation: Hidden
Champions?!"
Karl Kainer,
Helmholtz-Zentrum Geesthacht,
Germany



"Recent Advances in Aluminum
Product Development for
Transportation"
Timothy Warner,
Constellium C-TEC, France



"Challenges for the Design of Ni-
based SX Superalloys Components"
Jonathan Cormier,
Institut Pprime, ISAE-ENSMA, France

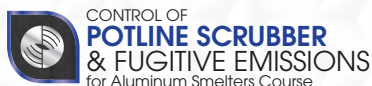


"Integrated Computational Materials
Engineering (ICME) and Business
Decision Support Systems (BDSS) in
the Context of Open Innovation and
Interdisciplinary Collaboration"
Donna Dykeman,
Granta Design, United Kingdom

Panel discussions moderated by **Pedro Dolabella Portella** will be held at the end of the morning and afternoon sessions.

UPCOMING TMS MEETINGS

For a complete listing of TMS meetings, visit: www.tms.org/Meetings



May 21–24, 2018 • Québec City, Québec, Canada
Discount Registration Deadline: March 21, 2018
www.tms.org/PSFE2018



July 23–24, 2018 • Santa Barbara, California, USA
Discount Registration Deadline: June 18, 2018
www.tms.org/Diversity2018



June 3–6, 2018 • Pittsburgh, Pennsylvania, USA
Discount Registration Deadline: April 30, 2018
www.tms.org/Superalloy718-2018



August 1–4, 2018 • Pittsburgh, Pennsylvania, USA
Discount Registration Deadline: June 4, 2018
www.tms.org/PEReview2018

The 4th International Congress on



June 10–13, 2018 • Helsingør (Elsinore), Denmark
Discount Registration Deadline: May 8, 2018
www.tms.org/3DMS2018



August 26–29, 2018 • Ottawa, Canada
Discount Registration Deadline: June 26, 2018
www.extractionmeeting.org



June 18–21, 2018 • Gaithersburg, Maryland, USA
Benchmark Tests Deadline: May 18, 2018
Discount Registration Deadline: May 25, 2018
www.tms.org/AMBench2018



October 14–18, 2018 • Columbus, Ohio, USA
Abstract Submission Deadline: March 15, 2018
www.matscitech.org

THE WORLD COMES HERE
TMS 2019
148th Annual Meeting & Exhibition

March 10–14, 2019
San Antonio, Texas, USA
www.tms.org/TMS2019



KEYNOTE & FEATURED SESSIONS

MEETING INFORMATION

FEATURED SESSION

Air Force Listening Session

Date: Sunday Afternoon, March 11

Location: Phoenix Convention Center, Room 121A

Sponsored by: U.S. Air Force Research Laboratory

During this special session, the U.S. Air Force Research Laboratory (AFRL) invites all TMS2018 attendees to weigh in on funding priorities and future research directions during this interactive session with AFRL leadership. TMS2018 was selected as one of the venues for a series of information gathering sessions that the AFRL has scheduled as part of a year-long science and technology review.

Check www.tms.org/TMS2018 for details on sharing your ideas and perspectives as part of this process.

KEYNOTE SESSION

Magnesium Technology 2018

Date: Monday, March 12

Time: 8:00 a.m. to 11:30 a.m.

Location: Phoenix Convention Center, Room 224A

Sponsored by: TMS Light Metals Division, TMS Magnesium Committee

Organizers: Dmytro Orlov, Lund University; Vineet Joshi, Pacific Northwest National Laboratory; Kiran Solanki, Arizona State University; Neale Neelameggham, Ind LLC



"Mg Alloys: Challenges and Achievements in Controlling Performance, and Future Application Perspectives"

Karl Kainer

MagIC—Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht, Germany



"Solute/Stacking Fault Energies in Mg and Implications for Ductility"

William Curtin

École Polytechnique Fédérale de Lausanne, Switzerland



"Recent Developments in Magnesium Alloy Corrosion Research"

Nick Birbilis

Monash University, Australia



"Towards Active Corrosion Protection of Mg Alloys Using Corrosion Inhibition Approaches"

Mikhail Zheludkevich

MagIC—Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht, Germany

KEYNOTE SESSION

2018 Light Metals Keynote Session: Sustainability in the Aluminum Industry: Climate Neutral Industry with Zero Emissions and Zero Waste?

Date: Monday, March 12

Time: 8:30 a.m. to 11:30 a.m.

Location: Phoenix Convention Center, Room 222

Sponsored by: TMS Light Metals Division, TMS Aluminum Committee

Organizer: Arne Ratvik, SINTEF



"Climate and Energy Efficient Aluminium Production"

Johannes Aalbu

Hydro Aluminium, Norway



"Aluminum Recycling – Can We be Zero Emissions and Zero Waste?"

Ray D. Peterson

Real Alloy, USA



"Towards Sustainable Solutions for Processing of Spent Potlining"

Stephan Broek

Hatch Ltd., Canada



"Challenges and Progress in Environment Protection in China's Aluminum Metallurgy"

Wanchao Liu

Chalco Zhengzhou Non-ferrous Metal Research Institute Co. Ltd, China



"Tackling the GHG Footprint of the Aluminium Industry – Status, Challenges and Technological Solutions"
Pascal Lavoie, Light Metals Research Centre, The University of Auckland, New Zealand



David S. Wong, Light Metals Research Centre, The University of Auckland, New Zealand



"Polymers in Additive Manufacturing: Survey and Opportunities"
Dave Rosen
 Georgia Institute of Technology, USA / Singapore University of Design, Singapore



"Additive Manufacturing of Ceramics"
Suman Das
 Georgia Institute of Technology, USA

KEYNOTE SESSION

Additive Manufacturing

Date: Monday, March 12

Time: 2:30 p.m. to 6:00 p.m.

Location: Phoenix Convention Center, Room 231

Seven symposia are planned on additive manufacturing (AM) topics at TMS2018. Tying them all together will be the Additive Manufacturing Keynote Session, a high-level overview of the state of additive manufacturing throughout the world and in various industries.



