TMS 2017
146th Annual Meeting & Exhibition

THE WORLD COMES HERE.

PRELIMINARY

TECHNICAL PROGRAM

VISIT WWW.TMS.ORG/TMS2017 FOR MORE INFORMATION
6:00 PM Introductory Comments

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

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

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

7:35 PM Panel Discussion

8:00 PM Concluding Comments

2017 EPD Distinguished Lecture — Keynote session

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

Session Chair: To Be Announced

8:30 AM Introductory Comments

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

9:15 AM Break

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Novel Nanomaterials and Techniques

Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

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

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

8:30 AM Introductory Comments

8:40 AM
Direct Patterning Inorganic Nanostructures and Synthesis of Hybrid Materials via Infiltration Synthesis: Chang-Yong Nam;
'Brookhaven National Laboratory

9:00 AM Invited
Carbon-metal Oxides Nanocomposites by Atomic Layer Deposition: Nicola Pinna;
'Humboldt-Universität zu Berlin

9:30 AM Invited
Sequential Infiltration Synthesis (SIS) for Versatile Nanomaterials Fabrication: Seth Darling;
Jeffrey Elam;
'Argonne National Laboratory

10:00 AM Break

10:20 AM Invited
Organometallic Infiltration into Polymers toward the Formation of Hybrid Organic-inorganic Nanomaterials: Jesse Jut;
Halil Akyildiz;
Richard Padbury;
'North Carolina State University

10:50 AM Invited
Bi2Te3 Nanowire Materials and Devices: Interplay between Thermoelectric and Topological Insulators Properties: Kornellius Nielsch;
'Leibniz Institute for Solid State and Materials Research

11:20 AM
1-D, 2-D and 3-D Nanoscale Architectures: Fundamentals, Materials and Applications: Simona Hanyadi Murph;
'Savannah River National Laboratory & University of Georgia

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

12:00 PM
Ultra-high Elastic Strain Energy Storage in AlOx-infiltrated SU-8 Photosensitive Nanopillars: Keith Dusoe;
'Aaron Stein;
'Chang-Yong Nam;
'Seok-Woo Lee;
'University of Connecticut;
'Brookhaven National Laboratory

8th International Symposium on High Temperature Metallurgical Processing — Energy Efficient Clean Metallurgical Technology

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

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

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

9:20 AM Introductory Comments

9:25 AM
Flash Ironmaking from Magnetite Concentrate in a Laboratory Reactor: Experimental and CFD Work: Mohamed Elzohiery;
'De Qiu Fan;
'Yousef Mohassab;
'H. Y. Sohn;
'University of Utah

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

10:05 AM Break

10:20 AM
'Maosheng Chu;
'Chuangang Bi;
'Zhenggen Liu;
'Northeastern University;
'Shanghai Meishan Iron and Steel Corporation Ltd

10:40 AM
Investigations on Matrix Reactivity towards the Efficiency of the LSL Process: Simge Tülbez;
'Aracan Dericioglu;
'Middle East Technical University

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

11:20 AM
Synthesis of Carbide Ceramics via Reduction of Adsorbed Anions on an Activated Carbon Matrix: Grant Wallace;
'Jerome Downey;
'Jannette Chorney;
'David Hutchins;
'Alaina Mallard;
'Montana Tech of the Univ of MT
Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Novel Material Systems

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

Monday AM Room: 7A
February 27, 2017 Location: San Diego Convention Center

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

8:30 AM Structure / Property (Constitutive and Dynamic Strength / Damage) Characterization of Additively Manufactured (AM) Tantalum Produced Using Different AM Build Methods: George Gray1; Veronica Livescu1; Cameron Knapp1; Carl Trujillo1; Roberta Beal1; David Jones1; 'Los Alamos National Laboratory

8:50 AM Microstructures of Nickel-base Superalloy IN100 Fabricated through Scanning Laser Epitaxy: Amrita Basak1; Ranadip Acharya1; Suman Das1; 'Georgia Institute of Technology

9:10 AM Development of Titanium Alloys Optimized for Additive Manufacturing Employing Laser Deposition of Powders: Brian Welk1; Hamish Fraser1; 'The Ohio State University

9:30 AM Understanding the Influence of Powder Bed Fusion Processing on the Shape Memory Alloy, Uranium-6 wt. Pct. Niobium: Amanda Field1; Luke Carter1; Nicholas Adkins1; Mike Gorley1; Moataz Attallah1; 'University of Birmingham; 'UKAEA

10:10 AM Break

10:30 AM Processing, Microstructure, and Tensile Behavior of MarM-247 Fabricated by Electron Beam Melting: Michael Kirka1; Yousub Lee1; Alfred Okello1; Christopher Romanoski1; Kinga Unocic1; Michael Massey1; Suresh Babu1; Ryan Dehoff1; 'Oak Ridge National Laboratory; 'Vanderbilt University; 'University of Tennessee

10:50 AM Additive Manufacturing of Polymer-derived Ceramics: Zak Eckel1; Scott Biesboer1; Kenneth Cante1; John Martin1; Brennan Yahata1; Jacob Hundley1; Tobias Schaedler1; 'HRL Laboratories, LLC

11:10 AM A Comparison of Mechanical Properties of Additively Manufactured and Conventionally Manufactured Components: Joy Forsmark1; 'Ford Motor Company

11:30 AM Additive Manufacturing of Alloy 718 by Powder Bed Fusion Methods: John Porter1; Brian Hayes1; Kenneth Davis1; Holly Garich1; Francesco Simonetti1; 'UES Inc; 'CalRAM; 'Paraday Technology, Inc.; 'University of Cincinnati
**Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session I**

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

**Monday AM**

### 8:30 AM Invited

**Recent Applications of Micromechanical Modeling Directly Coupled with Advanced Characterization Techniques of Polycrystalline Materials:** Ricardo Lebensohn; Reju Pokharel; 'Los Alamos National Laboratory

### 8:50 AM

**Effects of Crystallographic Structure on Damage Evolution Using Diffraction-amalgamated Grain-boundary Tracking Technique:** Kyosuke Hirayama; Hiroiuyki Toda; Teruyuki Shimoji; Yatsuto Tanabe; Kentaro Uesugi; Akhiha Takeuchi; 'Kyushu University; 'Japan Synchrotron Radiation Research Institute

### 9:10 AM

**A Correlation between Digital Image Correlation and Grain Misorientation Distribution Mapping to Capture the Localized Plastic Deformation in a Polycrystalline Titanium Alloy:** Vahid Khadem; Carl Boehlert; Thomas Bieler; Masahiko Ikeda; Samantha Daly; Zhe Chen; 'Michigan State University; 'Kansai University; 'University of California Santa Barbara

### 9:30 AM

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

### 9:50 AM Break

### 10:10 AM

**Effect of Strain and Stress Holds on Deformation in Ti-6Al-4V: Microscale Evidence of Load Shedding:** David Collins; Hamidreza Abdolvand; Zhen Zhang; Fionn Dunne; Angus Wilkinson; 'University of Oxford; 'Western University; 'Imperial College London

### 10:30 AM

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

### 10:50 AM

**High Resolution Strain Measurements in a Polycrystalline Superalloy during Deformation at Intermediate Temperature:** J.C. Stinville; M.P. Echlin; W.C. Lenthal; F. Bridier; M. Soare; S. Ismonov; P. Bocher; T.M. Pollock; 'University of California Santa Barbara; 'DCNS Research; 'GE Global Research; 'Department of Mechanical Engineering, École de Technologie Supérieure, Montréal, Canada

### 11:10 AM

**Understanding the Role of Competing Slip Systems during Formation of Stress Hotspots in Hexagonal Close Packed (HCP) Materials:** Ankita Mangal; Elizabeth Holm; 'Carnegie Mellon University

### 11:30 AM

**In-situ Neutron Diffraction Studies of Load Path Changes in 316L and AZ31:** Tobias Panzner; Tran Trang; Karl Sofinowski; Steven Van Petegem; Manas Upadhyay; Helena Van Swygenhoven; 'Paul Scherrer Institut; 'Paul Scherrer Institute & EPFL

### 11:50 AM

**A Multi-scale FE-FFT Approach to Study Lattice Strain Evolution during Biaxial Strain Path Changes:** Manas Upadhyay; Anirban Patra; Wei Wen; Steven Van Petegem; Tobias Panzner; Ricardo Lebensohn; Carlos Tome; Helena Van Swygenhoven; 'Paul Scherrer Institute; 'Los Alamos National Laboratory; 'Paul Scherrer Institute & EPFL

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**Advanced High-Strength Steels — Fundamentals of Steel Design**

*Program Organizers:* Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Mittler, The University of British Columbia

**Monday AM**

### 8:30 AM Invited

**Ab Initio Guided Design of High Strength Steels: Where Do We Stand?:** Joerg Neugebauer; Gerard Leyson; Xie Zhang; Fritz Koerrmann; Blazej Grabowski; Tilmann Hickel; 'Max-Planck-Institut fuer Eisenforschung

### 9:00 AM

**Paving the Bridge from Ab Initio to Atomistic Modeling of Advanced High-strength Steels:** Christopher Barrett; Haitham El Kadi; Robert Moser; 'Mississippi State University; 'US Army Corps of Engineers - ERDC

### 9:20 AM

**Interface Guided Design of High-strength Steels: A Dream Coming True?:** Ivan Gutierrez-Urrutia; 'National Institute for Materials Science

### 9:40 AM

**Is Twinning Important for Twinning-induced Plasticity Steels?:** Mingxin Huang; 'The University of Hong Kong

### 10:00 AM

**New Law to Describe Plastic Anisotropy in BCC Metals:** Lucile Dezerald; David Rodney; Emmanuel Cloutier; Lisa Ventelon; Francois Willaime; 'Université de Lorraine; 'Université Lyon 1; 'CEA Saclay

### 10:20 AM Break

### 10:40 AM

**Deformation-Induced Martensite: A Thermodynamic Study:** Gh. Ali Nemoaollahi; Soundes Dajziri; Yujiao Li; Blazej Grabowski; Christoph Kirchlechner; Aleksander Kostka; Shoji Goto; Dierk Raabe; Gerhard Dehm; Jörg Neugebauer; 'Max-Planck Institut für Eisenforschung; 'Lehrstuhl Werkstoffdesign Institut für Werkstoffe Fakultät für Maschinenbau Ruhr-Universität Bochum

### 11:00 AM

**The Development and Application of a Thermodynamic Database for Low-density Steels:** Reza Naraghi; 'Thermo-Calc Software AB

### 11:20 AM

**Data Science Approaches for Predicting Fatigue Strength of Steels:** Ankit Agrawal; Alok Choudhary; 'Northwestern University

### 11:40 AM

**Three Dimensional Atom Probe and First-principles Studies on Spinodal Decomposition of Cr in a High Strength Maraging Stainless Steel:** Wei Wang; 'Institute of Metal Research
Advanced Materials in Dental and Orthopedic Applications — Session I
Program Organizers: Tolou Shokuhfar, University of Illinois at Chicago; Grant Crawford, South Dakota School of Mines and Technology; Terry Lowe, Colorado School of Mines; Luis Rocha, UNESP, Univ. Estadual Paulista, Faculdade de Ciências; Rajendra Kasinath, DePuy Synthes Products, LLC
Monday AM  Room: Pacific 14  Location: Marriott Marquis Hotel & Marina
Session Chair: To Be Announced

8:30 AM Invited
Examining the Long-Term Exposure Effects of Simulated Body Fluid on the Behavior of Chitosan Bonded to Titanium Using Three Biocompatible Solvents: Holly Martin; Enuj Arič; Cameron Carroll; Vincent Pilolli; Snjezana Balaz; 1'Department of Chemical Engineering, Youngstown State University; 2Department of Physics and Astronomy, Youngstown State University
9:00 AM A New Ni-free Beta-Ti Alloy with Large and Stable Room Temperature Superelasticity: Song Cai; J Schaffer; 1Fort Wayne Metals Research Products Corp.
9:20 AM A Novel Strengthening Strategy Using Stacking Faults for Biomedical Co–Cr–Mo Alloys: Kenta Yamanaka; Manami Morii; Shigeo Sato; Akihiko Chiba; 1Tohoku University; 2National Institute of Technology, Sendai College; 3Ibaraki University
9:40 AM Additive Manufacturing of Titanium Orthopedic Implants: A Note on Process, Material, and Design: Ebrahim Aksadi; Warren Haggard; 1University of Memphis
10:00 AM Break
10:20 AM Biodegradable Boron Coating for Wound Healing and Bone Regeneration Implants Via: DIMOX, Rheocasting and Thixocasting: Bakr Rabeeh; Nora Abu Bakr; 1German University in Cairo, GUC
10:40 AM Biomimetic Tooth Repair: Amelogenin-derived Peptides Enable In Vitro and In Vivo Enamel Remineralization: Deniz Yucesoy; Carolyn Gresswell; Sanaz Saadat; Hanson Fong; Sami Dogan; Mehmet Sarikaya; 1University of Washington
11:00 AM Cellular Response of Escherichia Coli to Mg-2Zn-2Gd Alloy with Different Grain Structure: Mechanism of Disruption of Colonization: Proumshu Trivedi; K.C. Nune; R.D.K. Misra; A.K. Patel; K. Balani; R. Jayganthan; 1University of Texas at El Paso, Texas; 2Indian Institute of Technology
11:20 AM Characterization of Chitin Synthesized from Snail Shell: Samson Adeosun; Oluwasha Gbenebor; Emmanuel Akpan; Adebayo Olayeye; 1University of Lagos
11:40 AM Failure Analysis and Fatigue Properties of a New Generation β-based Ti-Nb Alloy and Cp-4 Titanium Osteosynthesis Plates: André Reck; Andreas Kaiser; Stefan Pitz; 1Ulrich Thomann; Volker Alt; Annett Gebert; Christian Heiß; Martina Zimmermann; 1Dresden University of Technology; 2University Hospital Giessen-Marburg GmbH; 3Leibniz Institute for Solid State and Materials Research Dresden
12:00 PM Functionalization of Dental Titanium Implants for Improved Osteointegration: Genevieve Pourroy; Fabienne Perrin-Schnitt; Van Quang Le; Mathilde Giraudel; Caroline Fischer; Géraldine Koenig; Leandro Jacomine; Luc Behr; Alain Chalom; Laurence Fiette; Alexis Morlet; Adele Carradori; 1Université de Strasbourg IPCMS; 2Université de Strasbourg INSERM, UMR1121; 3Institute Charles Sadron; 4Institut Mutualiste Montsouris

Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques I
Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; Maria Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech
Monday AM  Room: 32A  Location: San Diego Convention Center
Session Chairs: Sanjit Bhowmick, Hysitron, Inc.; Josh Kacher, Gatech

8:30 AM Keynote
Local Strains and Crack Initiation in Lamellar gamma-TiAl: Thomas Edwards; Fabio Di Gioiachino; Rocio Munoz-Moreno; Mark Dixon; Nigel Martin; William Clegg; 1University of Cambridge; 2Rolls-Royce plc
9:05 AM In Situ TEM Imaging of Defects in Metallic Samples Deforming at High Strain Rates: Thomas Voisin; Michael Grapes; Yong Zhang; Nicholas Lorenzo; Jonathan Lidga; Brian Schuster; Tian Li; Melissa Santala; Geoffrey Campbell; Timothy Weihl; 1Johns Hopkins University; 2Army Research Laboratory; 3Lawrence Livermore National Laboratory
9:25 AM Investigating Grain Rotations in Ultrafine-grained Aluminium Films Using In Situ TEM Straining with Automated Crystal Orientation Mapping: Ehsan Izadi; Amith Darbal; Rohit Sarkar; Jagannathan Rajagopalan; 1Arizona State University; 2AppFive LLC.
9:45 AM Invited
A Greater Understanding of Deformation in BCC Nanocrystalline Metals Using Quantitative In Situ TEM Techniques: Mitra Taheri; Gregory Vetterick; Asher Leff; M Marshall; Khalid Hattar; J. Kevin Baldwin; Amit Misra; 1Drexel University; 2Sandia National Laboratories; 3Los Alamos National Laboratory; 4University of Michigan
10:10 AM Break
10:30 AM In Situ TEM Study of Atomic Level Phase Transformation in Cerium-based Oxides during Redox Processes: Ruigang Wang; 1The University of Alabama
10:50 AM A New Designed Rig for In Situ Neutron Diffraction Creep Experiments under Different Boundary Conditions: Tiaqang Wang; Saurabh Kabra; Shuyan Zhang; Sayeed Hossain; David Smith; 1University of Bristol; 2ISIS, Science and Technology Facilities Council
11:10 AM Progress in In-situ Testing in the Electron Microscope at Cryogenic Temperatures: Jeffrey Wheeler; 1ETH Zurich
11:30 AM Dislocation Drag Coefficient Measurements via In-situ Micropillar Compression Experiments: Tommaso Giovannini; Finn Giuliani; Daniel Balint; Ayan Bhowmik; 1Imperial College London
11:50 AM Unusual Brittle to Ductile Transition in Single Crystalline Silicon: In Situ Micro-scale Fracture Studies at Elevated Temperature: Nagamani Jaya Baliala; Jeffrey Wheeler; Juni Wehs; James Best; Johannes Michler; Christoph Kirchlechner; Gerhard Dehm; 1MPIE GmbH; 2ETH Zurich; 3EMPA-Swiss Federal Laboratories for Materials Science and Technology
Advances in Environmental Technologies: Recycling and Sustainability Joint Session — Advances in Environmental Technologies: Characterization and Uncertainty

Program Organizers: John Howarter, Purdue University; Mark Kennedy, Proval Partners SA; Naiyang Ma, ArcelorMittal; Elsa Olivetti, Massachusetts Institute of Technology; Randolph Kirchain, Massachusetts Institute of Technology

Monday AM Room: 14B
February 27, 2017 Location: San Diego Convention Center
Session Chairs: Naiyang Ma, ArcelorMittal; Randolph Kirchain, MIT

8:30 AM Understanding Scrap Recycling and the Potential of Hand-held Elemental Analyzers: Teija Mortvedt1; Adam Gesing2; Subodh Das3; Gabrielle Gaustad1; Elsa Olivetti1; 1Rochester Institute of Technology; 2Gesing Consultants; 3Phinix, LLC; 3Massachusetts Institute of Technology

8:50 AM Characteristics of Municipal Solid Waste Incineration Bottom Ash with Particulate Matters PM2.5 –PM110: Ahn Ji Whan1; Thenepalli Thiveni2; KOREA Research Institute of Geoscience and Mineral Resources (KIGAM); 2Korea Research Institute of Geoscience and Mineral Resources (KIGAM)

9:10 AM Development of Open Source Software Tool for Life Cycle Assessment of Rare Earth Elements Production: Ehsan Vahidi1; Praneet Arshi2; Fu Zhao2; 1Purdue University

9:30 AM Scoping the Potential of Coal Ash as a Source of Rare Earth Elements: Gabrielle Gaustad1; Vasken Xhaxhollari1; Eric Williams1; Saptarshi Das1; 1Rochester Institute of Technology

9:50 AM Break

10:10 AM Addressing Criticality in Rare Earth Elements through Strategic Recycling: Cajetan Nebedin1; 1Ames Laboratory, US Department of Energy

10:30 AM Environmental Implications of Laser Metal Deposition: The Role of Feedstock Powder and Material Utilization Fraction: Kaka Ma1; Julie Schoenung2; 1Colorado State University; 2University of California Irvine

10:50 AM Development of a Separation Process of NBR/ HNBR Rubber from Metal Substrate: Mariana Nascimento1; Sarah Scardelatto1; 1Centro Universitário Fundação Santo André

Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session I

Program Organizers: Sinn-woon Chen, National Tsing Hua University; Franck Gascoin, Enseicaen University of Caen; Soon-jik Hong, Konju National University; Philippe Jund, Université de Montpellier; Lan Li, Boise State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University

Monday AM Room: 21
February 27, 2017 Location: San Diego Convention Center
Session Chairs: Sinn-woon Chen, National Tsing Hua University; Philippe JUND, Institut Charles Gerhardt Montpellier - UMR 5253 CNRS-UM-ENSCM

8:30 AM Introductory Comments

8:35 AM Invited Novel Approaches on the Design of Thermoelectric Materials for Power Generation: Present and Future Prospects: Dinesh Misra1; 1CSIR-NPL

8:55 AM Invited
The ALMA Project: Extending First-principles Thermal Conductivity Calculations beyond Single Crystals: Jesús Carrete Montañá1; 1Technological University of Vienna

9:15 AM Invited
Combinatorial Approach in Thermoelectric Materials Research: Winnie Wong Ng1; Yonggaard Yen1; Joshua Martin1; Makoto Otani1; Sara Barron1; Nam Nguyen1; Evan Thomas1; Kevin Talley1; Martin Green1; 1NIST; 2Wuhan University of Technology; 3AFRL

9:35 AM Data Science Approaches for Predicting Thermoelectric Properties: Al’ona Furmanchuk1; Ankit Agrawal1; Alok Choudhary1; 1Northwestern University

9:55 AM Invited
High-Throughput Computational Screening for Two-Dimensional Thermoelectric Materials: Lan Li1; Izaak Williamson1; 1Boise State University

10:15 AM Break

10:35 AM Invited
Thermoelectricity in Full-Heusler Systems: From Ab-initio Calculations Towards Promising Materials Design: Ernst Bauer1; Igor Knapp1; Sergei Khmelevskiy1; Peter Prenninger1; 1Vienna University of Technology; 2AVL List

10:55 AM Invited
Band Engineering and Phonon Interactions in Thermoelectric Materials from First-Principles Calculations: Yue Chen1; 1The University of Hong Kong

11:15 AM Invited
Ab Initio Calculations of the Lattice Thermal Conductivity and the Discovery of New Thermoelectric Materials: Laurent Chaput1; 1LEMTA

11:35 AM Integrating High-throughput Computations and Experimental Knowledge to Advance Design and Discovery of Novel Thermoelectric Materials: Vladan Stevanovic1; 1Colorado School of Mines

11:55 AM Thermoelectric Properties of Synthesized Sulfides —Adjusted on First Principle Calculation for Screening: Tomohiro Sato1; Shuhei Ishikawa1; Toshiki Akamune1; Ken-ichi Saitoh1; Masanori Takuma1; Yoshimasa Takahashi1; 1Kansai University


Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Monday AM Room: 15B
February 27, 2017 Location: San Diego Convention Center
Session Chair: HONG YONG SOHN, University of Utah


9:50 AM Towards the Innovation Economy:
An Industry Perspective on Radical Innovation: Tom Hennebel1; Isabel Vermeulen1; Karolien Vasseur1; Lennart Scheunis1; Christina Meskers1; Marleen Esprit1; Maurit Van Camp1; 1Umicore

10:20 AM Break

10:35 AM Status of the Development of a Novel Flash Ironmaking Technology: H.Y. Sohn1; Youssef Mohassab1; Mohamed Elzohiery1; De Qiu Fan1; Amr Abdelghany1; 1University of Utah
Applications of Solidification Fundamentals — Characterization of Solidification Structures I

Program Organizers: Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing

Monday AM  Room: 19  Location: San Diego Convention Center

Session Chairs: Amber Genau, University of Alabama at Birmingham; Melis Serefoglu, Koc University

8:30 AM Invited
In-situ Imaging of Metallic Alloy Solidification Dynamics for Advanced Manufacturing: Amy Clarke; Seth Imhoff; Damien Tourret; John Gibbs; James Mertens; Younggil Song; Kanel Fezzaa; James Hunter; Michelle Espy; Frank Merrill; Fessha Mariam; Carl Wilde; Brian Patterson; Ricardo Lebenchon; Joseph McKeown; John Roehling; Theron Rodgers; Jonathan Madison; Paul Gibbs; Kevin Baldwin; Alain Karma; Colorado School of Mines; Los Alamos National Laboratory; Northeastern University; Argonne National Laboratory; Lawrence Livermore National Laboratory; Sandia National Laboratories

8:50 AM
4D Synchrotron X-ray Tomography of Dendritic Microstructure Evolution in a Co Based Alloy during Solidification: Mohammad Azem; Peter Rockett; Andre Phillion; Shyamprasad Karagadde; Robert Atwood; Loic Courtois; Peter Lee; Manchester University; Oxford University; McMaster University; Diamond Light Source

9:10 AM Quantifying Dendritic Evolution in Mg Alloys Using In Situ Synchrotron Tomography: Enyu Guo; Andre Phillion; Danil Kazantsiev; Sansan Shuai; Tao Jing; Peter Lee; University of Manchester; McMaster University; Tsinghua University

9:30 AM Using Synchrotron X-ray Radiography to Measure the Statistics of Intermetallic Compound (IMC) Selection and Growth during Solidification: Shikang Feng; Enzo Lioiti; Andrew Lui; Sundaram Kumar; Keyna O’Reilly; Patrick Grant; University of Oxford

9:50 AM Analytics on Large Microstructure Datasets Using Two Point Statistics:

10:10 AM Break

10:30 AM Four Dimensional Real-time Studies of Metal Solidification under External Fields: Wenjia Du; Chuangnan Wang; Billy Koe; Jiawei Mi; University of Hull

10:50 AM Scandium Effect on Undercooling and Dendrite Morphology of Al-5wt.%Cu Droplets: Jonas Vallotton; Abdoul-Aziz Bogno; Daniel Auras; Marie Bedel; Guillaume Reinhart; Hani Henein; University of Alberta; ENSAM; Aix Marseille Univ, CNRS, IM2NP

11:05 AM In-situ Imaging of Metallic Alloy Solidification Dynamics for Advanced Melts: Dieter Herlach; Sven Reutzell; Sven Binder; Hailong Peng; Thomas Voigtmann; ‘Deutsches Zentrum für Luft- und Raumfahrt

11:30 AM In-situ Observation of Multiple Equiaxed Dendrite Interaction under Reduced Gravity Conditions: Laszlo Sture; Janin Eiken; Gerhard Zimmermann; ‘Access e.V.

Bio-Nano Interfaces and Engineering Applications — Bio-Nano Interfaces: Fundamentals I

Program Organizers: Candan Tamerler, University of Kansas; John Nychka, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

Monday AM Room: Pacific 21  Location: Marriott Marquis Hotel & Marina

Session Chairs: Candan Tamerler, UNIVERSITY OF Kansas; Terry Lowe, Colorado School of Mines

8:30 AM Invited
Principles of Molecular Biomimetics versus Materials Science and Engineering: Mehmet Sarikaya; ‘University of Washington

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

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

10:10 AM Break

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

11:10 AM Quasiparticle Approach to Self-assembly Kinetics of DNA and RNA Molecules: Helena Zapolsky; Mykola Lavrzky; Armen Khachaturyan; ‘University of Normandy, Rouen; University of California and Rutgers University

Biological Materials Science — Synthesis of Bio-inspired Composites

Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Monday AM Room: Pacific 15  Location: Marriott Marquis Hotel & Marina

Session Chairs: Po-Yu Chen, National Tsing Hua University; Steven Naleway, University of Utah

8:30 AM Invited
3D Printing of Hierarchical Porous Materials: Andre Studart; Clara Minas; Davide Carnelli; Elena Tervoort; ‘ETH Zurich

9:00 AM Intrinsic and Extrinsic Control of Bioinspired Freeze Casting: Steven Naleway; Marc Meyers; Joanna McKitterick; ‘University of Utah; University of California, San Diego

9:20 AM Bio-inspired Flexible Armors with 3D Printed Tailored Architectures: Roberto Martin; Yanis Balit; David VanZyl; Francois Barthelat; ‘McGill University
9:40 AM Fabrication and Characterization of Bioinspired Alumina with a Bulk Metallic Glass Matrix: Amy Wat; Jein Lee; Bernd Gludovatz; Eun Soo Park; Robert Ritchie; 1University of California, Berkeley; 2Seoul National University; 3Lawrence Berkeley National Laboratory

10:00 AM Break

10:20 AM Keynote Bioinspired Structural Materials - “Nacre-Like” Compliant-Phase Ceramics: Where Are We Now?: Robert Ritchie; Antoni Tomcia; 1Lawrence Berkeley National Laboratory/University of California, Berkeley; 2Lawrence Berkeley National Laboratory

11:00 AM Porcupine Fish Inspired Radial and Concentric Freeze: Frances Su; Joyce Mok; Joanna McKittrick; 1University of California, San Diego

11:20 AM Fabrication, Characterization and Modeling of Freeze-casted Ceramic Platelet Composites: Majid Minarya; 1University of Texas at Dallas

11:40 AM Synergistic Porous Structures from Magnetic Freeze Casting with Surface Magnetized Alumina Particles and Platelets: Michael Frank; Sze Hei Siu; Steven Nalewaj; Chin-Hung Liu; Keyur Karandikar; Olivia Graeve; Joanna McKittrick; 1UC San Diego

9:40 AM Invited

Critical Cooling Rate versus Critical Heating Rate in BMG-forming Alloys: Shujie Pang; Haifei Li; Ying Liu; Peter K. Liaw; Tao Zhang; 1Beihang University; 2University of Tennessee

11:40 AM Invited

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

8:30 AM Keynote

Buckle Modes: A Simple Model for the Thermodynamics of Configurational Excitations in Metallic Glass Forming Liquids: William Johnson; 1California Institute of Technology

9:00 AM Invited

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

9:20 AM Invited

The Development, Manufacturing and Testing of New Robotics Gearbox Enabled by Bulk Metallic Glass (Part 2): Douglas Hofmann; Scott Roberts; Peter Dillon; 1NASA JPL/Caltech

9:40 AM Invited

Manufacturing of Metallic Glasses by Rapid Discharge Forming: Marios Demetriou; 1William Johnson; 2Glassmetal Technology; 3California Institute of Technology

10:00 AM Invited

Interface-Mediated Monatomic Metallic Glasses Formation Through Ultrafast Liquid Quenching: Li Zhong; Jiangwei Wang; Hongwei Sheng; Ze Zhang; Scott Mao; 1University of Pittsburgh; 2George Mason University; 3Zhejiang University

10:20 AM Break

10:40 AM Invited

Fabrication and Characterization of Roll Bonded, Laminated Bulk Metallic Glass/Metal Composites: Sina Shahreza; Stephanie O’Keeffe; Irene Beyerlein; 1University of California, Riverside; 2Liquidmetal Technologies, Inc.; 3University of California, Santa Barbara

11:00 AM Invited

Improving the Fracture Toughness of Bulk Metallic Glasses by Thermomechanical Treatments: Jamie Kruzic; Bosong Li; Shenghui Xie; Hamed Shaker Shahabi; Sergio Scudino; Jürgen Eckert; 1UNSW Australia; 2Shenzhen University; 3IFW Dresden; 4Montanuniversität Leoben

11:20 AM Invited

Formation and Properties of Biodegradable Mg-Zn-Ca-Sr Bulk Metallic Glasses for Biomedical Applications: Shujie Pang; Haifei Li; Ying Liu; Peter K. Liaw; Tao Zhang; 1Beihang University; 2University of Tennessee

11:40 AM Invited

8:30 AM Invited

Ceramic Materials for Nuclear Energy Research and Applications: Kurt Sickafus; 1University of Tennessee

9:00 AM Invited

Alpha-damage Formation in MixedAmericium-uranium Compounds: Thierry Wiss; Olivier Dieste; Rudy Konings; Ondrej Benes; Jean-Yves Colle; Joaquina Zappey; Florent Lebroton; Thibaud Delahaye; Enrica Epifano; Philippe Martin; Christine Guéneau; Damien Prieur; Joe Somers; 1European Commission; 2CEA

9:20 AM Invited

Microstructural Characterization of the Processes, Stability, and End-of-Range Effects in Heavily Irradiated Pyrochlores: Terry Holesinger; James Valdez; Cortney Kreller; Yongjiang Wang; Blas Uberuaga; 1Los Alamos National Laboratory

9:40 AM Invited

Probing Oxygen Defects in Ion Irradiated Actinide and Analogue Oxides Using Neutron Total Scattering: Raul Palomares; 1Janelle Bienvenu; Isabelle Zacharie-Aubrun; Karine Hanifi; Laurent Fayette; Aurelien Moy; Yves Pontillon; 1CEA

10:20 AM Invited

High Burn-up Nuclear Fuel, Impact of Fission Gases: Jean Noirot; Philippe Bienvenu; Isabelle Zacharie-Aubrun; Karine Hanifi; Laurent Fayette; Aurelien Moy; Yves Pontillon; 1CEA

10:50 AM Invited

Irradiation Effects on Electrochemical Performance of TiO2 Anode: Janelle Wharry; Kassiopeia Smith; Hui Xiong; Darryl Butt; 1Purdue University; 2Boise State University; 3University of Utah

11:20 AM

Role of Ion Species in Radiation Effects of Lu2Ti2O7: Dongyan Yang; Yuhong Li; 1Lanzhou University

11:40 AM

In-Situ Tritium Measurements from γ-LiAlO2 Pellets Irradiated in TMIST-3A: Walter Lasher; 1David Senor; Kevin Clayton; 1Pacific Northwest National Laboratory; 2Idaho National Laboratory
Characterization of Materials through High Resolution Coherent Imaging — Coherent Imaging I

Program Organizers: Ross Harder, Argonne National Lab; Xianghui Xiao, Argonne National Laboratory; Richard Sandberg, Los Alamos National Laboratory; Saryu Fensin, Los Alamos National Laboratory; Brian Abbey, LaTrobe University; Ana Diaz, Paul Scherrer Institut

Monday AM  Room: 25B  February 27, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
High Resolution Coherent Imaging for Materials: Anthony Rollett; ‘Camegie Mellon University

9:10 AM
Applications of High Resolution Coherent X-Ray Imaging Techniques for Investigating Additively Manufactured Materials: Ross Cunningham; Anthony Rollett; ‘Camegie Mellon University

9:30 AM
3D Imaging of High-pressure Induced Deformation Twinning in a Nanocrystal: Xiaojing Huang; Wenge Yang; Ross Harder; Yugang Sun; Ming Lu; Yong Chu; Ian Robinson; Ho-kwang Mao; ‘Brookhaven National Laboratory; ‘HPSTAR; ‘Advanced Photon Source; ‘Center for Nanoscale Materials; ‘University College London

9:50 AM
Nanoscale Chemical Imaging of an Individual Catalyst Particle with Soft X-ray Ptychography: Johanna Waker; Anna Wise; Sam Kalirai; Maryam Farmand; David Shapiro; Florian Meier; Bert Weckhuysen; ‘SLAC National Accelerator Laboratory; ‘Utrecht University; ‘Lawrence Berkeley National Laboratory

10:10 AM Break

10:30 AM
3D X-ray Imaging of Defect Dynamics in Nanostructured Materials: Andrew Ulvestad; ‘Argonne National Laboratory

11:00 AM
Characterizing Evolving Processes through Coupled CDI and Molecular Dynamics Studies: Mathew Cherukara; Kiran Sasikumar; Subramanian Sankaranarayanan; Ross Harder; ‘Argonne National Lab

11:30 AM
Coherent Diffractive Imaging with Wavelength Spatial Resolution using 13.5nm High Harmonics: Full Field, High-contrast Imaging on a Tabletop: Dennis Gardner; Michael Tanksalvála; Elisabeth Shanblatt; Xiaoshi Zhang; Benjamin Galloway; Christina Porter; Robert Karl; Charles Bevis; Margaret Murnane; Henry Kaptyn; Daniel Adams; Giulia Mancini; ‘University of Colorado; ‘KM Labs

11:50 AM
Revolutions in Coherent X-ray Sources Will Enable Dynamic Nanometer Scale Strain Imaging in Structural Materials: Richard Sandberg; Saryu Fensin; Ross Harder; John Barber; Richard Shefield; Reju Pokharel; Ricardo Lebensohn; Cris Barnes; ‘Los Alamos National Laboratory; ‘Argonne National Laboratory

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

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERILALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, College Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Monday AM  Room: 32B  February 27, 2017  Location: San Diego Convention Center

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

8:30 AM
Effect of Skin-Core Hierarchical Structure on Dielectric Constant of Injection Molded and Cast Film Extruded Liquid Crystalline Polymer: Mark Shooter; Anil Saigal; Michael Zimmerman; ‘Tufts University

8:50 AM
Aging Behaviour in Ni$_x$Co$_{1-x}$Mn$_2$O$_4$ (x=0.5, 0.8 and 1.1) Thermistors: Gökkan Hardal; Berat Vükssel Price; ‘Istanbul University

9:10 AM
Adsorption of Lead from Aqueous Solutions to Bentonite and Composite: Zhu Shu Jing; Ying Qin; ‘Michigan Technological University; ‘Wuhan University of Technology

9:30 AM
Fabrication of Transparent Lanthana-doped Yttria Ceramics by Spark Plasma Sintering: Esin Korkmaz; ‘Istanbul Technical University

9:50 AM
Microstructure and Mechanical Properties of Silicon Doped Boron Carbide: Luoning Ma; Fatih Toksoy; Kelvin Xie; Kanak Kuwelkar; Richard Haber; Kevin Henker; ‘Johns Hopkins University; ‘Rutgers University

10:10 AM Break

10:25 AM
Synthesis and Characterization of Textured BCZT Ceramics Prepared by Molten Salt Synthesis Method: Jai Shree K; Chandrakala E; Dibakar Das; ‘University of Hyderabad

10:45 AM
Mechanical Analysis of Artificial Stone Produced with Glass Waste in Polymeric Matrix: Lucas Martins; Carlos Mauricio Vieira; Elaine Carvalho; Sérgio Monteiro; ‘UEFN; ‘IME

11:05 AM
Phase Transformation of Andalusite-Mullite and Its Roles to Microstructure and Sinterability of Refractory Ceramic: Bowen Li; Mengsheng He; Huaguang Wang; ‘Michigan Technological University

11:25 AM
Structural Characterization of La$_x$Sr$_{1-x}$CoO$_3$ (LSC 113) / (LaxSr$_{1-x}$)$_2$CoO$_4$ (LSC 214) Hetero-Interface Cathode for Intermediate Temperature Solid Oxide Fuel Cells: Dogancan Sarı; Eren Kalay; Tayfur Ozturk; ‘METU

11:45 AM
Production and Characterization of Magnesium Aluminate Spinel (MgAl2O4) Ceramics with Light Transmission by Spark Plasma Sintering: Seyran Sarıdas; Filiz Salih; ‘Istanbul Technical University
Program Organizers: Shadia Ikthankay, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Díaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Monday AM  Room: 31B  February 27, 2017  Location: San Diego Convention Center
Session Chairs: Sérgio Monteiro,IME; Andrew Brown, UNSW Canberra

8:30 AM
Analysis of the Elastic Properties and Reaction Kinetics of an Epoxy Resin Polymer during Cure Relaxation
: Manon Heil; Andrew Bielawski; John Kieffer1; 1University of Michigan; 2University of Michigan

8:50 AM
Charpy Toughness Behavior of Fique Fabric Reinforced Polyester Matrix Composites
Composites: Artur Campos Pereira; Faihaka Salgado de Assis; Sergio Neves Monteiro; Henry Colorado; 1Instituto Militar de Engenharia; 2Universidad de Antioquia

9:10 AM
Comparative Analysis of Curaua Fiber Density Using the Geometric Characterization and Pycnometry Technique: Natália Maciel; Carolina Ribeiro; Janaina Vieira; Jordana Ferreira; Frederico Margem; 1Instituto de Química da UFRJ; 2Instituto de Química da UFRJ

9:30 AM
Izod Impact Tests in Polyester Matrix Composites Reinforced with Blanket of the Malva and Jute Fibers: Carolina Ribeiro; Frederico Margem; Jean Margem; Sérgio Monteiro; Ygor de Moraes; João Batista Gomes; 1State University of the Northern Rio de Janeiro; 2Faculdade Redentor; 3ISECENSA; 4Instituto Militar de Engenharia

9:50 AM
Tensile Behavior of Epoxy Matrix Composites Reinforced with Eucalyptus Fibers: Caroline Gomes de Oliveira1; Ana Carolina Cerqueira Neves; Gilson Vieira Fernandes1; Marcos Vinicius Fonseca Ferreira1; Frederico Margem Muyaert; Sérgio Neves Monteiro1; 1UNEF - Universidade Estadual do Norte Fluminense; 2Faculdade Redentor; 3Instituto Militar de Engenharia

10:10 AM Break

10:25 AM
Izod Toughness Behavior of Continuous PALF Fibers Reinforced Polyester Matrix Composites: Gabriel Glória1; Giulio Altoc2; Maycon Gomes1; Maria Carolina Teles1; Frederico Muyaert1; Carlos Mauricio Vieira1; Sérgio Monteiro1; 1State University of the Northern Rio de Janeiro; 2Pontificia Universidade Católica do Rio de Janeiro; 3Instituto Federal Fluminense; 4Instituto Militar de Engenharia

10:45 AM
Mechanical, Thermal, Morphology and Barrier Properties of Flexible Film Based on Polyethylene-ethylene Vinyl Alcohol Blend Reinforced with Graphene Oxide: Juliana Santana1; Angel Ortiz2; Rene Oliveira1; Vijaya Rangari2; Olgun Guven1; Esperidiana Moura1; 1Instituto de Pesquisas Energéticas e Nucleares; 2Hacettepe University; 3Department of Chemistry, Polymer Chemistry Division

11:05 AM
Izod Impact Tests in Epoxy Matrix Reinforced with Fique Fibers: Maria Carolina Teles1; Sérgio Monteiro1; Djahla Souza1; Frederico Margem1; 1State University of the Northern Rio de Janeiro; 2Instituto Militar de Engenharia; 3Faculdade Redentor

11:25 AM
Radiation Effects on Crosslinking of Butyl Rubber Compounds: Sandra Scagliusi1; Elizabeth Cardoso2; Ademar Lugao1; 1IPEN

11:45 AM
Viscoelastic Properties of Human Dental Pulp Tissue: Burak Ozcak1; Cevat Erksen1; 2TOBB University of Economics and Technology

12:05 PM
The Dimensional Characterization of Jute Fabric Strips for Reinforcement in Composite Polymeric: Frederico Margem1; Sergio Monteiro1; Vinicius de Oliveira Barbosa1; Glênio Fernando Daniel1; André Raeli Gomes1; Victor Barbosa de Souza1; 1UNEF; 2IME; 3Redentor

Computational Materials Discovery and Optimization – From Bulk to Materials Interfaces and 2D Materials — Materials Informatics Approaches
Program Organizers: Richard Henning, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Monday AM  Room: 11A  February 27, 2017  Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM Invited
Invariant Representations for Robust Materials Prediction: Gus Hart1; Conrad Rosenbrock1; Gábor Csány2; 1Brigham Young University; 2Cambridge University

9:00 AM
A Tetrahedron Tiling Method for Crystal Structure Prediction: Qijun Hong1; Axel van de Walle2; 1Brown University

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

9:40 AM
A Tree Search Approach to Designing Kinematically Active Molecular Materials: Charles Manion1; Ryan Arlitt2; Laura de Sousa Oliveira1; Matthew Campbell1; P Greaney3; 1Oregon State University; 2University of California, Riverside

10:00 AM Break

10:15 AM Invited
Benchmarking and Validation of Density Functional Theory for Solids: Francesca Tavazz2; 1National Institute of Standards and Technology

10:45 AM
Design of Experiments Approach to Optimizing Complex Bond Order and Reactive Potentials: Efrain Hernandez-Rivera1; Souma Chowdhury2; Mark Tschopp1; Shawn Coleman1; 1U.S. Army Research Lab; 2University of Buffalo

11:05 AM
The OpenKIM Testing Framework for Interatomic Potentials: Efrain Hernandez-Rivera1; Souma Chowdhury2; Mark Tschopp1; Shawn Coleman1; 1U.S. Army Research Lab; 2University of Buffalo

11:25 AM
On the Fly Materials Design Using Efficient Global Optimization Techniques: Anjana Talapatra1; Thien Duong1; Raymundo Arroyave1; 1Texas A&M University

11:45 AM
Guided Discovery in Multi-phase, Multi-component Thermodynamic Spaces as Solution to a Constraint Satisfaction Problem: Raymundo Arroyave1; Sean Gibbons1; Edgar Galvan1; Richard Malak1; 1Texas A&M University
8:30 AM Invited
Predicting the Evolution of He Precipitate Networks in Metals Using Phase-field Models: Dina Yuryev\textsuperscript{1}; Michael Demkowicz\textsuperscript{2}; Massachusetts Institute of Technology; \textsuperscript{1}Texas A&M University

9:00 AM
3-D Phase-field Modeling of Electromigration-induced Damage in Polymeric Thin Films: \textsuperscript{3}Grain-boundary Slit Propagation and Hillop Formation: Arnab Mukherjee\textsuperscript{1}; Kumar Ank	extsuperscript{2}; Britta Nestler\textsuperscript{2}; Karlsruhe University of Applied Sciences; \textsuperscript{3}Karlsruhe Institute of Technology

9:20 AM
Capillary-Mediated Interfacial Perturbation Fields: Their Exposure via Phase Field Equilibration: Martin Glicksman\textsuperscript{1}; Kumar Ank	extsuperscript{2}; Florida Institute of Technology; \textsuperscript{2}Karlsruhe Institute of Technology (KIT), Campus South

9:40 AM
Comparison of the Phase-field Models to Predict the Recrystallization Kinetics: Julia Kundin\textsuperscript{1}; University Bayreuth

10:00 AM Break

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

10:50 AM
Strong Interfacial Energy Anisotropy in the PRISMS-PF Phase Field Model Code: William Andrews\textsuperscript{1}; Stephen DeWitt\textsuperscript{1}; Shiva Rudraraju\textsuperscript{1}; Larry Aagesen\textsuperscript{1}; Michigan State University; \textsuperscript{1}Idaho National Laboratory

11:10 AM
First-principles/Phase-field Modeling of Equilibrium Precipitation in Al-Cu Alloys: Kyoungho Kim\textsuperscript{1}; M. P. Gururajan\textsuperscript{2}; C. Wolverton\textsuperscript{2}; P. W. Voorhees\textsuperscript{2}; Northwestern University; \textsuperscript{2}Indian Institute of Technology Bombay

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

Deformation and Transitions at Interfaces — Grain Boundary Structure

8:30 AM Invited
Influence of Grain Boundary Structure and Character on the Deformation Mechanisms of Grain Boundaries: Diana Farkas\textsuperscript{1}; Bryan Kahr\textsuperscript{1}; Ian Robertson\textsuperscript{1}; Gary Was\textsuperscript{1}; Virginia Tech; \textsuperscript{1}University of Wisconsin; \textsuperscript{2}University of Michigan

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

9:15 AM
Effect of Solidification Conditions on the Formation of Sludge in High Pressure Die-Casting of Aluminum Alloy AA383: Tao Liu\textsuperscript{1}; Laurentiu Nastac\textsuperscript{1}; Luke Brewer\textsuperscript{1}; Vishweshwar Arvika\textsuperscript{1}; Ilya Levin\textsuperscript{1}; The University of Alabama; \textsuperscript{1}Nemak Alabama

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

9:55 AM Break

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

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

10:55 AM
Porosity Change of A356 by Excess Sr Addition: Baturpal Atakav\textsuperscript{1}; Ozen Gursoy\textsuperscript{1}; Eray Erzi\textsuperscript{1}; Derya Dispinar\textsuperscript{1}; Istanbul University

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

11:35 AM
Quantification of A356 Melt Quality Change after Several Recycling: Abdullah Sasmaz\textsuperscript{2}; Ozen Gursoy\textsuperscript{1}; Eray Erzi\textsuperscript{1}; Derya Dispinar\textsuperscript{1}; Istanbul University

11:55 AM
Modification Efficiency of Sr in A360 and A413 and Its Relation with Melt Quality: Inal Kaan Duygun\textsuperscript{1}; Ozen Gursoy\textsuperscript{1}; Eray Erzi\textsuperscript{1}; Derya Dispinar\textsuperscript{1}; Istanbul University

Session Chair: To Be Announced

8:30 AM Introductory Comments

8:35 AM Invited
Uncertainty Quantification in Modeling an Industrial High Pressure Die Casting Process: Jiahong Fu\textsuperscript{1}; John Coleman\textsuperscript{1}; Amy Marconnet\textsuperscript{1}; Matthew Krane\textsuperscript{1}; Indiana University; \textsuperscript{1}Purdue University; \textsuperscript{2}School of Materials Engineering, Purdue Center for Metal Casting Research, Purdue University

8:55 AM Invited
To Be Announced

9:10 AM
A Mesoscale Model of Grain Boundary Faceting: The Role of Facet Junctions: Fadi Abdeljawad\textsuperscript{1}; Douglas Medlin\textsuperscript{1}; Jonathan Zimmerman\textsuperscript{1}; Khalid Hattar\textsuperscript{1}; Stephen Foiles\textsuperscript{1}; Sandia National Laboratories

9:30 AM Invited
Alloy Stabilization of Nanocrystalline Grain Structures: Case Study of Pt-Au: Stephen Foiles\textsuperscript{1}; Christopher O’Brien\textsuperscript{1}; Ping Lu\textsuperscript{1}; Michael Chandross\textsuperscript{1}; Nicholas Argibay\textsuperscript{1}; Brad Boyce\textsuperscript{1}; Sandia National Laboratories
9:50 AM  Invited
Kinetic Monte Carlo Simulations of Grain Boundary Kinetic Events: Kathleen Alexander; Christopher Schuh; ‘Massachusetts Institute of Technology

10:10 AM  Break

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

10:50 AM  Invited
Grain Boundaries, Disorder, and Mass Transport in Complex Oxides: Blas Uberuaga; Romain Perrot; ‘Los Alamos National Laboratory

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

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

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

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

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Cu- and Ag-related Bonding Materials
Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Monday AM  Room:  12
February 27, 2017  Location: San Diego Convention Center

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

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

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

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

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

9:50 AM  Break

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

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

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

11:10 AM
In-situ Evolution of the Nanoporous Microstructure of Sintered Ag at High Temperature: Azdine Nait-Ali; Diouwel Tandiang; Marc Legros; Yijin Liu; Douglas Van Campen; Xavier Milbet; ‘Institut Pprime CNRS; ‘CEMES CNRS; ‘SLAC National Accelerator Laboratory

Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Kyle Brinkman, Clemson University; Teruhisa Horta, AIST; Minfang Han, China University of Mining and Technology, Beijing

Monday AM  Room:  12
February 27, 2017  Location: San Diego Convention Center

Funding support provided by:  Tentative
Sponsor: Energy Conversion and Storage Committee (FMD) ...Approved
Co-Sponsor: High Temperature Alloys Committee (SMD) ...Approved

Session Chairs: amit pandey, LGFCS; Kyle Brinkman, Clemson University

8:30 AM  Introductory Comments

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

9:05 AM
Oxygen Reduction Reaction Mechanisms on Ruddlesden-Popper Cathodes for Intermediate-Temperature Solid Oxide Fuel Cells: Wenyuan Li; Bo Guan; Xinxin Zhang; Xingbo Liu; ‘West Virginia University

9:25 AM  Invited
Oxygen Reduction Reaction at the Cathode of Solid Oxide Fuel Cell Enhanced with oxide particles: Changrong Xia; ‘University of Science and Technology of China

9:50 AM  Break

10:10 AM
3D Characterization and Design-led Manufacturing of SOFC Electrodes: Kristina Maria Kareh; Enrique Ruiz-Trejo; Antonio Bertei; Farid Tariq; Vladimir Yufit; Nigel Brandon; ‘Imperial College London

10:30 AM
Analysis of the Effects of Chromium Poisoning on LSM-based Cathode Using Polarization Modeling and Impedance Measurements: Ruofan Wang; Manuel Würth; Boshan Mo; Uday Pal; Sriskanth Gopalani; Soumendra Basu; ‘Boston University; ‘Technische Universität München

10:50 AM
Enhanced Performance of Doped Ceria Electrolyte by the Addition of Barium Carbonate in Solid Oxide Fuel Cells: Tao Hong; Devin Harkins; Kyle Brinkman; ‘Clemson University (CU)

11:10 AM
Mitigation of Chromium Poisoning in Solid Oxide Fuel Cells: Jeffrey Fergus; ‘Auburn University
Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group

Monday AM  Room: 13  February 27, 2017  Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM Keynote
Multilayered, Multifunctional Thermal Barrier Coatings for Gas Turbine Engines: Sanjay Sampath; Vaishak Vishwanathan; Gopal Dwivedi; Stony Brook University

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

9:40 AM
Evolution of the Thermal Conductivity of Sm2Zr2O7 under CMAS Attack: Ahmet Bakal; Kai Roebbecke; Honglong Wang; Wenzhuo Deng; Xingxing Zhang; Jeffrey Fergus; Auburn University

10:00 AM Break

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

10:50 AM
Thermal Gradient Mechanical Fatigue Testing and Life Modeling of Thermal Barrier Coating Systems: Zhongjiao Zhou; Changpeng Li; Guofeng Chen; Xu Hua; Tsinghua University; Corporate Technology, Siemens

11:10 AM Porous Yttria-stabilized Zirconia Microspheres for Advanced Reflective Thermal Barrier Coatings: Ricardo Castro; Pieter Stroeve; Roland Faller; Maria Perez-Page; Derek Muche; University of California, Davis

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

Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session I
Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Monday AM  Room: 14A  February 27, 2017  Location: San Diego Convention Center
Session Chair: To Be Announced

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

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

9:30 AM Invited
Bulk Nanomaterials with Superior Strength and Thermostability: Ruslan Valleev; Ichat Sabirov; Maxim Murashkin; Nariman Enikeev; Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; IMDEA Materials Institute; Ufa State Aviation Technical University

10:00 AM Break

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

10:50 AM Invited
Iron-based Amorphous Metals for Impact and Corrosion Resistance Applications: The Effect of Pressure and Current on Devitrification Kinetics: Olivia Graeve; James Kelly; Gauri Khanolkar; Michael Rauls; Andrea Hodge; Veronica Eliasson; University of California San Diego; Alfred University; University of Southern California; California Institute of Technology

11:20 AM The World of Water Reactive or Degradable Alloys: Oilfield, Defense, Biomedical and Beyond: Indranil Roy; Schlumberger

11:50 AM Sensitivity Variation of Nanomaterials at Different Operating Temperature Conditions: Enohong Bassey; Philip Sallis; Krishnamachar Prasad; Coventry University; Auckland University of Technology

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

Monday AM  Room: 15A  February 27, 2017  Location: San Diego Convention Center
Session Chair: To Be Announced

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

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

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

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

10:10 AM Break

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

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

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

11:40 AM Phase Relation Prediction for AgCuGaInSe PV Absorber Layers: Zhi Li; Christopher Muzzillo; Shan-shi Liang; Jianyun Shen; Po-Hsin Liao; Zi-kui Liu; Timothy Anderson; University of Florida; Pennsylvania State University; General Research Institute For Nonferrous Metals
Environmentally Assisted Cracking: Theory and Practice — Hydrogen Embrittlement I
Program Organizers: Bai Cui, University of Nebraska—Lincoln; Raul Rebak, GE Global Research; Sebastien Dryepondt, Oak Ridge National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

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

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

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

8:45 AM Invited
Linking Hydrogen-enhanced Plasticity to Hydrogen-induced Failure Mode: Kelly Nygren1; Shuai Wang2; Ian Robertson3; 1University of Illinois; 2University of Wisconsin-Madison

9:25 AM
Effects of Trace Impurities on the Strength and Fracture of Hydrogen-Charged Ni-201: Samantha Lawrence1; Richard Karnesky1; Khalid Hattar1; Stephen Foiles2; Brian Somerday1; 1Sandia National Laboratories; 2Southwest Research Institute

9:45 AM Macro- and micro-scale Study of Hydrogen Susceptibility of Advanced High Strength Sheet Steels: Yiran Liu1; Shrikant Bhat1; Clyde Briant1; Sharan Kuma1; 1Brown University; 2ArcelorMittal, Global R&D

10:05 AM Break

10:20 AM Invited
Hydrogen-Induced Fracture: From Fundamentals to Prognosis: Petros Sofronis1; Mohsen Dadfarnia2; Akhile Nagao3; Shuai Wang3; May Martin1; Brian Somerday1; Reiner Kirchheim1; Robert Ritchie4; Ian Robertson1; 1University of Illinois; 2JFE Steel Corporation; 3University of Wisconsin; 4South West Research Institute; 5Georg-August-Universität Göttingen; 6University of California-Berkeley

11:00 AM Atomic Insights on Hydrogen Embrittlement in Iron: Ilaksh Adlakha1; Kiran Solanki1; 1Arizona State University

11:20 AM
Effects of Internal and External Hydrogen Environments on Crack Growth in an Iron Based Superalloy: Neville Moody1; Warren Garrison1; S. Robinson1; M. Perra2; William W. Gerberich3; 1Sandia National Laboratories; 2Carnegie Mellon University; 3University of Minnesota

11:40 AM
Hydrogen Embrittlement and Hydrogen-enhanced Strain-induced Vacancies in a-iron: Yuya Matsumoto1; Nami Kurihara1; Hiroshi Suzuki1; Kenichi Takai2; 1Sophia University

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Data-Driven Investigations of Fatigue
Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Monday AM  Room: 23C
February 27, 2017  Location: San Diego Convention Center

Session Chair: Ashley Spear, University of Utah

8:30 AM Nondestructive Evaluation as a Link between Fatigue Diagnostics and Prognostics: Brian Wisner1; Ryan Whimore1; Konstantinos Baxevanakis2; Antonios Kontsos3; 1Drexel University

8:50 AM Invited
Linking Length Scales during Fatigue: Investigating the Effect of Microscale Strain Localization on Macroscopic Response: Samantha Daly1; 1University of California at Santa Barbara

9:10 AM
Strain Field Mining of Cyclic Damage Accumulation in Nonwoven Fiber Composites: Yoon Joo Na4; James Collins1; Christopher Muhlstein1; 1Georgia Institute of Technology

9:30 AM Invited
Correlation of Microstructural Configurations to Fatigue Indicator Parameters: Sushant Jha1; Robert Brockman2; Rebecca Hoffman2; Vikas Sinha1; William Porter2; Dennis Buchanan2; Adam Pilchak3; James Larsen1; Reji John1; 1US Air Force Research Laboratory; 2Universal Technology Corporation; 3University of Dayton Research Institute; 4UES, Inc.; 5US Air Force Research Laboratory

9:50 AM Investigation of Neighborhood Effects on Crack Initiation
Sites in Different Ti Microstructures: Yahid Tari1; Michael Groeber2; Adam Pilchak4; Anthony Rollett1; 1Carnegie Mellon University; 2Air Force Research Laboratory (AFRL/RXCM)

10:10 AM Break

10:30 AM Toward the Use of Machine Learning to Understand and Predict Microstructurally Small Fatigue-Crack Evolution: Nathan Wilkinson1; Brian Phung2; Jacob Hochhalter1; Ashley Spear1; 1University of Utah

10:50 AM Invited
Correlating Experiments and Simulations to Develop Predicative Capabilities for Fatigue Crack Initiation in Ni-based Superalloys: Jun Jiang1; Fiom Dunne2; T Ben Britton1; 1Department of Materials, Imperial College

11:10 AM
A General Probabilistic Framework Combining Experiments and Simulations to Identify the Small Crack Driving Force: Andrea Rovinelli1; Michael Sangid2; Ricardo Lebeman3; Wolfgang Ludwig4; Yoann Guillem5; Henry Proudhon6; 1Purdue University; 2Los Alamos National Lab; 3ESRF; 4ENS de Cachan; 5MINES ParisTech

11:30 AM Cloud-based Data-driven Modeling for Fatigue Life Prediction in Ti-6Al-4V: Ayman Salem1; Joshua Shaffer1; Richard Kublik1; Daniel Satko1; 1Materials Resources LLC

Friction Stir Welding and Processing IX — High Temperature Applications I
Program Organizers: Yuri Hovansky, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Monday AM  Room: 9
February 27, 2017  Location: San Diego Convention Center

Session Chairs: Tracy Nelson, Brigham Young University; Yutaka Sato, Tohoku University

8:30 AM Introductory Comments

8:35 AM Invited
Effect of Thermal Aging on the Corrosion and Mechanical Properties of Friction Stir Welded 250 Grade Maraging Steel: Todd Curtis1; Bharat Jasthi2; Christian Widener3; Michael West3; Brendon Kellogg1; 1South Dakota School of Mines and Technology

8:55 AM Invited
FSW Studies to Achieve High Charpy Impact Energy in 19 mm Thick ASTM-A6 Steel: Murray Mahoney1; Russell Steel1; Dale Fleck1; Steve Larson1; Trevor Davis1; 1MegaStir

9:15 AM Invited
Friction Stir Processing of 304L Stainless Steel for Crack Repair: Michael Miles1; Cameron Gunter2; Fengchao Liu3; Tracy Nelson1; 1Brigham Young University

9:35 AM Influence of Underwater Operation on Friction Stir Welding of Medium Carbon Steel: Tomoko Miyamori1; Yutaka Sato1; Hiroyuki Kokawa2; 1Tohoku University
9:55 AM Invited
Friction Stir Welding of Steel-two Innovative Welding Methods: Hidetoshi Fujii; Osaka University

10:15 AM Break

10:30 AM Invited
High Temperature Properties and Microstructures of ODS and RAFM Alloys
FSW: Wei Tang; Xinghua Yu; David Hoelzer; Zhili Feng; Oak Ridge National Lab

10:50 AM
Feasibility of Iridium Containing Nickel Base Superalloy Tool to Friction Stir Spot Welding of High Strength Steel: Kunihito Tanaka; Tatsuya Nakazawa; Koichi Sakairi; Yutaka Sato; Hiroyuki Kokawa; Toshihiro Omori; Kiyohito Ishida; Tanaka Kikinzoku Kogyo K.K.; Tohoku University

11:10 AM
Effect of Friction Stir Processing on Microstructure and Mechanical Properties of Cast Eglin Steel (ES-1): Vedavysa Tungala; Matthew Carl; Amit Arora; Marcus Young; Rajiv Mishra; Kyu Cho; Raymond Brennan; University of North Texas; Indian institute of technology, Gandhinagar; Army Research Laboratory

11:30 AM

Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin - Process-Property-Performance Correlations: Metals, Alloys and Ferroelectrics

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

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

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

8:30 AM Introductory Comments

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

9:10 AM Invited
Extreme Deformation and Failure of Materials: Marc Meyers; Bruce Remington; Chris Wehrenberg; Hye-Sook Park; T. Remington; Eduardo Bringa; Bimal Kadi; Eric Hahn; Shihtao Zhao; University of California San Diego; Lawrence Livermore National Laboratory; Lawrence Livermore National Laboratory; CONICET- Universidad Nacional de Cuyo

9:40 AM Invited
Application of Thermodynamics to Rare Earth-based Alloy Design: Patrice Tarchi; Aurelien Perron; Per Soderlind; Alexander Landa; Orlando Rios; Lawrence Livermore National Laboratory; Oak Ridge National Laboratory

10:10 AM Break

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

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

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

11:45 AM
High-throughput Computational Discovery of Epitaxial Thin Films with Enhanced Ferroelectric Properties: Thomas Angsten; Lane Martin; Mark Asta; UC Berkeley

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

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

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

Session Chair: Paul Prichard, Kennametal

8:30 AM
Engineering the Microstructure and Mechanical Properties of Titanium Alloys via Hydrogen Sintering and Phase Transformation (HSPT). James Paramore; Brady Butler; Jonathan Ligda; Z. Zak Fang; Matt Dunstan; United States Army Research Laboratory; University of Utah

8:50 AM
Titanium Hydrides Enhancing Improvement of Ductility of PM a-Ti Material: Katsuyoshi Kondoh; Takafumi Mimoto; Junko Umeda; Hisashi Imai; Osaka University

9:10 AM
A New PEG/PMMA Based Titanium Feedstock for Metal Injection Moulding: Peng Cao; Muhammad Hayat; University of Auckland

9:30 AM
Titanium-Based Alloys with Gradient Structures Fabricated by Blended Elemental Powder Metallurgy (BEMP): Dmytro Savvakin; Pavlo Markovsky; Orest Ivasishin; Sergey Prikhodko; G.V. Kurdymov Institute for Metal Physics, National Academy of Science of Ukraine; University of California, Los Angeles

9:50 AM Break

10:10 AM
Characterizing the Effect of Powder Properties on In-Machine Performance in Powder Bed Direct Metal Additive Manufacturing: Ross Cunningham; Ola Harrysson; Jack Beuth; Fred Higgs III; Anthony Rollett; Carnegie Mellon University; North Carolina State Univ.

10:30 AM
Sintering of Titanium-Magnesium Alloys with Stable Nanocrystalline Structure: Katherin Graetz; Christopher Schuh; Massachusetts Institute of Technology

10:50 AM
Enhanced Texture and Magnetic Energy Product in Alnico Magnets Utilizing Solid State Processing: Aaron Kassen; Emma White; Wei Tang; Lin Zhou; Matthew Kramer; Iver Anderson; Iowa State University

11:10 AM
Size-Scaled High-Performance Alnico Magnets with Enhanced Mechanical Properties and Near-Final Shape: Liangfa Hu; Iver Anderson; Aaron Kassen; Emma White; Wei Tang; Lin Zhou; Matthew Kramer; Ames Laboratory

11:30 AM
Self-propagating High-temperature Synthesis for Synthesizing Tantalum Carbide from Ta Metal Scraps: Jae-Jin Sim; Sang-Hun Choi; Won Ju; Won-Jung Choi; Basit Ali; Tae-Hyuk Lee; Kyung-Mook Lim; Bum-Sung Kim; Taek-Soo Kim; Kyong-Tae Park; Korea Institute of Industrial Technology; Department of Materials Science & Engineering, University of Sheffield
GAT-2017 (Gamma Alloys Technology - 2017) — Keynote and Aero-Engine Blades Applications

Program Organizers: Young-Won Kim, GameTech LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallof, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Monday AM Room: Pacific 17
February 27, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Dennis Dimiduk, BlueQuartz Software; Alain Couret, CEMES

8:30 AM Introductory Comments : Young-Won Kim, GameTech

8:40 AM Keynote
Development and Application of Gamma TiAl Components: Wilfried Smarsly1; Joerg Esslinger1; 1MTU Aero Engines GmbH

9:15 AM Invited
Advancement of Plasma Cold-hearth Melting for Production of Gamma Titanium Aluminide Alloys within Arconic: Ernie Crist1; Fusheng Sun1; Arconic Titanum & Engineered Products

9:40 AM Advances in the Systems and Processes for the Production of Gamma Titanium Aluminide Bars and Powder: Rob Haun1; 1Retech Systems, LLC

10:00 AM Development of a Die-casting Technology to Produce TiAl Turbine Blades: Jan Schievenbusch1; Rüdiger Tiefers1; Romuald Laqua1; Matthias Bünck1; 1Access e.V.

10:20 AM Break

10:35 AM Invited
Implementation of γ-TiAl Alloys for Low Pressure Turbine Blades: Opportunities and New Challenges: Pierre Sallof1; Guillaume Martin1; Stéphane Knaitd1; 1SAFRAN

11:00 AM Investment Casting of TiAl Low Pressure Turbine Blades with Precise Preheating Temperature Control in the Furnace: Lang-Ping Zhu1; Jian-chong Li1; Dong Huang1; Qian Luo1; Hai Nan1; 1Beijing Institute of Aeronautical Materials

11:20 AM Invited
Titanium Aluminide Investment Casting Technology Development: Matthias Bünck1; Todor Stoyanov1; Rüdiger Tiefers1; Jan Schievenbusch1; 1Access e.V.

11:45 AM High Temperature and High Strain Rate Deformation Behavior of Powder Metallurgical TiAl-Nb Composite: Yong Liu1; Bin Liu1; Qihong Fang1; Xiang Zan1; 1Central South University; 1Hunan University; 1Hefei University of Technology

Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session I

Program Organizers: Wei Xiong, University of Pittsburgh; Shuanglin Chen, CompuTherm LLC; Frederic Danoix, Université de Rouen; Indrajit Chariit, University of Idaho

Monday AM Room: 31C
February 27, 2017 Location: San Diego Convention Center

Session Chairs: Patrick Grant, University of Oxford; David Larson, CAMECA

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

8:40 AM Keynote
The Role of Atom Probe Tomography in Decoding the Materials Genome: George Smith1; 1Oxford University

9:20 AM Invited
Atomic-scale Analytical Tomography: Thomas Kelly1; 1CAMECA Instruments, Inc.

9:50 AM Unique Insights from the Correlated Combination of Atom Probe and Electron Tomography: Peter Wells1; Stephan Krakmer1; Christian Obergdorfer1; Souptik Pal1; Yuan Wu1; Takuya Yamamoto1; G. Odette1; 1UC Santa Barbara; 1Ohio State University

10:10 AM Break

10:30 AM Invited
On the Amazing Role of Atom Probe Tomography in Nuclear Materials Research: Some Seminal Contributions and Opportunities for Developing a New Lab On a Chip Paradigm: G. Robert Odette1; Peter Wells1; Nicholas Cunningham1; Nathan Almira1; 1University of California Santa Barbara; 1ATI

11:00 AM Revisiting Field Ion Microscopy: Baptiste Gaul1; Michal Dagan1; Shyam Katnagallu1; Frédéric De Geuser1; François Vurpillot4; Dierk Raabe1; Michael Moody1; 1Max-Planck-Institut für Eisenforschung GmbH; 1University of Oxford; 1CNRS, SIMAP; 1Normandie Université

11:30 AM Invited
Quantification of Hydrogen using Atom Probe Tomography: Daniel Haley1; Yi-Sheng Chen1; Paul Bagot1; Michael Moody1; 1University of Oxford

ICME Gap Analysis: Structural Materials for Automotive Applications — High-Temperature Alloys for Automotive Applications

Program Organizers: Dongwon Shin, Oak Ridge National Laboratory; Jerry Gibbs, Department of Energy; Will Joost, Department of Energy; Nicholas Hatcher, QuesTek Innovations, LLC

Monday AM Room: 10
February 27, 2017 Location: San Diego Convention Center

Session Chairs: Jerry Gibbs, Department of Energy; Dogmwn Shin, Oak Ridge National Laboratory

8:30 AM Invited
Bridging the Gap between ICME Design and Implementation of Third Generation Advanced High Strength Steels for Automotive Applications: Louis Hector Jr1; Anil Sachdev1; Tyson Brown1; 1General Motors

9:10 AM Invited
Application of ICME in the Development of Cast Steel Alloys: Rick Huff1; Caian Qiu1; Adrian Catalina1; 1Caterpillar

9:50 AM Break

10:05 AM Invited
ICME Model Development and Gap Analysis for Advanced Cast Aluminum and Magnesium Alloys for Automotive Applications: Mei Li1; 1Ford Motor Company

10:45 AM Invited
Progress and Gaps in Thermodynamic Modeling for the Development of Advanced Cast Aluminum Alloys using Integrated Computational Materials Engineering: Mike Walker1; Andrew Bobel1; WeiWei Zhang1; Nick Hatcher1; Abhinav Saboo1; Dana Frankel1; Kyoungho Kim1; Christopher Wolverton1; 1General Motors; 1Northwestern University; 1QuesTek Innovations, LLC

11:25 AM Invited
An Assessment of Modeling Tools for High Temperature Aluminum Alloy Development: The Good, the Bad and the Ugly: Amit Shyam1; Dongwon Shin1; Shibayan Roy1; Adrian Sabau1; Yukinori Yamamoto1; James Haynes1; 1Oak Ridge National Laboratory
Interface-Mediated Properties of Nanostructured Materials — Nanolaminates and Nano twinned Materials I

Program Organizers: Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University; Michael Demkowicz, Texas A&M University

Monday AM  Room: Pacific 23
February 27, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory

8:30 AM
Micro-scale Scratch Behavior of Copper-silver Nanolayers: Madhavan Radhakrishnan; Pascal Bellon; Robert Averbak; University of Illinois

8:50 AM Invited
Plasticity in Small-scale Metallic Composites: Amit Misra; Jian Wang; University of Michigan; University of Nebraska

9:20 AM Invited
Intrinsic Twin Boundary Defects and Strength in Nanotwinned Ag and Ag-Cu Alloys: Frederic Sansoz; Xing Ke; Qiongliang Fang; The University of Vermont

9:50 AM Break

10:10 AM Invited
Strength and Fracture of Nanoscale Multilayer Films: Andreas Kelling; Inga Knorr; Cynthia Volkert; University of Göttingen

10:40 AM Invited
Collective Deformation Mechanisms and their Effect on Nanoscale Interfacial Networks: Timothy Rupert; University of California, Irvine

11:10 AM
Intrinsic Surface Stress Effects on Surface Dislocation Nucleation in Nanoscale Pristine Metals: Qingjie Li; Bin Xu; Evan Ma; Johns Hopkins University; Shanghai Jiao Tong University

11:30 AM
Influence of Crystalline Nanoprecipitates on Shear-band Propagation in Cu-Zr-based Metallic Glasses: A Computational Study: Tobias Brink; Karsten Albe; TU Darmstadt

Light Metals — Keynote Session

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

Session Chair: To Be Announced

To be announced.

Magnesium Technology 2017 — Keynote Session

Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Monday AM  Room: 5A
February 27, 2017  Location: San Diego Convention Center

Session Chairs: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University

8:30 AM Introductory Comment:

8:45 AM Keynote
Multi-scale Investigation on Yield “Symmetry” and Reduced Strength Differential in an Mg-Y Alloy: Dalong Zhang; Lin Jiang; Xin Wang; M. Kumar; Irene Beyerlein; Julie Schoenung; Mo Li; Subhash Mahajan; Enrique Lavernia; University of California Irvine; University of California, Davis; University of California, Irvine; Los Alamos National Laboratory; Georgia Institute of Technology

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

10:05 AM Break

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

11:10 AM Keynote
The Continued Quest for Low-temperature Formability in Mg Alloys: Historical Developments and Future Opportunities: Suveen Mathaudhu; University of California, Riverside

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Fuels I

Program Organizers: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

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

Session Chair: To Be Announced

8:30 AM
Results of Microstructural Characterization Focused on the U-10Mo/Zr Diffusion Barrier Interface in Irradiated Monolithic Fuel Plates: Dennis Keiser; Jan-Fong Jue; Brandon Miller; Jian Gan; Adam Robinson; James Madden; Assel Aitkaliyeva; Idaho National Laboratory

8:50 AM
Nanoscale Structural and Compositional Analysis of U-10Mo Fuels: Arun Devraj; Vineet Joshi; Libor Kovarik; Saumyadeep Jana; Bruce Arey; Curt Lavender; Pacific Northwest National Laboratory

9:10 AM
Recrystallization Texture in U10Mo Alloy: Karun Kalia; David Field; Vineet Joshi; Washington State University; Pacific Northwest National Laboratory

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

9:50 AM
Eutectoid Transformation Kinetics of As-Cast U - 8 wt% Mo Established by In Situ Neutron Diffraction: Matthew Steiner; Christopher Calhoun; Robert Klein; Ke An; Elena Garlea; Sean Agnew; University of Virginia; Oak Ridge National Lab; Y12 National Security Complex

10:10 AM Break

10:30 AM
Assessment of the Suppression Methods for Porosity Growth in U-Mo/Al Dispersion Fuel: Yeon Soo Kim; Gwan Yoon Jeong; Dong-Seong Sohn; Argonne National Laboratory; UNIST

10:50 AM
Microstructural Development of UMo-Al Dispersion Fuels after Thermal Annealing: Laura Jamison; Bei Ye; Sunith Bhattacharyya; Abdellatif Yacout; Argonne National Laboratory; Argonne National Laboratory and Northwestern University

11:10 AM
Effect of Grain Morphology on Gas Bubble Swelling in UMo Fuels — A 3D Microstructure Dependent Booth Model: Shenyang Hu; Curt Lavender; Vineet Joshi; Pacific Northwest National Laboratory
11:30 AM
An Integrated Simulation for Deformation and Irradiation-Induced Grain Growth in U-10 wt% Mo: William Frazier; Vineet Joshi; Shenyang Hu; 1Pacific Northwest National Laboratory

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Next Generation Superalloys I

Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmair, Karlsruhe Institute of Technology (KIT); Pierre Salliot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Monday AM
February 27, 2017
Location: Marriott Marquis Hotel & Marina

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

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

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

9:30 AM
The Influence of Ta and Ti on Heat-treatability and γ'-partitioning of High W Containing Re-free Nickel-based Superalloys: Nils Ritter; Ralf Retting; Robert Singer; 1 University of Erlangen-Nuremberg

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

10:10 AM Break

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

10:50 AM
Improved Creep Strength of Nickel-base Superalloys by Optimized 947/947γ′-partitioning Behavior of Solid Solution Strengthening Elements : Steffen Neumeier; 1 Martin Pröbstle; Sven Giese; Ralf Retting; Mathias Göken; 1 Friedrich-Alexander-Universität Erlangen-Nürnberg; 2 Friedrich-Alexander-Universität Erlangen-Nürnberg

11:10 AM
Sources of Creep Dislocations in Ni-base, Single Crystal Superalloys Revisited: Farangis Ram; Zhuangming Li; Zailing Zhu; Masood Hafez Haghighat; Stefan Zaefferer; Dierk Raabe; Roger Reed; 1 Carnegie Mellon University; 2 Max-Planck Institut für Eisenforschung GmbH; 1 University of Oxford

11:30 AM
Influence of Stress Triaxiality and Relaxation on the Creep Behavior under Oxidizing Conditions of the Nickel-based Single Crystal Superalloy CMSX-4: Experiments and Numerical Approach: Vincenzo Caccuri; Jonathan Cormier; Rodrigue Desmorat; Clara Moriconi; 1 ENSMA - Institut P/LMT Cachan/Safran Helicopter Engines; 2 ENSMA - Institut P; 3 LMT Cachan; 4 Safran Helicopter Engines

11:50 AM
Determination of Gamma/Gamma Prime Lattice Misfit in Ni-based Single Crystal Superalloys at High Temperatures by Neutron Diffraction: Shenyuan Huang; Yan Gao; Akane Suzuki; Ke An; 1 GE Global Research; 2 Oak Ridge National Lab

Mechanical and creep behavior of materials

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

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

Monday AM
February 27, 2017
Location: San Diego Convention Center

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

8:30 AM Introductory Comments

8:40 AM Invited
High Temperature Mechanical Properties of Ultrafine-grained and Nanocrystalline Materials: Megumi Kawasaki; Roberto Figueiredo; Terence
9:05 AM Invited
15 Years SPD-Processed Bulk Nanostructured Materials: From Mechanical to Functional Highlights: Michael Zehebauer; 1University of Vienna

9:30 AM Invited
Bulk Nanocrystalline Materials: Mechanical Behavior and Deformation Mechanisms: Farghali Mohamed; 1University of California, Irvine

9:55 AM Invited
Hardening by Annealing and Abnormal Hall-Petch Relationship in Nanocrystalline Elements and Alloys: T. D. Shen; B. R. Sun; S. W. Xin; 1Yanshan University

10:20 AM Break

10:40 AM Invited
Twinning in Small-scaled BCC Crystals: Jiangwei Wang; 1Zhi Zeng; Christopher Weinberger; 2Ze Zhang; Ting Zhu; 2Scott Mao; 1University of Pittsburgh; 2Georgia Institute of Technology; 1Sandia National Laboratories; 2Zhejiang University

11:05 AM
Deformation Properties of Nanotwinned Al: Xinghuang Zhang; 1Sichuan Xue; 1Qiang Li; 2Dan Bufford; 2Yue Liu; Haiyang Wang; 2Texas A&M University; 2Purdue University; 2Sandia National Laboratories; 1Los Alamos National Laboratory

11:25 AM
The Effects of Solutes on the Tensile Strength of Nano-twinned Ag Thin Films at Various Temperatures: Jie Geng; 1M. F. Besser; 1F. Q. Meng; 1R. T. Ott; 1Ams Laboratory

11:45 AM
Correlation between Nanotwin Density and Texture Transformation in Thin Ag Films: Nathaniel Rogers; 1Shelby Johnson; 1Elizabeth Ellis; 1Kyle Flemington; 2Paul Lashomb; 3Jonathon Yuly; 1Brandon Hoffman; 1Shefford Baker; 1Cornell University; 3Houghton College

Microstructural Processes in Irradiated Materials — Advanced Characterization and Techniques

Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University; Philip Pareige, Rouen University; JP Edmondson, Oak Ridge National Laboratory; Philippe Pareige, Rouen University

8:30 AM Invited
Atom Probe Characterization of Microstructures in Irradiated Materials: Philippe Pareige; 1Bertrand Radigue; 1Auriane Etienne; 1Cristelle Pareige; 1Rouen University

9:00 AM
On the Influence of the Irradiation Depth on the Microstructural Evolution of FeCrX (X=Ni,Si,P) Alloys under Ion Irradiation: Begonia Gómez-Ferrer; 1Cristelle Pareige; 1Philippe Pareige; 1University of Rouen

9:20 AM
Prismatic Dislocation Loop Interaction with Free Surface in BCC Metals: Jan Fikar; 2Roman Gröger; 2Robin Schäublin; 1IPM; 1ETHZ

9:40 AM
Determination of the Type, Burgers Vector and Density of Dislocation Loops by X-ray Line Profile Analysis in Proton Irradiated Zr Alloys: Tamás Ungár; 1Matthew Topping; 1Philipp Frankel; 1Michael Preuss; 1The University of Manchester

10:00 AM
High Resolution EBSD and Strain Mapping of Nanoindentation in Ion-irradiated Steels: Anna Karerer; 1Hamid Abdolvand; 1Steve Roberts; 1University of Oxford; 1Western University

10:20 AM Break

10:35 AM Invited
Deformation Behavior of Ion-irradiated Materials under Nanoindentation: Ryota Kassada; 1Satoshi Komishi; 1Hyoseong Gwon; 1Takeshi Miyazawa; 1Masami Ando; 1Hiroyasu Tanigawa; 1Kyoto University

11:05 AM
Characterizing Radiation Damage in Stainless Steels Using Spherical Nanoindentation Stress-Strain Curves: Jordan Weaver; 1Siddhartha Pathak; 2Ashley Reichardt; 1Peter Hosenmann; 1Nathan Mara; 1Los Alamos National Laboratory; 2University of Nevada Reno; 1University of California Berkeley

11:25 AM
Novel Methods of Recording Flow Curves in Proton Irradiated Material: Albert Smith; 1Jack Donohue; 1Bartlomiej Winiarski; 1Alistair Garner; 1Nick Riddle; 1Keith Wilford; 1Philip Withers; 1Michael Preuss; 1University of Manchester; 1Rolls-Royce

11:45 AM Invited
Small Scale Mechanical Testing on He Bubble Containing and Irradiated Materials: Peter Hosenmann; 1Zhangjie Wang; 1David Frazer; 1Frances Allen; 1University of California Berkeley

Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Gradient Materials

Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huajian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Monday AM
Session Chairs: Ke Lu, Institute of Metal Research; Xiaolei Wu, Institute of Mechanics

8:30 AM Introductory Comments

8:35 AM Invited
Fatigue Behavior of Gradient Nanograined Cu: Qingsong Pan; 1Lei Lu; 1Jianzhou Long; 1Institute of Metal Research, CAS

9:00 AM
Strain Incompatibility and Ductility in a Gradient Nanostructure of IF Steel: Xiaolei Wu; 1Yuntian Zhu; 1Institute of Mechanics, Chinese Academy of Sciences; 2North Carolina State University

9:20 AM Invited
Effect of Gradient on Mechanical Behavior of Ni Based Gradient Materials: Y Lin; 1R.Q. Cao; 1J Pan; 1Y Li; 1Institute of Metal Research

9:45 AM
Effect of Surface Fatigue Cracking in Steels with a Gradient Nanostructured Surface Layer: Z.B. Wang; 1K. Zhang; 1H.W. Huang; 1K. Lu; 1Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

10:05 AM Break

10:25 AM Invited
Superior Combinations of High Strength and Ductility in Compositionally Graded Martensitic Steels: Hatem Zurob; 1Hamid Azizi; 1Olivier Bouaziz; 2David Embury; 2McMaster University; 2University of Lorraine

10:50 AM
Tensile Behaviors of Gradient Nano-grained Copper at 77K: Xiaoyan Li; 1Xin Zhou; 1Ke Lu; 1Shenyang National Laboratory for Materials Science, Institute of Metal Research, CAS

11:10 AM Invited
Stress and Strain Gradients in a Low Carbon Steel Deformed under Heavy Sliding: Xiaodan Zhang; 1Niels Hansen; 1Xiaoxu Huang; 1Technical University of Denmark
11:35 AM
Novel Contributions to Deformation and Properties in Gradient Materials: Shan “Cecelia” Cao; Christian Roach; Yuntian Zhu; Suween Mathaudhu; 1University of California Riverside

10:00 AM Break

10:20 AM Invited
Irradiation Response of Nanostructured Oxides to Ionization and Displacement Damage: Kunwen Zhang; Dipuneet Aithy; Tamás Varga; Philip Edmondson; Feredyoon Namavar; William Weber; Oak Ridge National Laboratory; University of Wyoming; Pacific Northwest National Laboratory; University of Nebraska Medical Center; University of Tennessee

10:50 AM
Evolution of Microstructures and Mechanical Properties of Zr-containing Ferritic Alloys under Self-Ion Irradiation: Tianyi Chen; Mo-Rigen He; Lizhen Tan; Ying Yang; Bouta Tybrsksa-Püschel; Kumar Sridharan; Oak Ridge National Laboratory; University of Wisconsin, Madison

11:10 AM
Stability of 14YWT Nanostructured Ferritic Alloys under Irradiation and Thermal Aging: Ela Aydogan; Stuart Maloy; Osman Anderoglu; Sven Vogel; Clarissa Yablinsky; Nathan Almirall; G. Robert Odette; Jonathan Gigax; Lloyd Price; Di Chen; Lin Shao; Frank Garner; Los Alamos National Laboratory; University of California Santa Barbara; Texas A&M University

11:30 AM
In-situ TEM Study of Defect-grain Interactions Under Irradiation in Bulk Severe Plastically Deformed Model Ni Alloys: Christopher Barr; Marquis Kirk; Meimei Li; Mitra Taheri; Drexel University; Argonne National Laboratory

Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Cheng University; Jie-Ho Lee, Hongik University; Ikuo Ohnuma, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Monday AM
Room: 25A Location: San Diego Convention Center

Session Chairs: Yu Zhong, Florida International University; Thomas Reichmann, Karlsruhe Institute of Technology

8:30 AM Invited
Phase Transformations at Thermoelectric-Metal Interfaces - Thermodynamic Modeling: Yong-Jie Hu; Yi Wang; Samad Firdosy; Zi-Kui Liu; Samad Firdosy; Kurt Star; Jean-Pierre Fleural; Vilupanur Raví; Pennsylvania State University; Jet Propulsion Laboratory/California Institute of Technology

9:00 AM
Phase Transformations at Thermoelectric-Metal Interfaces – Experimental Analysis: Samad Firdosy; Kurt Star; Jean-Pierre Fleural; Vilupanur Raví; Yong-Jie Hu; Yi Wang; Zi-Kui Liu; Jet Propulsion Laboratory/California Institute of Technology; Jet Propulsion Laboratory/California Institute of Technology and Cal Poly Pomona, Pomona, CA; Pennsylvania State University

9:20 AM
Thermal-to-electrical Energy Conversion Using Ferroelectric Materials: G.P. Zheng; Hong Kong Polytechnic University

9:40 AM
The Thermodynamic Investigation of the Effect of CO2 to the Stability of (La0.8Sr0.2)0.98MnO3+d: Shadi Darvish; Yu Zhong; Florida International University

10:00 AM
Weight Loss Mechanism of (La0.8Sr0.2)0.98MnO3+d During Thermal Cycles: Shadi Darvish; Yu Zhong; Florida International University

10:20 AM Break

10:35 AM Invited
Thermodynamics and Electrochemical Behavior of Advanced Electrode Materials for Lithium Batteries: Hans Seifert; Karlsruhe Institute of Technology
**Phase Transformations and Microstructural Evolution — Steels & General**

**Program Organizers:** Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

Monday AM  Room: 16B
February 27, 2017  Location: San Diego Convention Center

**Session Chair:** To Be Announced

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8:30 AM Invited
A Direct evidence of Solute Interactions with a Moving Ferrite/Austenite Interface in a Model Fe-C-Mn Alloy

: Goune Mohamed1; Frédéric Danoix2; Xavier Sauvage2; Didier Huin3; Lionel Germain1; 1ICMCB-Bordeaux1; 2GPM - Université de Rouen; 3ArcelorMittal; 1Université de Lorraine

9:00 AM
An Experimental Assessment of the α + α’ Miscibility Gap in Fe-Cr: Alexander Dahlström1; Frederic Danoix1; Peter Hedstrom1; Joakim Odqvist2; Helena Zapolsky1; 1Normandy University; 2KTH (Royal Institute of Technology)

9:20 AM
Diffusion Behavior of Alloy Elements in Martensite-austenite Constituent Formed in the Heat-affected Zone of a Low Alloy Carbon Steel: Masahiro Inamoto1; Hidenori Nakao1; 'Kobe Steel, Ltd.