"Additive Manufacturing Technologies, Applications, Markets and Opportunities"
Ming Leu
 Missouri University of Science and Technology, USA



"Enabling Next Generation Additive Manufacturing: the 3D Deposition of Functional Materials for the Additive Manufacturing of Smart Devices - A UK perspective"
Richard Hague
 University of Nottingham, United Kingdom



"Metal Additive Manufacturing in Australasia and China"
Ma Qian
 Royal Melbourne Institute of Technology, Australia



"Additive Manufacturing of Metals: Current Status and Future Outlook"
Todd Palmer
 Pennsylvania State University, USA

KEYNOTE SESSION

Materials Innovation: Big Data and Machine Learning for Materials

Date: Tuesday, March 13

Time: 8:30 a.m. to Noon

Location: Phoenix Convention Center, Room 129B

Sponsored by: TMS Materials Innovation Committee

Organizers: Carelyn Campbell, National Institute of Standards and Technology; Katsuyo Thornton, University of Michigan



"Big Data for Materials R&D, Deployment, and Lifecycle"
Jed W. Pitera
 IBM Research – Almaden, USA



"How Materials Science Can Capitalize on Advances in Computer Science through Data Science and Machine Learning"
Elizabeth A. Holm
 Carnegie Mellon University, USA



"Perspectives on Data Intensive Science from the DOE Office of Science"
Laura Biven
 U.S. Department of Energy, USA



"Going Smart and Deep on Materials"
Ian Foster
 University of Chicago and Argonne National Laboratory, USA



KEYNOTE & FEATURED SESSIONS

MEETING INFORMATION

FEATURED SESSION

TMS2018 Acta Materialia Symposium

Date: Tuesday, March 13

Time: 3:15 p.m. to 5:00 p.m.

Location: Phoenix Convention Center, Room 129B



"Acta Materialia Gold Medal Lecture:
Formation of Deformation Twins in
Metallic Crystals"

Subhash Mahajan

University of California, Davis, USA



"Acta Materialia Silver Medal Lecture:
4D Materials Science: Probing
Microstructural Evolution of Metallic
Materials in Real-Time"

Nikhilesh Chawla

Arizona State University, USA



"Acta Materialia Hollomon Award for
Materials and Society Lecture:
Makers and Material Makers:
Materials Science & Engineering in
the Era of Additive Manufacturing"

Julie Christodoulou

U.S. Office of Naval Research, USA



MATERIALS™ EXPLORERS



Inspire the next generation of scientists and engineers.
Volunteer with *Materials Explorers*™—
TMS's new STEM educational outreach program.

Here's how to get started:

Participate in live demonstrations of the *Materials Explorers*™ curriculum and talk with the TMS volunteers who developed it.



Where: TMS Member Welcome Center

Phoenix Convention Center, 300 Level North

When: Sunday, March 11: 10:00 a.m. to 12:00 p.m.

Monday, March 12: 10:00 a.m. to 11:00 p.m.; 2:30 p.m. to 3:30 p.m.



Add your name to the growing list of TMS member volunteers who are interested in visiting classrooms, either in person or by video conference, at the TMS Member Welcome Center or Volunteer Leadership Lounge.



Visit www.materials-explorers.org to learn more about the program and access volunteer resources.

Questions? Contact materials-explorers@tms.org.



INSPIRING MINDS.
BUILDING LEADERS.
SHAPING OUR PROFESSION.

Learn about more success stories made possible by the TMS Foundation—and how you can be part of future ones.



“I am **honored and grateful** to receive this prestigious award. The TMS Foundation’s mission to support and enrich the development of professionals in the minerals, metals, and materials community and to provide avenues for professionals to communicate and engage, is truly impactful. I am very **excited to be part of the TMS community** and to further its important mission.”

—Sung Woo Nam, University of Illinois
2018 Early Career Faculty Fellow

Help us celebrate mentors during the TMS Foundation’s 25th anniversary year! In 2018, we’re honoring the roles that mentors play in the development of young scientists and engineers. Stop by the TMS Member Welcome Center, located in the Phoenix Convention Center, 300 Level – North, to add the name(s) of your mentor to the TMS “family tree.”

www.TMSFoundation.org





Each year, the TMS Technical Divisions recognize accomplished individuals with honorary symposia at which leaders in the honorees' fields are invited to discuss progress and recent developments on important topics. The following honorary symposia are planned for the TMS 2018 Annual Meeting & Exhibition.

COUPLING ADVANCED CHARACTERIZATION AND MODELING TOOLS FOR UNDERSTANDING FUNDAMENTAL PHASE TRANSFORMATION MECHANISMS

A Materials Processing & Manufacturing Division Symposium in Honor of Hamish Fraser



Hamish Fraser

Dates: Tuesday, March 13 and Wednesday, March 14
Symposium Location: Phoenix Convention Center, Room 127A
Organizers: Gregory B Thompson, University of Alabama; Sudarsanam S. Babu, The University of Tennessee, Knoxville; Peter Collins, Iowa State University; Soumya Nag, GE Global Research; Rajarshi Banerjee, University of North Texas

In celebration of Professor Hamish Fraser's 70th birthday and his career-long achievements in the fields of phase transformations, microstructure-structure property relationships, and advanced electron microscopy, this symposium will bring together experts in each area to address current and developing topics in these respective fields. These invited talks will cover a broad spectrum of available advanced characterization and modeling tools that are being employed for addressing fundamental phase transformation mechanisms. The symposium will have dedicated sessions that emphasize phase transformations in non-ferrous alloys, such as titanium-based alloys and intermetallics, areas in which Fraser has made pioneering contributions. Other sessions will address phase transformation issues at different length scales, both in bulk and in nanostructured materials, and the use of advanced electron microscopy to reveal the underlying mechanisms of phase stability and transformation pathways in these materials.

MAGNESIUM ALLOY DEVELOPMENT

A Light Metals Division Symposium in Honor of Karl Kainer



Karl Kainer

Dates: Tuesday, March 13 and Wednesday morning, March 14
Symposium Location: Phoenix Convention Center, Room 223
Poster Session Date: Monday, March 12 at 6:00 p.m.
Poster Session Location: Phoenix Convention Center, Hall CD
Organizers: Norbert Hort, Helmholtz-Zentrum Geesthacht; Alan A. Luo, The Ohio State University

Magnesium alloys play a key role as lightweight materials for automotive, aerospace, 3C industries and even as a biodegradable material for medical implants. However, each of these areas of applications has its own requirements on the property profile. Therefore the alloys have to be designed according to the required property profile. This has to cover the influence of alloys e.g. on mechanical properties, corrosion behavior, deformability etc. but also on processing steps. Additionally there is a need in prediction performance of alloys and to validate this with appropriate computational approaches. The scope of this symposium includes the description of magnesium alloy design from the selection of alloying elements, processing steps towards selected applications, the performance of alloys during service and how they get recycled. These real-life approaches will be accompanied by modelling and simulation approaches to predict the microstructure and properties.



MECHANICAL CHARACTERISTICS AND APPLICATION PROPERTIES OF METALS AND NON-METALS FOR TECHNOLOGY

An Extraction & Processing Division Symposium in Honor of Donato Firrao



**Donato
Firrao**

Dates: Monday, March 12 and Tuesday, March 13
Symposium Location: Phoenix Convention Center, Room 123
Poster Session Date: Tuesday, March 13 at 6:00 p.m.
Poster Session Location: Phoenix Convention Center, Hall CD
Organizers: Shadia Jamil Ikhmayies, Al Isra University; Jiann-Yang Hwang, Michigan Technological University; Bowen Li, Michigan Technological University; Pasquale Russo Spina, Free University of Bozen-Bolzano

This symposium will concentrate on physical and mechanical metallurgy and surface heat treatments, aircraft accidents, fractures, and failure analysis. It will focus on materials for technological applications—such as metals, polymers, ceramics, composites, and amorphous—and on mechanical characteristics and application properties of metals and nonmetals usually employed in technology. Bulk and surface transformations due to thermal and thermochemical treatments applied to steels, cast irons, aluminum, and copper alloys will be covered, and sessions will be devoted to standard and non-destructive testing methods on materials.

METAL-MATRIX COMPOSITES INNOVATIONS, ADVANCES AND APPLICATIONS

A Structural Materials Division Symposium in Honor of William C. Harrigan Jr.



**William C.
Harrigan Jr.**

Dates: Monday, March 12 and Tuesday, March 13
Symposium Location: Phoenix Convention Center, Room 121A
Poster Session Date: Tuesday, March 13 at 6:00 p.m.
Poster Session Location: Phoenix Convention Center, Hall CD
Organizers: Srivatsan S. Tirumalai, The University of Akron; Yuzheng Zhang, Gamma Alloys; William Harrigan, Gamma Technology, LLC

This symposium is being held in honor of Dr. William C. Harrigan, Jr., to bring to light his outstanding contributions resulting from dedicated, diligent, and dynamic contributions in the domains spanning processing, characterization, property evaluation, failure analysis, applications, and large-scale commercialization. This inter-disciplinary symposium will bring together developments from the onset of initiation to current state-of-the-art on all aspects related to the processing, fabrication, characterization, mechanical property evaluation, failure analysis, and potentially viable choice for both existing and emerging applications. The family of composites span the entire spectrum of metals including the intermetallics. This symposium will serve as a forum for presenting advances on aspects both related and relevant to materials processing, fabrication, characterization, quantification, both by way of properties and failure, by both researchers and engineers working in industry, national research laboratories, and academia.

Invited papers from leading-edge academic and industrial research settings will provide a lucid and comprehensive overview of the current status and potential future directions for both research and applications. Contributed papers cover specific problems in the same areas, with topics including metals and metal-matrix composites, nano-metal based composites, and intermetallic-based composites.



TMS101: FUNDAMENTALS OF TMS

Date: Sunday, March 11
Time: 3:00 p.m. to 4:00 p.m.
Location: Phoenix Convention Center, Room 121B

Speakers: **Megan Cordill**, Erich Schmid Institute; **Jeffery Fergus**, Auburn University; **James C. Foley**, Los Alamos National Laboratory and incoming TMS Vice President; **Clarissa Yablinsky**, Los Alamos National Laboratory

Want to get more involved in TMS, but don't know where to start? Attend TMS 101: Fundamentals of TMS. This one-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 TMS2018 attendees but will be especially valuable to new members, international members, and graduate students.

MEET A MENTOR

Date: Monday, March 12
Time: 5:00 p.m. to 6:30 p.m.
Location: Phoenix Convention Center, Room 105C

Seasoned professionals representing a combination of academic, government and industry career backgrounds will lead small discussion groups of young professionals and students embarking on their professional materials science careers. Mentors from a variety of technical, career, and social backgrounds will be on hand to answer questions and provide guidance and advice to mentees. Advance online reservations are recommended for this program. Visit the Meet a Mentor section of the TMS2018 website at www.tms.org/TMS2018.

YOUNG PROFESSIONALS COMMITTEE MEETING

Date: Tuesday, March 13
Time: 8:15 a.m. to 9:45 a.m.
Location: Sheraton Grand Phoenix, Encanto B

The mission of the Young Professionals Committee is to create opportunities and provide avenues for young professionals to increase their involvement in TMS. This committee meeting is open to all TMS members, age 40 or younger, who have graduated.

LOOKING THROUGH THE KALEIDOSCOPE: DISCOVERING YOUR PATH TO LEADERSHIP

Date: Tuesday, March 13
Time: 8:30 a.m. to 5:30 p.m.
Location: Phoenix Convention Center, Room 124B
Organizers: Emily Bautista, Mackenzie Jones, Thomas Maulbeck, and Rose Roberts, Virginia Tech

Sponsored by the TMS Education Committee, this special symposium will highlight effective leadership methods in order to enable students, as well as early-career and well-established professionals, to better pursue opportunities in leadership. Specifically, it aims to address the barriers to leadership perceived by students and early-career professionals and to equip current and future leaders with relevant tools to improve their own leadership abilities. The symposium will focus on empowering the audience with comprehensive insight into the multiple facets of leadership, allowing attendees to build their own leadership repertoires and incite change in leadership roles and techniques.