9:40 AM
Direct Observation of the Movement of the Austenite-ferrite Interface in Fe-C-Mn Steels: William Rainforth1; John Nutter1; 1The University of Sheffield

10:00 AM Break

10:20 AM Invited
Synchrotron High-energy X-rays for In-situ Study of Phase Transformation of Advanced Materials: Yang Ren1; 1Argonne National Laboratory

10:50 AM
Harnessing the Kirkendall Effect for the Fabrication of Metallic Microtubes and Hollow Scaffolds: Ashley Paz y Puente1; Dinc Erdeniz2; David Dunand1; 1Northwestern University

11:00 AM
Interfacial Energy Evaluation in Binary Systems Using Diffusion-Multiples and Simulations: Qiaofu Zhang1; Surendra Makineni2; John Allison3; Ji-Cheng Zhao4; 1The Ohio State University; 2University of Michigan

11:30 AM
Assessing Chemical and Microstructural Evolution at Interfaces of γ’ - Strengthened Superalloys at High Temperatures by In Situ TEM Heating Experiments: Yolita Eggeler1; Erdmann Spiecker1; 1Friedrich Alexander Universität Erlangen-Nürnberg

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**Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Biomaterials and Functional Films**

**Program Organizers:** Adele Carradó, Université de Strasbourg IPCMS; Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, UTEP; Heinz Palkowski, Clausthal Univ of Technology; Vikas Tomar, Purdue Univ; Nuggehalli Ravindra, NJIT

Monday AM  Room: Pacific 18
February 27, 2017  Location: Marriott Marquis Hotel & Marina

**Session Chairs:** Adele Carradó, Université de Strasbourg IPCMS; Heinz Palkowski, TU Clausthal IMET

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8:30 AM Keynote
Osteogenic Potential of a Biomimetic Layer-by-layer Platform: Khalil Abdelkebir1; Fabien Gaudière2; Laura Tessonné; Jean-Pierre Vannier; Hassan Atmani1; Sandrine Morin-Grognet; Béatrice Labat; Guy Ladam1; 1University of Rouen Normandy

9:10 AM
Synthesis of CNT Reinforced Hydroxyapatite Coatings over Bio Materials Surfaces through Electrodepositions: Rajib Chakraborty1; Srijan Sengupta; Partha Saha; Karabi Das; Siddhartha Das; 1Indian Institute of Technology, Kharagpur

9:30 AM
Osteoanabolic Implant Materials for Orthopaedic Treatment: Xiaobo Chen1; Yun-Fei Ding1; Rachel Li2; M. Nakai2; M. Niinomi; Paul Smith; Nick Birbilis1; 1Monash University; 2The Australian National University; 3Tohoku University

9:50 AM Break

10:10 AM Keynote
Multifunctional Magnetic Biomaterials: Dendronized Nanoparticles and Magnetic Microbubbles: Geneviève Pourroy1; 1CNRS University of Strasbourg-IPCMS

10:50 AM
Comparing Various Corrosion Inhibitors Absorbed on to Chitosan bonded to Steel and the Resulting Corrosion Protection: Holly Martin1; Stephen Cornich; John Crowe; Jacob Millerleile; Snjezana Balaz; 1Department of Chemical Engineering, Youngstown State University; 2Department of Physics and Astronomy, Youngstown State University

11:10 AM
Development of Enamel Coatings in Accordance with Recent Regulations of Food Contact Materials: Meltem Ipekçi1; Kagan Benzesik; Onuralp Yucel; Filiz Cinar Sahin; Alper Yesilcubuk; 1Istanbul Technical University; 2Arçelik A.S.

11:30 AM
Super-stretchable Metallic Interconnect Films with a Linear Strain of up to 100%: Yeasir Arafat1; Indranath Dutta2; Rahul Panat2; 1Washington State University
8:30 AM Introductory Comments Dr. Garry W. Warren

8:40 AM Invited
Building Bridges: Transitioning from Academia to Industry: Lucille Giannuzzi; 1ExpressLO LLC

9:00 AM Invited
Building Bridges: Connecting Academic and Industry Research: Nanci Hardwick; Jianqing Su; 1Aeroprobe Corporation

9:20 AM Invited
The Faculty Entrepreneur: Finding Win-Win Commercialization Opportunities for University Research: Christian Widener; 1South Dakota School of Mines and Technology

9:40 AM Invited
Four Pillars of Academia: A Cultural Shift to include Entrepreneurship: Michael Sealy; 1University of Nebraska-Lincoln

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — 2D Nanomaterials for Nanoelectronics
Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Ntin Chopra, The University of Alabama

Monday PM Room: Pacific 26
February 27, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Stephen McDonnell, University of Virginia; Myung Mo Sung, HanYang University

2:00 PM Invited
Graphene for Alternative Digital Logic Applications: Byoung Hun Lee; 1Gwangju Institute of Science and Technology

2:30 PM Invited
Two-dimensional Materials for Next Generations of Electronic Devices: Saptarshi Das; 1Pennsylvania State University

3:00 PM Invited
Two-dimensional Nanosheets for Electron Device Applications: Seongil Im; 1Yonsei University

3:30 PM Break

3:50 PM Invited
Realizing Large-scale 2-D Materials: Properties and Applications: Joshua Robinson; 1The Pennsylvania State University

4:20 PM
Nucleation of ALD on Graphene and Transition Metal Dichalcogenide (TMDs): Iljo Kwak; Jun Hong Park; Bernd Fruhberger; Andrew Kummel; 1University of California, San Diego

4:40 PM Invited
Using Ions to Control Transport in Two-dimensional Materials for Electronics: Susan Fullerton; Ke Xu; Jierui Liang; 1University of Pittsburgh

5:10 PM
Novel In Situ Electrical Characterization of the Dielectric Deposition Process on 2-D Transition Metal Dichalcogenides: Antonio Lucero; Lanxia Cheng; Joy Lee; Jaebom Lee; Xin Meng; Arul Ravichandran; Young-Chul Byun; Jaegil Lee; Jiyoung Kim; 1University of Texas at Dallas

8th International Symposium on High Temperature Metallurgical Processing — Simulation of High Temperature Process
Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinlikilic, Attilm University

Monday PM Room: 18
February 27, 2017 Location: San Diego Convention Center

Session Chairs: Varadarajan Seshadri, Universidade Federal de Minas Gerais; Yousef Mohassab, University of Utah
A Prospective Look at the MGI After Five Years —  
Keynote Session
Program Organizers: Charles Ward, Air Force Research Laboratory;  
Kevin Hemker, Johns Hopkins University; John Allison, University of Michigan

Monday PM  Room:  7A  
February 27, 2017  Location:  San Diego Convention Center

Session Chair:  To Be Announced

3:25 PM  Introductory Comments

3:30 PM  Keynote
Spatiotemporally Integrated Theory, Computation and Experiments: A Frontier of the Materials Genome Initiative: Dennis Dimiduk;  BlueQuartz Software, LLC and Ohio State University

4:00 PM  Keynote
The Materials Genome Initiative – Leading a Culture Shift in Materials Research: Kevin Anderson;  Brunswick Corporation – Mercury Marine Division

4:30 PM  Keynote
Democratizing Large-scale Data and Machine Learning in Materials Research: Bryce Meredig;  Citrine Informatics

5:00 PM  Keynote
The Materials Genome after Five Years: An Academic Perspective: Tresa Pollock;  University of California Santa Barbara

Additive Manufacturing: Past, Present, and Future —  
Joint Keynote Session
Program Organizers: John Carpenter, Los Alamos National Laboratory;  
James Foley, Los Alamos National Laboratory; Eric Lass, National Institute of Standards and Technology; Mark Stoudt, National Institute of Standards and Technology

Monday PM  Room:  9  
February 27, 2017  Location:  San Diego Convention Center

Session Chair:  To Be Announced

2:00 PM  Invited
Atomic Scale Investigation of Co-deformation and Mechanical Mixing in Severely Deformed Multiphase Structures: Xavier Sauvage;  Normandy University

2:20 PM  Joint Keynote Session
Strain Localization Structures in Textured Magnesium AZ31 under Reversed Loading via Multi-scale Digital Image Correlation: Enver Kapan;  Nima Shafagh;  Sevinç Uçar;  Cahit Aydiner;  Bogazici University

2:40 PM  Joint Keynote Session
Kink Band Propagation during Plastic Deformation of Bulk Metallic Nanolaminates: Thomas Nizolek;  Nathan Mara;  Rodney McCabe;  Irene Beyerlein;  Jaclyn Avallone;  Tresa Pollock;  Materials Department, University of California Santa Barbara;  Institute for Materials Science and the Center for Integrated Nanotechnologies, Los Alamos National Laboratory;  Materials Science and Technology Division 8, Los Alamos National Laboratory;  Mechanical Engineering Department, University of California Santa Barbara

3:00 PM  Joint Keynote Session
A Novel In Situ TEM Technique: High Strain Rate Tensile Testing in the Dynamic TEM: Thomas Voisin;  Michael Grapes;  Yong Zhang;  Nicholas Lorenzo;  Jonathan Lidga;  Brian Schuster;  Tian Li;  Melissa Santala;  Geoffrey Campbell;  Timothy Weihl;  Johns Hopkins University;  Army Research Laboratory;  Lawrence Livermore National Laboratory

3:20 PM  Break

3:40 PM  Joint Keynote Session
Deformation and Strengthening Mechanisms in AISI 321 Austenitic Stainless Steel under both Dynamic and Quasi-static Loading Conditions: Ahmed Tiamiya;  Akindele Odeshi;  Jerzy Szpunar;  University of Saskatchewan

4:00 PM  Joint Keynote Session
Study of Homophase Interfaces in Structural Materials by ECCI and EBSD in the SEM: Ivan Gutierrez-Urrutia;  National Institute for Materials Science

4:20 PM  Joint Keynote Session
Comparison of Measured and Simulated Elastic Strain States in Crystal Plasticity Simulation of Experimentally Deformed and Characterized Microstructure Patches: Thomas Bieler;  Chern Zhang;  Harsha Phukan;  Quan Zhou;  Philip Eisenlohr;  Martin Crimp;  Carl Boehlert;  Leyun Wang;  Peter Kenesei;  Jun-Sang Park;  Ruxing Xu;  Wenjun Liu;  Michigan State University;  Shanghai Jiao Tong University;  Argonne National Laboratory

4:40 PM  Joint Keynote Session
In Situ Strain Mapping of Deformation Processes in Metallic Specimens: Thomas Pekin;  Colin Ophus;  Jim Ciston;  Christoph Gammer;  Andrew Minor;  University of California, Berkeley;  National Center for Electron Microscopy;  Erich Schmid Institute of Materials Science

5:00 PM  Joint Keynote Session
Effect of Thermal and Mechanical Loadings on the Residual Strain Field in a Shot-peened Nickel Based Superalloy Investigated Using the Synchrotron X-ray Microdiffraction Technique: Gader Altinkurt;  Mathieu Fèvre;  Guillaume Geandier;  Odile Robach;  Moukrane Dehmas;  Onera-The French Aerospace Lab;  Institut Jean Lamour;  CEA
Advanced High-Strength Steels — Recent Developments in High-/Medium Mn Steels

Program Organizers: Tilmann Hickel, Max-Planck-Institut für Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Militzer, The University of British Columbia

Monday PM  Room: 17A
February 27, 2017  Location: San Diego Convention Center

Session Chairs: Jörg Neugebauer, Max-Planck-Institut für Eisenforschung; Young-Kook Lee, Yonsei University

2:00 PM Introductory Comments

2:05 PM Invited
Strain Path Dependence of Retained Austenite Mechanical Stability in a Medium Manganese Steel Stamping
: Louis Hector Jr; Yu-wei Wang; Wei Wu; Feng Zu; Panagiotis Makrygiannis; Fadi Abu-Farha; Xin Sun; Xiaohua Hu; Yang Ren; 'General Motors; 'AK Steel; 'Clemson University; 'Pacific Northwest National Lab; 'Argonne National Lab

2:35 PM Segregation Engineering in Medium Manganese Steels: Dirk Ponge; Margarita Kuzmina; Alisson Kwiatkoski; Meimei Wang; Stefanie Sandlöbes; Michael Herbig; Dierk Raabe; 'Max-Planck-Institut für Eisenforschung GmbH

2:55 PM High Strength Nb-bearing Medium Mn Steel for Warm Stamping: Jae-Hoon Nam; Jeongho Han; 'Yonsei University; 'Max-Planck-Institut für Eisenforschung

3:15 PM High Strain Rate Deformation of High-Mn and Medium-Mn TWIP-TRIP Steel: Jake Bencing; Whitney Poling; Dean Pierce; Kip Findley; Dirk Ponge; Dierk Raabe; James Wittig; 'Vanderbilt University; 'Colorado School of Mines; 'Oak Ridge National Laboratory; 'Max-Planck-Institut für Eisenforschung

3:35 PM Break

3:50 PM Effect of Retained Austenite Transformation Holding Time and Temperature on the Microstructural Development and Properties of a Medium Mn Third Generation Advanced High Strength Steel: Kazi Bhadon; Joseph McDermid; Elizabeth McNally; Frank Goodwin; 'McMaster University; 'International Zinc Association

4:10 PM Effect of Starting Microstructure and Intercritical Annealing Parameters on Mechanical Properties of a Medium-Mn Third-generation Advanced High Strength Steel: Daniella Pallisco; Joseph McDermid; Elizabeth McNally; Frank Goodwin; 'McMaster University; 'International Zinc Association

4:30 PM Influence of Cooling and Strain Rate on the Hot Ductility Behavior of High Manganese Steels within the System Fe-Mn-C: Bernhard Steenkens; Dieter Senk; Joao L. L. Rezende; 'RWTH Aachen

4:50 PM Austenite Formation along Dislocations in Medium Manganese Steels: Margarita Kuzmina; Dirk Ponge; Stefanie Sandlöbes; Michael Herbig; Dierk Raabe; 'Max-Planck-Institut für Eisenforschung GmbH

5:10 PM Ultrahigh Strength and Excellent Ductility Achieved by Grain Refinement in Low-carbon High-manganese Steels: Hung-Wei Yen; Yu-Han Huang; Ching-Yuan Huang; Steve Ooi; 'National Taiwan University; 'China Steel Corporation; 'University of Cambridge

Advanced Materials in Dental and Orthopedic Applications — Session II

Program Organizers: Tolou Shokuhfar, University of Illinois at Chicago; Grant Crawford, South Dakota School of Mines and Technology; Terry Lowe, Colorado School of Mines; Luis Rocha, UNESP, Univ. Estadual Paulista, Faculdade de Ciências; Rajendra Kasinath, DePuy Synthes Products, LLC

Monday PM  Room: Pacific 14
February 27, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM Invited
Rapid Mechanical Assessment of Dental Materials for the Mitigation of Cracks in Natural Teeth: Shweta Bhatnagar; Cherilyn Sheets; James Eathman; 'University of California, Irvine; 'Newport Coast Oral Facial Institute

2:30 PM Orthopedic Implants with Graded Mechanical Behavior Made from Metastable Beta Ti Alloys: Rubens Caram; Eder Lopes; 'University of Campinas

2:50 PM Preparation and Characterizations of Nano Composites Based on Biphasic Mixture of Bioactive Ceramics for Biomedical Applications: Nida Iqbal; Muhammad Abdul Rafiq; 'Universiti Teknologi Malaysia

3:10 PM Repelling Biofilm Formation on Dental Materials via Piezoelectric Fillers: Santiago Orrego; Anna Pizzano; Kavan Hazeli; Mary Anne Melo; 'Johns Hopkins University; 'The University of Alabama in Huntsville; 'University of Maryland School of Dentistry

3:30 PM Break

3:50 PM Surface Modified Drug Releasing Total Hip Implant: R. Manoj Kumar; Pallavi Gupta; Partha Roy; Debrupa Lahiri; 'Indian Institute of Technology Roorkee

4:10 PM Tailoring of the Mechanical Properties of Alloys of the Ti-Zr-Mo System through Alloying and Heat Treatments: Caio Xavier; Carlos Grandini; Luis Rocha; 'UNESP

4:30 PM The Effects of Inclusions on the Fatigue Performance of Superalastic Nitinol Fine Wires: Janet Ghab; John Lewandowski; 'Case Western Reserve University

4:50 PM Thermomechanical Processing of Beta-Ti Alloys for Load-bearing Implant Applications: Stefan Pitz; André Reck; Mariana Calin; Jens Freudenberger; Martina Zimmermann; Jürgen Eckert; Annett Gebert; 'Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Germany; 'Institute of Materials Science, Dresden University of Technology, Dresden, Germany; 'Department Materials Physics, Montanuniversität Leoben, Leoben, Austria

5:10 PM Microstructures and Properties of Mg AZ Alloys Subject to High Shear Deformation: Casey Davis; Jacob Edick; Terry Lowe; 'Colorado School of Mines; 'Boston Scientific Corporation
**Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques II**

*Program Organizers*: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhownick, Hysitron; Jeffrey Wheeler, ETH Zurich; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Monday PM  Room: 32A  Location: San Diego Convention Center

*Session Chairs*: Teresa Prado, IMDEA- Spain; Amit Pandey, LG Fuel Cell Systems

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**Advances in Environmental Technologies: Recycling and Sustainability Joint Session — Advances in Environmental Technologies: New Areas of Value Recovery**

*Program Organizers*: John Howarter, Purdue University; Mark Kennedy, Proval Partners SA; Naiyang Ma, ArcelorMittal; Elsa Olivetti, Massachusetts Institute of Technology; Randolph Kirchain, Massachusetts Institute of Technology

Monday PM  Room: 14B  Location: San Diego Convention Center

*Session Chairs*: Mark Kennedy, Proval Partners SA; John Howarter, Purdue University; Elsa Olivetti, MIT

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2:00 PM  Invited

**Accelerating Life-cycle Management Protocols for New Generation Batteries**: Timothy Ellis1; John Howes2; 1RSR Technologies, Inc.; 2Redland Energy Group

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2:40 PM

**Fabrication of Aluminum Foam from Aluminum Scrap**: Abdel-Nasser Omran1; Hamza Osman2; A. Atlam3; Moatasem Kh4; 1Mining and Metallurgical Engineering Dept., Faculty of Engineering, Azhar University; 2Mining and Metallurgical Engineering Dept., Faculty of Engineering, Azhar University

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3:00 PM

**A Low Temperature Procedure for the Delamination of Brominated Epoxy Resin of Waste Printed Circuit Boards**: Himanshu Verma1; Kamalesh Singh2; Tilak Mankhand3; 1IIIT(BHU)

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3:20 PM  Break

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3:40 PM

**Fabrication of Aluminum Foam from Aluminum Scrap**

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4:00 PM

**Recovery of Metals and Nonmetals from Waste Printed Circuit Boards (PCBs) by Physical Recycling Techniques**: Muammer Kay1; 1ESOGÜ

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4:20 PM

**The Use of Rice Husk Ash as an Aggregate for Foundry Sand Mould Production**: Ayodeji Aapata1; Adams Victoria2; 1Federal Polytechnic Idaho; 2American University of Nigeria

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**Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session II**

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

Monday PM  Room: 21  Location: San Diego Convention Center

*Session Chairs*: Lan Li, Boise State University; Takao Mori, National Institute for Materials Science

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2:00 PM  Invited

**Bottom-up Nanostructuring for Thermoelectrics**: Takao Mori1; 1National Institute for Materials Science (NIMS)

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2:20 PM  Invited

**Nanostructure and Phonon Engineering in Oxide Thermoelectric Materials**: Michitaka Ohtaki1; 1Kyushu University
PRELIMINARY TECHNICAL PROGRAM

2:40 PM
A Facile Route for Ge Addition to Nanostructured Fe-Si Alloys Towards Improved Thermoelectric Properties: Naiying Liu; Wade Jensen; Long Chen; Brian Donovan; Patrick Hopkins; Jerrold Floro; 'University of Virginia

3:00 PM
Silicon Carbide Particles as Nanoinclusions for Improved Thermoelectrics: Devin Coleman; Sabah Bux; Lorenzo Mangolini; 'University of California, Riverside; 'Jet Propulsion Laboratory

3:20 PM Invited
Enhancement of Thermoelectric of PbTe Bulks Visa Heterogeneous Nanocomposites Synthesized by a Melt Spinning Method: Ken Kurosaki; Yohji Ohishi; Hiroaki Muta; Shinsuke Yamanaka; 'Osaka University

3:40 PM Break

4:00 PM Invited
Phonoic Crystal Nanopatterning in Si and SiGe Thin Films for Thermoelectric Application: Masahiro Nomura; 'University of Tokyo

4:20 PM
Nanostructure of Si/transition Metal Silicide Composite Prepared by a Melt Spinning Method: Yujii Ohishi; Tomoki Ebata; Jun Xie; Hiroaki Muta; Ken Kurosaki; Shinsuke Yamanaka; 'Osaka University

4:40 PM
Incorporation of HFO2 Nanoparticulates: Way to Improve Half-Heusler Thermoelectric Material: Alizie Visconti; Guillaume Bernard-Granger; Christelle Navone; 'CEA Grenoble; 'CEA Marcoule

5:00 PM
Microstructure and Thermoelectric Properties of Silicon and Metal Silicides Nanocomposites Synthesized by a Melt Spinning Method: Ken Kurosaki; Sorat Atanassil; Yuji Ohishi; Hiroaki Muta; Shinsuke Yamanaka; 'Osaka University

5:20 PM Invited
Binary Titanium Alloys as Templates for Co-doping Titanium Oxide Photocatalysts: J. Shang; Zhengchao Xu; Qi Li; 'University of Illinois; 'Institute of Metal Research

Alumina & Bauxite — Digestion and Calcination
Program Organizer: Zhang Ting'an, Northeastern University

Monday PM
February 27, 2017
Location: San Diego Convention Center

Session Chairs: Fernanda Silva, Federal University of Rio de Janeiro; Adriana Felix, Federal Institute of Education Science and Technology of Rio de Janeiro

2:00 PM Introductory Comments

2:05 PM
CFB Alumina Calciners - New and Future Generation Opportunities for Green Field Refineries: Linus Perander; Alessio Scarsella; Edgar Gasafi; Hans-Werner Schmidt; 'Outotec GmbH

2:30 PM
Evolutional Development of Alkaline Aluminosilicates Processing Technology: Sergey Vinogradov; Andrey Panov; Svyatoslav Engalychev; 'RUSAL Engineering and Technology Center; 'RUSAL Engineering and Technology Center

2:55 PM
Charaterization and Ore Dressing of Bauxite from Brazil: Fernanda Silva; Karoline Ferreira; Carla Barbato; Adriana Felix; Luiz Bertolino; Marta Medeiros; Francisco Garrido; Daniel Barcellos; Antonio Guerra; Bruna Novo; Danielle Castro; 'IQ-UFRJ; 'EQ-UFRJ/CETEM; 'EQ-UFRJ; 'IFRJ-CMAR; 'CETEM; 'IQ-UFRJ; 'IQ-UFRJ/CETEM

3:20 PM
Process Optimization for Diaspore Digestion Equilibrium Using Response Surface Methodology: Zhengyong Zhang; 'Chalco
Applications of Solidification Fundamentals — Characterization of Solidification Structures II

Program Organizers: Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing

Monday PM  Room: 19
February 27, 2017  Location: San Diego Convention Center

Session Chairs: Sabine Bottin-Rousseau, Institut des Nanosciences de Paris; Amy Clarke, Colorado School of Mines

2:00 PM Invited
Real-time Study on Microstructure Evolution of a Three-phased Eutectic System in Quasi-2D Samples: Samira Mohagheghi1; Melis Serefoglu1; Koc University

2:20 PM Invited
Effect of Crystal Orientation Relationships on Lamellar Eutectic Solidification Microstructures: Sabine Bottin-Rousseau1; Oriane Senninger1; Gabriel Faivre1; Silvère Akamatsu2; UPMC-CNRS

2:40 PM
Influence of Crystal Orientation on the Dynamical Selection of Propagative Cellular Solidification Patterns: Younggil Song1; Sabine Bottin-Rousseau2; Silvère Akamatsu3; Alain Karma3; Northeastern University; CNRS - UPMC

3:00 PM
4D Synchrotron X-ray Quantification of the Cellular to Dendritic Transition: Biao Cai1; Peter Lee2; Andrew Kao3; Andre Phillion3; Koulis Pericleous1; University of Manchester; University of Greenwich; McMaster University; University of Greenwich

3:20 PM
Thermal Analysis of Cu-Cu2O Eutectic: Cécile FOSSE1; Manuel Castro-Roman2; Jacques Lacaze3; Luc Robbiola3; Université de Toulouse; CINVESTAV Saltillo

3:40 PM Break

4:00 PM
Microstructural Development During Thin Film Solidification: Comparison of Experiments and Simulations: Theron Rodgers1; Amy Clarke2; John Gibbs2; James Mertens3; Daniel Coughlin3; Harrison Whitt3; Joseph McKeown3; John Roehling4; J. Baldwin4; Seth Imhoff5; Damien Tourret5; Jonathan Madison6; Sandra National Laboratories; Colorado School of Mines; Los Alamos National Laboratories; Lawrence Livermore National Laboratory

4:20 PM
Investigation of the Metatectic Reaction in Boron Containing Steels: Kara Luitjohan1; Matthew Kран1; Volkan Ortalan1; David Johnson1; Purdue University
2:40 PM 
Solidification Characteristics of CNTs/Mg Composite with Ultrasonic: 
Yuansheng Yang1; Fuze Zhao1; Xiaohui Feng1; 1Institute of Metal Research, Chinese Academy of Sciences

5:00 PM 
Microstructure Characteristics of A356 Nanocomposites Manufactured via Ultrasonic Cavitation Processing under Controlled Solidification Conditions: 
Yang Xuan1; Laurentiu Nastac1; 1The University of Alabama

Bio-Nano Interfaces and Engineering Applications — Bio-Nano Interfaces: Biomedical Applications 
Program Organizers: Candan Tamerler, University of Kansas; John Nychka, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

Monday PM 
February 27, 2017 
Room: Pacific 21 
Location: Marriott Marquis Hotel & Marina 

Session Chairs: Feride Sermin Utku, Yeditepe University; Jaroslav Drelich, Michigan Technological University

2:00 PM Invited 
The Role of Silica in Composite Materials for Bioengineering Applications Including Bone Regeneration and Cell Based Therapies - The Importance of the Interface: Carole Perry1; 1Nottingham Trent University

2:30 PM 
Silica Nanostructured Platform for Affinity Capture of Tumor-Derived Exosomes: Parissa Ziaei1; 1Washington State University

2:50 PM 
Engineering Hydrogels with Bioactive Nanomaterials for Bone Regeneration Applications: Settimo Pacelli1; Ryan Maloney2; Arghya Paul3; 1University of Kansas

3:20 PM Invited 
Engineered Bio-Nano Interfaces of Titanium Biomedical Implants: Sermin Utku1; 1Yeditepe University, Faculty of Engineering, Department of Biomedical Engineering

3:50 PM Break

4:10 PM Invited 
Early Study on Surface Nano-engineering of Endovascular Zinc Implants and Resulting Effects on Biodegradation and Biocompatibility: Adam Drelich1; Roger Guillory1; Jeremy Goldman1; Jaroslav Drelich1; 1Michigan Technological University

4:40 PM 
A Bone-mimetic 3D Metastasis Cancer Tumor Model: Kalpana Katti1; MD Shahjahan Molla2; Sumanta Kar3; Dinesh Katti2; 1North Dakota State University

5:00 PM 
Nanostructured Surfaces for Dental Implant Applications: Carlos Elias1; Daniel Fernandes1; 1Instituto Militar de Engenharia

5:30 PM 
Modulation of Antimicrobial Peptide Activity at the Medical Implant Interface through Chimeric Peptide Spacer Design: Cate Wisdom1; Sarah VanOosten1; Kyle Boone1; Paul Arnold1; Malcolm Snead1; Candan Tamerler1; 1University of Kansas, Bioengineering Program; 2University of Kansas Medical Center, Department of Neurosurgery; 3The University of Southern California, Center for Craniofacial Molecular Biology, Herman Ostrow School of Dentistry; 4University of Kansas, Mechanical Engineering Department
Bulk Metallic Glasses XIV — Alloy Development and Application II
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University
Monday PM Room: 33A Location: San Diego Convention Center
Session Chairs: Frans Spaepen, Harvard School of Engrg & Appl Sciences; Jinn Chu, National Taiwan University of Science and Technology

2:00 PM Keynote
Stress Measurements on Colloidal Glasses: J. Terdik1; David Weitz2; Frans Spaepen3; ’Harvard School of Engrg & Appl Sciences

2:30 PM Invited
Structure Modulation and Brittle-to-ductile Transition in Metallic Glasses: Juergen Eckert1; ’Montanuniversität Leoben

2:50 PM Invited
Thin Film Metallic Glasses: Novel Diffusion Barrier Materials for Solar Cell and Electronic Packaging Applications: Chia-chi Yu1; Cheng-Min Lee1; Chia-Lin Li1; Chia-Hao Chang2; Jinn Chu1; ’National Taiwan University of Science and Technology

3:10 PM
Improving the Glass Formation and Mechanical Behavior of Ni-free TiZr-based Bulk Metallic Glasses by Ga Additions
: Mariana Calin1; Supriya Bera1; Ramasamy Parthiban1; Mihai Stoica1; Jürgen Eckert1; ’IFW Dresden; ’Montanuniversität Leoben

3:30 PM Break

3:50 PM
Minimizing Losses in Ferromagnetic Metallic Glass
Power Transformers: Michael Floyd1; Marios Demetriou2; William Johnson1; California Institute of Technology; ’Glassimetal Technology

4:10 PM Invited
Property Enhancement of BMG Based Nanoglasses Prepared by RF Sputtering of Thin Films: Hans Fecht1; Pierre Denis1; ’Ulm University

4:30 PM Invited
Design and Development of Catalytic Amorphous Metals for Energy Conversion and Environmental Remediation: Sundeep Mukherjee1; ’University of North Texas

4:50 PM
Manufacturing of Cu-based Metallic Glasses Matrix Composites by Spark Plasma Sintering: Sandrine Cardinal1; Jean-Marc Pelletier1; Guoqiang Xie1; Jichao Qiao1; ’INSA

Cast Shop Technology — Foundry and Shape Casting
Program Organizer: David Gildemeister, Alcoa Technical Center

Monday PM Room: 3 Location: San Diego Convention Center
Session Chair: Ning Sun, Worcester Polytechnic Institute

2:00 PM Introductory Comments

2:05 PM
Operational and Economic Impact of Super Vacuum Die Casting Technologies: Muhammad Farooq1; Randolph Kirchain1; Richard Roth1; Alan Luo1; Diran Apelian1; Andrew Klarnert2; Joshua Curto2; Libo Wang2; ’Massachusetts Institute of Technology; ’The Ohio State University; ’Worcester Polytechnic Institute; ’Worcester Polytechnic Institute

2:30 PM
Multi-Component High Pressure Die Casting (M-HPDC): Influencing Factors on the Material Temperature during the Joining of Metal-plastic-hybrids: Patrick Messer1; Uwe Vroomen1; Andreas Bührig-Polaczek1; ’Foundry Institute RWTH Aachen University

2:55 PM
X-Ray Computed Tomographic Investigation of High Pressure Die Castings: Shouzun Ji1; Douglas Watson2; Zhongyun Fan1; ’Brunel University; ’Jaguar Cars Ltd

3:20 PM
The Comparison of Intensive Riser Cooling of Castings after Solidification in Three Classic Metals: Shangguan Haolong1; Kang Jinwu1; ’Tsinghua University

3:45 PM Break

4:00 PM
Sequential Gravity Casting in Functionally Graded Aluminum Alloys Development: Mario Rosso1; Silvia Lombardo1; Federico Gobber1; ’POLITECNICO di Torino

4:25 PM
Assessment of Eutectic Modification Level in Al-Si Alloys via Thermal Analysis: Maiada Abdelrahman1; Mahmoud Abdu1; Waleed Khalifa1; ’Cairo University

Cast Shop Technology — Continuous Strip Casting
Program Organizer: David Gildemeister, Alcoa Technical Center

Monday PM Room: 1A Location: San Diego Convention Center
Session Chairs: Kai-Friedrich Karhausen, Hydro Aluminium Rolled Products GmbH; Murat Dundar, Assan Aluminium

2:00 PM Introductory Comments

2:05 PM
Effect of Grain Refiners on Aluminum Twin Roll Casting Process: Yu Matsui1; Koichi Takahashi1; ’UACJ Corporation

2:30 PM
Influence of Process Conditions on Segregation Behavior in Twin-Roll Casting of an AlFeSi Alloy: Christian Schmidt1; Dag Mortensen1; Kai Karhausen1; ’Hydro Aluminium Rolled Products GmbH; ’Institute for Energy Technology

2:55 PM
Effect of Magnesium Content on Microstructure and Mechanical Properties of Twin-Roll Cast Aluminum Alloys: Olexandr Grydin1; Florian Nürnberg1; Mirko Schaper1; ’University of Paderborn; ’Leibniz Universität Hannover

3:20 PM Break

3:35 PM
Influence of Sticking on the Roll Topography at Twin-roll Casting of Aluminum Alloys: Ali Ulas1; Ceyhun Kurü1; Özgür Özsahin1; Sadik Kaan Ipek1; Eda Dageden1; ’Teknik Aluminium

4:00 PM
Material Surface Roughness Change in Twin Roll Casting of Aluminum as Cast Sheet Product: Ali Ulas1; Ceyhun Kurü1; Özgür Özsahin1; Sadik Kaan Ipek1; Eda Dageden1; ’Teknik Aluminium

4:25 PM
Twin-roll Casting of Aluminum-steel Clad Strips: Static and Dynamic Mechanical Properties of the Composite: Mykhailo Stolbchenko1; Olexandr Grydin1; Mirko Schaper1; ’Paderborn University
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<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
<th>Title</th>
<th>Location</th>
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<tr>
<td>2:00 PM</td>
<td>Invited</td>
<td>Chris Stanek, Los Alamos National Laboratory</td>
<td>Highlights of Ceramic Nuclear Fuel Research within the Nuclear Energy</td>
<td>Palomar</td>
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<td>Advanced Modeling and Simulation (NEAMS) Program:</td>
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<td>Chris Stanek; 1 Los Alamos National Laboratory</td>
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<td>2:30 PM</td>
<td>Modeling the Effect</td>
<td>Larry Aagesen; Daniel Schwen; 1 Idaho National Laboratory</td>
<td>Percolation on Fission Gas Release in UO2 Nuclear Fue:</td>
<td>Marriott Marquis Hotel &amp; Marina</td>
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<td>Fission Gas Release</td>
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<td>Daniel Schwen; Cody Permann; Bulent Biner; 1 Idaho National Laboratory</td>
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<td>in UO2 Nuclear Fuels:</td>
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<td>Daniel Schwen; Cody Permann; Bulent Biner; 1 Idaho National Laboratory</td>
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<td>2:50 PM</td>
<td>Irradiation-induced</td>
<td>Karim Ahmed; Xianming Bai; Yongfeng Zhang; Daniel Schwen; Cody Permann; Bulent Biner; 1</td>
<td>Recrystallization in UO2: A Phase Field Study</td>
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<td>Recrystallization in</td>
<td>Idaho National Laboratory</td>
<td>Karim Ahmed; Xianming Bai; Yongfeng Zhang; Daniel Schwen; Cody Permann; Bulent Biner</td>
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<td>UO2: A Phase Field</td>
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<td>Study:</td>
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<td>Idaho National Laboratory</td>
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<td>3:10 PM</td>
<td>Sensitivity Analysis</td>
<td>Michael Tong; Jie Lian; 1 Pennsylvania State University; 2 Rensselaer Polytechnic Institute</td>
<td>Uncertainty Quantification of the MARMOT Mesoscale Fuel Performance Code:</td>
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<td>Michael Tong; Jie Lian; 1 Pennsylvania State University; 2 Rensselaer Polytechnic Institute</td>
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<td>3:30 PM</td>
<td>Break</td>
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<td>4:00 PM</td>
<td>Theoretical and</td>
<td>Karim Ahmed; Xianming Bai; Yongfeng Zhang; Daniel Schwen; Cody Permann; Bulent Biner; 1</td>
<td>Experimental Investigation of the Interfacebetween Radiation Damage and Ionic Transport in</td>
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<td>Experimental</td>
<td>Idaho National Laboratory</td>
<td>Core-Transport in Pyrochlore: Biax Uberuagba; Romain Perriot; James Valdez; Terry Holeisinger;</td>
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<td>Investigation of the</td>
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<td>Pyrochlore:</td>
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<td>Yongsiao Wang; Cortney Kreller; 1 Los Alamos National Laboratory</td>
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<td>4:30 PM</td>
<td>Atomistic Simulation</td>
<td>Richie Devanathan; 1 Pacific Northwest National Laboratory</td>
<td>of Swift Heavy Ion Irradiation Effects in UO2 and CeO2</td>
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<td>Irradiation Effects</td>
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<td>Richie Devanathan; 1 Pacific Northwest National Laboratory</td>
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<td>Richie Devanathan; 1 Pacific Northwest National Laboratory</td>
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<td>4:50 PM</td>
<td>First-principles</td>
<td>Michel Freyss; Marjorie Bertolus; 1 Argonne National Laboratory; 2 Lawrence Berkeley National</td>
<td>Modeling of Point Defects in (U,Pu)O2 Mixed Oxide Fuel:</td>
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<td>Modeling of Point</td>
<td>Berkeley; 2 Colorado School of Mines; 1 Argonne National Laboratory; 2 Lawrence Berkeley</td>
<td>Michel Freyss; Marjorie Bertolus; 1 Argonne National Laboratory; 2 Lawrence Berkeley National</td>
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<td>Defects in (U,Pu)O2</td>
<td>National Laboratory; 2 Colorado School of Mines; 1 Argonne National Laboratory; 2 Lawrence</td>
<td>Michel Freyss; Marjorie Bertolus; 1 Argonne National Laboratory; 2 Lawrence Berkeley National</td>
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<td>Mixed Oxide Fuel:</td>
<td>Berkeley; 2 Colorado School of Mines; 1 Argonne National Laboratory; 2 Lawrence Berkeley</td>
<td>Michel Freyss; Marjorie Bertolus; 1 Argonne National Laboratory; 2 Lawrence Berkeley National</td>
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<td>Modeling:</td>
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<td>Michel Freyss; Marjorie Bertolus; 1 Argonne National Laboratory; 2 Lawrence Berkeley National</td>
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<td>5:10 PM</td>
<td>One-Dimensional</td>
<td>Ajay Annamalai; 1 Jacob Eapen; 2 NC State University</td>
<td>String-like Relaxation in Actinide Oxides:</td>
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<td>String-like Relaxation</td>
<td>Ajay Annamalai; 1 Jacob Eapen; 2 NC State University</td>
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<td>Ajay Annamalai; 1 Jacob Eapen; 2 NC State University</td>
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**Characterization of Materials through High Resolution Coherent Imaging — Coherent Imaging II**

**Program Organizers:** Ross Harder, Argonne National Laboratory; Saryu Fensin, Los Alamos National Laboratory; Brian Abbey, La Trobe University; Ana Diaz, Paul Scherrer Institut

**Monday PM**

**Room:** 25B  
**Session Chair:** To Be Announced

**2:00 PM**

Coherent X-ray Diffraction Measurements of Lattice Distortions Caused by Ion Bombardment: Felix Hofmann; Edmund Tarleton; Ross Harder; Nicholas Phillips; Jesse Clark; Ian Robinson; Brian Abbey; Wenjun Liu; Yeven Zayachuk; Christian Beck; 1 University of Oxford; 2 Argonne National Laboratory; 3 La Trobe University; 4 SLAC National Accelerator Laboratory; 5 University College

**2:30 PM**

Unraveling the Structure-function Relationships in Ion Implanted Nanodiamonds: Salman Maqbool; Alastair Stacey; Nicholas Phillips; Henry Kirkwood; Brett Johnson; Ross Harder; David Hoxley; Brian Abbey; La Trobe University; 1 The University of Melbourne; 2 Advanced Photon Source

**3:00 PM**

**Session Chairs:** Michael Tonks, Penn State University; Chris Stanek, Los Alamos National Laboratory

**3:30 PM Break**

**4:00 PM**

Photoelastic Ptychography: A New Approach for Quantitative Stress Determination: Guido Cadenazzi; Keith Nugent; Nicholas Anthony; Brian Abbey; La Trobe University

**4:30 PM**

Soft-X-ray Ptychographic Imaging of Shale: Namhey Lee; Peter Nico; David Shapiro; Manika Prasad; Timothy Kneafsey; Benjamin Gilbert; Lawrence Berkeley National Lab; Colorado School of Mines

**4:50 PM**

Polychromatic Bragg Coherent X-ray Diffraction Imaging for Rapid Measurements: Wonsuk Cha; Stephan Hruszewycz; Matthew Highland; Ross Harder; Wenjun Liu; Ruqing Xu; Paul Fuoss; Argonne National Laboratory

**5:10 PM**

Coherent X-ray Imaging at Future High Brightness Synchrotron Sources: Ross Harder; Argonne National Laboratory

**Characterization of Minerals, Metals, and Materials — Electronic, Magnetic, Environmental, and Advanced Materials**

**Program Organizers:** Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firoz Donato, Collegio Universitario, Italy; Mingmeng Zhang, ArgelorMittal Global R&D; Zhiwei Peng, Central South University; Juan F. ESCOBEDO-DIAZ, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

**Monday PM**

**Room:** 31B  
**Location:** San Diego Convention Center

**Session Chairs:** Shadia Ikhmayies, Al Isra University; Zhiwei Peng, Central South University

**2:00 PM**

Characterization of Defects in Metal Oxide Thin Films Using Electron Channeling Contrast Imaging (ECCI) and TEM: Isha Kashyap; 1 Marc De Graef; 2 Carnegie Mellon University

**2:20 PM**

Characterization of Low-zinc Electric Arc Furnace Dust: Zhiwei Peng; Xiaolong Lin; Jiaxing Yan; Jiann-Yang Hwang; Yuanbo Zhang; Guanghui Li; Tao Jiang; Central South University

**2:40 PM**

Formation of ZrO2 in Coating on AZ31 Mg Alloy via Plasma Electrolytic Oxidation: Phase and Structure of Zirconia: Jung-Woo Choi; Gye-Won Kim; Bongyoung Yoo; Dong-Hyuk Shin; Hanyang University

**3:00 PM**

Gamma-radiation Effect on Biodegradability of Synthetic PLA Structural Foams PP/HMSPP Based: Elisabeth Cardoso; Sandra Scagliusi; Ademar Luglio; 1 IPEN - Instituto de Pesquisas Energéticas e Nucleares
3:20 PM
Study of Flexible Films Prepared From PLA/PBAT Blend and PLA E-Beam Irradiated as Compatibilizing Agent: Elizabeth Cardoso; Esperidiana Moura, A. B.; Glausson Mahado; René Oliveira; IPEN - Instituto de Pesquisas Energéticas e Nucleares

3:40 PM Break

3:55 PM
Study on the Electrically Assisted Springback Reduction of Super-elastic Titanium Alloys: Song-Ha Jeong; Viet Tien Luu; Trung Thien Nguyen; Sang-Tae Hong; Hyunwoo So; Heung Nam Han; Sangwoo So; Hyun-Tae Hwang; 'University of Ulsan; LG electronics; Seoul National University; Ulsan Technopark

4:15 PM
Electrical and Microstructural Investigation of $\text{Ni}_{23}\text{Co}_{93},\text{Cu}_{12},\text{Zn}_{23},\text{Mn}_{14},\text{O}_{1}$ Temperature Sensors: Gökhan Hardal; Berat Yüksel Price; 'Istanbul University

4:35 PM
Domain Wall Behavior and Phase Transitions of Ba(Zr0.2Ti0.8)O3-50(Ba0.7Ca0.3)TiO3 under Frequency of 0.2Hz-1.2 MHz: Le Zhang; Michael Carpenter; Xiaobing Ren; Xi'an Jiaotong University; University of Cambridge

4:55 PM
Synthesis of ZnO Micro Prisms on Glass Substrates by the Spray Pyrolysis Method: Shadia Ikhmayies; 'Al Isra University


Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiayang Yang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Monday PM Room: 32B
February 27, 2017 Location: San Diego Convention Center

Session Chairs: John Carpenter, Los Alamos National Laboratory; Tyler Ley, Oklahoma State University

2:00 PM Invited
Polyphony in B Flat -- Is the Two-dimensional Boron Truly Emerging?: Boris Yakobson; Yuanyue Liu; Rice University; Caltech

2:20 PM Two-Dimensional Materials by Design for Electronic and Energy Conversion — 2D Materials and Materials Epitaxy
Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Monday PM Room: 11A
February 27, 2017 Location: San Diego Convention Center

Session Chair: To Be Announced
5:25 PM
A Three-Dimensional Phase-Field Crystal Model for 2D Materials Using Multiple-Point Correlation functions: David Montiel1; Guanglong Huang1; Matthew Seymour2; Nikolaos Provatas2; Katsuyo Thornton3; 1University of Michigan; 2McGill University

Computational Thermodynamics and Kinetics — Thermodynamics and Alloy Design
Program Organizers: Niaz Abdolrahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

Monday PM  Room:  11B  Location:  San Diego Convention Center

Session Chairs: Amit Shyam, Oak Ridge National Laboratory; Fadi Abdeljawad, Sandia National Laboratories

2:00 PM Invited
Computational Discovery of Novel Structural and Functional Heusler Compounds: Chris Wolverton1; 1Northwestern University

2:30 PM
Development of Gibbs Energy Functionals for Phase Field Crystal Modelling of Metastable Phase Evolution in Aluminium Alloys: Xiaoguang Li1; 1Oak Ridge National Laboratory

2:50 PM  Session Chair:
Computational Design and Optimization of Shape Memory Alloys for Solid State Cooling and Refrigeration: Brian Blankenau1; 1University of Illinois

3:10 PM  Break

3:40 PM
Influence of Geometry and Aluminum Content on the Microstructure and Tensile Behavior of HPDC Mg AM Series Alloys: Erin Deda1; 1University of Michigan

4:00 PM  Introductory Comments Defects 2 session

4:10 PM  Session Chair:
Corrosion Behaviour of V and B Grain Refined A360: Eda Ergun Songul1; 1Istanbul University

4:30 PM
Assessment of the Impact of Water-Cooled Chill Technology on Microstructure Length Scales in an A319 Engine Block Casting: Fazhar Farhang Mehr1; 1Universit"at Freiburg; 1Northwestern University

4:50 PM  Session Chair:
Defect Bands in an A356 Wheel Fabricated by Horizontal Squeeze Casting: Xiuong Huang1; 1Department of Mechanical Engineering, Tsinghua University

5:25 PM
Modelling the Effects of Fluid Flow on Microstructure Evolution at the Component Scale: Matthais Alexandrakis1; Andrew Kao1; Koulis Pericelous1; 1University of Greenwich

2:00 PM  Introductory Comments Defects 2 session

2:05 PM
Reducing Freckle Formation with External Magnetic Fields: Andrew Kao1; Koulis Pericelous1; 1University of Greenwich

2:45 PM
Determining Eutectic Grain Size and Casting Defects in an AI-12Si-0.8Cu-0.5Fe+0.9Mg-0.7Ni-0.2Zn Alloy: Jiehua Li1; Bernd Oberdorfer2; Daniel Habe1; Peter Schmucker1; 1University of Leoben; 2Austrian Foundry Research Institute; 3University of Leoben, Austrian Foundry Research Institute

3:05 PM
A Modeling and Experimental Investigation on the Formation of Acicular Silicon and Sludge in High Pressure Die Casting of a Modified A383 Alloy: Mikko Kärkkäinen1; Laurentiu Nastae1; Luke Brewer1; Vishweshwar Arvikan1; Ilya Levin1; 1The University of Alabama; 2Nemak

3:25 PM  Break

3:45 PM  Introductory Comments Properties 1 Session

4:00 PM
Computational Thermodynamics and Kinetics — Defects/Grain Boundary Interactions
Program Organizers: Saryu Fensain, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaiya Barabash, OakRidge National Lab; Shen Dillon, Universe of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Monday PM  Room:  23B  Location:  San Diego Convention Center

Session Chair: Remi Dingreville, PO box 5800
3:20 PM Invited
Criteria for Grain Boundary Dislocation Nucleation on Different Slip Systems Obtained by Atomistic Simulations: Eric Homer; Ricky Wyman; 1Brigham Young University

3:40 PM Break

4:00 PM Invited
Interface-Mediated Twinning in Small-Sealed BCC Bi-crystals: Jiangwei Wang; Scott Mao; 1University of Pittsburgh

4:20 PM Invited
Intrinsic Scale Effects in Metal Deformation: Christopher Woodward; Satish Rao; Ahmed Hussein; Braham Akdim; Edwin Antillón; Triplicane Parthasarathy; 1Air Force Research Laboratory; 2École Polytechnique Fédérale

4:40 PM Invited
Quantifying the Dislocation Emission Process from Grain Boundaries with Traction Fields: Huck Beng Chew; Ruizhi Li; 1University of Illinois at Urbana-Champaign

5:00 PM Invited
Stresses in Reverse-deformed Single Crystal Cu: Quantitative Tests of the Composite Model: Lyle Levine; Thien Phan; I-Fang Lee; Ruqiu Xu; Yaakov Idell; Michael Kassner; 1University of Southern California; 2Argonne National Laboratory

5:20 PM Invited
The Development of Physically Based Atomistic Microstructure: The Effect on the Mechanical Response of Polycrystals: Jacob Gruber; Fadi Abdeljawad; Hojun Lim; Stephen Foiles; Garrett Tucker; 1Drexel University; 2Sandia National Laboratories

Electrode Technology — Anode Characterization

Program Organizer: Houshang Alamdari, Laval University

Monday PM Room: 1B
February 27, 2017 Location: San Diego Convention Center

Session Chair: Duygu Kocaefe, University of Quebec at Chicoutimi

2:00 PM Introductory Comments

2:05 PM Characterization of Prebake Anodes by Micro X-ray Computed Tomography: Stein Ravik; Lorentz Lossius; 1SINTEF Materials & Chemistry; 2Hydro Aluminium

2:30 PM Development of Techniques and Tools for the Determination of Carbon Anode Quality: Duygu Kocaefe; Yasar Kocaefe; Dipankar Bhattacharayya; Bazoumana Sanogo; Yao Ahoutou; Hang Sun; Patrick Coulombe; 1University of Quebec at Chicoutimi; 2Aluminerie Alouette Inc.

2:55 PM Non-destructive Testing of Baked Anodes Based on Modal Analysis and Principal Component Analysis: Moez Ben Boubaker; Donald Picard; Carl Duchesne; Jayson Tessier; Houshang Alamdari; Mario Fafard; 1Laval University; 2AluCellTech Primary Metals Smelting Center of Excellence

3:20 PM 3D Automated Anode Stub Inspection System: Jean-Pierre Gagne; Remi St-Pierre; Pascal Coté; Harold Frenette; 1STAS; 2AluCellTech

3:45 PM Break

4:00 PM Identification of the Stress Intensity Factor of Carbon Cathode by Digital Image Correlation: Donald Picard; Luca Sorelli; Julien Réthoré; Houshang Alamdari; Marc-Antoine Baril; Mario Fafard; 1Université Laval; 2Université de Lyon

4:25 PM The Impact of Anode Nails on the Stub to Carbon Electrical Contact Resistance of Anode Assemblies with Simulated Corroded Stubs: William Berends; 1AluCellTech

4:50 PM Finite Element Analysis of Slot Size Effect on the Thermal-Electrical Behaviour of the Anode: Hicham Chaouki; Mounir Baiteche; Alain Jacques; Edward Gosselin; Mario Fafard; Houshang Alamdari; 1Laval University; 2SAWNODE

5:15 PM Hydrodynamic and Thermoelectric 3D Mathematical Model of Aluminium Electrolysis Cell to Investigate Slotted Carbon Anode Efficiency: Mounir Baiteche; Hicham Chaouki; Edward Gosselin; Alain Jacques; Houshang Alamdari; Mario Fafard; 1REGAL, Aluminium Research Centre, University Laval; 2SAWNODE

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Mechanical Properties of Pb-free Materials

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

Monday PM Room: 30E
February 27, 2017 Location: San Diego Convention Center

Session Chairs: Fay Hua, Intel Corporation; Carol Handwerker, Purdue University

2:00 PM Invited
Impact of Interrupted Thermal Cycling on Sn-Ag-Cu Interconnection Performance: Tae-Kyu Lee; Zhiqiang Chen; Greg Baty; Thomas R. Bieler; Choong-Un Kim; 1Portland State University; 2Michigan State University; 3University of Texas, Arlington

2:20 PM Thermal Cycling Performance of Sn-0.5Cu(Pd)-Al(Si)-Ge Solder Joints for Power Control Unit of Automotive: Won Sik Hong; Chulmin Oh; 1Korea Electronics Technology Institute(KETI)

2:40 PM Thermocycling Stress Induced Slip Band Sliding in Ultra-thin ENEPIC Joints: Tzu-Ting Chao; Cheng-Ying Ho; Wei-Yu Chen; Jenq-Gong Duh; 1National Tsing Hua University

3:00 PM The Variation of Grain Structure and the Enhancement of Shear Strength in SAC305-0.1Ni/Cu Solder Joint before and after Aging: Collin Fleshman; 1National Tsing Hua University

3:20 PM Break

3:40 PM Electrical and Mechanical Properties of Sn-Ag-Cu Solder Pastes for Reverse-offset Printing Depending on Particle Concentration: Min-jung Son; Minwoo Kim; Taik-Min Lee; Hoo-Jeong Lee; Inyoung Kim; 1Korea Institute of Machinery & Materials (KIMM); 2Sungkyunkwan University

4:00 PM The Strengthening Effects of Bismuth in Aged Lead-Free Solder Alloys Characterized using Transmission Electron Microscopy (TEM): André Delhaise; Doug Perovic; 1University of Toronto
4:20 PM Invited
Development of an Interatomic Potential for β-Sn: Pultit Garg; G.P. Pun; Nik Chawla; Kiran Solanki; SEMTE; Department of Physics and Astronomy, George Mason University

Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Kyle Brinkman, Clemson University; Teruhisa Horita, AIST; Minfang Han, China University of Mining and Technology, Beijing

Monday PM Room: 12
February 27, 2017 Location: San Diego Convention Center

Funding support provided by: Tentative
Sponsor: Energy Conversion and Storage Committee (FMD) ...Approved
Co-Sponsor: High Temperature Alloys Committee (SMD) ...Approved

Session Chairs: Jung Choi, PNNL; Srikanth Gopalan, Boston University

2:00 PM Invited
Plasma sprayed protective coatings on metallic SOFC interconnects: Interplay between processing and performance.
Sanjay Sampath; Su Jung Han; Hwasoo Lee; Stony Brook University

2:30 PM Invited
Chromium Impurity Effects on SOFC Cathodes Using Half-cell Measurements:
Yiwen Gong; Yuexing Zhu; Soumendra Basu; Uday Pal; Srikanth Gopalan; Boston University

2:50 PM Invited
Development of Solid Oxide Fuel Cell Residential CHP System: Yuji Takawa
Shuichi Inoue; Minoru Suzuki; Osaka Gas Co., Ltd

3:15 PM Invited
Effect of Strontium Content and Strain on Surface Segregation in LSCF: Yang Yu; Karl Ludwig; Srikanth Gopalan; Uday Pal; Soumendra Basu; Boston University

3:30 PM Break

3:55 PM Invited
Fabrication and Operation of a 600W Anode-supported Tubular SOFC Stack: Zhengguang Yu; Shaorong Wang; Dongfang Turbine Co., Ltd; Shanghai Institute of Ceramics, Chinese Academy of Sciences

4:15 PM Invited
Phase Stability and Electrical Properties of La2NiO4: Rare-Earth Doped Ceria Composite Cathode Materials for Solid Oxide Fuel Cells: Deniz Cetin; Sophie Poziau; Srikanth Gopalan; Boston University; Saint Gobain Northborough R&D Center

Energy Materials 2017: Materials for Gas Turbines — Hot Corrosion and New Materials
Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group

Monday PM Room: 13
February 27, 2017 Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Development of a New High Strength and Hot Corrosion Resistant Directionally Solidified Superalloy DZ409: Juntao Li; Jiantao Wu; Ping Yan; Jianxin Dong; Lei Wang; Qiang Zeng; China Iron & Steel Research Institute Group; University of Science and Technology Beijing; Northeastern University

2:40 PM Invited
Deposit-Induced Hot Corrosion and Materials Design Strategies to Reduce Its Impact: Brian Gleeson; University of Pittsburgh

3:10 PM Keynote
Development of High Strength Hot Corrosion Resistant Single Crystal Superalloys Based on Understanding the Effect of Key Elements on Hot Corrosion Behavior: Jianxiu Chang; Dong Wang; Langhong Lou; Jian Zhang; Institute of Metal Research, Chinese Academy of Sciences

3:30 PM Break

Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session II
Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Monday PM Room: 14A
February 27, 2017 Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Keynote
Potential of Crystal Defects for Enhancing Bulk Functional Nanomaterials: Michael Zehetbauer; University of Vienna

2:30 PM Invited
Gradient Materials: Microstructure, Texture and Properties: Jordan Moering; Xiaoli Wu; Yuntian Zhu; North Carolina State University; Institute of Mechanics, Chinese Academy of Sciences

3:00 PM Invited
High Temperature Shape Memory Alloys for Potential Applications in Oil and Gas Industry: Ibrahim Karaman; Texas A&M University

3:30 PM Break

3:50 PM Keynote
The Microstructural Origin of the Multifunctional Properties of Energy Metals: Niels Hansen; Technical University of Denmark

4:20 PM The Microstructure Characterization and Mechanical Properties of Powder Metallurgy Corrosion Resistant Nickel-alloy PM625: Liang Zheng; Gaoqiong Zhang; Xiaqing Xu; Yang Liu; Michael Gorley; Zaliang Hong; Sarah Day; Chiu Tang; Beijing Institute of Aeronautical Materials; CNPC Tubular Goods Research Institute; Culham Centre for Fusion Energy; University of Oxford; Diamond Light Source

4:50 PM Effect of Severe Plastic Deformation (SPD) Surface Treatment on Corrosion Resistance and Environmental Cracking (EC) Susceptibility of Various Alloys: Ting Chen; Manasa Varanasi; Kripa Varanasi; Massachusetts Institute of Technology

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

Monday PM  Room: 15A
February 27, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
High Temperature Oxidation of Ni-base Alloys and Stainless Steels in Supercritical CO2 for Power Systems Applications: Gordon Holcomb; Omer Dogan1; Joseph Tylczak; Casey Carney; Kyle Rozman1; Jeffrey Hawk1; National Energy Technology Laboratory; National Energy Technology Laboratory, AECOM

2:30 PM Corrosion of Energy System Materials in Supercritical Carbon Dioxide (sCO2): Benjamin Adam1; Lucas Teeter1; Sebastien Teyssyre1; Julie Tucker1; Oregon State University; Idaho National Laboratory

2:50 PM Manipulating Creep through Modifying Gamma Prime Coarsening Rate in Haynes 282 for A-USC Power Plants: Jeffrey Hawk1; John Sears2; Paul Jablonski3; U.S. Department of Energy, National Energy Technology Laboratory; AECOM

3:10 PM Defect Chemistry of Black Anatase TiO2: An Ab Initio Study: Heechae Choi1; Taeseup Song1; Seunghul Kim1; Virtual Lab Inc.; Yeungnam University; KIST

3:30 PM Break

3:50 PM Invited
Solid-State, High-Shear Manufacturing to Enable Lower Cost and Higher Performance Materials for Energy Conversion: Glenn Grant1; David Catalini1; Jens Darsell1; Anthony Reynolds1; Suveen Mathaudhu1; Pacific Northwest National Laboratory

4:20 PM Transient Liquid Phase Bonding of Ni-based-superalloy-H230 for Microchannel Heat Exchanger for Application in Supercritical CO2 Cycles: Monica Kapoor1; Omer Dogan1; Brian Paul2; Rajesh Saranam3; Patrick McNuff4; National Energy Technology Lab; Oregon State University

4:40 PM Invited
Pb-Bi-Sb and Pb-Bi-Ge: Novel Alternative Alloys for Application as Heat-transport Fluids in Concentrated Solar Power Systems: Miroslav Popovic1; Alan Bolind1; Mark Asta1; Peter Husemann1; Ruijie Shao1; UC Berkeley

5:10 PM Ca Doping Effects on Electrical Conductivity of Li2Ti3O7: First-principle Study: Haneol Cho1; Heechae Choi1; Kyu Hwan Lee1; Korea University of Science and Technology; Virtual Lab Inc.

Environmentally Assisted Cracking: Theory and Practice — Stress Corrosion Cracking I

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

Monday PM  Room: 31A
February 27, 2017  Location: San Diego Convention Center

Session Chairs: Gary Was, University of Michigan; Sergei Shipilov, Oak Ridge National Laboratory

2:00 PM Invited
The Importance of Radiation and Deformation in Environmentally Assisted Cracking: Gary Was1; Drew Johnson1; Ian Robertson2; Diana Farkas3; University of Michigan; University of Wisconsin; Virginia Tech

2:40 PM Correlating Grain Boundary Microchemistry in Austenitic Stainless Steels with Their Susceptibility to Irradiation-assisted Stress Corrosion Cracking: Mo-Rigen He1; Drew Johnson1; Bai Cui1; Gary Was; Ian Robertson1; University of Wisconsin-Madison; University of Michigan; University of Nebraska-Lincoln

3:00 PM The Role of Deformation in the Oxidation of Type 304SS in Pressurized Water Reactor Environments: Kevin Fisher1; Bryan Miller2; Earl Johns3; Emmanuelle Marquis3; University of Michigan; Bechtel Marine Propulsion Corporation

3:20 PM Fundamental Mechanisms of Mitigating Stress Corrosion Cracking of Austenitic Stainless Steels by Laser Shock Peening: Bai Cui1; Fei Wang1; Xiaoxing Qu1; Chenfei Zhang1; Yongfeng Lu1; Michael Nastasi1; University of Nebraska–Lincoln

3:40 PM Break

4:00 PM Modeling Corrosion Damage and Crack Propagation Using Novel Meshless Peridynamics Framework: Srujan Rokkam; Michael Brothers; Max Gunzburger; Kishan Goel; Advanced Cooling Technologies, Inc.; Florida State University; Naval Air Systems Command

4:20 PM Numerical Modelling of Galvanic Structural Joints Subjected to Combined Environmental and Mechanical Loading: Ilaksh Adlakha1; Scott Turnage1; Sridhar Niverty1; Nikhilesh Chawla; Kiran Solanki1; Arizona State University

4:40 PM Peridynamic Modeling of Autonomous Lacy Cover Formation and of SCC: Siavash Jafarzadeh1; Ziguang Chen1; Florin Bobaru2; University of Nebraska-Lincoln

5:00 PM Crack Growth Prediction for Stress Corrosion Cracking and Corrosion Fatigue of Irradiated Stainless Steels: Robert Fuller1; Jitima Simsiriwong1; Nima Shamsaei; Entergy Operations; Mississippi State University

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Modeling Approaches to Improve Fatigue Predictions

Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguan Zhai, University of Kentucky

Monday PM  Room: 23C
February 27, 2017  Location: San Diego Convention Center

Session Chair: Jean-Briac le Graverend, Texas A&M University

2:00 PM Keynote
ICME and Computational Mechanics for Advancing Predictive Capabilities in Fatigue Modeling: Somnath Ghosh1; Johns Hopkins University
2:40 PM Invited
Perspectives and Prospects for Microstructure-based Models to Quantify Fatigue Life
  : Dennis Dimiduk; 'BlueQuartz Software, LLC

3:00 PM
Advances in Mesoscale Crystal Plasticity under Cyclic Loading: Gustavo Castelluccio; 'Sandia National Laboratories

3:20 PM Invited
Physically-based Simulation of Surface Microcrack Initiation and Comparison with Experimental Data: Maxime Sauzay; Jia Liu; Jérôme Hazan; 'CEA

3:40 PM Break

4:00 PM
Simulation of Microstructurally-influenced Fatigue Crack Propagation: Patrick Golden; Robert Brockman; Rebecca Hoffman; William Musinski; Sushant Jha; Reji John; 'Air Force Research Laboratory; 'University of Dayton Research Institute; 'Universal Technology Corporation

4:20 PM
Probabilistic Analysis of the Fatigue Incubation Life Distribution in an A713 Cast Aluminum Alloy Based on a Multi-sized Pore-sensitive Numerical Model: Lin Yang; Yan Jin; Zhiqiang Xu; Tongguang Zhai; 'University of Kentucky; 'Yanshan University

4:40 PM
Statistical Prediction of Crack Initiating Rate from Pre-fractured Constituent Particles in High Strength AI Alloys: Pei Cai; Yan Jin; Lin Yang; Tongguang Zhai; 'University of Kentucky

5:00 PM
Finite Elements Simulation and Statistical Analysis of Elastic Stress Field at Surface of Ti6Al4V Polycrystals in the Presence of Textured Regions: Loïc Signor; Van Truong Dang; Patrick Villechaize; Samuel Hemery; 'Pprime Institute (CNRS - ISAE/ENSMA - Poitiers University)

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

Monday PM  Room:  33B
February 27, 2017  Location:  San Diego Convention Center

Session Chairs: Choong-Un Kim, University of Texas - Arlington; Srinivasa Rao Singamaneni, North Carolina State University

2:00 PM Introductory Comments

2:10 PM Keynote
Direct Conversion of h-BN into c-BN and Formation of Epitaxial c-BN/Diamond Heterostructures: Jagdish (Jay) Narayan; 'North Carolina State University

2:40 PM Invited
Elastic Coupling between Layers in Two-dimensional Materials: Yang Gao; Angelo Bongiorno; 'Elisa Riedo; 'City University of New York Advanced Science Research Center, The City College of New York; 'CUNY College of Staten Island

3:10 PM
Synthesis and Characterization of Nitrogen-vacancy (NV) Centers in Diamond Nanostructure Formed by Laser Annealing Technique: Angha Bhaumik; Ariful Haque; Jagdish Narayan; 'North Carolina State University

3:30 PM Break

3:45 PM Invited
In-situ TEM Characterization of Nanoscale Systems in Complex Environments: Shen Dillon; 'University of Illinois at Urbana-Champaign

4:15 PM Invited
Materials Science in Two Dimensions: Daniel Kaplan; 'U.S. Army RDECOM-ARDEC

4:45 PM
Pulsed Laser Deposition of Cubic Boron Nitride Films: Ariful Haque; Anagh Bhaumik; Jagdish Narayan; 'NCSU

5:05 PM Invited
Quantum Dot Formation In Core-Shell Nanowires: Q. Zhang; S.H. Davis; Peter Voorhees; 'Northwestern University

Fundamental Aspects and Modeling Powder Metal Synthesis and Processing — Powder Atomization and Synthesis
Program Organizers: Paul Prichard, Kennametal; Eugene Olevsky, San Diego State University; Iver Anderson, Ames Laboratory
Monday PM  Room:  16A
February 27, 2017  Location:  San Diego Convention Center

Session Chair: Iver Anderson, Ames Laboratory - DOE

2:00 PM Invited
Fundamental Parameters for Control of Two-Fluid Close-Coupled Gas Atomization: Process Observations and Modeling with Correlations to Metal Powder Yields: Iver Anderson; Emma White; Jonathan Regele; Vince McDonnell; David Byrd; Ross Anderson; 'Ames Laboratory; 'Iowa State University; 'University California-Irvine

2:40 PM
A Study of the Brazing Filler Pastes by Gas Atomized Cu-Fe Powders for Cu/STS Joints: Won-Jung Choi; Sang-Hun Choi; Jae-Jin Sim; Won Ju; Basit Ali; Tae-hyuk Lee; Kyung-Mook Lim; Bum-Sung Kim; Taek-Soo Kim; Kyong-Tae Park; 'Korea Institute of Industrial Technology; 'Sheffield University

3:00 PM
Fabrication of Ti Powder by Combined Techniques of Cold Crucible and Gas Atomization: Taek-Soo Kim; Sun-Woo Nam; Sang-Hyun Lee; Jae-Jin Sim; Seok Jun Seo; Kyung-Mook Lim; Bum-Sung Kim; Kyong-Tae Park; 'Korea Institute of Industrial Technology

3:20 PM
Microstructural Development in Binary Aluminum-Copper Alloy Powders during Gas Atomization: Tian Liu; Luke Brewer; 'University of Alabama

3:40 PM Break

4:00 PM
Influence of the Plasma Gas Composition and Power Level on the Processing of Powders by Induction Plasma: Siwen Xue; Richard Dolbee; Thomas Kinsey; 'Tekna Plasma Systems Inc

4:20 PM
Mesoscale Modeling of Single Particle Impact Induced Microstructural Evolution during Cold Spray of Aluminum Powders: Samit Suresh; Benjamin Bedard; Tyler Flanagan; Seok-Woo Lee; Mark Aindow; Harold Brody; Xuemei Wang; Victor Champagne; Avinash Dongare; 'University of Connecticut; 'United Technologies Research Center; 'U.S. Army Research Laboratory

4:40 PM
Algorithmic Prediction of Bulk Properties from Powdered Feedstock Consolidated via Laser-assisted Cold Spray: Aaron Birt; Diran Apelian; 'Worcester Polytechnic Institute

5:00 PM
Formation of Nano-lamellar Structure in Ni-Al High-density Energetic Material by Cryomilling: Minseok Oh; Byungmin Ahn; 'Ajou University

5:20 PM
Microstructural Evolution in Dilute Mg-X Binary Alloys Processed by Mechanical Alloying: Christian Roach; Kiran Solanki; Suveen Mathaudhu; 'UC: Riverside; 'Arizona State University
GAT-2017 (Gamma Alloys Technology - 2017) — Surface Protection with Panel Discussion, and Posters Briefing

Program Organizers: Young-Won Kim, Gameck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczek, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Monday PM  Room:  Pacific 17
February 27, 2017  Location:  Marriott Marquis Hotel & Marina

Session Chairs:  Al Sommer, Del West Engineering; Laiqi Zhang, Univ. of Science and Technology Beijing

2:00 PM  Invited
The Role of Surface Protection for High Temperature Performance of TiAl Alloys:  Michael Schütze; 1DECHHEMA-Forschungsinstitut

2:25 PM
Effect of Surface Condition on the RT Tensile Properties and Oxidation Resistance of TiAl Alloys:  Bochao Lin1; Renci Liu1; Qing Jia1; Yuyou Cui1; Rui Yang1; 1Institute of Metal Research

2:45 PM
Mechanical Properties and Environment Induced Embrittlement of a High Nb Containing TiAl Alloy:  Tiejun Zhang1; Zhen Wu1; Hongchao Kou1; Jinshan Li1; 1Northwestern Polytechnical University

3:05 PM  Panel Discussion Topic 1 (Surface Engineering) :  Al Sommer (Del West Engineering) and Michael Schuetze (DECHEMA)

3:35 PM  Break

3:45 PM  Concluding Comments Briefing of Selected Posters

Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session II

Program Organizers:  Wei Xiong, University of Pittsburgh; Shuanglin Chen, CompuTherm LLC; Frederic Danoix, Université de Rouen; Indrajit Charit, University of Idaho

Monday PM  Room:  31C
February 27, 2017  Location:  San Diego Convention Center

Session Chairs:  Dieter Isheim, Northwestern University; Duc Nguyen-Manh, Culham Centre for Fusion Energy

2:00 PM  Invited
Arranging Atoms for Fun and Profit:  A Tale of Two Smiths:  Greg Olson1; 1Northwestern University

2:30 PM  Invited
Solute Segregation to Migrating Ferrite/Austenite Interfaces:  Hatem Zaroh1; Brian Langelier2; Hugo Van Landeghem1; Andreas Korinek1; Baptiste Gaul1; Gianluigi Botton2; 1McMaster University; 2SIMaP; 3Max-Planck Institut für Eisenforschung

3:00 PM
Microstructural Characterization of Mn-Ni-Si Precipitates in Reactor Pressure Vessel Steels from the High Fluence Intermediate Flux UCSD ATR-2 Irradiation:  Nathan Almirall1; Peter Wells1; Takuya Yamamoto1; G. R. Odette1; Randy Nanstad1; Keith Wilford1; Tim Williams1; Lynne Ecker1; David Sproust1; 1University of California Santa Barbara; 2Oak Ridge National Laboratory; 3Rolls Royce; 4Brookhaven National Laboratory

3:20 PM  Break

3:40 PM  Invited
Nanooalloys & Nanoparticles for Catalysis:  Insights from Atom Probe Tomography & Complementary Techniques:  Paul Bagot1; Eric Marceau1; Anne-Félicie Lamic-Humbolt1; Daniel Haley1; Tomas Martin1; Michael Moody1; George Smith1; QiFeng Yang1; Tong Li1; 1University of Oxford; 2Université Lille1; 3Northwestern University; 4Oak Ridge National Laboratory

ICME Gap Analysis: Structural Materials for Automotive Applications — Light-weight Materials for Automotive Applications

Program Organizers:  Dongwon Shin, Oak Ridge National Laboratory; Jerry Gibbs, Department of Energy; Will Joost, Department of Energy; Nicholas Hatcher, QuesTek Innovations, LLC

Monday PM  Room:  10
February 27, 2017  Location:  San Diego Convention Center

Session Chairs:  Will Joost, Department of Energy; Nick Hatcher, QuesTek Innovations, LLC

2:00 PM  Invited
The Phase Field Method and Materials Design:  K. Kim1; M.P. Guruajan1; C. Wolverton1; Peter Voorhees1; 1Northwestern University

2:40 PM  Invited
Case Studies and Gap Analyses in ICME for Structural Materials in Automotive Applications:  Xin Sun1; 1Pacific Northwest National Laboratory

3:20 PM  Break

3:35 PM  Invited
ICME for Automotive Composites — Development of Predictive Integrated Stochastic Manufacturing and Structural Performance Models:  Venkat Aitharaju1; 1General Motors

4:15 PM  Invited
Integrated Computational Materials Engineering for Automotive Light Metals:  Alan Lau1; 1The Ohio State University

4:55 PM  Invited
Limitation of the ICME Approach for Mg Alloy Production via Twin Roll Casting Process:  In-Ho Jung1; 1McGill University

Interface-Mediated Properties of Nanostructured Materials — Nanolaminates and Nanotwinned Materials II

Program Organizers:  Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University; Michael Demkowicz, Texas A&M University

Monday PM  Room:  Pacific 23
February 27, 2017  Location:  Marriott Marquis Hotel & Marina

Session Chairs:  Michal Demkowicz, Texas A&M University; Caizhi Zhou, Missouri University of Science and Technology

2:00 PM  Invited
Strength, Plasticity, and Toughness of Nanolaminated Materials:  Jian Wang1; 1University of Nebraska-Lincoln
2:30 PM Invited
Fracture Behavior of Nanostructured Heavily Cold Drawn Pearlite: Influence of the Interface: Nagamani Jaya Balila; Christoph Kirchlechner; Gerhard Dehm; ¹MPIE GmbH

3:00 PM Excess Volume and Defect Annealing in Ultrafine-grained Ni Studied by Difference Dilatometry: Jaromir Kotzurek; Anton Hohenwarter; Macej Krystian; Wolfgang Sprengel; Reinhard Pippas; Roland Würschum; ¹Graz University of Technology; ²University of Leoben; ³Austrian Institute of Technology

3:20 PM Mechanisms for Stable Nanocrystalline Materials via Nanometallic Multilayers: Juan Riaño Zambrano; Andrea Hodge; ¹University of Southern California