SCIENTIFIC PUBLISHING WORKSHOP: EXCELLING AS AN AUTHOR, REVIEWER, OR EDITOR

Date: Wednesday, March 14
Time: 2:30 p.m. to 5:00 p.m.
Location: Phoenix Convention Center, Room 105BC

Speakers: **Michele Manuel**, University of Florida; **Suveen Mathaudhu**, University of California, Riverside; **Eric Taleff**, University of Texas, Austin; **Tresa Pollock**, University of California, Santa Barbara

Many scientists and engineers are expected to publish papers and contribute to the literature of their field as part of their careers. This session will begin by providing tips for developing and submitting publishable content to technical journals. For those who wish to dive a little deeper into the publishing process, this workshop will also look at the activities of serving as a reviewer and editor for technical journals and will conclude with a panel discussion that offers participants the opportunity to ask questions of a broad range of professionals active in scientific publishing. This comprehensive overview of the publishing process will benefit anyone who aspires to write for, review for, or edit a technical journal, as well as anyone already active in these roles. Open to all TMS2018 attendees.

THE WORLD COMES HERE

TMS 2019

148th Annual Meeting & Exhibition



SAVE THE DATE

March 10-14, 2019
San Antonio, Texas, USA

Call for Abstracts Opens: May 2018

Registration Opens: October 2018

TMS2019 Highlights:



REWAS 2019

Manufacturing the Circular Materials Economy

Join this trans-disciplinary conference, co-located with TMS2019, to showcase your research at the intersection of material science, metallurgy, and sustainability.

DGM

GERMAN
MATERIALS
SOCIETY

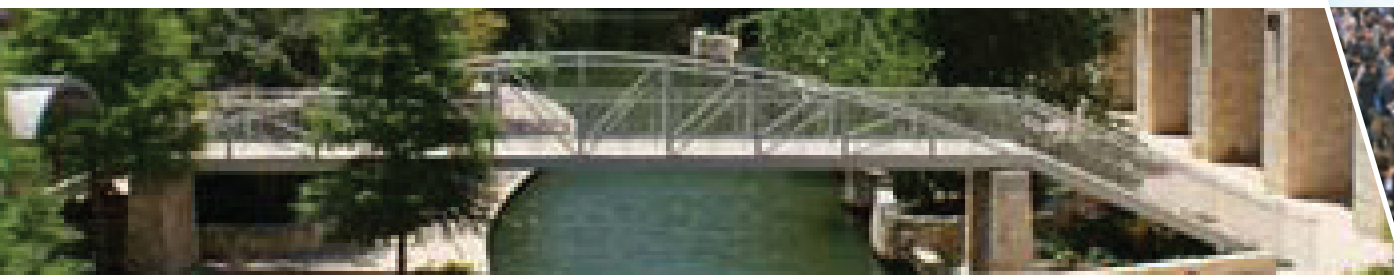
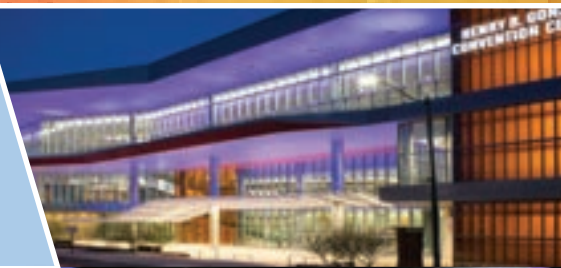
New! Lightweight Metals Programming

Organized by the German Metals Society (DGM) and TMS.



Bladesmithing Is Back

Rules and competition details now available on the 2019 TMS Bladesmithing Competition.



www.tms.org/TMS2019 See You in San Antonio!





MONDAY, MARCH 12

Structural Materials Division Luncheon Lecture*

Date and Time: Monday, March 12, 1:00 p.m. to 2:30 p.m.

Location: Phoenix Convention Center, Room 106ABC



Speaker: Somnath Ghosh, Johns Hopkins University
Lecture Title: "Advances in Computational Mechanics and Computational Materials Science for Multi-Scale Fatigue Prediction"

About the Topic: This talk will introduce an approach to the development of a multi-scale computational framework for physics-based, multiscale modeling of fatigue crack nucleation and evolution in polycrystalline metallic materials, with a specific focus on titanium alloys. The talk will begin with methods for generating 3D statistically equivalent representative virtual images and representative volume elements from experiments on material characterization. An experimentally validated crystal plasticity finite element (CPFE) model will be discussed for predicting microstructural deformation under monotonic and cyclic loading. The CPFE simulations will provide a platform for the development of a physics-based crack nucleation model that accounts for microstructural inhomogeneity. Accelerated simulations for a large number of cycles leading to fatigue crack nucleation will be accomplished by a wavelet transformation based multi-time scaling (WATMUS) algorithm. This method significantly enhances computational efficiency in comparison with conventional single time-scale integration methods. Subsequently, the development of parametrically homogenized constitutive models (PHCM) will be discussed for macroscopic analysis. The PHCM explicitly accounts for microstructural morphology and crystallography through model parameters in the constitutive functions. The talk will conclude with a case study on the necessity of multi-scale models for predicting fatigue crack nucleation.

**This lecture is open to all meeting attendees, but only those who purchased tickets in advance will receive a catered lunch. Luncheon tickets may be purchased at the Registration Desk until 10:00 a.m. on Sunday, March 11.*

Extraction & Processing Division Distinguished Lecture

Date and Time: Monday, March 12, 8:00 a.m.

Location: Phoenix Convention Center, Room 228A



Speaker: Geoffrey Brooks, Swinburne University of Technology
Lecture Title: "The Revolutions Ahead in Pyrometallurgy"

About the Topic: The pyrometallurgical production of metals has undergone major technological development over the last fifty years. However, important technological and scientific challenges remain, in particular in developing high productivity routes to light metals and in utilizing renewable energy in metals production. There has been considerable progress in developing new pyrometallurgical routes for aluminum, magnesium, and titanium over the last decade. The presenter and his co-workers have made significant progress in developing a new carbothermic route to magnesium and in evaluating alternate routes to aluminum. In this work, a combination of computational modelling techniques and novel laboratory apparatus has been used to test and optimize new process concepts. In designing a supersonic quenching apparatus for magnesium vapors, models that combine computational fluid dynamics and condensation kinetics were used to optimize the design. This combination of modelling and novel laboratory scale testing is also evident in the presenter's works on developing solar thermal routes to metals production, where a unique solar simulator has been developed for testing reactor concepts. Research groups in Europe and North America have been combining both challenges by researching solar thermal routes to light metals production.



William Hume-Rothery Award

Date and Time: Monday, March 12, 8:00 a.m.

Location: Phoenix Convention Center, Room 127C



Speaker: Zi-Kui Liu, The Pennsylvania State University

Lecture Title: "Computational Thermodynamics of Materials and Its Applications"

About the Topic: Thermodynamics is a science concerning the state of a system, whether it is stable, metastable or unstable, when interacting with the surroundings. Computational thermodynamics enables quantitative calculation of thermodynamic properties as a function of both external conditions and internal configurations, in terms of first and second derivatives of energy with respect to either potentials or molar quantities. In this presentation, the author's experience on thermodynamics and computational thermodynamics will be discussed along with their applications, particularly the calculations of thermodynamic properties at finite temperatures and diffusion coefficients using density functional theory, the usefulness of Maxwell relations among the second derivatives in predicting critical phenomenon, and materials design. The significance of second derivatives with respect to one molar quantity and one potential will also be examined. Finally, the author's perspectives on challenges and opportunities in computational thermodynamic will be presented.

Institute of Metals/Robert Franklin Mehl Award

Date and Time: Monday, March 12, 9:50 a.m.

Location: Phoenix Convention Center, Room 225B



Speaker: Marc André Meyers, University of California, San Diego

Lecture Title: "Biological Materials Science: Challenges and Opportunities"

About the Topic: Biological materials science is a new and vibrant field of materials science and engineering. Although biologists have been studying organisms for centuries, it is only recently that materials scientists have started to use their fantastic experimental, computational, and analytical arsenal of tools to reveal new features. We present the Arzt heptahedron, which defines seven unique and defining characteristics of biological materials. The plethora of different structures and mechanical properties of biological materials is systematized through a new paradigm: eight structural design elements, which are motifs

appearing on different species and scales, and which enable analytical treatment and lead to enhanced understanding. We have applied this approach to approximately twenty different organisms. We illustrate our approach by applying this knowledge to the toucan beak, rabbit and pig skin, fish scales, and feathers. It is fascinating to see that characterization techniques such as optical, transmission and scanning electron, and atomic force microscopy, SAXS, Micro and Nano CT, and mechanical testing techniques such as nanoindentation, tensile and compressive testing are helping us to better understand these complex structures. Current efforts at bioinspired materials and designs are also discussed.

TUESDAY, MARCH 13

Extraction & Processing Division/Materials

Processing & Manufacturing Division Luncheon*

Date and Time: Tuesday, March 13, Noon to 2:00 p.m.

Location: Phoenix Convention Center, Room 106ABC

Due to unexpected circumstances, the previously announced EPD/MPMD luncheon lecturer will not be able to present at TMS2018. Information on the new luncheon speaker can be found on the TMS2018 App or the TMS2018 website.

**This lecture is open to all meeting attendees, but only those who purchased tickets in advance will receive a catered lunch. Luncheon tickets may be purchased at the Registration Desk until 10:00 a.m. on Monday, March 12.*

HELP US DETERMINE NEXT YEAR'S AWARD LECTURERS

Nominations are now being accepted for a number of TMS society and division awards for 2019, including several TMS2019 award lecturers. Submit your nominees by April 1.

Visit www.tms.org/awards for more information.



**Japan Institute of Metals and Materials
International Scholar**

Date and Time: Tuesday, March 13, 3:55 p.m.
Location: Phoenix Convention Center, Room 229B



Speaker: Atsushi Unemoto, Hitachi Ltd.

Lecture Title: "Advanced Study on Complex Hydrides for All-Solid-State Secondary Batteries"

About the Topic: Recently, complex hydrides, possessing fast ionic conductivity and electrochemical stability, are considered as a new electrolyte family for all-solid-state lithium rechargeable batteries, beyond the classical oxide and sulfide electrolytes. Unemoto's research group first succeeded in the operation of an all-solid-state battery that uses a LiBH_4 complex hydride electrolyte together with a TiS_2 positive and Li negative electrodes in 2014. The study was then extended to enhance its energy density. A high-capacity sulfur positive electrode, exhibiting an order greater capacity than conventional oxide positive electrodes, was then incorporated into the all-solid-state battery. High discharge capacity of over 730 mAh g^{-1} was successfully demonstrated for 45 cycles. Additionally, operation of high-temperature durable all-solid-state batteries was successfully demonstrated at 423 K, as a result of an industry-academia partnership project between Tohoku University and Hitachi, Ltd. In this presentation, R&D history related to complex hydride electrolytes and their battery application will be reviewed.

WEDNESDAY, MARCH 14

Light Metals Division Luncheon*

Date and Time: Wednesday, March 14, Noon to 2:00 p.m.

Location: Phoenix Convention Center, Room 106ABC



Speaker: Martin Jarrett, Constellium UK Ltd

Lecture Title: "Accelerating the Development of Aluminum Lightweighting Solutions for Crash Management Systems and Structural Automotive Components"

About the Topic: In this talk, Jarrett will discuss how the importance of being innovative and close to their customers is a driving force within Constellium and for their automotive business. This strategy has broken new ground at Brunel University London with the establishment of the Constellium University Technology Center (UTC). This center, a first of its kind in the industry, aims to bridge the gap between fundamental research and series production. A key feature of the work of the UTC will be the rapid prototyping of extruded profiles and components to enhance strength and crush performance limits. A "copy and paste" approach to technology transfer and industrialization will then provide the opportunity to significantly compress development times to series production. The UTC will have a powerful armory of hardware to deliver on its promise of advanced technology and shorter times to market. The opening of the first phase took place in April 2016, with the commissioning of a full-size extrusion press and associated billet casting facilities. Phase 2 will be operational in Q1 2018 and will consist of novel forming and joining technologies in order to produce full-size component prototypes. This presentation will showcase the equipment and some of the key projects being developed, with a critical focus on the application of high-strength 6xxx alloys for the light weighting of structural automotive parts.

**This lecture is open to all meeting attendees, but only those who purchased tickets in advance will receive a catered lunch. Luncheon tickets may be purchased at the Registration Desk until 10:00 a.m. on Tuesday, March 13.*



NETWORKING & SOCIAL EVENTS

MEETING INFORMATION

SUNDAY, MARCH 11

President's Welcoming Reception

Date: Sunday, March 11

Time: 6:00 p.m. to 7:00 p.m.