3:40 PM Break

3:55 PM Invited
On the Frank-Bilby Equation and the Corresponding Relaxed Dislocation Structures: Aurélien Vattré; ¹CEA

4:25 PM Invited
Deformation Mode Transitions in Amorphous Cu45Zr55/Crystalline Cu Nanolaminates: Christian Sterwerf; Tyler Kaub; Chuang Deng; Greg Thompson; Jin Li; ²Bielefeld University; ³University of Alabama; ¹University of Manitoba

4:55 PM Dislocation Nucleation Controlled Deformation in Angstrom Scaled FCC Twins: Jiangwei Wang; Frederic Sansez; Scott Mao; ¹University of Pittsburgh; ²The University of Vermont

5:15 PM Grain Boundary Anisotropy-mediated Properties of fcc and bcc Materials: Brandon Runnels; ¹University of Colorado Colorado Springs

5:35 PM Molecular Dynamics Simulation of Face-centered Cubic Metallic Nanospheres under Uniaxial Compression: Selim Bel Haj Salah; Celine Gerard; Laurent Pizzagalli; ²Institut Pprime, CNRS - ENSMA - Université de Poitiers

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**Magnesium Technology 2017 — Poster Preview Session**

Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Monday PM Room: 5A Location: San Diego Convention Center

Session Chair: To Be Announced

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**Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Fuels II**

Program Organizers: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Monday PM Room: Cardiff Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

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2:00 PM Reduced Modulus and Hardness of Uranium-molybdenum Solid Solution as a Function of Mo Composition and Related Phase Transformations: Ryan Newell; Youngjoo Park; Abhihek Mehta; Dennis Keiser; Yongho Sohn; ¹University of Central Florida; ²Idaho National Laboratory

2:20 PM Interdiffusion and Reaction between U and Zr: Youngjoo Park; Ryan Newell; Abhihek Mehta; Dennis Keiser; Yongho Sohn; ¹University of Central Florida; ²Idaho National Laboratory

2:40 PM Microstructural Analysis of Electrochemically Formed Zirconium Coatings for Uranium-Molybdenum Nuclear Fuels: Alexander Smirnov; John Scott O’Dell; ¹Plasma Processes LLC

3:00 PM Sensitivity Analysis on the Temperature of U–Mo/Al Plate-type Dispersion Fuel: Faris B. Sweeney; Jeong Sik Yim; Ho Jin Ryu; ²Korea Advanced Institute of Science and Technology; ³Korea Atomic Energy Research Institute (KAERI)

3:20 PM Characterization of Metallic Fuel Slugs Fabricated by Injection Casting: Jeong-Yong Park; Jong-Hwan Kim; Ki-Hwan Kim; Hoon Song; Jung-Won Lee; Seok-Jin Oh; Seoung-Woo Kuk; Young-Mo Ko; Yoon-Myung Woo; Chan-Bock Lee; ¹Korea Atomic Energy Research Institute

3:40 PM Break

4:00 PM Characterization of Nuclear Fuels by Neutron Diffraction and Energy-resolved Neutron Imaging: Sven Vogel; ¹Los Alamos National Laboratory

4:20 PM Microstructure Evolution during Spark Plasma Sintering of Nuclear Fuel Pellets and Their Large-scale Manufacturability: Ghatu Subhash; James Tulenko; ¹University of Florida

4:40 PM Fabrication and Characterization of TRISO Particles Using 800µm Uranium Nitride and Surrogate ZrO2 Kernels: Brian Jolly; Grant Helmreich; Kevin Cooley; John Dyer; Kurt Terrani; ²Oak Ridge National Laboratory

5:00 PM Fission Product Electron Microscopy Analysis of Post Irradiated TRISO-coated Particles from the Second Advanced Gas Reactor Experiment: Clemente Paragua; Jeffery Aguiar; Isabella van Rooyen; ¹Idaho National Laboratory

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**Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Next Generation Superalloys II**

Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmairer, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Monday PM Room: Pacific 16 Location: Marriott Marquis Hotel & Marina

Session Chairs: Howard Stone, University of Cambridge; Nathalie Bozzolo, MINES-ParisTech

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2:00 PM Nickel-based Superalloys Reinforced by Gamma Prime and Gamma Double Prime Precipitates: Howard Stone; Paul Mignanelli; Nicholas Jones; Ed Pickering; Olivier Messé; Catherine Rae; Mark Hardy; ¹University of Cambridge; ²University of Manchester; ³Rolls-Royce plc

2:30 PM Effect of Alloying on the Microstructure and Properties of Superalloys Containing Gamma Prime and Gamma Double Prime Precipitates: Paul Mignanelli; Nicholas Jones; Giles Rought Whitt; Felicity Dear; Mark Hardy; Howard Stone; ¹University of Cambridge; ³Rolls-Royce plc

2:50 PM Gamma-Prime Strengthened Superalloys for Heavy Duty Gas Turbine Applications: Andrew Detor; Reza Sharghi-Moshtaghin; Ning Zhou; Shenyuan Huang; Richard DiDomizio; ¹General Electric Global Research
ICME Approach to Design Composite Precipitate Microstructure for Ni-based IN718 Super Alloys: Rongpei Shì; Donald McAllister; Ning Zhou; Andrew Detor; Richard DiDomizio; Sanket Sarkar; Michael Mills; Yunzhi Wang; The Ohio State University; GE Global Research

3:30 PM Break

About the Predictability of Microstructure Evolution upon Thermomechanical Processing of Nickel-based Superalloys: Nathalie Bozzo1; Charbel Moussa1; Marc Bernacki2; MINES ParisTech

4:20 PM
Solubility Limits and Phase Stability in Advanced Polycrystalline Ni-base Superalloys: Sammy Tin1; Illinois Institute of Technology

4:40 PM Comparative Study of High-temperature Grain Boundary Engineering of Two Powder Processed Low Stacking-fault Energy Ni-base Superalloys: Joshua McCarley2; Martin Detoroi; Sammy Tin1; Illinois Institute of Technology

5:00 PM Benchmarking Multi-scale Models with Microtensile Experiments and 3D Microstructural Characterization of René 88DT: David Eastman1; Paul Shade2; Michael Uchic3; George Weber; Somnath Ghosh; Will Lenthe; Tresa Pollock; Kevin Hemker1; Johns Hopkins University; AFRL; University of California, Santa Barbara

5:20 PM Development of an Oxide Dispersion Strengthened Ni-Based Superalloy Enabling Heavy Duty Gas Turbine Wheels for Improved Combined Cycle Efficiency: Erica Sampson1; Rich DiDomizio2; Reza Sharghi-Moshtaghi; Sharon Huang1; GE Global Research

5:40 PM Room and Elevated Temperature Fatigue Life Improvement of ATI 718Plus Using LSP Treatment: Michael Kattoura1; Seetha Ramiah Mannava2; Dong Qian1; Vijay Vasudevan1; University of Cincinnati; University of Texas at Dallas

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — High Temperature Creep of Structural Materials

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

Monday PM Room: 24A
February 27, 2017 Location: San Diego Convention Center

Session Chairs: James Earthing, University of California - Irvine; Rajiv Mishra, University of North Texas

2:00 PM Keynote
Fundamentals of Creep in Aluminum Over a Very Wide Temperature Range: Michael Kassner1; Kamia Smith2; University of Southern California

2:30 PM Invited
Development of Creep-Resistant Austenitic Stainless Steels for High Temperature Applications: Philip Maziasz1; Oak Ridge National Laboratory

2:50 PM Invited
Dislocation Cross-slip Controlled Creep at High Stresses and Transitional Creep Mechanisms in Zircaloy-4: Boupathy Kombaiah1; Korukonda Linga Murty2; Carnegie Mellon University; North Carolina State University

3:10 PM Invited
Mechanisms Governing the Creep Behavior of High Temperature Alloys for Generation IV Nuclear Energy Applications: Vijay Vasudevan1; Xingshao Wen2; Laura Carroll1; Richard Wright1; T. L. Shan2; University of Cincinnati; Electrodiesel Corp; Idaho National Laboratory; Oak Ridge National Laboratory

3:30 PM Break

3:45 PM Keynote
Creep of Dispersion Strengthened Materials – Emergence of Paradigms Challenging the Old Theories: Rajiv Mishra1; University of North Texas

4:15 PM Invited
Uniaxial and Multiaxial Miniature Specimen Creep Testing of Single Crystal Ni-base Superalloys (SX): Gunther Eggeler1; Philip Wollgramm2; David Bürger3; Lijie Cao4; Xiaoxiang Wu5; Alireeze Parsa6; Ruhr University Bochum

4:35 PM TerraPower HT9 Mechanical and Thermal Creep Properties: Cheng Xu1; Micah Hackett2; TerraPower

4:55 PM Creep Behavior of a Microstructurally Stable Nanocrystalline Alloy: K. Darling1; M Rajagopalan2; M Komarasamy1; M Bhata1; B Hornbuckle2; R Mishra3; Kiran Solanki1; ARL; Arizona State University; UN"
On the Creep Behavior of Dual-Scale Particle Strengthened Nickel Based Alloy: Aniket Dut1; Somayeh Paseban2; Indrajit Charit3; Rajiv Mishra1; 1University of North Texas; 2University of Idaho

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

Monday PM  Room:  30D  February 27, 2017  Location:  San Diego Convention Center

Session Chairs:  C. Suryanarayana, University of Central Florida; Pascal Bellon, University of Illinois, Urbana-Champaign; Tongde Shen, Yanshan University

2:00 PM Invited
Dependence of Shear Mixing on Alloy Properties: A Study on Cu-X-Mo Ternary Alloys: Nisha Verma1; Niran Pandi1; John Beach1; Pascal Bellon1; Robert Averback1; 1University of Illinois at Urbana-Champaign

2:25 PM Invited
Mechanical Milling by Severe Plastic Deformation: Reinhard Pippaut; Andrea Bachmaier1; Lisa Kraemer1; Pradiptha Ghosh1; Karoline Kornmout1; Timo Mueller1; Anton Hohenwart1; Oliver Renk1; 1Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; 2Montanuniversität Leoben

2:45 PM Invited
Mechanical Alloying by Severe Plastic Deformation: Reinhard Pippaut; Andrea Bachmaier1; Lisa Kraemer1; Pradiptha Ghosh1; Karoline Kornmout1; Timo Mueller1; Anton Hohenwart1; Oliver Renk1; 1Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; 2Montanuniversität Leoben

3:00 PM Invited
Mechanical Properties of Aluminum Composites with Nano Alumina Reinforcement: William Harrigan1; 1Gamma Technology, LLC

3:25 PM Invited
Mechanical Milling by Severe Plastic Deformation: Reinhard Pippaut; Andrea Bachmaier1; Lisa Kraemer1; Pradiptha Ghosh1; Karoline Kornmout1; Timo Mueller1; Anton Hohenwart1; Oliver Renk1; 1Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; 2Montanuniversität Leoben

3:30 PM Break

3:50 PM Invited
Microstructures and Mechanical Properties of Nanostructured and Ultrafine Grained Al Alloy and Cu Matrix Nanocomposites Fabricated by Thermomechanical Powder Consolidation: Deliang Zhang1; Dengshan Zhou1; Xun Yao1; Jianmiao Liang2; Wei Zeng2; Charlie Kong2; Paul Munroe2; 1Northeastern University; 2Shanghai Jiao Tong University; 3University of New South Wales

4:15 PM Invited
Mechanical Properties of Aluminum Composites with Nano Alumina Reinforcement: William Harrigan1; 1Gamma Technology, LLC

4:35 PM Invited
Ultrahigh-strength Nanostructured Magnesium Alloys via Mechanical Alloying: Suseen Mathadu; 1University of California Riverside

5:00 PM
Suppressing Oxide Nanoparticle Coarsening and Cu Nanograins Growth in Nanostructured Cu Matrix Nanocomposites by Adding Ti: Dengshan Zhou1; Wei Zeng2; Charlie Kong2; Paul Munroe2; Deliang Zhang2; 1Northeastern University; 2Shanghai Jiao Tong University; 3The University of New South Wales

5:20 PM
Achieving Enhanced Room Temperature Ductility in Bulk Nanostructured Mg: Xin Wang1; Lin Jiang1; Dalong Zhang2; Enrique Lavernia1; Julie Schoenung1; 1University of California, Irvine

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Microstructural Processes in Irradiated Materials — Reactor Pressure Vessel Steels
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l'énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Marniander, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Monday PM  Room:  Del Mar  February 27, 2017  Location:  Marriott Marquis Hotel & Marina

Session Chairs: Peter Wells, University of California-Santa Barbara; Peter Hosemann, University of California-Berkeley

2:00 PM Invited
A Summary of ATR-2 Reactor Pressure Vessel Steel High Fluence Irradiation: Some New Science and Implications to Extended Reactor Life: G. Robert Odette1; Peter Wells2; Takuya Yamamoto3; Nathan Almirall4; Randy Nanstad2; 1University of California Santa Barbara; 2Oak Ridge National Laboratory

2:30 PM Invited
Structural Characterization of Precipitates in Neutron Irradiated Surveillance Reactor Pressure Vessel Steels: David Sprouster1; E. Dooryhee1; S Ghose1; M Elbakshwan2; P Wells1; T Stan2; N Almirall2; G. R. Odette2; M. Sokolov2; R. Nanstad2; L Ecker1; Brookhaven National Laboratory; 'Materials Department, University of California, Santa Barbara; Oak Ridge National Laboratory

2:50 PM Invited
Modeling Cu-Mn-Ni-Si Precipitation in Reactor Pressure Vessels: Mahmood Manivandi1; Huibin Ke1; Peter Wells2; George Odette2; Dane Morgan3; 1University of Wisconsin-Madison; 2University of California-Santa Barbara; 3University of California-Santa Barbara

3:10 PM Invited
Kinetic Monte Carlo Modeling of CuMnSi Precipitation in Reactor Pressure Vessel Steels: Shippeng Shu1; Dane Morgan2; Peter Wells2; Nathan Almirall1; Robert Odette1; 1University of Wisconsin-Madison; 2University of California, Santa Barbara

3:30 PM Invited
Phase-field Modelling of Gamma-precipitate Behaviour in RPV Steel: Kunok Chang1; Junhyun Kwon1; 1Korea Atomic Energy Research Institute

3:50 PM Break

4:05 PM Invited
Effect of Heat Load on Microstructural Development in Irradiated Steels: Naoyuki Hashimoto1; Edoardo Vessel2; 1Japan Atomic Energy Agency; 2University of Tennessee, Knoxville

4:35 PM Invited
Instrumental Methodology at the Atomic Scale to a Better Understanding of Grain Boundary Segregation Mechanisms in Steels: Alfiia Akhatoval; Bertrand Radigue1; Fabien Cuvel1; Emmanuel Cadel1; Auriane Etienne1; Laurent Chevalier1; David Gibouin1; Philippe Pareige1; 1GPM, University of Rouen

4:55 PM Invited
Hardening Mechanism of a Neutron Irradiated Reactor Pressure Vessel Steel Studied by APT, PAS and WB-STEM: Masaki Shimoda1; Takeshi Toyama1; Kenta Yoshida1; Koji Inoue1; Yasuoshi Nagai1; Toshimasa Yoshiie1; Milan Konstantinovic1; Robert Gerard1; Tohoku University; 2Kyoto University; 3SCK-CEN; 4Tactebel ENGIE

5:15 PM Invited
Chemistry Factor Development for Prediction of Reactor Pressure Vessel Embrittlement: Peter Wells1; Takuya Yamamoto1; Huibin Ke1; Nathan Almirall1; Dane Morgan2; G Odette1; 1UC Santa Barbara; 2University of Wisconsin, Madison

5:35 PM Invited
Computer Simulation of Defect-free Channel Formation by the Monte Carlo Method: Peter Doyle1; Kelsa Benensky1; Steven Zinkle1; 1University of Tennessee, Knoxville

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Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Heterogeneous Materials

Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huajian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Monday PM  Room: 24B  Location: San Diego Convention Center

Session Chairs: Yuntian Zhu, NC State University; Kei Ameyama, Ritsumeikan University

2:00 PM Invited
Unique Deformation Behavior of Harmonic Structure Materials with High Strength and High Ductility: Kei Ameyama1; Mie Ota1; 1Ritsumeikan University

2:25 PM Invited
Deformation Mechanisms in Multiscale Architectured Harmonic-structured Nickel: Dmytro Orlov1; Stephen Hall1; Jinning Zhou1; Mie Ota1; Kei Ameyama1; 1Lund University; 1Ritsumeikan University

2:45 PM Invited
Atomistic and Mesoscale Modeling Investigation of Deformation Mechanisms in Heterogeneous Materials: Shenyang Hu; 1Pacific Northwest National Laboratory

3:10 PM Invited
Tensile Properties of Heterogeneous Structures Embedded with Nanotwins: Naiong Tao1; F-K. Yan1; H-Y. Yi1; Y. Zhang1; Y.S. Li1; 1Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

3:35 PM Break

3:55 PM Invited
Investigation of Effects of Microstructural Heterogeneity on Mechanical Properties Using Samples Prepared by Park Plasma Sintering: Andy Godfrey1; Kainan Zhu1; Chenglu Zhang1; 1Tsinghua University

4:20 PM Invited
Taming Microstructure of Nanostructured Alloy through the Concurrence of Phase Transition and Grain Growth: Feng Liu1; 1Northwestern Polytechnical University

4:45 PM Invited
Tuning Heterogeneity in Metals for Better Hardenability and Deformability: Examples from TWIP Steels and High Entropy Alloys: Yujie Wei1; 1TIMM, Institute of Mechanics, CAS

5:10 PM
Heterogeneous Structures: A New Paradigm for Designing Super Strong and Tough Materials: Xiaolei Wu1; Yuntian Zhu1; 1Institute of Mechanics, Chinese Academy of Sciences; 2North Carolina State University

Nanocomposites IV: Nanoscience for Renewable Energy — Nanoscience Part II

Program Organizers: Changsoo Kim, University of Wisconsin-Milwaukee; Simona Murph, Savannah River National Laboratories; Muradilharran Paramsothy, NanoWorld Innovations (NWI); Meisha Shofner, Georgia Institute of Technology

Monday PM  Room: Pacific 25  Location: Marriott Marquis Hotel & Marina

Session Chairs: Changsoo Kim, University of Wisconsin-Milwaukee; Meisha Shofner, Georgia Institute of Technology

2:00 PM Invited
Combinatorial Fabrication of Composite Photocatalytic Nanostructures by Oblique Angle Co-Deposition: Steven Larson1; Weijie Huang1; Yiping Zhao1; 1University of Georgia

2:40 PM
Introducing Dislocation Lines for Controlled Thermal Conductivity in Si-based Nanocomposites by Liquid-phase Sintering: Jun Xie1; Yuji Ohishi1; Satoshi Ichikawa1; Aikebaier Yusufu1; Hiroaki Muta1; Ken Kurosaki1; Shinsuke Yamanaka1; 1Osaka University; 1University of Fukui

3:00 PM
Fabrication of Silicon/Graphite Nanocomposite as Promising Anode Material for Lithium-ion Battery Applications: Maziar Ashari1; Qianran He1; Leon Shaw1; 1Illinois Institute of Technology (IIT)

3:20 PM Break

3:40 PM Invited
Photonic Curing for Advanced Thin Film and Device Development: Pooran Joshi1; Teja Kuruganti1; Tolga Ay tug1; 1Oak Ridge National Laboratory

4:20 PM
Surface-Functionalized Nanoporous Carbons for Kinetically Stabilized Complex Hydrides through Lewis acid-Lewis base Chemistry: Christopher Carr1; 1Eric Majzoub1; 1University of Missouri St. Louis

4:40 PM
Polypyrrole Coated Silver Nanowire Supercapacitors: Recep Yuksel1; Husu1 Unal1; 1Middle East Technical University

Nanomaterials for Nuclear Applications II — Session II

Program Organizers: Cheng Sun, Idaho National Laboratory; Khalid Hattar, Sandia National Laboratories ; Celine Hin, Virginia Tech; Fei Gao, University of Michigan; Osman Anderoglu, Los Alamos National Laboratory; Mitra Taheri, Drexel University; Haiming Wen, Idaho State University

Monday PM  Room: Pacific 24  Location: Marriott Marquis Hotel & Marina

Session Chairs: Fei Gao, University of Michigan; Osman Anderoglu, Los Alamos National Laboratory

2:00 PM Invited
Radiation Interaction of Nanostructured Ceramics: Tiankai Yao1; Fengyuan Lu1; Jie Lian1; 1Rensselaer Polytechnic Institute; 1Louisiana State University

2:30 PM Invited
Magnetic and Electrical Responses of Nanomaterials under Irradiation - New Type of Radiation Detection : You Qiang1; 1University of Idaho

3:00 PM
Point Defect Diffusion in Oxide Dispersion Strengthened Steels: Markus Mock1; Karsten Albe1; 1TU Darmstadt

3:20 PM
Defect Evolution in Stannate Pyrochlores under Swift Heavy Ion Irradiation: Chien-Hung Chen1; Cameron Tracy1; Maik Lang2; Christina Trautmann2; Rodney Ewing1; 1Stanford University; 1University of Tennessee; 1GSI Helmholtz Centre for Heavy Ion Research

3:40 PM Break

4:00 PM Invited
Probing Nanoscale Damage Gradients in Irradiated Materials with Spherical Nanoindentation: Siddhartha Pathak1; Jordan Weaver2; Cheng Sun1; Yongqiang Wang2; Russ Doerner2; Surya Kalidindi1; Nathan Mara3; 1University of Nevada, Reno; 2Los Alamos National Laboratory; 1University of California at San Diego; 3Georgia Institute of Technology

4:30 PM
Radiation Effects on the Mechanical Properties of Nanoporous Gold: Nicolas Briot1; T. John Balk1; Remi Dingreville1; Khalid Hattar1; 1University of Kentucky; 1Sandia National Laboratories
Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Phase Stability & Phase Equilibria

Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Cheng University; Jae-Ho Lee, Hongik University; Shijun Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Monday PM  Room: 25A  Location: San Diego Convention Center

Session Chairs: Shih-kang Lin, National Cheng Kung University; Chih-Ming Chen, National Chung Hsing University

**2:00 PM Invited**

Zirconia Mystery? Why and How Zirconia Phases and Phase Diagrams Have Been Misunderstood for a Long Time?  
*Masahiro Yoshimura*; 1National Cheng Kung University

**2:30 PM**

Searching for New Permanent Magnetic Phases: The Systems Bi-Ma-T (T = Ni, Rh, Pt)  
*Peter Kainzbauer*; Martin Marker; Klaus Richter; *Herbert Ipser*; 1University of Vienna

**2:50 PM**

Phase Stability of Mixed-Cation Alkaline-Earth Hexaborides: Insights from X-ray Diffraction and High-Resolution Transmission Electron Microscopy  
*James Cabill*; Michael Alberg; Doreen Edwards; Scott Mixture; Victor Vasquez; Olivia Graebe; 1University of California, San Diego; 1Alfred University; 1University of Nevada, Reno

**3:10 PM**

Effect of Structural Order on Pulsed Laser Crystallization Kinetics of Amorphous Germanium Thin Films  
*Tian Li*; Leonardus Bimo Bayu Aji; Tae Wook Heo; Melissa Santala; Sergei Kucheyev; Geoffrey Campbell; 1Lawrence Livermore National Laboratory; 1Oregon State University

**3:30 PM Break**

**3:50 PM**

In-situ Characterization of the Transverse Propagation Mechanism for Crystallization of Amorphous Germanium and the Resulting Microstructure:  
*Garth Egan*; *Tian Li*; John Roehling; Joseph Mekcown; Geoffrey Campbell; 1Lawrence Livermore National Laboratory

**4:10 PM**

High Temperature Phase Stability of $\alpha$-Cu$_2$Al in Binary Cu-Al Alloys: Issues in the Al-Cu Phase Diagram  
*Valery Ossurav-Bancalero*; Choong-Un Kim; 1The University of Texas at Arlington

**4:30 PM**

Thermodynamic Study on PMN-PT Single Crystals  
*Hooman Sabarou*; Yu Zhong; 1Florida International University

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Phase Transformations and Microstructural Evolution — Ti & Zr, and Lightweight Metals Al & Mg

Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

Monday PM  Room: 16B  Location: San Diego Convention Center

Session Chair: To Be Announced

**2:00 PM**

Investigation of Nano-scale Instabilities in Titanium Alloys  
*Yufeng Zheng*; Robert Williams; Rajarshi Banerjee; Dipankar Banerjee; Hamish Fraser; 1The Ohio State University; 1University of North Texas; 1Indian Institute of Science

**2:20 PM**

Completeness of Omega Phase Transformation in Beta Ti Alloys Studied by X-ray Diffraction  
*Petr Harcuba*; Jana Šmilauerová; Václav Holý; 1Charles University in Prague

**2:40 PM**

Anomalous X-ray Diffraction Study of $\omega$ Phase Particles in Ti-15Mo  
Jana Šmilauerová; Václav Holý; Petr Harcuba; Miloš Janecek; 1Charles University in Prague

**3:00 PM**

Deformation Modes in High-pressure $\gamma$699-phase of Zr: A First-principles Study  
*Anil Kumar*; M. Arul Kumar; Irene Beyerlein; 1Los Alamos National Laboratory

**3:20 PM Break**

**3:40 PM**

Crystallization Pathway in Al-Sm Alloys Prepared by Melt Spinning and Magnetron Sputtering  
*Fanqiang Meng*; Wenjie Wang; Shiuhuai Zhou; Matthew Besser; Matthew Kramer; Ryan Ott; 1Arnes Laboratory

**4:00 PM**

Microstructural and Texture Transitions Observed Using Shear Assisted Processing and Extrusion (ShAPE) of Melt Spun AZ91E Precursors  
*Nicolette Overman*; Scott Whalen; Matt Olszta; Karen Kruska; Jens Darsell; Vineet Joshi; Hellen Jiang; Suveen Mathaudhu; 1Pacific Northwest National Laboratory

**4:20 PM**

Neutron Diffraction Study on Atomic Structures and Phase Transition of Magnesium-lithium Alloy  
*Ye Cui*; Zhongwu Zhang; 1Harbin Engineering University

**4:40 PM**

Solute Segregation in Aluminum Alloys  
*Dongwon Shin*; Shihyan Roy; Baishakhi Mazumder; Larry Allard; James Haynes; Amit Shyam; 1Oak Ridge National Laboratory

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Rare Metal Extraction & Processing — Rare Earth Elements I

Program Organizers: Hojong Kim, The Pennsylvania State University; Shafig Alam, University of Saskatchewan; Harald Oosterhof, Unicoire; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

Monday PM  Room: 17B  Location: San Diego Convention Center

Session Chairs: Shafig Alam, University of Saskatchewan; Takanari Ouchi, MIT

**2:00 PM Keynote**

The Economics of the Search Minerals Direct Extraction Process for Rare Earth Recovery  
*David Dressinger*; 1Search Minerals

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2:35 PM  
Recovery of Critical Rare Earth Elements for Green Energy Technologies:  
Rajesh Kumar Jyothi\textsuperscript{1}; Jin-Young Lee\textsuperscript{1}; \textsuperscript{1}Korea Institute of Geoscience and Mineral Resources (KIGAM)  

3:00 PM  
Selective Reduction and Separation of Europium from Mixed Rare-earth Oxides from Waste Fluorescent Lamp Phosphors:  
Mark Strauss\textsuperscript{1}; Brajendra Mishra\textsuperscript{1}; Gerald Martins\textsuperscript{2}; \textsuperscript{2}WPI; \textsuperscript{3}Colorado School of Mines  

3:25 PM  
Application of Rare Earths for Higher Efficiencies in Energy Conversion:  
William Judge\textsuperscript{1}; Z.W. Xiao\textsuperscript{3}; Georges Kipouros\textsuperscript{3}; \textsuperscript{1}University of Saskatchewan  

3:50 PM Break  

4:10 PM  
Microwave Treatment for Extraction of Rare Earth Elements from Phosphopysmum:  
Adrian Lambert\textsuperscript{1}; Jason Tam\textsuperscript{1}; Gisele Azimi\textsuperscript{1}; \textsuperscript{1}University of Toronto  

4:35 PM  
Selective Separation of Rare Earth Elements Utilizing Vapor Phase Extraction:  
Katelyn Lyons\textsuperscript{1}; Jerome Downey\textsuperscript{1}; Jannette Chorney\textsuperscript{1}; \textsuperscript{1}Montana Tech of the University of Montana  

5:00 PM  
Observation of Oxidation of Nd-Magnet In High Temperature Recycling/Recovery Process:  
Muhamad Firdaus\textsuperscript{1}; M Rhamdhani\textsuperscript{1}; W Rankin\textsuperscript{2}; Kathie Megregor\textsuperscript{1}; Yvonne Durandet\textsuperscript{1}; Nathan Webster\textsuperscript{1}; \textsuperscript{1}Swinburne University of Technology; \textsuperscript{2}CSIRO Minerals Resources  

Recent Developments in Biological, Structural, and Functional Thin Films and Coatings — Multiscale Modeling of Thin Films  
Program Organizers: Adele Carradou, Université de Strasbourg IPCMS;  
Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, UTEP;  
Heinz Paikowski, Clausthal Uniw of Technology; Vikas Tomar, Purdue Univ;  
Nuggehalli Ravindra, NJIT  
Monday PM  
Room: Pacific 18  
February 27, 2017  
Location: Marriott Marquis Hotel & Marina  
Session Chairs: Ramana Chintalapalle, University of Texas at El Paso, UTEP; Adele Carradou, Université de Strasbourg IPCMS  

2:00 PM Keynote 
Atomic-Scale Modeling of Thin Films and Nanomaterials:  
Christine Goyhenex\textsuperscript{1}; \textsuperscript{1}IPCMS  

2:40 PM  
Transmission Probability of Diffusing Particles – A Case Study:  
Kinnari Shah\textsuperscript{1}; Ravindra Nuggehalli\textsuperscript{1}; \textsuperscript{1}New Jersey Institute of Technology  

3:00 PM  
Magnetic Field Assisted Assembly - Modeling, Design and Implementation:  
Yan Liu\textsuperscript{1}; Nuggehalli Ravindra\textsuperscript{1}; \textsuperscript{1}New Jersey Institute of Technology  

3:20 PM  
Interface Mechanical Strength and Interface Elastic Constants Calculations in Thin Films of Polymer Composites, and Natural Materials:  
Devendra Verma\textsuperscript{1}; Vikas Tomar\textsuperscript{1}; \textsuperscript{1}Purdue University  

3:40 PM Break  

4:00 PM  
Modeling of Spatial Temperature Distribution in Silicon:  
Ashvin Kumar Vasudevan\textsuperscript{1}; Chihlin Huang\textsuperscript{2}; Nuggehalli Ravindra\textsuperscript{3}; \textsuperscript{1}New Jersey Institute of Technology  

4:20 PM  
Barrierless Cu–Ni–M thin films on Silicon Based on the Stable Solid Solution Cluster Model:  
Xiaona Li\textsuperscript{1}; Yuehong Zheng\textsuperscript{2}; Miao Wang\textsuperscript{3}; Chuang Dong\textsuperscript{3}; \textsuperscript{1}Dalian University of Technology  

4:40 PM  
Black Silicon Based Microbolometer:  
Sita Rajyalaxmi Marathi\textsuperscript{1}; ASAHEL BANOBRE\textsuperscript{1}; Nuggehalli Ravindra\textsuperscript{1}; \textsuperscript{1}New Jersey Institute of Technology  

Student-Run Symposium: Building Bridges — Connecting Academic and Industry Research — Session II  
Program Organizers: Katie Vinson, The University of Alabama;  
Omar Rodriguez, The University of Alabama; Ben White, The University of Alabama; Dallin Barton, The University of Alabama; Rachel White, The University of Alabama  
Monday PM  
Room: 22  
February 27, 2017  
Location: San Diego Convention Center  
Session Chairs: Rachel White, The University of Alabama; Ben White, The University of Alabama; Katherine Vinson, The University of Alabama  

2:00 PM Invited  
The Role of Government in Supporting Industry-Academic Interactions:  
Eric Wuchina\textsuperscript{1}; Office of Naval Research  

2:20 PM Invited  
Ultra-high Temperature Materials: Academia’s Role in Material Development to Technology Insertion:  
Daniel Butts\textsuperscript{1}; Plasma Processes, LLC  

2:40 PM  
An HPC4Mfg Project Update: Developing Computational Tools for the Glass Manufacturing Using High Performance Computing Resources:  
Vic Castillo\textsuperscript{1}; Lawrence Livermore National Laboratory  

3:00 PM  
Fundamental Principles for a Successful Collaboration between University and Metalworking Industries:  
Silvia Lombardo\textsuperscript{1}; Federico Simone Gobber\textsuperscript{2}; Mario Rosso\textsuperscript{3}; \textsuperscript{1}Politecnico di Torino  

3:20 PM Break  

3:40 PM Introductory Comments Dr. Stanley Howard  

3:50 PM Panel Discussion Dr. Eric Wuchina, Dr. Christian Widener, Dr. Nanci Hardick, Dr. Michael Sealy  

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Materials Design  
Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama  
Tuesday AM  
Room: Pacific 26  
February 28, 2017  
Location: Marriott Marquis Hotel & Marina  
Session Chairs: Vinu Unnikrishnan, University of Alabama; KyeongJae Cho, University of Texas at Dallas  

8:30 AM  
Tribological Properties of Carbyne on Nickel Surface:  
Scott Muller\textsuperscript{1}; Arun Nair\textsuperscript{2}; \textsuperscript{1}University of Arkansas  

8:50 AM  
A Screening of Transition Metal Nitrides with Dopants as Electrocatalysts for Oxygen Reduction Reaction:  
Doosun Hong\textsuperscript{1}; Sooah Ko\textsuperscript{2}; Hyuck Mo Lee\textsuperscript{3}; \textsuperscript{1}KAIST  

9:10 AM  
Atomic and Electronic Structures of Stabilized Metal Monolayer:  
Kyeongjae Cho\textsuperscript{1}; \textsuperscript{1}University of Texas at Dallas  

9:30 AM Invited  
Theory and Applications for Two-dimensional Phase Change Materials:  
Yao Li\textsuperscript{1}; Karel-Alexander Duerloo\textsuperscript{1}; Yao Zhou\textsuperscript{1}; Evan Reed\textsuperscript{1}; \textsuperscript{1}Stanford University
10:00 AM Break

10:20 AM Invited New 2-D Material Recipes from Scratch: Susan Sinnott; ‘Penn State University

10:50 AM Controlling Topological Phase Transition in Van Der Waals Stacked 2-D Materials for Topological Device Applications: Xiaofeng Qian; ‘Texas A&M University

11:10 AM Invited Cu-based Nanoparticles and Nanowires for Applications in Printed Electronics and Transparent Electrode: Changsoo Lee; Na Rae Kim; Jahyun Koo; Cho Rong Chu; Huyong Mo Lee; ‘KAIST

11:40 AM Invited Correlation between Morphology and Field Emission Behavior of Various CuO Nanostructures: Gurjinder Kaur; Krishna Saiini; Narasimha Pulagar; Indranil Lahiri; ‘Indian Institute of Technology Roorkee

8th International Symposium on High Temperature Metallurgical Processing — Fundamental Research of Metallurgical Process
Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yücel, ITU; P. Chris Pivotius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinikilic, Attilm University

Tuesday AM Room: 18 February 28, 2017 Location: San Diego Convention Center

Session Chairs: Mark Kennedy, Proval Partners SA; Xuewei Lv, Chongqing University

8:30 AM Introductory Comments

8:35 AM Kinetics of Dephosphorization between Boiled Metal Droplet and Slag Containing Iron Oxide: Keeshuau Gu; Kenneth Coley; Neslihan Dogan; ‘McMaster University

8:55 AM Kinetic Study of Low Grade Nickel Ores by Pyrometallurgical Processes: Sandra Diaz; Oscar Restrepo; ‘Universidad Nacional de Colombia

9:15 AM Investigate on the Phase Composition of Vanadium Slag with High CaO Content and Influence of P2O5 on Crystallization Kinetics of Spinels: Wang Zhou; Bing Xie; Zhao-Qun Ke; Jiang Diao; Wen-Feng Tan; Yu-Hao Liu; Hong-Yi Li; Tao Zhang; ‘Chongqing University


9:55 AM The Kinetics Study on the Reaction Rate Constant of Pulverized-coal Combustion at Different Heating Rates: Ruiling Du; ‘University of Science and Technology Beijing

10:15 AM Break

10:35 AM Evaluation of High Temperature Refractory Corrosion by Liquid Al2O3-Fe2O3-MgO-SiO2: Christoph Sagadin; Stefan Luidold; Christine Wenzel; Christoph Wagner; ‘Montanuniversitaet Leoben; ‘RHI AG

10:55 AM Thermodynamic Calculation on the Reactivity between Slag and Ti-stabilized Stainless Steel: Zhao Chen; Kun-peng Xu; Sheng-ping He; Qian Wang; ‘Chongqing University

11:15 AM Phase Equilibria and Thermodynamics of CaO-SiO2-Dy2O3 System: Fei Wang; Thu Hoa Le; Bin Yang; Muxing Guo; ‘Kunming University of Science and Technology; ‘Kunming University of Science and Technology Leuven

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Local Microstructural Control and Graded Materials
Program Organizers: Eric Lass, NIST; Judy Schneider, University of Alabama-Huntsville; Mark Stoudt, National Institute of Standards and Technology; Lee Sematin, AFRL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Pooranji, YTC America Inc.

Tuesday AM Room: 7B February 28, 2017 Location: San Diego Convention Center

Funding support provided by: TMS: Additive Manufacturing Committee

Session Chairs: Mark Stoudt, NIST; John Lewandowski, Case Western Reserve University

8:30 AM Invited Location- and Orientation-dependent Properties in AM Systems: John Lewandowski; ‘Case Western Reserve University

9:00 AM Invited Development of Ti-6Al-4V to 304L Stainless Steel Functionally Graded Components Fabricated with Laser Deposition: R. Peter Dillon; John Paul Borgonia; Ashley Reichardt; Bryan McEnerny; Andrew Shapiro; Peter Hosmann; ‘Jet Propulsion Laboratory; ‘University of California, Berkeley

9:30 AM Characterization of Maraging Steel to Austenitic Stainless Steel Gradient Components Fabricated with Laser Deposition: Ashley Reichardt; John Paul Borgonia; R. Peter Dillon; Bryan McEnerny; Andrew Shapiro; Peter Hosmann; ‘University of California, Berkeley; ‘Jet Propulsion Laboratory

9:50 AM Microstructural Control in SLM Ti-6Al-4V: Key Factors Facilitating In Situ a Martensite Decomposition: Wei Xu; Edward Liu; Ma Qian; Milan Brandt; ‘Macquarie University; ‘Royal Melbourne Institute of Technology University

10:10 AM Break

10:30 AM Multiscale Samples Built by Additive Manufacturing: Thomas Watkins; Amit Shyam; Yukinori Yamamoto; Niyam Sridharan; Ercan Cakmak; Kinga Unocie; Ryan Dehoff; Sarma Gorti; Srdjan Simunovic; S. Suress Babu; ‘ORNL; ‘University of Tennessee

10:50 AM Tailoring the Mechanical Properties of Ni-base Superalloys Processed by Direct Metal Laser Melting (DMLM): Thomas Eiter; Fabian Geiger; Karsten Kunze; ‘General Electric (Switzerland) GmbH; ‘ETH Zurich (ScopeM)

11:10 AM Characterization of Microstructure and Material Properties of Selective Laser Sintered Ni-alloy 625: Kevin Kaufmann; Tyler Harrington; Kenneth Vecchio; ‘University of California San Diego

11:30 AM Influence of Processing Parameters on the Development of Microstructure and Texture in EBM Ti-6Al-4V: Todd Butler; Kevin Chapat; Benjamin Georgin; Edwin Schwalbach; ‘UES, Inc. / AFRL; ‘Wright-Patterson AFRL

11:50 AM Mapping the Decomposition of β to α in Composition and Temperature Space in Titanium Alloys: Deep Choudhuri; Srinivas Mantri; Chris Yannettu; Rajarshi Banerjee; Dipankar Banerjee; ‘University of North Texas; ‘Indian Institute of Science
Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Beam Line Studies and In Situ Monitoring

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

Tuesday AM  Room: 7A
February 28, 2017  Location: San Diego Convention Center

Session Chairs: Manyalibo Matthews, Lawrence Livermore National Laboratory; Jason Fox, National Institute of Standards and Technology

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session III

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

Tuesday AM  Room: 33C
February 28, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
3D Orientation Mapping in the Transmission Electron Microscope: Søren Schmidt; Peter Mahler Larsen; Hossein Alimadadi; Takeshi Kasama; Xiaoxu Huang; 1Technical University of Denmark

8:50 AM
Shear-Coupled Grain Growth and Texture Development in a Nanocrystalline Ni-Fe Alloy during Cold Rolling: Li Li; Tamas Ungar; L Toth; Z Skrotzkì; Y Ren; Zs Fogarassy; X.T. Zhou; Peter Liu; 1Shanghai Institute of Applied Physics-Chinese Academy of Science; 2Eötvös University Budapest; 3Université de Lorraine; 4Technische Universität Dresden; 5Argonne National Laboratory; 6Hungarian Academy of Science; 7The University of Tennessee

9:10 AM
Unambiguous Complexion Identification and Inspection in High Purity Binary Alloy Systems: Jennifer Schuler; Timothy Rupert; 1University of California Irvine (UCI)

9:30 AM
In Situ TEM Compression Testing of IN718 Fabricated by Electron Beam Melting: Kinga Unocie; Michael Kirka; Ryan Dehoff; 1ORNL

9:50 AM  Break

10:10 AM
Characterization and Deformation Behavior of Microstructural Gradients in the Low Solvs High Refractory (LSHR) Nickel Base Superalloy: Samuel Kuhrt; Gopal Viswanathan; Hamish Fraser; 1The Ohio State University

10:30 AM
Atomic Resolution Energy Dispersive X-ray Spectroscopy of Segregation Along SESFs in Ni-Based Disk Alloys: Timothy Smith; Bryan Esser; Nikolas Antolini; Robert Williams; Andrew Wessman; Hamish Fraser; Wolfgang Windl; David McComb; Michael Mills; 1The Ohio State University; 2GE Aviation

10:50 AM
How Important are the Smallest Grains for their Aggregate Mechanics?: Tia Maiß; Philip Eisenlohr; 1Michigan State University

11:10 AM
The Origin of Stochastic Behavior during Nanoindentation near a Grain Boundary in Cu: Benjamin Schuessler; Mehdi Hamid; Pui Ching Wò; Hussein Zhib; 1Washington State University

11:30 AM
Improved Angular and Spatial Resolution of Measured Lattice Rotations in Highly Deformed Bulk Materials through Combining Low-kV EBSD with the Dictionary Indexing Approach: Ali Gholinia; Timothy Burnett; Bart Winiarski; Farangis Ram; Saransh Singh; Marc De Graef; 1University of Manchester; 2Carnegie Mellon University

8:00 AM
Embedding Fiber Bragg Gratings with Ultrasonic Additive Manufacturing: Adam Hehr; Mark Norfolk; 1Fabrisonic LLC

9:40 AM
The Development of a L-PBF Test Bed and Evaluation of In-process Sensing Technologies: Bryant Foster; 1EWI

10:00 AM  Break

10:20 AM Invited
Using Neutron and High Energy X-ray Diffraction to Probe Additively Manufactured Materials Over a Range of Length and Time Scales: Donald Brown; John Carpenter; Bjorn Clausen; Jason Cooley; John Bernal; Mark Bourke; 1Los Alamos National Lab

10:50 AM
Residual Stress Characterization of Additively Manufactured Components: Maria Strantza; Danny Van Hemelrijk; Patrick Guillaume; 1Vrije Universiteit Brussel

11:10 AM
In Situ Observation of Porosity Formation in Selective Laser Melting Using Synchrotron-based High Speed X-ray Imaging: Ross Cunningham; Robert Suter; Anthony Rollett; Jack Beuth; 1Carnegie Mellon University

11:30 AM
Characterizing Microstructure in Ti Alloys Using Synchrotron-based MicroCT: Johanna Weker; Ryan Ott; Yimin Wang; Kevin Stone; Chris Tassone; Matthew Kramer; Tony Van Buuren; Michael Toney; 1SLAC National Accelerator Laboratory; 2AMES; 3Lawrence Livermore National Laboratory; 4AMES Laboratory
Advanced High-Strength Steels — Planar Defects and Interfaces
Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Millitzer, The University of British Columbia

Tuesday AM Room: 17A
February 28, 2017 Location: San Diego Convention Center

Session Chairs: Tadashi Furuhara, Tohoku University; Chad Sinclair, University of British Columbia

8:30 AM Invited
Parameter-free Finite-temperature Computations of Stacking Fault Energies for Magnetic Materials: Fritz Körmann1; Ivan Bleskov2; Björn Alling3; Blażej Grabowski4; Biswanath Dutta5; Tilmann Hickel6; Jörg Neugebauer7; Delft University of Technology and Max-Planck-Institut für Eisenforschung; Max-Planck-Institut für Eisenforschung

8:50 AM
Analysis of the Aging Behavior and Orientation Relationships with Respect to β-Mn Phase in Austenite-based Low-density Steel: Keunho Lee1; Seong-Jun Park2; Jun-Yun Kang3; Siwook Park4; Anthony Rollett5; Sukbin Lee6; Kyu Hwan Oh7; Heung Nam Han8; Seoul National University; Korea Institute of Materials Science; Carnegie Mellon University; Ulsan National Institute of Science and Technology (UNIST)

9:30 AM
Experimental Determination of Magnitude of Shear of Stacking Faults, Twins and Alpha'-martensite in TRIP/TWIP Steels: Anja Weidner1; Horst Biermann2; TU Bergakademie Freiberg

9:50 AM
Effect of Interfacial Mn Partitioning on Carbon Partitioning and Interface Migration during Quenching and Partitioning: Zongbiao Dai1; Jianguo He1; Zhigang Yang1; Chi Zhang2; Hao Chen3; Tsinghua University

10:10 AM Break

10:30 AM
Molecular Dynamics Simulations of the Interaction of Helium Clusters with Grain Boundaries and Dislocations bcc Iron: Tegar Wicaksono1; Yu Yue2; Matthias Millitzer3; The University of British Columbia; Tsinghua University

10:50 AM
Interface Dominated Process in Modern Steels: Goune Mohamed1; Frédéric DanoiX2; Xavier Sauvage3; Didier Huin4; Lionel Germain5; ICMCB-Bordeaux1; GPM - Université de Rouen; ArcelorMittal; LEM3-Université de Lorraine

11:10 AM
New Insights in Atomic Interface Structure of Carbide Nanoparticles: Christian Liebscher1; Marta Lipinska-Chwalek2; Menji Yao3; Michael Herbig1; Baptiste Gaul1; Joachim Mayer4; Dierk Raabe5; Christina Schew6; Max-Planck-Max-Planck-Institut fuer Eisenforschung GmbH; Ernst Ruska-Centrum and RWTH Aachen

11:30 AM
Prediction of Mechanical Properties of Carbide-steel Interfaces from First-principles: Etelie Barbé1; Chu Chun Fu2; Maxime Sauzay3; CEA, DEN, Service de Recherches Métallurgiques Appliquées; CEA, DEN, Service de Recherches de Métallurgie Physique

11:50 AM
An Interface Controlled Transformation Model Predicting the Kinetics for Isothermal Bainite Formation in Medium Mn Steels: Hussein Farahani1; Wei Xu2; Sybrand van der Zwaag3; Delft University of Technology; Northeastern University, China; Delft University of Technology

Advanced Materials for Energy Conversion and Storage — Micro & Macro Reliability

Tuesday AM Room: 15A
February 28, 2017 Location: San Diego Convention Center

Session Chairs: Amit Pandey, LGFCS; Dwayne Arola, University of Washington

8:30 AM Introductory Comments

8:35 AM Keynote
Quantifying Alloy and Coating Degradation Mechanisms for Energy-Related Applications: Bruce Pint1; Oak Ridge National Laboratory

9:05 AM Invited
Importance of Flaws to the Reliability of MMA Substrates: Alex Stark1; Sandra Murcia2; Amit Pandey3; Richard Goettler4; Dwayne Arola5; University of Washington; LG Fuel Cell Systems Inc.

9:30 AM Invited
Precision High Temperature Elasticity Studies of Novel Ceramics: Joseph Gladden1; Sumudu Tennakoon2; Ashoka Karunanith3; Amit Pandey4; Richard Goettler5; University of Mississippi; LG Fuel Cell Systems Inc.

9:55 AM Break

10:15 AM Invited
Durability and Reliability of Materials and Components for Solid-Oxide Fuel Cells: Edgar Lara-Curzio1; Oak Ridge National Laboratory

10:40 AM
Elastic-Anelastic-Inelastic Boundaries in Materials for High Temperature Applications: Amit Pandey1; Robert Wheeler2; Amit Shyam3; Thomas Stoughton4; LG Fuel Cell Systems Inc.; MicroTesting Solutions LLC; Oak Ridge National Laboratory; General Motors Research and Development Center

11:00 AM Invited
Young’s Modulus and Poisson’s Ratio Changes in Machined Porous Microcracked Cordierite: Ryan Cooper1; Giovanni Bruno2; Yener Onel3; Axel Lange4; Thomas Watkins5; Amit Shyam6; University of Connecticut; BAM Federal Institute for Materials Research and Testing; Oak Ridge National Laboratory

Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques III
Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; Maria Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Tuesday AM Room: 32A
February 28, 2017 Location: San Diego Convention Center

Session Chairs: Jon Molina, IMDEA- Spain; Sanjit Bhowmick, Hysitron, Inc.

8:30 AM Keynote
Elevated Temperature Mechanical Properties of Three Component Nanolaminated Thin Films: David Bahr1; Rachel Schoepner2; Jeffery Wheeler3; Purdue University; ETH Zurich

9:00 AM
In-situ Imaging and Diffraction Studies of Shear Band Nucleation and Propagation in Metallic Glass and Composites: Jia Chuan Khong1; Jiawei Mi2; University of Hull

9:30 AM Invited
Plasticity and Time Dependent Stress Relaxation in FCC Nanowires: Horacio Espinosa1; Rajaprakash Ramachandranmooorthy2; Yanning Wang1; Rodrigo Bernal1; Amin Aghaei2; Gunther Richter1; Wei Cai3; Northwestern University; Stanford University; Max Planck Institute
Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session III

Program Organizers: Sinn-wen Chen, National Tsing Hua University; Franck Gascin, Ensicaen University of Caen; Soon-jik Hong, Kong University; Philippe Jund, Université de Montpellier; Lan Li, Bose State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University

Tuesday AM  Room: 21  Location: San Diego Convention Center

Session Chairs: Albert Wu, National Central University; Soon-jik Hong, Kong University

8:30 AM Invited
Enhanced Thermoelectric Figure of Merit in Bi-Shb-Te based Composites with Dispersed ZrO2 Nanoparticles: Babu Madavalli; Chul-Hee Lee; Hyyo-Seob Kim; Kap-Ho Lee; Soon-Jik Hong; ‘Kongju National University and Institute for Rare Metals; ‘Ames Laboratory; ‘Chungnam National University

8:50 AM Invited
Bismuth Telluride Based Compounds with High-density Current Stressing: Dopant Migration, Structural Evolution and Transport Property Modulation: Yao-Hsiang Chen; Cheng-Tang Li; Chien-Neng Liao; ‘National Tsing Hua University

9:10 AM
Fabrication of BiSbTe-based Thermoelectric Materials Using Water Atomization and Spark-plasma Sintering Techniques: ChulHee Lee; EunBeen Kim; KapHo Lee; P Dharmaiah; M Babu; SoonJik Hong; ‘Kongju National University; ‘Chungnam National University

9:30 AM
Enhanced Thermoelectric Properties of Sb2Te3 Nanoplates Incorporated Bi0.5Sb1.5Te3 Composites: Peyala Dharmaiah; Chul Lee; Dongwon Shin; JarMyung Koo; Soon-Jik Hong; ‘Kongju National University

9:50 AM Break

10:10 AM Invited
Interfacial Reactions at the Joints of PbTe Thermoelectric Modules: Sinn-wen Chen; Jen-chieh Wang; Ling-chieh Chen; ‘National Tsing Hua University

10:30 AM Invited
Evaluation of Cobalt Diffusion Barrier for Low and Medium Temperature Thermoelectric Module: Albert T. Wu; Hsien-Chien Hsieh; Chun-Hsien Wang; ‘National Central University

10:50 AM
Investigation of Defects in CZT Single Crystals: Bengisu Yasar; Merve Kabuakukan; Yasin Ergunt; Mehmet Parlak; Rasit Turan; Eren Kalay; ‘METU

11:10 AM
Scalable Synthesis of Silicon-implanted CZTS Nanoparticles for Catalysis and Thermoelectric: Stephen Exarhos; Edgar Palmez; Alejandro Alvarez; Lorenzo Mangolini; ‘University of California, Riverside

11:30 AM
Thermoelectric Behaviour of Polyvinyl Acetate /CNT Composites: Hussein Badr; Mostafa Youssef; Mohamed Gamal; Hebatullah Abd-elsalam; Mima Mohamed; Iman El Mahallawi; Ahmad Abdel-rehim; ‘Cairo University; ‘British University in Egypt

Alumina & Bauxite — Bauxite Residues Technology

Program Organizer: Zhang Ting’an, Northeastern University

Tuesday AM  Room: 1B  Location: San Diego Convention Center

Session Chair: Guanghui Li, Central South University

8:30 AM Introductory Comments

8:35 AM
Security Disposal and Comprehensive Utilization of Bauxite Residues: Songqiu Gu; Zhonglin Yin; Lijuan Qi; ‘Chalco

9:00 AM
Bauxite Residue Amendment through the Addition of Ca and or Mg Followed by Carbonation: Luis Venancio; José Antonio Souza; Emanuel Macedo; Fernando Botelho; Raisa Fonseca; Amanda Oliveira; ‘Federal University of Maranhao; ‘Federal University of Para; ‘Federal University of Maranhao

9:25 AM
Application of Tricalcium Aluminate Instead of Lime for the Recovery of Aluminum in Middle-low Grade Bauxite in Calcification-Carbonization Process: Yaxiu Wang; Zhang Ting'an; Guozhi Lv; Xiaofeng Zhu; Weiguang Zhang; Liqun Xie; ‘Northeastern University

9:50 AM
Low Temperature Reduction of Hematite in Red-Mud to Magnetite: Sumedh Gosta; ‘Worcester Polytechnic Institute

10:15 AM Break

10:30 AM
Recovery of Iron-, Titanium-bearing Constituents from Bauxite Ore Residue via Magnetic Separation Followed by Sulfuric Acid Leaching: Guanghui Li; Foquan Gu; Jun Luo; Bona Deng; Zhiwei Peng; Tao Jiang; ‘School of Minerals Processing and Bioengineering, Central South University

10:55 AM
Processing Diasporic Red Mud by the Calcification-carbonation Method: Xiaofeng Zhu; Zhang Ting'an; Guozhi Lv; Fangfang Guo; Weiguang Zhang; Yaxiu Wang; Liqun Xie; Long Wang; ‘Northeastern University

11:20 AM
Research of Flocculants and Dewatering Additives for Filtration of Red Mud: Cao Wenzhong; Zheng Fuliang; Tian Weiwei; Zhong Hong; ‘Nanchang University

11:45 AM
Characterization of Activated Alumina Production via Spray Pyrolysis: Long Wang; Zhang Ting'an; Guozhi Lv; Xiaofeng Zhu; Weiguang Zhang; Sida Ma; ‘Northeastern University
Aluminum Alloys, Processing and Characterization — Heat Treatment
Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Tuesday AM  Room: 4  February 28, 2017  Location: San Diego Convention Center

Session Chair: Ramasis Goswami, Naval Research Laboratory

8:30 AM Introductory Comments

8:35 AM
The Optimization of the Homogenization Treatment of AA7075: Gheorghe Dobra; Ioan Savu; Marin Pete; Gheorghe Popa; 'ALRO

9:00 AM
Precipitation Modeling and Validation of Al-5%Cu-0.4%Mn Alloy Using Quench Factor Analysis: Yisen Hu; Gang Wang; Wenguang Wang; Mao Ye; Yiming Rong; 'Tsinghua University

9:25 AM
Young’s Modulus of Al-Si-Mg-Cu Based Alloys under Different Heat Treatment Processes: Sajjad Amirkhanlou; Shouxun Ji; Yijie Zhang; Douglas Watson; Zhongyun Fan; 'Brunel University London; 'Jaguar Cars Ltd

9:50 AM
Intergranular Corrosion Investigation on EN-AW 6082 Redraw Rod: Luisa Mazzoli; Dominique Cance; Christiane Mathies; Magali Guizard; Peter Baumgart; Hubert Koch; 'TRIMETAluminium SE; 'TRIMET France

10:15 AM Break

10:30 AM
The Influence of Process Parameters and Thermomechanical History on Streaking Defects in AA6060 Extrusions: Steven Babaniaris; Aiden Beer; Matthew Barnett; 'Deakin University - Institute for Frontier Materials

10:55 AM
Effect of Heat-treatment on Microstructure and Mechanical Properties of Sonicated Multicomponent AlMgSiCuZn Alloy: Kwangjun Euh; Jae-Gil Jung; Eunji Baek; Jung-Mo Lee; Hyoung-Wook Kim; 'Korea Institute of Materials Science

11:20 AM
Effect of Interrupted Quenching on Al-Zn-Mg-Cu alloys: Gernot K.-H. Kolb; Helmut Antrekowitsch; Daniel Pöschlmann; Peter Uggowitzer; Stefan Pogatscher; 'Montanuniversitaet Leoben; 'AMAG rolling GmbH; 'ETH Zürich

11:45 AM
Manganese-induced Precipitation in a Modified AA6061 (Al-Mg-Si-Cu) Alloy during Homogenization: Gongsang Zhang; Yi Han; Qi Zhou; Hiromi Nagami; Gang Sha; Chad Parish; Donovan Leonard; Tongguang Zhai; 'University of Kentucky; 'Suzhou Research Institute for Nonferrous Metals; 'Nanjing University of Science and Technology; 'Oak Ridge National Laboratory

Aluminum Reduction Technology — Joint Session on Cell Lining Materials
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Tuesday AM  Room: 2  February 28, 2017  Location: San Diego Convention Center

Session Chair: Stephan Broek, Hatch

8:30 AM Introductory Comments

8:35 AM
Chemical Stability of Thermal Insulating Materials in Sodium Vapour Environment: Raymond Luseng; Søren N. BerteF; Jørgen Mikkelsen; Arne P. Ratvik; Tor Grande; 'NTNU; 'Skamol A/S; 'SINTEF Materials and Chemistry

9:00 AM
Aging of Insulating Linings in Aluminium Electrolysis Cells: Ove Paulsen; Christian Schanøn; Ove Darell; Arne Ratvik; 'SINTEF

9:25 AM
Cathode Wear Based on Autopsy of a Shut down Aluminium Electrolysis Cell: Samuel Senanu; Tor Grande; Arne Petter Ratvik; Zhaoahi Wang; Stein Rørvik; Christian Schanøn; 'Norwegian University of Science and Technology; 'SINTEF Materials and Chemistry

9:50 AM
SPL Recycling and Re-Processing: Victor Mana; Vitalii Pingir; Aleksy Zherdev; Alexandr Proshkin; Sergey Pavlov; Yuriy Bogdanov; Vladimir Somov; 'RUSAL Global Management B.V.; 'RUSAL ETC LLC

10:15 AM
Alternative Applications of SPL: Testing Ideas through Experiments and Mathematical Modeling: Dawei Yu; Vishnuvardhan Mambakkam; Lei Gao; Donghui Li; Kinnor Chattopadhyay; 'Canmet MINING, Natural Resources Canada; 'University of Toronto; 'Kumming University of Science and Technology

Program Organizers: Shijjie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Tuesday AM  Room: 15B  February 28, 2017  Location: San Diego Convention Center

Session Chair: Shafiq Alam, University of Saskatchewan

8:30 AM
P-CAC, a Unique Separation Technology for PGM Recovery: Shijjie Wang; Tracy Morris; 'Rio Tinto Kennecott Utah Copper

8:50 AM
The Physical Characteristics of Electrodensified Copper Starter Sheet Material: Daniel Majuste; Paul Laforest; Michael Moats; 'Universidade Federal de Minas Gerais; 'Missouri S&T

9:10 AM
Extraction of Copper from Sulfate-chloride Solutions by Using Hydroxyoxime Extractants: Maria Ruiz; Ivan Gonzalez; Javier Salgado; Rafael Padilla; 'University of Concepcion

9:30 AM
Hydrometallurgical Processes for the Recovery of Rare Earths, Nickel and Cobalt in Chloride Medium: M.A. Hallim; V.I. Lakshmanan; R. Sridhar; Darcy Tait; 'Process Research Ortech Inc.

9:50 AM Break

10:10 AM
Leaching Characteristics of Sodium-Iron-Silicate Slags: Doug Schriner; Patrick Taylor; Joe Grogan; 'Colorado School of Mines; 'Gopher Resource

10:30 AM
A Cr⁺⁺⁺-free Extraction of Chromium Oxide from Chromite Ores Using Carbothermic Reduction in the Presence of Alkali: Lidia Escudero Castejon; Sergio Sanchez-Segado; Stephen Parrenyatywa; Yotamu Hara; Animesh Jha; 'University of Leeds

10:50 AM
Gold and PGM Recoveries from Complex Feed Streams: Shijjie Wang; Jeff Lucht; Nickvinder Bhat; 'Rio Tinto Kennecott Utah Copper
Applications of Solidification Fundamentals — Phase Field Modeling
Program Organizers: Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing

Tuesday AM  Room: 19
February 28, 2017  Location: San Diego Convention Center

Session Chairs: Ebrahim Asadi, University of Memphis; Damien Tourret, Los Alamos National Laboratory

9:00 AM
On the Solidification Kinetics of Metal Alloys: A Study Using 3-D Phase Field Modeling and Synchrotron X-ray Image Techniques: Zhigeng Guo; Manhong Yang; Shuo Wang; Shoumei Xiong; Tsinghua University

9:20 AM
Phase Field Modelling of Snowflakes Growth: Gilles Demange; Helena Zapolsky; Renaud Patte; Marc Brunel; Université de Rouen/GPM/ERAFEN; Université de Rouen/CORIA

9:50 AM
Phase Field Study on Stress Induced Dendrite Fragmentation: Mohammad Ahmed; Nils Warnken; University of Birmingham

10:10 AM Break

10:25 AM
Quantitative Phase-Field Crystal Model for Coarsening in Pb-Sn Solid-Liquid Mixtures: Ahmad Nouriian Asval; Ebrahim Asadi; University of Memphis

10:45 AM
Pattern Formation during Invariant Three-phase Eutectic Growth: Abhik Choudhury; Indian Institute of Science

9:00 AM
Dendritic Grain Growth Competition in Directional Solidification of Alloys: A Phase-field Study: Damien Tourret; Younggil Song; Amy Clarke; Alain Karma; Los Alamos National Laboratory; Northeastern University; Colorado School of Mines

9:30 AM
3D Phase-field Simulations of Graphite Growth in Ductile Cast Iron Considering Interaction between Local Expansion and Microsegregation: Janin Eiken; Bernd Böttger; ACCESS

10:40 AM Invited
Computational Models of Peptide-Surface Interactions Drawn from Bacterial Peptides: Takakazu Seki; Tomohiro Tanaka; Yuhei Hayamizu; Tokyo Institute of Technology

11:10 AM
Designing Peptides with Antimicrobial Properties using Rules of Induction: Kyle Boone; Kyle Camarda; Candan Tamerler; University of Kansas

Bio-Nano Interfaces and Engineering Applications — Bio-Nano Interfaces: Fundamentals II
Program Organizers: Candan Tamerler, University of Kansas; John Nychka, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

Tuesday AM  Room: Pacific 21
February 28, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Hendrik Heinz, University of Colorado Boulder; Stefano Corni, University of Modena

8:30 AM Invited
On the Solidification Kinetics of Metal Alloys: A Study Using 3-D Phase Field Modeling and Synchrotron X-ray Image Techniques: Zhigeng Guo; Manhong Yang; Shuo Wang; Shoumei Xiong; Tsinghua University

8:50 AM
3D Phase-field Simulations of Graphite Growth in Ductile Cast Iron Considering Interaction between Local Expansion and Microsegregation: Janin Eiken; Bernd Böttger; ACCESS

9:10 AM
Dendritic Grain Growth Competition in Directional Solidification of Alloys: A Phase-field Study: Damien Tourret; Younggil Song; Amy Clarke; Alain Karma; Los Alamos National Laboratory; Northeastern University; Colorado School of Mines

9:30 AM
Phase Field Modelling of Snowflakes Growth: Gilles Demange; Helena Zapolsky; Renaud Patte; Marc Brunel; Université de Rouen/GPM/ERAFEN; Université de Rouen/CORIA

9:50 AM
Phase Field Study on Stress Induced Dendrite Fragmentation: Mohammad Ahmed; Nils Warnken; University of Birmingham

10:10 AM Break

10:10 AM Invited
Computational Models of Peptide-Surface Interactions Drawn from Bacterial Peptides: Takakazu Seki; Tomohiro Tanaka; Yuhei Hayamizu; Tokyo Institute of Technology

10:40 AM Invited
Modeling of Nanocomposite Scaffolds and Interfacial Behavior during Tissue Regeneration and Scaffold Degradation: A Multiscale Mechanics Approach: Dinesh Katti; Anurag Sharma; Kalpana Katti; North Dakota State University

11:10 AM
Designing Peptides with Antimicrobial Properties using Rules of Induction: Kyle Boone; Kyle Camarda; Candan Tamerler; University of Kansas

Biological Materials Science — Bones, Teeth and Dental Materials
Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Tuesday AM  Room: Pacific 15
February 28, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Dwayne Arola, University of Washington; Michael Porter, Clemson University

8:30 AM Invited
Computational Models of Peptide-Surface Interactions Drawn from Bacterial Peptides: Takakazu Seki; Tomohiro Tanaka; Yuhei Hayamizu; Tokyo Institute of Technology

8:50 AM
Computational Design of Biological-Inorganic Materials from the Nanoscale: Hendrik Heinz; University Of Colorado-Boulder

9:10 AM
Computational Design of Biological-Inorganic Materials from the Nanoscale: Hendrik Heinz; University Of Colorado-Boulder

9:50 AM Break

10:10 AM Invited
On the Solidification Kinetics of Metal Alloys: A Study Using 3-D Phase Field Modeling and Synchrotron X-ray Image Techniques: Zhigeng Guo; Manhong Yang; Shuo Wang; Shoumei Xiong; Tsinghua University

10:30 AM Invited
Atomistic Simulations of the Interaction of Gold Surfaces and Nanoparticles with Amyloidogenic Proteins and Peptides: Stefano Corni; CNR Istituto Nanoscienze

10:40 AM Invited
Modeling of Nanocomposite Scaffolds and Interfacial Behavior during Tissue Regeneration and Scaffold Degradation: A Multiscale Mechanics Approach: Dinesh Katti; Anurag Sharma; Kalpana Katti; North Dakota State University

11:10 AM
Designing Peptides with Antimicrobial Properties using Rules of Induction: Kyle Boone; Kyle Camarda; Candan Tamerler; University of Kansas
10:00 AM Break

Spatial Variations in the Rate of Aging of Mineralized Tissues: Dwayne Arola; W. Yan; C. Montoya; E.A. Ossa; University of Washington; Universidad Eafit

10:05 AM

Dynamic Atomic Cooperativity in Liquids and Glasses: Takeshi Egami; University of Tennessee

10:15 AM Invited

Effect of Stress on Crystallization Pathways in Metallic Glasses: M. Naeem; S. Lan; B. Wang; Yang Ren; Xiao-Li Wang; City University of Hong Kong; Argonne National Laboratory

10:20 AM Invited

Optimizing Recovery Efficiency for Briquetted Aluminum Chips up to Briquetting Parameters: Ali Ulus; Hamdi Ekeri; Erdem Güler; Teknik Aluminyum

10:35 AM

The Evaluation of Hot Dross Processing Systems: David Roth; GPS Global Solutions

10:40 AM Invited

Ceramic Materials for Nuclear Energy Research and Applications — Fundamental Defect Science in Ceramics and Thermal Transport: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillian, Idaho National Laboratory; Marat Khaifizov, Ohio State University; Thierry Wiss, European Commission-JRC-Institute of Transuranium Elements – Germany

10:45 AM

Effect of Oxipyr Diluted Combustion in Aluminum Furnaces: Ray Cook; Marcos Varayadl; Steve Iijima; Eishin Takahashi; New Zealand Aluminium Smelters Limited; Zmag, Ltd.

11:00 AM

Energy Efficiency Status-quo of UK Foundries: The “Small-Is-Beautiful” Project: Mark Jolly; Konstantinos Salonitis; Fiona Charnley; Peter Ball; Hamid Mehrabi; Emanuele Pagone; Cranfield University; University of York

11:15 AM

Avoiding Brain Injury: A Structural Role of the Frontal Overhang on the Skull Bone of Woodpeckers: Jae-Young Jung; Andrei Pissarenko; Steven Nalewaj; Kathryn Kang; Nicolas Yaraghi; Eric Bushong; Mark Ellisman; David Kisalius; Marc Meyers; Joanna McKitterick; UC San Diego; University of Utah; UC Riverside

11:20 AM

Discovering a Unique Thermal-driven Glass-glass Transition in Metallic Glass: Qing Du; Xiongjun Liu; Qiaoshi Zeng; En Ma; Hui Wang; Yuan Wu; Z.P. Lu; University of Science and Technology Beijing; Center for High Pressure Science and Technology Advanced Research; Johns Hopkins University

11:25 AM

Using Stress to Drive Nanoscale Heterogeneity: Guan-Nan Yang; University of Illinois at Urbana-Champaign

11:30 AM

Semiempirical Studies of Alloys: David Roth; UC Berkeley

11:35 AM

Deformation Induced Heterogeneities in Metallic Glasses: Robert Maass; University of Illinois at Urbana-Champaign

11:40 AM Invited

A Study on the Formation and Propagation Behavior of Shear Bands in Metallic Glasses: Ke-Fu Yao; Guan-Nan Yang; Yang Shao; Tsinghua University

11:45 AM

Deformation Induced Heterogeneities in Bulk Metallic Glasses: Peter Tsai; Kelly Kranjac; Katharine Flores; Washington University

11:50 AM

Hierarchical Heterogeneities in Bulk Metallic Glasses: Emanuele Pagone; University of Padova; Italy

11:55 AM

A Study on the Formation and Propagation Behavior of Shear Bands in Metallic Glasses: Takeshi Egami; The University of Tennessee; Katharine Flores, Washington University

12:00 PM

Casting Technology — Melting, Energy, and Dross: David Gildemeister, Alcoa Technical Center

Tuesday AM

Room: 1A

Location: San Diego Convention Center

Session Chairs: Cindy Belt, Metals Energy Management, LLC; Mark Jolly, Cranfield University

8:30 AM Introductory Comments

8:40 AM

Application and Results of Oxipyr Diluted Combustion in Aluminum Furnaces: Michael Potesser; Johannes Rauch; Messer Group

9:05 AM

Case Study of Magnetically-Supported Casting Furnaces at New Zealand Aluminium Smelters Limited: Ray Cook; Marcos Varayadl; Steve Iijima; Eishin Takahashi; New Zealand Aluminium Smelters Limited; Zmag, Ltd.

9:30 AM

Energy Efficiency Status-quo of UK Foundries: The “Small-Is-Beautiful” Project: Mark Jolly; Konstantinos Salonitis; Fiona Charnley; Peter Ball; Hamid Mehrabi; Emanuele Pagone; Cranfield University; University of York

9:55 AM Break

10:10 AM

Optimization of Recovery Efficiency for Briquetted Aluminum Chips up to Briquetting Parameters: Ali Ulus; Hamdi Ekeri; Erdem Güler; Teknik Aluminyum

10:35 AM

The Evaluation of Hot Dross Processing Systems: David Roth; GPS Global Solutions

11:00 AM Invited

Radiation Damage on UO2 and UN: Lingfeng He; Jian Gan; Marquis Kirk; Besa Tyburska-Pueschel; Brian Jaques; Idaho National Laboratory; Argonne National Laboratory; University of Wisconsin-Madison; Boise State University

9:00 AM

Five-dimensional Representation of Grain Boundary Energies in UO2: Yongfeng Zhang; Timothy Harbison; Jarin French; Joseph Carmack; Evan Hansen; Idaho National Laboratory; Brigham Young University-Idaho; University of Arkansas
Effect of Burn-up on the Thermal Conductivity of Fast Reactor MOX Fuel

Dragos Staicu
Los Alamos National Laboratory

10:00 AM Break

Effect of Burn-up on the Thermal Conductivity of Fast Reactor MOX Fuel

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Los Alamos National Laboratory

10:00 AM Break

Effect of Burn-up on the Thermal Conductivity of Fast Reactor MOX Fuel

Dragos Staicu
Los Alamos National Laboratory

10:00 AM Break
11:25 AM
Net Shaping of Steel-Tungsten Metal Hybrid via Binder Jet Additive Manufacturing: Amy Elliott; Derek Siddel; Christopher Shafer; 'Oak Ridge National Lab

11:45 AM
Texture Evolution of Binary Mg-Gd Alloys during Extrusion: Aidin Imandoust; Haitham El Kadiri; 'Mississippi State University; 'Mississippi State University

12:05 PM
Thermo Chemical Nitriding of Ti6Al4V Alloy: Farid Siyabjani; 'Istanbul Technical University

Computational Materials Discovery and Optimization – From Bulk to Materials Interfaces and 2D Materials – Materials Surfaces, Interfaces, and Electrochemistry
Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Tuesday AM  Room: 11A  Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM Invited
Ab-initio Description of Oxides in an Electrochemical Environment: Mira Todorova; Anoop Vatti; Suhyun Yoo; Joerg Neugebauer; 'Max-Planck-Institut für Eisenforschung GmbH

9:00 AM
Computational Discovery of Highly Active Catalysts to Enhance Electrochemical Reactions in Li-O2 Batteries: Jianjun Liu; 'Shanghai Institute of Ceramics, Chinese Academy of Sciences

9:20 AM Invited
The Electrostatic Double Layer of Pt/Water Interfaces from First Principles Molecular Dynamics: Clotilde Cucinotta; 'Trinity College

9:50 AM Invited
Metal-Organic Frameworks for Gas Capture and Storage: Computational Discovery and Experimental Validation: Donald Siegel; 'University of Michigan

10:20 AM Break

10:35 AM
Machine Learning the Atomic “Building Blocks” of Grain Boundary Systems: Conrad Rosenbrock; Gus Hart; Eric Homer; 'Brigham Young University

10:55 AM
A Theoretical Study of Interfaces between Transition Metals and a-C:H: Matous Mrovec; Srinivasan Rajagopalan; Davide Di Stefano; Christian Elsaesser; 'Fraunhofer Institute for Mechanics of Materials IWM; 'ExxonMobil Research and Engineering Company

11:15 AM Invited
Computational Materials Discovery: From Reduced Pt Catalysts to Lightweight Alloys: Houlong Zhuang; Alexander Tkalych; Mohan Chen; Emily Carter; 'Princeton University

11:45 AM
High-Throughput Screening on Relationship between Selectivity and Working Capacity of Porous Materials for Propylene/Propane Adsorptive Separation: Byung Chul Yeo; Sang Soo Han; 'Korea Institute of Science and Technology

12:05 PM
A Study on the Effects of Temperature and Composition on the Templated Two-Phase Growth of a Thin Film by the Means of Computer Simulation: Xiaoyi Zhu; Jia-Gang Zhu; David Laughlin; Jingxi Zhu; 'Sun Yat-sen University- Carnegie Mellon University Joint Institute of Engineering; 'Carnegie Mellon University

Computational Thermodynamics and Kinetics — Grain Boundaries and Defects I
Program Organizers: Niaz Abdolrahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

Tuesday AM  Room: 11B  Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM Invited
MPMC Discrete Thermodynamic Simulations of Grain Growth in Nanotwinned Polycrystalline Films: Elizabeth Holm; Philip Goins; 'Carnegie Mellon University

9:00 AM
Construction of Grain Boundary “Phase” Diagrams with Atomic Simulation: Shengfeng Yang; Naixie Zhou; Jian Luo; 'University of California, San Diego

9:20 AM
Grain Growth in Thin Films as a Truly Three-dimensional Problem: A Study Simulation: Dana Zöllner; Ahu Öncü; 'Otto von Guericke University Magdeburg

9:40 AM
Interaction of Shear-coupled Grain Boundary Motion with Crack Studied by Molecular Dynamics Simulations: Aramfard Mohammad; Chuang Deng; 'University of Manitoba

10:00 AM Break

10:15 AM Invited
Stochastic Grain Boundary Dynamics in a DSC Model for Shear Coupling: Jian Han; Vaclav Vitek; David Srolovitz; 'University of Pennsylvania

10:45 AM
A Universal Discrete Dislocation Model for Thermal Activation and Diffusion-assisted Climbing: Ran Zhu; Srinath Chakravarthy; 'Northeastern University

11:05 AM
Non-Schmid Effects on Dislocation Core Structure and Influence on Dislocation Mobility in Titanium: Max Poschmann; Daryl Chrzan; Mark Asta; 'UC Berkeley

11:25 AM
A Dislocation Density Approach to Determine Pipe Diffusivity: Chaoyi Zhu; Tyler Harrington; Kenneth Vecchio; 'UC San Diego

11:45 AM
Developing the Third Generation of Calphad Databases - Modelling AI as a Case Study: Sedigheh Bigdeli; Alber Glesnk; Blazej Grabowski; Alexandre Khvans; Huahai Mao; Malin Sellby; 'KTH Royal Institute of Technology; 'Max-Planck-Institut für Eisenforschung GmbH; 'National University of Science and Technology MISIS
Defects and Properties of Cast Metals — Properties II & Hot Tearing
Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Tuesday AM  Location:  San Diego Convention Center
Room:  23A
February 28, 2017
Session Chair:  To Be Announced

8:30 AM Introductory Comments Properties 2
8:35 AM Invited
Study of The Species Macro-segregation in A356 Wheel Casting: Pan Fan1; Andre Phillion2; Steven Cockerill3; Daan Majer4; Carl Reilly1; Lu Yao5; 1University of British Columbia; 2McMaster University
8:55 AM Invited
The Mechanism of a Rapidly Solidified Structure in Spray Forming: Hani Henein1; 1University of Alberta
9:15 AM Update on Bifilms - The Fundamental Defect in Cast Metals: John Campbell1; 1University of Birmingham
9:35 AM 4D Synchrotron X-ray Imaging of Magnetically Controlled Al Alloy Solidification: Biao Cui1; Andrew Kao2; K. Pericleous2; Peter Lee1; 1University of Manchester; 2University of Greenwich
9:55 AM In-situ Synchrotron X-ray Imaging of Inter-dendritic Fluid Flow Using a Model Al-Pb Alloy: Enzo Liotti1; Andrew Lui2; Andre Phillion1; Patrick Grant1; 1University of Oxford; 2McMaster University
10:15 AM Break
10:35 AM Introductory Comments Hot Tearing
10:40 AM Keynote
Prediction of Hot Tearing in Steel and Aluminum alloys: Andre Phillion1; 1McMaster University
11:00 AM Keynote
X-ray Imaging of Solidification Cracking during Welding of Steel: Hongbiao Dong1; 1University of Leicester
11:20 AM Hot-tearing of Multicomponent Al-Cu Alloys Based on Casting Load Measurements in a Constrained Permanent Mold: Adrian Sabau1; Seyed Seyed Mirmiran2; Christopher Glaspie3; Shinmin Li4; Diran Apelian5; Amit Shyam2; J. Haynes1; Andres Rodriguez2; 1Oak Ridge National Laboratory; 2Fiat Chrysler Automobiles North America; 3Worcester Polytechnic Institute; 4Nemak Monterrey
11:40 AM Semi-solid Mechanical Behaviour and Hot-tearing of a 7050 Alloy: Experimental Analysis and Thermomechanical Modeling: Kjerstin Ellingsen1; Arne Nordmark1; Mohammed M’Hamdi1; 1SINTEF
12:00 PM The Nucleation and Growth of Hot Tearing during Strip Casting Steel: Wanqiang Xu1; Michael Ferry1; 1The University of New South Wales
12:20 PM Investigation of Hot Tearing A380.1 In “T Shape Mold”: Muhammet Uludag1; Remzi Cetin2; Derya Dispinar2; Murat Tiryakiloglu3; Selcuk University; 2Halic University; 3Istanbul University; 4University of North Florida

Deformation and Transitions at Interfaces — Meso/ Microstructural Scale Mechanical Behavior of Polycrystals I
Program Organizers: Saryu Fensin, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Rozaliya Barabash, OakRidge National Lab; Shen Dillon, Universe of Illinois; Jian Luo, University of California, San Diego; Doug Spearer, University of Florida

Tuesday AM  Location:  San Diego Convention Center
Room:  23B
February 28, 2017
Session Chair:  To Be Announced

8:30 AM Invited
New Insights into Plasticity at Grain Boundaries by Nano- and Micromechanics: Christoph Kirchlechner1; Nataliaya Malyshev1; Nicolas Peter1; Gerhard Dehm1; 1Max-Planck-Institut für Eisenforschung GmbH
8:50 AM Invited
Grain Boundary-Mediated Deformation Mechanisms Accommodating Mechanical Grain Growth in Nanocrystalline Metals: Jason Trelewicz1; 1Stony Brook University
9:10 AM Invited
Studying the Mechanical Response of Regions within Grains and Near Grain Boundaries Using Spherical Nanoindentation: Siddhartha Pathak1; 1University of Nevada, Reno
9:30 AM Influence of Dislocation Density on Plastic Deformation near Grain Boundary in Alpha-titanium Studied by Nanoindentations and Modeling : Yang Su1; Philip Eisenlohr1; Thomas Bieler1; Martin Crimp1; 1Michigan State University
9:50 AM Invited
Deformation Mechanisms of Single and Polycrystalline Zirconia Nanopillars: Ning Zhang1; Mohsen Asle Zaeem1; 1Missouri University of Science and Technology
10:10 AM Break
10:30 AM Invited
Mechanical Characterization of Grain Boundary Regions Using Spherical Nanoindentation: Shraddha Vachhani1; Roger Doherty1; Surya Kalindire1; 1Hysitron, Inc; 2Drexel University; 3Georgia Institute of Technology
10:50 AM Invited
Phases and Phase Transformations at Interfaces: Tim Frolov1; Mark Asta2; Y. Mishin2; 1Lawrence Livermore National Laboratory; 2University of California - Berkeley; 3George Mason University
11:10 AM Invited
Atomistic Simulations of Transient Testing in Nanocrystalline Al: Maxime Dupraz1; Zhen Sun1; Christian Brandl2; Helena Van Swygenhoven1; 1Paul Scherrer Institut; 2Paul Scherrer Institut & EPFL; 3Karlsruhe Institute of Technology
11:30 AM Stabilization of Nanocrystalline Alloys at High Temperatures via Utilizing High-entropy Grain Boundary Complexions: Naixie Zhou1; Tao Hu1; Mingde Qing1; Jiajia Huang1; Jian Luo1; 1UCSD Nanoengineering
11:50 AM Invited
Observation and Characterization of Grain Boundary Complexions in Hot-pressed Boron Carbide: Christopher Behler1; Scott Walck1; Christopher Marve1; 1U.S. Army Research Laboratory (SURVICE Engineering); 2Lehigh University; 3U.S. Army Research Laboratory
12:10 PM Invited
Complexion Transitions in Metals: Unique Opportunities for Mechanical Behavior and Materials Processing: Timothy Rupe1; 1University of California, Irvine
Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Electromigration, Thermomigration and Electrochemical Behaviors

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

Tuesday AM Room: 30E Location: San Diego Convention Center

Session Chairs: John W Elmer, Lawrence Livermore National Laboratory; Yan Li, Intel Corporation

8:30 AM Invited
The Grain Refinement of Metal Alloy by Electromigration: PinChu Liang1; Kwang-Lung Liu1; Yu Tian1; Fu Guo1; 1National Cheng Kung University

8:50 AM
In situ Characterization of Electromigration Damage in Single Crystal and Bicrystal Pure Tin Solder Joints: Marion Branch Kelly1; Antony Kirubanandham1; Nikhillesh Chawla1; 1Arizona State University

9:10 AM
DZ Value of the Sn Diffuser in CuSn, under Various Current Densities: Cheng-Hsien Yang1; Pei-Tzu Lee1; Han-Lin Chung1; Cheng-En Ho1; 1Yuan Ze University

9:30 AM
Study of Electromigration Mechanism in Pb-free Trierycstals Ball Grid Array Solder Joints: Yu Tian1; Jing Han1; Fu Guo1; 1Beijing University of Technology

9:50 AM
Intermetallic Compound Movement Behavior of Cu Reinforced Composite Solder under Current Stressing: Fu Guo1; Yan Wang1; Jing Han1; 1Beijing University of Technology

10:10 AM Break

10:30 AM
Effective Suppression of Thermomigration-induced Cu Dissolution in Microscale Pb-free Interconnects by Ag3Sn interlayer: Gong-Lin Hong1; Yu-Fang Lin1; Fan-Yi Ouyang1; 1Dept. of Engineering and System Science, National Tsing Hua University, Hsinchu, TAIWAN

10:50 AM
Corrosion Resistance for High Reliability Devices: Tsan-Hsien Tseng1; Albert T. Wu1; 1National Central University

11:10 AM
Failure Mechanism and Reliability of Ag-4Pd Alloy Wire Bonded on Al-Si Metallization under High Temperature Storage and Thermal Cycle Tests in Corrosive Environments: Yan Wen Tsai1; Jui-Nung Wang1; Fan-Yi Ouyang1; 1National Tsing Hua University


Program Organizers: Subodh Das, Phinix,LLC; Zhancheng Guo, University of Science and Technology Beijing; Minfang Han, China University of Mining and Technology, Beijing; Teruhisa Horita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Xingbo Liu, West Virginia University

Tuesday AM Room: 14B Location: San Diego Convention Center

Session Chair: Subodh Das, Phinix,LLC

8:30 AM Keynote
Green Development is the Future Direction for Chinese Steel Industry: Chuxia Zhang1; Fangqin Shangguan1; Haifeng Wang1; Shourong Zhang1; Ruiyu Yin1; 1Central Iron & Steel Research Institute; 2Wuhan Iron and Steel (Group) Co. Ltd (WISCO)

9:00 AM Invited
The Combined Cycle Power Plant (CCPP) Used In Energy Conversion of Steel Smelting Production: Chuxing Tan1; Xuezhi Dong2; Yixiang Yuan2; 1Chinese Academy of Science; 2Chinese Academy of Sciences

9:30 AM
Green Manufacturing Process of Shougang Jingtang Steel Plant: Fuming Zhang1; Jianxin Xie1; 1Shougang Group

9:50 AM Invited
The Introduction and Process Optimization Research of Oxygen Blast Furnace Ironmaking Technology: Qingguo Xue1; Zeshang Dong1; Jingsong Wang1; Zeyi Liang1; Haibin Zuo1; Xuefeng She1; Guang Wang1; 1University of Science and Technology Beijing

10:10 AM Break

10:30 AM
Prediction and Optimal Scheduling of Byproduct Gases in Steel Mill: Trends and Challenges: Xianxing Zhao1; Hao Bai1; Qi Shi1; Zhancheng Guo1; 1State Key Laboratory of Advanced Metallurgy,University of Science and Technology Beijing

10:50 AM
Processing Non-Oriented Electrical Steels Using Inclined/Skew Rolling Schemes: Yu-liang He1; Mehdi Sanjari1; Erik J. Hilinski1; 1Natural Resources Canada; 2Tempel Steel Co.

11:10 AM Invited
A Possible Way for Efficient Utilization of Coal Energy: The Combined Process of Ironmaking with Gasoline Synthesis and Electricity Generation: Zhancheng Guo1; 1University of Science and Technology Beijing

11:30 AM
Waste Energy Recovery Technology of Iron and Steel Industry in China: Xu Zhang1; Hao Bai1; Juxian Hao1; Zhancheng Guo1; 1State Key Laboratory of Advanced Metallurgy,University of Science and Technology Beijing


Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Kyle Brinkman, Clemson University; Teruhisa Horita, AIST; Minfang Han, China University of Mining and Technology, Beijing

Tuesday AM Room: 12 Location: San Diego Convention Center

Funding support provided by: Tentative
Sponsor: Energy Conversion and Storage Committee (FMD) ...Approved
Co-Sponsor: High Temperature Alloys Committee (SMD) ...Approved

Session Chairs: Soumendra Basu, Boston University; Teruhisa Horita, AIST

8:30 AM Invited
New Materials for Solid Oxide Fuel Cells: Shriram Ramanathan1; 1Purdue University

8:55 AM Invited
Investigation on Cathode Interlayer and Electrolyte for Improving Electric Power Efficiency of SOFCs: Takaaki Somekawa1; Yoshio Matsuizaki1; Yuya Tachikawa1; Hiroshige Matsumoto1; Shunsuke Taniguchi1; Kazunari Sasaki1; 1Tokyo Gas Co., Ltd.; 2Kyushu University

9:20 AM Invited
Poisoning Mechanism and Performance Degradation at SOFC Cathode/Electrolyte Interfaces: Teruhisa Horita1; Masahiro Ishiyama1; Katherine Develop-Bgarinasa1; Haruo Kishimoto1; Katsuhiro Yamaji1; 1AIST

9:40 AM
Phase Field Modelling of Microstructure and Conductivity Evolution of SOFC Electrodes: Yinkai Lei1; Tianle Cheng1; Youhai Wen1; 1National Energy Technology Laboratory
10:00 AM Break

10:20 AM
Reactive Synthesis of Spinel Contact Layers with Metallic Precursor Powders: \textit{Jiajung Zhu}; Yutian Yu; 'Tennessee Technological University

10:40 AM Invited
Electroplastically Deposited Copper Manganese Spinel Coatings for Interconnections in Solid Oxide Fuel Cells: Zhihao Sun; Srikanth Gopalan; Uday Pal; 'Soumendra Basu'; 'Boston University

11:05 AM
Synthesis and Characterisation of Perovskite Type Anode Material and Its Tape Coating for IT-SOFC Application: Subhajit Pan; Ramesh Biswal; Koushik Biswas; 'IIT Kharagpur

11:25 AM Invited
Modified SOFC Cermet Anodes for Improved Catalysis at High Fuel Utilization: Paul Gasper; Yanchen Lu; Uday Pal; Soumendra Basu; Srikanth Gopalan; 'Boston University

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**Energy Materials 2017: Materials for Gas Turbines — Creep and Failure**

*Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group*

Tuesday AM Room: 13 Location: San Diego Convention Center

*Session Chair: To Be Announced*

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8:30 AM Invited
Alloy Development for Promoting $\square$/$\square$ Microstructural Stability and Creep Properties of Multi-component Co-base Superalloys: Wendao Li; Haijing Zhou; Song Lu; Fei Xue; Qiang Feng; 'University of Science and Technology Beijing; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

9:00 AM
Rafting Prediction Criterion and Creep Life for Nickel-based Single Crystal Superalloys under Multiaxial Stress States: Zhixun Wen; Huan Yang; Zhufeng Yue; Chengjiang Zhang; 'Northwestern Polytechnical University

9:20 AM
Effect of C Addition on Creep and Microstructure Stability of Lamellar TiAl Alloys: Xiwen Zhang; Ji Zhang; Jing Zhu; 'China Iron and Steel Research Institute Group; 'Tsinghua University

9:40 AM
Revisiting the Sources of Creep Dislocations in Ni-base, Single Crystal Superalloys: Farangis Ram; Zhuangming Li; Zailing Zhu; Masood Hafez Haghighat; Stefan Zaefferer; Dierk Raabe; Roger Reed; 'Camgie Mellon University; 'Max-Planck Institut für Eisenforschung GmbH; 'University of Oxford

10:00 AM Break

10:20 AM
Development Activities of Rotor Forgings for Turbines in High Efficiency Power Plants: Nikolaus Blues; B. Donth; Andreas Diwo; D. Bokelmann; M. Baues; 'Saarschmiede GmbH Freiformschmiede; 'Saarschmiede GmbH Freiformschmiede

10:40 AM
Mechanisms of Fracture in Laser Powder Bed Additive Manufactured Superalloys: Håkan Brodin; Per Sandahl; 'Siemens Industrial Turbomachinery AB; 'Exova AB

11:00 AM
Wang: High Temperature Oxidation of the New Type $\square$-strengthened Cobalt-base Superalloys: Lei Wang; Yang Liu; Bo Gao; Xiu Song; Shuyu Yang; 'Northeastern University; 'Northeastern University; 'Shenyang University

11:20 AM
Failure Modes and Solutions of 17-4PH Martensite Steel: Ruiping Su; Min Wang; Peilin Wu; 'Baosteel Group; 'Baosteel Group

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**Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session III**

*Program Organizers: Indranil Roy, Schlumberger; Chengqia Shang, University of Science and Technology Beijing*

Tuesday AM Room: 14A Location: San Diego Convention Center

*Session Chair: To Be Announced*

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8:30 AM Keynote
Placeholder for Ram Shenoy - Technological Innovation and Creative Destruction in the Energy Sector: TMS Administration; 'Department of Energy-ram.g.shenoy@gmail.com

9:00 AM Keynote
Interfacial Engineering for Efficiency Enhancements in Energy-Water-Food: Kripa Varanasi; 'Massachusetts Institute of Technology

9:30 AM Keynote
Placeholder for Charles S. Knobloch - “Global Intellectual Property Protection” and Its Importance in Energy: TMS Administration; 'Charles@arnold-iplaw.com

10:40 AM Keynote
Placeholder for Rehan Alimohammad - Immigration and Brain Drain in Energy: TMS Administration; 'rehan@aandzlegal.com

11:00 AM Panel Discussion

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

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

Tuesday AM Room: 31A Location: San Diego Convention Center

*Session Chairs: John Scully, University of Virginia; Brian Somerday, Southwest Research Institute*

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8:30 AM Invited
Quantification of Hydrogen-Metal Interactions in Engineering Alloys in Confined Spaces: Challenges and Opportunities: John Scully; 'Univ of Virginia

9:10 AM
The Effect of Microstructural Variation on Hydrogen Environment-Assisted Cracking Susceptibility of Monel K-500: Zachary Harris; Brendy Rincon Troconis; John Scully; James Burns; 'University of Virginia

9:30 AM
Factors Causing Hydrogen Embrittlement of Cold-drawn Pearlitic Steel Fractured under Elastic/Plastic Region: Ryosuke Kanno; Toshiyuki Manabe; Naoki Matsui; Daisuke Hirakami; Kenichi Takai; 'Sophia University; 'Nippon Steel & Sumitomo Metal Corporation
Friction Stir Welding and Processing IX — High Temperature Applications II
Program Organizers: Yuri Hovans, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Tuesday AM
Room: 9
Location: San Diego Convention Center

Session Chairs: Murray Mahoney, Retired from Rockwell Scientific; Hidetoshi Fujii, Osaka University

8:30 AM Introductory Comments

8:35 AM
Characterization of PCBN Tool Wear in Friction Stir Welding of 304 Stainless Steel in Preparation for Welding Irradiated Materials: Brian Gibson1; Wei Tang1; Zhiyi Feng1; Artie Peterson1; Gregory Frederick2; Oak Ridge National Laboratory; Electric Power Research Institute

8:55 AM
Evaluation of Ausformed H13 Tool Steel for FSW Tools: Murray Mahoney1; John Baumann1; Anthony Reynolds1; Retired from Rockwell Scientific; Boeing2; University of South Carolina

9:15 AM
Development of Friction Stir Processing for Repair of Nuclear Dry Cask Storage System Canisters: Kenneth Ross1; Ben Sutton1; Glenn Grant1; Gary Cannell1; Greg Frederick1; Robert Couch1; Pacific Northwest National Laboratory; Electric Power Research Institute; FLOR

9:35 AM
Friction-Stir-Processing Microstructure Improvement Related to Fatigue-strength and Charpy-absorbed-Energy Increase of TIG-welded SS400 Steels: Kazuhiro Ito1; Tatsuya Okuda1; Hiroki Izumi1; Makoto Takahashi1; Kazuyuki Kohama1; Hajime Yamamoto1; Hidetoshi Fujii1; Osaka University

9:55 AM
Performance of Tungsten-based Alloy Tool Developed for Friction Stir Welding of Austenitic Stainless Steel: Yutaka Sato1; Ayuri Tsuji1; Tomohiro Takida1; Akihiko Ikegaya1; Akinori Shibata1; Hiroshi Ishizuka1; Hideki Moriguchi1; Shinichi Susukida1; Hiroyuki Kokawa1; Tohoku University; Allied Material; Nippon ITF

10:15 AM Break

10:30 AM
Microstructure and Mechanical Behavior of Friction Stir Welded Ti-6Al-4V Joints: L.H. Wu1; Z.Y. Ma1; B.L. Xiao1; Institute of Metal Research, Chinese Academy of Sciences

10:50 AM
Microstructure and Mechanical Properties of Beta-type Ti-15V-3Cr-3Al-3Sn Alloy Joints Fabricated by Friction Stir Welding: Huihong Liu1; Hidetoshi Fujii1; Joining and Welding Research Institute, Osaka University, Japan

11:10 AM Invited
Effect of Hydrogenation on Superplastic Behavior of Nugget in Friction Stir Welded Ti-6Al-4V Joints: Z.Y. Ma1; L.H. Wu1; B.L. Xiao1; Institute of Metal Research, Chinese Academy of Sciences

11:30 AM
Investigation of Process Parameters for Friction Stir Processing (FSP) of Ti-6Al-4V Alloy: Sandip Chougule1; Diggijay Sheed1; Rajkumar Singh1; Nithyanand Prabhru1; Bhagwati Kashyap1; Kaushal Jha1; Bharat Forge Ltd.; Indian Institute of Technology, Bombay; Bhabha Atomic Research Centre, Mumbai
Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin — Structure-Property-Performance Correlations: Carbon Nanotubes, Boron Nitride and Biotechnologies
Program Organizers: Fay Hua, Intel Corporation; Tae-Kyu Lee, Portland State University; Young-Ho Kim, Hanyang University; Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Choong-un Kim, University of Texas at Arlington; Nuggehalli Ravindra, New Jersey Institute of Technology

Tuesday AM Room: 33B Location: San Diego Convention Center
Session Chairs: Seung Kang, Qualcomm Incorporated; Roger Narayan, UNC/NCSU

8:30 AM Introductory Comments
8:40 AM Invited
Multifunctional Carbon Nanotube Films and Composites: Liwen Zhang1; Xin Wang1; Qingwen Li2; Yuntian Zhu1; 1North Carolina State University; 2Suzhou Institute of Nanotechnology and Nanobiotechnology
9:10 AM Invited
Boron-Filled Hybrid Carbon Nanotubes: Rajen Patel1; Alokik Kanwal2; Tseng-Ming Chou3; Joseph Lefebvre4; Frank Owens5; David Apigo6; Zafar Iqbal7; 1Picatinny Arsenal, NJ; 2NJIT; 3SIT; 4Hysitron; 5Hunter College
9:40 AM Direct Conversion of h-BN into Phase Pure c-BN and Size Dependent Raman Spectroscopy of Nano and Micro Structures, and Thin Films of c-BN: Ariful Haque1; Anagh Bhauamik2; Jagdish Narayan3; 1NCSU
10:00 AM Break
10:15 AM Invited
Catalyzed BNNT Growth on Metallic Substrates: Vijayesh Kumar1; Debupra Lahiri1; Indranil Lahiri1; 1Indian Institute of Technology Roorkee
10:45 AM Remarkable Conversion of p to n Type Reduced Graphene Oxide (rGO) by Laser Annealing Technique at Room Temperature and Pressure: Anagh Bhaumik1; Ariful Haque2; Jagdish Narayan3; 1North Carolina State University
11:05 AM Invited
Preparation and Characterization of Ceramic Scaffolds: Joanna McKittrick1; Steven Naleway3; Michael Frank3; Jae-Young Jung4; Frances Su5; 1University of California, San Diego; 3California, San Diego; 4University of Saskatchewan; 5University of California, LA
11:35 AM Invited
Development of Biodegradable Magnesium Alloys: Kwang Seon Shin1; Ahmad Bahmani1; 1Seoul National University

Fundamental Aspects and Modeling Powder Metal Synthesis and Processing — Field-assisted Processing
Program Organizers: Paul Prichard, Kennametal; Eugene Olevsky, San Diego State University; Iver Anderson, Ames Laboratory

Tuesday AM Room: 16A Location: San Diego Convention Center
Session Chair: Eugene Olevsky, San Diego State University

8:30 AM Invited
Mechanisms of Pore Formation in High-temperature Carbides: Case Study of TaC Prepared by Spark Plasma Sintering: Olivia Graeve1; James Kelly1; 1University of California, San Diego
9:10 AM A Numerical Tool to Master the SPS Densification of TiAl Complex Shapes: Martins David1; Estournes Claude2; Sallot Pierre3; Bellet Michel4; Mecellin Katia5; 1SAFRAN; 2CIRIMAT; 3CEMEF
9:30 AM Influence of Loading Modes in Spark Plasma Sintering: Xialu Wei1; Eugene Olevsky2; 1San Diego State University
9:50 AM Modeling and Optimization of Hierarchical Porous Structures during Spark Plasma Sintering: Diletta Giuntini1; Eugene Olevsky2; 1San Diego State University
10:10 AM Break
10:30 AM Invited
Predicting (1) Activated Sintering of Refractory Metals and (2) Flash Sintering of Oxides: Jian Luo1; 1UC San Diego
11:10 AM Optimization of Temperature Regime of Spark Plasma Sintering of AlON Powder: Yingchun Shan1; Xialu Wei2; Xiannian Sun3; Geuntak Lee1; Jiujuan Xu2; Eugene A Olevsky3; 1Dalian Maritime University; 2San Diego State University
11:30 AM On the Role of Electric Current in Spark Plasma Sintering of Conductive Powders: Geuntak Lee1; Eugene Olevsky3; Joanna McKittrick2; 1San Diego State University; 2University of California, San Diego

Gamma (FCC)/Gamma-Prime (L12) Co-based Superalloys II — Microstructural Evolution
Program Organizers: Eric Lass, National Institute of Standards and Technology; Giang Feng, University of Science and Technology Beijing; Alessandro Moturra, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Tuesday AM Room: Pacific 14 Location: Marriott Marquis Hotel & Marina
Session Chairs: Eric Lass, NIST; TBD TBD, TBD

8:30 AM Introductory Comments
8:35 AM Keynote
Coarsening Kinetics and Elemental Partitioning of (f.c.c.) Gamma Plus (L12) Gamma-prime-strengthened Co-base Superalloys: Daniel Sauza1; Peter Bocchini1; James Coakley2; Eric Lass3; David Dunand2; David Seidman4; 1Northwestern University; 2National Institute of Standards and Technology (NIST); 3San Diego State University
9:15 AM Invited
On the Role of the Base Elements Co and Ni in 947°-hardened Superalloys: Steffen Neumeier1; Christopher Zenk1; Nicklas Volz1; Timur Halvaci2; Mathias Gönken3; 1Friedrich-Alexander-Universität Erlangen-Nürnberg; 2Friedrich-Alexander-Universität Erlangen-Nürnberg
9:45 AM Properties of 947°-phase in L12-precipitation Hardened Co-base Alloys with Different W-content: Yuzhi Li1; Uwe Lorenz2; Steffen Neumeier1; Andreas Schreyer1; Andreas Stark1; Li Wang2; Florian Pyczak3; 1Helmholtz-Zentrum-Geesthacht; 2Friedrich-Alexander-Universität Erlangen-Nürnberg; 3European Spallation Source ERIC
10:45 AM Structural Stability of L12 and TCP Phases in Co-based Superalloys: Thomas Hammerschmidt1; Arthur Bialon1; Jörg Kößmann1; Ralf Drautz2; 1ICAMS, Ruhr-Universität Bochum
10:55 AM Elemental Partitioning Behaviour in Ni-Co-Al-Ti-Cr Alloys: Sioned Llewelyn1; Katerina Christofidou2; Vicente Araullo-Peters3; Nick Jones1; Emmanuelle Marquis2; Mark Hardy1; Howard Stone1; 1University of Cambridge; 2University of Michigan; 3Rolls-Royce plc
11:15 AM
Modeling Precipitate Coarsening in Cobalt-based Superalloys: Andrea Jokisaari1; Shahab Naghavi2; Peisheng Wang3; Wei Xiong1; Kil-Won Moon1; Christopher Wolverton1; Ursula Kattner2; Careyln Campbell1; Peter Voorhees1; Olle Heimonen1; 1Northwestern University; 2National Institute of Standards and Technology; 3Argonne National Laboratory

11:35 AM
Gammaprime Precipitation in Model CoAlW Alloys: Ahmad Azzam1; Frederic Danoux1; Annie Hauet1; Didier Locq1; Pierre Caron1; Didier Blavette1; 1Normandy Université - CNRS; 2ONERA

GAT-2017 (Gamma Alloys Technology - 2017) — Other Applications and Materials-Processes Development Efforts
Program Organizers: Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Saltot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Tuesday AM  Room: Pacific 17
February 28, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Yuyong Chen, Harbin Institute of Technology; Marc Thomas, ONERA

8:30 AM Invited
IC Engine Valves, an Application for Gamma Ti-Al Alloy Technology: Al Sommer1; 1Del West Engineering, Inc

8:55 AM
CAE-based Analysis of Structural Integrity for an Industrial Gas Turbine Blade Made from TiAI Alloy: Omid Sedaghat1; Sivash Naghavi1; Saeed Asadi1; Fatemeh Heydari1; Ali Bakhshi1; 1MAPNA Turbine Blade Eng. & Mfg. Co. - PARTO

9:15 AM
O-phase in a Lamellar TiAINb Alloy Produced by Powder Metallurgy: Heike Gabrisch1; Uwe Lorenz2; Florian Pyczak3; Marcus Racketl; Andreas Stark1; 1Helmholtz-Zentrum Geesthacht

9:35 AM
Preparation and Electron Beam Welding of Hot Packed Rolled Powder Metallurgy TiAl Sheets: Zhengguan Li1; Lei Xu1; Jie Wu1; Ruipeng Guo1; Rui Yang1; 1Institute of Metal Research, CAS

9:55 AM
Why Grinding of Gamma Titanium Aluminide Makes Sense?: K. Philip Varghese1; 1Saint-Gobain Abrasives

10:15 AM Break

10:25 AM Invited
Development of Cost-effective Processes for Gamma-TiAl Application: Rui Yang1; 1Institute of Metal Research CAS

10:50 AM
Deformation Behavior of Novel B2-γ TiAl Alloy Containing High Niobium: Laiqi Zhang1; Gengwu Ge1; Xiangling Ma3; Junpin Lin1; 1University of Science and Technology Beijing

11:10 AM
Titanium Aluminides under High-pressure, High Temperature and during Plastic Deformation: In-situ Studies by Neutron and Synchrotron Quantum Beams: Klaus-Dieter Liss3; 1Australian Nuclear Science and Technology Organisation

11:30 AM
Hot Forming of Titanium Aluminide Alloys Studied in situ with Synchrotron Radiation: Andreas Stark1; Marcus Racketl3; Michael Oehring1; Norbert Schell1; Lars Lottermoser1; Florian Pyczak1; 1Helmholtz-Zentrum-Geesthacht

11:50 AM
Fracture Behavior during Hot Tension Testing of High Nb Containing TiAl Alloys: Bin Zhu1; Xiangyi Xue1; Hongchao Kou1; Lin Song1; Jinxian Li1; 1Northwestern Polytechnical University

High Entropy Alloys V — Alloy Development and Applications I
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigal Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wei Huang, National Chiao Tung University

Tuesday AM  Room: 32B
February 28, 2017  Location: San Diego Convention Center

Session Chairs: Peter Liaw, The University of Tennessee, Knoxville; Michael Gao, National Energy Technology Laboratory

8:30 AM Invited
A Critical Review of High Entropy Alloys and Related Concepts: Dan Miracle1; Oleg Senkov2; 1AF Research Laboratory; 2UES, Inc.

8:50 AM Invited
Formations, Thermodynamics and Elasticity of High-entropy Alloys: Michael Gao1; Jeffrey Hawk1; David Alman1; 1National Energy Technology Lab

9:10 AM Invited
On the Damage Tolerance of the High-entropy Alloy CrMnFeCoNi in the Range Room Temperature to Liquid Nitrogen Temperatures: Bernd Gladzew1; Keli Thurston1; Anton Hohenwarter2; Guillaume Laplanche1; Eas0 George1; Robert Ritchie1; 1Lawrence Berkeley National Laboratory; 2University of Leoben; 3Ruhr-University Bochum

9:30 AM Invited
Phase Stability of the CrMnFeCoNi High-entropy Alloy: F. Fox1; G. Laplanche1; A. Hohenwarter1; A. Kostka1; F. Otto1; E. P. George1; 1Ruhr University Bochum; 3Montanuniversität Leoben

9:50 AM Invited
A Highly Fracture and Fatigue Resistant Al0.3CoCrFeNi High Entropy Alloy: Moshen Seifi1; Yunzhu Shi1; Peter Liaw2; Huijun Yang2; 1Case Western Reserve University; 2University of Tennessee; 3Tokohu University

10:10 AM Break

10:30 AM Invited
Novel Precious Metal High Entropy Alloys – Design, Structure and Mechanical Performance: Caitlin Healy1; Jörg Löfler1; Michael Ferry1; Kevin Laws1; 1University of New South Wales; 2ETH Zürich

10:50 AM Invited
Hexagonal Close-packed High-entropy Alloys: The Effect of Entropy: Junwei Qiao1; Michael Gao1; Huijun Yang1; 1Taiyuan University of Technology; 2National Energy Technology Laboratory

11:10 AM
Design of Light-weight High Entropy Alloys for Elevated-temperature Applications: Hanyan Diao1; Chuan Zhang1; Fan Zhang1; Karin Dahmen1; Peter Liaw2; 1The University of Tennessee; 2CompuTherm, LLC; 3University of Illinois at Urbana-Champaign; 4The University of Tennessee

11:50 AM
Local Texture in a Swaged CrMnFeCoNi High-entropy Alloy: Aurimas Pukenas1; Guillaume Laplanche1; Easo George1; Werner Skrotzki1; 1TU Dresden; 2Ruhr-Universität Bochum
Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session III

**Program Organizers:** Wei Xiong, University of Pittsburgh; Shuanglin Chen, CompuTherm LLC; Frederic Danoix, Université de Rouen; Indrajit Chari, University of Idaho

**Tuesday AM**
**February 28, 2017**
**Room: 31C**
**Location: San Diego Convention Center**
**Session Chairs:** Amy Clarke, Colorado School of Mines; Peter Wells, University of California - Santa Barbara

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8:30 AM Invited
**Advanced FIM and APT Techniques at the University of Oxford:** Michael Moody; Paul Bagot; 'University of Oxford

9:00 AM Invited
**Advanced Microstructural and Chemical Characterization of Nano-scale NiMnSi Precipitates Formed in Irradiated Reactor Pressure Vessel Steels Using Atom Probe Tomography and Scanning Transmission Electron Microscopy:** Philip Edmondson; Chad Parish; Randy Nanstad; 'Oak Ridge National Laboratory

9:30 AM Invited
**Design of Nd-Fe-B Permanent Magnets with Maximum Coercivity by Controlling Grain Boundary Chemistry at the Atomic Level:** Kazuhiro Hono; Taisuke Sasaki; Hossein Sepehri-Amin; Tadakatsu Ohkubo; 'National Institute for Materials Science

10:00 AM Break

10:20 AM Invited
**Determination of Interfacial Free Energies in Two-phase Metallic Alloys:** Atom-probe Tomographic Experiments and First-principles Calculations: David Seidman; Zugang Mao Mao; Chris Booth-Morrison; 'Northwestern University

10:50 AM Invited
**First-principles Modeling of Anomalous Precipitation in W-Re Alloys under Neutron Irradiation:** Duc Nguyen-Manh; Jan Wrobel; Michael Klimenkov; Sergei Dudarev; 'Culham Centre for Fusion Energy; 'Warsaw University of Technology; 'Karlsruhe Institute of Technology

11:20 AM
**Design and Development of Novel High-temperature Creep Resistant 9% Cr Steels:** Dieter Isheim; Yao Du; Cameron Gross; Semyon Vaynman; Yip-Wah Chung; 'Northwestern University

11:40 AM
**Diffusivity Determination of Slow Diffusion Systems using Diffusion Couples and Multiples:** Zhaogqi Chen; Ji-Cheng Zhao; 'The Ohio State University

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**In-situ Methods for Unraveling Structure-Property Relationships in Light Metals — Imaging and Acoustic Emission**

**Program Organizers:** Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

**Tuesday AM**
**February 28, 2017**
**Room: 5B**
**Location: San Diego Convention Center**
**Session Chairs:** Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

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8:30 AM Introductory Comments

8:40 AM Keynote
**Overview of In-Situ X-ray Studies of Light Alloy Solidification in Microgravity:** David Browne; F. García-Moreno; H. Nguyen-Thi; G. Zimmermann; F. Kargl; Ragnvald Mathiesen; Axel Griesche; O. Minster; 'University College Dublin; 'Institute of Applied Materials, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH; Technische Universität Berlin; 'M2NP & Universität d’Aix-Marseille; 'Access e.V., Intezestrasse; 'Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Materialphysik Im Weltraum; 'Institut für Fysikk, Norsk Teknisk-Naturvitenskapelige Universitet (NTNU); 'Bundesanstalt für Materialforschung und –prüfung (BAM); 'Human Spaceflight and Robotic Exploration Directorate, ESTEC, European Space Agency

9:10 AM
**Morphological Transition of a-Mg Dendrites during Near-isothermal Solidification of a Mg-Nd-Gd-Zn-Zr Casting Alloy:** Daniele Casari; Wajira Mirihanage; Ken Falchi; Inga Ringdalen; Jesper Friis; Rainer Schmid-Fetzer; Dongdong Zhao; Yanjun Li; Wim Sillekens; 'NTNU; 'SINTEF Materials and Chemistry; 'Clausthal University of Technology; 'European Space Agency

9:30 AM
**Real-time Observation of AZ91Solidification by Synchrotron Radiography:** Guang Zeng; Kazuhiro Nogita; Sergey Belyakov; fingwei Xian; Stuart McDonald; Hideyuki Yasuda; Christopher Gourlay; 'Imperial College London; 'University of Queensland; 'Kyoto University

9:50 AM
**3D Microstructural Evolution on Solidifying Mg-5Nd-5Zn Alloy Observed via In Situ Synchrotron Tomography:** Tungky Subronto; Chamini Mendis; Francesco D’Elia; Gábor Szakács; Julie Fife; Norbert Hort; Karl Kainer; Domonkos Tolnai; 'Helmholtz-Zentrum Geesthacht; 'Brunel Centre for Advanced Solidification Technology (BCAST), Brunel University; 'Previously with: Swiss Light Source, Paul Scherrer Institut (PSI)

10:10 AM Break

10:30 AM Invited
**The Use of In-situ X-ray Imaging Methods in the Research and Development of Magnesium-based Grain-refined and Nanocomposite Materials:** Wim Sillekens; Daniele Casari; Wajira Mirihanage; Sofiane Terzi; Ragnvald Mathiesen; Luc Salvo; Rémi Daudin; Pierre Lhuissier; Enyu Guo; Peter Lee; 'European Space Agency; 'NTNU Norwegian University of Science and Technology; 'University of Manchester; 'European Synchrotron Radiation Facility – Institut Laue-Langevin; 'Université Grenoble Alpes

10:55 AM
**Acoustic Emission Study of Deformation Behavior of Wrought Mg Alloys:** Patrik Dobron; Daria Drozdenko; Sangbong Yi; Jan Bohlen; 'Chars University; 'Helmholtz-Zentrum Geesthacht

11:15 AM
**Effect of Thermo-mechanical Treatment of Extruded Z1 Mg Alloy on Resulting Mechanical Properties:** Daria Drozdenko; Jan Bohlen; Sangbong Yi; Patrik Dobron; 'Chars University in Prague; 'Helmholtz-Zentrum Geesthacht

11:35 AM Invited
**In-situ Investigation of Deformation Mechanisms in Mg-Zn-Y Magnesium Alloy with LPSO Phase by Diffraction Methods and Acoustic Emission:** Kristian Mathis; Gerardo Garces; Klaudia Horváth; Daria Drozdenko; Patrik Dobron; 'Faculty of Mathematics and Physics, Charles University; 'CENIM-CSIC

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**Interface-Mediated Properties of Nanostructured Materials — Hierarchical Nanostructured Materials**

**Program Organizers:** Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University; Michael Demkowicz, Texas A&M University

**Tuesday AM**
**February 28, 2017**
**Room: Pacific 23**
**Location: Marriott Marquis Hotel & Marina**
**Session Chairs:** Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University

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8:30 AM
**Deformation Mechanisms in bcc Mg/Nb:** Youying Chen; Satyesh Yadav; Nan Li; Xiang-Yang Liu; Kevin Baldwin; Irene Beyerlein; Richard Hoagland; Jian Wang; Nathan Mara; 'Los Alamos National Laboratory; 'University of Nebraska – Lincoln
8:50 AM Invited 
Fracture Toughness of Al/SiC Nanolaminates: Experiments and Simulation
: Carl Mayer; Ling Yang; V. Carollo; J. Kevin Baldwin; Nathan Mara; Jon Molina-Aldaregua; Nikhillesh Chawla; 1Arizona State University; 2IMDEA; 3Los Alamos National Laboratory

9:20 AM Invited 
The Role of Interfaces on Plasticity in Dislocation Nucleation-mediated Nanostructures: Jungho Shin; Lisa Chen; Gunther Richter; Thomas Cornelius; Olivier Thomas; Daniel Gianola; 1University of Pennsylvania; 2Max-Planck-Institut für Intelligente Systeme; 3Aix-Marseille Université; 4University of California, Santa Barbara

9:50 AM 
In-situ TEM Observations of Grain Growth during High-cycle Fatigue and Notch Fatigue: Khalid Hattar; Daniel Bufford; William Mook; Christopher O’Brien; Fadi Abdeljawad; Tim Furnish; Brad Boyce; Stephen Foiles; 3Sandia National Laboratories

10:10 AM Break

10:25 AM Invited 
Competing Interfaces within Hierarchical Nanostructured Metallic Alloys: Daniel Foley; Garrett Tucker; 3Drexel University

10:55 AM 
Twining Paths and Twin Boundaries in Hexagonal Close-packed Titanium: Hao Wang; 1Institute of Metal Research, Chinese Academy of Sciences

11:15 AM Invited 
The Twinning Genome: A Systematic Framework for Predicting Twinning in Materials: Dongyi Sun; Mauricio Ponga; Kaushik Bhattacharya; Michael Ortiz; 1California Institute of Technology; 2University of British Columbia

11:45 AM 
The Twinning Genome: A Systematic Framework for Predicting Twinning in Materials: Dongyi Sun; Mauricio Ponga; Kaushik Bhattacharya; Michael Ortiz; 1California Institute of Technology; 2University of British Columbia

Magnesium Technology 2017 — Alloy Development

Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Tuesday AM Room: 5A Location: San Diego Convention Center

Session Chair: Michele Manuel, University of Florida; Vineet Joshi, Pacific Northwest National Laboratory

8:30 AM Keynote 
Using the Crystal Plasticity Approach to Parse the Effects of Alloying and Aging on the Mechanical Behavior of Wrought Mg Alloys: S.R. Agnew; J.J. Bhattacharyya; Fulin Wang; 1Department of Materials Science and Engineering, University of Virginia

9:10 AM 
Development of High-strength High-speed-extrudable Mg-Al-Ca-Mn Alloy: Taiki Nakata; Chao Xu; Tatsuko Sasaki; Yasunobu Matsumoto; Kazunori Shimizu; Kazuhiro Hono; Shigeharu Kamado; 1Nagoya University of Technology; 2National Institute for Materials Science; 3Sankyo Tateyama, Inc. Sankyo Material-Company

9:30 AM 
Development of Ultra-high Strength and Ductile Mg-Gd-Y-Zn-Zr Alloys by Extrusion with Forced-air Cooling: Chao Xu; Taiki Nakata; Mingyi Zheng; Shigeharu Kamado; 1Nagoya University of Technology; 2Harbin Institute of Technology

9:50 AM 
Effect of Extrusion Ratio on Microstructure and Resulting Mechanical Properties of Mg Alloys with LPSO Phase: Klaudia Horváth; Daria Drozdenko; Gerardo Garcés; Kristián Mátis; Patrik Dobron; 1Charles University in Prague; 2CENIM-CSIC

10:10 AM Break

10:30 AM 
Mechanically Alloyed Magnesium Based Nanostructured Alloy Powders for Stent Applications: Peter Marocs; Khalil ElKhodary; Hanadi Salem; 1Nanotechnology Program, The American University in Cairo, Egypt; 2Mechanical Engineering Department, The American University in Cairo, Egypt

10:50 AM 
Combined Effects of Grain Size Refinement and Dynamic Precipitation on Mechanical Properties of a New Magnesium Alloy: Matthew Vaughan; Jan Seitz; Rainer Eifler; Hans Maier; Ibrahim Karaman; 1Texas A&M University; 2Leibniz Universität Hannover

11:10 AM 
Zn Segregation at Precipitate/Matrix Interface in Mg-Sn-Zn Alloys: Chaoqiang Liu; Houwen Chen; Jian-Feng Nie; 1Chongqing University

11:30 AM 
Machinability Investigation in Micro-milling of Mg based MMCs with Nano-sized Particles: Xiangyu Teng; Dehong Huo; Eugene Wong; Manoj Gupta; 1Newcastle University; 2National University of Singapore

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Fuels III

Program Organizers: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Tuesday AM Room: Cardiff Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM 
Production of Fully Ceramic Microencapsulated Fuel for Test Reactor Irradiation: Kurt Terrani; James Kiggans; Michael Trammell; Wilson Cowherd; Gregory Core; 1Oak Ridge National Laboratory; 2Idaho National Laboratory; 3Idaho National Laboratory

8:50 AM 
Microstructural Characterization and Thermal Properties of Metallic Pu-Zr Systems: Assel Aitkaliyeva; 1Georgia Institute of Technology; 2University of California, Berkeley; 3Idaho National Laboratory

9:10 AM 
Post Irradiation Electron Microscopy Examination of UCO Fuel Kernels from TRISO Coated Particles: Terry Holeasinger; Isabella van Rooyen; Weicheng Zhong; 1Los Alamos National Laboratory; 2Idaho National Laboratory

9:30 AM 
Preliminary Post Irradiation Examination SEM Analysis of AGR 2 UO2 and UCO TRISO Fuel Particles: Tyler Gerczak; John Hunn; Charles Baldwin; Robert Morris; Fred Montgomery; 1Oak Ridge National Laboratory

9:50 AM 
Grain Boundary Complexions in SiC and Their Relevance in Silver Diffusion in TRISO Particles: Felix Cancino Trejo; Eddie Lopez; 1CINVESTAV

10:10 AM Break

10:30 AM On Silver Transport in 3C-SiC: Johannes Neethling; Jacques O’Connel; 1Nelson Mandela Metropolitan University

10:50 AM High Temperature Fuel Cladding Chemical Interactions between Unirradiated TRIGA Fuels and 304 Stainless Steel: Emmanuel Perez; Dennis Keiser; Bryan Forssmann; Dawn Janney; Jody Henley; Eric Woolstenhulme; 1Idaho National Laboratory; 2Boise State University

11:10 AM 
Small Scale Mechanical Testing of UO2 at Elevated Temperatures: David Frazer; Benjamin Shaffer; Kitt Roney; Harn Linn; Perdo Penalta; Peter Hosenmann; 1University of California, Berkeley; 2Arizona State University
11:30 AM Invited
Model of Thermal Conductivity Reduction Due to Point Defect Accumulation in Ion Irradiated UO$_2$: M Faisal Riyad; Vinay Chauhan; Yuzhou Wang; Marat Khafizov; 'The Ohio State University

Materials by Design: An MPMD Symposium Honoring Greg Olson on the Occasion of His 70th Birthday — Materials Design I
Program Organizers: Carelyn Campbell, National Institute of Standards and Technology; Michele Manuel, University of Florida; Wei Xiong, University of Pittsburgh; Jason Sebastian, QueTek Innovations

Tuesday AM Room: 10
February 28, 2017 Location: San Diego Convention Center

Funding support provided by: Co-sponsored by TMS-Computational Materials Science and TMS-Phase Transformation Committees; Honorary symposium approved by MPMD council on Feb 16, 2016.

Session Chairs: Carelyn Campbell, National Institute of Standards and Technology; Jason Sebastian, QueTek Innovations, LLC

8:30 AM Introductory Comments
8:50 AM Keynote
A History of Materials by Design, and a Very Bright Future: Charles Kuehmann; 'Space Exploration Technologies
9:30 AM Keynote
Computational Thermodynamics and Materials Design: Zi-Kui Liu; 'The Pennsylvania State University
10:10 AM Break
10:40 AM Keynote
Exploring the Dark Continent of Structure-Property Relationships: Mark Eberhart; 'Colorado School of Mines
11:20 AM Keynote
The Redistribution of Carbon Atoms during Tempering of Martensite: George Smith; 'University of Oxford

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

Tuesday AM Room: Pacific 16
February 28, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Pierre Sailiot, Safran; Don Lipkin, GE Global Research

8:30 AM Keynote
Advanced Aerospace Engine Requirements and Materials Development: Francis Prell; 'Pratt & Whitney
9:00 AM Invited
Ceramic Matrix Composites for Jet Engine Applications: Damage Mechanisms and Design: Gregory Morscher; 'University of Akron
9:30 AM Invited
Environmental Barrier Coatings: Enabling SiC/SiC CMCs in Turbines: Don Lipkin; 'GE Global Research
10:00 AM Break
10:20 AM Invited
Creep and Oxidation Resistance of Select MAX Phases: A Critical Review: Michel Barsoum; Sankalp Kota; 'Drexel University

10:50 AM Invited
Oxidation of Alumina-forming MAX Phases in Turbine Environments: James Smitalke; Anita Garg; Bryan Harder; James Nesbitt; Timothy Gabb; 'NASA Glenn Research Center

11:20 AM Invited
Toughness and High Temperature Strength of Nb-Si and MoSiBTiC Alloys: Nobuaki Sekido; Junya Nakamura; Kyosuke Yoshimi; 'Tohoku University
11:50 AM Scalable Processing, Microstructure, and Mechanical Properties in Mo-matrix Mo-Si-B: Peter Marshall; Oliver Srbič; Imaging Systems Technology; 'Deep Springs Technology

Materials Science for High-Performance Permanent Magnets — Coercivity Mechanism
Program Organizers: Satoshi Hirosawa, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Gutfelisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Tuesday AM Room: 24C
February 28, 2017 Location: San Diego Convention Center

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Akimasa Sakuma, Tohoku University; Gino Hrkac, University of Exeter

8:30 AM Invited
Tailoring the Coercive Field of Grain Boundary Engineered Magnets: A Nanoanalytical TEM and Micromagnetic Simulation Study: Josef Fidler; Gregor Alexander Zickler; Ahmad Asali; 'TU Wien
9:00 AM Invited
Demagnetizing Fields and Magnetization Reversal in Permanent Magnets: Johann Fischbacher; Lukas Exl; Thomas Schriefl; 'Danube University Krems; 'Vienna University
9:30 AM Invited
Analyses on Magnetization Reversal Process of Nd-Fe-B Hot-deformed Magnets: Satoshi Okamoto; Takahiro Akiya; Atsushi Hattori; 'Tohoku University; 'ESICMM-NIMS; 'Daido Steel Co., LTD; 'Daido Steel Co., LTD
10:00 AM Break
10:20 AM Invited
Theoretical Study on Atomic Structures and Coercivity in Nd-Fe-B Magnets: Hiroki Tsuchiura; 'Tohoku University
10:50 AM Grain Boundary Diffusion of Different Rare Earth Elements in Nd-Fe-B Sintered Magnets by Experiment and FEM Simulation: Konrad Löwe; Dimitri Benke; Tim Lienig; Michael Duerrschmied; Leopoldo Molina-Luna; Konstantin Skokov; 'Oliver Gutfelisch; 'Technische Universität Darmstadt
11:10 AM Temperature Dependence of Threshold of Magnetic Fields for Nucleation and Domain Wall Propagation: Seiji Miyashita; Masamichi Nishino; 'The University of Tokyo; 'National Institute for Material Science
11:30 AM Invited
Theoretical Study on the Temperature Dependence of Magnetic Anisotropy Constants of Rare Earth Permanent Magnets: Akimasa Sakuma; Daisuke Miura; 'Tohoku University; 'National Institute for Materials Science
Mechanical and Creep Behavior of Advanced Materials:
A SMG Symposium Honoring Prof. K. Linga Murty —
Crystal Defects: Experiments and Modeling/Simulation
Program Organizers: Indrajit Charit, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville
Tuesday AM Room: 24A Location: San Diego Convention Center
Session Chairs: Anter El-Azab, Purdue University; Ram Devanathan, Pacific Northwest National Laboratory

8:30 AM Keynote
Helium Hardening in Interface-dominated Metallic Composites: Amit Misra; Nan Li; University of Michigan; LANL

9:00 AM Invited
On Dislocation Patterning in Deformed Crystals: Anter El-Azab; Purdue University

9:20 AM Invited
Role of Structural Defects on the Magnetostriiction of a-phase of Fe-based Alloys: Sivaraman Guruswamy; Kanagasundar Appusamy; Travis Williard; Richard Laroche; University of Utah

9:40 AM Non-basal Dislocations in HCP Mg: Yizhe Tang; Shanghai University

10:00 AM Keynote
Precipitate-dislocation interaction Mediated Portevin-Le Chatelier-like effect in a beta-stabilized Ti-Mo-Nb-Al Alloy: Deep Choudhuri; Srinivas Mantri; Talukder Alam; Rajarshi Banerjee; Srikrum Banerjee; University of North Texas; Bhavna Atomic Research Centre

10:30 AM Break

10:45 AM Invited
Molecular Dynamics Simulations of Dislocation – Obstacle Interactions: Brian Wirth; University of Tennessee

11:05 AM Invited
Atomistic Simulation of Radiation Effects in FeCr-based Cladding: Ram Devanathan; Pacific Northwest National Laboratory

11:25 AM Invited
On the Origin of the Sink Efficiency of Grain Boundaries under Irradiation: Blas Uberuaga; Enrique Martinez; Laurent Capolungo; Los Alamos National Laboratory

11:45 AM Invited
Application of Phase-field Approach in Deformation-induced Microstructure Evolution: Tulan Li; Shenyang Hu; Scott Whalen; Suveen Mathaudhu; Pacific Northwest National Laboratory

Microstructural Processes in Irradiated Materials —
Ferritic and Ferritic-Martensitic Alloys I
Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Danielle Morgan, University of Wisconsin-Madison; Mahmood Marnivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University
Tuesday AM Room: Del Mar Location: Marriott Marquis Hotel & Marina
Session Chairs: Meimei Li, Argonne National Laboratory; Kevin Field, Oak Ridge National Laboratory

8:30 AM Invited
Mechanical Behaviors of Gradient Nanostructured Materials: Xiaochun Liu; Ke Lu; Institute of Metal Research, Chinese Academy of Sciences

8:55 AM
Microstructure and Mechanical Behavior of ECAP and HPT Processed Austenitic and Ferritic-martensitic Steels: Haiming Wen; Rinat Islamgaliev; Marina Nikitina; Idaho State University; ‘Ufa State Aviation Technical University

9:15 AM Invited
Mechanical Properties and Microstructure Stability in Fe-Cr base Alloys for Nuclear Energy Applications: Ronald Scatteredgood; Carl Koch; NC State University

9:40 AM
Hierarchical Structure and Strengthening Mechanisms in Pearlitic Steel Wire: Xiaodan Zhang; Niels Hansen; Xiaofu Huang; Andrew Godfrey; Technical University of Denmark; Tsinghua University

10:00 AM
Back-stress Strengthening and Strain Hardening in Heterogeneous Materials: Muxin Yang; Fuping Yuan; Xiaolei Wu; Yuntian Zhu; Institute of Mechanics, Chinese Academy of Sciences; North Carolina State University

10:20 AM Break

10:40 AM Invited
Correlation between Nanostructuring and Precipitation in Age-hardened Aluminum Alloys: Kaka Ma; Tao Hu; Ryan Cohn; Troy Topping; Enrique Lavernia; Julie Schoenung; Colorado State University; University of California San Diego; University of California Davis; California State University Sacramento; University of California Irvine

11:00 AM
In Situ Synchrotron X-ray Studies on the Deformation Mechanism of Carbon-steel/Copper Nanocomposites: Kaiyuan Yu; Yadong Ru; Yang Ren; Lishan Cui; China University of Petroleum-Beijing; APS, Argonne National Laboratory, USA

11:20 AM
Study of Dynamic Recovery in Nanocrystalline Metals Using In-situ X-ray Diffraction and MD Simulations: zhen Sun; Steven Van Petegem; Christian Brandl; Maxime Dupraz; Karsten Durst; Wolfgang Blum; Paul Scherrer Institut; Karlsruhe Institut of Technology; Technische Universität Darmstadt; University Erlangen-Nürnberg

11:40 AM
Gradient Nanostructure and Mechanical Behavior of Ultrasonic Shot Peened Ti-6Al-4V: Fei Yin; Hannah Han; Qingyou Han; Purdue University; West Lafayette high and junior school
9:20 AM  Ballistic Mixing Effect on α’ Precipitation in Irradiated Fe-Cr Alloys: Jia-Hong Ke; Mukesh Bachhav; Elaina Anderson; Emmanuelle A. Marquis; G. Robert Odette; Dane Morgan; 1University of Wisconsin-Madison; 2University of Michigan, Ann Arbor; 3University of California, Santa Barbara

9:40 AM  Kinetics of Cr Precipitation in Iron under Irradiation: Frederic Soisson; Estelle Meslin; Olivier Tissot; Jean Henry; Chu-Chun Fu; Brigitte Descamps; Cristelle Pareige; 1CEA Saclay; 2CSNSM; 3GPM

10:00 AM  Atomistic Modeling of Hardening in Thermally-aged Fe-Cr Binary Alloys: Tomosaku Sazudo; Yasyuoshi Nagai; Alfredo Caro; 1Japan Atomic Energy Agency; 2Tohoku University; 3Los Alamos National Laboratory

10:20 AM  Break

10:35 AM  Influence of Secondary Phase Formation on Microstructure Evolution in Self-Ion Irradiated HT9 up to 650 dpa: Elizabeth Getto; Kai Sun; Gerrit Vanscoevering; Zhijie Jiao; Gary Was; 1University of Michigan

10:55 AM  Ion Irradiation Induced Segregation and Precipitation in F/M Steel HT9: Ce Zheng; Maria Auger; Djamel Kaoumi; 1North Carolina State University; 2University of Oxford

11:15 AM  Microstructural Studies of Irradiated and Deformed FeCr Model Alloys: Mercedes Hernández-Mayoral; Elvira Ohorbe; Marta Serrano; 1CIEMAT

11:35 AM  Emulation of Reactor-irradiated Microstructural Features with Dual Ion-irradiation in T91 Steel: Stephen Taller; Zhijie Jiao; Kevin Field; Gary Was; 1University of Michigan; 2Oak Ridge National Laboratory

11:55 AM  He Implantation of Fe-Y2Ti207 Bilayers: Furthering NFA Understanding: Tiberiu Stan; Yuan Wu; Robert Odette; Yongqiang Wang; Richard Cox; 1University of California Santa Barbara; 2Los Alamos National Laboratory; 3Pacific Northwest National Laboratory

**Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Heterogeneous and Gradient Materials**

**Program Organizers:** Yunjian Zhu; North Carolina State University; Irene Beyerlein; University of California-Berkeley; Yves Brechet; Grenoble Institute of Technology; Huijian Gao; Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

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<th>Time</th>
<th>Session Title</th>
<th>Location</th>
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<tbody>
<tr>
<td>Tuesday AM</td>
<td>Room: 24B</td>
<td>Session Chairs: Huijian Gao, Brown University; Irene Beyerlein, University of California</td>
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<td>February 28, 2017</td>
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<td>8:30 AM Invited Camouflaging Visual and Technical Heterogeneities: Francesco Maresca; 1W Curtin; 2EPFL</td>
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<td>8:55 AM</td>
<td>A Deformation Mechanism by Correlated Necklace Dislocations in Nanotwinned Materials: Haofei Zhou; Huijian Gao; 1Brown University</td>
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<td>9:15 AM</td>
<td>Simultaneous High Strength and Ductility in Nickel Induced by Nanodomains with Size Effects: Fuping Yuan; Xiaolei Wu; Evan Ma; 1Institute of Mechanics, Chinese Academy of Science; 2The Johns Hopkins University</td>
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<tr>
<td>9:40 AM</td>
<td>Interfacial Incompatibilities and Crystalline Deformation and Failure: Matt Bond; 1North Carolina State University</td>
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10:00 AM  Mechanical Behavior and Deformation Mechanism of Gradient Structured Cu Alloys with Varying Stacking Fault Energy: Xinkun Zhu; 1Kunming University of Science and Technology

10:20 AM  Break

10:35 AM  Invited  Gradient Nanostructure and Residual Stresses Induced by Ultrasonic Nanocrystal Surface Modification for Improved Mechanical Properties: Chang Ye; Yalin Dong; Vijay Vasudevan; 1University of Akron; 2University of Cincinnati

11:00 AM  High Volume Fraction Heterogeneous Mg/SiC Nanocomposite with Extreme Malleability: Jinling Liu; Xiaoxu Hu; Xu He; Song Jiang; Linan An; 1Southwest Jiaotong University; 2Northwestern Polytechnical University; 3University of Central Florida

11:20 AM  Invited Homogeneous Plastic Deformation in Heterogeneous Lamella Structures: Caizhi Zhou; Rui Yuan; Irene Beyerlein; 1Missouri University of Science and Technology; 2University of California at Santa Barbara

11:45 AM  Gradient Nanostructured Silicon through High Power Pulsed Laser-driven Shock Compression: Shiteng Zhao; Eric Hahn; Bimal Kadi; Bruce Remington; Christopher Wehenberg; Karren Moore; Eduardo Bringa; Marc Meyers; 1University of California, San Diego; 2Lawrence Livermore National Laboratory; 3Oak Ridge National Laboratory; 4Universidad Nacional de Cuyo

**Nanostructured Materials for Nuclear Applications II — Session III**

**Program Organizers:** Cheng Sun, Idaho National Laboratory; Khalid Hattar, Sandia National Laboratories; Celine Hin, Virginia Tech; Fei Gao, University of Michigan; Osman Anderoglu, Los Alamos National Laboratory, Milta Taheri, Drexel University; Haiming Wen, Idaho State University

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<th>Time</th>
<th>Session Title</th>
<th>Location</th>
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<tbody>
<tr>
<td>Tuesday AM</td>
<td>Room: Pacific 24</td>
<td>Session Chairs: Cheng Sun, Los Alamos National Laboratory; Eda Aydogan, Los Alamos National Laboratory</td>
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<tr>
<td>February 28, 2017</td>
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<td>8:30 AM Invited Nano-particles Control for High Performance ODS Steels: Akihiko Kimura; 1Kyoto University</td>
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<tr>
<td>9:00 AM</td>
<td>Varying Responses of Nanocrystalline Structures to Assorted Irradiation Conditions: Brittany Munifering; Daniel Bufford; Khalid Hattar; 1Sandia National Laboratories</td>
<td></td>
</tr>
<tr>
<td>9:20 AM</td>
<td>Microstructural Characterization of ATR Irradiated Cu/Nb Nanolayered Composites: Osman Anderoglu; Peter Hoosemann; Amit Misra; George Odette; Michael Nastasi; Stuart Maloy; 1Los Alamos National Laboratory; 2University of California-Berkeley; 3University of Michigan; 4University of California-Santa Barbara; 5University of Nebraska</td>
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<tr>
<td>9:40 AM</td>
<td>Kinetics of Initial Phase Separation and Coarsening of Nanoscale Phase in Fe–Cr Alloys: Zhihong Yan; Yongsheng Li; Xiaorong Zhou; 1Nanjing University of Science and Technology</td>
<td></td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Break</td>
<td>10:20 AM Invited Using Atom Probe Tomography and Neutron Inventory Simulation to Investigate Neutron-Irradiation-Induced Nano-Scale Second Phase Precipitation Chemistry in Pure Tungsten Irradiated at HFR: Philip Edmondson; Mark Gilbert; 1Oak Ridge National Laboratory; 2EURATOM/CCFE Fusion Association</td>
</tr>
</tbody>
</table>
10:50 AM Invited

Design of Radiation-resistant Alloys: Thomas Schuler; Dallas Trinkle; Pascal Bellon; Robert Averback; 'University of Illinois at Urbana-Champaign

11:10 AM Exploring the In-plane Distribution of Helium Bubbles at Cu/V Interfaces: Di Chen; Nan Li; Kevin Baldwin; Dina Yurev; Michael Demkowicz; Yongjiang Wang; 'Los Alamos National Laboratory; 'Massachusetts Institute of Technology; 'Texas A&M University

11:30 AM Atom Probe Tomography Study of Neutron Irradiated U-Mo Fuel: Haiming Wen; Assel Aitkaliyeva; Yaqiao Wu; Bandon Miller; Dennis Keiser; Jian Gan; 'Idaho State University; 'Idaho National Laboratory; 'Boise State University


Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday AM  Room:  Marina G  Location:  Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM Introductory Comments

8:40 AM Plenary

Designing Infrastructure Materials for 100-plus Year Service Lives: Carolyn Hansson; 'University of Waterloo

9:20 AM Plenary

Production, Properties, and Applications of Titanium Dioxide Films: Carlos Schvezov; 'Institute of Materials of Misiones

10:00 AM Break

Pan American Materials Congress: Advanced Manufacturing — Materials Processing

Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Holza, UFSC

Tuesday AM  Room:  Marina D  Location:  Marriott Marquis Hotel & Marina

February 28, 2017

Session Chair: To Be Announced

10:20 AM Invited

Carbon Based Coatings Deposited on Nitrided Stainless Steel: Study of Thermal Degradation: Sonia Brühl; Eugenia Dalibon Bähler; Vladimir Trava-Airoldi; Naureen Ghafoor; Lina Rogström; Magnus Oden; 'National University of Technology; 'Instituto Nacional de Pesquisas Espaciais (INPE); 'Linköping University

10:50 AM Conceptual-Functional Model of Drilling Electrochemical Discharge Machining: Gerardo Hernandez; Alejandra Hernandez; 'COMIMSA

11:10 AM Deep Drilling in Soda-lime Glass Using Air Jet Assisted Electrochemical Discharge Machining (ECDM): Rajendra Arya; Akshay Dwivedi; Pradeep Kumar; 'Indian Institute of Technology, Roorkee

11:30 AM Mechanisms and Influence of In-situ Pre-heating during Friction Welding: Daniel Adams; Jerry Gould; Michael Skinner; Tom Budd; 'Manufacturing Technology, Inc. (MTI); 'EWI

11:50 AM Invited

Microstructure-processing-property Relationships in Nanocrystalline Ceramics Produced Using Current-activated, Pressure-assisted Densification (CAPAD): Javier Garay; 'University of California San Diego

12:10 PM Invited

Sintering of Anisotropic Porous Microstructures: Eugene Olevsky; Andrey Maximenko; Dileta Giuntini; Rajendra Bordia; 'San Diego State University; 'Clemson University

12:30 PM Finite Element Modelling of Current-activated, Pressure-assisted Densification (CAPAD): The Role of Materials Properties and Geometry on Thermal Gradients: Meir Shachar; Alexander Dupuy; Yasuhiro Koderä; Javier Garay; 'University of California, San Diego; 'University of California, Riverside


Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday AM  Room:  Marina G  Location:  Marriott Marquis Hotel & Marina

February 28, 2017

Session Chair: To Be Announced

10:20 AM Defect Engineering for Strong Photocatalysis of TiO₂ Nanoparticles with Dopants: DFT Calculations and Experimental Verifications: Heechae Choi; Sovann Khan; So Hye Cho; Taeseup Song; 'Virtual Lab Inc.; 'KIST; 'Yeungnam University

10:40 AM Emission and Photocatalytic Properties of Graphene:ZnO Hybrid Nanostructures: Pandiyarajan Thangaraj; Mangalaraja Ramalinga Viswanathan; Udayabhaskar Rednam; Naveenraj Selvaraj; Karthikeyan Balasubramanian; Mansilla Héctor D.; David Contreras; M.A. Gracia Pinilla; 'University of Concepcion

11:00 AM Thermal and Electrical Conductivities of Mesoporous Nanofluids and Applications for Enzyme Catalysis: Shuang Qiao; Ekaterina Novitskaya; Flor Sanchez; Rafael Vazquez-Duhalt; Olivia Graeve; 'University of California, San Diego; 'Universidad Nacional Autonoma de Mexico

11:20 AM Novel Amorphous Fe-Th-Dy Oxide with High Conductivity, Optical Transparency and Ferromagnetism: Humaira Taz; Tamil Sakhivel; Nana Yamadeh; Connor Carr; Dhananjay Kumar; Sudipta Seal; Ramki Kalyanaraman; 'University of Tennessee-Knoxville; 'University of Central Florida; 'North Carolina A&T State University

11:40 AM Simulation of Bonded Magnet Performance for Renewable Energy Applications: H. Khazdozian; H. Ucar; C. Hatter; M. Kramer; M. Paranthaman; I. Nebedim; 'Ames Laboratory; 'Oak Ridge National Laboratory

Pan American Materials Congress: Materials for Transportation and Lightweighting — Processing-Structure-Property Relationships I

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo León

Tuesday AM  Room:  Mission Hills  Location:  Marriott Marquis Hotel & Marina

February 28, 2017

Session Chair: Patricia DEL CARMEN ZAMBRANO ROBLEDO, Universidad Autónoma de Nuevo León/Investigación

10:20 AM Mechanical and Microstructural Evaluation of New Superalloys, an Actual Review: Octavio Covarrubias; 'Exova
11:00 AM
Phase Transformations in Continuous Heating and Aging Heat Treatments in Ti-Nb-Fe Alloys: Fernando da Costa; Mariana de Mello; Camilo Salvador; Rubens Caram; 'University of Campinas

11:20 AM
Study of Phase Transformations and Decomposition of Martensite in FV535 High Cr Martensitic Steel: Lizangelia Guerra; Patricia Zambrano; Armando Salinas; Edgar Garcia; 'Universidad Autonoma de Nuevo Leon, Facultad de Ingenieria Mecanica and Electrica; 'Centro de Investigacion y de Estudios Avanzados del IPN Unidad Saltillo

11:40 AM
Fatigue Behavior of Plasma Scribed HSLA Steels: Jeffrey Rossin; Michael Kesler; Edward George; Steve Duke; Michele Manueli; 'University of Florida; 'E&S Consulting, Inc.; 'Florida Department of Transportation

12:00 PM
FeCrAl-steels as Candidates for Structural Material in CSP Systems with Lead-bismuth Eutectic as a Heat Transport Fluid: Miroslav Popovic; Alan Bolind; Peter Hosemann; 'University of California, Berkeley

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — SPD Processing, Mechanical Properties of Nanocrystalline Materials, BMG
Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Tuesday AM  Room:  Marina F  Location:  Marriott Marquis Hotel & Marina
Session Chairs:  Terence Langdon, University of Southern California; Hans Roven, Norwegian University of Science and Technology

12:20 PM
Observations and Analyses of Tribochemical Reactions in Lightweight Boron Carbide (B4C) Impacted at High-Velocity: Jerry LaSalvia; Scott Walck; Kristopher Behler; Brady Aydelotte; Brian Schuster; 'U.S. Army Research Laboratory

12:20 AM
A Novel Method for SPD – Continuous Metal Screw Extrusion (CMSE): Hans Roven; Kristian Skorpen; Oddvin Reiso; 'Norwegian University of Science and Technology; 'Hydro Aluminium

12:40 AM
Rate Sensitivity and Deformation Mechanisms of Ultrafine-Grained Single Phase and Composite Metals: Daniel Kiener; Alexander Leitner; Verena Maier-Kiener; 'University of Leoben

11:00 AM
Comparisons of Mechanical Property Development during HPT Processing and Subsequent Room Temperature Storage in High Purity Cu and a Pb-62%Sn Alloy: Yi Huang; Shima Sabbaghianrad; Abdulla Almazrouee; Khaled Al-Fadhalah; Saleh Alhajeri; Nian Xian Zhang; Terence Langdon; 'University of Southampton; 'University of Southern California; 'P.A.A.E.T.; 'Kuwait University

11:20 AM
Micro-scale Mechanical Response of Ultrafine-grained Materials Processed by High-pressure Torsion: Megumi Kawasaki; Jee-il Jang; Byungmin Ahn; Terence Langdon; 'Hanyang University; 'Ajou University; 'University of Southern California

11:40 AM
History-independent Fatigue Response of Polycrystalline Cu with Highly Oriented Nanocrystalline Twins: Qingsong Pan; Haofei Zhou; Quihong Lu; Huajian Gao; Lei Lu; 'Institute of Metal Research, CAS; 'Brown University

12:00 PM
On the Strength Effects in Hydrogenated Palladium
Subjected to HPT Processing: Daria Setman; Wolfgang Resl; Andreas Grill; Erhard Schaffer; Wolfgang Sprengel; Yuzeng Chen; Michael Zehetbauer; 'University Vienna; 'TU Graz; 'Northwestern Polytechnical University, State Key Lab of Solidification Processing, Republic of China

Pan American Materials Congress: Steels — Properties and Performance
Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEMVR - Universidade Federal Fluminense

Tuesday AM  Room:  Marina E  Location:  Marriott Marquis Hotel & Marina
Session Chair:  To Be Announced

10:20 AM Invited
Developing Sustainable Pipeline Steels: Hani Henein; 'University of Alberta

10:50 AM
The Effect of Particle Speed and Impact Angle on the Erosion of Newly Developed API X120 Pipeline Steel: Paul Okonkwo; R. Shakoor; A.M Mohamed; 'Qatar University; 'Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering, Suez University

11:10 AM
The Development of NbC Reinforced Martensitic Stainless Steel Composites for High Wear and Corrosive Environments: Wen Hao Kan; Qaiser Ihsan Gonda; Xin Zhou; Itaihu Li; Zi Jie Ye; Yue Zhu; Vijay Bhatia; Kevin Dolman; Timothy Lucey; Xinhu Tang; Chang Li; Gwénaëlle Proust; 'Julia Cairney; 'The University of Sydney; 'Weir Minerals Australia

11:30 AM
Hot-stamping Response of Laser Welds in Low-carbon Steels: Martha Guerrero-Mata; Michael Andreassen; S Liu; O Garcia; J. Speer; 'Universidad Autonoma de Nuevo Leon; 'Technical University of Denmark; 'Colorado School of Mines; 'Ternium Mexico

11:50 AM
The Influence of Hydrogen on Tensile Properties of TRIP-aided Bainitic Ferrite Steels with Carbon/Manganese Variations: Andrea Bollinger; John Speer; Kip Findley; Emmanuel De Moor; Tosho Murakami; 'Colorado School of Mines; 'Kobe Steel LTD

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Electromigration
Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Cheng University; Jae-Ho Lee, Hongik University; Ikuo Ohnuma, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Tuesday AM  Room:  25A  Location:  San Diego Convention Center
Session Chairs:  Shih-kang Lin, National Cheng Kung University; Ming-Tzer Lin, National Chung Hsing University; Chao-hong Wang, National Chung Cheng University

8:30 AM Invited
Electromigration Enhanced Intermetallic growth and Damage Formation in Ph-free Solder Joints: Paul Ho; Brook Huang-Lin Chao; Seung-Hyun Chae; Xuefeng Zhang; 'The University of Texas at Austin
9:00 AM
Investigation of the Influence of Ni Content on Electromigration Resistance of (Pd,Ni)Sn: Chao-hong Wang; Kuan-ting Li; 'National Chung Cheng University

9:20 AM
Ab Initio Critical Product of Blech Distance and Current Density: Yu-chen Lin; Shih-kang Lin; 'National Cheng Kung University

9:40 AM
Phase-field Modeling of Grain-boundary Grooving and Surface Drift under Homogeneous Electromigration: Arnab Mukherjee; Kumar Ankit; Britta Nestler; 'Karlsruhe University of Applied Sciences; 'Karlsruhe Institute of Technology

10:00 AM Break

10:20 AM Invited
An Industry Perspective on Electromigration in Microelectronics: Ping-Chuan Wang; 'GlobalFoundries

10:50 AM
Electromigration Effects upon Interfacial Reactions in Electronic Solder Joints of Different Bump Heights and Different Electric Current Densities: Jing-wei Chen; Sinn-wen Chen; Yi-cheng Lin; Tao-chih Chang; 'National Tsing Hua University; 'Industrial Technology Research Institute

11:10 AM
The Investigation of Electromigration Defects under Current Stress Effects between the Flip-chip Solder and Copper Substrate: Wei-jhen Chen; Yue-Lin Lee; Ti-Yuan Wu; Ang-Tin Tsui; Ming-Teer Lin; 'National Chung Hsing University

Phase Transformations and Microstructural Evolution — Shape Memory Alloys, and Lightweight Metals Al & Mg
Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

Tuesday AM  Room: 16B
February 28, 2017  Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM
Phase Field Modeling of Functional Fatigue in Shape Memory Alloys: Yipeng Gao; Yunzhi Wang; 'The Ohio State University

8:50 AM
In Situ X-ray Diffraction Investigation of Thermally Induced Martensitic Transformations in High Temperature Shape Memory Alloys: Mohammed Azem; Vassili Vorontsov; Nicholas Jones; Seema Raghunathan; David Dye; 'Manchester University; 'Imperial College London; 'University of Cambridge

9:10 AM
Martensitic Transformation near Grain Boundaries and Phase Boundaries in Dual-phase Shape Memory Alloys: Ying Chen; Rebecca Dar; 'Rensselaer Polytechnic Institute

9:30 AM
Origin of the {332}<113> Twinning System in β Titanium Shape Memory Alloys: Emmanuel Bertrand; Philippe Castany; Yang Yang; Thierry Gloriant; 'Institut de Matériaux Jean Rouxel (IMN); 'INSa de Rennes

9:50 AM
Modeling the Superelastic Behavior in Small-scale ThCr2Si2-type Crystals: Ian Baks; John Sypek; Hang Yu; Paul Cantfield; Seok-Woo Lee; Christopher Weinberger; 'Colorado State University; 'University of Connecticut; 'Drexel University; 'Iowa State University

10:10 AM Break

10:30 AM
Structuring Model to Optimize Coarsening Resistant Q and γ′-Phase Precipitates in Al-Si-Mg-Cu Cast Alloys: Andrew Bobel; Mike Walker; Greg Olson; 'Northwestern University; 'General Motors

10:50 AM
Rare Metal Extraction & Processing — Rare Earth Elements II and Platinum Group Metals
Program Organizers: Hojong Kim, The Pennsylvania State University; Shaflq Alam, University of Saskatchewan; Harald Oosterhof, Unimicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

Tuesday AM  Room: 17B
February 28, 2017  Location: San Diego Convention Center
Session Chairs: Takanari Ouchi, MIT; Harald Oosterhof, Unimicore

8:30 AM Invited
A History of Additive Manufacturing: David Bourell; 'University of Texas

9:00 AM Invited
3DP Retrospective: Do Inventors Know What They Are Doing?: Michael Cima; 'MIT

9:30 AM Invited
Assent and Decline of LOM Technology: Michael Feygin; 'Cubic Technologies, Inc.

10:00 AM Break

10:20 AM Invited
Electrochemical Behavior of Neodymium in Molten Chloride Salts: Laure Diaz; Jérôme Serp; Pierre Chamelon; Mathieu Gibilaro; Laurent Massot; 'CEA Marcoule; 'Laboratoire de Génie Chimique
8:55 AM
Novel Reactive Anode for Electrochemical Extraction of Rare Earth Metals from Rare Earth Oxides: Aida Abbasalizadeh\(^1\); Seshadi Seetharaman\(^2\); Prakash Venkatesan\(^1\); Jilt Sietsma\(^3\); Yongxiang Yang\(^1\); \(^1\)Delft University of Technology; \(^2\)Royal Institute of Technology

9:20 AM
Electrochemical Formation of Nd Alloys Using Liquid Metal Electrodes in Molten LiCl-KCl Systems: Hirokazu Konishi\(^1\); Hideki Ono\(^1\); Eiichi Takeuchi\(^1\); Toshiyuki Nohira\(^1\); Tetsuo Oishi\(^1\); \(^1\)Osaka University; \(^2\)Kyoto University; \(^3\)National Institute of Advanced Industrial Science and Technology (AIST)

9:45 AM
Challenges in the Electrolytic Refining of Silver – Influencing the Co-deposition through Parameter Control: Ann-Kathrin Maurell-Lopez\(^1\); Bernd Friedrich\(^1\); Wolfgang Koch\(^1\); \(^1\)RWTH Aachen; \(^2\)Agosi Allgemeine Gold- und Silberscheideanstalt AG

10:10 AM Break

10:30 AM
Vapor Treatment for Alloying and Magnetizing Platinum Group Metals: Yu-ki Taninouchi\(^2\); Toru Okabe\(^1\); \(^1\)The University of Tokyo

10:55 AM
Biotechnological Recovery of Platinum Group Metals from Leachates of Spent Automotive Catalysts: Norizo Saito\(^1\); Toshiyuki Nomura\(^1\); Yasuhiro Konishi\(^1\); \(^1\)Osaka Prefecture University

11:20 AM
Recovering Palladium from Chloridizing Leaching Solution of Spent Pd/Al2O3Catalyst by Sulfide Precipitation: Li Qian\(^1\); Zou qiang\(^1\); Xu bin\(^1\); Yang yong-bin\(^1\); Rao xuefei\(^1\); Hu long\(^1\); Jiang tao\(^1\); \(^1\)Central South University

11:45 AM
Mechanism of Intensifying Cyanide Leaching of Gold from a Calcine by the Pretreatment of Acid or Alkali Washing: Zhang yan\(^1\); Li Qian\(^1\); Liu Xiaoliang\(^1\); Yang yong-bin\(^1\); Xu bin\(^1\); Li hong-wei\(^1\); Jiang tao\(^1\); \(^1\)Central South University

Recent Developments in Biological, Structural, and Functional Thin Films and Coatings — Functional Surfaces and Thin Films I

Program Organizers: Adele Carradou, Université de Strasbourg IPCMS; Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, UTEP; Heinz Paikowski, Clausthal Univ of Technology; Vikas Tomar, Purdue Univ; Nugghehalli Ravindra, NJIT

Tuesday, 28 February 2017  Location:  Pacific 18

Session Chairs: Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, University of Texas at El Paso, UTEP

8:30 AM Invited
Silicon Doped Nanoparticles Embedded in Transparent Oxide Thin Films for Micro-optoelectronic Devices: Gerald Ferblantier\(^1\); Fabien Ehhardt\(^1\); Corine Ulhaq-Bouillet\(^1\); Dominique Muller\(^1\); Daniel Mathiot\(^1\); \(^1\)ICube Laboratory; \(^2\)IPCMS

8:50 AM Invited
Nanoscale Structure-property Relationship Studies of Metallic and Oxide Thin Films Using Correlative Electron Microscopy and Atom Probe Tomography: Arun Devaraj\(^1\); Steven Spurgeon\(^1\); Rama Vemuri\(^1\); Richard Oleksak\(^1\); Greg Herman\(^2\); Scott Chambers\(^2\); Charles Henager\(^2\); Aashish Rohatgi\(^2\); Thevuthasan Suntharapillai\(^2\); \(^1\)Pacific Northwest National Laboratory; \(^2\)Oregon State University

9:15 AM
Influence of MgF2 Protective Coating on Plasmonic Response of Mg Thin Films: Richard Lanoche\(^1\); Kanagasundar Appusamy\(^1\); Steve Blair\(^1\); Ajay Nahata\(^1\); Sivaraman Guruswamy\(^1\); \(^1\)University of Utah

9:35 AM
Advanced Characterization of Metal Nitride Thin Films Using Spherical Aberration Corrected TEM: ZuoLi Zhang\(^1\); \(^1\)Erich Schmid Institute of Materials Science, Austrian Academy of Sciences

9:55 AM Break

10:15 AM Invited
Moth Eye-based, Graded Index Surface Treatments to Control Reflection: Lesley Chan\(^1\); Chris Pynn\(^1\); Dan Mose\(^1\); Michael Gordon\(^1\); \(^1\)UCSB

10:40 AM
Nitrogen Incorporation Induced Tuning of the Optical Properties of Niobium Oxide Thin Films: Oscar Nance\(^1\); Neil Murphy\(^1\); Chintalapalle Ramana\(^1\); \(^1\)The University of Texas at El Paso; \(^2\)Air Force Research Laboratory

11:00 AM
Ultra-Fast Boronizing of Low Carbon Steel Compared With Chromium Carbide Hard Face Steel Grades: Bakr Rabeeb\(^1\); Yasser Fouad\(^1\); Zeyad Abd El Azim\(^1\); \(^1\)German University in Cairo, GUC

11:20 AM
High Stacking-Fault Energy Nanotwinned Materials: Joel Bahena\(^1\); Leonardo Velasco\(^1\); Andrea Hodge\(^1\); \(^1\)University of Southern California

11:40 AM
Synthesis of Self-cleaning, Multi-functional Metal Oxide Coatings by the Atmospheric Pressure Plasma Technique: Wei-Chen Hung\(^1\); Ching-Yu Yang\(^1\); Po-Yu Chen\(^1\); \(^1\)National Tsing Hua University ; \(^2\)National Tsing Hua University

The Science of Melt Refining: An LMD Symposium in Honor of Christian Simensen and Thorvald Abel Engh — TAE/CJS Honorary Symposium I: Inclusion Removal Program Organizers: John Grandfield, Grandfield Technology Pty Ltd; Anne Kvithyld, SINTEF

Tuesday AM  Room:  3
February 28, 2017  Location:  San Diego Convention Center

Session Chair: Mark Badowski, Hydro

8:30 AM Introductory Comments

8:35 AM
The Contributions of Thorvald Engh and Christian Simensen to the Science of Melt Refining: John Grandfield\(^1\); Anne Kvithyld\(^1\); \(^1\)Grandfield Technology Pty Ltd; \(^2\)SINTEF

9:10 AM
The Fundamentals of Forming Microbubbles in Liquid Metal Systems: Roderick Guthrie\(^1\); Mihaiela Isac\(^2\); \(^1\)ICube Laboratory; \(^2\)McGill University

9:45 AM
A Holistic Approach to Molten Metal Cleanliness: D. Corleen Chesonis\(^1\); \(^1\)Metal Quality Solutions, LLC

10:15 AM Break

10:30 AM
Results of Trials with a Multi Stage Filtration System Employing a Cyclone: John Courtenay\(^1\); Marcel Rosefort\(^2\); \(^1\)MQP Limited; \(^2\)Trimet Aluminium SE

11:00 AM
Developments in Inclusion Removal Technology: John Grandfield\(^1\); \(^1\)Grandfield Technology Pty Ltd
8th International Symposium on High Temperature Metallurgical Processing — Alloys and Materials Preparation

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

Tuesday PM  Room: 18  Location: San Diego Convention Center

Session Chairs: Onurálp Yücel, ITU; James Cox, UTRS Inc.

2:00 PM Introductory Comments

2:05 PM Development of a Novel, Low-cost Titanium Extraction Process for Bulk or Powder Applications: James Cox; Chanaka De Alwis; Benjamin Kohler; Mike Lewis; Matthew Call; Julia Kluck; Amelia Olson; Marc Snyderman; UTRS Inc.