Location: Phoenix Convention Center, Hall E

Kick off the TMS 2018 Annual Meeting & Exhibition with this social networking event, a relaxed opportunity to meet with some of your global colleagues before presentations begin on Monday. Refreshments will be provided.

MONDAY, MARCH 12

Lunch in the Exhibit Hall



Date: Monday, March 12

Time: 1:00 p.m. to 2:30 p.m.

Location: Phoenix Convention Center, Hall CD

Enjoy lunch in the exhibit hall—included as part of your TMS2018 registration. After lunch, browse exhibitor displays before the afternoon technical sessions begin. Lunch tickets are attached to your name badge.

Exhibit Opening Reception and Poster Session

Date: Monday, March 12

Time: 6:00 p.m. to 7:30 p.m.

Location: Phoenix Convention Center, Hall CD

You are invited to meet in the exhibit hall for appetizers, beverages, and networking with exhibitors, poster presenters, and other colleagues on the first day of the TMS2018 Exhibition.

TUESDAY, MARCH 13

Lunch in the Exhibit Hall

Date: Tuesday, March 13

Time: 11:30 a.m. to 1:30 p.m.

Location: Phoenix Convention Center, Hall CD

Enjoy lunch in the exhibit hall—included as part of your TMS2018 registration. After lunch, browse exhibitor displays before the afternoon technical sessions begin. Lunch tickets are attached to your name badge.

Exhibit Hall Happy Hour and Poster Session

Date: Tuesday, March 13

Time: 6:00 p.m. to 7:30 p.m.

Location: Phoenix Convention Center, Hall CD

All attendees are invited to gather in the exhibit hall for appetizers, beverages, and networking with exhibitors, poster presenters, and colleagues.

WEDNESDAY, MARCH 14

Fresh Coffee, Fresh Ideas: Diversity and Inclusion Breakfast



Tickets required. Tickets must be purchased by Monday at 5:00 p.m. at the Registration Desk.

Date: Wednesday, March 14

Time: 7:00 a.m. to 8:00 a.m.

Location: Phoenix Convention Center, Room 106ABC
Organized by the TMS Diversity Committee, this event offers an opportunity for TMS members to network and discuss issues related to diversity and inclusion in the minerals, metals, and materials professions. The main focus of the breakfast presentation this year will be on expanding awareness of identity, including exploring topics related to gender, sex, race, ethnicity, and sexual orientation.

Lunch in the Exhibit Hall

Date: Wednesday, March 14

Time: 11:30 a.m. to 1:30 p.m.

Location: Phoenix Convention Center, Hall CD

Enjoy lunch in the exhibit hall—included as part of your TMS2018 registration. After lunch, browse exhibitor displays before the afternoon technical sessions begin. Lunch tickets are attached to your name badge.

2018 TMS-AIME Awards Ceremony & Banquet



Tickets required. Tickets must be purchased by Tuesday at 10:00 a.m. at the Registration Desk.

Date: Wednesday, March 14

Reception Time: 5:30 p.m.

(Open to all TMS2018 attendees)

Awards Ceremony: 6:00 p.m.

(Open to all TMS2018 attendees)

Banquet: 7:30 p.m.

Gala: 8:30 p.m. to 10:00 p.m.

Location: Sheraton Grand Phoenix, Valley of the Sun
Show your support for colleagues who will be accepting awards from TMS and the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME) at the 2018 TMS-AIME Awards Ceremony & Banquet.

**SUNDAY, MARCH 11****TMS2018 Materials Bowl****Date:** Sunday, March 11**Elimination Rounds:** Noon to 3:00 p.m.**Championship Round:** 5:00 p.m. to 5:45 p.m.

Location: Phoenix Convention Center, Room 221ABC
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.

Student Mixer**Date:** Sunday, March 11**Time:** 7:30 p.m. to 9:00 p.m.

Location: Phoenix Convention Center, Hall AB Foyer
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, MARCH 12**Technical Division Student Poster Contest Session****Date:** Monday, March 12**Time:** 6:00 p.m. to 7:30 p.m.

Location: Phoenix Convention Center, Hall CD
Stop by and browse the student poster displays at your leisure or attend the official poster session to ask questions of the participants. If you are participating in the student poster contest, you must be present at this judging session to answer questions about your work.

TUESDAY, MARCH 13**Student Career Forum****Date:** Tuesday, March 13**Time:** 2:00 p.m. to 4:00 p.m.

Location: Phoenix Convention Center, Room 221A
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.



ARE YOU GRADUATING FROM THE MATERIAL ADVANTAGE PROGRAM IN 2018?

Become a Recent Graduate Member of TMS for 2019—Free!

Fill out our recent graduate membership application form at the TMS Member Welcome Center and your first year of membership in TMS following graduation will be free. You'll retain your Material Advantage membership through the end of 2018; your free year of membership will begin January 2019.

Visit the TMS Member Welcome Center, located on the 300 Level North of the Phoenix Convention Center to learn more.





SCHEDULE OF EVENTS

Date: Wednesday, March 14
Location: Sheraton Grand Phoenix, Valley of the Sun
Reception: 5:30 p.m.
(Open to all TMS2018 attendees)
Awards Ceremony: 6:00 p.m.
(Open to all TMS2018 attendees)
Banquet: 7:30 p.m. (Tickets required.)
Awards Ceremony Gala: 8:30 p.m.
(Ticket included when purchasing a banquet ticket)

The reception and ceremony are open to all meeting attendees, but tickets are required for the dinner and gala portion of the evening. Tickets must be purchased by Tuesday at 10:00 a.m. at the Registration Desk.

The 2018 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, will also be presented to TMS members.

The evening will consist of four 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. Attendees who purchased a banquet ticket will also receive a ticket to the Awards Ceremony Gala which immediately follows dinner. Gala attendees can network while enjoying after-dinner drinks and dessert.