2:25 PM Evolution of Non-metallic Inclusions in Solid Fe-Al-Ti-N Alloy during Heating: Hiroyuki Matsuura; Wonjin Chio; Gen Kamimura; The University of Tokyo

2:45 PM Preparation of Low-carbon Ti2O3 by Carbonthermochromic Reduction of the Mixture of Titanium Dioxide and Activated Carbon under Vacuum Condition: Kejia Liu; Yawuo Wang; Yuezong Di; Jianping Peng; Xinzhong Deng; Naixiang Feng; Yi Zhang; Northeastern University; Institute of Process Engineering, Chinese Academy of Sciences

3:05 PM Pyrometallurgical Studies for Manganese Extraction Using Turkish Ore Reserves: Ender Keskinlikli; Atılım University

3:25 PM Break

3:45 PM A Recommendation of a New Method of Ti and Ti-Al Alloy Production by Aluminum Reduction Na2TiF6: Feng Naixiang; Jianping Peng; Northeastern University

4:05 PM Trace Elements Behavior during the Oxidation of Liquid SiMn Alloy: Yan Ma; Ida Kero; Sarei Gates; Gabriella Tranell; Norwegian University of Science and Technology; SINTEF Materials and Chemistry; University of Pretoria

4:25 PM Effect of Microalloy Elements V And Mg on Organization at High Heat Input Welding Shipbuilding Structure Steel: Wang Yan; Han Yihua; Zhu Liguang; Zhang Qingjun; Wang Shuoming; Zhang Caijun; North China University of Science and Technology

4:45 PM Sintering Performance of Blends Containing High Proportion of Limonite Iron Ore Fines: Feng Zhang; Deqing Zhu; Jian Pan; Central South University

Acta Materialia Symposium — Award Session
Program Organizer: Carolyn Hansson, University of Waterloo

Tuesday PM  Room: 22  Location: San Diego Convention Center

Session Chair: To Be Announced

To be announced.
2:30 PM Invited
Understanding Structure Property Relationships in Electron Beam Melting through Data Analytics and Visualization: Ryan Dehoff1; Vincent Paquit1; Michael Kirk1; Ralph Dinwiddie1; Kinga Unocic1; Peeyush Nandwana1; Sean Yoder1; Naren Ragava1; William Halsey1; Chad Steed1; Suresh Babu1; ‘Oak Ridge National Laboratory; ’University of Tennessee

3:00 PM
Three-dimensional tomography of EBM-manufactured IN718: Andrew Polonsky1; McLean Echlin1; William Lenthal1; Ryan Dehoff1; Michael Kirk1; Tresa Pollock1; ‘University of California, Santa Barbara; ‘Oak Ridge National Laboratory

3:20 PM
High Strain Rate Mechanical Behavior of Stainless Steel 316L Processed by Selective Laser Melting: Travis Kneen1; Christopher Barrett1; Brett Conner1; Guha Manogharan1; ‘Youngstown State University

3:40 PM Break

4:00 PM Invited
Recent Progress in Low-cost Open-source Metal 3-D Printing: Joshua Pearce1; Paul Sanders1; ‘Michigan Tech

4:30 PM
The Effect Process Parameters have on Residual Stress and Texture of Additively Manufactured Ti-6Al-4V Components: Nathan Levkalic1; Gregory Loughnan1; Nathan Klingbeil1; ‘Wright State University

4:50 PM
Synchrotron X-ray and Neutron Diffraction Measurements of Multi-scale Full Tensor Residual Stresses in Nickel-based Super Alloy Built through Direct Metal Laser Sintering Technique of Additive Manufacturing: Thien Phan1; Lyle Levine1; Thomas Gnaeupel-Herold1; Yaakov Idell1; ‘National Institute of Standards and Technology

5:10 PM
Study on the Effects of Microsegmentation, Temperature, and Stress on IN625 Microstructures by Phase Field Simulations: Trevor Keller1; Jonathan Geyer1; ‘National Institute of Standards and Technology

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session IV
Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory.

Tuesday PM Room: 33C Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Digital Image Correlation Using Forescatter Detector Images for the Study of Transformation in TRIP Steel: David Fullwood1; Shamoon Irfan1; Jeff Cramer1; Tyler Mathis1; Derrik Adams1; Michael Miles1; Eric Honer1; Tyson Brown1; Robert Kubic1; ‘Brigham Young University; ‘The Northcheap University; ‘General Motors

2:20 PM
In-situ Experiments to Capture Rapid Microstructural Evolution and Phase Transformation of Titanium during Dynamic Loading: Benjamin Morrow1; David Jones1; Paulo Rigg1; Ellen Cerreta1; ‘Los Alamos National Laboratory; ‘Washington State University

2:40 PM
In-situ Structural and Mechanical Characterization of ThCr2Si2-structured Superalastic Intermetallic Compounds: Keith Dusoe1; Ian Bakst1; John Sypek1; Gil Drachuck1; Paul Canfield1; Christopher Weinberger1; Seok-Woo Lee1; ‘University of Connecticut; ‘Drexel University; ‘Iowa State University

3:00 PM
In-situ EBSD Analysis and Crystal Plasticity FE Simulations in a CP Titanium Sheet: Joo-Hee Kang1; Ji Hoon Kim1; Chan Hee Park1; Chang-Seok Oh1; ‘Korea Institute of Materials Science; ‘Pusan National University

3:20 PM Break

3:40 PM Invited
Mechanics of Phase Transformation in Shape Memory Alloys: A Coupled High-energy X-ray Diffraction and Forward Modeling Approach: Aaron Stiehner1; Harshad Paranjape1; Ashley Buesck1; ‘Colorado School of Mines
4:00 PM | Characterizing the Boundary Lateral to the Shear Direction of Deformation

Twins in Magnesium: Yue Liu; Jian Wang; Rodney McCabe; Carlos Tomé; Los Alamos National Lab; University of Nebraska, Lincoln

4:20 PM | Explicit Modeling of Twin Lamellae in AZ31 Using a Crystal Plasticity Finite Element Approach: Milan Ardeljan; Irene Beyerlein; Marko Knezevic; University of New Hampshire; Los Alamos National Laboratory

4:40 PM | Role of Adjoining Twin Pairs on Detwinning under Stress Reversal in HCP Metals: M. Arul Kumar; Yue Liu; Irene J Beyerlein; Rodney McCabe; Carlos N Tomé; Los Alamos National Lab

5:00 PM | Twinning Kinetics and Its Sensitivity to the Strain Rate: Kavan Hazelli; Owen Kingstedt; Vignesh Kannan; Guruswami Ravichandran; KT Ramesh; University of Alabama in Huntsville; University of Utah; Johns Hopkins University; California Institute of Technology

5:05 PM | The Role of Copper in Microstructures and Mechanical Properties of Laser-welded Fe-19Ni-3Mo-1.5Ti Maraging Steel Joint: Kon Li; Jigu Shao; Peng Wen; Aiping Wu; Chunxu Wang; Zhihong Tian; Tsinghua University; Central Iron & Steel Research Institute

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Advanced High-Strength Steels — Impact of Solute

Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines ; Young-Kook Lee, Yonsei University; Matthias Militzer, The University of British Columbia

Tuesday PM | Room: 17A
February 28, 2017 | Location: San Diego Convention Center

Session Chairs: Matthias Militzer, The University of British Columbia; Mohamed Goune, ICMCB-Bordeaux1

2:00 PM Invited

New Insights into H Trapping and Diffusion in Steel Microstructures Obtained from Atomistic Simulations: Matous Mrovec; Davide Di Stefano; Christian Elsässer; Roman Nazarov; Tilmann Hickel; Jörg Neugebauer; ICAMS, Ruhr University Bochum, Germany; Fraunhofer IWM; Lawrence Livermore National Laboratory; Max Planck Institute for Iron Research

2:20 PM | Hydrogen Solubility near Surfaces and Interfaces: Robert Spatschek; Giorgia Gobbi; Clas Huetter; Aurab Chakrabarty; Ugur Aydin; Steffen Brinckmann; Forschungszentrum Juelich; Politecnico di Milano; Texas A&M University at Qatar; Max-Planck-Institut fuer Eisenforschung GmbH

2:40 PM | Ab Initio Calculations of Solute Effects on the Lattice Parameters and Elastic Constants of Fe Phases: Michael Fellinger; Louis Hector Jr.; Dallas Trinkle; University of Illinois at Urbana-Champaign; General Motors

3:00 PM | Tempering Reactions in Martensitic Stainless Steels Studied by Dilatometry and Correlative Magnetic Saturation Measurements: Qiuilang Huang; Olena Volkova; Horst Biermann; Javad Mola; Technische Universität Bergakademie Freiberg

3:20 PM | Atomic Scale Study of Boron Non-equilibrium Segregation and Precipitation at Prior Austenite Grain Boundary in High Strength Steels: Gregory da Rosa; Philippe Maugis; Josée Drillet; Veronique Hebert; Khalid Hoummeda; Aix-Marseille Université, CNRS, IM2NP; ArcelorMittal Maizières Research SA; Luxembourg Institute of Science and Technology

3:40 PM Break

4:00 PM | Influence of Microalloying Elements Ti and Nb in Solid Solution and as Precipitates during Annealing of Advanced High-strength Steels: Marion Bellaveille; Myriam Dumont; Josée Drillet; Véronique Hebert; Philippe Maugis; IM2NP; ArcelorMittal Research SA

4:20 PM | Low Alloy High Strength Martensitic Nitrogen Steel: John Chinella; U.S. Army Research Laboratory

4:40 PM | Effect of Intercritical Annealing on Microstructure, Mechanical Properties and Work Hardening Behavior of Ultrahigh Strength Dual Phase Steels with Different Silicon Content: Wei Li; John Speer; Xiaodong Zhu; Baosteel; ASPRRC

5:00 PM | Effects of Aluminum Addition on Warm Ductility and Microstructure in Mar- rich Steels: Guan-Ju Cheng; Chun-Te Wu; Delphie Chen; Ching-Yuan Huang; Hung-Wei Yen; National Taiwan University; China Steel Corporation

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Advanced Materials for Energy Conversion and Storage — Energy Storage I


Tuesday PM | Room: 15A
February 28, 2017 | Location: San Diego Convention Center

Session Chairs: Partha Mukherjee, TAMU; Leela Arava, Wayne

2:00 PM Keynote

Direct Electrodeposition of High Performance Solid and Mesostructured Li-ion Cathodes and Anodes: Paul Braun; Hailong Ning; Huigang Zhang; University of Illinois at Urbana-Champaign; Xerion Advanced Battery Company; Nanjing University

2:30 PM | A 3D Multiphysics Phase-field Model to Simulate Modified Phase Segregation in LiFePO4 Nanoparticles: Michael Welland; Olle Heinonen; Canadian Nuclear Laboratory; Argonne National Laboratory

2:50 PM Invited

A Multi-Scale Approach to Li-Ion Battery Analysis Using 2D, 3D, and 4D Microscopy: Jeff Gelb; Stefanie Freitag; Will Harris; Arno Merkle; Carl Zeiss X-ray Microscopy; Carl Zeiss Microscopy

3:15 PM | First Principles Simulations of Lithium Ion Transport through Graphite/Electrolyte Interfaces: Vincenzo Lordi; Mitchell Ong; Tuan Pham; Kyoung Kweon; John Pask; Lawrence Livermore National Lab

3:35 PM Break

3:55 PM Invited

Operando Structural and Chemical Characterization during Li-ion Battery Cycling: Shen Dillon; Ching-Yen Tang; University of Illinois at Urbana-Champaign

4:20 PM | Nanoscale Characterization of Li-ion Battery Cathodes Using Atom Probe Tomography and Correlative Microscopy: Arun Deyaraj; Ethan Yo; Pengfei Yan; Chongmin Wang; Vijaya Murugesan; Pacific Northwest National Laboratory

4:40 PM Invited

Atomistic Simulations of Ionic Liquid and Polymer Electrolytes: From Bulk Phases to Interfacial Behavior: John Lawson; Justin Haskins; NASA Ames Research Center

5:05 PM Invited

Chemomechanics in Li-ion batteries: Kejie Zhao; Purdue University
Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques IV

Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhownick, Hysitron; Jeffrey Wheeler, ETH Zurich; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Tuesday PM Room: 32A
February 28, 2017 Location: San Diego Convention Center

Session Chairs: Bob Wheeler, Microtesting Solutions; Jeff Wheeler, ETH Zurich

2:00 PM Invited
Optimum Layer Thickness for High Temperature Mechanical Properties of ARB Cu/Nb Nanoscale Multilayers: Jon Molina-Aldareguia; Jeremy Snel; Miguel Monclus; Nathan Mara; Irene Beyerlein; Javier Llorca; IMDEA Materials Institute

3:30 PM
Influence of Dislocation Density and Grain Boundaries on the Scaling Behaviour of Ultrafine-grained BCC Micropillars: Reinhard Fritz; Alexander Leitner; Verena Maier-Kiener; Daniel Kiener; Montanuniversität Leoben

3:50 PM Invited
Micro-Mechanical Characterization of Micro-Architected Tungsten Coating at Elevated Temperatures: Quan Jiao; Gidong Sim; Jaafar El-Awady; Johns Hopkins University

3:10 PM Multiscale 3D Imaging of Damage in an Angle-Interlocked Ceramic Matrix Composite under In-Situ Mechanical Loading Using Lab X-Ray Microscopy: Hrishikesh Bale; Robert Ritchie; David Marshall; Carl Zeiss X-ray Microscopy; Department of Materials Science and Engineering, University of California, Berkeley; Toledyne Scientific Co.

2:50 PM Session Break

3:50 PM Invited
In Situ Thermo-mechanical Characterization of Materials: Xiaodong Li; University of Virginia

4:20 PM Probing the Dynamic Response of Ordered Lattice Materials: J. Linf; J. Hawrelick; B. Maddox; M. Barham; M. Messner; B. Jensen; N. Barton; M. Kumar; Lawrence Livermore National Laboratory

2:00 PM Session Break

4:40 PM Invited
Pushing the Envelope in Variable Temperature Nanoindentation: High and Cryogenic Temperature Measurements: Nicholas Randall; Marcello Conte; Gaurav Mohanty; Jakob Schwiedzik; Jeffrey Wheeler; Bertrand Bellaton; Anton Paar TriTec; EMPA; ETH Zurich

5:00 PM Effect of Ausforming on Isothermal Transformation Below Ms in NiCrMoV Steel Studied by In-situ Neutron Diffraction: Wu Gong; Stefanus Harjo; Akinobu Shibata; Takuro Kawasaki; Yo Tomota; Tomoya Shinozaki; Nobuhiro Tsuji; Kyoto University

Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session IV

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

Tuesday PM Room: 21
February 28, 2017 Location: San Diego Convention Center

Session Chairs: Hsin-jay Wu, National Sun Yat-sen University; Teruyuki Ikeda, Ibaraki University

2:00 PM Invited
Engineering (ZT)eng and Efficiency, High Power Factor in Half-Heusler, and New Zintl Materials: Zhifeng Ren; University of Houston

3:30 PM Synthesis, Processing and Transport Properties of Metastable Phases in the Mg-Si-Sn System: Pathikumar Sellappan; Anthony Fong; Masayuki Murata; Yasuhiro Kodera; Javier Garay; University of California San Diego; National Institute of Advanced Industrial Science and Technology (AIST)

3:20 PM Phase Equilibria of Ternary Sn-Sb-Co Systems and Ge-Co-Sb and Thermoelectric Properties of Sn/Ge Doped Skutterudite CoSb3: Ping-Yuan Deng; Hsin-jay Wu; Department of Materials and Optoelectronic science, National Sun Yat-sen University

3:40 PM Break

4:40 PM Invited
Thermoelectric Enhancement of Cu,Se by CuInSe2 Incorporation: Pierre Ferdinand P. Poudel; University of Michigan

3:40 PM Phase Stability and Vacancy-site Occupation of Half-Heusler Compounds in Multi-component System M(Ni, X)Sn (M: Ti, Zr, Hf and X: Co, Ir): Yoshisato Kimura;Yaw Wang Chai; Tokyo Institute of Technology

4:20 PM Invited
Thermoelectric Enhancement of Cu,Se by CuInSe2 Incorporation: Pierre Ferdinand P. Poudel; University of Michigan

4:40 PM Invited
Phase Diagram of Ternary Cu-Ga-Te System and Thermoelectric Properties of Chalcopyrite CuGaTe2 Materials: Hsin-jay Wu; Zong-jin Dong; National Sun Yat-sen University; National Sun Yat-sen University

5:00 PM Understanding the Role of Secondary Phases in Enhancing the Figure-of-Merit in Ge-Sb-Te Alloys: Jared Williams; Donald Morelli; Michigan State University

5:20 PM Transient Liquid Phase Bonding of CuGa/Ni and CuGa/Co and Phase Equilibria of Cu-Ga-Ni and Co-Cu-Ga Ternary Systems: Ji-min Lin; Sinn-wen Chen; Tsu-ching Yang; National Tsing Hua University
Aluminum Alloys, Processing and Characterization — Plasticity and Mechanical Behavior
Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Tuesday PM  Room: 4
February 28, 2017  Location: San Diego Convention Center

Session Chair: Pizhi Zhao, Chinalco

2:00 PM Introductory Comments

2:05 PM
New Yield Criterion for Description of Plastic Deformation of Face-Centered Cubic Single Crystals: Nitin Chandola1; Crystal Pasiliao2; Oana Cazacu3; B. Revil-Baudard1; 1University of Florida/REEF; 2Air Force Research Laboratory

2:30 PM
Quantifying As-cast and Homogenized AA7050 Mechanical Properties through Compression Testing: Yunbo Wang1; Matthew Krane2; Kevin Trumble3; 1Purdue University

2:55 PM
Determining a Stable Texture Under Complex Strain Path Deformations in Face Centered Cubic Metals: Usman Ali1; Abhijit Brahme2; Raja Mishra3; Kaan Inal1; 1University of Waterloo; 2General Motors Research and Development Center

3:20 PM
Microstructural Transition and Elevated Temperature Tensile Properties of Modified Al-Si-Cu-Mg Alloys: Mehdi Rahimian1; Shouxun Ji1; Paul Blake2; Douglas Watson2; Zhongyun Fan1; 1BCAST, Brunel University London; 2Jaguar Land Rover Limited

3:45 PM Break

4:00 PM
Effects of Alloying Elements on Anneal-hardening Behavior of Aluminum Alloy Foils: Takashi Suzuki1; Shigeru Kuramoto2; Masaya Endo1; Qi Cui1; 1Mitsubishi Aluminium Co., Ltd.; 2Ibaraki University

4:25 PM
Increasing Strength and Corrosion Resistance of AlMgSi Alloys by Tailormade Thermomechanical Processing: Alexander Wimmer1; 1Neumann Aluminium

4:50 PM
Microstructural Optimization of a High Mechanical Properties (HMP) Aluminum Alloy by Using CobaPress™ Process: Mamadou Balde1; Christophe Desrayaud1; Véronique Bouvier1; Frédéric Perrier1; 1Mines Saint-Etienne; 2Saint-Jean Industries

5:15 PM
Cyclic Stress-strain Behavior and Low Cycle Fatigue Life of AA6061 Aluminum Alloy: Mirza Faisal Ahmed1; K. Liu1; X. Grant Chen2; 1University of Québec at Chicoutimi

Aluminum Reduction Technology — Cell Voltage and Pot Control
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Tuesday PM  Room: 2
February 28, 2017  Location: San Diego Convention Center

Session Chair: Daniel Whitfield, Emirates Global Aluminium

2:00 PM Introductory Comments

2:05 PM
Application of Multivariate Statistical Process Control with STARPprobeTM Measurements in Aluminium Electrolysis Cells: Jean-Pierre Gagné1; Pascal Laviole2; Albert Mulder1; Rémi St-Pierre1; Pascal Côté2; 1STAS; 2Consultant

2:30 PM
Predicting Instability and Current Efficiency of Industrial Cells: Patrice Côté1; Olivier Martin1; Bertrand Allano1; Véronique Dassylva-Raymond1; 1Rio Tinto Alcan; 2Consultant, Reso-Lean Conseil

2:55 PM
Detecting, Identifying and Managing Systematic Potline Issues with Generation 3 Process Control: Nursian Tjahyono1; Yushuang Gao2; David Wong1; Ron Etzion1; Albert Mulder1; 1University of Auckland, Light Metals Research Centre; 2IT Consultant

3:20 PM
Integrating a New Smelter Supervision HMI in Existing Control Systems at ALBRAS: Vanderlei Fernandes1; Geir Sandnes2; Leonel Mota Ivo2; Rogério Labanca1; 1ALBRAS Aluminio Brasiliero S.A.; 2Norsk Hydro ASA; 3Accenture

3:45 PM Break

4:00 PM
Clustering Aluminium Reduction Cells: Flavia Lima1; Alan Souza1; Fabio Soares2; Diego Lisboa2; Roberto Oliveira1; 1UFPA

4:25 PM
Study of Impact of the Anode Slots on the Voltage Fluctuations of Aluminium Electrolysis Cell Using Bubble Layer Simulator: Sandor Poncsak1; László Kiss1; Sébastien Guérard2; Jean François Bilodeau2; 1Université de Québec at Chicoutimi; 2Rio Tinto Aluminium

4:50 PM
Minimizing Cathode Voltage Drop by Optimizing Cathode Slot Design: Ralph Friedrich1; Frank Hiltmann1; Andreas Lützerath1; Richard Meier2; Markus Pleffer2; Till Reek1; Oscar Vera Garcia1; 1SGL CFL CE GmbH; 2TRIMET Aluminium SE

Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Tuesday PM  Room: 15B
February 28, 2017  Location: San Diego Convention Center

Session Chair: Patrick Taylor, Colorado School of Mines

2:00 PM Market Dynamics, Recycling and Recovery of Magnesium and Its Alloy from Scrap: Adam Gesing1; Subodh Das2; 1Gesing Consultants Inc.; 2Phinix,LLC

2:20 PM Alternative Ways of Using Nonferrous Slags as Feed Material in the Ferrous Production Industry: Mario Sanchez1; Fernando Parada1; Jose Palacios1; 1Universidad Andrés Bello; 2Universidad de Concepcion; 3Universidad de Playa Ancha
Applications of Solidification Fundamentals — Simulation and Modeling of Solidification Behavior

Program Organizers: Andre Philllon, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing

Tuesday PM Room: 19 February 28, 2017 Location: San Diego Convention Center

Session Chair: Andre Philllon, McMaster University

2:00 PM
Investigating Homogenous Nucleation in Solidification of Aluminum and Iron by Molecular Dynamics Simulations: Avik Mahata1; Moshen Aslezaeem1; Michael Baskes2; Missouri University of Science and Technology; 1University of California, San Diego

2:20 PM
Inoculant Undercooling Induced Nucleation and Growth during Equiaxed Solidification: Effect of Location and Separation Distance of the Inoculants and Time: Arvind Prasad1; Lang Yuan2; Peter Lee3; Mark Easton4; David StJohn5; 1University of Queensland; 2GE; 3University of Manchester; 4RMIT

2:40 PM
Nucleation of Solidification in Confined High Aspect Ratio Films: James Mastandrea1; Joel Ager2; Daryl Chrzani3; Lawrence Berkeley National Laboratory

3:00 PM
Thermomechanical Properties of Metals during Solidification by Molecular Dynamics Simulations: Seyed Alireza Etesami1; Ebrahim Asadi2; 1University of Memphis

3:20 PM Break

3:40 PM
On the Transition from Equiaxed Sedimentation to Viscoplastic Packed Bed Dynamics: Andreas Ludwig1; Menghuai Wu2; Christian Rodrigues2; Tobias Holzmann3; Alexander Vakhrushev4; 1Montanuniversitaet Leoben; 2Montanuniversitaet Leoben

4:00 PM
Lattice Boltzmann GPU Solutions for Alloy Microstructure Development and Solute Transport: Ivars Krastins5; Andrew Kao6; Koumis Pericleous; 1University of Greenwich

Bio-Nano Interfaces and Engineering Applications — Bio-Nano Interfaces: Engineering Applications

Program Organizers: Candan Tamerler, University of Kansas; John Nycky, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

Tuesday PM Room: Pacific 21 February 28, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Po-Yu Chen, National Tsing Hua University; Mohan Edirisinghe, University College London

2:00 PM Keynote
Novel Gyrotary Processes to Manufacture Bionanointerfaces: Mohan Edirisinghe1; University College London

2:40 PM
Bio-inspired Syntheses of Self-cleaning Coatings and Oil-water Separation Interfaces by Atmospheric Pressure Plasma and Freeze Casting Techniques: Po-Yu Chen1; Ching-Yu Yang1; Yu-Hsiang Lo1; National Tsing Hua University

3:00 PM
Biomimetic Lipid Bilayers in Biosensing Applications: Abdulhalim Kilic1; Majid Jadidi1; Hakan Ozgur Ozerc1; Fatma Nese Kok1; Istanbul Technical University

3:30 PM
Engineering Lactate Oxidases with Metal Binding Peptides towards Lactate Monitoring: Ersan Mozigolu1; Dwight O’Dell1; Thomas Brandon Richard2; Mark L. Richter1; Candan Tamerler1; The University of Kansas

3:50 PM Break

4:10 PM Invited
Solution Plasma Materials Processing from Natural Products: Nagahiro Saito1; Nagoya University

4:50 PM
Peptide Enabled Addressable Immobilization of Kinetically Matched Fusion Enzymes in Membrane Flow Bioreactors: Deniz Yacesy1; Susrut Akkineni1; Bruce Hinds2; Candan Tamerler2; Mehmet Sarikaya1; University of Washington

Biological Materials Science — Structural Biological Materials I

Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Tuesday PM Room: Pacific 15 February 28, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Steven Naleway, University of Utah; Dwayne Arola, University of Washington

2:00 PM Invited
Biological Materials Science: Challenges and Opportunities: Marc Meyers1; UCSD

2:30 PM
Biological and Bio-inspired Flexible Armor Based on Chiton’s Girdle Scales: Ling Li1; Matthew Connors2; Ahmed Hosny3; Douglas Earnisse4; Mason Dean4; James Weaver1; Christine Ortiz2; 1Harvard University; 2Massachusetts Institute of Technology; 3California State University; 4Max Planck Institute of Colloids and Interfaces
2:50 PM  
On the Stress Relaxation and Tear Resistance of Skin: Wen Yang; Andrei Pissarenko; Vincent Sherman; Eric Schaible; Katherine Brown; William Proud; Alun Williams; Robert Ritchie; Marc Meyers; \textsuperscript{1}Swiss Federal Institute of Technology in Zurich (ETHZ); \textsuperscript{2}University of California, San Diego; \textsuperscript{3}Lawrence Berkeley National Laboratory; \textsuperscript{4}University of Cambridge; \textsuperscript{5}Imperial College London

3:10 PM  
On the Impact Resistance of Horn and Hoof in Different Loading Orientations: Wei Huang; Alireza Zaheri; Horacio Espinosa; David Restrepo; Pablo Zavattieri; Joanna McKittrick; \textsuperscript{1}University of California, San Diego; \textsuperscript{2}Northwestern University; \textsuperscript{3}Purdue University

3:30 PM  
Break

3:40 PM  
Keynote  
Bio-inspired Design of Hierarchical Materials: Horacio Espinosa; \textsuperscript{1}Northwestern University

4:20 PM  
Nacre’s Strategy to Enhance Its Mechanical and Fracture Properties: Sina Askarinejad; Nima Rahbar; \textsuperscript{1}Worcester Polytechnic Institute

4:40 PM  
The Hierarchical Structure of Atractosteus Spathula (Alligator Gar Fish) Boney Scales: XRM and Finite Element Modeling Characterization of Structural Porosity: Kenneth Livis; Matt Nelnos; Alyssa Browning; Wayne Hodo; A.M. Rajendran; \textsuperscript{1}Johns Hopkins University; \textsuperscript{2}University of Mississippi; \textsuperscript{3}Carl Zeiss X-ray Microscopy, Inc.; \textsuperscript{4}US Army ERDC-GSL

5:00 PM  
Structure and Mechanical Behavior of Coelacanth Scales: Haocheng Quan; Wen Yang; Robert Ritchie; Marc Meyers; \textsuperscript{1}UCSD; \textsuperscript{2}ETH-Zurich; \textsuperscript{3}Lawrence Berkeley National Laboratory

5:20 PM  
The First Barrier to Penetration of Fish Scales: Structure and Properties of the Limiting Layer: Sandra Murcia; Melicent Stossel; Rishi Pahuja; Timothy Linley; Alex Ossa; Junlan Wang; Dwayne Arola; \textsuperscript{1}University of Washington; \textsuperscript{2}Pacific Northwest National Laboratory; \textsuperscript{3}Universidad EAFIT

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**Bulk Metallic Glasses XIV — Structures and Mechanical Properties II**

*Program Organizers:* Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Tuesday PM  
February 28, 2017  
Room: 33A  
Location: San Diego Convention Center

**Session Chairs:** Lindsay Greer, University of Cambridge; Shigenobu Ogata, Osaka University

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2:00 PM  
Keynote  
Rejuvenation of Metallic Glasses: A. Greer; \textsuperscript{1}University of Cambridge

2:30 PM  
Invited  
Atomistic Study on Pressure-promoted Thermal Rejuvenation of Metallic Glass: Shigenobu Ogata; Narumasa Miyazaki; Masato Wakeda; \textsuperscript{1}Osaka University

2:50 PM  
Invited  
Plasticity—toughness Connections in Ductile Metallic Glasses: Upadrasta Ramamurty; \textsuperscript{1}Indian Institute of Science

3:10 PM  
Exploring the Spectrum of Mechanical Properties and Structural States in Metallic Glasses via Physical Vapor Deposition: Daniel Magagnosc; Gang Feng; Le Ye; Xuemei Cheng; Daniel Gianola; \textsuperscript{1}University of Pennsylvania; \textsuperscript{2}Villanova University; \textsuperscript{3}Bryn Mawr College; \textsuperscript{4}UC Santa Barbara

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3:30 PM  
Break

3:50 PM  
Invited  
Inverse Notch Effect in Bulk Metallic Glasses: Jie Pan; Haofei Zhou; Yi Li; Huajian Gao; \textsuperscript{1}Institute of Metal Research, Chinese Academy of Sciences; \textsuperscript{2}Brown University; \textsuperscript{3}Institute of Metal Research, Chinese Academy of Sciences

4:10 PM  
Dynamics of Inherent Structure Energy Evolution in Metallic Glasses: Yue Fan; Takuya Iwashita; Takeshi Egami; \textsuperscript{1}University of Michigan, Ann Arbor; \textsuperscript{2}University of Tennessee, Knoxville

4:30 PM  
Manipulation of Shear Band Behavior by Atomic Scale Heterogeneities in Ni-Nb-Zr Metallic Glasses: Taegyu Park; So Yeon Kim; Hye Jung Chang; Eun Soo Park; Kwang Seon Shin; \textsuperscript{1}Seoul National University; \textsuperscript{2}Korea Institute of Science and Technology

4:50 PM  
Invited  
New Soft Magnetic FeCoNi(P, C, B) High-entropy Bulk Metallic Glasses with Large Supercooled Liquid Region: Yanhui Li; Wei Zhang; Tianlong Qi; \textsuperscript{1}Dalian University of Technology

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**Cast Shop Technology: Recycling and Sustainability Joint Session — Cast Shop/Recycling Joint Session**

*Program Organizers:* David Gildemeister, Alcoa Technical Center; Anne Kvithyld, SINTEF; Elsa Olivetti, Massachusetts Institute of Technology

Tuesday PM  
Room: 1A  
Location: San Diego Convention Center

**Session Chair:** Elsa Olivetti, MIT

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2:00 PM  
Tramp Element Accumulation and Its Effects on Secondary Phase Particles: Robert Wagstaff; Samuel Wagstaff; Antoine Allanore; \textsuperscript{1}Novelis Inc.; \textsuperscript{2}Massachusetts Institute of Technology

2:20 PM  
Dross Formation Mechanisms of Thermally Pre-treated Used Beverage Can Scrap Bales with Different Density: Jan Steglicl; Regina Dittrich; Georg Rombach; Marcel Rosefort; Bernd Friedrich; Anne Pichat; \textsuperscript{1}TRIMET Aluminium SE; \textsuperscript{2}RWTH Aachen University; \textsuperscript{3}Hydro Aluminium Rolled Products GmbH; \textsuperscript{4}Constellium Technology Center

2:40 PM  
Influence of Coating and De-coating on the Coalescence of Aluminium Drops in Salt: Stefano Capuzzi; Anne Kvithyld; Giulio Timelli; Arne Nordmark; Thorvald Abel Engh; \textsuperscript{1}University of Padua; \textsuperscript{2}SINTEF; \textsuperscript{3}NTNU

3:00 PM  
The Scale-up of High Shear Processing for the Purification of Recycled Molten Scrap Aluminium Alloy: Key Features of Fluid Flow: Mingming Tong; Jayesh Patel; Ian Stone; Zhongyuan Fan; David Browne; \textsuperscript{1}University College Dublin; \textsuperscript{2}NUI Galway; \textsuperscript{3}Brunel University London; \textsuperscript{4}University College Dublin

3:20 PM  
Break

3:40 PM  
Centrifugal Casting of Al-Si Scrap: Aya Abdelrahman; Shimaa El-Hadad; Iman El Mahallawi; \textsuperscript{1}British University in Egypt; \textsuperscript{2}Centre for Metallurgical Research and Development; \textsuperscript{3} Cairo University

4:00 PM  
Improved Recyclability of Cast Al-alloys by Engineering β-Al_2 Fe_5 Si_2 Phase: C. B. Basak; N. Hari Babu; \textsuperscript{1}BCAST, Brunel University London; \textsuperscript{2}BCAST, Brunel University London
Ceramic Materials for Nuclear Energy Research and Applications — Advanced Sintering, Characterization, and Measurement

Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khaifzov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Tuesday PM  Location:  Marriott Marquis Hotel & Marina
February 28, 2017
Session Chairs: Maria Okuniewski, Purdue University; Larry Aagesen, Idaho National Laboratory

2:00 PM Invited
Thermal-Mechanical Properties of Sintered UO2: Tiankai Yao1; Jie Lian1; 1Rensselaer Polytechnic Institute

2:30 PM
Correlation Between Particle Size and Grain Size Distributions in Single/ Multiphase Ceramic Oxide Surrogate Materials: Keyur Karandikar2; Austin Travis2; Kenta Ohtaki2; Martha Mecartney2; Olivia Graeve3; 1University of California, San Diego; 2University of California, Irvine

2:50 PM
Phase Field Modeling of Uranium Dioxide Sintering and Densification: Ian Greenquist1; Michael Tonks1; Yongfeng Zhang2; 1Penn State University; 2Idaho National Laboratory

3:10 PM
Study of Oxide Dispersion Strengthened 316L Austenitic Steel by Mechanical Milling: Supriya Koul1; Joysurya Basu1; Kausik Chattopadhyay1; Krishanu Biswas1; Nilay Mukhopadhyay1; 1Indian Institute of Technology (BHU) Varanasi; 2Indian Institute of Technology Kanpur

3:30 PM Break

3:40 PM Invited
In Situ Synchrotron Characterization of the Field Assisted Sintering of UO2: David Sprouster1; E. Dooryhee1; L. Ecker1; R. Pokharel1; A Raftery2; D Byler2; K.J. McClellan2; 1Brookhaven National Laboratory; 2Los Alamos National Laboratory

4:30 PM
Thermoelectric Properties of Doped and Pure UO2 at High Temperatures: Ali Massihi1; Lars Jernkvist1; 1Quantum Technologies

4:50 PM
Evaluation of Creep Behavior of UO2 at Sub-grain Length Scales: Benjamin Shaffer1; Bowen Gong1; Harn Chyi-Lim1; Robert McDonald1; Pedro Peralta1; 1Arizona State University

5:10 PM
Irradiation Dependent Deformation and Thermal Properties of SiC and SiO2 Measured by Using Nanomechanical Raman Spectroscopy: Debabriya Mohanty1; Vignesh Vivekanandan1; Vikas Tomar1; 1Purdue University

Characterization of Materials through High Resolution Coherent Imaging — Phase Contrast Imaging II
Program Organizers: Ross Harder, Argonne National Lab; Xianghui Xiao, Argonne National Laboratory; Richard Sandberg, Los Alamos National Laboratory; Saryu Fensin, Los Alamos National Laboratory; Brian Abbey, LaTrobe University; Ana Diaz, Paul Scherrer Institut

Tuesday PM  Room:  25B
February 28, 2017  Location:  San Diego Convention Center
Session Chair: To Be Announced

2:00 PM
Anisotropic Growth Patterns in Four Dimensions: Ashwin Shahani1; Xianghui Xiao2; Peter Voorhees1; 1Northwestern University; 2Argonne National Laboratory

2:30 PM
In-situ Phase Contrast Nano-tomography at ID16B: Julie Villanova1; Richi Kumar1; Rémi Daumin2; Pierre Lhuissier2; Luc Salvo2; David Jauffrès2; Christophe L. Martin2; Rémi Tucoulou1; 1ESRF - The European synchrotron; 2SIMAP-Univ. Grenoble Alpes

2:50 PM
High Speed Tomographic Imaging of Materials during Uniaxial Loading: Brian Patterson1; Nikhilsh Chawla1; Sudhanshu Singh1; Angel Ovejero1; Jason Williams1; Xianghui Xiao2; Kevin Henderson1; Robin Pacheco1; Nikolaus Cordes1; James Mertens1; 1Los Alamos National Laboratory; 2Arizona State University; 3Argonne National Laboratory

3:20 PM Break
Characterization of Minerals, Metals, and Materials — Powder and Foams

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firas Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Tuesday PM  Room: 31B  Location: San Diego Convention Center

Session Chairs: Juan Escobedo-Diaz, UNSW Australia; Brahim Akdim, Air force Research Lab

2:00 PM
Microstructural Evaluation of Ti-6Al-4V Powder Compacts Sintered by Microwave Energy: Kenneth Grabowski; Evan Groopman; Benjamin Rock; M Imam; Albert Fahey; Naval Research Laboratory; National Research Council; George Washington University

2:20 PM
Residual Stress Analysis within Steel Encapsulated Metal Matrix Composites Via Neutron Diffraction: Sean Fudger; Dimitry Sediako; Prashant Karandikar; Chaoying Ni; University of Delaware; Canadian Neutron Beam Centre; M Cubed Technologies, Inc.

2:40 PM
Microstructure and Phase Evolution during the Synthesis of Manganese Germanides: Vamsi Meka; Tanjore Jayaraman; University of Michigan

3:00 PM
Application of AFS in Morphology Determination of Powder Material: Jian Wu; Ping Long; Yaochun Yao; Kunming University of Science and Technology

3:20 PM
Fracture Toughness Characterization of Spark Plasma Sintered Boron Carbide with Different Additives: Burcu Apak; Meral Cengiz; Onuralp Yucel; Gültekin Goller; Filiz Sahin; Istanbul Technical University

3:40 PM
Break

3:55 PM
Effects of Thermal Processing on Closed-Cell Aluminium Foams: Andrew Brown; Wayne Hutchison; Md Ashraful Islam; Md Abdul Kader; Juan Pablo Escobedo-Diaz; Paul Hazell; UNSW Australia

4:15 PM
Experimental Investigation of Mechanical Behaviour of Closed-Cell Aluminium Foams under Drop Weight Impact: Md Ashraful Islam; Md Abdul Kader; Andrew Brown; Paul Hazell; Juan Pablo Escobedo - Diaz; Mohammad Saadatfar; UNSW Canberra

4:35 PM
Deformation Mechanisms of Closed Cell-Aluminium Foams during Drop Weight Impact: M.A. Kader; M.A. Islam; M. Saadatfar; Juan P. Escobedo-Diaz; P.J. Hazell; A.D. Brown; School of Engineering and Information Technology, UNSW Australia; Department of Applied Mathematics, Australian National University

4:55 PM
Optical Characterization of a-Ti Grain Orientation: Insight from First-principles Calculations: Brahim Akdim; Chris Woodward; Michał Ulich; Air Force Research Lab

5:15 PM
Tracking 3D Microstructure Evolution during Sintering of Copper Particles by Laboratory Diffraction Contrast Tomography (LabDCT): Samuel McDonald; Christian Holzner; Erik Lauridsen; Peter Reischig; Arno Merkle; Michael Feser; Philip Wither; University of Manchester; Carl Zeiss X-ray Microscopy; Xnovo Technology

Preliminary Technical Program

Computational Materials Discovery and Optimization — From Bulk to Materials Interfaces and 2D Materials — Electronic, Magnetic, and Optical Properties

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

Tuesday PM  Room: 11A  Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Bridging Semi-classical and Ab Initio Descriptions of Electronic Transport in Semiconductors: Alireza Faghihaninia; Michael Sullivan; Derreko Becker-Ricketts; Cynthia Lo; Washington University

2:30 PM Invited
Using First Principle Approaches to Optimize Materials for Next Generation Non-volatile Memory: Derek Stewart; Western Digital

3:00 PM
Neural Networks Assisted Vector Tomography for the Reconstruction of the Magnetic Vector Potential: KC Prabhat; Marc De Graef; Carnegie Mellon University

3:20 PM
First-Principles Computation Design of CoPt and FePt Nanoparticles with Desired Magnetic Properties through Tailoring Surface Segregation: Guang Feng Wang; Zhenyu Liu; University of Pittsburgh

3:40 PM
Break

3:55 PM Invited
Magnetic-Field Tunability of Thermal Conduction in Non-Magnetic Materials: Wolfgang Windl; Nikolaus Antolini; Oscar Restrepo; Roberto Myers; Joseph Heremans; Ohio State Univ.

4:25 PM
Data-driven Magnetic Materials Selection, Design, and Optimization: Shruti Badam; Tanjore Jayaraman; University of Michigan

4:45 PM
Optimization of Buffer Layer Alloy Materials for CIGS Thin-Film Solar Cells: Vincenzo Lordi; Joel Varley; Xiaojing He; Angus Rockett; Jeff Bailey; Geordie Zapalac; Dmitry Poplavskyi; Neil Mackie; Atiye Bayman; Lawrence Livermore National Lab; University of Illinois at Urbana-Champaign; MiaSole Hi-Tech Corp.

5:05 PM
Restraining Electron-hole Recombination in W-N Codoped Titania: First-principles Study: Heechae Choi; Virtual Lab Inc.

Computational Thermodynamics and Kinetics — Diffusion and Kinetics I

Program Organizers: Niaz Abdulrahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

Tuesday PM  Room: 11B  Location: San Diego Convention Center

Session Chair: Christine Geers, Chalmers University of Technology

2:00 PM Invited
Surface Reaction and Transport in Oxides Formed on FeCrAl Alloys in High Temperature Nitridation Environments: Christine Geers; Vedad Babic; Itai Panas; Lars-Gunnar Johansson; Chalmers Technical University
2:30 PM
Accelerated Analysis of Beta Phase Ti-Nb-Al Ternary Diffusion via Optimization Fitting of Interdiffusion Coefficients in Three-Alloy Diffusion Multiples: James Haley; Kaka Ma; Aparna Tripathi; Kaustubh Kulkarni; Anil Sachdev; Enrique Laverna; University of California, Irvine; Colorado State University; India Institute of Technology, Kanpur; General Motors

2:50 PM
Evaluation of Silver and Tin Diffusion Mobility in Magnesium Alloys: Ian Parker; Michele Manuel; University of Florida

3:10 PM
Modeling Alloying Effects on Hydrogen Evolution Reaction Kinetics for Decelerated Magnesium Corrosion: Krista Limmer; Joseph Labukas; Jan Andzelmi; U.S. Army Research Laboratory

3:30 PM Break

3:45 PM Invited
Kinetic Monte Carlo Enabled Modeling of Diffusion Assisted Plastic Deformation: James Martinii; Sinith Chakravarty; Northeastern University

4:15 PM
Long-time Simulations of Cation Diffusion and Material recovery in Disordered Gd2Ti2O7 Pyrochlore: Romain Perriort; Blas Uberuaga; Richard Zamora; Danny Perez; Arthur Voter; Los Alamos National Laboratory

4:35 PM
First-Principles Computational Study of Charged Vacancy Diffusion in Alpha-Al2O3 and Alpha-Cr2O3: Guofeng Wang; Yinkai Lei; Corinne Gray; University of Pittsburgh

4:55 PM
Automated Diffusivity Theory without Kinetic Monte Carlo: Solute Diffusivity from First Principles: Dallas Trinkle; University of Illinois, Urbana-Champaign

5:15 PM
The Effects of Quantum Dynamics of Atomic Motion on Dislocation Mobility: Rodrigo Fretas; Mark Asta; Vasily Bulatov; University of California Berkeley and Lawrence Livermore National Laboratory; University of California Berkeley; Lawrence Livermore National Laboratory

2:30 PM Introductory Comments

2:05 PM Keynote
Porosity Formation and Shrinkage Effects in Alloy Samples Solidified on Earth and in Space as Observed In-situ by X-ray Monitoring: David Browne; University College Dublin

2:25 PM Invited
Influence of Fe-rich Intermetallics on the Formation of Solidification Defects: Chidhu Pancrosbatu; Surada Chuyaprada; Andre Phillioni; Julie Fife; Peter Lee; Chulalongkorn University; McMaster University; Paul Scherrer Institut; University of Manchester

2:45 PM
Modelling of Defects in Aluminium Castings: Laurens Katgerman; Mark Jolly; Delft University; Cranfield University

3:05 PM
Quantification of Porosity in Electron Beam Welded Dissimilar Steel to Fe-Al Alloy Joints by X-ray Computed Tomography: Soumitra Dinda; Gour Gopal Roy; Prakash Srirangam; Indian Institute of Technology, Kharagpur, India; University of Warwick

3:25 PM Break

3:45 PM
Role of Grain Refinners on Porosity Formation in Directionally Solidified Al-Si Alloys: Muhammet Ulu dag; Derya DSPinaur; Selcuk University; Istanbul University

4:05 PM
Self-Healing Micro-Porosity in Ductile Iron by Controlling Graphite Nodule Solidification Kinetics: Simon Lekakh; MST

4:25 PM
Theoretical Calculations for Pore Formation in Aluminum during Solidification: Pedram Yousefan; Murat Tiryakioglu; University of North Florida

4:45 PM
3D Visualisation of Porosity in Cast Al-Si Alloys Using X-ray Tomography: Mario De Giovanni; Jason Warnett; Mark Williams; Prakash Srirangam; University of Warwick

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

Tuesday PM Room: 23B Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Investigations on the Origin of Crack Initiation and Propagation Susceptibility of Prior Austenite Grain Boundaries in DP and Martensitic Steels: Fady Archie; Stefan Zaefferer; Max-Planck-Institut für Eisenforschung GmbH

2:20 PM
Hydrogen Embrittlement and Grain Boundary Fracture in Nickel: A Perspective from Atomistic Simulations: Douglas Spearot; Remi Dingeville; Doruk Aksoy; University of Florida; Sandia National Laboratories

2:40 PM
Segregation of Lead and Hydrogen Isotopes to Grain Boundaries in Nickel and Their Effect on Fracture: Richard Karnesky; Samantha Lawrence; Khalid Hattar; Stephen Foiles; Brian Somerday; Sandia National Laboratories; Southwest Research Institute

3:00 PM
Mesoscale Modeling of the Influence of Microstructural Gradients on Fracture: Gustavo Castelluccio; Hojun Lim; John Emery; Corbett Battaile; Sandia National Laboratories

3:20 PM Invited
Multi-probe, Multi-scale Analysis of Plasticity and Crack Blunting at Lath Martensitic Boundaries: Cem Tasan; MIT

3:40 PM Break

4:00 PM Invited
The Nature of Grain Boundaries and Their Response to Shock Compression and Release in Tantalum: Marc Meyers; Eric Hahn; Saryu Fensin; Tim Germann; UCSD; LANL

4:20 PM
The Influence of Second-phase Distribution on Dynamic Damage and Spall Strength: David Jones; Saryu Fensin; Daniel Martinez; Carl Trujillo; George Gray; Ellen Cerreta; Los Alamos National Laboratory

4:40 PM
The Role of Interfaces in Nucleation of Dynamic Damage in FCC and BCC Materials: Saryu Fensin; Eric Hahn; Tim Germann; Ellen Cerreta; George Gray; Los Alamos National Laboratory; University of California, San Diego
5:00 PM
Void Nucleation and Growth at Grain Boundaries in Flat and Surface Perturbed Copper Bicrystals: Elizabeth Fortin1; Matthew Catlett2; Jenna Lynch1; Eric Loomis3; Pedro Peralta3; 1Arizona State University; 2Los Alamos National Laboratory

5:20 PM Invited Development of Long-range Crystallographic Correlations in Microstructures: Mukul Kumar1; Jonathan Lind1; David Bober1; 1Lawrence Livermore National Laboratory

Electrode Technology — Electrodes: Raw Materials and Anode Quality
Program Organizer: Houshang Alamdari, Laval University

Tuesday PM Room: 1B Location: San Diego Convention Center

Session Chair: Christopher Kuhnt, Rutgers Basic Aromatics GmbH

2:00 PM Introductory Comments

2:05 PM Influence of Calcination Temperature and Sulfur Level on Coke Properties: Victor Buzunov1; John Johnson1; 1JCG

2:30 PM Pilot Anode Properties of Binder Pitches Softening between 110 and 150°C: Winfried Boenigk1; Christopher Kuhnt1; Jens Steigert2; Joris Claes3; Les Edwards3; 1RAIN Carbon Inc. (dba) RÜTgers Germany GmbH; 2RAIN Carbon Inc. (dba) RAIN CII Carbon LLC; 3RÜTgers Belgium N.V.

2:55 PM Uniform Bulk Density for Calcined Petroleum Coke: Ravindra Narvekar1; Gajanand Bandodkar1; Jagmohan Chhabra1; 1Goa Carbon Ltd.

3:20 PM Use of Thermally Desulfurized Shaft CPC for Anode Production: Les Edwards1; Kevin Harp1; Christopher Kuhnt1; 1Rain Carbon Inc.

3:45 PM Break

4:00 PM Anode Carbon Aggregate Packing Description Compared to Relevant Industrial and Engineering Practises: Bjarte Oye1; Lorentz Lossius2; 1SINTEF; 2Hydro Aluminium

4:25 PM CPC Testing and Relationship between Coke and Anode Physical Properties: Marvin Lubin1; Kevin Harp1; Les Edwards1; Christopher Kuhnt1; Winfried Boenigk1; 1Rain Carbon Inc. (dba) Rain CII Carbon; 2Rain Carbon Inc. (dba) RÜTgers Germany GmbH

4:50 PM Effect of Coke Properties on the Bubble Formation at the Anodes during Aluminium Electrolysis in Laboratory Scale: Wojciech Gebarowski1; Arne Petter Ratvik2; Stein Rørvik2; Lorentz Peter Lossius2; Hogné Linga2; Ann Mari Svensson2; 1Norwegian University of Science and Technology; 2SINTEF Materials and Chemistry; 3Hydro Aluminium

5:15 PM Coke Produced from Lower-Oxygen Fast-Pyrolysis Oil, a New Approach to Produce Renewable Anode Raw Materials: Yaseen Elkasabi1; Hans Darmstadt2; Akwasi Boateng3; 1Eastern Regional Research Center, Agricultural Research Service, U.S. Department of Agriculture; 2Rio Tinto Alean

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Alloying and Doping of Pb-free Materials
Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Tuesday PM Room: 30E Location: San Diego Convention Center

Session Chairs: Chih Chen, National Chiao Tung University; Albert T. Wu, National central University

2:00 PM Effects of Cobalt on the Nucleation, Grain Refinement and Orientations of Sn-3Ag-0.5Cu Solder: Christopher Gourlay1; Sergey Belyakov1; Zhaolong Ma1; 1Imperial College London

2:20 PM Influence of Bi on Microstructure and Properties of Sn-Cu-Ni Based BGAs on Cu Surface: Keith Sweatman1; Selena Smith1; Arif Salleh1; Stuart McDonald1; Takatoshi Nishimura1; 1Imperial College London; 2Nihon Superior Co., Ltd.

2:40 PM The Effect of Bi on the Behaviour and Properties of Sn-0.7Cu Based Solder Alloys: Keith Sweatman1; Selena Smith1; Arif Salleh1; Stuart McDonald1; Takatoshi Nishimura1; Kazuhiro Nogita1; 1Nihon Superior Co., Ltd.; 2University of Queensland; 3University of Malaysia Perlis

3:00 PM Effect of Ni on Mechanical Properties and Microstructure of Sn-0.7Cu and SAC307 Solder Alloys: Mehran Maalekian1; Karl Seelig1; 1AIM Metals & Alloys

3:20 PM Break

3:40 PM Long Term Isothermal Aging Effect on Reliability of Doped Lead-Free Solder Joint: Cong Zhao1; John Evans1; Jeffrey Suhling1; Michael Bozack1; 1Auburn university

4:00 PM Physico-mechanical Properties and Microstructure of Sn3.0Ag0.5Cu Solder Ribbons Doped with Ni and Ni-Sn Nanoparticles: Andriy Yakymovych1; Peter Svec Sr.2; Pavel Sebo2; Martin Nosko2; Herbert Ipser2; 1University of Vienna; 2Slovak Academy of Sciences

Program Organizers: Subodh Das, Phinix,LLC; Zhancheng Guo, University of Science and Technology Beijing; Minfang Han, China University of Mining and Technology, Beijing; Tenuhisa Horita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Dingbo Liu, West Virginia University

Tuesday PM Room: 14B Location: San Diego Convention Center

Session Chair: Elsa Olivetti, MIT

2:00 PM Numerical Approach for the Implementation of the Interaction of Pyrolysis Gases and Combustion Products in an Aluminium Melting Furnace: Rukiye Gültekin1; Antje Rücker1; Herbert Pfeifer1; 1IOB RWTH University

2:20 PM Approach for Pyrolysis Gas Release Modelling and its Potential for Enhanced Energy Efficiency of Aluminium Remelting Furnaces: Henning Bruns1; Antje Rücker1; Herbert Pfeifer1; 1RWTH Aachen University
Energy Materials 2017: Materials for Coal-Based Power — Session I

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

Tuesday PM Room: 12 Location: San Diego Convention Center

Session Chair: Jeffrey Hawk, NETL, U.S. Department of Energy

2:00 PM Keynote
Advances in Materials Technology to Enable Advanced Ultrasupercritical (A-USC) and Supercritical CO₂ (sCO₂) Power Cycles: John Shingledecker; 'Electric Power Research Institute

2:40 PM Invited
Corrosion Issues in Advanced Supercritical and Ultra Supercritical Coal Fired Boilers: Bruce Pint; 'Oak Ridge National Laboratory

3:10 PM Invited
Materials for Advanced Ultra Supercritical Steam Turbines: Philip Maziasz; 'Oak Ridge National Laboratory

3:40 PM Break

4:00 PM Invited

4:30 PM Invited
Ni-Fe Based Alloy GH984G Used for 700°C Coal-fired Power Plants: Changshuai Wang; Tingting Wang; Jianing Guo; Lanzhang Zhou; Haiping Zhao; Songqian Xu; 'Institute of Metal Research, Chinese Academy of Sciences; 'Research Institute, Baoshan Iron&Steel Co., Ltd.


Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group

Tuesday PM Room: 13 Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Modeling the Diffusion of Minor Elements in Different MCrAIY – Superalloy Substrates at High Temperature: Krishna Jonnalagadda; Kang Yuan; Xin-Hai Li; Ru Peng; Yueguang Yu; 'Linkoping University; 'Beijing General Research Institute of Mining and Metallurgy; 'Siemens Industrial Turbomachinery

2:30 PM
On Healing Mechanism of Cast Porosities in Cast Ni-Based Superalloy by Hot Isostatic Pressing: Yuan Chao; Li Jie; Kai-Xin Dong; Guo Jianting; 'Institute of Metal Research, Chinese Academy of Sciences

2:50 PM
Simulation of Precipitation Behavior of Nickel-based Superalloys: Fan Zhang; Weisheng Cao; Shuanglin Chen; Chuan Zhang; Jun Zhu; 'CompuTherm, LLC

3:10 PM
Microstructures and Mechanical Properties of Ultrafine Grained Ni Based Superalloy Matrix Nanocomposites Fabricated by Powder Metallurgy Route: Tian Xia; Deliang Zhang; Jiantao Liu; Yiwen Zhang; 'Shanghai Jiao Tong University, China; 'Northeastern University, China; 'Central Iron and Steel Research Institute

3:30 PM Break

3:50 PM
Rejuvenation of a Co Based Superalloy to Prevent the Quickest Microstructural Degradation during the Following Operating Cycle: Erica Vacchieri; Giacomo Roncallo; Gabriele Cacciamani; Alessio Costa; 'Ansaldo Sviluppo Energia S.p.A.; 'Chemistry Department, University of Genoa

4:10 PM
Rejuvenation Process Definition for IN792SX Gas Turbine Blades Aimed to Extend Their Expected Life: Erica Vacchieri; Paola Guarnone; Elena Bergaglio; 'Ansaldo Sviluppo Energia S.p.A.

4:30 PM
Tensile Behavior of Inconel X-750: Effect of Heat Treatment: Christopher Marsh; Djamel Kaoumi; 'University of South Carolina; 'North Carolina State University

4:50 PM
The Influence of Dendritic Segregation Degree to the Recrystallization Nucleation in U4720Li: Jiayu Chen; Jianxin Dong; 'University of Science and Technology Beijing

5:10 PM
Grain Refinement of Cast FeAl-Alloys for Gas Turbine Blades: Heiner Michels; Thomas Brenker; Laura Klinkenberg; Matthias Buenc; 'Access e.V.; 'Other; 'RWTH Aachen University
Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session IV

Program Organizers: Indrani Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Tuesday PM  Room: 14A  Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Keynote
Hydrogen-assisted Failure in Ni-base Superalloy 718 Studied under In-situ Hydrogen Charging: The Role of Localized Deformation in Crack Propagation
Z. Tarzimoghadam1; Dirk Ponge2; J. Klöwer2; Dierk Raabe2; Max-Planck-Institut für Eisenforschung GmbH; VDM Metals GmbH

2:30 PM Invited
Failure Conditions for Individual Grain Boundaries in a Ni-base Alloy Embrittled by H: Michael Demkowicz1; Texas A&M University

3:00 PM
A Combined Micromechanics/Materials Science Approach to Understanding High Temperature Hydrogen Attack: Mohsen Dadfarnia1; May Martin1; Petros Sofroni1; David Moore2; Steve Orwig3; University of Illinois Urbana-Champaign; BP

3:30 PM Break

3:50 PM
Hydrogen Embrittlement of High Strength Nickel-based Alloys in HP HT Applications: Ramgopal Thodla1; Brandon Rollins2; DNV USA

4:15 PM
High Strength Nickel-based Alloys for HPHT Applications: Ramgopal Thodla1; Brandon Rollins2; Jeff Hawk1; Column Holman4; DNV USA; NETL

4:40 PM
High Strength Alloys for Oil and Gas Drilling Applications: Robert Badrak1; Sergey Kolesov1; William Howie1; Weatherford

5:05 PM
Research on the Pinpoint Controlling of CRA N08028 OCTG Microstructure and Properties: Pan Dong1; Zhiqiang Yu2; Guangwei Fan3; Genshu Zhou4; Pengsheng Yao5; Zhifang Zhang5; Technology Center, Shanxi Taigang Stainless Steel Co., Ltd., Taiyuan, 030003, China; State Key Laboratory for Mechanical Behavior of Materials, Xi’an Jiaotong University, Xi’an, 710049, China; Shanxi Taigang Stainless Steel Tubes & Pipes Co., Ltd., Taiyuan, 030008, China; Shanxi Taigang Stainless Steel Co., Ltd., Taiyuan, 030003, China

Environmental Assisted Cracking: Theory and Practice — Stress Corrosion Cracking II

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

Tuesday PM  Room: 31A  Location: San Diego Convention Center

Session Chairs: Sebastien Teyseyre, Idaho National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

2:00 PM Invited
Challenges and Recent Progress in High Fluence Irradiation Assisted Stress Corrosion Cracking: Sebastien Teyseyre1; Idaho National Laboratory

2:40 PM
3D Microstructural and Electrochemical Characterization of Galvanic Corrosion in Al7075-T651/316 Stainless Steel Couples: Sridhar Niverty1; Jason Williams1; Itaksh Adlakha1; Scott Tumage1; Kiran Solanki2; Nikhilesh Chawla3; Arizona State University

2:00 PM Direct Observations of Corrosion Cracking in a TEM: Claire Chisholm1; William Mook1; Steven Hayden2; Daniel Bufford1; Khalid Hattar1; Timothy Kucharski2; Michele Ostraat3; Katherine Jungjohann4; Sandia National Laboratories; Aramco Services Company

4:00 PM
Assessing the Fracture Strength of Geological and Related Materials via an Atomistically Based J-integral: Reese Jones1; Louise Criscenti2; Jessica Rimsza3; Case Western Reserve University; University of Manchester

4:40 PM
Sensitization Effects on Environmentally Assisted Cracking of Al-Mg Alloys: Mohsen Seifi1; Henry Holroyd2; Timothy Burnett2; John Lewandowski3; Weatherford; Case Western Reserve University; University of Virginia

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Fatigue Characterization Using Advanced Experimental Methods in 2D and 3D

Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Tuesday PM  Room: 23C  Location: San Diego Convention Center

Session Chair: Antonios Kontsos, Drexel University

2:00 PM
Miniaturised Ultrasonic Fatigue Testing: Jiecheng Gong1; Arutyun Arutyunyan1; Isaac Cabrera2; Angus Wilkinson2; University of Oxford

2:20 PM Invited
Crack Initiation and Propagation in Nickel-based Superalloy Microcrystals during In Situ Scanning Electron Microscopy High Cycle Fatigue Testing: Steven Lavenstein1; Gi-Dong Sim2; Bryan Crawford1; Paul Shade1; Michael Uchic1; Christopher Woodward1; Jaafar El-Awady1; Johns Hopkins University; AFRL

2:40 PM Invited
Investigating Very High Cycle Fatigue Behavior of Ti-6242S Using In-situ Ultrasonic Fatigue in an E-SEM: Jason Geathers1; Christopher Torbet2; J Wayne Jones1; Samantha Daly3; University of Michigan; University of California, Santa Barbara

3:00 PM
Novel High-throughput Experiments for Early Damage Evolution in FCC Materials in the High and Very Cycle Fatigue Regime: Thomas Straub1; Michael Buck2; Chris Eberl2; University of Freiburg; Fraunhofer Institute for Mechanics of Materials IWM

3:20 PM
Characterization of Crack Propagation in Ni-based Superalloys Using High Energy X-ray Techniques: Diwakar Naragani1; Michael Sangid1; Paul Shade2; Peter Kenei1; Hemant Sharma3; Purdue University; Air Force Research Laboratory; Advanced Photon Source
3:40 PM  Break

4:00 PM  Invited
CPFE Simulations and In-situ Lane Micro-diffraction to Reveal the Geometry of a Forming Vein during Fatigue: Anima Iastraza-Landa1; Nicolo Grilli1; Antonios Kontsos1; 1Paul Scherrer Institute & EPFL; 1Paul Scherrer Institutat

4:20 PM  Invited
Fatigue Crack Growth and Fracture of Flexible Metallic Sheets: Wade Lanning1; Syed Javaid2; James Collins1; Christopher Muhlstein1; 1Georgia Institute of Technology

4:40 PM
Short Crack Growth in Ni-base Superalloys during Micro-bending Fatigue: Gi-Dong Sin1; Zafir Alam2; Gyusook Kim2; Paul Shade2; Chris Woodward2; Kevin Henker2; 1Johns Hopkins University; 2University of Pennsylvania; 2Air Force Research Laboratory

5:00 PM
The Role of Particle Fracture in Early Fatigue of Aluminum Alloys: Brian Wisner1; Konstantinos Baxevanakis1; Antonios Kontsos1; 1Drexel University

5:20 PM  Break

5:50 PM  Invited
In Situ Microstructural Fatigue Investigation of Magnesium Alloys: Chengyang Mo1; Brian Wisner1; Antonios Kontsos1; 1Drexel University

Session Chairs: Glenn Grant, Pacific Northwest National Laboratory; Jorge Dos Santos, Helmholz-Zentrum Geesthacht GmbH

Friction Stir Welding and Processing IX — Derivative Technologies
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Tuesday PM Room: 9 Location: San Diego Convention Center

2:00 PM  Invited
Solid-State Joining of Thick-Section Dissimilar Materials Using a New Friction Stir Dovetailing (FSD) Process: Scott Whalen1; Md. Reza-E-Rabbi2; Ken Ross2; Yuri Hovanski2; Martin McDonnell2; 1Pacific Northwest National Laboratory; 2Pacific Northwest National Laboratory; 2U.S. Army Tank, Automotive, Research, Development, and Engineering Center (TARDEC)

2:20 PM  Invited
Solid State Additive Manufacturing Using FSW and Low-cost Precursors: Anthony Reynolds1; Ilana Lu1; 1University of South Carolina

2:40 PM
Joining Aerospace Aluminum 2024-T4 to Titanium by Friction Stir Extrusion: William Evans1; Alvin Strauss1; George Cook4; 1Vanderbilt University

3:00 PM
Microscopic Evaluation of Friction Plug Welds—Correlation to a Processing Analysis: Ellen Rabaenberg1; Poshou Chen1; Sridhar Gorti1; 1National Aeronautics and Space Administration; 1Jacobs, NASA/MSFC

3:20 PM  Invited
Friction Stir Welding -- A Closer Examination: Tracy Nelson1; Bryan Stringham1; 1Brigham Young University

3:50 PM  Break

4:10 PM
Micro-mechanical Testing of Magnesium Based Composites Reinforced by Carbon Fibers Manufactured by Friction Stir Processing: Aude Simard1; Anne Merten2; Laurence Brasset2; Jacqueline Lecomte-Beckers2; Francis Delannay1; 1Universite Catholique de Louvain; 2University of Liége; 3Monash University, Australia

4:30 PM
Predicting Friction Pull Plug Welding Results: Justin Littell1; 1NASA

4:50 PM
Microstructural Analysis and Mechanical Properties of Friction Stir Back Extruded/Aged 7075 Aluminum Alloy: Zeren Xu1; Fadi Abu-Farha1; 1Clemson University

5:10 PM
Dissimilar Metal T-Joint Formed by Friction Stir Extrusion: Adam Jarrell1; Alvin Strauss1; George Cook4; 1Vanderbilt University

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

Session Chairs: Tae-Kyu Lee, Portland State University; Yuntian Zhu, North Carolina State University

February 28, 2017 Room: 33B Location: San Diego Convention Center

2:00 PM  Introductory Comments

2:10 PM  Invited
What are in a Phase with Property Anomaly?: Zi-Kui Liu1; 1The Pennsylvania State University

2:40 PM  Invited
Interface Magnetism in La0.7Sr0.3MnO3/SrRuO3 Bilayers Integrated on Silicon: Srinivasa Rao Singamaneni1; John Prater2; Jay Narayan2; 1University of Texas, El Paso; 2North Carolina State University

3:10 PM  Invited
Interfacial Reactions at the Joints in the Bi2Te3-based Thermoelectric Modules: Sinn-wen Chen1; Tz-wen Liou1; Hsu-shen Chu1; 1National Tsing Hua University

3:40 PM  Break

3:55 PM
Microstructure and Mechanism Studies of Epitaxial TiN Oxidation in Different Growth Orientations: Adele Moatti1; Jagdish Narayan1; 1NCSU

4:15 PM  Invited
Novel Iron-lanthanide Based High-mobility, Ferromagnetic and Transparent Amorphous Semiconducting Oxides: Humaira Taz1; Abhinav Malasi1; Tamil Sakthivel2; N Yamoah2; Connor Carr2; Annette Farah2; Benjamin Lawrie2; Raphael Poon3; Maulik Patel3; Arthur Baddorf3; Dhananjay Kumar3; Sudipta Seal4; 1Hernando Garcia1; Gerd Duscher1; Ramki Kalyanaraman1; 1University of Tennessee; 1University of Central Florida; 2North Carolina A&T; 3Oak Ridge National Laboratory; 4Southern Illinois University

4:45 PM
Tuning of Semiconductor-to-metal Transition in Epitaxial VO2 through Strain Engineering in the Heterostructures: Adele Moatti1; Jagdish Narayan1; 1NCSU

5:05 PM  Invited
Synchrotron X-ray Structure—resolved Study of Photovoltaic Titanium Oxide Phthalocyan: E-wen Huang1; Wei-Chieh Huang1; Yu-Hsiang Hsu1; Tsun-Hsu Chen1; 1National Chiao Tung University; 1National Taiwan University

4:20 PM  Invited
Microstructural Analysis of Aged Extruded/Aged 7075 Aluminum Alloy: Zeren Xu1; Fadi Abu-Farha1; 1Clemson University

5:10 PM
Dissimilar Metal T-Joint Formed by Friction Stir Extrusion: Adam Jarrell1; Alvin Strauss1; George Cook4; 1Vanderbilt University

www.tms.org/TMS2017
Fundamental Aspects and Modeling Powder Metal Synthesis and Processing — Fundamentals of Powder Consolidation

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

Tuesday PM  Room: 16A
February 28, 2017  Location: San Diego Convention Center

Session Chair: Eugene Olevsky, San Diego State University

2:00 PM  Invited

Anisotropy of Mass Transfer during Sintering of Powder Materials with Pore-Grain Structure Orientation: Diletta Giuntini1; Elisa Torresani1; Chaoyi Zha1; Tyler Harrington1; Kenneth Vecchio1; Alberto Molinari1; Eugene Olevsky1; 1San Diego State University and University of California, San Diego; 2University of Trento; 3University of California, San Diego

2:40 PM

Dislocation Density Approach to Understanding Sintering Mechanics: Chaoyi Zha1; Diletta Giuntini1; Tyler Harrington1; Eugene Olevsky1; Kenneth Vecchio1; 1UC San Diego; 2San Diego State University

3:00 PM

Effect of Additives on the Densification Kinetics and Microstructure of Hot-Pressed Boron Suboxide: Kristopher Behler1; Cooper Voigt1; Eugene Shanholz1; Jerry LaSalvia1; Scott Walck1; 1U.S. Army Research Laboratory (SURVICE Engineering); 2U.S. Army Research Laboratory (SEAP); 3U.S. Army Research Laboratory (ORISE); 4U.S. Army Research Laboratory

3:20 PM

Microstructural Evolution during Early Stages of Hot Isostatic Pressing of 316L Austenitic Stainless Steel: Sandeep Irukuvarghula1; Hany Hassanin1; Moataz Atallah1; Michael Preuss1; 1University of Manchester; 2Kingston University; 3University of Birmingham

3:40 PM  Break

4:00 PM  Invited

Thermodynamics versus Kinetics of Grain Growth Control to Enable Stable Nanocrystalline Materials: Ricardo Castro1; Nazia Nafsi1; 1University of California, Davis

4:40 PM

Grain Growth and Densification of Tungsten Nanopowders: Brady Butler1; James Paramore1; Anthony Roberts1; Jonathan Ligda1; Micah Gallagher1; 1U.S. Army Research Laboratory

5:00 PM

Development of Novel Multi-compaction Technique for Fabrication of Hybrid P/M Steels: Minchul Oh1; Hyunjoo Seok1; Byungmin Ahn1; 1Ajou University

5:20 PM

Microwave vs Conventional Sintering of Ti Powders: Comparative Analysis: Charles Maniere1; Tony Zahrah1; Eugene Olevsky1; 1San Diego State University; 2MATSYS Inc

Gamma (FCC)/Gamma-Prime (L12) Co-Based Superalloys II — Alloy Development

Program Organizers: Eric Lass, National Institute of Standards and Technology; Giang Feng, University of Science and Technology Beijing; Alessandro Motulla, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Tuesday PM  Room: Pacific 14
February 28, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Alessandro Motulla, University of Birmingham; Wei Xiong, University of Pittsburgh

2:00 PM  Invited

γ′-strengthened Co-Base Alloys – Development and Challenges: Akane Suzuki1; 1GE Global Research

2:30 PM  Invited

An Update on Cobalt Based Co-Mo-Al –X Alloys with γ′γ′ microstructure: Effect of Alloying Additions, Mechanical Properties and Interaction with Different Environments: Kamanio Chattopadhyay1; Dipankar Banerjee1; Abhishek Singh1; Rajarshi Banerjee1; Surenanda Makineni1; Nitin Bellari1; Abhishek Sharma1; Praful Pandey1; Saurabh Das1; 1Indian Institute of Science; 2University of North Texas

3:00 PM

Integrated Computational Materials Engineering of Co Bushing Alloy: Ida Berglund1; James Saul1; Jason Sebastian1; David Snyder1; Clay Houser1; Dana Frankel1; Nicholas Hatcher1; Gregory Olson1; 1QuesTek Innovations

3:20 PM

The Microstructure and Hardness of Ni-Co-Al-Ti-Cr Quinary Alloys: Katerina Christofidou1; Nicholas Jones1; Roxana Flacaru1; Mark Hardy1; Howard Stone1; 1University of Cambridge; 2Canadian Neutron Beam Center; 3Rolls-Royce plc

3:40 PM  Break

4:00 PM

Thermodynamics and Kinetics of L12-containing Co-base Superalloys from First-Principles: Robert Rhein1; Tresa Pollock1; Anton Van der Ven1; 1University of California Santa Barbara

4:20 PM

Thermodynamic Database for the Co-Al-W-Ni-Ti-Cr Superalloy System: Peisheng Wang1; Wei Xiong2; Oleg Kontsevoi1; Ursula Kattner1; Careyln Campbell1; Eric Lass1; Gregory Olson1; 1Northwestern University; 2University of Pittsburgh; 3National Institute of Standards and Technology

4:40 PM

Calphad Design of Co-based Gamma-prime-strengthened Superalloys: Eric Lass1; 1National Institute of Standards and Technology

5:00 PM

Phase Stability, Element Partitioning and Atomic Site Location in Co-9Al-9W-2X Alloys: Li Wang1; Michael Oehring1; Uwe Lorentz1; Andreas Stark1; Florian Pyczak1; 1Helmholtz-Zentrum Geestacht
High Entropy Alloys V — Alloy Development and Applications II
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University
Tuesday PM Room: 32B February 28, 2017 Location: San Diego Convention Center
Session Chairs: Suveen Nigel Mathaudhu, University of California, Riverside; Yong Liu, Central South University

2:00 PM Invited
Precipitation Strengthening Effects in Powder Metallurgical High Entropy Alloys: Yong Liu; Bin Liu; Qihong Fang; C.T. Liu; ‘Central South University; Hunan University; City University of Hong Kong

2:20 PM Invited
Synthesis and Characterization of Nanostructured Magnetic High Entropy Alloys: Trevor Clark; Christian Roach; Suveen Mathaudhu; ‘University of California Riverside

2:40 PM
Adaption of Metal Injection Molding to Quinary High Entropy Alloys: Arnaud Grimontrez; Julia Wagner; Volker Pieter; Alexander Kauffmann; Yizhou Chen; Martin Heilmayer; ‘Karlsruhe Institute of Technology (KIT); ‘University of Stuttgart

3:00 PM
Design of Novel Precipitate Strengthened Al-Co-Cr-Fe-Nb-Ni High-entropy Alloys: Martin Detroit; Stoichko Antonov; Sammy Tin; ‘Illinois Institute of Technology

3:20 PM Invited
Design of High Entropy Alloys for Turbine Applications: Ida Berglund; James Saal; Jason Sebastian; Gregory Olson; ‘QuesTek Innovations

3:40 PM Break

4:00 PM Invited

4:20 PM
Design of “High Entropy Alloys” (HEA) with Optimal Combinations of Stability, Density, Strength and Ductility: Edrn Menou; Isaak Toda-Caraballo; Emmanuelle Bertrand; Gérard Ramstein; Pedro Rivera-Díaz-del-Castillo; Franck Tancrot; ‘Université de Nantes; ‘University of Cambridge

4:40 PM
Fabrication of High-entropy Refractory Metal Carbides: Tyler Harrington; Joshua Gild; Jian Luo; Cormac Toher; Franab Sarker; Stefano Curtarolo; Kenneth Vecchio; ‘University of California San Diego; ‘Materials Science and Engineering Program, UC San Diego; ‘Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; ‘Department of Mechanical Engineering and Materials Science, Duke University; ‘Materials Science, Electrical Engineering, Physics, and Chemistry, Duke University

5:00 PM Invited
The Oxidation of an Equimolar FeCoNiCrMn High-entropy Alloy in CO/CO2 Mixed Gases at 973K (700°C): Wu Kai; Fu-Pen Cheng; Rong-Tan Huang; Leu-Wen Tsai; Ji-Jung Kai; ‘National Taiwan Ocean University

5:20 PM
Carbides-induced Hardening of CoCrFeMnNi Family of HEAs: Adrianna LOZINKO; Michal Mroz; Fares HADDAD; Anna Fraczkiewicz; ‘MINES St-Etienne
In-situ Methods for Unraveling Structure-Property Relationships in Light Metals — Diffraction and Other Novel Methods

Program Organizers: Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

Tuesday PM
Room: 5B
February 28, 2017
Location: San Diego Convention Center

Session Chairs: Wim Sillekens, European Space Agency; Dmytro Orlov, Lund University

2:00 PM Structural Evolution of Metals at High Temperature: Complementary Investigations with Neutron and Synchrotron Quantum Beams: Klaus-Dieter Liss1; 1Australian Nuclear Science and Technology Organisation

2:20 PM Advanced Aluminum Alloys Development and In-Situ Fitness-for-Service Testing in Automotive Lightweighting: Dimitry Sedlako2; David Weiss2; Ahmed Nabawy1; 1Canadian Nuclear Laboratories; 2ECK Industries Inc.

2:40 PM In-situ X-ray Synchrotron Profile Analysis during High Pressure Torsion of Ti: Erhard Schafer1; Michael Kerber1; Florian Speckermann1; Torben Fischer2; Roman Schuster1; Cornelia von Baecckmann1; 1University of Vienna, Faculty of Physics; 2University of Leoben; Deutsches Elektronen-Synchrotron DESY; 3University of Vienna, Faculty of Earth Sciences; 4University of Vienna, Faculty of Chemistry

3:00 PM The Effect of Grain Refinement on Hot Tearing in AZ91D Magnesium Alloys: Tyler Davis1; Lukas Bichler2; Francesco D’Elia2; Norbert Hort1; 1University of British Columbia; 2Helmholtz-Zentrum Geesthacht

3:20 PM Formability of Magnesium Alloy AZ31B from Room Temperature to 125C under Biaxial Tension: Isaiah Chelladurai1; Andrew Orme1; Michael Miles1; David Fullwood1; John Carsley1; Raj Mishra1; Irene Beyerlein1; Marko Knezevic1; 1Brigham Young University; 2General Motors; 3Sandia National Laboratory; 4University of New Hampshire

3:40 PM In-situ Real-time Monitoring of Aging Processes in an Aluminum Alloy by High-precision Dilatometry: Martin Luckabauer1; Elisabeth Hengge1; Gregor Kliner1; Wolfgang Sprengel1; Roland Würschum1; 1Paderborn University; 2Leibniz Universität Hannover

4:00 PM Keynote
Ambient Pressure X-ray Photoelectron Spectroscopy in Light Element Materials Investigations: Joachim Schnadt1; Ashley Head1; 1Lund University; 2Lawrence Berkeley National Laboratory

4:20 PM Analysis of Microstructure and Damage Evolution in Ultra-thin Wires of the Magnesium Alloy MgCa0.8 at Multipass Drawing: Andrij Milenin1; Norbert Hort1; 1University of Bordeaux; 2University of California and Rutgers University; 3University of Cambridge; 4Northwestern University

4:40 PM Analysis of Microstructure and Damage Evolution in Ultra-thin Wires of the Magnesium Alloy MgCa0.8 at Multipass Drawing: Andrij Milenin1; Norbert Hort1; 1University of Bordeaux; 2University of California and Rutgers University; 3University of Cambridge; 4Northwestern University

5:10 PM Effect of the Zn Content on the Compression Behaviour of Mg5Nd(Zn): An In Situ Synchrotron Radiation Diffraction Study: Domonkos Tolnai1; Tim Kärcher1; Ricardo Buzolin1; Tungky SubROTO1; Francesco D’Elia1; 1Eck Industries Inc.; 2General Motors; 3University of New Hampshire; 4University of Cambridge; 5University of Leoben; 6Sandia National Laboratory

Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session IV

Program Organizers: Wei Xiong, University of Pittsburgh; Shuanglin Chen, CompuTherm LLC; Frederic Danoix, Université de Rouen; Indrajit Charit, University of Idaho

Tuesday PM
Room: 31C
February 28, 2017
Location: San Diego Convention Center

Session Chairs: Hatem Zurob, McMaster University; Indrajit Charit, University of Idaho

2:00 PM Invited
Interaction of Solutes with Interfaces in Iron: Matthias Militzer1; Hatem Zurob2; 1The University of Columbia; 2McMaster University

2:30 PM Invited
A New Look at Steel Martensite Tempering with Advanced Characterization Tools: Amy Clarke1; Michael Miller1; Daniel Coughlin1; Dean Pierce2; Jon Poplawsky2; Paul Gibbs2; Kester Clarke1; Virginia Judge1; Bjorn Claussen1; Jon Almer1; Robert Field1; Don Williamson1; David Alexander1; John Speer1; George Krauss1; 1Colorado School of Mines; 2Oak Ridge National Laboratory; 3Los Alamos National Laboratory; 4Sandia National Laboratories - Livermore; 5Argonne National Laboratory

3:00 PM
Atomistic Modelling of Carbon Redistribution in Martensite Phase: Helena Zapolski1; Mykola Lavrskyi1; Armen Khachatryan1; Frederic Danoix2; Renaud Patte1; Sophie Cazottes2; Mohamed Gouné3; Philippe Maugis3; 1University of Rouen; 2University of California and Rutgers University; 3INSA Lyon - MATEIS - SGM; 4University of Bordeaux; 5Aix-Marseille University Saint-Jerome

3:20 PM Break

3:40 PM Invited
Precipitation Kinetics: Quantitative In-situ Characterization Using Small-angle Scattering Helps Establish Models Validity: Alexis Deschamps1; Frederic De Geuser1; Mark Styles1; Christopher Hutchinson1; 1Grenoble Institute of Technology; 2CSIRO; 3Monash University

4:10 PM
Thermally Induced Phase Transformations in Beta-titanium Alloys and Corresponding Effects on Mechanical Properties: James Coakley1; Anna Radecka1; Paul Bagot1; David Dye1; Howard Stone1; Dieter Iseheim1; David Seidman1; 1University of Cambridge; 2Rolls-Royce plc.; 3Oxford University; 4Imperial College London; 5Northwestern University

4:30 PM
Method for Correcting Atom Probe Tomography Trajectory Aberration Artifacts in Multiphase Materials: Samuel Briggs1; Nathan Almialf1; Philip Edmondson1; Peter Wells1; G. Robert Odette1; Kumar Sridharan1; Kevin Field1; 1University of Wisconsin-Madison; 2University of California - Santa Barbara; 3Oak Ridge National Laboratory

4:50 PM
Solute Distribution Analysis of Early Stages of Aging in Al-Mg-Si Alloys via Atom Probe Tomography: Philipp Dumitraeschweiz1; Gunther Rank1; Stephanie Sack1; Stephan S.A. Gerst1; Stefan Pogatscher1; 1Chair of Nonferrous Metallurgy, Montanuniversität Leoben; 2AMGA rolling GmbH; 3Chair of Physical Metallurgy and Metallic Materials, Montanuniversität Leoben; 4Scientific Center of Optical and Electron Microscopy, ETH Zurich
Interface-Mediated Properties of Nanostructured Materials — Measurement and Modeling of Nanoscale Deformation

Program Organizers: Caizhi Zhou, Missouri University of Science and Technology; Nan Li, Los Alamos National Laboratory; Peter Anderson, The Ohio State University; Michal Demkowicz, Texas A&M University

Tuesday PM  Room: Pacific 23  Location: Marriott Marquis Hotel & Marina

Session Chairs: Peter Anderson, The Ohio State University; Michal Demkowicz, Texas A&M University

2:00 PM  Invited
Slip Transmission in fcc/fcc Bilayers Using Phase Field Dislocation Dynamics: Yifei Zeng; Abigail Hunter; Irene Beyeler; Marisol Koslowski; Purdue University; Los Alamos National Laboratory

2:30 PM  Invited
Strengthening Mechanisms of Nanoporous Metallic Materials: Niaz Abdolrahim; Bin Ding; University of Rochester

3:00 PM
Deformation and Fracture in Stressed Multi-layer Thin Films: Ruth Konetschnik; Darjan Kozic; Ronald Schöngrundner; Hans-Peter Gänsler; Roland Brunner; Daniel Kiener; University of Leoben; Materials Center Leoben

3:20 PM
Green’s Function Formulation for Vacancy-assisted Dislocation Climb and Applications to Low Angle Grain Boundaries: Yang Xiang; Yejun Gu; Jian Han; David J Srolovitz; Hong Kong University of Science and Technology; University of Pennsylvania

3:40 PM  Break

3:55 PM  Invited
Ab Initio Determination of the Energetics of Atomically Sharp Interfaces: Liang Qi; University of Michigan

4:25 PM
Molecular Dynamics Simulations of Mg/Nb Interfaces: Shear Strength and Interaction with Lattice Glide Dislocations: Xiang-Yang Liu; Satyesh Yadav; Shuai Shao; Jian Wang; Youxing Chen; Richard Hoagland; Los Alamos National Laboratory; University of Nebraska-Lincoln

4:45 PM
On the Impact of Capillarity for Strength at the Nanoscale: Nadia Mameka; Jürgen Markmann; Jörg Weißmüller; Helmholtz-Zentrum Geesthacht; Hamburg University of Technology

5:05 PM
Mitigation of Atomic Oxygen Attack to Spacecraft Composite Structures: A Fundamental Investigation Using Reactive Molecular Dynamics Simulation: Sasan Nouranian; Farzin Rahmani; Mina Mahdavi; Ahmed Al-Ostaz; Department of Chemical Engineering, University of Mississippi; Department of Civil Engineering, University of Mississippi

5:25 PM
Joining of Copper by Ag Nanopaste: Microstructure and Strength Behavior Depending on Different Process Parameters: Susann Hauser; Bernhard Wielage; Guntram Wagner; Technische Universität Chemnitz

Magnesium Technology 2017 — Solidification and Processing I

Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlow, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Tuesday PM  Room: 5A  Location: San Diego Convention Center

Session Chairs: Neale Neelameggham, Ind LLC; Tracy Berman, University of Michigan

2:00 PM
Microsegregation in High Pressure Die Cast Mg Alloys: Tracy Berman; Mei Li; John Allison; University of Michigan; Ford Motor Company

2:30 PM
Numerical Simulations of TRC Equipped with a Core: Jong-Jin Park; Hongik University

2:50 PM
Growth of Al8Mn5 Intermetallic in AZ91: Christopher Gourlay; Guang Zeng; Jingwei Xian; Imperial College London

3:10 PM
Influence of CaO Grain Refiner Addition on the Microstructure and Mechanical Properties of As-cast Mg Alloys: Yihua Ai; Dong Qiu; Ming-Xing Zhang; University of Queensland

3:30 PM  Break

3:50 PM
Grain Refinement of Mg and Its Alloy by Inoculation of In-situ MgO Particles: Yun Wang; Guosheng Peng; Zhongyuan Fan; Brunel University London

4:10 PM
Numerical Study of Magnesium Production by Pidgeon Process and Pre-prepared Pellets Silicothermic Process: Comparison of Heat Transfer: Daxue Fu; Zhang Ting’an; Zhihe Dou; Lukui Guan; Northeastern University

4:30 PM
On the Age Hardening Response of Aluminum Containing Magnesium Sheets with Zinc or Manganese (AZ- and AM Series Alloys): Jan Bohlen; Ander Telleria Ippragirre; Gurutze Arruebarrena; Dietmar Letzig; Helmholtz-Zentrum Geesthacht; Mondragon University

4:50 PM
Performance Evaluation of High-pressure Die-cast Magnesium Alloys: Mark Easton; Saming Zhu; Mark Gibson; Trevor Abbott; Hua Qian Ang; Xiaobo Chen; Nick Bibrilis; Gary Savage; RMIT University; CSIRO; Magontee; Monash University

5:10 PM
Simulation Study on Direct Desulfurization of Molten Iron by Magnesium Vapor: Yun Liu; Yongkun Yang; Dongxing Wang; Xiaolong Li; Zhang Ting’an; Northeastern University

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Structural Materials I

Program Organizers: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Tuesday PM  Room: Cardiff  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM
The Increase in Fatigue Crack Growth Rates Observed for Zircaloy-4 in a PWR Environment: Brian Cockeram; B.F. Kammenzind; Bechtel-Bettis
2:20 PM Characterization and Simulation of Wear-tested Zirconium Alloy Surfaces: Gene Lucadamo; Natalia Tymiai-Carlson; William Howland; Richard Smith; Clinigue Brundidge; ‘Bettis Laboratory, Bechtel Marine Propulsion Corporation

2:40 PM Wear Results for Zirconium Alloys and Their Oxides: William Howland; Paolo Zafred; Gene Lucadamo; Natalia Tymiai-Carlson; Richard Smith; ‘Bettel Marine Propulsion Company

3:00 PM Determination of Material Properties of Ion-irradiated and Corroded Zircaloy-4 by Using Nanomechanical Raman Spectroscopy: Debapriya Mohanty; Yang Zhang; Vikas Tomar; ‘Purdue University

3:20 PM Evolution of Stress and Fracture During Oxidation of Zirconium Alloys: Natalia Tymiai-Carlson; Jason Gruber; John Seidensticker; Ram Bajaj; Douglas Rishel; William Howland; Richard Smith; ‘Bettis Atomic Power Laboratory

3:40 PM Break

4:00 PM Damage Rate Dependence of Oxide Evolution on Zircaloy-4 under Simultaneous Irradiation-corrosion Experiment: Peng Wang; Gary Was; ‘University of Michigan

4:20 PM Modeling Activation and Radionuclide Decay in Proton Irradiated Zirconium Alloys: Jesse Carter; Diane Moran; Richard Smith; ‘Bettis Laboratory, BMPC

4:40 PM Study on Texture Evolution of As-hydrided Zircaloy-4 Cladding under Low Temperature Biaxial Creep Test: Kuan-Chie Lai; Xiang Liu; Huan Yan; Hoon Lee; Hsiao-Ming Tung; Chih-Pin Chuang; Kun Mo; Yinbin Miao; James Stubbs; ‘University of Illinois at Urbana-Champaign; ‘Institute of Nuclear Energy Research; ‘Argonne National Laboratory

5:00 PM The Recovery of Irradiation Damage for Zircaloy-2 and Zircaloy-4 Following Irradiation at Higher Temperatures of 377-410C: Brian Cockeram; TS. Byun; K.J. Leonard; J.L. Hollenbeck; B.F. Kammenzind; ‘Bettel-Bettis; ‘PNNL; ‘Oak Ridge National Laboratory

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Refractory Metals

Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmaier, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Tuesday PM Room: Pacific 16 February 28, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Martin Heilmaier, KIT Karlsruhe; Nobuaki Sekido, Tohoku University

2:00 PM Invited High Temperature Oxidation Behavior of Mo-Si-B-Ti-Based Alloys: Bronislava Gorr; ‘University Siegen

2:30 PM Design and Production of bcc Titanium-molybdenum-based Alloys Strengthened by Ordered Intermetallic Precipitates: Alexander Knowles; Nick Jones; Neil Jones; Howard Stone; David Dye; ‘Imperial College London; ‘University of Cambridge; ‘Rolls-Royce plc

2:50 PM The Influence of Titanium on the Phase Equilibria in Mo-Si-B Alloys: Daniel Schliephake; Martin Heilmaier; ‘Karlsruhe Institute of Technology

3:10 PM Microstructure and Mechanical Behavior of Nb-based Nb-Al-Fe Alloys: Frank Stein; Noah Philips; ‘Max-Planck-Institut für Eisenforschung; ‘ATI Specialty Alloys and Components

3:30 PM Break

3:50 PM Phase Evolution and Creep Properties of Nb-rich Nb-Si-Cr Eutectics: Florian Gang; Alexander Kauffmann; Martin Heilmaier; ‘Karlsruhe Institute of Technology

4:10 PM On the Design of Nb Silicide Based Alloys with a Balance of Properties: Panayiotis Tsakiropoulos; ‘University of Sheffield

4:30 PM Powder Route Processing of Nb Silicide Based Alloys: Claire Utton; Panayiotis Tsakiropoulos; Edward Gallagher; ‘University of Sheffield

4:50 PM Solidification Processing of Nb-silicide Based Alloys: Nicola Tankov; Claire Utton; Panayiotis Tsakiropoulos; ‘University of Sheffield

5:10 PM Accelerated Discovery and Development of Intermetallic-containing Refractory-based Multi-principal-component Alloys: Michael Titus; Hauke Springer; Fritz Körmann; Blazeg Grabowski; Dierk Raabe; ‘Purdue University; ‘Max-Planck-Institut für Eisenforschung

5:30 PM Deformation Behavior and Solid Solution Hardening of Al-containing Refractory High-entropy Alloys: Hans Chert; Alexander Kauffmann; Bronislava Gorr; Daniel Schliephake; Christoph Semmler; Julia Wagner; Hans-Juergen Christ; Martin Heilmaier; ‘Karlsruhe Institute of Technology; ‘University of Siegen; ‘Karlsruhe Institute of Technology; ‘University of Stuttgart

2:00 PM Keynote Creating Materials Databases Using X-Ray Tomography: J. Zhang; S.O. Poulsen; J.W. Gibbs; Peter Voorhees; H.F. Poulsen; ‘Danish Technical University; ‘Northwestern University; ‘Los Alamos National Laboratory

2:40 PM Keynote The Use of 3D Microstructural Characterization for the Validation of Models: David Rowenhorst; ‘U.S. Naval Research Laboratory

3:20 PM Break

3:50 PM Keynote Formalizing the Process-Structure-Property-Performance Approach to Materials Design and Development: David Furrer; Vasisht Venkatesh; Max Kaplan; ‘Pratt & Whitney

4:30 PM Keynote GBO, SRG, ICME and MGI - Towards the General Materials Design System: John Agren; ‘Royal Institute of Technology

5:10 PM Concluding Comments
Materials Science for High-Performance Permanent Magnets — Magnetization Process / Microstructural Stability
Program Organizers: Satoshi Hiro Nawara, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Gutfeisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Tuesday PM  Room: 24C
February 28, 2017  Location: San Diego Convention Center

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Kazuhiro Hono, National Institute for Materials Science; Scott McCall, Lawrence Livermore National Laboratory

2:00 PM Invited
Imaging the Changes in Magnetic Domain Structure in Nd-Fe-B Sintered Magnets throughout the Demagnetisation Process by Soft X-ray Magnetic Circular Dichroism Microscopy
: David Billington1; Kentaro Toyoki1; Yoshinori Kotani1; Hiroki Hayashi2; Akira Yasui2; Wakana Ueno2; Satoshi Hiro Nawara3; Tetsuya Nakamura4; 1Japan Synchrotron Radiation Research Institute (JASRI), SPring-8

2:20 PM
Large-scale Micromagnetics Simulation for Initial Magnetization Process in Nd-Fe-B Hot-deformed Nanocrystalline Magnet: Hiroshi Tsukahara1; Kaoru Iwano1; Chiharu Mitsumata2; Tadashi Ishikawa2; Kanta Ono3; 1High Energy Accelerator Research Organization; 2National Institute for Materials Science

2:40 PM
Electronic States of Rare Earth Elements in Permanent Magnet Materials Probed by X-ray Magnetic Circular Dichroism Nano-Spectroscopy: Tetsuro Ueno1; Ai Hashimoto2; Yasuo Takechi2; Kanta Ono3; 1National Institute for Materials Science; 2High Energy Accelerator Research Organization

3:00 PM
Fabrication of Nd-Fe-B Thin Films as a Model Material: Toshiyuki Shima1; Ryosuke Nakagawa4; Aya Sugawara4; Risa Kuros4; Masaaki Doi1; 1Tohoku Gakuin University

3:20 PM
Data-driven Approach for Magnetic Neutron Scattering Data Analysis of Permanent Magnets Using Statistical Learning and Artificial Intelligence: Kanta Ono1; Akinori Ashahara2; Hidekazu Morita3; Chiharu Mitsumata3; Masa Yano3; Tetsuya Shoji3; 1High Energy Accelerator Research Organization (KEK); 2Hitachi Ltd.; 3National Institute for Materials Science; 4Toyota Motor Corporation

3:40 PM Break

4:00 PM Invited
Phase Equilibria in the Nd-based Permanent Magnets: Taichi Abe1; Ikuro Ohnuma2; Yoshinoto Kobayashi2; Ying Chen2; Osamu Takeda3; 1NIMS; 2Tokyo Institute of Technology; 3Tohoku University

4:25 PM
Stability Origin of Binary Systems Relevant to Multi-component Phase in NdFe-B: Ying Chen1; Arkapol Saengdeedjing1; 1Tohoku University

4:45 PM
Ab-initio Study of Transition-metal-doping Effects on the Magnetic Anisotropy in Nd-Fe-B Sintered Magnets: Yasasomi Tatettu1; Shinji Tsuneyuki1; Yoshihide Gohda1; 1The University of Tokyo; 2The University of Tokyo, ISSP; 3The University of Tokyo, Tokyo Institute of Technology

5:05 PM Invited
Grain Boundary Diffusion of Co, Cu and Nb as Function of Temperature in NdFeB: Gino Hrka1; Thomas Schreff2; Johann Fischbacher2; Thomas Ostler2; Richard Evans3; Sam Westmoreland3; Michael Winklhofer4; Roy Chantrell4; Gergely Zimanyi4; 1University of Exeter; 2Danube University Krems; 3University of York; 4University of Duisburg; 4University of California Davis

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Advanced Materials and Processing
Program Organizers: Indrajit Charit, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

Tuesday PM  Room: 24A
February 28, 2017  Location: San Diego Convention Center

Session Chairs: Peter Liaw, University of Tennessee; Somayeh Pasebani, Oregon State University

2:00 PM Keynote
Microstructure, Texture and Mechanical Properties of the 14VWT Nanostructured Ferritic Alloy NFA-1: G. Robert Odette1; Md Ershadul Alam2; Soupitak Pal1; Takuya Yamamoto3; 1University of California Santa Barbara

2:30 PM Invited
Dynamic Behavior of a Nanocrystalline Cu-Ta Alloy: Scott Turnage1; Kris Darling2; Mansa Rajagopalan2; Chad Hornbuckle3; Kiran Solanki3; 1ASU; 2ARL

2:50 PM
The Creep-resistant High Entropy Alloys (HEAs): Haoyan Diao1; Dong Mao1; Wei Guo2; Jonathan Poplawsky2; Chuan Zhang3; Fan Zhang3; Karin Dahmen4; Peter Lian4; 1The University of Tennessee; 2Oak Ridge National Laboratory; 3CompuTherm, LLC; 4University of Illinois at Urbana-Champaign; 5The University of Tennessee

3:10 PM Invited
Structure-property Correlations in Metallic Components Synthesized Using Selective Laser Melting: Upadrashta Ramamurthy1; 1Indian Institute of Science

3:30 PM Break

3:45 PM Keynote
Design of Creep-resistant Copper Alloys: Steven Zinkle1; Ying Yang2; Lance Sneed3; 1University of Tennessee; 2Oak Ridge National Laboratory; 3Massachusetts Institute of Technology

4:15 PM Invited
Compatibility of a Complex Concentrated Alloy with Non-aqueous Coolants: Justin Lee1; Timothy White1; Rajiv Mishra2; James Earthman1; 1University of California, Irvine; 2University of North Texas

4:35 PM Invited
Radiation Response of Nanotwinned Metals: Xingxing Zhang1; Jin Li1; Cuncai Fan2; Kaiyuan Yu2; Youxing Chen2; Haiyan Wang2; 1Purdue University; 2Texas A&M University; 3China University of Petroleum; 4Los Alamos National Laboratory

4:55 PM Invited
Influence of Fine Scale Alpha Precipitation on the Mechanical Properties of the Beta Titanium Alloy Beta-21S: Srinivas Mantri1; Deep Choudhuri1; Rajarshi Banerjee1; 1University of North Texas

5:15 PM Invited
Emulating Neutron Damage in Nanocrystalline Copper via In-situ Ion Irradiation: Walid Mohamed1; Samit Bhattacharya2; Laura Jamison3; Marquis A. Kirk4; Korukonda Murty5; Abdellatif Yacout5; 1Argonne National Laboratory; 2Northwestern University; 3NC State University
Mechanical Behavior of Nanostructured Materials —
Metallic Glass and High Entropy Alloys

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

Tuesday PM  Room: 30D
February 28, 2017  Location: San Diego Convention Center

Session Chairs: Joseph Poon, University of Virginia; Jürgen Eckert, Eric Schmid Institute of Materials Science; Peter Liao, University of Tennessee

2:00 PM  Invited
Interfaces in Colloidal Crystals: Frans Spaepen; 'Harvard School of Engrg & Appl Sciences

2:25 PM  Invited
Comparing Amorphous Alloy Synthesis Employing Melt Spinning & Mechanical Alloying: Andrew Cheung; Gary Shiflet; 'University of Virginia

2:50 PM  Invited
Tailoring the Mechanical Behavior of Metallic Glasses: Juergen Eckert; 'Montanuniversität Leoben

3:15 PM  Invited
Deviations from High-Entropy Configurations in the AlxCoCrCuFeNi Alloys: Louis Santodonato; Yang Zhang; Mikhail Feygenson; Chad Parish; Michael Gao; Richard Weber; Joerg Neufeld; Zhi Tang; James Morris; Peter Liao; 'Oak Ridge National Laboratory; 'The University of Illinois at Urbana-Champaign; 'Juelich Centre for Neutron Science; 'National Energy Technology Laboratory; 'Materials Development, Inc.; 'Alcoa Technical Center; 'The University of Tennessee

3:40 PM  Break

4:00 PM  Invited
Universal Parameter to Quantitatively Predict Metallic Glass Properties: Evan Ma; 'Johns Hopkins University

4:25 PM
Brittle-to-ductile Transition in Metallic Glass Nanowires: Daniel Sopu; Mihai Stoica; Jürgen Eckert; 'IFW Dresden; 'Eric Schmid Institute of Materials Science

4:45 PM
Strain Delocalization and “Ductile” Fracture Behaviors of Metallic Glass: Zhe Fan; Jin Li; Yingchao Yang; Qiang Li; Sichuang Xue; Haiyan Wang; Jun Lou; Jian Wang; Xinghang Zhang; 'Texas A&M University; 'Rice University; 'Purdue University; 'University of Nebraska-Lincoln

5:05 PM  Invited
Mechanical Behavior of Nanocrystalline High Entropy Alloys: Srinivasa Murty Budaraju; 'IIT Madras

5:30 PM
Structural Evolution and Deformation Characteristics of Nanocrystalline Equiatomic AlCrCuCoFeNi High-entropy Alloy: Ramyee Sree Ganji; Koteswararao Rajulapati; 'University of Hyderabad

Microstructural Processes in Irradiated Materials —
Ferritic and Ferritic-Martensitic Alloys II

Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Marnivand, University of Wisconsin-Madison; Yasuyoshi Nagaï, Tohoku University

Tuesday PM  Room: Del Mar
February 28, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Frederic Soisson, CEA Saclay; Maylise Nastar, CEA Saclay

2:00 PM  Invited
Understanding the Multiple Functions of Point Defects in Fe-based Alloys under Irradiation: Maylise Nastar; Thomas Schuler; Luca Messina; Chu Chun Fu; Frédéric Soisson; Piir Olsson; 'CEA; 'University of Illinois; 'KTH

2:30 PM
Effect of Neutron Irradiation on the Microstructure of a Series of Fe-Cr Alloys: Dhirir Bhattacharyya; Peter Wells; Mukesh Bachhav; Alan Xu; Emmanuelle Marquis; G. Robert Odette; 'ANSTO; 'UCSB; 'University of Michigan

2:50 PM
Diffusion Mechanisms of Solutes in Ferritic Steels: Effects off-radiation: Caroline Barouh; Chu-Chun Fu; Thomas Jourdan; 'SRMP, CEA-Saclay

3:10 PM
Understanding the Formation and Growth Behavior of Alpha-prime Precipitates in Neutron-Irradiated FeCrAl Alloys Using SANS and APT: Philippe Edmondson; Samuel Briggs; Yukinori Yamamoto; Ken Littrell; Richard Howard; Charles Daily; Kurt Terrani; Kumar Sridharan; Kevin Field; 'Oak Ridge National Laboratory; 'University of Wisconsin

3:30 PM
Strain and Self-ion Irradiation Changes in Cr Atoms Distribution in Fe-Cr Alloys: Stanislaw Dubiel; Jan Zukrowski; 'AGH University of Science and Technology

3:50 PM  Break

4:05 PM
Deformation Microstructure of Ferritic-Martensitic Steels Irradiated in Spallation Environment: Kun Wang; Yong Dai; Philippe Spatig; Maximo Victoria; 'Paul Scherrer Institute

4:25 PM
APT Characterization of Post-irradiation Microstructural Changes in T91 Steel: Guma Yeli; Maria Auger; Steve Roberts; Paul Bagot; Michael Moody; 'University of Oxford

4:45 PM
Understanding Deformation Dynamics in Neutron-irradiated Fe-based Alloys with High-Energy X-rays: Meimei Li; Xuan Zhang; Yiren Chen; Jonathan Almer; Jun-Sang Park; Peter Kensei; Hemant Sharma; Yong Yang; Chi Xu; Lizhen Tan; 'Argonne National Laboratory; 'University of Florida; 'Oak Ridge National Laboratory

5:05 PM
Investigation of Elevated Temperature Tensile Deformation of Neutron-irradiated Fe using High-Energy X-ray Techniques: Xuan Zhang; Chi Xu; Meimei Li; Jun-Sang Park; Jonathan Almer; 'Argonne National Laboratory; 'University of Florida; Argonne National Laboratory

5:25 PM
Radiation Effects in RAFM Steels: Ermite Gaganidze; Christian Dethloff; Benjamin Kaiser; Jarir Aktaa; Daniel Brimbal; Mikaela Payet; Lucile Beck; 'Karlsruhe Institute of Technology, Institute for Applied Materials ; 'Karlsruhe Institute of Technology, Institute for Applied Materials; 'CEA, DEN, Service de Recherches de Metallurgie Physique, Laboratoire JANNUS
2:00 PM Invited
Multilayered and Functionally Graded Materials for Optimized Galvanic Corrosion Protection: Christopher Schuh1; Samuel Cross1; 1MIT

2:25 PM
High Temperature Plasticity of Cu-Cr Nanolayered and Chemically Nanostructured Cu-Films: Gerhard Dehm1; T. Harzer1; C. Liebscher1; R. Raghavan1; 1Max-Planck-Institut für Eisenforschung

2:45 PM Invited
Designing High Fracture Toughness Nanocomposites via In Situ TEM Approach: Nan Li1; Satyesh Yadav1; Xiang-Yang Liu1; Jian Wang1; Amit Misra1; Nathan Mara1; 1Los Alamos National Laboratory; 2University of Nebraska-Lincoln; 3University of Michigan, Ann Arbor

3:10 PM
Laminar Bulk Metallic Glass/Metal Composites Via Accumulative Roll Bonding: Sina Shahrzad1; Irene Beyerlein2; Stephanie O’Keeffe2; Suveen Mathaudhu1; 1University of California, Riverside; 2University of California, Santa Barbara; 3Liquidmetal Technologies

3:30 PM Break

3:50 PM
Effect of Initial Oxide Layer on the Growth and Morphology of Intermetallic Layer in Fe-based MIL Composites: Yu Wang1; Kenneth Vecchio1; 1North University of China; 2University of California San Diego

4:10 PM Invited
Nanolaminated Structures in Metals Induced by Plastic Deformation with High Strain Rates and Strain Gradients: Xiaochun Liu1; Wei Xu1; Ke Lu1; 1Institute of Metal Research, Chinese Academy of Sciences

4:30 PM Tailoring the Mechanical Properties of Nanolaminates Processed by Accumulative Roll Bonding: Mathias Göken1; Heinz Werner Höppel1; 1Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

4:50 PM Invited
The Development of Deformation Heterogeneity in Cu/Nb Lamellar Composites Predicted by Nonlocal Single Crystal Plasticity: Jason Mayeur1; Irene Beyerlein1; 1Los Alamos National Laboratory; 2University of California, Santa Barbara

5:15 PM Iron-aluminum Metallic-intermetallic Laminate (MIL) Composites: Haoren Wang1; Yu Wang1; Kenneth Vecchio1; 1University of California, San Diego; 2Dalian University of Technology
3:40 PM Keynote
Overview - The Use of Plasma Nitriding for Surface Hardening Stainless Steels: Carlos Pinedo; Andre Tschiptschin; TMS; ‘University of Sao Paulo

4:20 PM
Combining CALPHAD-informed Phase-field Modeling with Rapid Solidification Experiments for Prediction of Microstructure Evolution during Laser-based Additive Manufacturing: Aurelien Perron; John Roehling; Patrice Turchi; Jean-Luc Fattebert; Joseph McKeown; ‘Lawrence Livermore National Laboratory

4:40 PM
Additive Manufacturing of an Amorphous Al-Ni-Y alloy system and the Foundation for a Combinatorial High Throughput Approach to Alloy Synthesis: Andriy Dotsenko; Suman Das; ‘Georgia Tech

5:00 PM
Tailoring the Mechanical Properties of Additively Manufactured Ti-6Al-4V Alloys by Post Processing: Ganev Mert Bilgin; Ziya Esen; Seniz Kushan Akin; Arcan Dericioglu; ‘Middle East Technical University; ‘Cankaya University

5:20 PM
Effect of Tool Rotation on Tool Wear Phenomenon in Rotary Tool micro-USM: Sandeep Kumar; Akshay Drivedi; Pradeep Kumar; ‘Indian Institute of Technology, Roorkee

5:40 PM
Green Machining Process: Near-dry Electric Discharge Machining: Krishnakant Dhakar; Kaldeep Chaudhary; Akshay Drivedi; Pradeep Kumar; ‘Indian Institute of Technology Roorkee

Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales
Tuesday PM
February 28, 2017
Room: Marina G
Location: Marriott Marquis Hotel & Marina
Session Chair: To Be Announced

3:40 PM
A Comparison between Recycled Spent Zeolite and Calcite Limestone for Manganese Removal: Adarlene Silva; Rodrigo Figueiredo; Versiane Leao; ‘Universidade Federal de Ouro Preto

4:00 PM
Environmental Impact of the Synthesis of Calcium Silicates (C2S AND C3S) by Combustion Processes: Juan Restrepo; Oscar Restrepo; Jorge Tobón; ‘Universidad Nacional de Colombia

4:20 PM
Environmentally Responsible Polymer Selection for Organic Photovoltaic Solar Cells: Haoyang He; Adarlene Silva; Rodrigo Figueiredo; Oscar Restrepo; ‘Universidade Federal de Ouro Preto

4:40 PM
Electromagnetic Levitation Refining Of Silicon-iron Alloys for Generation of Solar Grade Silicon: Yindong Yang; Yadira Gutierrez; Thomas Young; Julie Schoenung; ‘University of California Irvine; ‘University of California, Davis

5:00 PM
Novel Metrics for Assessing Criticality of Byproduct Metals: Gabrielle Gaustad; Michele Bustoamante; Berlyn Hubler; Callie Babbitt; ‘Alexandra Leader; ‘Rochester Institute of Technology; ‘MIT

5:20 PM
Technical and Environmental Assessment of an Alternative Binder for Low Traffic Roads with LCA Methodology: Alejandra Balaguera Quintero; Diana Gómez Cano; Gloria Carvajal Peláez; Yhan Arias; ‘Universidad de Medellín; ‘Universidad Nacional de Colombia

Pan American Materials Congress: Materials for Transportation and Lightweighting — Structure-Property relationships II
Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon
Tuesday PM
Room: Mission Hills
February 28, 2017
Location: Marriott Marquis Hotel & Marina
Session Chair: To Be Announced

3:40 PM
Cyclic Deformation Characteristics of AM30 Mg Alloy Extrusion along Two Orthogonal Directions: Ali A. Roostaei; Hamid Jahed; ‘University of Waterloo

4:00 PM
Effect of Forging on Microstructure, Texture and Compression Behaviour of Extruded AZ31B: Dwayne Toscano; Sugrib Shaha; Hamid Jahed; Mary Wells; Bruce Williams; Jonathan McKinley; ‘University of Waterloo; ‘CanmetMATERIALS

4:20 PM
Effects of Hypoeutectic Sc Additions to Al-4.5 wt% Cu under Different Cooling Rates: Abdoul-Aziz Bogno; Jonas Valloton; Hani Henein; Mark Gallerneault; Dieter Herlach; ‘University of Alberta; ‘ALCERECO INC.; ‘DLR,Institute of Materials Physics in Space

4:40 PM
Microstructure and Hardness of Subzero Quenched and Heat Treated Ti-6Al-4V Alloy: Abdelrahman Abbasi; Andrew Seif; Iman El Mahallawi; Waleed Khalefa; ‘British University in Egypt; ‘Cairo University

5:00 PM
Sheared Edge Stretchability of Dual Phase Steels and Aluminum Alloys: Sergey Golovashchenko; Sacid Nesheralahkami; Scott Dawson; Nan Wang; ‘Oakland University

5:20 PM
Understanding of Twin-twin Junctions in Connection with the Local Stresses in HCP Magnesium: M. Arul Kumar; Irene J Beyerlein; Carlos Tome; ‘Los Alamos National Laboratory
Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Mechanical Properties of Structural Materials Processed by SPD

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Tuesday PM  Room: Marina F  Location: Marriott Marquis Hotel & Marina

Session Chair: Megumi Kawasaki, Hanyang University; Malgorzata Lewandowska, Warsaw University of Technology

3:40 PM
Effects on Hardness and Microstructure of AISI 1020 Low Carbon Steel Subjected to High-Pressure Torsion Process: Diana Marulanda1; Hernando Jimenez1; Jittrapon Wonsa-Ngam1; Terence Langdon1; ‘Universidad Antonio Nariño; ‘King Mongkut’s Institute of Technology Ladkrabang; ‘University of Southampton

4:00 PM
Static and Cyclic Mechanical Properties of High Strength Pearlitic Steels: Marlene Kapp1; Anton Hohenwarter1; Bo Yang1; Reinhard Pippan1; ‘Erich Schmid Institute of Materials Science; ‘Montanuniversität Leoben

4:20 PM
The Influence of Testing Temperature on the Fracture Behavior of SPD-processed Iron and Tantalum: Anton Hohenwarter2; ‘Department of Materials Physics, Montanuniversität Leoben, Austria

4:40 PM
Precipitation Processes and Related Strengthening Mechanisms in a Nanstructured 6082 Aluminium Alloy: Malgorzata Lewandowska1; Witold Chrominski1; ‘Warsaw University of Technology

5:00 PM
Strengthening Contributions on a Commercially Al-Mg-Si Alloy Processed by ECAP: Tarek Khelfa1; Mohamed Ali Rekik1; Jairo-Alberto Muhoz-Bolatais1; Mohamed Khitouni1; Jose-Maria Cabrera2; ‘University of Sfax; ‘Universidad Politecnica de Catalunya

5:20 PM
Effect of Grain Size on Strain Rate Dependence of Mechanical Properties in CP Ti: Ying Chun Wang1; Alexander Zhilyaev1; Shukui Li1; Terence Langdon1; ‘School of Materials Science and Engineering,Beijing Institute of Technology; ‘National Key Laboratory of Science and Technology on Materials under Shock and Impact; ‘Institute for Problems of Metals Superplasticity, Russian Academy of Sciences; ‘Research Laboratory for Mechanics of New Nanomaterials, St. Petersburg State Polytechnical University; ‘Materials Research Group, Faculty of Engineering and the Environment, University of Southampton

Pan American Materials Congress: Steels — Steelmaking & Solidification

Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - Universidade Federal Fluminense

Tuesday PM  Room: Marina E  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

3:40 PM Invited

4:10 PM
Controlling Mold Heat Transfer by Dispersed Metallic Particles in Slag Film during Continuous Casting of Steels: Jungwook Cho1; ‘Pohang University of Science and Technology
4:40 PM
Kinetics of Isothermal Reactive Diffusion between Solid Cu and Liquid Sn-based Alloys: Minho O'; Masanori Kajihara'; 1 Tokyo Institute of Technology

5:00 PM
Low Temperature Cu - Cu Direct Bonding for Hermetic Sealing: Po-Fan Lin'; Chih Chen'; 1 National Chiao Tung University

Phase Transformations and Microstructural Evolution — Ti & Zr, and Steels
Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

Tuesday PM Room: 16B Location: San Diego Convention Center
Session Chair: To Be Announced

2:00 PM
Determination of Phase Transformations and Microstructure Evolution of Zr-based Alloys During Thermal Processing: Clinique L. Brundidge'; John Seidensticker'; Tyler Tenku'; Linda Rishe'; Richard Smith'; 1 Bechtel Marine Propulsion Corporation

2:20 PM
Development of Various Scale Alpha Microstructures in Titanium Alloys: Yufeng Zheng'; Robert Williams'; Rongpei Shi'; Deep Choudhuri'; Talukder Alam'; Rajarshi Banerjee'; Yuzhi Wang'; Hamish Fraser'; 1 The Ohio State University; 2 University of North Texas

2:40 PM
Effect of the Initial Microstructure on the Phase Transformation and Microstructural Evolution during the Compression of Ti6Al4V: Kalenda Matumbo'; 1 CSIR

3:00 PM
Hydrostatic Compression Behavior and High-pressure Stabilized b-phase in g-based Titanium Aluminide Intermetallics: Klaus-Dieter Lis'; Xi Li'; Ken-Ichi Funakoshi'; Rian Dippema'; Yuyi Higo'; Ayumi Shirou'; Mark Reid'; Hiroshi Suzuki'; Takahisa Shobu'; Koichi Akit'; 1 Australian Nuclear Science and Technology Organisation; 2 University of Wollongong; 3 Comprehensive Research Organization for Science and Society (CROSS-Tokai); 4 Spring-8, Japan Synchrotron Radiation Research Institute; 5 National Institute for Quantum and Radiological Science and Technology; 6 Japan Atomic Energy Agency

3:20 PM Break

3:40 PM
Kinetics of Low-temperature Spinodal Decomposition in a Fe-Ni-C Martensite: A Discrete Mean-field Model: Philippe Maugis'; Mohamed Gouné'; Frédéric Danoix'; Sophie Cazottes'; Sergiu Curelea'; Myriam Dumont'; 1 Aix-Marseille Univ, CNRS, IM2NP; 2 CNRS, ICMCB, Université de Rouen, CNRS, GPM; 3 MATEIS, INSAS de Lyon

4:00 PM
Phase-field Simulation of Solidification of High and Medium Manganese Steels: Incorporating the Effects of Convection and of Transformation Strains: Joao Rezende'; Christian Schankies'; Celso Alves'; Dieter Senk'; 1 RWTH Aachen

4:20 PM
Phase Transformation Kinetics of Pressure-vessel Steel Welds: Gideon Obasi'; Dinesh Rathod'; Anastasia Vasilieou'; Ed Pickering'; John Francis'; Mike Smith'; Michael Preuss'; 1 The University of Manchester; 2 The University of Manchester

4:40 PM
Phase Transformation, Microstructural Evolution and Property Modification in Rapidly Solidified Grey Cast Iron: Olamilekan Oloyede'; Robert F. Cochrane'; Andrew M. Mulliss'; 1 University of Leeds

Pioneers in Additive Manufacturing — Session II
Program Organizers: James Foley, Los Alamos National Laboratory; Paul Prichard, Kennametal Inc; Iver Anderson, Iowa State University/Ames Laboratory; David Bourell, University of Texas
Tuesday PM Room: 8 Location: San Diego Convention Center
Session Chair: Paul Prichard, Kennametal Inc.

2:00 PM Invited
Pioneering International Consensus: Brent Stucker'; 1 DSIM

2:30 PM Invited
Making Things Bit-by-byte: Opportunity in a Fortuitous Convergence of Technologies: Khershed Cooper'; Ralph Wachter'; 1 National Science Foundation

3:00 PM Invited
Early Developments of AM within the UK: Phill Dickens'; 1 University of Nottingham

3:30 PM Break

3:50 PM Invited
Laser Engineered Net Shaping - AM Metal Parts with Exceptional Material Properties: John Smugeresky'; David Ketcher'; 1 Additive Manufacturing Materials Consultants; 2 Sandia National Laboratories

4:20 PM Invited
AFRL Contributions to Additive Manufacturing of Titanium, ca 2000: Pamela Kobryn'; Lee Semiatin'; 1 US Air Force Research Laboratory

4:50 PM Invited
Process Fundamentals for Selective Laser Melting: Power Ratio, Melting, Porosity, and Build Properties: Ralph Napolitano'; 1 Iowa State University

Rare Metal Extraction & Processing — Base and Rare Metals
Program Organizers: Hojung Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhof, Umicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

Tuesday PM Room: 17B Location: San Diego Convention Center
Session Chairs: Neale Neelameggham, Ind LLC; Xiaofei Guan, Harvard University

2:00 PM
Disclosure of the Kinetic Relations of Semidirect Cemented Carbide Leaching in Acid Media: Gregory Kühner'; Stefan Luidold'; Christoph Czett'; Christian Storff'; CDL-TM; CERATIZIT Austria GmbH

2:25 PM
A New Two-stage Process for Preparation of Ti/Ti-Al Alloys: Kun Zhao'; Naixiang Feng'; 1 Northeastern University

2:50 PM
Study on Pre-reduction Mechanisms of Chromium Ore Pellets in SRC Process: Peixiao Liu'; Yanxiang Li'; Hanjie Guo'; 1 University of Science and Technology Beijing

3:15 PM Break

3:35 PM
Sulfuric Acid Leaching of Mechanically Activated Vanadium-bearing Converter Slag: Junti Xiang'; Qingyun Huang'; Xuewei Lv'; Chenguang Bai'; 1 School of Materials Science and Engineering, Chongqing University; 2 School of Materials and Metallurgical Engineering, Chongqing University of Science and Technology
2:00 PM Invited
Overview of Ultrasonic Degassing Development: Dmitry Eskin; Brunel University
3:35 PM
Modelling of Hydrogen Removal in Gas Fluxing of Molten Aluminium: Dag Mortensen; Jinsong Hua; Arild Håkonset; Terje Haugen; John Olav Fagerlie; Institute for Energy Technology; Hycast AS
3:00 PM
The Use of Nitrogen to Degas Molten Aluminium – Comparison of Metallurgical Results with Argon and Nitrogen Used in an ACD/8482: Florent Gougerot; Bruno Maltais; Etienne Tremblay; STAS Inc.
3:25 PM Break
3:40 PM
Oxide Skin Strength on Molten AA5XXX Aluminum Alloy – Effect of Beryllium and Alternatives: Martin Syvertsen; SINTEF Materials and Chemistry
4:05 PM
Understanding of Interactions between Pyrolysis Gases and Liquid Aluminum and Their Impact on Dross Formation: Regina Dittrich; Bernd Friedrich; Georg Rombach; Jan Steglich; Anne Pichat; IME Process Metallurgy and Metal Recycling, RWTH Aachen University; Hydro Aluminium Rolled Products GmbH; TRIMET Aluminium SE; Constellium Technology Center
4:30 PM
Effects of 2 ppm Beryllium on the Oxidation of a 5XXX Aluminum Alloy at Temperatures between 500 °C and 750 °C: Nicholas Smith; Gabriella Tranell; Anne Kvithyld; Brian Gleeson; NTNU; SINTEF Materials and Chemistry; University of Pittsburgh
4:55 PM Concluding Comments

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Nanomaterials for BT Applications
Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

Wednesday AM
Room: Pacific 24
March 1, 2017
Location: Marriott Marquis Hotel & Marina

Session Chairs: Stephen McDonnell, University of Virginia; Lanxia Cheng, The University of Texas at Dallas

8:30 AM
Probing Osteogenic Cell Functionality on Architected Nanolattices with Stiffness Spanning the Low Megapascal Region: Alessandro Maggi; California Institute of Technology
8:50 AM
Antimicrobial Clay-based Ceramic with Copper Nanoparticles Embedded in 3-D Porosity: Adam Drelich; Jaroslav Drelich; Michigan Technological University

www.tms.org/TMS2017
9:10 AM
Engineered Bio-functional Silver Nanoparticle Interface Offers Antimicrobial Efficacy with Reduced Cellular Cytotoxicity: Sarah VanOosten1; Esra Yuca1; Banu Taktak Karaca2; Kyle Boone3; Malcolm Snead3; Paulette Spencer4; Candan Tamerler5; 1University of Kansas; 2University of Southern California

9:30 AM
Potential of Magnetotactic Bacteria for the Fabrication of Iron Nanoparticles: T. Thuy Minh Nguyen1; Manish Baviskar2; Paul Bernazzani3; 1Lamar University

9:50 AM
Facile Green Synthesis and Characterization of Water-soluble Superparamagnetic Iron Oxide Nanoparticles-gold Porphyrin Conjugate for Improved Photodynamic Therapy: Olayemi Fakayode1; Oluwafemi Oluwatobi1; Sindle Songca2; 1University of Johannesburg; 2Walter Sisulu University

10:10 AM Break

10:30 AM
Silver Nanowire Heaters on Glass and Textiles: Sahin Coskun1; Orcun Ergun2; Doga Doganay3; Sevim Polat4; Yusuf Yusufoglu5; Husnu Unalan6; 1Middle East Technical University; 2Material Technologies Department, R&D Center, Arcelik A.S.

10:50 AM
A Novel Strategy for Synthesis of Ultrathin Au Nanowires inside Carbon Nanotubes and Their Atomic Structure Study: Wenbo Xin1; Igor De Rosa2; Jenn-Ming Yang3; Larry Carlson4; 1UCLA

11:10 AM
Wetting Kinetics and Self-pinning of Nanosuspension Droplets: Baiou Shi1; Edmund Webb1; 1Lehigh University

11:30 AM
Acoustic Foucussing for Bulk Assembly of Colloidal Solids from Nanoscale Building Blocks: Tyler Ray1; Rachel Collino2; Leanne Friedrich3; Matthew Begley4; 1University of California, Santa Barbara

11:50 AM
Synthesis and Characterization of Polycaprolactone Nanofibers by Electrospinning Method with Hormone: Cynthia Matos1; Marivalda Pereira2; Rodrigo Oréfice3; 1Federal University of Minas Gerais; 2Federal University of Minas Gerais

8th International Symposium on High Temperature Metallurgical Processing — Extraction and Recovery of Metals

Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yucel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baqiu Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinlikli, Attilim University

Wednesday AM
Room: 18
March 1, 2017
Location: San Diego Convention Center

Session Chairs: P. Chris Pistorius, Carnegie Mellon University; Ender Keskinlikli, Attilim University

8:30 AM Introductory Comments

8:35 AM
Effect of Carbon Reductant On The Formation of Copper Doped Titanium Oxycarbonitride by Carbothermal Reduction and Nitridation: Yong Jing Hai1; Sheikh Abdul Rezan2; Noor Izah Shopware3; Norlia Baharan4; Srimala Sreekantan5; Ahmad Fauzi Mohd Noor6; 1Universiti Sains Malaysia

8:55 AM
Cohering Behavior of Scrap Powder in Kiln by a Novel Natural Stacking Method: Xiao-liang Liu1; Yong-bin Yang2; Yan Zhang3; Qian Li4; Bin Xu5; Tao Jiang6; 1Central South University

9:15 AM
Direct-to-blister Copper Smelting with the ISASMELT™ Process: Paul Voigt1; Alistair Burrows2; Michael Somerville3; Chunlin Chen4; 1Glencore Technology; 2CSIRO Mineral Resources

9:35 AM
Microwave-intensified Reduction of Biochar-containing Briquettes: Zhiwei Peng1; Xiaolong Lin2; Tiancheng Nie3; Zhizhong Li4; Yuanbo Zhang5; Guanghui Li6; Tao Jiang7; 1Central South University

9:55 AM
Improving Separation of Cu-Fe from Copper Slag by Mineral Phase Reconstruction: Zhengqi Guo1; Deqing Zhu2; Jian Pan3; Peng Zhang4; 1Central South University

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Nanomaterials for ET Applications

Program Organizers: Joeyung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

Wednesday AM
Room: Pacific 26
March 1, 2017
Location: Marriott Marquis Hotel & Marina

Session Chairs: Jung-Kun Lee, Univ. of Pittsburgh; Seungbum Hong, Argonne National Lab
10:15 AM Break

10:35 AM
Evaluation of Molybdenum Concentrates: Kagan Benzesik1; Seref Sonmez1; Onur Alp Yucel1; 1Istanbul Technical University

10:55 AM
Sensitivity of Contactless Ultrasound Processing to Variations of the Free Surface of the Melt with Induction Heating: Georgi Djambazov1; Valdis Bojarevics1; Dmytro Shevchenko2; David Burnard3; William Griffiths3; Kouds Pericelous4; 1University of Greenwich; 2University of Birmingham 3Penn State University 4Iowa State University

11:15 AM
Extraction of Zinc from Willemite by Sodium Salt Roasting and Ammonia-leaching Process: Xu Dong Liu1; Gang hua Fu1; Yu Feng Guo1; Tao Jiang1; Wei Chen1; Yu jia Tan2; 1Central South University 2University of Science and Technology Beijing; 3Central South University

11:35 AM
Effect of Shrouding Gas on Nozzle Exit Pressure and Temperature of Supersonic Coherent Jet: Fei Zhao1; Lingzhi Yang2; 1University of Science and Technology Beijing; 2Central South University

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Processing-Microstructure Relationships

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

Wednesday AM Room: 7B Location: San Diego Convention Center

Funding support provided by: TMS; Additive Manufacturing Committee

Session Chair: Judy Schneider, University of Alabama-Huntsville

8:30 AM Invited
Accelerated Certification of Additively Manufactured Metals: Wayne King1; Andrew Anderson1; Robert Ference2; Neil Hodge1; Chandrika Kamath2; Saad Khairallah3; Manyalibo Matthews4; Alexander Rabenchuk5; Otis Walton1; Morris Wang1; 1Lawrence Livermore National Laboratories; 2Lawrence Livermore National Laboratory; 3Texas; Edward Herderick, GE Corporate; 4Penn State University; 5Charles University

9:00 AM
Multiscale Modeling of Coupled Melt Pool Evolution and Solidification Morphology in the LENS Process: Matthew Rlichigo1; Peter Collins1; Micheal Mendoza1; Richard LeSar1; 1Iowa State University

9:20 AM
Three-dimensional Modeling of Grain Structure of an Aluminum Alloy during Additive Manufacturing: Huiliang Wei1; T. DebRoy1; 1Penn State University

9:40 AM
Process Window Optimization for Powder Bed Additively Manufactured Molybdenum: Mustafa Megahed1; Wolfgang Ottow2; Amanda Field2; Luke Carter2; Moataz Attallah1; Michael Gorley1; Michael Porton1; 1ESI Group; 2University of Birmingham

10:00 AM Break

10:20 AM
In Situ Time and Location Resolved Measurements of Residual Stresses in Additively Manufactured 308L Stainless Steel: John Carpenter1; Donald Brown1; Bjorn Clausen1; Jason Cooley1; Adrian Losko1; Mark Bourke1; 1Los Alamos National Laboratory

10:40 AM
Real Time Composition Control of Weld-based Additive Manufacturing: Rachel Clark1; 1Michigan Technological University

11:00 AM
Effect of Laser Scan Strategy on Microstructure-property Relations in Additively Manufactured Stainless Steel: Brandon McWilliams1; Jian Yu1; Andrew Gaynor1; Tomoko Sano1; Andelle Kudzal2; 1US Army Research Laboratory; 2Worcester Polytechnic Institute

11:20 AM
Microstructure Control in Additive Manufacturing of Aluminum Alloys: Hunter Martin1; Brennan Yahata2; Eric Clough1; Jacob Hundley1; Tobias Schaedler2; Tresa Pollock1; 1HRL Laboratories; 2HRL Laboratories; 3University of California, Santa Barbara

11:40 AM
Numerical and Experimental Investigation of Residual Stress Evolution in Additively Manufactured 17-4 PH Stainless Steel by Selective Laser Melting: Md Shamsujoh2; Sean Agnew1; James Fitz-Gerald1; 1University of Virginia

12:00 PM
In Situ Structure and Microstructure Investigation of Heat Treatment’s Effect on AM Inconel 625: Fan Zhang1; Lyle Levine1; Andrew Allen1; Eric Lass1; Sudha Cheruvathar1; Mark Stoudt1; Maureen Williams1; Yaakov Idell1; Greta Lindwall1; Carelyn Campbell1; 1National Institute of Standards and Technology

Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Process Qualification Part II

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

Wednesday AM Room: 7A Location: San Diego Convention Center

Session Chairs: Richard Otis, Penn State; Jonathan Madison, Sandia National Laboratory

8:30 AM Invited
Identification of Defect Signatures in an Additively Manufactured Precipitation Hardened Stainless Steel: Jonathan Madison1; Laura Swiler1; Olivia Underwood1; Brad Boyce1; Bradley Jared1; Jeff Rodelas1; Brad Salzbrenner1; 1Sandia National Laboratories

9:00 AM
ALE3D’s High-Order Fully-Implicit All-Speed Navier-Stokes Solver for Additive Manufacturing Applications: Brian Weston1; Jean-Pierre Delplanque1; Robert Nourgaliyev1; Andy Anderson1; 1University of California, Davis; 2Lawrence Livermore National Laboratory

9:20 AM
Optimization Framework for Designing of Scanning Strategies for Microstructure Control in Additive Manufacturing Using Numerical Modeling Aided by High Performance Computing: Narendran Raghavan1; Suresh Babu1; Damien Lebrun-Grandie1; Srdjan Simunovic1; Michael Kirk1; John Turner1; Neil Carlson1; Ryan Dehoff1; 1University of Tennessee Knoxville; 2Oak Ridge National Laboratory; 3Los Alamos National Laboratory

9:40 AM
Residual Stress Control in Additive Manufacturing through Integration of Physics-based and Data-driven Modeling: Jingran Li1; Ran Jin1; Hang Yu1; Virginia Tech
10:00 AM Break

10:20 AM Invited
Surface Topography and the Relationship to Surface and Near-surface Structures in Laser Powder Bed Fusion Additive Manufacturing: Jamie Fox; Mark Stoudt; Thien Phan; Zach Reese; Shawn Moylan; Brandon Lane; Lyle Levine;
\footnote{National Institute of Standards and Technology}

10:50 AM Invited
Toward a New Generation of Thermodynamic Models for Alloy Additive Manufacturing: Richard Oits; Lourdes Bobbitt; Allison Beese; Zhui Liu;
\footnote{Pennsylvania State University}

11:20 AM
SLM Process Variables and Part Geometry Optimization Based on Numerical Prediction of Process Induced Distortions: Maria San Sebastian; Ifaki Setien;
\footnote{Ane Miren Mancisidor; Alberto Echeverria};  LORTEK

11:40 AM
Optimizing, Fabricating and Characterizing Additively Manufactured Process Tubing: Paul Korinko; Haley McKee; John Bobbitt; Frederick List;
\footnote{Sudarsanam Babu};  Savannah River National Laboratory; Honeywell Federal Manufacturing and Technology; Oak Ridge National Laboratory; University of Tennessee -- Knoxville

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session V
Program Organizers: Rodney McCabe, Los Alamos National Laboratory; John Carpenter, Los Alamos National Laboratory; Thomas Beiler, Michigan State University; Khalid Hattar, Sandia National Laboratory; Wolfgang Panteleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Wednesday AM
Room: 33C
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
Tracking Shear-migration Coupling of Grain Boundaries Using In Situ TEM: Marc Legros; Nicolas Combe; Frédéric Mompiou;
\footnote{CEMES-CNRS}

8:50 AM
Characterization of Dislocation Pile-ups at Special Angle Tilt Boundaries in Pure Nickel by Electron Contrast Imaging (ECI) and Molecular Dynamics Simulations: Shanmug Balachandran; James Seal; Jialin Liu; Yue Qi;
\footnote{Michigan State University}

9:10 AM
The Effects of Elemental Additions on the Tensile Deformation Behavior of Model Ni-based Single Crystal Superalloys at Intermediate Temperature: Shaokua Liu; Chengpeng Liu; Fang Liu; Ping Yan; Chongyang Wang; Guozhen Zhu;
\footnote{Tsinghua University; Beijing University of Technology; Shanghai Jiao Tong University; Central Iron and Steel Research Institute}

9:30 AM
Dislocation Characterization in a Scanning Electron Microscope Equipped with an Annular STEM Detector: Patrick Callahan; Jean-Charles Stinville;
\footnote{McLean Echlin; Eric Yao; Mike Titus; Dan Gianola; Samantha Daly; Tresa Pollock};  University of California Santa Barbara

9:50 AM Break

10:10 AM
Detection of the Onset of Plasticity in Micro-crystals: In-situ Deformation of InSb Micro-pillars under Synchrotron Coherent X-ray Nanobeam: Ludovic Thilly; Vincent Jacques; Christoph Kirchlechner;
\footnote{P'time Institute - University of Poitiers; LPS; Max-Planck-Institut für Eisenforschung}

10:30 AM
Comparison of Dislocation Characterization in Tantalum using Electron Channeling Contrast Imaging and Cross-Correlation Electron Backscattered Diffraction: Bret Dunlap; David Fullwood; Timothy Ruggles; Brian Jackson; Martin Crimp;
\footnote{Michigan State University; Brigham Young University; National Institute of Aerospace}

10:50 AM
Analysis of Dislocation Structures in Ferritic and Dual Phase Steels Regarding Continuous and Discontinuous Loading Paths: Gregory Gerstein;
\footnote{Till Clausmeyer};  Florian Gutknecht;
\footnote{A. Erman Tekkaya};  Florian Nürnberg;
\footnote{Leibniz Universität Hannover};  TU Dortmund University

11:10 AM
Modeling Dislocation Arrays in Orientation Gradient Microstructures in Ta Thin Films: Elizabeth Ellis; Ari Kestenbaum; Shefford Baker;
\footnote{Cornell University}

11:30 AM
Quantifying Strain-path Dependent Dislocation Densities Using Time of Flight Neutron Diffraction and High Resolution Electron Backscatter Diffraction Techniques: David Collins;
\footnote{Richard Todd};  Angus Wilkinson;
\footnote{University of Oxford}

Advanced High-Strength Steels — Nanostructures and Precipitates
Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Miltzer, The University of British Columbia

Wednesday AM
Room: 17A
Location: San Diego Convention Center

Session Chair: Amy Clarke, Colorado School of Mines

8:30 AM Invited
Extraordinary Crack Resistance in Metastable Multi-phase Nanolaminated Steels: Cem Tasan;
\footnote{MIT}

9:00 AM
Advanced High Strength Steel Based on Vanadium Carbide Precipitation: William Rainforth;
\footnote{Arjan Rijkenberg};  David Hanlon; Peng Gong; Alfonce Chamisa;
\footnote{Andrew Patterson};  Francis Sweeney;
\footnote{The University of Sheffield};  Tata Steel Europe

9:20 AM
Application of Nano-sized Precipitation in Strengthening Low Alloy Dual Phase Steel: Tadashi Furusho;
\footnote{Elango Chandiran};  Naoya Kamikawa;
\footnote{Tohoku University};  Hirokawa University

9:40 AM
Design of a Core-Shell Structure Carbide for Enhancing Toughness of UHS Steels: Wei Xiong;
\footnote{Ye Tian};  Oleg Kontsevii;
\footnote{Gregory Olson};  University of Pittsburgh;  Northwestern University

10:00 AM
Influences of Thermomechanical Treatments on the Microstructure Evolution and Mechanical Properties of Nano-precipitates Strengthened Steels: Yu Zhao;
\footnote{Songsong Xu};  Hao Guo;
\footnote{Junpeng Li};  Z.W. Zhang;
\footnote{Harbin Engineering University}

10:20 AM Break

10:40 AM
Ab-initio Investigation of the Interaction of Hydrogen with Carbides in Advanced High-strength Steels: Poulami Dey;
\footnote{Tobias Timmerscheidt};  Jörg von Appen;
\footnote{Tilmann Hickel};  Richard Dronskowski;
\footnote{Jörg Neugebauer};  Tilmann Hickel;
\footnote{Richard Dronskowski};  Jörg Neugebauer;
\footnote{Max-Planck-Institut für Eisenforschung GmbH; Institute of Inorganic Chemistry, Chair of Solid-State and Quantum Chemistry, RWTH Aachen University}

11:00 AM
Effect of B2 Morphology on the Mechanical Properties of Dispersion Strengthened Lightweight Steels: A. Zargar;
\footnote{C. Nam};  S.-H. Kim;
\footnote{Nack J. Kim};  Graduate Institute of Ferrous Technology (GIFT) and CAAM, Pohang University of Science and Technology (POSTECH)

11:20 AM
Interaction of VC-Precipitation and Phase Transformation Kinetics in Mo-containing Nano-steels: Chrysoula Ioannidou;
\footnote{Zaolz Areshchabeta};  Arjan Rijkenberg;
\footnote{Ad van Well};  Erik Offerman;
\footnote{Delhi University of Technology};  Tata Steel Research, Development and Technology;
\footnote{Reactor Institute Delft}
Effects of Solid Solution Treatment on the Microstructure and Mechanical Properties in the Ultra-high Strength Steel Strengthened by Nanoscale Particles: Songsong Xu¹; Yu Zhao¹; Hao Guo¹; Mingxing Qiu¹; Jing Zhang¹; Junpeng Li¹; Zhongwu Zhang¹; ¹Harbin Engineering University

Advanced Materials for Energy Conversion and Storage — Energy Storage II
Wednesday AM Room: 15A Location: San Diego Convention Center
Session Chairs: Partha Mukherjee, TAMU; Leela Arava, Wayne State University

8:30 AM Invited In-situ X-Ray Diffraction Analysis of Li-ion Battery Materials: Scott Speakman¹; ¹PANalytical
8:55 AM Invited Mesoscale Probing of Transport-Interface Interaction in Lithium-Ion Battery Electrodes: Partha Mukherjee²; Aashutosh Mistry³; ²Texas A&M University
9:20 AM Novel Three Dimensional Porous Sn-Sb-Ni Anode on Ni Foam: Electrodeposition Synthesis and Lithium Storage Performance: Srijan Sengupta¹; Arghya Patra¹; Arijit Mitra¹; Maimul Akhtar¹; Karabi Das¹; Subhasish Basu Majumder¹; Siddhartha Das¹; ¹IIT Kharagpur
9:40 AM Invited Phase Field Studies of Mechanical and Electrochemical Behavior of Li-ion Battery Electrode Materials: Bai-Xiang Xu¹; Ying Zhao¹; Peter Stein¹; ¹TU Darmstadt
10:05 AM Break
10:25 AM Stable Li-Sn Electrode: Jonathan Phillips¹; Tongli Lim¹; Pol Vilas¹; ¹Naval Postgraduate School; ²Purdue University
10:45 AM Invited Towards The Development of Solid-State Batteries: Addressing the Challenges in Replacing Liquid with Solid Electrolytes and Enabling Li Metal Anodes: Jeff Sakamoto¹; ¹University of Michigan
11:10 AM Studying Transport Mechanisms of Li in Graphite Polycrystals via Atomistic Simulations: Christopher Shumeyko¹; Ed Webb²; ¹Lafayette College; ²Lehigh University
11:30 AM Inelastic Shape Changes of Silicon Carbon and Stress Evolution at Binder/Particle Interface in a Composite Electrode during Lithiation/Delithiation Cycling: Siva Nadimpalli¹; Vivek Shenoy¹; Hailong Wang²; ¹New Jersey Institute of Technology; ²UPenn
11:50 AM Invited Electrocatalysis Approach to Lithium Sulfur Batteries: Leela Mohana Reddy Arava¹; ¹Wayne State University

Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — In Situ Techniques V
Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech
Wednesday AM Room: 32A Location: San Diego Convention Center
Session Chairs: Vikas Tomar, Purdue; Jagannathan Rajagopalan, Arizona State University

8:30 AM Site-Specific Mechanical Evaluation Using Microscale Samples Tested In Situ within SEM and XCT: Jack Donoghue¹; Robert Wheeler²; Bartlomiej Winiasinski¹; Albert Smith³; Alistair Garner¹; Ziang Li Zhong¹; M. G. Burke¹; Timothy Burnett¹; Philip Withers¹; ¹University of Manchester; ²MicroTesting Solutions LLC
8:50 AM Understanding the Local Ligament-level Deformation Response in Unit Cell Lattices: H. Carlton¹; J. Lindi¹; N. Volkoff-Shoemaker¹; M. Messner¹; H. Barnard¹; N. Barton¹; M. Kumar¹; ¹Lawrence Livermore National Laboratory; ²Lawrence Berkeley National Laboratory
9:10 AM Extraction of Crystal Plasticity Parameters of IN718 Using High Temperature Micromorphometry: Bin Gu¹; Aitor Cruzado¹; Marcos Jiménez¹; Koldo Ostolaza¹; Arantza Linaza¹; Javier Segurado¹; Javier Lloca¹; Jon Molina¹; ¹Northwestern Polytechnical University; ²IMDEA Materials Institute; ³Industria de TurboPropulsores
9:30 AM In-Situ Thermo-mechanical Characterization of Serrated Flow in Nanostructured Binary Mg-Al Alloys: Marta Pozuelo¹; Yuan-Wei Chang¹; Sanjit Bhowmick¹; Jaime Marian¹; Jenn-Ming Yang¹; ¹UCLA; ²Hysitron, Inc.
9:50 AM Break
10:10 AM In-SEM Microscale Mechanical Testing of Thin Film Plastic Flow and Interfacial Integrity: Yang Mu¹; Xiaomao Zhang¹; Wen Meng¹; ¹Louisiana State University
10:30 AM In-situ Analysis of the Tensile Deformation Modes and Anisotropy of Extruded Mg-10Gd-3Y-0.5Zr (wt.%) at Elevated Temperatures: Huan Wang¹; Carl Boehlert¹; Qudong Wang¹; Dongdi Yin¹; W Ding¹; ¹Shanghai Jiao Tong University; ²Michigan State University; ³Southwest Jiaotong University
10:50 AM Dislocation Shielding as a Function of Temperature in Microscale Silicon Bending Beams: Eric Hintzala¹; Sanjit Bhowmick¹; S. A. Syed Asif¹; William Gerberich¹; ²Hysitron, Inc.; ³University of Minnesota

Alumina & Bauxite — Non-traditional Resources
Program Organizer: Zhang Ting'an, Northeastern University
Wednesday AM Room: 3 Location: San Diego Convention Center
Session Chair: Guozhi Lv, Northeastern University
8:30 AM Introductory Comments
8:35 AM New Process Research on Aluminium Production from Non-traditional Aluminum Resource by Microwave Chlorination: Zhang Ting’an¹; Guozhi Lv¹; Long Wang¹; Zhihe Dou¹; Weiguang Zhang¹; Yukun Huang¹; Yanxiu Wang¹; ¹Northeastern University
9:00 AM Opportunities of Pseudoboehmite Processing from Aluminum Content Raw Material at Sintering Method: Rustam Seytenov; Evgeny Vlasov; Natalia Maltsева; Vadim Lipin1; Ooutotec CIS, St. Petersburg State Technological Institute (Technical University); St. Petersburg Polytechnical University

9:25 AM Chemical Alumina Preparation by Using High Alumina Content Fly Ash: Guozhi Lv2; Zhang Ting3;an; Weiguang Zhang3; Xiaofeng Zhu3; Yan Liu3; Long Wang3; Zhihe Dou4; Qiu Yue Zhao4; Northeastern University

9:50 AM A Novel Process of Alumina Production from Low-grade Bauxite Containing Sulfur: Bo Wang5; Kai Zhao5; Hui Lan Sun5; Xue Zheng Zhang5; Zepeng Li5; Hongyou Ma6; Hebei University of Science and Technology

10:15 AM Break

10:30 AM Iron Separation from Bauxite through Smelting-reduction Process: Hanne Selleg1; Leiv Kolbeinsen1; Jafar Safarian1; NTNU

10:55 AM Thermodynamic Behavior of Lime Desulfurization in Sodium Aluminate Solution: Wu Xiangu7; Zhu Weidong7; Jiang Hongshi7; Wu Song7; Guizhou University

Aluminum Alloys, Processing and Characterization — Solidification and Casting
Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Wednesday AM Room: 4 Location: San Diego Convention Center

Session Chair: Shouxun Ji, Brunel University

8:30 AM Introductory Comments

8:35 AM A Model for a-Al(Mn,Fe)Si Crystals: Christian Simensen1; Are Bjørneklett1; SINTEF

9:00 AM Casting Characteristics of High Cerium Content Aluminum Alloys: David Weiss1; Orlando Rios2; Zachary Sims2; Scott McCall2; Ryan Ott2; Eck Industries, Inc.; Oak Ridge National Laboratory; Lawrence Livermore National Laboratory; The Ames Laboratory

9:25 AM In-situ Observation of Fragmentation of Primary Crystals by Ultrasonic Cavitation in Water: Feng Wang1; Iakovos Tzanakis2; Dmitry Eskin1; Jiawei Mi1; Thomas Connolley2; Brunel University London; Oxford Brookes University; University of Hull; Diamond Light Source

9:50 AM The Enhancement of Mechanical Properties of A356 Alloy Solidified at Lower Cooling Rate via Effectively Grain Refinement: Yijie Zhang1; Shouxun Ji1; Zhongyuan Fan1; Brunel University

10:15 AM Break

10:30 AM Secondary Aluminum Alloys Processed by Semisolid Process for Automotive Application: Fabrizio D’Errico1; Davide Mattavelli1; Politecnico di Milano

10:55 AM Integrated Casting-extrusion of an AA6082 Aluminum Alloy: Shohreh Khorsand1; Yan Huang1; Brunel University London

11:20 AM On Porosity Formation in Al-Si-Cu Cast Alloys: Fawzy Samuel1; Agnes Samuel1; Herbert Doty1; Salvador Valtierra1; UQAC; Nemak, S.A.

11:45 AM Influence of Trace Element Additions on Fe Bearing Intermetallic Solidification of a 6063 Al Alloy: Sundaram Kumar1; Julian Malisano1; Yuri Ito2; Keyna O’Reilly1; University of Oxford; Tokyo Institute of Technology

Aluminum Reduction Technology — Dry Scrubbing, Alumina Transport and Dissolution
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Wednesday AM Room: 2 Location: San Diego Convention Center
March 1, 2017 Location: San Diego Convention Center

Session Chair: Nancy Holt, Hydro Aluminium AS

8:35 AM Influence of Handling Parameter on Powder Properties: Peter Hilgraf3; Jan Papecke3; Arne Hilk3; HAW University of Applied Science; Claudia Peters Projects

9:00 AM Spreading of Alumina and Raft Formation on the Surface of Molten Cryolite: Csilla Kaszas1; Laszlo Kiss1; Sandor Poncsak4; Jean-Francois Bilodeau4; Sebastien Guerard3; Université du Québec à Chicoutimi; ARDC Rio Tinto Aluminium

9:25 AM Fluoride Capture Capacity of SGA: The Interplay between Particle and Pore Size Distribution: Gordon Agbenyega1; Grant McIntosh2; Margaret Hyland2; James Metson3; Light Metals Research Center; School of Engineering, University of Auckland; School of Chemical Sciences, University of Auckland

9:50 AM Predictive Formulae for the Competitive Adsorption of HF and SO2 on Smeltergrade Alumina Used in Dry Scrubbing Applications: Stephan Broek1; Neil Dando2; Stephen Lindsay2; Hatch Ltd; Alcoa Technical Center (retired); Alcoa Primary Metals

10:15 AM Break

10:30 AM Pot Gas Treatment at High Gas Temperatures: Anders Sorhus1; Sivert Ose2; GE Power Norway

10:55 AM Potroom HF Emission Reduction by Anode Inert Tray Technology Performances of ALRO Industrial 1st of Class: Vincent Verin1; El Hani Bouhabila1; Jerome Neveu2; Serge Despinasse2; Gheorghe Dobra2; Marian Ciliana2; Fabienne Virieux2; Fives Solios; Fives ECL; VIMETCO ALRO; Fives Aluminum Division

Program Organizer: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Wednesday AM Room: 15B Location: San Diego Convention Center
March 1, 2017 Location: San Diego Convention Center

Session Chair: Subhadra Gupta, The University of Alabama

8:30 AM Chloridizing Roasting of Bismuthinite with Sodium Chloride-oxygen: Rafael Padilla1; Luis Salinas1; Maria Ruiz1; University of Concepcion
8:50 AM
Natural Gas Utilization in Blast Furnace Ironmaking: Tuyère Injection, Shaft Injection and Prereduction: P. Chris Pistorius; Jorge Gibson; Megha Jampani; Carnegie Mellon University

9:10 AM
Selective Sulfation Roasting of Rare Earths from NdFeB Magnet Scrap: Brett Carlson; Patrick Taylor; Colorado School of Mines

9:30 AM
Gold Solubility in Smelting Slags for the Recycling of Industrial and Mining Wastes: Jun-Gil Yang; Hyun-Sik Park; Joohyun Park; Hanyang University; Korea Institute of Geoscience and Mineral Resources (KIGAM)

9:50 AM Break

10:10 AM
Solid State Reduction Behavior of Iron, Chromium and Manganese Oxide Ores with Methane: Rauf Eric; Petteri Taskinen; Amit Bhalia; University of the Witwatersrand; Aalto University

10:30 AM
Experimental Measurement of the Surface Tension of the Molten Slag Bearing TiO2 by Sessile Drop Method: Pingsheng Lai; Jinsheng Wang; Xuewei Lv; Yanhui Liu; Chongqing University

11:10 AM
Injections on Rotary Tool Near-dry Electric Discharge Machining: Vineet Yadav; Pradeep Kumar; Akshay Divedi; Indian Institute of Technology, Roorkee

Applications of Solidification Fundamentals — Solidification of Iron and Steel
Program Organizers: Andre Phillion, McMaster University; Amber Genau, University of Alabama at Birmingham; Lifeng Zhang, University of Science and Technology Beijing

Wednesday AM Room: 19
March 1, 2017 Location: San Diego Convention Center

Session Chairs: Andrew Kao, University of Greenwich; Mahdi Torabi Rad, University of Iowa

8:30 AM
Spheroidal Graphite Growth Studied by Synchrotron X-ray Tomography: Mathias Bjerve; Mohammed Azeem; Niels Tiedje; Jesper Hattel; Peter Lee; Technical University of Denmark; University of Manchester

8:50 AM
Effect of Solidification Parameters and Alloying Elements on Graphite Morphology in Ni-C Alloys: Amir Ardalan Rezaie; Haamun Kalaantari; Reza Abbashian; University of California, Riverside; California State Polytechnic University, Pomona

9:10 AM
Effects of Rare Earth Oxides on the Precipitation of Graphite in Fe-C-Si Alloy: Kok Long Ng; Hideaki Sasaki; Hisao Kimura; Takeshi Yoshikawa; Masafumi Maeda; University of Tokyo; Ehime University; University of Tokyo

9:30 AM
Evolution of Microstructure in Directionally Solidified Compacted Graphite Iron: Subhojit Chakraborty; Amber Genau; Charles Monroe; University of Alabama at Birmingham

9:50 AM
An Electron Microscopy Study of Graphite Growth in Nodular Cast Irons: Rawen Jiao; Lydia Laffont; Jacques Lacaze; CIRIMAT

10:10 AM Break

10:30 AM
Discovery of New Grain Refiners Utilizing Crystallographic Data: Hunter Martir; Brennan Yahata; Tresa Pollock; University of California, Santa Barbara; HRL Laboratories

10:50 AM
Mechanisms of Surface Stability in Al-Zn Coated Steel: Matthew Gear; Kazuhito Nagita; Stuart McDonald; Dongdong Qi; David StJohn; University of Queensland

Bio-Nano Interfaces and Engineering Applications — Session V
Program Organizers: Candan Tamerler, University of Kansas; John Nyichka, University of Alberta; Kalpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

Wednesday AM Room: Pacific 21
March 1, 2017 Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM Keynote
Multidimensional Atomic Force Microscopy for Physical and Biological Interfaces: Seeing the Invisible and Feeling the Insensible?: Ramesh Lal; University California, San Diego

9:10 AM Invited
Toughness-Enhancing Linear Metastructure in the Recluse Spider’s Nanoribbon Silk: Hannes Schneipp; The College of William & Mary

9:50 AM Break

10:10 AM Invited
Interfacing Freeze-Cast Biopolymer Scaffolds with Tissue In Vivo: Effects of Composition and Structure on Integration and Degradation: Prajan Divakar; Karen Moodie; P. Jack Hoopes; Ulrike Wegst; Dartmouth College; Dartmouth College

10:50 AM
Bio-Nano-Technology toward Smart Interfaces and Functional Hybrid Materials: Candan Tamerler; University of Greenwich

11:10 AM
Characteristics of von Willebrand Factor Adhesion on Collagen Surface under Flow: Wei Wei; Chuqiao Dong; Michael Morabito; Xiaohui Zhang; Wei Zhang; Yan Xu; Wenli Ouyang; xuanhong cheng; Edmund Webb; Alparslan Oztekin; Lehigh University

Biological Materials Science — Structural Biological Materials II
Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Wednesday AM Room: Pacific 15
March 1, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Francois Barthelat, McGill University; Wen Yang, ETH Zurich

8:30 AM Invited
Bioinspired Design Strategies: Joanna McKittrick; Steven Naleway; Michael Frank; Jay-Young Jung; Frances Su; Michael Porter; University of California, San Diego; University of Utah; Clemson University

9:00 AM
Revisiting Laminated Glass Using Bio-inspired Architectures: Zhen Yin; Francois Barthelat; McGill University
9:20 AM Invited
Impact and Wear Resistant Biological Composites: Insight to Next Generation Multifunctional Materials: Nicholas Yarahgi; Steven Herrera; Lessa Grunenfelder; Nobphadon Saksangpanya; David Restrepo; Enrique Escobar de Obaldia; C. Jeong; Richard Wuhrer; Pablo Zavattieri; David Kisailus; 1University of California Riverside; 2Purdue University; 3University of Western Sydney

9:50 AM Break

10:10 AM
Revealing Homogeneous Plastic Deformation in Ti-based Metallic Glass Composites with Dendrites under Tension: Pufa Wu1; Liaoning University of Technology, China

10:30 AM
Plasticity of In-situ Ti-based Metallic Glass Matrix Composites: Jean-Marc Pelletier2; S. Cardinal1; Jichao Qiao2; 1INSA-Lyon; 2Northwestern Politechnical University

11:10 AM Invited
Homogeneous Plastic Deformation of Metallic Glasses at Room Temperature: Yi Li1; Institute of Metal Research

11:30 AM
Investigation of the Stability of Newtonian Viscous Flow in Various Metallic Glass Systems: Hyun Seok Oh1; Chae Woo Ryu1; Eun Soo Park1; 1Seoul National University

11:50 AM
Production of Zirconium Based Bulk Metallic Glass Sheet: Daniel East1; Nicholas Hutchinson1; Jim Yurko1; Robert Haun1; 1CSIRO; 2Materion; 3Rettech Systems

12:10 PM
Structure-property Relationships in Nanoporous Metallic Glasses: Daniel Sopu1; Celal Soyarslan1; Mihai Stoica1; Jürgen Eckert1; 1IFW Dresden; 2Hamburg University Technology; 3Erick Schmid Institute of Materials Science

10:10 AM Break

10:30 AM
Revealing Homogeneous Plastic Deformation in Ti-based Metallic Glass Composites with Dendrites under Tension: Pufa Wu1; Liaoning University of Technology, China

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12:10 PM
Structure-property Relationships in Nanoporous Metallic Glasses: Daniel Sopu1; Celal Soyarslan1; Mihai Stoica1; Jürgen Eckert1; 1IFW Dresden; 2Hamburg University Technology; 3Erick Schmid Institute of Materials Science

Cast Shop Technology — DC Casting and Macrosegregation
Program Organizer: David Gildemeister, Alcoa Technical Center
Wednesday AM Room: 1A
March 1, 2017 Location: San Diego Convention Center
Session Chair: Samuel Wagstaff, MIT

8:30 AM Introductory Comments

8:35 AM
A Study on DC Casting Trough/ Launder Design and Material Selection: Bin Zhang1; 1Wagstaff Inc

9:00 AM
Critical Role of Thermal Management during Cast Start-up of DC Casting Process: André Larouche1; Sabrina Guy1; Josée Colbert1; 1Rio Tinto Aluminium

9:25 AM
Modelling and Analysis of a Horizontal Direct Chill Casting Process: Garðar Garðarsson1; Bröstur Guðmundsson1; Magnus Jonsson1; Halldór Palsson1; 1Alcoa; 2Reykjavik University; 3University of Iceland

9:50 AM
Casting of Sound, Large Diameter 7050 Billets: Kjerstin Ellingsen1; Mohammed M’Hamdi1; 1SINTEF

10:15 AM Break

10:30 AM
Circulation of Grains during Ingot Casting: Carolyn Joseph1; Samuel Wagstaff1; Antoine Allanore1; 1Massachusetts Institute of Technology

10:55 AM
Minimization of Macrosegregation through Jet Erosion of a Continuously Cast Ingot: Samuel Wagstaff1; Antoine Allanore1; 1Massachusetts Institute of Technology

11:20 AM
Full Size Measurement and Simple Prediction on Macro Segregation of Aluminum Alloys Elements in Industrial DC Casting Slab: Tatsuya Yamada1; Nobuhito Ishikawa1; Takashi Kabo1; Koichi Takahashi1; 1UACJ Corporation
Characterization of Minerals, Metals, and Materials — Minerals

Program Organizers: Shadia Ikhmayes, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CarmentMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firasro Donato, College Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhwei Feng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Wednesday AM
Room: 31B
March 1, 2017
Location: San Diego Convention Center

Session Chairs: Bowen Li, Michigan Technological University; Fernanda Silva, IQ/UFRJ

8:30 AM
The Precious Metals Resource Potentials of Nigerian Benue Trough and Schist Belts - A Review: Abraham Adeleke; Kayode Oluwabunmi; Obafemi Awolowo University; Prototype Engineering Development Institute (PEDI) Nigeria

8:50 AM
Chemical and Mineralogical Characterization of Pyrite Ore Deposit in Umuobom Ideato, Imo State, Nigeria: Gerald Onyedika; Amauche Achusim; Martin Ogwuegbu; Christogonus Akalezi; Goddy Onohua; Federal University of Technology, Owerri

9:10 AM
Industrial Use of Brazilian Bentonite Modified by Mild Acid Attack: Christiano Gianesi Bastos Andrade; Danilo Marin Ferminio; Marcos Gonzales Fernandes; Francisco Rolando Valenzuela Diaz; University of São Paulo

9:30 AM
Multilitization Characteristics and Sinterability of Kyananite in Ceramic Preparation: Huaguang Wang; Bowen Li; Mengsheng He; Jiann-Yang Hwang; Michigan Technological University; R&D Center of Wuhan Iron and Steel Corp. Group

9:50 AM
Ore Dressing and Technological Characterization of Palygorskite from Piauí/Brazil for Applications as Adsorbent of Heavy Metals: Fernanda Silva; Karla Simões; Luiz Carlos Bertolino; Bruna Novo; Julio Afonso; Adriana Felix; IQ-UFRJ; IQ-UFRJ/CETEM; CETEM; CMAR-I FRJ

10:10 AM Break

10:25 AM
Temperature Dependence of the Dielectric Properties of Kaolinit: Csaki Stefan; Patrik Dobron; Igor Stubna; Libor Voza; Viera Tmavocova; Jan Ondruska; Charles University in Prague; Constantine the Philosopher University in Nitra

10:45 AM
Synthesis and Characterization of Sodalite and Cancrinita from Kaolinit: Fernanda Silva; Fabiano Passos; Karoline Ferreira; Adriana Felix; Carla Barbato; Karla Simões; Francisco Garriado; Luiz Bertolino; Danielle Castro; IQ-UFRJ; EQ-UFRJ/CETEM; FRJ-CMAR; EQ-UFRJ; IQ-UFRJ/CETEM; IQ-UFRJ; CETEM

11:05 AM
Characterization of a Sienite Rock from Tanguá/Brazil as a Source of Potassium to the Agriculture: Adriana Felix; Thuanny Soares; Fernanda da Silva; Fernanda Pontes; Carla Barbato; Adão da Luz; IFRJ; IQ-UFRJ; EQ-UFRJ; IQ-UFRJ/CETEM

11:25 AM
Characterization of High Performance Toothpaste Abrasive Derived from Perlite: Bo Wang; Imerys