Installation of the 2018 TMS President:



Kevin Hemker

During the 2018 TMS-AIME Awards Banquet, TMS will install Kevin J. Hemker as the society's 2018 president. Hemker is Alonzo G. Decker Chair and Professor of Mechanical Engineering at Johns Hopkins University. He also holds joint appointments in the Departments of Materials Science and Engineering and Earth & Planetary Sciences. A professional member of TMS since 1991, Hemker has served two terms on the TMS Board of Directors as Public & Governmental Affairs (P&GA) Director from 2008 to 2013. He has also contributed as a member of the Titanium, Strategic Planning, and P&GA committees. In 2014, he was elected a TMS Fellow. Hemker earned his B.S. in metallurgy from the University of Cincinnati, and his M.S. and Ph.D. in materials science and engineering from Stanford University.

Awards Ceremony Presenters

The ceremony will be hosted by James J. Robinson, TMS executive director, and will include comments from David DeYoung, 2017 TMS president, and Kevin Hemker, 2018 TMS president. In addition, the following presenters will announce the awards:

- **John Speer**, Colorado School of Mines and 2017 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
- **Christopher Schuh**, Massachusetts Institute of Technology and TMS Fellow – Class of 2015
- **Julie Christodoulou**, U.S. Office of Naval Research and 2016 Distinguished Lectureship in Materials and Society Award
- **Martin Glicksman**, Florida Institute of Technology and TMS Fellow – Class of 1994

SOCIETY AWARDS

TMS FELLOWS – CLASS OF 2018

- **Gerbrand Ceder**
Professor
University of California
- **Brent Fultz**
Professor
California Institute of Technology
- **Carol Handwerker**
Professor
Purdue University
- **Peter Liaw**
Professor
University of Tennessee
- **Daniel Miracle**
Senior Scientist
Air Force Research Laboratory
- **Ray Peterson**
Technology Director
Real Alloy

BRIMACOMBE MEDALISTS – CLASS OF 2018

- **Ibrahim Karaman**
Professor
Texas A&M University
- **Roger Narayan**
Professor
University of North Carolina
- **Katsuyo Thornton**
Associate Professor
University of Michigan
- **Xinghang Zhang**
Professor
Purdue University

APPLICATION TO PRACTICE AWARD

- **Chih Chen**
Distinguished Professor
National Chiao Tung University

BRUCE CHALMERS AWARD

- **Jyotirmoy Mazumder**
Professor
University of Michigan

MORRIS COHEN AWARD

- **Tresa Pollock**
Professor
University of California

JULIA AND JOHANNES WEERTMAN EDUCATOR AWARD

- **Garry Warren**
Professor Emeritus
University of Alabama

WILLIAM HUME-ROTHERY AWARD

- **Zi-Kui Liu**
Professor
Pennsylvania State University

INSTITUTE OF METALS LECTURER & ROBERT FRANKLIN MEHL AWARD

- **Marc A. Meyers**
Distinguished Professor of Materials
University of California

LEADERSHIP AWARD

- **Naresh Thadhani**
Professor & Chair
Georgia Institute of Technology

ALEXANDER SCOTT DISTINGUISHED SERVICE AWARD

- **Tresa Pollock**
Professor
University of California

OLEG D. SHERBY AWARD

- **Terence Langdon**
Professor
University of South Hampton

CYRIL STANLEY SMITH AWARD

- **Raja Mishra**
Technical Fellow
General Motors R&D Center

EARLY CAREER FACULTY FELLOW

- **Cong Wang**
Junior Professor
Northeastern University
- **Sung Woo Nam**
Assistant Professor
University of Illinois

AIME AWARDS

AIME HONORARY MEMBERSHIP

- **Tresa Pollock**
Professor
University of California
- **Subhash Mahajan**
Distinguished Professor & Special Adviser to the Chancellor
University of California

TMS/SME/AIME JAMES DOUGLAS GOLD MEDAL

- **Michael Moats**
Associate Professor
Missouri University of Science and Technology

AIME ROBERT LANSING HARDY AWARD

- **Allison Beese**
Assistant Professor
Pennsylvania State University

AIME CHAMPION H. MATTHEWSON AWARD

- **Ekkes Bruck**
Professor
Delft University of Technology
- **Haixing Fang**
Student
Delft University of Technology
- **Maarten Emre Gramsma Jr.**
Consultant/Researcher
Industrie Peutz B.V.
- **Michael Herbig**
Researcher, Group Leader
Max-Planck-Institute for Iron Research GmbH
- **Margarita Kuzmina**
Head of Analytical Laboratory
Schmidt + Clemens GmbH

- **Cees Kwakernaak**
Senior Research Technician
Delft University of Technology
 - **Dierk Raabe**
Professor, Director
Max-Planck Institute
 - **Willem Sloof**
Associate Professor
Delft University of Technology
 - **Frans Tichelaar**
Researcher
Delft University of Technology
 - **Sybrand van der Zwaag**
Professor
Delft University of Technology
 - **Niels van Dijk**
Associate Professor
Delft University of Technology
 - **Shasha Zhang**
Associate Research Fellow
Nanjing University of Aeronautics and Astronautic
- Topic area - Solidification
- **Wanlin Wang**
Professor
Central South University
 - **Haihui Zhang**
Student
Central South University

AIME Henry deWitt Smith Scholarships

- **Samuel Rodrigues**
Student
McGill University
- **Kao Zoua Yang**
Student
University of Wisconsin-Milwaukee

OTHER AWARDS

ACTA MATERIALIA GOLD MEDAL AWARD

- **Subhash Mahajan**
Distinguished Professor & Special Adviser to the Chancellor
University of California

ACTA MATERIALIA SILVER MEDAL AWARD

- **Nikhilesh Chawla**
Professor
Arizona State University

ACTA MATERIALIA MATERIALS AND SOCIETY AWARD

- **Julie Christodoulou**
Director of Naval Materials Division
U.S. Office of Naval Research

DIVISION AWARDS

EXTRACTION & PROCESSING DIVISION (EPD)

DISTINGUISHED LECTURE AWARD

- **Geoffrey Brooks**
Professor
Swinburne University of Technology

DISTINGUISHED SERVICE AWARD

- **Peter Hayes**
Professor
University of Queensland

SCIENCE AWARD

- **Tamara Chapman**
Materials Technologist
Rolls Royce Plc
- **Vassili Vorontsov**
Research Fellow
Imperial College London
- **Ananthi Sankaran**
Powertrain Engineer
Ford Motor Company Ltd.
- **David Rugg**
Senior Engineering Fellow
Rolls-Royce Plc
- **Trevor Lindley**
Senior Research Investigator
Imperial College, London
- **David Dye**
Professor
Imperial College, London