11:45 AM
Effect of Mechanical Activation on the Structural Properties of Vanadium Slag: Qingyun Huang; Shengde Dong; Chongqing University of Science and Technology
Computational Approaches to Materials for Energy Applications — Session I
Program Organizer: Laurent Chaput, LEMTA

Wednesday AM  Room: 8  Location: San Diego Convention Center
Session Chair: Laurent Chaput, Lorraine University

8:30 AM Invited
Visual Search Strategies for Thermoelectrics: David Singh1; 'University of Missouri
9:00 AM Invited
First Principles Calculations of the Stability and Physical Properties of Thermoelectric Materials: Philippe Jund1; Kinga Niedziolka1; Alexandre Berche1; Patrick Hermet1; Jean-Claude Tedenac1; 'ICGM-Montpellier University
9:30 AM Invited
Accelerated Discovery of Novel Low-thermal-conductivity Crystals by First-principles Data-driven approach: Iao Tanaka1; 'Kyoto University
10:00 AM Break
10:20 AM Invited
Monte Carlo Modeling of Phonon Transport in Nanostructures: David Lacroix1; 'University of Lorraine
10:50 AM Tuning Thermal Conductivity of Metal-Organic–Frameworks: Laping Han1; Wenxi Huang1; Agnieszka Truszkowska1; P. Greaney1; 'OSU; 'UCR
11:10 AM Atomistic Study of the Synergistic Effects of Helium and Hydrogen Bubbles in Nickel: Edmanuel Torres1; Colin Judge1; Jeremy Pencer1; Lori Walters1; 'Canadian Nuclear Laboratories

Computational Materials Discovery and Optimization – From Bulk to Materials Interfaces and 2D Materials — Mechanical Properties
Program Organizer: Richard Hennig, University of Florida; Anurima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Wednesday AM  Room: 11A  Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM A Minimal Continuum Dislocation Dynamics Model for Slip in bcc Metals: Roman Gregor1; 'Academy of Sciences of the Czech Republic
8:50 AM Dislocation Core Structures in FCC Ni and L11 Ni3 Al Computed Using Density Functional Theory Based Flexible Boundary Condition Approach: Anne Marie Tan1; Christopher Woodward1; Dallas Trinkle1; 'Univ. Illinois, Urbana-Champaign; 'Air Force Research Laboratory
9:10 AM Efficient Multi-step Optimization for Materials Design and Discovery: Thien Duong1; Anjana Talapatra1; Raymundo Arroyave1; 'Texas A&M University
9:30 AM A New Class of Hyperuniform Heterogeneous Material with Superior Mechanical Properties via Stochastic Optimization: Xiaopengxiao Xu1; 'Arizona State University

9:50 AM
Efficient Screening for High Strength, Superelastic Alloys: Ian Winter1; Daryl Chrzan1; 'University of California, Berkeley
10:10 AM Break
10:25 AM Modeling Deformation and Recrystallization Textures Using Viscoelastic Self-consistent Polycrystal Plasticity: Miroslav Zecevic1; Ricardo Lebensohn1; Rodney McCabe1; Marko Knezevic1; 'University of New Hampshire; 'Los Alamos National Laboratory
10:45 AM Microstructure Evolution in Ni materials: Annealing-Detwinning due to Thermal Fluctuation of Incoherent Twin Boundary: Hao Sun1; Chandra Singh1; 'University of Toronto
11:05 AM First Principle Investigation of Electrical Conductivity and Phase Stability of Al-Za-Ni Alloy for Precipitation Hardening: Oladeji Fadeyomi1; Gregory Odegard1; Paul Sanders1; 'Michigan Tech University
11:25 AM Graph Spectra and Grain Boundary Network Design: Oliver Johnson1; 'Brigham Young University
11:45 AM Topology Optimization for Composite Wear: Natasha Vermaak1; 'Lehigh University

Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions — Mathematical Tools for Uncertainty Quantification and Propagation
Program Organizers: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida; Li Ma, NIST; Shawn Coleman, ARL; Jeff Doak, QuesTek Innovations, LLC; Fadi Abdeljawad, Sandia national Laboratory

Wednesday AM  Room: 10  Location: San Diego Convention Center
Session Chairs: Jeff Doak, QuesTek Innovations; Fadi Abdeljawad, Sandia National Laboratories

8:30 AM Invited
Information-theoretic Tools for Uncertainty Quantification of High Dimensional Stochastic Models: Petr Plechac1; 'University of Delaware
9:00 AM Numerical Simulation of Electromagnetic Field, Flow Field, and Temperature Field in Secondary Cooling Zone of Round Billet under the Impact of Pulsed Magneto-oscillation: Jueli Hao1; Yunhu Zhang1; Honggang Zhong1; Zhishuai Xu1; Rennying Li1; Qijie Zhai1; 'Shanghai University
9:20 AM Invited
Uncertainty Quantification in Density Functional Theory: Non-intrusive vs. Intrusive Methodologies: David Mebane1; Wilfredo Ibarra-Hernandez1; Aldo Romero1; 'West Virginia University
9:50 AM Break
10:10 AM Invited
Uncertainty Quantification, Molecular Dynamics, and the Glass-Transition Temperature of Aerospace Polymers: Andrew Dienstfrey1; Paul Patrone1; 'National Institute of Standards and Technology
10:40 AM Invited
Using Information Geometry to Relate Parametric Uncertainty and Model Predictivity: Mark Transtrum1; 'Brigham Young University
3:00 AM

Non-magnetic Inclusions and Precipitates in High Quality Steels: Lifeng Zhang; Seetharaman Sridhar; University of Science and Technology Beijing; 

3:15 AM

Effect of Segregated Alloying Elements on the High Strength Steel Properties: Application to the Large Size Ingot Casting Simulation: Chunping Zhang; Davood Shahriari; Abdelhalim Loucif; Mohammad Jahazi; Louis-Philippe Lapierre-Boire; Rami Tremblay; L’École de Technologie Supérieure de Montréal; Fink! Steel - Sorel

3:30 AM

Effect of Various Aluminum Content on the Formation of Inclusion: Lifeng Zhang; Yang Wen; Ping Shen; University of Science and Technology Beijing

3:45 AM

Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dugic; Linnaeus University

4:00 AM

In-situ Observation of Spheroidal Graphite Formation and Measurement of Apparent Volume Expansion in Ductile Cast Iron: Hideyuki Iwashita; Akira Sugiyama; Kohei Murishita; Tomoya Nagira; Masato Yoshiya; Kentaro Uesugi; Akihisa Takeuchi; Kyoto University; Osaka Sangyo University; Osaka University; JASRI / Spring-8

4:15 AM

Microstructural Characterization of Graphite Nodules in Fatigue-tested Ductile Cast Iron: Sören Fæster; Yubin Zhang; Niels Hansen; Dorte Juul Jensen; Technical University of Denmark

4:30 AM

Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dugic; Linnaeus University

4:45 AM

Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: Tito Andriollo; Niels Tiedje; Jesper Thorborg; Jesper Hattel; Technical University of Denmark; Magma GmbH

5:00 AM

Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo; Lifeng Zhang; Yang Wen; Ping Shen; University of Science and Technology Beijing

5:15 AM

Nucleation and Growth of Graphite in Ductile Cast Iron - Coupling between Experiments and Modelling: Niels Tiedje; Mathias Bjerre; Mohammed Azeem; Jesper Hattel; Peter Lee; Technical University of Denmark; The University of Manchester

5:30 AM

Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dugic; Linnaeus University

5:45 AM

Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: Tito Andriollo; Niels Tiedje; Jesper Thorborg; Jesper Hattel; Technical University of Denmark; Magma GmbH

6:00 AM

Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo; Lifeng Zhang; Yang Wen; Ping Shen; University of Science and Technology Beijing

6:15 AM

Nucleation and Growth of Graphite in Ductile Cast Iron - Coupling between Experiments and Modelling: Niels Tiedje; Mathias Bjerre; Mohammed Azeem; Jesper Hattel; Peter Lee; Technical University of Denmark; The University of Manchester

6:30 AM

Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dugic; Linnaeus University

6:45 AM

Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: Tito Andriollo; Niels Tiedje; Jesper Thorborg; Jesper Hattel; Technical University of Denmark; Magma GmbH

7:00 AM

Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo; Lifeng Zhang; Yang Wen; Ping Shen; University of Science and Technology Beijing

7:15 AM

Nucleation and Growth of Graphite in Ductile Cast Iron - Coupling between Experiments and Modelling: Niels Tiedje; Mathias Bjerre; Mohammed Azeem; Jesper Hattel; Peter Lee; Technical University of Denmark; The University of Manchester

7:30 AM

Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dugic; Linnaeus University

7:45 AM

Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: Tito Andriollo; Niels Tiedje; Jesper Thorborg; Jesper Hattel; Technical University of Denmark; Magma GmbH

8:00 AM

Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo; Lifeng Zhang; Yang Wen; Ping Shen; University of Science and Technology Beijing

8:15 AM

Nucleation and Growth of Graphite in Ductile Cast Iron - Coupling between Experiments and Modelling: Niels Tiedje; Mathias Bjerre; Mohammed Azeem; Jesper Hattel; Peter Lee; Technical University of Denmark; The University of Manchester

8:30 AM

Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dugic; Linnaeus University

8:45 AM

Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: Tito Andriollo; Niels Tiedje; Jesper Thorborg; Jesper Hattel; Technical University of Denmark; Magma GmbH

9:00 AM

Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo; Lifeng Zhang; Yang Wen; Ping Shen; University of Science and Technology Beijing

9:15 AM

Nucleation and Growth of Graphite in Ductile Cast Iron - Coupling between Experiments and Modelling: Niels Tiedje; Mathias Bjerre; Mohammed Azeem; Jesper Hattel; Peter Lee; Technical University of Denmark; The University of Manchester

9:30 AM

Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dugic; Linnaeus University

9:45 AM

Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: Tito Andriollo; Niels Tiedje; Jesper Thorborg; Jesper Hattel; Technical University of Denmark; Magma GmbH

10:00 AM

Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo; Lifeng Zhang; Yang Wen; Ping Shen; University of Science and Technology Beijing

10:15 AM

Nucleation and Growth of Graphite in Ductile Cast Iron - Coupling between Experiments and Modelling: Niels Tiedje; Mathias Bjerre; Mohammed Azeem; Jesper Hattel; Peter Lee; Technical University of Denmark; The University of Manchester

10:30 AM

Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: Izudin Dugic; Linnaeus University

10:45 AM

Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: Tito Andriollo; Niels Tiedje; Jesper Thorborg; Jesper Hattel; Technical University of Denmark; Magma GmbH

11:00 AM

Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo; Lifeng Zhang; Yang Wen; Ping Shen; University of Science and Technology Beijing

11:15 AM

Effect of Segregated Alloying Elements on the High Strength Steel Properties: Application to the Large Size Ingot Casting Simulation: Chunping Zhang; Davood Shahriari; Abdelhalim Loucif; Mohammad Jahazi; Louis-Philippe Lapierre-Boire; Rami Tremblay; L’École de Technologie Supérieure de Montréal; Fink! Steel - Sorel

11:30 AM

Non-magnetic Inclusions and Precipitates in High Quality Steels: Lifeng Zhang; Seetharaman Sridhar; University of Science and Technology Beijing; University of Warwick
Deformation and Transitions at Interfaces — Meso/Microstructural Scale Mechanical Behavior of Polycrystals II

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

Wednesday AM Room: 23B
March 1, 2017 Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
Accounting for the Micromechanical Effect of Grain Boundaries Using a New FFT-based Strain-gradient Polycrystal Plasticity Formulation: Ricardo Lebensohn1; Alan Needleman2; 1Los Alamos National Laboratory; 2Texas A&M University

8:50 AM
Investigating Deformation at Grain Boundaries by SEM-DIC: Zhe Chen1; Samantha Daly1; 1University of Michigan

9:10 AM Invited
Residual Stress and Dislocation Density Distributions near Grain Boundaries in Deformed Materials: Angus Wilkinson1; Jan Jiang2; T Ben Britton1; David Wallis1; Lars Hansen1; 1University of Oxford; 2Imperial College London

9:30 AM
Role of Grain Boundary Sliding in Deformation of Polycrystalline Materials: Ajey Venkataraman1; Marissa Linne1; Samantha Daly1; Michael Sangid1; 1Purdue University; 2University of Michigan; 3University of California, Santa Barbara

10:10 AM Break

10:30 AM Invited
Statistical Analysis of Grain Boundary Structure-Property Relationships: Srikanth Patula1; 1North Carolina State University

10:50 AM Invited
A Non-local Continuum Mechanics Treatment of the Dynamics of Interfaces: Laurent Capolungo1; 1Los Alamos National Laboratory

11:10 AM Invited
Nanoscale Strain Mapping at Interfaces Using Scanning Nanobeam Electron Diffraction: Andrew Minor1; 1UC Berkeley & LBL

11:30 AM
Polycrystalline Plasticity Simulations with Anisotropic Discrete Dislocation Dynamics: John Graham1; Anthony Rollett2; Richard LeSar1; 1Iowa State University; 2Carnegie Mellon University

11:50 AM Invited
Quantification of Dislocation Behavior and Deformation Twinning at High Strain Rates: Mita Taheri1; Shang-Hao Huang1; Evan Kahl1; Asher Leff1; Christopher Barr1; Logan Shanahan1; JP Liu1; Yong Zhang1; Leslie Lamberson1; 1Drexel University; 2University of Science & Technology Beijing, 3University of Colorado Boulder

12:10 PM Invited
The Effect of Microstructure on Strain Localisation in Two-phase Ti-alloys: Michael Preuss1; David Lunt1; Joao Quinta da Fonseca1; 1University of Manchester

Electrode Technology — Baking Furnace/Electrode Design

Program Organizer: Houshang Alamdari, Laval University

Wednesday AM Room: 1B
March 1, 2017 Location: San Diego Convention Center

Session Chair: Donald Ziegler, Alcoa

8:30 AM Introductory Comments

8:35 AM
Flow Detection Module – A New Model to Predict the Flow in Open Pit Anode Baking Furnaces: Detlef Maiwald1; Domenico Di Lisa1; Frank Heinke1; Florian Krumrnick1; 1Innovatherm

9:00 AM
Formation of Carbon Build-Up on the Flue Wall of Anode Baking Furnace: Zhaohui Wang1; Arne Petter Ratvik1; Tor Grande1; Stein Rørvik1; 1INTEF Materials and Chemistry; 2Norwegian University of Science and Technology

9:25 AM
Investigation of Spent Refractory Lining in an Anode Baking Furnace: Trond Brandvik1; Zhaohui Wang1; Arne Petter Ratvik1; Tor Grande1; 1Norwegian University of Science and Technology, NTNU; 2INTEF Materials and Chemistry

9:50 AM
Production of NiFe2O4 Nanocermet for Aluminium Inert Anode: Wu Xianxi1; Zhu Weidong1; Luo Kunlin1; Jia Hefeng1; 1Guizhou University

10:10 AM
Reducing Cathode Voltage Drop and Reducing Peak Current Density by Use of Cathode Nails across the Carbon to Cast Iron Interface: Will Berends1; Stephen Haley1; 1Hatch

11:20 AM
Gas Anodes Made of Porous Graphite for Aluminium Electrowinning: Babak Khalaghi1; Henrik Gudbrandsen1; Ole Kjos1; Karen Osen1; Ove Paulsen1; Tommy Mokkelbost1; Geir Martin Haarberg1; 1Norwegian University of Science and Technology (NTNU); 2INTEF

11:45 AM
Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Intermetallic Compound and Microstructural Evolution of Pb-free Materials

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

Wednesday AM Room: 30E
March 1, 2017 Location: San Diego Convention Center

Session Chairs: Kazuhiro Nogita, The University of Queensland; Sergey A Belyakov, Imperial College London

8:30 AM Invited
Nucleation and Growth of Primary Cu-Sn in Solder Joints: Christopher Gourlay1; J.W. Xian1; M.A.A. Salleh2; Sergey Belyakov1; Kazuhiro Nogita1; 1Imperial College London; 2University of Queensland
8:50 AM
Growth Behavior of Interfacial Intermetallic Compound at ENIG and Sn-Ag-Cu Solder Joint with Plating Temperature of Ni(P): Woonil Seo1; Young-Ho Kim1; Sehoon Yoo1; 1Korea Institute of Industrial Technology; 2Hanyang University

Study of Al-Cu Compounds as Soldering Bond Pad for High-power Device Packaging: Yun-Hao Chen1; Cheng-Yi Liu1; 1National Central University

9:30 AM
Thermodynamic and Microstructural Evaluation of the Sn-Si-Ge Ternary System for Advanced Pb-Free Solder Design: Kathlene Reeve1; Carol Handwerker1; 1Purdue University

Microstructure Formation in Reinforced Sn-Cu Lead-free Solder Alloys: M. A. A. Mohd Salleh1; Stuart McDonald1; Christopher Gourlay1; Kazuhiro Nogita1; 1Universiti Malaysia Perlis; 1University of Queensland; 1Imperial College London

10:00 AM Break

10:30 AM
The Grain Orientation Evolution of Mixed Solder Joints with Single-crystal Grain at the Same Position of BGA Packages during Thermal Shock: Jing Han1; Fu Guo1; Shihai Tan1; 1Beijing University of Technology

10:50 AM
Subgrain Rotation Behavior of SnAgCu-SnPb Mixed Solder Joints in BGA Components during Thermal Shock: Fu Guo1; Shihai Tan1; Jing Han1; 1Beijing University of Technology

11:10 AM
Advances in High Temperature Pb-Free Composite Solder Paste Research: Stephanie Choquette1; Iver Anderson1; 1Ames Lab


Program Organizers: Subodh Das, Phinix, LLC; Zhancheng Guo, University of Science and Technology Beijing; Minfang Han, China University of Mining and Technology, Beijing; Teruhisa Horita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Xingbo Liu, West Virginia University

Wednesday AM Room: 14B Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Enhanced Thermoelectric ZT Constantan Alloy by Cryorolling: Huijun Kang1; Daquan Liu1; Jinling Li1; Tongmin Wang1; 1Dalian University of Technology

8:50 AM
Thermoelectric Properties of La-doped SrTiO3 Materials Prepared by Mechanical Alloying: Daquan Liu1; Huijun Kang1; Jinling Li1; Tongmin Wang1; 1Dalian University of Technology

9:10 AM
Mechanical Analysis of Raceway Formation in Bulk Bed of Blast Furnace: Quming Wang1; Yuaxiang Lu1; Zeyi Jiang1; 1University of Science and Technology Beijing

9:30 AM
Energy Savings in Aluminium Sand Casting Foundries: Hamid Ahmad Mehrabi1; 1Cranfield University
10:10 AM Break

10:25 AM Invited
Research and Development of Pressure Vessel Steels for Advanced Pressurized Water Reactors in China: Yukou He*; Zhengdong Liu*; Wenhai Zhang*; Deli Zhao*; Ying Luo*; Xiaobin Wang*; 'China Iron & Steel Research Institute Group; 'China First Heavy Industries; 'China First Heavy Industries; 'Nuclear Power Institute of China; 'Nuclear Power Institute of China

11:05 AM
Bonding Characteristics and Site Occupancies of Si Atoms in M6C Carbides from First Principles and Experimental Study: Li Jiang*; 'Shanghai Institute of Applied Physics, Chinese Academy of Sciences

11:25 AM
Ductile Phase Toughening of 90-97W-NiFe Heavy Alloys: Md Ershadul Alam*; G. R. Odette*; 'University of California, Santa Barbara

11:45 AM
Investigation of Oxidation/Carburisation Mechanisms of 9Cr Ferritic Steel Heat Exchange Tubes: Sabrina Yan*; Scott Doak*; Aya Shin*; Jonathan Pearson*; Rebecca Higginston*; 'Loughborough University; 'EDF Energy Generation

12:05 PM Invited
Comparison of Corrosion Properties of Alloy 800 and Alloy 690 by In-situ Scratching Repassivation Behavior in High-temperature Pressurized Water: En-Hou Han*; Jiazheng Wang*; Jianqiu Wang*; 'Institute of Metal Research, Chinese Academy of Sciences

Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session V
Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Wednesday AM
March 1, 2017
Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM Keynote
Microstructure and Properties of High Performance Pipeline Steels: Lei Zheng*; 'Baoshan Iron & Steel Co. Ltd.

9:00 AM
Advanced Duplex Stainless Steels for Extreme Oil-Gas Environments: Pasi Kangas*; Guocai Chai*; 'Sandvik Materials Technology

9:30 AM
Development of High-strength and High Corrosion-resistant Ni-Cr-Al Alloy for Drilling Tools: Yoshihiko Koyanagi*; Hiroyuki Takabayashi*; Shigeki Ueta*; 'Daido Steel Co., Ltd./R&D center

10:00 AM Break

10:20 AM
Novel Cu-bearing Antibacterial Pipeline Steels for Microbiologically Induced Corrosion Control: Xiaobo Shi*; Yiyin Shan*; Wei Yang*; Wei Wang*; Zhenguo Yang*; Ke Yang*; 'Institute of Metal Research, Chinese Academy of Sciences

10:45 AM

11:10 AM
Development of Cr-based Duplex Alloy for Corrosive Environments II: Evaluation of Corrosion Resistance in Boiling Sulfuric Acid: Tomonori Kimura*; Masahumi Nojima*; Makoto Ogata*; Naoya Toko*; Kosuke Kuwabara*; 'Hitachi, Ltd.

11:35 AM
Localised Corrosion of Ni-base Superalloys in Seawater: Melissa Keogh*; Robert Akid*; Tony Cook*; 'University of Manchester

Environmentally Assisted Cracking: Theory and Practice — Environmentally Assisted Embrittlement and Cracking I
Program Organizers: Bai Cui, University of Nebraska-Lincoln; Raul Rebak, GE Global Research; Sebastien Dryepondt, Oak Ridge National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

Wednesday AM
March 1, 2017
Location: San Diego Convention Center
Session Chairs: Reiner Kirchheim, University of Göttingen; Bai Cui, University of Nebraska-Lincoln

8:30 AM Invited
Hydrogen Embrittlement and Stress Corrosion Cracking as Examples of the Chemomechanics of Solids: Reiner Kirchheim*; 'University of Goettingen

9:10 AM
The Role of Hydrogen-enhanced Strain-induced Lattice Defects on Hydrogen Embrittlement Susceptibility of X80 Pipeline Steel: Moeko Hattori*; Hiroshi Suzuki*; Kenichi Takai*; Yusuke Seko*; 'Sophia University; 'Tokyo Gas
Fracture Properties and Residual Stresses in Small Dimensions — Fracture Mechanisms and Modeling Program Organizers: Daniel Kiener, University of Leoben; Marco Sebastiani, Roma TRE university; Nagamani Jaya Balia, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Wednesday AM
Room: 21
Location: San Diego Convention Center

Session Chairs: Erik Bitzek, Friedrich-Alexander Universität Erlangen Nürnberg; Karsten Durst, Technical University Darmstadt

8:30 AM Introductory Comments

8:35 AM Invited
Atomic Simulations of Crack Nucleation and Propagation along Grain Boundaries: Erik Bitzek; Johannes Möller; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

9:05 AM
Directional Dependency of the Fracture Behavior of High Strength Pearlitic Steel Wires: Bernhard Völker; Marlene Kapp; Reinhard Pippan; Anton Hohenwarth; Montanuniversität Leoben; Erich Schmid Institute, Austrian Academy of Sciences

9:25 AM
Brittle-to-ductile Transition of Quasicrystals at Small Scales: Cracking, Serrated flows, Diffusion and Phase Transformation: Yu Zou; Jeffrey Wheeler; Alla Sologubenko; Pawel Kuczera; Walter Steurer; Johann Michler; Ralph Spolenak; ETH Zurich; Empa Thun

9:45 AM
Coupling Discrete Dislocation Plasticity and Cohesive Zone Models: Edmund Tarleton; Angus Wilkinson; Oxford University

10:05 AM Break

10:30 AM Invited
Constitutive Modeling of Indentation Cracking in Fused Silica: Karsten Durst; Technical University Darmstadt

11:00 AM
Critical Stresses in Intermittent Plasticity: Peter Derlet; Robert Maass; Paul Scherrer Institut; University of Illinois at Urbana-Champaign

11:20 AM Invited
Tensile Deformation Behaviour of Notched Nano-scale Metallic Glass Specimens: Narasimhan Ramarathnam; Indrasen Singh; Indian Institute of Science
PRELIMINARY TECHNICAL PROGRAM

Friction Stir Welding and Processing IX — Lightweight Applications
Program Organizers: Yuri Hovansk, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Wednesday AM      Room: 9      Location: San Diego Convention Center
March 1, 2017

Session Chair: Christian Widener, South Dakota School of Mines and Technology

8:30 AM Introductory Comments
8:35 AM Invited
Friction Stir Welding of Thick Section Aluminium Alloys - New Techniques: Jonathan Martin1; ‘TWI Technology Centre (Yorkshire)
8:55 AM
Effect of Friction Stir Processing on the Damage Resistance of 6xxx Series Aluminium Alloys: Florent Hunnard1; Aude Simar1; Thomas Parfoed1; Eric Maire2; ‘UCL; ‘INSA-Lyon
9:15 AM
Effect of Process Parameters on the Residual Stress Distribution in Stationary Shoulder T-Joints: Tianzhu Sun1; Matt Roy1; Phil Withers1; Phil Prangnell1; ‘The University of Manchester
9:35 AM Invited
Friction Stir Weld Lap Joint Properties in Aeronautic Aluminium Alloys: Egoitz Aldanondo1; Ekaitz Arruti1; Alberto Echeverria1; ‘IK4-LORTEK
9:55 AM
Flow Features in Shoulder Zone during Scroll Tool Friction Stir Welding Thick 6061 Aluminum Plates: David Yan1; Xiaoming Wang2; Guy Littlefair3; ‘University of Wisconsin-Green Bay; ‘Purdue University; ‘Deakin University
10:15 AM Break
10:30 AM
Corrosion Fatigue Performance of Friction Stir Processed Magnesium Alloy AZ31B-H24: A Comparative Evaluation: Daniel Tapp1; Joseph McDermid1; Joseph Kish1; ‘McMaster University
10:50 AM
High-speed FSW Aluminum Alloy 7075 Microstructure and Corrosion Properties: Jingyi Zhang1; Piyush Upadhyay1; Yuri Hovanski1; David Field1; ‘Washington State University; ‘Pacific Northwest National Laboratory
11:10 AM
Round Material Flow in Friction Stir Welding of Aluminum Alloy: Xiaochao Liu1; Yufeng Sun1; Yoshiaki Morisada1; Hidetoshi Fujii1; ‘Osaka University
11:30 AM
Friction Stir Welding of Thick Section Aluminium Welds – Challenges and Perspectives: Murshed Imam1; Yufeng Sun1; Hidetoshi Fujii1; Yasuhiro Aoki1; Nishu Ma1; Seiichiro Tsutsui1; Hidekazu Murakawa1; ‘Joining and Welding Research Institute, Osaka University; ‘JSOL Corporation, Engineering Technology Division

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

Wednesday AM      Room: 33B      Location: San Diego Convention Center
March 1, 2017

Session Chairs: Fay Hua, Intel; Seong Koh, University of Texas - Arlington

8:30 AM Introductory Comments
8:40 AM Invited
Enhanced Magnetic Properties and Spin-Seebeck Effect in Epitaxial Spinel Ferrite Thin Films Grown on Lattice-Matched Substrates: Arunava Gupta1; ‘University of Alabama
9:10 AM
Domain Mechanisms for Magnetization and Deformation Behaviors of Fe-Ga Alloys: Matt Tianen1; Yongmei Jin1; ‘Michigan Tech
9:30 AM Invited
10:00 AM Break
10:20 AM Invited
Ohmic Contacts for High-efficiency GaN-based Light-emitting Diodes: How to Enhance Current Injection Efficiency: Tae-Beom Seong1; ‘Korea University
10:50 AM Invited
State of the Art in Materials Enabled Optical Fiber Based Sensing for Harsh Environment Applications: Paul Ohodnicki1; ‘National Energy Technology Laboratory
11:20 AM
Mobile Ions in Dielectrics and Their Impacts to Integrity of Interconnects in Microelectronic Devices: Choong-un Kim1; ‘University of Texas at Arlington

Gamma (FCC)/Gamma-Prime (L12) Co-Based Superalloys II — Processing and Environmental Resistance
Program Organizers: Eric Lass, National Institute of Standards and Technology; Guifeng Feng, University of Science and Technology Beijing; Alessandro Moturma, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Wednesday AM      Room: Pacific 14      Location: Marriott Marquis Hotel & Marina
March 1, 2017

Session Chairs: Chantal Sudbrack, NASA Glenn Research Center; David Dye, Imperial College

8:30 AM Keynote
Developing Polycrystalline Ni-Co Rich Alloys, Strengthened by Co3AlW L12 Gamma Prime Precipitates for High Temperature Applications: David Dye1; Farah Ismail1; Trevor Lindley1; Paul Mulvey1; Richard Chater1; Ioannis Bryantounas1; Barbara Shollock1; Mark Hardy1; ‘Imperial College; ‘The University of Warwick; ‘Rolls-Royce plc
9:10 AM Invited
Novel Cast and Wrought γ'γ′ Cobalt Base Superalloys - Creep Properties, Deformation Mechanisms, and Oxidation: Mathias Göken1; Lisa Freund1; Steffen Neumeier1; ‘Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)
9:40 AM
Supersolvus Thermomechanical Processing of Cast Co–Base Superalloys: Donald Weaver1; Katelin Wertz1; S. Lee Semiatin3; Rajiv Shivpuri2; Stephen Niezgoda2; Michael Mills2; ‘Air Force Research Laboratory; ‘The Ohio State University

10:00 AM Break

10:20 AM Invited
Coating Systems for New Cobalt Base Single Crystals: Wesley Jackson1; Mike Titus1; Tresa Pollock3; Matt Begley2; ‘University of California Santa Barbara

10:50 AM
Role of Two Phase Microstructure during Early Stages of High Temperature Oxidation of Co-base Superalloys: Martin Weiser1; Sannakaisa Virtanen2; ‘University of Erlangen-Nuernberg (FAU)

11:10 AM
Influence of Alloy Composition on Oxide Scale Formation in Novel Co-Based γ’-γ Superalloys: Colin Stewart1; Akane Suzuki1; Tresa Pollock3; Carlos Levi2; ‘University of California Santa Barbara; ‘GE Global Research

11:30 AM
A High-throughput Search for New Ternary Superalloys: Chandramouli Nyshadham1; Corey Oses4; Jacob Hansen1; Ichiro Takeuchi1; Stefano Curtarolo1; Gus Hart1; ‘Brigham Young University Provo Utah; ‘Duke University; ‘University of Maryland, College Park

GAT-2017 (Gamma Alloys Technology - 2017) — Processing-Microstructure-Property Relationships

Program Organizers: Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Salot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Wednesday AM
Room: Pacific 17
March 1, 2017
Location: Marriott Marquis Hotel & Marina

Session Chairs: Fritz Appel, Helmholtz-Zentrum-Geesthacht; Juraj Lapin, IMMM, Slova Academy of Science

8:30 AM Invited
Control of Microstructure and Mechanical Property and Superplasticity for High Nb-TiAl Alloy Sheet: Jünpin Lin1; Yongfeng Liang1; Laiqi Zhang1; Guojian Hao1; Xiangjun Xu1; ‘University of Science and Technology Beijing; ‘Zhongyuan University of Technology

8:55 AM Invited
Methodological Discussion on Enhancing the Temperature Tolerance of TiAl Alloys: Ji Zhang1; Xiangjun Zhang1; Jing Zhu1; ‘China Iron and Steel Research Institute Group; ‘Tsinghua University

9:20 AM Invited
Microstructure and Mechanical Properties of In-situ TiAl Matrix Composites Reinforced with Ti2AlC Particles: Juraj Lapin1; ‘Institute of Materials and Machine Mechanics, Slovak Academy of Sciences

9:45 AM
Gamma Alloy Process-Microstructure Combinations vs. Deformation and Fracture at Ambient as well as Elevated Temperatures: Young-Won Kim1; Sang-Lan Kim1; ‘Gamteck LLC

10:05 AM Break

10:20 AM Invited
Research Progress on Gamma TiAl Alloy Technology in NPU: Hongchao Kou1; Bin Tang1; Liang Cheng1; Zhigang Sun1; Jinshan Li1; ‘State Key Laboratory of Solidification Processing, Northwestern Polytechnical University; ‘Shaanxi Engineering Research Center for Advanced Materials and Solidification Processing

10:45 AM
Microstructure-sensitive Computational Scheme for Fatigue Resistance of Gamma-TiAl TNM Alloys: Adrienne Math1; Paul Kern1; Aaron Tallman1; Thomas Payne1; Don Shih2; Ben Smith2; David McDowell2; ‘Georgia Institute of Technology; ‘Boeing Research and Technology

11:05 AM Invited
R-curve Behaviour of Different Nearly Lamellar Microstructures in an Intermetallic Ti-43.5Al-4Nb-1Mo-0.1B Alloy: Martin Schroff1; Thomas Leitner1; Svea Mayer1; Helmut Clemens1; Jörg Esslinger1; Wilfried Smarsly1; Reinhard Pippau1; ‘MTU Aero Engines AG; ‘Erich Schmid Institute of Material Science, Austrian Academy of Sciences; ‘Montanuniversität Leoben

11:30 AM
Mechanical Behavior and Microstructure Evolution of Fine-grained High Nb Containing TiAl Alloy under Isothermal Compression: Yadong Chu1; Jinshan Li1; Bin Tang1; Hongchao Kou1; ‘Northwestern Polytechnical University

High Entropy Alloys V — Structures and Mechanical Properties

Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Wednesday AM
Room: 32B
March 1, 2017
Location: San Diego Convention Center

Session Chairs: Takeshi Egami, University of Tennessee; Jeffrey Hawk, National Energy Technology Laboratory

8:30 AM Invited
Electronic and Lattice Heterogeneity in High-entropy Alloys: Takeshi Egami1; ‘University of Tennessee

8:50 AM Invited
Creep Strength, Deformation, and Fracture in Single Phase High Entropy Alloy: Jeffrey Hawk1; Kyle Rozman2; John Sears3; Paul Jablonski1; Michael Gao1; ‘U.S. Department of Energy, National Energy Technology Laboratory; ‘ORISE; ‘AECOM

9:10 AM Invited
Hardening Mechanisms in High-entropy Alloys: Z. P. Lu1; ‘University of Science and Technology Beijing

9:30 AM Invited
Mechanical and Corrosion Properties of CoCrFeNi-based High-entropy Alloy Additive Manufactured Using Selective Electron Beam Melting: Tadashi Fujieda1; Hiroshi Shiratori1; Kosuke Kuwabara2; Mamoru Hirota1; Takahiko Kato1; Kenta Yamakan1; Yuichiro Koizumi1; Akihiko Chiba1; Seiichi Watanabe2; Hitachi, Ltd.; ‘Tohoku University; ‘Hitachi Ltd.; ‘Hitachi, Ltd.; ‘Hokkaido University; ‘Hokkaido University

9:50 AM
Nanomechanical Behavior and Nano-indentation Size Effects in High Entropy Alloys: Sanghita Mridha1; Hunter Olman1; Sundeep Mukherjee1; ‘University of North Texas

10:10 AM Break
11:10 AM Invited
Microstructural Evolution and Mechanical Behavior of a Non-equatomic High-entropy Alloy Reinforced by Nanoparticles: Zhiqiang Fu; Benjamin MacDonald; Baolong Zheng; Weiping Chen; Yaojun Lin; Fei Chen; Yizhang Zhou; Liangmeng Zhang; Enrique Lavernia; 1University of California, Irvine; 1South China University of Technology; 1Wuhan University of Technology

11:30 AM
Effect of Cr/Ni Ratio on Phase Stability of the CrMnFeCoNi System: Guillaume Laplanche; Christian Reinhard; Alex Asabre; Julian Hunfeld; Florian Fox; Janine Pfetzing-Micklich; Easo George; 1Ruhr-Universität Bochum

11:50 AM Invited
Atomic-level Disorder and Defect Dynamics in Concentrated Solid-solution Alloys: Yanwen Zhang; Shijun Zhao; Fredric Granberg; Kai Nordlund; Flyura Djurabekova; William Weber; 1Oak Ridge National Laboratory; University of Tennessee; 1Oak Ridge National Laboratory; University of Helsinki; 1University of Tennessee; Oak Ridge National Laboratory

High Temperature Electrochemistry III — Nuclear Materials

Wednesday AM  Room: 16A  Location: San Diego Convention Center

Session Chairs: Jerome Downey, Montana Tech of the Univ of Montana; Michael Simpson, University of Utah

8:30 AM
Optimized Voltammetry Methods for Measuring Concentration of Multiple Rare Actinides and Actinides in Molten LiCl-KCl: Michael Simpson; Devin Rappley; Chao Zhang; 1University of Utah

9:00 AM
Zirconium Management in the Mk-IV Electrefiner: Guy Fredrickson; 1Idaho National Laboratory

9:30 AM
Initial Operation of Kg-Scale Electrolytic Reduction and Salt Distillation Equipment for the Pyroprocessing of Uranium Oxide in a Hot Cell: Steven Herrmann; 1Idaho National Laboratory

10:00 AM Break

10:20 AM Invited
Thorium and Uranium Electrodeposition from Molten LiCl-KCl onto Alpha Spectroscopy Semiconductor Detector Surface: Milan Stika; Joshua Jarrell; Thomas Blue; Lei Cao; Michael Simpson; 1University of Utah; 1The Ohio State University

10:50 AM
Electrochemical Techniques for Nuclear Safeguards in Molten Salt: Vckram Singh; Dev Chidambaram; 1University of Nevada, Reno

11:20 AM
Electrochemistry in Molten LiF-BeF2 Salt for the Fluoride Salt-Cooled High Temperature Reactor Applications: William Doniger; Thomas Chrobak; Brian Kelleher; Kieran Dolan; Guoping Cao; Mark Anderson; Kumar Sridharan; 1University of Wisconsin-Madison

Hume-Rothery Award Symposium: Alloy Phase Chemistry at the Atomic Level - Opportunities and Challenges — Session V
Program Organizers: Wei Xiong, University of Pittsburgh; Shuanglin Chen, CompuTherm LLC; Frederic Danoyx, Université de Rouen; Indrajit Chatterji, University of Idaho

Wednesday AM  Room: 31C  Location: San Diego Convention Center

March 1, 2017

Session Chairs: Frederic Danoyx, CNRS - Université de Rouen; Michael Moody, University of Oxford

8:30 AM Invited
Outlooks for Atom Probe Microscopy: Simon Ringer; 1The University of Sydney

9:00 AM Invited
Combining Small Angle Scattering, Atom Probe Tomography and Differential Calorimetry for a Better Characterization of Solid Solution Decomposition: Frederic De Geuser; Rosen Ivanov; Laurent Couturier; Alexis Deschamps; Baptiste Gault; 1SIMAP - CNRS - Univ. Grenoble Alpes; 1Max-Planck Institut für Eisenforschung

9:30 AM Invited
Kinetic Pathways in Phase Separation Processes: Atom-Probe Tomography versus Modeling: Didier Blavette; Isabelle Moutori; Thomas Philippe; Manon Bonvallet; Normandie University; 1CEA; CNRS; KTH

10:00 AM Break

10:20 AM Invited
Atomic Scale Modeling of Phase Separation in Fe-Cr Alloys: Frederic Soisson; 1CEA Saclay

10:50 AM Invited
Spinodal Decomposition in FeCr Alloys: From Fundamental to Applications: Frederic Danoyx; Alexander Dahlstrom; Didier Blavette; Helena Zapolisky; 1CNRS - Université de Rouen

11:20 AM Invited
Phase Decomposition in Fe-Cr Alloys under Irradiation: Mukesh Bachhav; Elaina Anderson; G. Robert Odette; Emmanuelle Marquis; 1University of Michigan; 1University of California - Santa Barbara

11:50 AM Concluding Comments

Magnesium Technology 2017 — Mechanical Behavior: Twinning, Plasticity, Texture, and Fatigue I
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Wednesday AM  Room: 5B  Location: San Diego Convention Center

March 1, 2017

Session Chairs: Bin Li, University of Nevada, Reno; Christopher Barrett, Mississippi State University

8:30 AM Keynote
Twinning Super Dislocations to Help Understand Strength: Matthew Barnett; 1Deakin University

9:10 AM
Basal Dislocation Transmutation through [1012] Twin Boundaries: Christopher Barrett; Haitham El Kadiri; 1Mississippi State University

9:30 AM
Contraction Twinning Dominated Tensile Deformation and Subsequent Fracture in Extruded Mg-1Mn (wt%) at Ambient Temperature: Ajith Chakkedath; Philip Eisenlohr; Tias Maiti; Carl Boehler; Jan Bohlen; Sangbong Yi; Dietmar Letzig; 1Michigan State University; 1Magnesium Innovation Centre MagIC, Helmholtz Centre
9:50 AM
Ductility Enhancement in Mg Alloys by Anisotropy Engineering: Shamik Basu; Ebubekir Dogan; Babak Kondori; Ibrahim Karaman; Amine Benzerga; 1Texas A&M University

10:10 AM Break

10:30 AM
Modeling the Effect of Alloying Elements in Magnesium on Deformation Twin Characteristics: M. Arul Kumar; Irene J Beyerlein; Ricardo Leboeufson; Carlos B. Tomé; 1Los Alamos National Laboratory

10:50 AM
Simulating Discrete Twin Evolution in Magnesium Using a Novel Crystal Plasticity Finite Element Model: Jiahao Cheng; Somnath Ghosh; 1Johns Hopkins University

11:10 AM
The Effect of [10-12] Twin Boundary on the Evolution of Defect Substructure: Fulin Wang; C.D. Barrett; K. Hazieli; K. Molodov; T. Al-Samman; A. Oppedal; D. Molodov; A. Kontsos; K.T. Ramesh; H. El Kadiiri; S.R. Agnew; 1Department of Materials Science and Engineering, University of Virginia; 2Center for Advanced Vehicular Systems, Mississippi State University; 3Hopkins Extreme Materials Institute, The Johns Hopkins University; 4Institute of Physical Metallurgy and Metal Physics, RWTH Aachen University; 5Department of Mechanical Engineering, Mississippi State University; 6Department of Mechanical Engineering and Mechanics, Drexel University

11:30 AM
Zinc Segregation on Interfaces Induced by Severe Plastic Deformation of an Mg-Zn-Y Alloy at Room Temperature: D. Althaf Basha; Ryoji Sahara; Hidetoshi Somekawa; Julian Rosalie; Alok Singh; Koichi Tsuchiya; 1National Institute for Materials Science; 2Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria

Magnesium Technology 2017 — Solidification and Processing II
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Wednesday AM  Room: 5A
March 1, 2017  Location: San Diego Convention Center

Session Chairs: Norbert Hort, Helmholtz-Zentrum Geesthacht; Tracy Berman, University of Michigan

8:30 AM
Processing of Mg-sheet via Twin Roll Casting: Dietmar Letzig; Roland Hoppe; Jonas Isakovic; Gerrit Kurz; 1MagiC - Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht

8:50 AM
Effects of Mn and Zn Solutes on Grain Refinement of Commercial Pure Magnesium: Jian Gu; Yuanding Huang; Mingxing Zhang; Karl Ulrich Kainer; Norbert Hort; 1Magnesium Innovation Centre, Helmholz-Zentrum Geesthacht; 2School of Mechanical and Mining Engineering, The University of Queensland

9:10 AM
Experimental Investigation of Continuous Magnesium Production by Carbothermal Reduction: Boris Chubukov; Scott Rowe; Aaron Palumbo; Illias Hischier; 1CU-Boulder

9:30 AM
Grain Refinement of Mg-Gd-Y-(Zr) Alloys through Squeeze Casting: Caolong Wang; Kaka Ma; Enrique J. Laverna; Guohua Wu; Wencai Liu; Wenjiang Ding; 1Shanghai Jiao Tong University; 2University of California, Irvine

9:50 AM
Precipitation Behavior of Mg-Al-Sn-Zn-(Na) Alloys: Sumi Jo; Yohan Go; Kwang Seon Shin; Bong Sun You; Young Min Kim; 1Korea University of Science and Technology; 2Seoul National University; 3Korea Institute of Materials Science

10:10 AM Break

10:30 AM
Study on the Direct Oxidation Thermal Decomposition of Magnesium Chloride Byproduct in the Sponge Titanium Production Process to Prepare Magnesium Oxide: Liping Niu; Zhang Ting’an; Guozhi Lv; Aiping Zhou; 1Northeastern University

10:50 AM
Thermal Decomposition Kinetics of Pre-prepared Pellets for the Novel Silicothermic Process: Lukai Guan; Zhang Ting’an; Zhihe Dou; Daxue Fu; Ming Wen; 1Northeastern University

11:10 AM
Thermal Stability of Cryomilled Mg Alloy Powder: Dikai Guan; Mark Rainforth; Joanne Sharp; Junheng Gao; 1University of Sheffield

11:30 AM
Thermomechanical Processing of Thixomolded Alloys: Raymond Decker; Stephen LeBaux; Tracy Berman; Tori Miller; Wayne Jones; Tresa Pollock; Nir Moskovich; Boris Bronfin; 1Thixomats, Inc/nanoMAG LLC; 2University of Michigan; 3North Carolina State University; 4University of California Santa Barbara; 5ICL Magnesium

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Structural Materials II
Program Organizers: Ramprashad Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Wednesday AM  Room: Cardiff
March 1, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM
Irradiation-Induced Microstructure of Proton Irradiated Commercial Austenitic Alloys: Miao Song; Gary Was; 1University of Michigan

8:50 AM
Neutron Irradiation-induced Creep of IG-110 Nuclear Graphite: Anne Campbell; Eiji Kunimoto; Yutai Katoh; 1Oak Ridge National Laboratory; 2Toyo Tanso Co. Ltd.

9:10 AM
Investigation of Property-Property Correlations for Irradiated Steels: Peter Welle; Takuya Yamamoto; Nathan Almirall; Randy Nandstad; Timothy Milot; G. Odette; 1UC Santa Barbara; 2Oak Ridge National Laboratory

9:30 AM
Mitigation of IASCSC Susceptibility in a BWR-irradiated 304L Stainless Steel Utilizing Post-irradiation Annealing: Justin Hesterberg; Zhijie Jiao; Gary Was; 1University of Michigan

9:50 AM
Role of Localized Deformation and Grain Boundary Plane Orientation on Crack Initiation in Irradiated Stainless Steels: Drew Johnson; Bryan Kuhl; Diana Farkas; Gary Was; 1University of Michigan; 2Virginia Tech

10:10 AM Break

10:30 AM
The effect of Low-fluence Neutron Irradiation on Cast Austenitic Stainless Steels: Siwei Chen; Yuiichi Miyahara; 1Akiyoshi Nomoto; Kenji Nishida; 1Central Research institute of Electric Power Industry

10:50 AM
Effects of Thermal Aging and Neutron Irradiation on Cast Austenitic Stainless Steels: Wei-Ying Chen; Yiren Chen; Chi Xu; Zhangbo Li; Yong Yang; 1Nicholas Demas; 1Argonne National Laboratory; 2University of Florida

11:10 AM
Utilizing In-situ Microtensile Testing to Evaluate Mechanical Property Changes Due to Ion-beam Irradiation: Hi Vo; Stuart Maloy; Peter Hosemann; 1University of California, Berkeley; 2Los Alamos National Laboratory
11:30 AM
In-situ High Energy X-ray Characterization of Neutron Irradiated HT-UPS Stainless Steel under Tensile Deformation: Chi Xu1; Xuan Zhang2; Meimei Li3; Jun-Sang Park4; Peter Kenessel5; Jonathan Almer2; Yong Yang3; 1Argonne National Laboratory / University of Florida; 2Argonne National Laboratory; 3University of Florida

Materials Engineering of Soft Magnets for Power and Energy Applications — Nanocomposite Soft Magnetic Alloys for Power Electronics, Transformers, and Inductors
Program Organizers: Paul Ohodnicki, National Energy Technology Laboratory; Francois Johnson, GE Global Research; Alex Leary, Carnegie Mellon University; Tanjore Jayaraman, University of Michigan; Lajos Varga, Wigner Research Center for Physics
Wednesday AM Room: 25B Location: San Diego Convention Center
Session Chair: Paul Ohodnicki, NETL

8:30 AM Invited
Challenges to the Commercial Acceptance of Amorphous and Nanocrystalline Soft Magnetic Materials: Eric Theisen1; Jerry Allen2; Naoki Ito2; 1Metglas Inc.

9:00 AM Invited
Magnetic Material Excited by Power Electronics in Electrical Engineering: Keisuke Fujisaki1; 1Toyota Technological Institute

9:30 AM
Nanocomposite Soft Magnetic Materials for High Frequency and High Power Conversion Applications: Paul Ohodnicki1; Vladimir Keylin2; Alex Leary2; Michael McHenry2; Subhashish Bhattacharya2; 1National Energy Technology Laboratory; 2Carnegie Mellon University; 3North Carolina State University

9:50 AM Break

10:05 AM Invited
Structure-Processing-Property Relationships in High Temperature Nanocomposite Soft Magnets: Matthew Willard1; Song Lan1; Bowen Dong1; Anthony Martone1; 1Case Western Reserve University

10:35 AM Invited
Nanocrystalline Materials for Inductors and Shielding Applications: Christian Polak1; 1Vacuumschmelze GmbH & Co. KG

11:05 AM
Crystallization Products and Strain Annealing Effects in (FexNi1-x)80Nb4Si2B14 Metal Amorphous Nanocomposites (MANCs): Natan Aronhime1; Vladimir Keylin2; Paul Ohodnicki2; Michael McHenry2; 1Carnegie Mellon University; 2National Energy Technology Laboratory

11:25 AM
Straighten the Hysteresis Loop of Finemet Type Nanocrystalline Ribbon: Lajos Varga1; 1Wigner Research Center for Physics of Hung. Acad. Sciences

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Intermetallics and Additive Manufacturing of Superalloys
Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmair, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory
Wednesday AM Room: Pacific 16 Location: Marriott Marquis Hotel & Marina
Session Chairs: Helmut Clemens, Montanuniversitaet Leoben; Haruyuki Inui, Kyoto University

8:30 AM Invited
Iron Aluminides: Recent Alloy Developments and Industrial Processing: Martin Palm1; 1Max-Planck-Institut für Eisenforschung GmbH

9:00 AM Invited
Directionally Solidified Ni-Al-X Ternary Eutectics for High-Temperature Applications: G. Liu1; P. Hallensleben1; J. Frenzel1; X. Liu1; J. Pfetzing-Micklich1; E. P. George2; 2Ruhr University Bochum

9:30 AM
Novel High Strength Eutectic Intermetallics: Chandrasekhar Tiwary1; Vilas Gunjal1; Abhishek Sharma1; Kamran Chattopadhyay1; Dipankar Banerjee1; 1Indian Institute of Science

9:50 AM Break

10:10 AM Invited
Plasticity of Hard and Brittle Materials at Micron-meter Size Scales: Haruyuki Inui1; Kyoosuke Kishida1; Norihiro Okamoto1; 1Kyoto University

10:40 AM Invited
Advanced γ-TiAl Based Alloys: Helmut Clemens1; Svea Mayer1; 1Montanuniversität Leoben

11:10 AM
Microstructure–property Relationship in Next Generation TiAl Alloys: Soumya Nag1; Akane Suzuki1; Manuel Acosta1; Michael Weimer1; Bernard Bewlay1; 1GE Global Research; 2GE Aviation

11:30 AM
Additive Manufacturing of High Temperature Alloys: An Emphasis on the Current State and Future Direction of Ni-base Superalloy Processability in AM: Michael Kirka1; Ryan Dehoff1; 1Oak Ridge National Laboratory

11:50 AM
Microstructure Characterization of Single-crystal René N5 Fabricated through Scanning Laser Epitaxy: Amrita Basak1; Suman Das1; 1Georgia Institute of Technology

Materials Processing Fundamentals — Steelmaking
Program Organizers: Antoine Allonore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lantotte, Boston Electromet
Wednesday AM Room: 17B Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM
A Systems Approach for Modeling the Dynamic Thermomechanical Response of Carbon Steels: Shengyen Li1; Steven Mates1; Mark Stoudt1; Carolyn Campbell1; Greta Lindwall1; Sindhuja Gangireddy1; 1National Institute of Standards and Technology

8:50 AM
Development of Ultra High-basicity Mold Fluxes for Peritectic Steel Continuous Casting: Xiao Long1; Shengping He1; Qian Wang1; Petrus Pistorius1; 1Chongqing University; 2Carnegie Mellon University
9:30 AM
Influence of MgO Saturation on the ConSteel EAF Foaming Slag Practice:
Esmail Ahmad; Magnus Krokstad; Reza Beheshiti; Ragnhild Aune; NTNU; Celsa Nordic Amerinsstål

Materials Science for High-Performance Permanent Magnets — Nd-Fe-B Processing / New RE-lean Hard Magnets
Program Organizers: Satoshi Hiroswa, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Gutfeisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Wednesday AM
Room: 24C
Location: San Diego Convention Center

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Oliver Gutfeisch, Technical University Darmstadt; Konstantin Skokov, Technical University Darmstadt

9:30 AM Invited
Prospects for Advanced Manufacturing of Magnets: Scott McCall; LLNL

8:55 AM
Microstructure Formation of Strip-cast R-Fe-B Alloys for Magnets: Kazuhiko Yamamoto; Masashi Matsuura; Satoshi Sugimoto; Santoku Corporation; Tohoku University

9:15 AM
Texture Development Mechanism in HDDR Processed Nd-Fe-B Magnet: Tae-Hoon Kim; Jung-Goo Lee; Jae-Woong Kwon; Cheol-Woong Yang; Sungkyunkwan University; Korea Institute of Materials Science; Pukyong National University

9:35 AM
Magnetic Anisotropy and Crystallographic Alignment in d-HDDR Processed Nd-Fe-B-Ga-Nb Powders: Takashi Horikawa; Masashi Matsuura; Satoshi Sugimoto; Masao Yamazaki; Chisato Mishima; Tohoku University; Aichi Steel Corporation

9:55 AM Break

10:10 AM Invited
Recent Developments in RFe12-type Compounds for Permanent Magnets: A.M. Gabay; George Hadjipanayis; University of Delaware

10:35 AM
Temperature Dependence and Magnetic Anisotropy Measured on the Epitaxial RFe12 (-N) (R = Sm and Nd) Thin Films with ThMn12 Structure: Yusuke Hayarama; Yukiko Takahsi; Satoshi Hiroswa; Kazuhiro Honoo; National Institute for Materials Science

10:55 AM
New Hard Magnetic ThMn12-type phases with Low Rare Earth Contents for Permanent Magnet Applications: Andrés Martin-Cid; Daniel Salazar; Aleksandr Gabay; Ana Maria Schönöhöbel; Jose Garitaonandia; Jose Manuel Barandiaran; George Hadjipanayis; BCMaterials; University of Delaware; University of the Basque Country (UPV/EHU)

11:15 AM Invited
First-principles Study of ThMn12-type Iron-based Rare-earth Intermetallics: Takashi Miyake; AIST

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Materials for Nuclear Environments
Program Organizers: Indrajit Charit, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

Wednesday AM
Room: 24A
Location: San Diego Convention Center

Session Chairs: Jacob Eapen, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory

8:30 AM Keynote
Enhanced Radiation Tolerance of Single Phase Solid Solution Alloys: Shi Shi; Mo Rigen; Shuai Wang; Ian Robertson; University of Wisconsin-Madison

9:00 AM Invited
Deformation and Fracture Behavior of Irradiated and Nonirradiated Austenitic Stainless Steels: Thak Sang Byun; Maxim Gussev; Timothy Lach; Pacific Northwest National Laboratory; Oak Ridge National Laboratory

9:20 AM Invited
A Rate Theoretic Approach to Modeling Irradiation Creep: Jacob Eapen; NC State University

9:40 AM Invited
Anisotropy Biaxial Creep of Textured Nb-modified Zircaloy-4 Tubing: Nilesh Kumar; Kaitlin Grundy; Boopathi Kombaiah; Baifeng Luan; K Murty; NC State University; Carnegie Mellon University; Chongqing University

10:00 AM Break

10:20 AM Keynote
The Enhanced Radiation-resistance of Ultrafine-grained Metals Produced by SPD Processing: Ruslan Valeev; Narmin Enikeev; Marina Abramova; Bertrand Radiguet; Auriane Etienne; Xavier Sauvage; Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; Ufa State Aviation Technical University; Université et INSA de Rouen

10:50 AM Keynote
High Temperature Behavior of Zirconium Alloys in Air: Patrick Price; Darryl Butt; Isabella van Rooyen; Jatu Burns; Jordan Vandegrift; Boise State University; University of Utah; Idaho National Laboratory

11:20 AM Invited
Synergistic Effects of Neutron Irradiation and Interstitial Nitrogen on Strain Aging in Ferritic Steels: Nilesh Kumar; Ahmad Alsabbagh; C. Seok; K Murty; NC State University; SungKyunKwan University

11:40 AM
Study of High Temperature Deformation Behavior of Graded Transition Joints (GTJs): A Rate Theoretic Approach to Modeling Irradiation Creep: Jacob Eapen; NC State University

(Rel evance to Nuclear Power Plant Components): Mohan Subramanian; Sudarsanam Babu; Jonathan Galler; John DuPont; Xinghua Yu; Zhili Feng; University of Tennessee; Lehigh University; Oak Ridge National Laboratory
Mechanical Behavior of Nanostructured Materials — Mechanical Properties of Thin Films, Low Dimensional Material

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

Wednesday AM  Room: 30D
March 1, 2017  Location: San Diego Convention Center

Session Chairs: Yuntian Zhu, North Carolina State University; Cynthia Volkert, Universität Göttingen; Marc Legros, CEMES-CNRS

8:30 AM Invited
Experimental Observations of the Mechanical Behavior of Nanocrystalline Thin Films: Kevin Hemker; Suman Dasgupta; Paul Rottmann; Johns Hopkins University

8:55 AM
Exploring Nanoindentation Induced Stress Field Propagation in Nanoporous Thin Films: Tyler Vanover; Nicolas Briot; Thomas Balk; University of Kentucky

9:10 AM Invited
In-Situ Electron Microscopy of Fracture and Flow: Bahne Kapelle; Andreas Kelling; Florian Süß; Cynthia Volkert; University of Göttingen

9:40 AM
Grain Boundaries Shear-migration Coupling and Its Impact on Plastic Deformation in Nanocrystalline Metals: Marc Legros; Frédéric Mompiou; Nicolas Combe; Ehsan Hosseini; Olivier Pierron; CEMES-CNRS; Georgia Institute of Technology

10:00 AM Break

10:20 AM Invited
Strength and Deformation of Far-from-Equilibrium Metallic Systems at the Nano-scale: High-Entropy Alloys and Metallic Glasses: Julia Greer; Rachel Liontas; Adenike Giwa; H. Diao; Peter Liaw; California Institute of Technology; U Tennessee

10:45 AM
Grain Size or Film Thickness? Influence of the Two Main Length Scale Parameters on the Mechanical Reliability of Polymer-supported Metal Films: Oleksandr Glushko; Megan Cordill; Erich Schmid Institute

11:05 AM Invited
The Mechanical Behavior of Highly Oriented, Nano-layered HCP/BCC Composites: Irene Beyerlein; Milan Ardeljan; Marko Knezevic; Nathan Mara; Daniel Savage; Sven Vogel; Rodney McCabe; John Carpenter; Los Alamos National Laboratory; University of New Hampshire

11:30 AM
Structure Dependent Creep Behavior of CuNb Nanolaminates: Jaclyn Avallone; Thomas Nizolek; Irene Beyerlein; Nathan Mara; Tresa Pollock; University of California Santa Barbara; Los Alamos National Laboratory

11:50 AM
Influence of Severe Plastic Deformation on the Local Deformation Behavior of Nanostructured Metals under Extreme Conditions: Verena Maier-Kiener; Alexander Leitner; Reinhard Pippin; Daniel Kiener; Montanuniversität Leoben - Physical Metallurgy & Materials Testing; Montanuniversität Leoben - Materials Physics; Austrian Academy of Sciences - Erich-Schmid-Institute for Materials Science

Microstructural Processes in Irradiated Materials — Austenitic Alloys

Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kauomi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Marnivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Wednesday AM  Room: Del Mar
March 1, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Djamel Kauomi, North Carolina State University; Zhijie Jiao, University of Michigan

8:30 AM Invited
The Role of Deformation in Irradiation Assisted Stress Corrosion Cracking: Gary Was; Drew Johnson; Ian Robertson; Diana Farkas; University of Michigan; University of Wisconsin; Virginia Tech

9:00 AM
Plastic Deformation Mechanisms Accompanying Stress Corrosion Cracking in Highly Irradiated Austenitic Steels: Maxim Gussov; Kevin Field; Donovan Leonard; Gary Was; Keith Leonard; Oak Ridge National Laboratory; University of Michigan

9:20 AM
Study of Microstructural Evolution of 304 Stainless Steels by Atom Probe Tomography: Bertrand Radiguet; Bertrand Michaud; Brigitte Décamps; Faiza Sefta; Joël Malaplate; GPM UMR CNRS 6634 - Université et INSA de Rouen; CEA Saclay, DFN/AM/SPRMA; CSNSM Orsay; EDF R&D, département MMC, Groupe Métallurgie

9:40 AM
Post-irradiation Annealing Effect on the Irradiated Microstructure of a BWR-irradiated 304L Stainless Steel: Zhijie Jiao; Justin Hesterberg; Gary Was; University of Michigan

10:00 AM Break

10:15 AM Invited
Role of Grain Boundary Phenomena on Stress Corrosion Cracking in LWR Environments: Daniel Schreiber; Matthew Olszta; Stephen Bruemmer; Pacific Northwest National Laboratory

10:45 AM
Mechanical Characterization of In Service Inconel X-750 Annulus Spacers: Cameron Howard; Peter Hosemann; Scott Parker; Malcolm Griffiths; Colin Judge; David PoP; UC Berkeley; Canadian Nuclear Laboratories

11:05 AM
Microstructural Evolution and Mechanical and Fracture Behavior of CASS under Accelerated Thermal Aging: Timothy Lach; Thak Byun; Pacific Northwest National Laboratory

11:25 AM
Irradiation-induced Nanoclusters in Cu-Nb and Cu-Nb-Si: Jae Yel Lee; Pascal Bellon; Robert Averback; University of Illinois at Urbana-Champaign

11:45 AM Introductory Comments DOE-BES Program/Mechanical Behavior & Radiation Effects
Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Materials with Architectured Structures

Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huajian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Wednesday AM  Room: 24B
March 1, 2017  Location: San Diego Convention Center

Session Chairs: Yves Brechet, Grenoble Institute of Technology; Ruth Schwaiger, Karlsruhe Institute of Technology

8:30 AM Invited
Materials by Design:
3-Dimensional Nano-Architected Meta-Materials
: Julia Greer; Lucas Meza; Alessandro Maggi; Victoria Chernow; Xiaoxing Xia; ‘California Institute of Technology

8:55 AM
Mechanics of Single-wire Entangled Architectured Materials: David Rodney; Sabine Rolland du Roscoat; Laurent Orgéas; ‘Université de Lyon; ‘Université Grenoble Alpes - CNRS

9:15 AM
Designing Lightweight Composite Cellular Architectures: Glenn Hibbard; ‘University of Toronto

9:35 AM
Development and Compressive Deformation of Polymer-metallic Microcellular Structures: Theresa Juarez; Almut Schroer; Ruth Schwaiger; Andrea Hodge; ‘University of Southern California; ‘Karlsruhe Institute of Technology

9:55 AM Break

10:15 AM Invited
High-strength, Light-weight Hierarchical Materials Based on 3D Direct Laser Writing: Ruth Schwaiger; ‘Karlsruhe Institute of Technology (KIT)

10:40 AM
Toughening of Meso-structured Materials in Additive Manufacturing: Hang Yu; ‘Virginia Tech

11:00 AM
Chemical Etching of Ti Lattice Structures Manufactured by Electron Beam Melting: Influence on the Stiffness of the Octet-Truss Structures and Modeling of the Dissolution Kinetics at the Scale of Individual Struts: Pierre Lhuissier; Charlotte De Formanoir; Guilhem Martin; Rémy Dendiere; Stephane Godef; ‘Université Grenoble Alpes; ‘Université Libre de Bruxelles

11:20 AM
Metallic Films with Precisely Tailored Multimodal Architectures: Jagannathan Rajagopalan; Rohit Sarkar; Ehsan Izadi; Rohit Berlia; ‘Arizona State University

11:40 AM
Surface Gradient Architectured Materials Processed by Severe Plastic Deformation via Surface Abrasion Torsion: Ji Hyun Moon; Ho Yong Um; See Am Lee; Jae Ik Yoon; Jaimyun Jung; Hyo Yong Seop Kim; ‘POSTECH

Nanostructured Surfaces for Improved Functional Properties — Session I

Program Organizers: Rajeev Gupta, The University of Akron; Homerro Casaneda, Texas A&M University; Sandip Harimkar, Oklahoma State University; Arvind Agarwal, Florida International University; Bobby Mathan, James Cook University

Wednesday AM  Room: Pacific 23
March 1, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM Invited
Surface Alloying, Grain Refinement and Corrosion Response in Grain Size Gradient Microstructures: Heather Murdoch; Joseph Labukas; Jim Catalano; Kristopher Darling; ‘Army Research Laboratory

8:50 AM
Advanced Laser Surface Processing of Thermally-Stable Nanocrystalline Alloys: Kendrick Mensink; Guillermo Aguilar; Suvene Mathaudhu; ‘University of California Riverside

9:10 AM Invited
Temporary Implants for Bone Fracture Healing: Nanosurface Engineering: Bobby Kannan Mathan; ‘James Cook University

9:30 AM
Corrosion Resistance and Chemical Stability of Super-hydrophobic Electrodeposited Nickel-cobalt Film: Shoebre Khordand; Keyvan Raessi; Fakhreddin Ashrafizadeh; Maria Arenas; ‘Brunel University London; ‘Isfahan University of Technology; ‘National Center for Metallurgical Research

9:50 AM Break

10:05 AM Invited
Nanostructured Coatings for Wear and Corrosion Resistance: Gary Doll; ‘The University of Akron

10:25 AM
The Effects of Mn Addition on the Tribocorrosion Behavior of Al–Mn Coatings: Hesham Mraied; ‘Florida International University

10:45 AM
Plasma Spray Deposition of Aluminum-Boron Nitride Nanotube Composite: Pranjali Nautiyal; Cheng Zhang; Arvind Agarwal; ‘Plasma Forming Laboratory, Florida International University

11:05 AM
Corrosion Behavior of Boron Nitride Nanosheet Reinforced Copper Matrix Composite Coatings: Shei Sia Su; Cengiz Yegin; Winson Kuo; Mustafa Akbulut; Homero Castaneda; ‘Texas A&M University

Pan American Materials Congress Plenary — Session III

Wednesday AM  Room: Marina G
March 1, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM Plenary
Recent Progress in High Entropy Alloy Research: Zhiqiang Fu; Benjamin MacDonald; Baolong Zheng; Weiping Chen; Yaojun Lin; Fei Chen; Lian Zhang; Yulia Ivanisenko; Yizhang Zhou; Horst Hahn; ‘University of California, Irvine; ‘South China University of Technology; ‘Wuhan University of Technology; ‘Karlsruhe Institut of Technology; ‘Karlsruhe Institute of Technology; ‘University of California Davis

9:10 AM Plenary
High Temperature Solutions through Materials and Processes for Engines under Heavy Thermal Fatigue Conditions: Salvador Valtierra; ‘Nemak

9:50 AM Break
Pan American Materials Congress: Advanced Biomaterials — Bioinspired, Drug Delivery and Biomimetic Materials
Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Wednesday AM  Room: Mission Hills
March 1, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ); Po-Yu Chen, National Tsing Hua University

10:10 AM Invited
Bioinspired Phase Transforming Cellular Materials: Pablo Zavattieri1; David Restrepo1; Yunlan Zhang2; Nilesh Mankame1; ‘Purdue University; ‘General Motors Research & Development

10:40 AM
An Approach to Study Materials-structure Relationships in Bio-inspired Microstructures: Alejandro Gutierrez1; Lilian Davila1; ‘University of California, Merced

11:00 AM
Heparin-based Self-assemblies for Controllable Drug Delivery Application: Lin Ye2; ‘Beijing Institute of Technology

11:20 AM
Synthesis and Characterization of Bioinspired Freeze-Cast Alumina With A Zr-Based Bulk Metallic Glass Matrix: Amy Wat1; Jein Lee2; Bernd Gludovatz2; Eun Soo Park2; Robert Ritchie1; ‘University of California, Berkeley; ‘Seoul National University; ‘Lawrence Berkeley National Laboratory

11:40 AM
Analysis of Biomimetic Surgical Clip Using Finite Element Modeling for Geometry Improvement and Biomaterials Selection: Thays Brito1; Bianca dos Santos1; Leonardo Araújo1; Luiz de Almeida1; Marysílvia da Costa1; ‘Universidade Federal do Rio de Janeiro

12:00 PM Invited
Multiscale Bio-inspired Design of Nanocomposites: Horacio Espinoza1; ‘Northwestern University

12:20 PM
Pangolin Armor: Overlapping, Structure, and Mechanical Properties of the Keratinous scales: Wen Yang1; Bin Wang2; Vincent Sherman3; Marc Meyers1; ‘Swiss Federal Institute of Technology in Zurich (ETHZ); ‘University of California, San Diego

12:40 PM
On the Strain Rate Sensitivity of Keratin Hair Fibers: Yang Ye1; Wen Yang2; Marc Meyers1; ‘University of California, San Diego

Pan American Materials Congress: Advanced Manufacturing — Polymer, Composites, and Metals
Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Holza, UFSC

Wednesday AM  Room: Marina D
March 1, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

10:10 AM Comparative Mechanical Analysis between Epoxy Composite Reinforced with Random Short Cuara Fibers and Aligned Long Cuara Fibers: Natália Maciel1; Carolina Ribeiro1; Jordana Ferreira1; Janaina Vieira1; Frederico Margem1; Carlos Mauricio Vieira1; Sérgio Monteiro1; ‘UENF

10:30 AM Comparative Tensile Strength between Composites in Polyester Matrix Reinforced with Malva Natural Fabric and Blanket of the Malva and Jute Fibers: Carolina Ribeiro1; Frederico Muylaert2; Jean Igor Margem2; Sergio Monteiro2; Ygor de Moraes2; João Batista Gomes2; ‘State University of the Northern Rio de Janeiro; ‘Faculdade Redentor; ‘ISECENSA; ‘Instituto Militar de Engenharia

10:50 AM Damage Evaluation of Impact by Low-speed on Fiberglass Composite with Laminates Aluminum 2024-T3: Eduardo Jose Trujillo1; ‘Centro de Ingenieria y Desarrollo Industrial

11:10 AM Numerical Modeling of High-Velocity Impact Welding: Ali Nassiri1; Shunyi Zhang2; Tim Abke3; Brad Kinsey2; Glenn Daehn1; ‘The Ohio State University; ‘University of New Hampshire; ‘Honda R&D, North America

11:30 AM Reducing Radiation Exposure to the Rectum during Prostate Cancer Radiation Therapy using NITi Shape Memory Alloy: Hossein Lavafi1; Ayush Tiwari2; Ahmadreza Jahadakbar2; Mahbod Pourriahi2; Mohammad Elahinia2; Vijaya Devabhaktuni2; E. Ishmael Farsai2; ‘University of Toledo Medical Center; ‘University of Toledo; ‘University of Toledo Medical Center

11:50 AM Invited
Selective Laser Sintering of Polyamide/Hydroxyapatite Scaffolds: Frederic Dabbas1; Stefferson Stares1; Jose Masccheroni2; Dachamir Hotza1; Gean Salmoria1; ‘UFSC; ‘Alkimat

Pan American Materials Congress: Materials for Green Energy — Battery Technologies for Green Energy
Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoening, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Wednesday AM  Room: Marina G
March 1, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

10:10 AM Cathode Design and Pathway Investigation of Processing TiS2/Si Alloy by Electro-reduction of Mixed Oxide SiO2 and TiO2 in CaCl2 Melt: Shulan Wang1; Xuan Liu2; Li Li2; ‘Northeastern University; ‘Carnegie mellon university; ‘Cornell University

10:30 AM A Novel Air Electrode Using Core-Shell Particles for Metal Hydride/Air Rechargeable Battery: Hideyuki Sano1; Masatsugu Morimitsu1; ‘Doshisha University

10:50 AM Effect of Mo6+ Substitution on Microstructure and Lithium Ionic Conductivity of Garnet-Type Li7La3Zr2O12 Solid Electrolytes by Field Assisted Sintering Technology: Fei Chen1; Junyang Li1; Yanhua Zhang1; Dunjie Yang3; Qiang Shen1; Linmeng Zhang1; ‘Wuhan University of Technology

11:10 AM Development of Air Electrodes Using Different Types of Carbon Materials for Metal Hydride/Air Secondary Battery: Yusuke Ujino1; Masatsugu Morimitsu1; ‘Doshisha University

11:30 AM Study of the Influence on the Thermodynamic Properties of Replacing V by Zr in Alloys for Hydrogen Storage: Daniela Bellon Monsalve1; ‘Universidad de Santander

11:50 AM Cycle Performance of Air Electrode and Metal Hydride/Air Secondary Battery: Tsukasa Gejo1; Kenji Kawaguchi1; Masatsugu Morimitsu1; ‘Doshisha University
Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Microstructure Evolution

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Wednesday AM  Room: Marina F  Location: Marriott Marquis Hotel & Marina

Session Chairs: Shima Sabbaghianrad, University of Southern California; Laszlo Toth, Universidad de Lorraine

10:10 AM  Quantitative Modeling of Grain Fragmentation during Severe Plastic Deformation Featuring Grain Size Distribution, Texture, Strain Hardening, and Disorientation Distribution: Laszlo Toth1; 2Université de Lorraine

10:30 AM  Continuous Dynamic Recovery in Pure Aluminum Deformed to High Strain by Accumulative Press Bonding: Sajjad Amirkhanlou1; Mostafa Kabetachi2; Nader Parvin3; Fernando Carreño4; 1Brunel University London; 2Amirkabir University of Technology; 3Amirkabir University of Technology; 4CENIM-CSIC

10:50 AM  Static Recrystallization and Grain Growth of Accumulative Roll Bonded Aluminium Laminates: Laura Lienshoef1; Paul Chekhonin1; Juliane Scharnwebere; Tom Marr2; Tina Hausöl2; Heinz Werner Hoeppel2; Werner Skrotzki2; 1TU Dresden; 2IFW Dresden; 3Universität Erlangen-Nürnberg

11:10 AM  Evaluation of the Hardening and Softening Effects in Zn-21Al-2Cu with As Cast and Homogenized Microstructure Processed by Equal Channel Angular Pressing: Esperanza Elizabeth Martinez Flores1; Jose Luis Hernandez Rivera1; Jorge Garcia Roche1; Jose de Jesus Cruz Rivera1; Gabriel Torres Villaseñor1; 1Instituto de Metalurgia-Universidad Autonoma de San Luis Potosí; 2Instituto de Investigaciones en Materiales-Universidad Nacional Autonoma de México

11:30 AM  Microstructure Evolution of Ti-6Al-7Nb with Different Initial Microstructures Processed by High-Pressure Torsion: Jorge Cabrero-Seisin1; Joaquin Gonzalez-Hernández2; Elena Ulate-Kolinsky3; Stephen Petretti3; Luis Rojas-Morales4; José Vega-Baudrit5; Zenji Horita1; 1Instituto Tecnológico de Costa Rica; 2Laboratorio Nacional de Nanotecnología (LANOTEC-CeNAT); 3Kyushu University / I2CNER

11:50 AM  Limit of Grain Refinement after Processing by a Combination of Severe Plastic Deformation Techniques: Shima Sabbaghianrad1; Seyed Alireza Torbati-Sarraf1; Terence Langdon1; 1University of Southern California

12:10 PM  Influence of SPD in Phase Transformation of Duplex Steels: Núria Llorca-Isern1; Isabel Lopez1; Jose Maria Cabrera2; Mohan Chand3; Irene Calliari4; Antoni Roca5; 1Universitat de Barcelona; 2Universitat Politècnica de Catalunya; 3Università degli Studi di Padova

Pan American Materials Congress: Steels — Thermomechanical Processing and Properties

Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - Universidade Federal Fluminense

Wednesday AM  Room: Marina E  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

10:10 AM  Invited
New Challenges in Thermomechanical Processing: Applications in the Cold Mill: Yu Gong1; M. Hua2; J. Uusitalo3; Anthony DeArdo4; 1University of Pittsburgh; 2University of Oulu

10:40 AM  Microstructural Evolution in Microalloyed Steels during Thermomechanical Rod Rolling: Lijia Zhao1; Robert Cryderman2; John Speer3; 1Colorado School of Mines

11:00 AM  Modeling Precipitation and Dissolution of Microalloying Carbonitrides in Steels Using Computational Thermodynamics- techniques, Possibilities and Present Challenges: Andre Costa E Silva1; 2EEIMVR - Universidade Federal Fluminense - IBQN

11:20 AM  Evolution of Austenite Dislocation Density during Hot Deformation using a Physical Dynamic Recrystallization Model: Peng Zhou1; Qinxian Ma1; 1Tsinghua University

11:40 AM  The Research on the Relationship between Gas Movement Behaviors and Circulating Flow of the Molten Steel in RH: Jialiang Xu1; Yanping Bao1; Lihua Zhao1; Min Wang1; Lu Lin1; Yadi Li1; Xingle Fan1; 1University of Science and Technology Beijing

12:00 PM  Influence of a Rapid Heating on the Microstructure and Properties of Press-hardening Steel Sheets: Anatolii Andreiev1; Mirko Schaper1; Olexandr Grydin1; 1Paderborn University

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Electrochemistry & Pb-free Soldering

Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Cheng University; Jae-Ho Lee, Hongik University; Ikuo Ohnuma, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Kathariner Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Wednesday AM  Room: 25A  Location: San Diego Convention Center

Session Chairs: Shien Ping Tony Feng, The University of Hong Kong; Jae-Ho Lee, Hongik University

8:30 AM  Effects of Pretreatments on the Adhesion of Cu/Non-conductive Substrates in Electroless Copper Plating: Ju-Seok Kang1; Jinuk Lee1; Hyun-Woo Kwon2; Jae-Ho Lee1; 1Hongik University; 2Samsung Electro-Mechanics

8:50 AM  Etching Behaviors of Copper and Invar in via Hole of Copper-Invar-Copper Clad Substrate: Jong-Chan Choi1; Jinuk Lee1; Hyun-Woo Kwon2; Jae-Ho Lee1; 1Hongik University; 2Samsung Electro-Mechanics
9:00 AM
Nanosecond-scale Dynamic TEM: Yen-Hao Chen; Cheng-Yi Liu; National Central University

9:30 AM
Interfacial Characterizations of an Electroless Nickel Layer on a Polyimide Film: Pei-Yu Wu; Chih-Ming Chen; National Chung Hsing University

9:50 AM
Ethylenediamine Improves Layer-by-layer Growth of Cu Prepared on Cobalt-based Substrate via Electrochemical Atomic Layer Deposition: Jia-Ling Wu; Juih-Yan Wong; Jau-Shiang Fang; National Formosa University

10:10 AM Break

10:25 AM
Strong Effect of Cu Electroplating Formulas on the Electroplated-Cu/Sn Interfacial Reactions: Hsuan Lee; Chih-Ming Chen; National Chung Hsing University

10:45 AM
Electrochemical Fabrication of Functional Ag Nanocrystals with Highly Electrocatalytic Activity: Shien Ping Feng; Ya-Heui Chang; Chang Liu; The University of Hong Kong

11:05 AM
Controlling Interfacial IMC Phase via Modifying Bi Composition in Low Temperature Bi-33Sn/Cu Solder Joint: Rui-Wen Song; Jenq-Gong Duh; National Tsing Hua University

11:25 AM
High-speed Cu Electrodeposition and Its Solid-state Reaction with Sn-3Ag-0.5Cu: Pei-Yu Lee; Ying-Su-Yuan Wu; Cheng-Hsien Yang; Hung-Cheng Liu; Cheng-En Ho; Yuan Ze University; Kinsus Interconnect Technology Corp.