TECHNOLOGY AWARD

- **Suming Zhu**
Senior Research Fellow
RMIT University
 - **Mark Easton**
Associate Dean
RMIT University
 - **Trevor Abbott**
Director of Research and Development
Magontec Ltd
 - **Jian-Feng Nie**
Professor
Monash University
 - **Matthew Dargusch**
Professor
University of Queensland
 - **Norbert Hort**
Head of Magnesium Processing Group
Helmholtz-Zentrum Geesthacht
 - **Mark Gibson**
Senior Principal Research Scientist
CSIRO Manufacturing
- NAGY EL-KADDAH AWARD FOR BEST PAPER IN MHD IN MATERIAL PROCESSING**
- **Huai Wang**
Shanghai University
 - **Yunbo Zhong**
Shanghai University
 - **Qiang Li**
Shanghai University
 - **Yipeng Fang**
Shanghai University
 - **Weili Ren**
Associate Professor
Shanghai University
 - **Zuo-Sheng Lei**
Shanghai University
 - **Zhongming Ren**
Professor
Shanghai University

2018 AWARD RECIPIENTS

MATERIALS

CHARACTERIZATION AWARDS

Best Paper Award - First Place

- **Mark H. Shooter**
Student
Tufts University
- **Michael A. Zimmerman**
Professor
Tufts University
- **Anil Saigal**
Professor
Tufts University

Best Paper Award - Second Place

- **Md Abdul Kader**
Student
University of New South Wales
- **Md Ashraf Islam**
Student
University of New South Wales
- **Andrew Brown**
Research Associate
University of New South Wales
- **Paul Hazell**
Professor
University of New South Wales
- **Mohammad Saadatfar**
Fellow
Australian National University
- **Juan Escobedo-Diaz**
Senior Lecturer
University of New South Wales

Best Paper Award - Third Place

- **Elizabeth Carvalho L. Cardoso**
Student
Instituto de Pesquisas Energéticas e Nucleares-IPEN/CNEN-SP
- **Rene Ramos Oliveira**
Instituto de Pesquisas Energéticas e Nucleares-IPEN/CNEN-SP
- **Glauson Aperacido R. Machado**
Instituto de Pesquisas Energéticas e Nucleares-IPEN/CNEN-SP
- **Esperidiana A.B. Moura**
Instituto de Pesquisas Energéticas e Nucleares-IPEN/CNEN-SP

Best Poster Award - First Place

- **Genevieve Lee**
Student
The Ohio State University
- **Jonathan Orsborn**
Student
The Ohio State University
- **Antonio Ramirez**
Professor
The Ohio State University

Best Poster Award - Second Place

- **Sang Hoon Lee**
Engineering Specialist
Thermo Fisher Scientific
- **Mostafa Maazouz**
R&D Manager
Thermo Fisher Scientific
- **Liang Zhang**
Senior Applications Engineer
Thermo Fisher Scientific
- **Mauricio Gordillo**
Thermo Fisher Scientific
- **Micah Ledoux**
Applications Development Engineer
Thermo Fisher Scientific
- **Jeff Blackwood**
Thermo Fisher Scientific

Best Poster Award - Third Place

- **Thomas Watkins**
Senior Research Staff
Oak Ridge National Lab
- **Shibayan Roy**
Professor
Indian Institute of Technology Kharagpur
- **Lawrence Allard Jr.**
Oak Ridge National Laboratory
- **Amit Shyam**
Senior R&D Staff
Oak Ridge National Laboratory
- **Dongwon Shin**
Oak Ridge National Laboratory
- **J. Allen Haynes**
Oak Ridge National Laboratory

FUNCTIONAL MATERIALS DIVISION (FMD)

JOHN BARDEEN AWARD

- **Justin Schwartz**
Kobe Steel Distinguished Professor
North Carolina State University

DISTINGUISHED SERVICE AWARD

- **Roger Narayan**
Professor
North Carolina State University

JEM BEST PAPER AWARD

- **Tong An**
Beijing University of Technology
- **Si Chen**
Beijing University of Technology
- **Fei Qin**
Beijing University of Technology
- **Pei Chen**
Beijing University of Technology

LIGHT METALS DIVISION (LMD)

DISTINGUISHED SERVICE AWARD

- **John Grandfield**
Director
Grandfield Technology Pty Ltd.

TECHNOLOGY AWARD

- **Olivier Martin**
Senior Technologist
RioTinto

JOM BEST PAPER AWARD

- **Alexei Vinogradov**
Professor
Norwegian University of Science & Technology
- **Kristian Máthís**
Associate Professor
Charles University

LIGHT METALS AWARD

- **David Weiss**
VP Engineering
Eck Industries Inc.
- **Orlando Rios**
Oak Ridge National Laboratory
- **Zachary Sims**
Student
University of Tennessee
- **Scott McCall**
Lawrence Livermore National Laboratories
- **Ryan Ott**
Scientist
Ames Laboratory

LIGHT METALS SUBJECT AWARDS

- Alumina/Bauxite**
 - **Yanxiu Wang**
Student
Northeastern University
 - **Ting-an Zhang**
Northeastern University
 - **Guozhi Lu**
Associate Professor
Northeastern University
 - **Weiguang Zhang**
Northeastern University
 - **Xiaofeng Zhu**
Northeastern University
 - **Liqun Xie**
Northeastern University
- Aluminum Reduction Technology**
 - **Dawei Yu**
Pyrometallurgist
CanmetMINING
 - **Vishnuvardhan Mambakkam**
Student
University of Toronto
 - **Donghui Li**
Innovative Extractive Technologies Ltd
 - **Kinnor Chattopadhyay**
Assistant Professor
University of Toronto
 - **Lei Gao**
Kunming University of Science and Technology

Electrode Technology

- **Les Edwards**
Chief Technology Officer, Rain Cll Carbon LLC
- **Kevin Harp**
Chemist
Rain Cll Carbon LLC
- **Christopher Kuhnt**
Project Manager
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