11:45 AM
Crystallization Kinetics of Amorphous Chalcogenide-based Phase Change Materials and Elemental Semiconductors and Studied with Multi-frame, Nanosecond-scale Dynamic TEM: Mark Winseeck; Hui-Yu Cheng; Geoffrey Campbell; Melissa Santala; Oregon State University; Macronix International Co., Ltd.; Lawrence Livermore National Laboratory

Phase Transformations and Microstructural Evolution — Shape Memory Alloys, and General
Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

Wednesday AM, March 1, 2017
Room: 16B Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM
Phase Transformations in NiTi Alloys under Biaxial Stress: Efthymios Polatidis; Wei-Neng Hsu; Steven Van Petegem; Helena Van Swygenhoven; Paul Scherrer Institute; Paul Scherrer Institute & EPFL

8:50 AM
The Effect of the Heat Treatment Temperature on the Thermodynamic Properties of the 55.89wt%Ni-Ti Shape Memory Alloy: Ben Fray Boutheina; Zoubir TOUKRI; Mechanical Laboratory of Sousse

9:10 AM
Revealing Transformation and Deformation Mechanisms in NiTi-based High Temperature Shape Memory Alloys through Microstructural Investigations: Lee Casalena; Fan Yang; Daniel Coughlin; Glen Bigelow; Darrell Gaydosh; Santo Padula; Othmane Benanfa; Ronald Noebe; Peter Anderson; Yunzi Wang; Michael Mills; The Ohio State University; Los Alamos National Laboratory; NASA Glenn Research Center

9:30 AM
Microstructural Effects on Stress-Induced Martensite in NCAXB Alloys: Cheng Zhang; Kenneth Vecchio; Department of NanoEngineering and Materials Science and Engineering Program, University of California, San Diego

9:50 AM
Role of Granular Constraint and Surface Effects on the Phase Transformation Mechanisms in Shape Memory Alloys: Harshad Paranjape; Partha Paul; Hemant Sharma; Jun-sang Park; Peter Kenesei; Catherine Brinson; Aaron Stebner; Colorado School of Mines; Northwestern University; Argonne National Laboratory

10:10 AM Break

10:30 AM Invited
Characterization of Microstructural Evolution in a High Entropy Alloy with a Complex Nanoscale Microstructure: Jacob Jensen; John Sosa; Dan Huber; Gopal Viswanathan; Robert William; Hamish Fraser; The Ohio State University

10:50 AM
Tailoring the Microstructure of Intermetallic Films by Seed Layer Mediated Crystallization from an Amorphous Phase: Rohit Sarkar; Jagannathan Rajagopalan; Arizona State University

11:10 AM
Unraveling the Growth Process of an Irregular Eutectic: Ashwin Shahani; Xianghui Xiao; Peter Voorhees; Northwestern University; Argonne National Laboratory

11:30 AM
A Combinatorial Assessment of Al$_x$Cr$_{2-x}$CuFe$_{3}$Ni$_{2}$ $(0<x<1.5)$ High Entropy Alloys: Microstructure, Microhardness, and Magnetic Properties: Tushar Borkar; Bharat Gwalani; Deep Choudhuri; Calvin Mikler; Chris Yannetta; Xi Chen; Raju Ramanujan; Mark Styles; Mark Gibson; Rajarshi Banerjee; Cleveland State University; University of North Texas; Nanyang Technological University; CSIRO Manufacturing

11:50 AM
Isothermal Demagnetizing Behavior around Martensite-glass Boundary as 4D Material Candidate: Zhijuan Zhou; Xi’an Jiaotong University

The John Cahn Memorial Symposium — Session I
Program Organizers: James Warren, National Institute of Standards and Technology; W. Craig Carter, MIT; Carol Handwerker, Purdue University; Y. Mishin, George Mason University

Wednesday AM, March 1, 2017
Room: 22 Location: San Diego Convention Center
Session Chairs: James Warren, National Institute of Standards and Technology; W. Craig Carter, MIT

8:30 AM Introductory Comments <br>
James A. Warren, chair

8:40 AM Invited
Dislocations, Trijunctions and Grain Rotation: Kevin McReynolds; Akinori Yamanaaka; Peter Voorhees; Northwestern University; Tokyo University of Agriculture and Technology

9:10 AM Invited
A DSC Model for Grain Boundary Migration and Properties: David Srolovitz; Jian Han; Spencer Thomas; Vaclav Vitek; University of Pennsylvania

9:40 AM Invited
Thin Film Grain Growth for Twin Related Orientations of Grains: John Blendell; Jean Taylor; John Cahn; R. Edwin Garcia; Daniel Lewis; Purdue University; Professor Emerita at Rutgers University and Visiting Faculty at Courant Institute, NYU; NIST and University of Washington

10:10 AM Break

10:30 AM Invited
Experimental Measures of Stress-coupled Boundary Migration and the Attendant Mechanical Behavior of Nanocrystalline Films: Paul Rottmann; Suman Dasgupta; Kevin Henker; Johns Hopkins University
**2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Low Dimensional Nanomaterials**

**Program Organizers:** Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

**Session Chairs:** Nitin Chopra, University of Alabama; Jiyoung Kim, University of Texas at Dallas

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**2:00 PM Invited**

**Ultrathin Organic-inorganic Hybrid Dielectric Engineering on 2D MoS2 Using Molecular Atomic Layer Deposition:** Lanxia Cheng; Jaebeom Lee; Hui Zhu; Arul Vigneswar Ravichandran; QiaoXiao Wang; Zifan Che; Antonio Lucero; Moon Kim; Robert Wallace; Luigi Colombo; Jiyoung Kim; University of Texas Dallas; Texas Instruments

**2:30 PM**

**Effect of Substrate-film Interface in Mid-IR Photothermal Response of PLD Grown MoS<2>:** Ankur Goswami; Soupitak Pal; University of California Santa Barbara

**2:50 PM**

**Scanning Photocurrent Microscopy of Epitaxial Graphene Heterostructures:** Bobby Barker; Venkata Surya Chava; MVS Chandrashhekhar; Andrew Gretyak; University of South Carolina

**3:10 PM**

**Microwave Imaging of Plasma Etched CVD Graphene Using Scanning Microwave Microscope:** Kathleen Brockdorf; Joshua Myers; Zhongbang Ji; Hong Huang; Nick Engel; Yan Zhuang; Wright State University

**3:30 PM**

**Carbon Nanotube Coated Conductors:** Terry Holesinger; Los Alamos National Laboratory

**3:50 PM Break**

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**4:10 PM**

**Highly Aligned Electronic-type Purified Semiconducting Carbon Nanotube Array Field Effect Transistors with Current Density That Exceeds Silicon and Gallium Arsenide:** Gerald Brady; Austin Way; Yongho Joo; Katherine Jinkins; Harold Evensen; Padma Gopalan; Michael Arnold; University of Wisconsin-Madison; University of Wisconsin-Platteville

**4:30 PM**

**Synthesis of Pd Nanoparticles on Graphene Oxide Supports by X-ray Irradiation:** Dustin Clifford; Jessika Rojas; Carlos Castano; Virginia Commonwealth University

**4:50 PM**

**Synthesis and Interface Boundary Characteristics of Gold/Cobalt Janus Nanoparticles:** Kyungah Seo; Olivia Graeve; University of California, San Diego

**5:10 PM**

**On Effects of Geometric Nonlinearity and Mechanical Anisotropy in Strain-engineered Helical Nanoribbons:** Zi Chen; Shicheng Huang; Ian Trase; Lina Zhang; Nan Hu; Dartmouth College

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**5:30 PM**

**Electrochemical Actuation of Dealloyed Bulk Nanoporous Nickel:** Chuan Cheng; Jörg Weissmüller; Technische Universität Hamburg-Harburg; Technische Universität Hamburg-Harburg
Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Defects and Fatigue

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

**Wednesday PM**
**Room:** 7B  
**Location:** San Diego Convention Center

**Funding support provided by:** TMS: Additive Manufacturing Committee

**Session Chairs:** Kinga Unocic, Oak Ridge National Laboratory; Michael Kirka, Oak Ridge National Laboratory

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**8th International Symposium on High Temperature Metallurgical Processing — Ironmaking and Steelmaking**

**Program Organizers:** Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onur Ali Yuçel, ITU; P. Chris Pistoriou, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinlikilic, Atılım University

**March 1, 2017  Room:** 18  
**Location:** San Diego Convention Center

**Session Chairs:** Dean Gregurek, RHI AG; Guanghui Li, Central South University

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**1:00 PM**
**Introductory Comments**

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**2:00 PM**
**Evolution of Oxide and Sulfide Inclusions in the Ladle Furnace during Calcium Injection:** Seyed Yousef Tabatabaei Majd, Kenneth Coley, Gordon Irons, Stanley Sun; McMaster University; ArcelorMittal Dofasco

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**2:25 PM**
**Influence of Puhurstahl Heraeus Refining Process on Aluminum Consumption in Interstitial-Free Steel Smelting Process:** Zhaoyang Zhu, Yanping Bao, Chaojie Zhang; Lu Lin; Wei Xiao; University of Science and Technology Beijing

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**2:45 PM**
**Formation Mechanisms of Inclusions in Spring Steels:** Sha Lv, Zongxue Huang, Zan Yao, Xiaodong Ma, Geoff Wang, Zhouhua Jiang, Jin Zou; Baojun Zhao; The University of Queensland; Baosteel; Northeastern University

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**3:05 PM**
**Investigation of Coal Combustion Behaviors under the Oxygen Blast Furnace:** Zhenfeng Zhou, Yanju Zhu, Guang Wang, Jingsong Wang, Qingguo Yue; University of Science and Technology Beijing

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**3:25 PM**
**Inclusion Control with Ca Treatment to Improve Castability of a Low Carbon Al Killed Steel:** Stanley Sun, Steve Waterfall, Norbert Strob; Dongsheng Liao, Don Holdridge; ArcelorMittal Hamilton

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**3:45 PM Break**

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**4:05 PM**
**High Temperature Mineralization Mechanism of Granules during Iron Ore Sintering Process:** Wei Lv, Xiaohua Fan, Min Gao, Xiaoyin Chen; Zhiyuan Ji, Yang Zhou, Guojing Wang, Qiang Li; Central South University

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**4:25 PM**
**Investigation of High Chromium Steel on the Different Salt-bath Heat Treatment Conditions:** Cheng-Yi Chen, Fei-Yi Hung, Tuan-Sheng Liu, Li-Hui Chen; National Cheng Kung University

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**4:45 PM**
**Research on the Behavior of Sodium and Potassium in Iron Ore Concentrate Agglomeration Process:** Chen Liu, Guanghui Li, Yijia Dong, Yuanbo Zhang; Tao Jiang; Central South University, School of Minerals Processing and Bioengineering

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**5:05 PM**
**Reduction Behaviors of Sinter Made from Magnetite Concentrates in Reducing Process Simulated COREX Shaft Furnace:** Benjing Shi, Deqing Zhu, Jian Pan, Xuxiao Xue; Central South University

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**5:30 PM**
**Investigating Strain Localization in DMLS Ti-6Al-4V Using CPFE Modeling and DIC:** Kartik Kapoor, Todd Book; Michael Sangid, Purdue University

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**5:10 PM**
**Mechanical Properties of SS316L Manufactured by Laser Powder Bed Additive Manufacturing:** Hakan Brodin, Siemens Industrial Turbomachinery AB
Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Novel Techniques

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

Wednesday PM  Room: 7A
March 1, 2017  Location: San Diego Convention Center

Session Chairs: Andrew Shapiro, Jet Propulsion Laboratory; Carolyn Seepersad, University of Texas - Austin

2:00 PM  Aerospace Applications for Additive Manufacturing: Andrew Shapiro1; John Paul Borgonia1; Nataly Chen1; R. Peter Dillon1; Bryan McEnerny1; Raul Polit-Casillas1; Lewis Soloway1; 1Jet Propulsion Laboratory, California Institute of Technology

2:20 PM  Additive Friction Stir: A New Additive Manufacturing Technology for Metallic Structural Materials Including Ti64: Jianqing Su1; Nanci Hardwick1; 1Aeroprobe Corporation

2:40 PM  Nanomechanical and EBSD Characterization of Additive Manufactured Mg Alloys: Paul Allison1; Oscar Rivera1; Wilburn Whittington1; Brian Jordon1; Jianqing Su1; Nanci Hardwick1; 1University of Alabama; 2Mississippi State University - Center for Advanced Vehicular Systems; 3Aeroprobe Corporation

3:00 PM  Scaling Relationships for Direct Ink Writing with Acoustic Focusing: Leanne Friedrich1; Rachel Collino1; Tyler Ray1; Matthew Begley1; 1University of California Santa Barbara

3:20 PM  Break

3:40 PM  Statistical Design Guidelines for Powder Bed Fusion: Carolyn Seepersad1; Jared Allison1; Conner Sharpe1; Steven Kubiak1; 1University of Texas at Austin; 2Stratasys Direct Manufacturing

4:10 PM  Characterization of Additive Manufactured IN718 Using Ultrasonic Measurements: Paul Panetta1; Hualong Du1; Waled Hassan1; 1Applied Research Associates, Inc.; 2Rolls-Royce Corporation

4:30 PM  Control of Deposition Interface Quality in Additive Manufacturing: Cameron Knapp1; John Carpenter1; Desiderio Kovar2; 1Los Alamos National Laboratory; 2University of Texas at Austin

4:50 PM  Matrix Grain Refinement in Functionally Graded Ti-6Al-4V/TiB Composite Fabricated by LENS Additive Manufacture: Denver Seely1; Hongjoo Rhee1; Mark Horstemeyer1; 1Mississippi State University/Center for Advanced Vehicular Systems

5:10 PM  A Highly Fracture and Fatigue Resistant Optimized As-deposited EBM Ti-6Al-4V: Mohsen Seifi1; Jesse Boyer2; William Brindley3; John Lewandowski1; 1Case Western Reserve University; 2Pratt & Whitney

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session VI

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

Wednesday PM  Room: 33C
March 1, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM  Invited
Atomic-scale Characterization of Boron Carbide with Advanced TEM and Atom Probe Techniques: Kelvin Xie1; Paul Rottmann2; Luoning Ma1; Kevin Hemker2; 1Johns Hopkins University; 2Johns Hopkins University

2:20 PM  Characterization of the Mechanistic Responses of Three Silicon Carbide Variants to Knomp Indentation by TEM: Scott Walck1; Samuel Hirsch1; Kristopher Behler1; Jerry LaSalvia1; 1U.S. Army Research Laboratory

2:40 PM  Measuring Residual Stresses in Boron Carbide in TEM: Luoning Ma1; Paul Rottmann2; Kelvin Xie1; Kevin Hemker2; 1Johns Hopkins University

3:00 PM  Investigating the On-set of Amorphization in Single Crystal Boron Carbide: Jonathan Ligda1; Jeffrey Lloyd1; Brian Schuster1; 1Army Research Laboratory

3:20 PM  Break

3:40 PM  3D Dislocation Structure Evolution Underneath Indentations in Single Crystalline: Karsten Durst1; 1Technical University Darmstadt

4:00 PM  Effect of Indentation Load on Deformation Mechanisms in Boron Carbide: Jerry LaSalvia1; Scott Walck1; Kristopher Behler1; 1U.S. Army Research Laboratory

4:20 PM  From Micro-Cantilever Testing to Deformation Patterning in Hexagonal Polycrystals: Jicheng Gong1; Rajesh Korla2; Mitchell Cuddihy1; T Ben Britton1; Fionn Dunne1; Angus Wilkinson1; 1University of Oxford; 2Indian Institute of Technology - Hyderabad; 3Imperial College London

4:40 PM  Influence of Elastic Anisotropy and Local Texture on the Onset of Plastic Slip in Ti-6Al-4V: Samuel Hemeny1; Patrick Villechaise2; Loïc Signor2; 1ENSMA; 2CNRS

5:00 PM  Modeling the Evolution of Slip System Strength in a–Phase Ti-7Al Using High-Energy Diffraction Microscopy Data: Darren Payan1; Nathan Barton1; Paul Shade2; Joel Bernier1; 1Lawrence Livermore National Laboratory; 2Air Force Research Laboratory
Advanced High-Strength Steels — Microstructure Property Relationship

Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines ; Young-Kook Lee, Yonsei University; Matthias Militzer, The University of British Columbia

Wednesday PM Room: 17A Location: San Diego Convention Center

Session Chairs: Cem Tasan, MIT; Matous Mrovec, ICAMS - Ruhr University Bochum

2:00 PM Invited
Influence of the Initial Microstructure on the Reverse Transformation Kinetics and Microstructural Evolution in TRIP-assisted Steel: Jeong In Kim1; Joo Hyun Ryu2; Sea Woong Lee3; Kyooyoung Lee4; Dong Woo Suh4; 1Pohang University of Science and Technology; 2POSCO

2:30 PM
Micromechanical Modeling of the Tensile Behavior of Nanostructured Carbide-Free Bainitic Steels: Sébastien Allain1; Jean-Christophe Helf1; Jean-Philippe Chateau-Cornu1; Moukrame Dehna; 1Institut Jean Lamour; 2ArcelorMittal Maizières Research SA; 3Laboratoire Interdisciplinaire Carnot de Bourgogne

2:50 PM
Observation of Low Cycle Fatigue Dislocation Structures in a TWIP, TRIP and MBIB Steel, Using Electron Channelling Contrast Imaging (ECCI): Dayong An1; Stefan Zefferer1; 1Max-Planck-Institut für Eisenforschung GmbH

3:10 PM
The Mechanical Heterogeneity of Quenched and Tempered Lath Martensite as Evaluated by Bauschinger Tests: Chad Sinclair1; Guillaume Badinier1; Sébastien Allain1; Olivier Bouazzir4; Xavier Sauvage1; 1University of British Columbia; 2APERAM Stainless Steel Research; 3Institut Jean Lamour, Universite de Lorraine; 4Universite de Lorraine; 5Univeriste de Rouen

3:30 PM
Microstructural Evolution and Mechanical Behavior of Medium Mn Steels Intercritical Annealed from Different Starting Structure: Binhan Sun1; Fatch Fazeli2; Colin Scott2; Stephen Yue1; 1McGill University; 2CannelMATERALS, Natural Resources Canada

3:50 PM Break

4:10 PM
In-situ Synchrotron X-ray Diffraction Investigation on Strain Hardening Behavior of Fe-17Mn-1.5Al-0.3C Steel: Yan Ma1; Wenwen Song1; Wolfgang Bleck1; 1RWTH Aachen University

4:30 PM
Effect of Microstructure on Formability and Micro Fracture Mechanism in DP Steel for Automotive Outer Panel: Yeon-sang Ahn1; Sang-Ho Han1; In-Shik Suh1; John Speer1; 1POSCO Technical Research Laboratories; 2Colorado School of Mines

4:50 PM
High Speed Tensile Test with Infrared Thermography and Microstructural Analysis on a High Mn TWIP Steel: Sebastian Wesselmecking1; Harald Hofmann1; Thorsten Beier1; Thorsten Rössler1; Maximillian Nagel1; Klaus Unruh1; Wolfgang Bleck1; 1RWTH Aachen; 2ThyssenKrupp Steel Europe; 3Hoesch Hohenlimburg GmbH; 4Faurecia Autositze GmbH

5:10 PM
Microstructure and Mechanical Properties of a 0.2C-5Mn TRIP Steel after Continuous Intercritical Annealing: Wei Ding1; Yan Li1; 1Inner Mongolia University of Science and Technology

Advanced Materials for Energy Conversion and Storage — Functional Materials I


Wednesday PM Room: 15A Location: San Diego Convention Center

Session Chairs: Corinne E. Packard, CSM; Ritesh Sachan, ORNL

2:00 PM Invited
Pressure-induced Phase Transformation in Xenotime Rare-earth Orthophosphates: Corinne Packard1; 1Colorado School of Mines

2:25 PM
Starch Mediated Syntheses of Zinc Oxide and Hydrogenated Zinc Oxide (ZnO-H) Phases: Joshua Konne1; Bright Christopher1; 2Rivers State University of Sci. & Tech.

2:45 PM
Synthesis and Characterization of Spinel Copper Cobalt Oxide Catalyst for Oxygen Evolution Reaction(OER) in Anion Exchange Membrane Electrolyzer: Kyu Hwan Lee1; Sung Mook Choi1; Myung Je Jang1; Andreas Bund1; 1Korea Institute of Materials Science; 2Technische Universität Ilmenau

3:05 PM
Synthesis and Processing of NaSICON/Polymer Membranes: Shan-Ju Chiang1; Caihong Liu1; Leon Shaw1; 1Wanger Institute for Sustainable Energy Research / Illinois Institute of Technology

3:25 PM Break

3:45 PM Invited
Understanding the Disordered Structure in Energetic Ion Radiation Induced Fast Ion Conducting Nanofibers: Ritesh Sachan1; Yanwen Zhang1; Matthew Chisholm1; William Weber1; 1Oak Ridge National Laboratory; 2University of Tennessee

4:10 PM
Utilization of Silver Nanowires in Supercapacitors: Recep Yuskel1; Sahin Coskun1; Hasnu Unalan1; 1Middle East Technical University

4:30 PM Invited
Mapping the Kinetic Modes of Phase Transformation in Intercalation Compounds: Ming Tang1; Liang Hong1; Linsen Li1; Song Jin1; 1Rice University; 2MIT; 3University of Wisconsin-Madison

Aluminum Alloys, Processing and Characterization — Characterization

Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Wednesday PM Room: 4 Location: San Diego Convention Center

Session Chair: Tongguang Zhai, University of Kentucky

2:00 PM Introductory Comments

2:05 PM
Algorithm for Finding the Correlation between the Properties of Wrought Aluminum Alloys, the Chemical Composition and the Processing Parameters: Varadan Kevorkjian1; Branko Hmelak1; Peter Cvate1; Sara Hmelak1; Vukasin Dragojevic1; Uroš Kovacec1; Marina Jelen1; Darja Vošak1; 1Impol R in R d.o.o.; 2Alcad d.o.o.; 3Impol 2000 d.d.; 4Impol PCP d.o.o.; 5Impol LET d.o.o.; 6Impol FT d.o.o.

2:30 PM
Analysis of an Aluminum Alloy Containing Trace Elements: Christian Simensen1; Stefan Kubowicz1; Borge Holme1; Joachim Greff1; 1SINTEF
2:55 PM
Determination of Aluminum Oxide Thickness on the Annealed Surface of 8000 Series Aluminum Foil by Fourier Transform Infrared Spectroscopy: Onur Birbasar1; Ozlem Uçar1; Ayten MESE1; Durmus ÖZDEMİR1; Murat DÜNDAR1; 1Assan Alüminyum; 2İzmir Institute Of Technology

3:20 PM
Using Guard Bands to Accommodate Uncertainty in the Spark AES Analysis of Aluminum or Aluminum Alloys When Determining Compliance with Specified Composition Limits: John Witertz1; Denis Choquette2; Thomas Belliveau1; Rebecca Wyss1; Michael Ruschak1; Albert Wille1; Olivier Gabis1; John Sieber1; 1The Aluminum Association; 2Rio Tinto; 3Novelis; 4Alcoa, Inc.; 5Sapa Industrial Extrusions; 6Wagstaff Inc.; 7National Institute of Standards and Technology

3:45 PM Break

4:00 PM
Laser Marking and 3D Imaging of Aluminum Products: Alex Fraser1; Michail Dallaire1; Martin Hartl6b1; Laserax Inc.; 6Viami International Inc.

4:25 PM
Production and Certification of Arconic Certified Reference Materials: Jence Jacobs1; Michael Ruschak1; John Genna2; Keith Trichan1; Louis Bono1; Samantha Stephens1; 1Arconico Spectrochemical Reference Materials; 2Alcoa Spectrochemical Standards

4:50 PM
Characterization of Large Strain Extrusion Machining (LSEM) of AA7050: Daniel Klenosky1; David Johnson1; Srinivasan Chandrasekar1; Kevin Trumble1; 1Purdue University

Aluminum Reduction Technology — Modelling and Cell Design, Potroom Operations
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Wednesday PM  Room: 2  Location: San Diego Convention Center

Session Chairs: Marc Dupuis, GeniSim; Olivier Martin, Rio Tinto

2:00 PM Introductory Comments

2:05 PM
Improving the Understanding of Busbar Design and Cell MHD Performance: Alexander Arkhipov1; Abdalla Zarouni1; Amal Al Jasmi1; Vinko Potocnik1; 1Emirates Global Aluminium (EGA)

2:30 PM
MHD of Large Scale Liquid Metal Batteries: Valdis Bojarevics1; Andrejs Tucis1; 1University of Greenwich

2:55 PM
Low Energy Consumption Cell Designs Involving Copper Inserts and an Innovative Busbar Network Layout: Marc Dupuis1; 1GeniSim Inc

3:20 PM
LES Turbulence Modeling Approach for Molten Aluminium and Electrolyte Flow in Aluminium Electrolysis Cell: Moumita Baiche1; Seyed Mohammad Taghavi1; Donald Ziegler1; Mario Fafard1; 1Aluminium Research Center REGAL, University Laval; 2Alcoa Primary Metals, Alcoa Technical Center

3:45 PM Break

4:00 PM
Surviving an Extended Power Outage after a Break Down in the Sub Station: Till Reek1; Roman Düssel1; 1TRIMET Aluminium SE

4:25 PM
Theory and Practice of High Temperature Gas Baking Technology for Aluminium Electrolysis Cells: Xudong Wang1; Chengbo Wu1; Yingwu Li1; Zhengzhou Jingwei Technology Industry Co., Ltd

4:50 PM
Retrofit of Damaged Corner Risers by Means of Bolted Connections: Andre Felipe Schneider1; Donald Ziegler2; Maxime Pouliot2; Daniel Richard2; Jason Robillard1; Jeremy Blais1; Olivier Charette1; Pouya Zangeneh1; 1HATCH Ltd.; 2Alcoa Primary Metals

Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Wednesday PM  Room: 15B  March 1, 2017  Location: San Diego Convention Center

Session Chair: Rauf Eric, University of the Witwatersrand

2:00 PM
Plasma Processing of Thin Films for Data Storage and Future Non-Volatile Memory: Subhadra Gupta1; 1University of Alabama

2:20 PM
Electro Plasma Technology- A Green Technology for Cleaning and Coating Metals: Pratheesh George1; 1CAP Technologies LLC

2:40 PM
PTA Cladding for Wear Application: Jack Zheng1; Robert Vasinko1; 1Kennametal

3:00 PM
Plasma Processing of Neodymium Oxide: Hunter Sceats1; Patrick Taylor2; 1Colorado School of Mines

3:20 PM Break

3:40 PM
Characterization and Feasibility Study of Thermoelectric CoSi; Jacob Young1; Ramana Reddy1; 1University of Alabama

4:00 PM
Production of SiMn-alloys by Natural Gas and Carbon Black: Xiang Li1; Merete Tangstad1; 1Norwegian University of Science and Technology (NTNU)

4:20 PM
Effect of Flux Ratio on the Products of Self Propagating High Temperature Synthesis-Casting in WO3-Si-Al System: Sutham Nyomwas1; Tawat Chanadee1; 1Prince of Songkla University

4:40 PM
Effects of Mg on the Microstructure and Mechanical Properties of EH36 Shipbuilding Steel: Xiaodong Zou1; Dapeng Zhao1; Cong Wang1; 1Northeastern University

5:00 PM
Synthesis of Chrysins Based Cationic Lipids: Plasmid Delivery and Transgene Expression: Bhavani Kedika1; Venkatagiri Noole1; Krishna Thotla1; Krishna Reddy Chepyala1; 1University of Concepcion; 2Osmania University

5:20 PM
Enhanced Reducing Sugar Yield by Combining Alkaline Solution and Ionic Liquid Pretreatment of Biomass: Samuel Kassaye1; Kamal Pant1; Sapna Jain2; 1Indian Institute of Technology Delhi; 2Alabama State University
Biological Materials Science — Functional Biological Materials
Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barthelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Wednesday PM Room: Pacific 15
March 1, 2017 Location: Marriott Marquis Hotel & Marina
Session Chairs: Po-Yu Chen, National Tsing Hua University; Michael Porter, Clemson University

2:00 PM Keynote
Bioinspired Adhesive Surfaces - Designs for Non-Smooth Counter Surfaces:
Eduard Arzt1; René Hensel1; 1INM - Leibniz Institute for New Materials; New Materials at Saarland University

2:40 PM
Exploring the Structural Diversity of Seahorse Tails: Nakul Ravi Kumar; Jack Harrison; Celine Neutens; Dominique Adriaens; Michael Porter; 1Clemson University; 2Ghent University

3:00 PM
Capturing the Geometry, Microstructure and Mechanical Properties of Marine Diatom Frustules Using Nanoscale Silica Structures: Shi Luo; Julia Green; 1California Institute of Technology

2:00 PM Invited
A Functional Natural Adhesive: The Feather Vane and Inspired Designs: Tarah Sullivan; Marc Meyers; 1UC San Diego

3:40 PM Break

4:00 PM Invited
Smart Biocoatings for Tunable Bioactivity at the Bio-Material Site: Canan Tamerlar; 1University of Kansas

4:30 PM
Biological Martensitic Phase Transformations in Bacterial Flagella and other Helical Protein Crystals: Ricardo Komai; Greg Olson; 1Northwestern University

4:50 PM
Mechanical Property and Humidity-triggered Reaction of the Cones of Liquidambar Formosana: Hsin-Juei Wang; Cheng-Che Tung; Chun-Lin Lin; Po-Yu Chen; 1National Tsing Hua University

5:10 PM
Empirically Testing Vaterite Structural Models Using Neutron Diffraction and Thermal Analysis: Bryan Chakoumakos; Brenda Prachell; Ryan Koenigs; Ronald Bruch; Mikhail Feygenson; 1Oak Ridge National Lab; 2Wisconsin Department of Natural Resources; 3Forschungszentrum Jülich

Bulk Metallic Glasses XIV — Structures and Characterization
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Wednesday PM Room: 33A
March 1, 2017 Location: San Diego Convention Center
Session Chairs: Paul Voyles, University of Wisconsin, Madison; Jörg Löffler, ETH Zurich

2:00 PM Invited
Nucleation and Metastable Phase Formation Studied via Calorimetry at Ultrafast Heating and Cooling Rates: Jörg Löffler; 1ETH Zurich

2:20 PM Invited
In-situ Synchrotron High-energy X-ray Diffraction Study of an Amorphous/Nanocrystalline NiTi Alloy during Recrystallization Process: Cun Yu; Bachir Aoun; Lishan Cui; Yinong Liu; Yang Ren; 1China University of Petroleum; 2Argonne National Laboratory; 3The University of Western Australia

2:40 PM Invited
Medium-range Structure and Glass-forming Ability of Metallic Glasses: Jason Maldonis; Pei Zhang; Paul Voyles; 1University of Wisconsin, Madison

3:00 PM Invited
The Early Stages of Shear Band Development: Gerhard Wilde; 1University of Muenster

3:20 PM
Combinatorial Assessment of Metallic Glasses Using High-throughput Characterization: Ryan Ot; Fanqiang Meng; Jie Geng; Matthew Besser; Matthew Kramer; 1Ames Laboratory (USDOE); 2Ames Laboratory (USDOE)

3:40 PM Break

4:00 PM Invited
Nanoscale Crystallization in Bulk Metallic Glasses and Its Implications on Glass-forming Ability: Dong Ma; Alexandru Stoica; 1ORNL

4:20 PM Invited
Entropy Contributions in Strong and Fragile Metallic Glasses: Hillary Smith; Andrew HoJ; Chen Li; Tabitha Swan-Wood; Fred Yang; Dennis Kim; Marios Demetriou; Brent Fulz; 1California Institute of Technology; 2University of California, Riverside; 3California State University, Channel Islands

4:40 PM
Atomic Dynamics in La-based Metallic Glasses by X-ray Photo Correlation Spectroscopy: Xiaodong Wang; Jin Zhang; Qing Yu; Qingping Cao; Jianzhong Jiang; 1Zhejiang University

5:00 PM Invited
Real-time Studies of the Evolution of Atomic Structures of Bulk Metallic Glasses: Wei Zhang; Jawei Mi; 1University of Hull

5:20 PM Invited
Tracing the Pathway of Metallic Liquids to Vitrification: Kostas Georgarakis; 1Cranfield University

Cast Shop Technology — Grain Refining and Solidification
Program Organizer: David Gildemeister, Alcoa Technical Center

Wednesday PM Room: 1A
March 1, 2017 Location: San Diego Convention Center
Session Chair: Stephen Instone, Hydro Aluminium Rolled Products GmbH

2:00 PM Introductory Comments

2:05 PM
Effect of Ultrasonic Processing on a Direct Chill Cast AA6082 Aluminium Alloy: Georges Saloum-Abou-Jaoude; Dmitry Eskin; Carla Barbatti; Philippe Jarry; Martin Jarrett; Zhongyun Fan; 1Brunel University London; 2Constellium

2:30 PM
Microstructure Control in A356 Al-Si Alloy via Ultrasonic Melt Treatment: Waleed Khalifa; Mahmoud Abdu; Maima Abdelrahman; Yoshiki Tsunekawa; 1Cairo University; 2Toyota Technological Institute

2:55 PM
Shear Induced Grain Refinement of a Continuously Cast Ingot: Samuel Wagstaff; Antoine Allanore; 1Massachusetts Institute of Technology

3:20 PM
Grain Refiner Settlement in the Launder System of Twin Roll Casting and Application of Electromagnetic Stirring: Onur Birbasar; Vedat Topaloglu; Murat Can Erdemir; Cemil Isiskaçan; Onur Meydanoglu; Mert Günyüz; Hatrice Mollaoglu Altuner; 1Assan Alüminyum

3:45 PM Break

4:00 PM
Thermal Analysis of Grain Refining in A319 Alloys: Waleed Khalifa; 1Cairo University
3:20 PM Effect of Bromide Ions on the Pitting Corrosion of Hafnium in Anhydrous T-butanol and Acetonitrile: Chang Hong Wang; Shenghai Yang; Yongming Chen; Xiyun Yang; Yanzeng Wu; Jing He; Chaobo Tang; Central South University

3:40 PM Computation of Carrier Radiative Lifetimes: Giulia Galli; University of Chicago

4:00 PM Invited Structure Prediction in Novel Energy Materials Design: Maximilian Amstler; Chris Wolverton; Northwestern University

4:30 PM Energy Landscape of Point Defects in Body-centered-cubic Metals: Mihai-Cosmin Marinica; DEN-Service de Recherches de Metallurgie Physique, CEA, Universite Paris-Saclay

4:50 PM Systematic Search for Lithium Ion Conducting Compounds by Screening of Compositions Combined with Atomistic Simulation: Daniel Mutter; Daniel Urban; Christian Elsaesser; FMF, University of Freiburg; Fraunhofer IWM Freiburg; Fraunhofer IWM, and FMF, University of Freiburg

Computational Materials Discovery and Optimization — From Bulk to Materials Interfaces and 2D Materials — Bulk Material Structures and Properties
Program Organizers: Richard Henning, University of Florida; Arunima Singh, National Institute of Standards and Technology, Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Wednesday PM Room: 11A
March 1, 2017 Location: San Diego Convention Center
Session Chair: Elif Ertekin, University of Illinois
Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions — Uncertainty Quantification in Density Functional Theory (DFT)

Program Organizers: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida; Li Ma, NIST; Shawn Coleman, ARL; Jeff Doak, QuesTek Innovations, LLC; Fadi Abdeljawad, Sandia National Laboratory

Wednesday PM  Room: 10
March 1, 2017  Location: San Diego Convention Center

Funding support provided by: TMS Chemistry and Physics of Materials Committee

Session Chairs: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida

2:00 PM Invited
Assessing Suitable Structural Models of Metal Oxides for Meaningful Predictions from Density Functional Theory: Sara Mason; 1 University of Iowa

2:35 PM
Automatized Convergence and Error Analyses for High Precision Density Functional Theory Calculations: Jan Janßen; 1 Tilman Hickel; 1 Joerg Neugebauer; 1 Max-Planck-Institut für Eisenforschung GmbH

2:55 PM Invited
Peierls Barrier in Ta-W Alloys: Estimating Aleatory Variability: Stephen Foiles; 1 Sandia National Laboratories

3:30 PM Break

3:50 PM Invited
Density Functionals and the Finite Temperature Properties of Ferroelectric Oxides: Valentino Cooper; 1 Oak Ridge National Laboratory

4:25 PM Invited
Quantifying Uncertainty from (Pseudo)potentials for First Principles and Classical Atomistic Simulations: Mark Tschopp; 1 Efrain Hernandez; 1 Shawn Coleman; 1 Decarlos Taylor; 1 Jennifer Synowczyk-Dunn; 1 Army Research Laboratory

5:00 PM
Validation and Uncertainty Assessment of Bond-order Potentials for Transition Metals: Matous Mrovec; 1 Thomas Hammerschmidt; 1 Yi-Shen Lin; 1 Vaclav Vitek; 1 Ralf Drautz; 1 ICAMS, Ruhr University Bochum, Germany; 2 Department of Materials Science and Engineering, University of Pennsylvania

Computational Thermodynamics and Kinetics — Microstructure Evolution II, Thermodynamics and Alloys II

Program Organizers: Niaz Abdolrahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

Wednesday PM  Room: 11B
March 1, 2017  Location: San Diego Convention Center

Session Chairs: Thien Duong, Texas A&M University; Mark Asta, UC Berkeley

2:00 PM Invited
First-Principles Calculations of Coherent Phase Equilibria and Short-Range-Order Hardening in the alpha-Ti-O System: David Olmsted; 1 Maarten de Jong; 1 Mark Asta; 1 University of California, Berkeley

2:30 PM
Microstructural Pattern Formation during Eutectoid Transformation in Fe-Mn-C Steels: Phase-field Simulations: Leslie Mushongera; 1 Kumar Ankit; 1 Britta Nestler; 1 Karlsruhe Institute of Technology

2:50 PM
Joint Formation and Microstructural Evolution in the Microbumps of Three Dimensional Integrated Circuits (3DICs): Vahid Attari; Raymundo Arroyave; 1 Texas A&M University

3:10 PM Invited
First-Principles Evaluation of Ti2AlC-Cr2AlC Pseudo-binary Phase Diagram: Thien Duong; 1 Anjana Talapatra; 1 Woongrak Son; 1 Huili Gao; 1 Miladin Radovic; 1 Raymundo Arroyave; 1 Texas A&M University

3:40 PM Break

4:00 PM
Atomic Scale Modeling of Fe-Al-Mn-C Alloy Using Pair Models and Monte-Carlo Calculations: Jérôme Dequeker; 1 Alexandre Legris; 1 Rémy Besson; 1 Ludovic Thuinet; 1 Université Lille 1

4:20 PM
Microstructure Evolution and Deformation Behavior of Powder Materials during Sintering: Sudipta Biswas; 1 Vikas Tomar; 1 Purdue University

4:40 PM
Kinetics of Phase Transformations using Quasi-Coarse-Grained Dynamics Simulations: Sumit Suresh; 1 Terrance O’Ragan; 1 Avinash Dongare; 1 University of Connecticut; 1 US Army Research Laboratory

5:00 PM
Kinetics Study of Thin Film Phase Transformation via Level-Set Method Simulation: Mahyar M. Moghadam; 1 Peter Voorhees; 1 Northwestern University

Defects and Properties of Cast Metals — Continuous and DC Casting

Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Wednesday PM  Room: 23A
March 1, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Introductory Comments

2:05 PM Keynote
Progress and Developments in DC Casting of Aluminium Alloys: Laurens Katgerman; 1 Delft University

2:25 PM Invited
The Influence of Mould Lubrication Index on Defect Formation during Continuous Casting of Steel: Pavel Ramirez Lopez; 1 Swerea MEFOS AB

2:45 PM
Thermal-Mechanical Model of Depression Formation in Steel Continuous Casting: Matthew Zappulla; 1 Brian Thomas; 1 University of Illinois at Urbana-Champaign

3:05 PM
Effect of Continuous Casting Processing Parameters on the Hot Ductility of Micro-alloyed Steels: Hossam Ibrahim; 1 Mohamed Soliman; 1 Heinz Palkowski; 1 Clausthal University of Technology

3:25 PM Break

3:45 PM
Evaluation of Hot Cracking Sensitivity Using Multiphase Field and FE Methods during Continuous Casting of Nb Microalloyed Gear Steels: Viktor Kripak; 1 Ulrich Prahil; 1 Wolfgang Bleck; 1 RWTH Aachen

4:05 PM
Study for the Initiation Locations of Longitudinal Surface Cracks on Beam Blank in the Mold of Continuous Casting: Wei Chen; 1 North China University of Science and Technology
Deriving Value from Challenging Waste Materials:
Recycling and Sustainability Joint Session — Deriving Value from Challenging Waste I

Program Organizers: John Howarter, Purdue University; Elsa Olivetti, Massachusetts Institute of Technology; Mingming Zhang, ArcelorMittal Global R&D; Randolph Kirchain, Massachusetts Institute of Technology; Henry Colorado, Universidad de Antioquia

Wednesday PM Room: 14B
March 1, 2017 Location: San Diego Convention Center

Session Chairs: Elsa Olivetti, MIT; Mingming Zhang, ArcelorMittal Global R&D

2:00 PM Maximizing the Values of Steelmaking Slags: Naiyang Ma; 1ArcelorMittal

2:20 PM Direct Preparation of Metal Doping Ni-Zn Ferrite from Zn-containing Electric Arc Furnace Dust by Calcination Method: Hui-gang Wang; 1Min Guo; Mei Zhang; 1University of Science and Technology Beijing

2:40 PM Separation and Comprehensive Utilization of Valuable Elements in Ti-bearing Electric Arc Furnace Molten Slag: Yang Li; 1Wuhan University of Science and Technology

3:00 PM Invited Recycling in the Real World — Challenges and Functional Approaches for the Recycling of Complex Products and Hazardous Materials: Mark Kennedy4; C. Landasa; P. Hellinckx5; 1Proval Partners, NTNU; 1Proval Partners

3:30 PM Break

3:50 PM Recovery of Iron From Red Mud By Magnetic Roasting and Direct Reduction: Zhenhong Liao; 1Changsha Research Institute of Mining and Metallurgy Co., Ltd

4:10 PM Recycling of Spent Pot Lining by Vacuum Distillation Process: Wang Yaowu; 1Northeastern University of China

Electrode Technology — Operation/Practice

Program Organizer: Houshang Alamdari, Laval University

Wednesday PM Room: 1B
March 1, 2017 Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Introductory Comments

2:05 PM Xelios 2.0: Return on Experience for the Advanced Eco-designed Vibrocompactor: Vincent Philippeau; 1Bastien Aymard; 1Fives Solios

2:30 PM Hexapod Fleet Migration in Order to Upgrade to AP40LE Technology: Jonathan Reichelson; 1Marc Gagnon; 1Hatch Ltd; 1Aluminerie Alouette inc.

2:55 PM The Impact of Increased Anode Size and Anode Creep on Anode Management: James Anson; René Trudel; Bertrand Vincent; 1Hatch; 1Alcoa, Deschambault Smelter

3:20 PM Anode Quality Improvement at INALUM Smelter: Edi Mugiono; Firman Ashad; Ade Buandra; Sahala Sijabat; 1PT Inalum (Persero)
Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Tin Whisker and Wettability

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

Wednesday PM Room: 30E Location: San Diego Convention Center

Session Chairs: Babak Arfaei, Binghamton University; Eric Cotts, Binghamton University

2:00 PM  Influences of Wettability and Volume of Sn-based Solder Alloys on Self-Alignment Accuracy: Hwan-Pil Park¹; Gwancheol Seo¹; Young-Ho Kim¹; ¹Hanyang University

2:20 PM  Role of Indium Doping on Whisker Mitigation in Electroplated Sn: Bhaskar Majumdar¹; Sherin Bhassyvasantha¹; ¹New Mexico Tech

2:40 PM  Impact of In Addition to Electroplated Sn in Mitigating Whisker Growth: Saurav Das Mahapatra¹; Bhaskar Majumdar¹; Indranath Dutta¹; ¹Washington State University; ¹New Mexico Tech

3:00 PM  Quantifying the Role of Stress in Whisker Nucleation and Growth: Eric Chason¹; Fei Pei¹; Justin Vasquez¹; Andrew Hint¹; ¹Brown University

3:20 PM  Break

3:40 PM  Sn Whisker Growth in Air HAST: Chulmin Oh¹; Wonsik Hong¹; ¹KETI

4:00 PM  Sn Film Microstructure on the Kinetics of Spontaneous Whisker Growth: Albert T. Wu¹; Hao Chen¹; Wen-Chih Lin¹; ¹National Central University

Energy Materials 2017: Materials for Coal-Based Power — Session III

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

Wednesday PM Room: 12 Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM  Invited
Developing a Crystal Plasticity Model for Nickel Based Turbine Alloys Based on the Discrete Element Method: Jamie Krazie; Agnieszka Truszkowska; Qin Yu²; Alex Greaney¹; Matthew Evans²; ¹UNSW Australia; ²Oregon State University; ¹University of California, Riverside

2:30 PM  Invited
Predicting Microstructure-Creep Resistance Correlation in High Temperature Alloys Over Multiple Time Scales: Vikas Tomar¹; ¹Purdue University

3:00 PM  Invited
The SMARTER Project — Science of Multicomponent Alloys: Roadmap for Theoretical and Experimental Research: M. Kramer¹; Pratik Ray¹; Duane Johnson¹; ¹Iowa State University

3:30 PM  Break

3:50 PM  Invited
Modeling Long-term Creep Performance for Welded Nickel-base Superalloy Structures for Power Generation Systems: Chen Shen¹; Monica Soare¹; Pengyang Zhao¹; Vipul Gupta¹; Shenyang Huang¹; Suzuki Akane¹; Yunzhi Wang¹; ¹GE Global Research

4:20 PM  Invited
Solid State Joining of Creep Strength Enhanced Ferritic Steels: Glenn Grant¹; Jens Darsell²; Arun Devaraj³; ³Pacific Northwest National Laboratory


Program Organizers: Raul Rebak, GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Hosemann, University of California Berkeley; Jian Li, CanmetMATERIALS

Wednesday PM Room: Miramar Location: Marriott Marquis Hotel & Marina

Session Chair: Jian Li, CanmetMATERIALS

2:00 PM  Invited
Fuel Cladding Materials for Supercritical Water Cooled Reactor: Wenyou Zheng¹; ¹Canmet Materials

2:40 PM  Development of the 12Cr2Mo1R Steel Plate for Metal Internal Equipment for Demonstration Project of High Temperature Gas-cooled Reactor: Hangqian Zhang¹; Huibin Liu¹; ¹Baoshan Iron & Steel Company

3:00 PM  EBSD and TEM Assessment of Deformation Localization in 718 Alloy: Aida Amroussia¹; Keith Leonard¹; Maxim Gussev¹; Jacqueline Stevens¹; ¹Michigan State University; ¹Oak Ridge National Laboratory; ¹AREVA Inc.

3:20 PM  Microstructure Evolution of a Reactor Pressure Vessel Steel during High-temperature Tempering: Chuanwei Li¹; Jianfeng Gu¹; Lizhan Han¹; Qingdong Liu¹; ¹Shanghai Jiao Tong University

3:40 PM  Break

4:00 PM  Effects of Fe Concentration on Ion-irradiation Induced Defect Evolution and Hardening in Ni-Fe Binary Alloys: Ke Jin¹; Wei Guo¹; Mohammad Ullah¹; Yanwen Zhang¹; William Weber¹; Jonathan Poplawsky¹; Hongbin Bei¹; ¹Materials Science & Technology Division, Oak Ridge National Laboratory; ²Center for Nanophase Materials Sciences, Oak Ridge National Laboratory; ³University of Tennessee

4:15 PM  Thermal Conductivity Reduction of Tungsten Plasma Facing Material Due to Helium Plasma and Cu²⁺ Ion Irradiation: Shuang Cui¹; Michael Simmonds¹; Joseph Barton¹; Yongqiang Wang²; Russ Doerner¹; George Tynan¹; Renkun Chen¹; ¹UCSD; ²LANL

4:35 PM  Impact of Neutron Irradiation on Helium Desorption Behavior in Iron: Xunxiang Hu¹; Kevin Field¹; David Woodley¹; Yutai Katoh¹; ¹ORNL; ²University of Michigan

4:55 PM  Size Effects in Ion-irradiated 800H Steel at High Temperatures Utilizing Nanoindentation and Microcompression Testing: Anya Prasithiphapong¹; Shradhha Vachhani¹; Scott Tumey¹; Peter Hosemann¹; Andrew Minor¹; ¹Department of Materials Science and Engineering, University of California, Berkeley; ²Hysitron, Inc.; ³Center of Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory; ⁴Department of Nuclear Engineering, University of California, Berkeley; ⁵Department of Materials Science and Engineering, University of California, Berkeley; National Center for Electron Microscopy, The Molecular Foundry, Lawrence Berkeley National Laboratory
Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session VI
Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Session Chair: To Be Announced

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speakers</th>
</tr>
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<tbody>
<tr>
<td>2:00 PM</td>
<td>Invited Development of Polymer-based Composite Coatings for the Gas Exploration Industry</td>
<td>Brajendra Mishra; Ali Chaudhry; Worcester Polytechnic Institute</td>
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<tr>
<td>2:30 PM</td>
<td>Where the Polymer Meets the Oilfield</td>
<td>Hailin Tu; Schlumberger</td>
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<tr>
<td>2:55 PM</td>
<td>Mineral Scale Fouling Under Boiling: Fundamentals to Mitigation</td>
<td>Susmita Dash; Leonid Rapoport; Navdeep Dhillon; Kripa Varanasi; Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>3:20 PM</td>
<td>Interfacial Engineering for Suppressing Mineral Scale Fouling</td>
<td>Samantha McBride; Susmita Dash; Sami Khan; Kripa Varanasi; Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>3:45 PM</td>
<td>Interfacial Engineering for Suppressing Mineral Scale Fouling</td>
<td>Samantha McBride; Susmita Dash; Sami Khan; Kripa Varanasi; Massachusetts Institute of Technology</td>
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<td>4:10 PM</td>
<td>Co-relation of Microstructural Features with Tensile and Toughness Character of X70 Grade Steel</td>
<td>Tushal Kyada; Raghu Shant Jonnalagadda; Rajesh K Goyal; Tribhuvan Singh Kathayat; Welspun Corp. Ltd</td>
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<tr>
<td>4:35 PM</td>
<td>Development and Applications of New Generation Ni-containing Cryogenic Steels in China</td>
<td>Zhen-yu Liu; Meng Wang; Jun Chen; Guo-dong Wang; Northeastern University</td>
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<tr>
<td>5:00 PM</td>
<td>Anisotropic Behaviors for X100 High Grade Pipeline Steel under Stress Constraints</td>
<td>Kun Yang; Ting Sha; Ming Yang; Chen Shang; Qiang Chi; Tube Goods Research Institute; The No.771 Institute of Ninth Academy of China Aerospace Science and Technology Corporation; Petrochina West Pipeline Company</td>
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<td>5:25 PM</td>
<td>Material Selection-Evaluation Testing and Challenge of the Aluminum Alloy Drill Pipe in China</td>
<td>Chun Feng; Caihong Lu; China National Petroleum Corporation</td>
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<tr>
<td>5:45 PM</td>
<td>Development of a Fluidized-Bed Ash Agglomeration Modeling Methodology to Include Particle-Level Heterogeneities in Ash Chemistry And Granular Physics</td>
<td>Aditi Khadikar; Peter Rozelle; Sarnia Pispatisi; Penn State University; US Department of Energy</td>
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<tr>
<td>6:00 PM</td>
<td>In-situ Microscopic Study of Morphology Changes in Natural Hematite and Cu-spinel Particles during Cyclic Redox Gas Exposures for Chemical Looping Applications</td>
<td>Anna Nakano; Jinchih Nakano; James Bennett; US Department of Energy National Energy Technology Laboratory/AECOM; US Department of Energy National Energy Technology Laboratory</td>
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<tr>
<td>6:15 PM</td>
<td>Thermodynamic Stability of Condensed Phases in the Ternary System CaO-Cu-O by the EMF Method</td>
<td>Joseph Hamayun; Pekka Taskinen; Dmitry Suhkholm; Mari Lundström; Aalto University School of Chemical Technology</td>
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Energy Technologies — Novel Technologies
Program Organizers: Lai Zhang, University of Alaska Fairbanks; Jaroslaw Drelich, Michigan Technological University; Neale Neeleemghem, Ind. LLC; Donna Guiller, Idaho National Laboratory; Navshad Haque, CSIRO; Jingxi Zhu, Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Abo Akademi University

Session Chair: Neale Neeleemghem, Ind LLC; Jingxi Zhu, Sun Yat-Sen University; Tao Wang, Nucor Steel

<table>
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<tr>
<th>Time</th>
<th>Title</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 PM</td>
<td>Invited Understanding Transuranic Binding Mechanisms and Speciation on Stainless Steel</td>
<td>Tim Kerry; Clint Sharrad; Andreas Geist; Dieter Schild; University of Manchester; Institute for Nuclear Waste Disposal</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>Development of a Fluidized-Bed Ash Agglomeration Modeling Methodology to Include Particle-Level Heterogeneities in Ash Chemistry And Granular Physics</td>
<td>Aditi Khadikar; Peter Rozelle; Sarnia Pispatisi; Penn State University; US Department of Energy</td>
</tr>
<tr>
<td>2:45 PM</td>
<td>Environmentally Assisted Cracking: Theory and Practice — Environmentally Assisted Embrittlement and Cracking II</td>
<td>James Burns, University of Virginia; Ilaksh Adlakha, Arizona State University</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>Effect of Composition, Temper, and Crack Orientation on the Stress Corrosion Cracking Behavior of Al-Mg Alloys</td>
<td>James Burns; Amber Lass; Michael McMurtrey; Matthew McMahon; Patrick Steiner; Sarah Falker; University of Virginia</td>
</tr>
<tr>
<td>3:30 PM</td>
<td>Effect of Mechanical Stresses on the Pitting Corrosion Behavior of an Al7075 Alloy</td>
<td>Scott Turnage; Ilaksh Adlakha; Amr Hasib; Sridhar Niverty; Nikhilshel Chawala; Kiran Solanki; Arizona State University</td>
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<tr>
<td>3:45 PM</td>
<td>The Effect of Mechanical Stresses on the Pitting Corrosion Behavior of an Al7075 Alloy</td>
<td>Scott Turnage; Ilaksh Adlakha; Amr Hasib; Sridhar Niverty; Nikhilshel Chawala; Kiran Solanki; Arizona State University</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>The Effect of Alloy Chemistry on Localized Corrosion of Austenitic Stainless Steels</td>
<td>David Sapio; Bryan Webler; Carnegie Mellon University</td>
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<tr>
<td>4:15 PM</td>
<td>The Effect of Alloy Chemistry on Localized Corrosion of Austenitic Stainless Steels</td>
<td>David Sapio; Bryan Webler; Carnegie Mellon University</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>Intergalvanic Hydrogen Embrittlement: Hydrogen Diffusion in Nickel Singles Crystals and Bi-crystals</td>
<td>Jiaqi Li; University of La Rochelle</td>
</tr>
</tbody>
</table>

PRELIMINARY TECHNICAL PROGRAM
Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Fatigue Behaviors of Engineering Alloys

Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Wednesday PM
Room: 23C
Location: San Diego Convention Center

Session Chair: Tongguang Zhai, University of Kentucky

2:00 PM Invited
Non-local Stored Energy and J-integral Methods for Microstructure-sensitive Crack Growth: Fionn Dunne; David Wilson; "Imperial College"

2:20 PM Invited
A Physically Based Law for S-N Fatigue Behavior of Metals: K. S. Ravi Chandran; "University of Utah"

2:40 PM
Fatigue Mediated Lattice Rotation in Alloys at Room Temperature: Ramasis Goswami; Syed Qadri; Chandra Pande; "Naval Research Laboratory"

3:00 PM Invited
Effects of Induced Surface Defects on Crack Initiation and Fatigue Strength for HCF and VHCF of a Structural Steel: Youshi Hong; Qingqing Jiang; Chengqi Sun; "LNM, Institute of Mechanics, Chinese Academy of Sciences"

3:20 PM
Strain Mapping and Mining to Quantify the Extent of Cyclic Damage and Transverse Necking in Thin Metallic Sheets: James Collins; Wade Lanning; Yoon Joob Na; Syed Javaid; Christopher Muhlstein; "Georgia Institute of Technology"

3:40 PM Break

4:00 PM
A Microstructure-Sensitive Fatigue Crack Growth Study Based on Experimental Measurements and Computational Modeling in Al-Si Cast Alloys: Tiantian Zhang; Anthony Spangenberger; Diana Lados; "Worcester Polytechnic Institute"

4:20 PM
Identifying Failure Locations in Nickel Based Superalloy R88DT under Cyclic Loadings, via Crystal Plasticity Simulations: Monica Soare; Shenyan Huang; Shakhrukh Ismonov; "GE Global Research"

4:40 PM
Grain Size Effects on Fatigue Crack Growth in Nanocrystalline NiTi: William LePage; Aslan Ahadi; Q.P. Sun; John Shaw; Samantha Daly; "University of Michigan; National Institute for Materials Science; The Hong Kong University of Science and Technology; University of California, Santa Barbara"

5:00 PM Break

5:00 PM Concluding Comments
Speaker: Prof. Ian Robertson / Bai Cui

2:00 PM Introductory Comments

2:05 PM Invited
Nanoscale Strain Mapping of Individual Defects during In Situ Deformation: Thomas Pekin; Colin Ophus; Christoph Gammer; Jim Ciston; Andrew Minor; "UC Berkeley & LBNL; LBNL; Erich Schmid Institute"

2:35 PM
Studying Plasticity during Fracture at the Micron Scale by Means of Cantilever Experiments in Single-crystalline NiAl and W — HR-EBSD Analyses and Elevated Temperature Measurements: Johannes Asl; Juri Wehrs; Johann Michler; Xavier Maeder; "EMPA"

2:55 PM
In Situ Stable Crack Growth at the Micron Scale: Giorgio Semicola; Tommaso Giovannini; Punit Patel; James Kermode; Daniel Balint; T Ben Britton; Fionn Giuliani; "Department of Materials, Imperial College; Department of Mechanical Engineering, Imperial College London; Warwick Centre for Predictive Modelling, University of Warwick"

3:15 PM Invited
In Situ Micron Scale Fracture Toughness Testing and Modeling of a Chevron Notched Bowie-shaped Beam: Fiona Yuwei Cui; Richard Vinci; "Lehigh University"

3:45 PM Break

4:05 PM Invited
Liquid Metal Embrittlement at the Micro-scale: Gallium FIB vs. Xenon FIB: Yuan Xiao; Jeffrey Wheeler; "ETH Zurich"

4:35 PM
In Situ SEM Observation and Shear Lag Analysis of Progressive Cracking in W-Cu Multilayer Coatings: León Romano Brandt; Tan Sui; Enrico Salvati; Eric Le Bourhis; Alexander Korsunsky; "University of Oxford; Université de Poitiers"

4:55 PM
Micro-Compression Testing of Mg-Nb Multilayered Nano-Composites for Ultra-High Strength, Formability and Ductility: Manish Jain; Marko Knezevic; Nathan Mara; Irene Beyerlein; Siddhartha Pathak; "University of Nevada Reno; University of New Hampshire; Los Alamos National Laboratory"

5:15 PM
High Temperature Mechanical Properties of Materials Synthesized from Graphene and Carbon Nanotubes: Sanjit Bhowmick; Chandra Tiwary; Syed Asif; Pulickel Ajayam; "Hysitron Inc.; Rice University"
Friction Stir Welding and Processing IX — Dissimilar Applications
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Wednesday PM  Room: 9  Location: San Diego Convention Center
Session Chairs: Yuri Hovanski, Brigham Young University; Guntram Wagner, University of Chemnitz, Germany

2:00 PM Invited
Joining Aluminum Alloys to High Strength Steels by Friction Spot Welding: Uceu Suhuddin1; Vanessa Fischer1; Jorge dos Santos1; Helmholz-Zentrum Geesthacht; Federal University Rio Grande do Sul

2:20 PM Invited
Joining Dissimilar Material Using Friction Stir Scribe Technique: Piyush Upadhyay1; Yuri Hovanski2; Leo Fiefield1; Blair Carlson1; Eric Boettcher1; Robert Ruokolainen1; Peter Busuttil1; Pacific Northwest National Laboratory; General Motors; Honda R & D Americas; FCA; Kuka Systems North America, LLC

2:40 PM
Influence of Stir Flow on Joint Quality during Friction Stir Lap Al-to-Cu Welding: Doddy Parningotan1; M. Tarrant2; Z.W. Chen3; A. Hilton2; T. Pasang1; Auckland University of Technology; National Aluminium Ltd

3:00 PM
Process Force Reduction during Robotic Friction Stir Welding of Aluminium Alloys with Reduced Tool Aspect Ratios: Anna Regensburg1; René Schürer1; Michael Grätzl1; Michael Hasiebert1; Jean Pierre Bergmann1; Technische Universität Ilmenau

3:20 PM
Intermetallic Phase Formation at Al-steel Solid-state Joints — A Comparison between FSW and VFAW Processes: Genevieve Lee1; Kaleb Ponder1; Ali Nassiri1; Bert Liu1; Glenn Dauch1; Antonio Ramirez2; The Ohio State University

3:40 PM Break

4:00 PM Invited
Avoiding Melting in Friction Stir Welds of Highly Dissimilar Melting Temperature Materials: Christian Widener1; Bharat Jasthi1; Todd Curtis1; MD. Shamsujooha2; South Dakota School of Mines and Technology; University of Massachusetts, Amherst

4:20 PM
Automated Optical Visualization of Materials Flow in Dissimilar Metal Friction Stir Welds: John Sosa1; Hamish Fraser1; Rajiv Mishra2; Satya Ganti2; Bryan Turner1; Brian Hayes1; Veeraraghavan Sundar1; The Ohio State University; University of North Texas; UES Inc.

4:40 PM
Realization of Ultrasonic Enhanced Friction Stir Welded (USE-FSW) Al/Mg- and Al/Steel-Joints: Process and Robustness, Mechanical and Corrosive Properties: Marco Thomae1; Guntram Wagner1; Benjamin Strass1; Bernd Wolter1; Sigrid Benfer1; Wolfram Fuerbeth1; University of Chemnitz; Fraunhofer Institute for Nondestructive Testing IZFP Saarbrücken; DECHHEMA-Forschungsinstitut

5:00 PM
A Numerical Simulation for Dissimilar Aluminium Alloys Joined by Friction Stir Welding: Carier Hamilton1; Mateusz Kopycianski2; Aleksandra Weglowska3; Stanislaw Dymek2; Adam Pietras2; Miami University; AGH University of Science and Technology; Institute of Welding

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

Wednesday PM  Room: 33B  Location: San Diego Convention Center
Session Chairs: Young-Ho Kim, Hanyang University; Sufian Abedrabbo, The Petroleum Institute

2:00 PM Introductory Comments

2:10 PM Invited
Harvesting Light from Silicon via Colloid-induced Stressed Interface Processed by Deposition of Sol-Gel-based Silica: Sufian Abedrabbo1; Anthony Fiory2; Nuggehalli Ravindra2; The Petroleum Institute; New Jersey Institute of Technology

2:40 PM Invited
Cold-Electron Transport at Room Temperature for Beyond CMOS Electronics: Seong Jin Koh1; University of Texas at Arlington

3:10 PM Invited
Reliability Issues of Lead (Pb)-free Solder Technology in Microelectronic Applications: Sung Kang1; IBM Corporation

3:40 PM Break

3:55 PM Invited
An Integrated Computational Materials Engineering Approach to Electronic Packaging in Pb-free Interconnects: Raymundo Arroyave1; Texas A & M University

4:25 PM Invited
Synthesis of Nanocomposites Consisting of High Density Nanoparticles in the Polyimide Films and Their Applications: Young-Ho Kim1; Hanyang University

Gamma (FCC)/Gamma-Prime (L1<sub>2</sub>)/Sigma<sub>2</sub>) Co-Based Superalloys II — Mechanical Behavior I
Program Organizers: Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology Beijing; Alessandro Moturra, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Wednesday PM  Room: Pacific 14  Location: Marriott Marquis Hotel & Marina
Session Chairs: Michael Titus, Purdue University; David Dunand, Northwestern University

2:00 PM Invited
Mechanical Properties of Single Crystal CoNi-base Superalloys: Yoilta Egger1; Julian Müller1; Mike Titus2; Akane Suzuki3; Tresa Pollock3; Erdmann Specker3; Friedrich Alexander University Erlangen-Nürnberg; Purdue University; GE Global Research Center; University of California Santa Barbara

2:30 PM Invited
Mechanical Behavior of Polycrystalline (L12)gamma-prime-strengthened Co-base Superalloys: Peter Bocchini1; Daniel Sauza1; James Coakley1; Qinyuan Liu1; David Seidman2; Brian Hayes2; Texas A & M University; Northwestern University

3:00 PM
Planar Defect Formation in the γ Phase during High Temperature Creep in Single Crystal CoNi-base Superalloys: Yolita Egger1; Julian Müller1; Mike Titus2; Akane Suzuki3; Tresa Pollock3; Erdmann Specker3; Friedrich Alexander University Erlangen-Nürnberg; Purdue University; GE Global Research Center; University of California Santa Barbara
GAT-2017 (Gamma Alloys Technology - 2017) — Microstructure Types, Boundary Effects, and Directional Solidification

**Program Organizers:** Young-Won Kim, Gamtek LLC; Wilfried Smarsly, MTU Aero Engines AG; Junping Lin, University of Science and Technology Beijing; Pierre Salot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

**Wednesday PM**
**Room:** Pacific 17  
**Location:** Marriott Marquis Hotel & Marina

**Session Chairs:** Pierre Salot, Safran Tech; Ulrike Hecht, ACCESS

**2:00 PM Invited**

**2:25 PM**
**Solidification of TiAl Alloys with Low Contents of Si: Antoine Paris; Mikael Perrut; Dominique Daloz; Anne Denquin; ‘Onera; ‘Université de Lorraine

**2:45 PM Invited**
**The Role of Internal Boundaries for the Mechanical Performance of Multiphase Titanium Aluminide Alloys: Fritz Appel; ‘Helmholtz Zentrum Geesthacht

**3:10 PM**
**Microstructure Evolution of Ti-45Al-8.5Nb-(W, B, Y) Alloy during Continuous Cooling and Thermal Aging: Jeren Tang; Bei Cao; Xuyang Wang; Rui Hu; Lin Song; Jinshan Li; ‘Northwestern Polytechnical University

**3:30 PM**
**Study on the Lamellar Boundary Orientation of Ti-46Al-8Nb Alloy with Various Growth Rate: Jongmoon Park; Ho Seung Jang; Seongwoong Kim; Seungeon Kim; Youngwhan Hong; Myunghoon Oh; ‘Kumoh National Institute of Technology; ‘Korea Institute of Materials Science; ‘Suwon Science College

**3:50 PM Break**

**4:05 PM Invited**
**Study on Preparation of Larger Size TiAl Ingot with Oriented Lamellar Microstructure: Jun Shen**; ‘Northwestern Polytechnical University

**4:30 PM Invited**
**High Temperature Mechanical Properties of Polysynthetic Twinned TiAl-Nb Alloys: Zhixiang Qi; Guang Chen; Yingbo Peng; Gong Zheng; ‘Nanjing University of Science and Technology

**4:55 PM Invited**
**Microstructure and Mechanical Properties of TiAl Alloys Prepared by Cold Crucible Directional Solidification: Ruiran Chen; Jingjie Guo; Hongsheng Ding; Hengzhi Fu; ‘Harbin Institute of Technology

**5:20 PM**
**Seeded Growth of Ti-46Al(3-10)Nb PST Crystals: Hao Jin; Ronghua Liu; Yuyou Cui; Quangang Xian; Dongsheng Xu; Rui Yang; ‘Institute of Metal Research, Chinese Academy of Sciences

**High Entropy Alloys V — Mechanical and Other Properties**

**Program Organizers:** Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

**Wednesday PM**
**Room:** 32A  
**Location:** San Diego Convention Center

**Session Chairs:** Sundeen Mukherjee, University of North Texas; Qingfeng Xing, Ames Laboratory

**2:00 PM Invited**
**Weldability and Welding Solidification of an HEA Alloy: Joshua Burgess; Carl Lundin; Zhi Tang; Peter Liaw; ‘GE Power; ‘The University of Tennessee; ‘Alcoa

**2:20 PM Invited**
**Bringing High-entropy Alloys Close to High-temperature Applications: Single Crystal Growth, Microstructure Characterization, and Mechanical Tests: Qingfeng Xing; Haoyan Diao; Deborah Schlager; Trevor Riedemann; Peter Liaw; Thomas Lograsso; ‘Ams Laboratory; ‘University of Tennessee - Knoxville

**2:40 PM**
**Degradation Behavior of High Entropy Alloys – Corrosion, Erosion, and Wear: Ayyagari Aditya; Sundeen Mukherjee; ‘University of North Texas

**3:00 PM**
**Investigation of Equiatomic AlNbTiMoV and AlNbTaTiV Alloys for High Temperature Applications: Anne Denquin; Arnaud Grimonprez; Agnès Bachelier-Locq; ‘Onera

**3:20 PM**
**Irradiation Resistance of Low Activation High Entropy Alloys: David Armstrong; John Waite; ‘University of Oxford

**3:40 PM Break**

**4:00 PM**
**Weldability of Single-phase and Multi-phase High Entropy Alloys: Zhenggang Wu; Stan Davidson; Zhili Feng; Hongbin Bei; ‘Oak Ridge National Laboratory

**4:20 PM**
**Radiation-induced Segregation in Ni-based Concentrated Solid Solution Alloys: Mo-Rigen He; Shuai Wang; Shi Shi; Ke Jin; Hongbin Bei; Kazuhiro Yasuda; Syo Matsumura; Kenji Higashida; Ian Robertson; ‘University of Wisconsin-Madison; ‘Oak Ridge National Laboratory; ‘Kyushu University

**4:40 PM**
**Development of High Entropy Alloy Foam with Ultra-low Thermal Conductivity and High Strength: Kook Noh Yoon; Je In Lee; Eun Soo Park; ‘Research Institute of Advanced Materials, Department of Materials Science and Engineering, Seoul National University

**Session Chairs: Sundeen Mukherjee, University of North Texas; Qingfeng Xing, Ames Laboratory**
High Entropy Alloys V — Structures and Mechanical Properties II
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyang Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Wednesday PM Room: 32B
March 1, 2017 Location: San Diego Convention Center

Session Chairs: Paul Jablonski, National Energy Technology Laboratory; Zhongwu Zhang, Harbin Engineering University

2:00 PM Invited
Microstructural Response of High Entropy Alloy under Extreme Environments: H.S. Oh1; J.Y. Kim1; E.S. Park1; H.J. Chang1; C.C. Tasan1; D. Raabe1; 1Korea Institute of Science and Technology; 2Max-Planck Institut für Eisenforschung GmbH

2:20 PM Invited
Effect of Process Changes in the Manufacture and Mechanical Properties of High Entropy Alloys: Paul Jablonski1; Michael Gao2; Jeffrey Hawk2; 1U.S. Department of Energy, National Energy Technology Laboratory; 2AECOM

2:40 PM Invited
Mechanisms Underlying the Remarkable Strength and Toughness of CrCoNi-based Medium- and High-Entropy Alloys at Ambient to Cryogenic Temperatures: Bernd Gludovatz1; Qian Yu1; Easo George1; Robert Ritchie1; 1Lawrence Berkeley National Laboratory; 2Zhejiang University; 3Ruhu University; 4University of California Berkeley

3:00 PM Invited
Effects of Preparation Methods on the Microstructures and Properties of High Entropy Alloys: Zhongwu Zhang1; Mingxing Qiu1; 1Harbin Engineering University

3:20 PM Break

3:40 PM Invited
The Strengthening Mechanisms for a Family of High-entropy and Equiatomic Solid-solution Alloys: Zhenggang Wu1; Yanfei Gao1; Hongbin Bei1; 1Oak Ridge National Laboratory

4:00 PM Invited
Characterization and Mechanical Properties of Spray-formed High Entropy Alloys: Giulherme Zepov1; Michael Kaufman1; Claudio Kiminami1; Walter Botta1; Claudemiro Bolfarin1; 1Federal University of Sào carlos (UFSCar); 2Colorado School of Mines

4:20 PM Invited
Size Effects and Thermal Stability of High-entropy Alloys: Single Crystalline vs. Nanocrystalline: Yu Zou1; Jeffrey Wheeler1; Huan Ma1; Roksolana Kozak1; Soumyadipta Maiti1; Walter Steurer1; Ralph Spolenak1; 1ETH Zurich

4:40 PM
Irradiation Responses of High-entropy Alloys at Elevated Temperatures: Songjin Xia1; Michael Gao2; Tengfei Yang2; Peter Liaw2; Yong Zhang2; 1University of Science and Technology Beijing; 2National Energy Technology Laboratory; 3Peking University; 4The University of Tennessee

5:00 PM Invited
Strong Grain-size Effect on Deformation Twinning of an Al0.1CoCrFeNi High-entropy Alloy: Shiwei Wu1; G. Wang1; J. Yi1; Q. J. Zhai1; P. K. Liaw1; 1Shanghai University; 2The University of Tennessee

5:20 PM Invited
Interatomic Potential Function Development for the FeNiCoCr High Entropy Alloy: J. Wei1; Y. Zhuang1; PJ Yu1; Alice Hu1; 1City University of Hong Kong

High Temperature Electrochemistry III — Materials Electrochemistry I

Wednesday PM Room: 16A
March 1, 2017 Location: San Diego Convention Center

Session Chairs: Uday Pai, Boston University; Steven Herrmann, Idaho National Laboratory

2:00 PM
Molten Flux Design for Solid Oxide Membrane Based Electrolysis of Si from Silica: Thomas Villalon1; Uday Pai1; Soumendra Basu1; 1Boston University

2:30 PM
Electrochemical Deposition of Barium into Liquid Bismuth from BaCl2-LiCl-CaCl2-NaCl Electrolyte: Hojung Kim1; Nathan Smith1; Timothy Lichtenstein1; Kuldeep Kumar1; 1The Pennsylvania State University

3:00 PM
Electrochemical Behavior of Sn/SnCl2 Cathode in Na | NaCl-AlCl3-SnCl2 | Sn Cell: Takanari Ouchi1; Raku Watari1; Donald Sadoway1; 1Massachusetts Institute of Technology; 2Massachusetts Institute of Technology

3:30 PM Break

3:50 PM
Impurity Removal from Titanium Oxycarbide: Farzin Fatollahi-Far1; Petrus Pistorius1; 1Carnegie Mellon University

4:20 PM
Thermal Imaging Furnace Technique for Ultra-high Temperature Electrochemical Measurements: Bradley Nakanishi1; Erick Hernandez1; Antoine Allanore1; 1Massachusetts Institute of Technology

Magnesium Technology 2017 — Mechanical Behavior: Twinning, Plasticity, Texture, and Fatigue II
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Wednesday PM Room: 5B
March 1, 2017 Location: San Diego Convention Center

Session Chairs: JB Jordon, The University of Alabama; Alec Davis, University of Manchester

2:00 PM
Dynamic Behavior of an AZ31 Alloy under Varying Strain Rates and Stress Triaxialities: Chaitanya Kale1; Mansa Rajagopal1; Scott Turnage1; Billy Hombuckle1; Kris Darling1; Suveen Mathaudhu1; Kiran Solanki1; 1Arizona State University; 2Army Research Laboratory; 3University of California, Riverside

2:20 PM
Enhancing the Tensile Response of Magnesium through Simultaneous Addition of Aluminium and Alumina Nanoparticles: Eugene Wong1; Manoj Gupta1; 1Newcastle University International Singapore; 2National University of Singapore
2:40 PM
Effect of Solutes Additions on the Microstructure and Mechanical Properties of Cast Mg-Al Based Alloys: Yahia Ali; Ming-Xing Zhang; 1University of Queensland

3:00 PM
Enhanced Mechanical Properties of Extruded Mg-9mass%Al-1mass%Zn-2mass%Ca Alloy: Xunsheng Huang; Yasunasa Chino; Hironori Ueda; Masashi Inoue; futoshi Kido; Toshiharu Matsumoto; 1National Institute of Advanced Industrial Science and Technology; 2Fuji Light Metal Co., Ltd.; 1Tobata Seisakusho Co., Ltd.

3:20 PM Break

3:40 PM
Influence of Strain Path Change on the Microstructure and Mechanical Properties of Duplex Mg-Li Alloy: Jun Zou; Yang Li; Hao Guo; Songsong Xu; Yu Zhao; Milin Zhang; Zhongwu Zhang; 1Harbin Engineering University; 2Zhengzhou University

4:00 PM
Mechanical Properties and Deformation Mechanism of Mg-Y Alloy with Various Grain Sizes: Ichiro Kawarada; Ruixiao Zheng; Akinobu Shibata; Hitoshi Somekawa; Shigenobu Ogata; Nobuhiro Tsuji; 1Kyoto University; 2National Institute for Material Science; 3Osaka University

4:20 PM
Microstructure and Mechanical Properties of High Pressure Die Cast Mg-Al-Sn-Si Alloys: Andrew Klarner; Weihua Sun; Jiashi Miao; Alan Luo; 1The Ohio State University

4:40 PM
Microstructure and Mechanical Properties of an Extruded Mg-1.58Zn-0.52Gd Alloy: M.G. Jiang; 1J.C. Chen; H. Yun; 2C. Xu; T. Nakata; S. Kamado; 1Institute of Metal Research, Chinese Academy of Sciences; 2X’ian Jiaotong University; 3Nagaoka University of Technology

5:00 PM
Modelling Magnesium Alloys for Improved Isotropic and Symmetric Yield Behaviour: Alec Davis; Joseph Robson; 1University of Manchester

Magnesium Technology 2017 — Solidification and Processing III and Magnesium-Rare Earth Alloys I

Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Wednesday PM  Room: 5A  Location: San Diego Convention Center

Session Chairs: Mark Easton, Royal Melbourne Institute of Technology University; Vineet Joshi, Pacific Northwest National Laboratory

2:00 PM
Scaled-Up Fabrication of Thin-Walled ZK60 Tubing using Shear Assisted Processing and Extrusion (ShAPE): Scott Whalen; Vineet Joshi; David Catalini; Curt Lavender; David Field; 1Pacific Northwest National Laboratory; 2Pacific Northwest National Laboratory; 3Washington State University

2:20 PM
Biocompatible Magnesium Alloy ZnNdK100 – Adaptation of Extrusion Parameters to Tailor the Mechanical Properties to Different Implant Applications: Rainer Eiefer; Florian Schäcke; Hans Jürgen Maier; Christian Kloesel; 1Leibniz Universität Hannover

2:40 PM
Characterization of Semi-closed Die-forged ZK60 Mg Alloy Extrusion: Seyyednoohmadhasan Karpavarvarfard; Sugrib Shaha; Amir Hadadzadeh; Hamid Jahedi; Mary Wells; Bruce Williams; 1University of Waterloo; 2CanmetMATERIALS, Natural Resources Canada

3:00 PM
Optimization of Nitrogen Bubbling Conditions for Extruded Mg Alloy with Balanced Mechanical Properties: Wonseek Yang; Youngkyun Kim; Taeyang Kwak; Shae K. Kim; Hyunkyu Lim; Do Hyang Kim; 1KITECH; 2Yonsei University

3:20 PM
Effects of Gadolinium and Neodymium Addition on Young’s Modulus of Magnesium-based Binary Alloys: Yuling Xu; Jie Li; Zhengye Zhong; Karl Kainer; Norbert Hort; 1Helmholtz Zentrum Geesthacht; 2Shanghai University

3:40 PM Break

4:00 PM
Aging Behavior of Mg Alloys Containing Nd and Y: Ellen Solomon; Timothy Chan; Andrew Chen; Benjamin Uttal-Veroff; Emmanuelle Marquis; 1University of Michigan

4:20 PM
Variation of Rare Earth Elements in the Magnesium Alloy ME21 for the Sheet Production: Gerrit Kurz; Tom Petersen; Dietmar Letziger; 1Helmholtz-Zentrum Geesthacht

4:40 PM
Phase Stability and Formation in Mg-Gd-Zn Alloys – Key Data for ICME of Mg Alloys: Rainer Schmid-Fetzeder; Joachim Gröbner; Suming Zhu; Jian-Feng Nie; 1Clausthal University of Technology; 2RMIT University; 3Monash University; 4CSIRO

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Structural Materials III

Program Organizers: Rampredash Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raoul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Wednesday PM  Room: Cardiff  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM
Seamless Thin-wall Tube Production of ATF Wrought FeCrAl Alloys: Yukinori Yamamoto; Sun Zhigian; Maxim Gussev; Kevin Field; Bruce Pint; Lance Snead; Stuart Maloy; Kurt Terrani; 1Oak Ridge National Laboratory; 2Massachusetts Institute of Technology; 3Los Alamos National Laboratory

2:20 PM
Charged Particle Irradiation Studies of High Dose Precipitation in Reactor Pressure Vessel Steels: Nathan Admirali; Takuya Yamamoto; Peter Wells; G. R. Odette; Nicholas Cunningham; Soupitak Pal; Scott Tumeys; Keith Williams; Tim Williams; 1University of California Santa Barbara; 2Lawrence Livermore National Laboratory; 3Rolls Royce

2:40 PM
Effect of Different Processing Routes on the Microstructure and Texture of 14YWT Alloy: Soupitak Pal; Ershadul Alam; G Odette; Stuart Maloy; David Hoelzer; John Lewandowski; 1University of California Santa Barbara

3:00 PM
Impact of the Neutron Irradiation on the Structure and Properties of the 6061 Al Alloy Produced by Ultrasonic Additive Manufacturing: Maxim Gussev; Kurt Terrani; Chad Parish; Aaron Selby; Niyanth Sridharan; Dana McClurg; Zachary Thompson; Mark Norfolk; Sudarshanam Babu; 1Oak Ridge National Laboratory; 2Fabrisonic LLC; 3University of Tennessee

3:20 PM
Creep Fatigue Crack Growth of T91: Test Design and Data Analysis: Marta Serrano; Rebeca Hernandez Pascual; 1Ciemat

3:40 PM Break

4:00 PM
Property Evolution Due to Thermal Aging of Cast Duplex Stainless Steels As Measured by Multi-Scale Mechanical Methods: Samuel Schwarm; Sarah Mburu; R. Prakash Kolli; Carl Cady; Stuart Maloy; Steeramamurthy Ankem; 1University of Maryland, College Park; 2Los Alamos National Laboratory
4:20 PM
Program Organizers: Paul Ohodnicki, National Energy Technology Laboratory; Francis Johnson, GE Global Research; Alex Leary, Carnegie Mellon University; Tanjore Jayaraman, University of Michigan; Lajos Varga, Wigner Research Center for Physics

Wednesday PM Room: 25B
March 1, 2017 Location: San Diego Convention Center

Session Chair: Francis Johnson, General Electric

2:00 PM Invited
Advanced Magnetic Polymer Nanocomposites for High Frequency Device Applications: Haribaran Srikant; 1University of South Florida

2:30 PM
Development of Mold Inductor for Power Conversion System: Hyungsuk Kim; 1Hyundai Motors

2:50 PM
Development of Fe-based Bulk Metallic Glasses with Both High Saturation Flux Density and High Glass Forming Ability: Shuangqin Chen; Kefu Yao; 1Tsinghua University

3:10 PM
Ferrite-coated Fe Soft Magnetic Composites: Balance of Magnetic Permeability and Electrical Resistivity: Katie Jo Sunday; Mitra Taheri; 1Drexel University

3:30 PM Break

3:45 PM Invited
Candidate Coatings for Soft Magnet Composites: Insights Gained from Multiscale Electron Microscopy: Mitra Taheri; Katie Sunday; 1Drexel University

4:15 PM
Study of Temperature Dependent Magnetic Properties of Zr+4 and Ti+4 Substituted Cobalt Ferrites: Monaji Vinitha Reddy; Sudhindra Rayaprol; Shara Sowmya; A. Srinivas; Dibakar Das; 1University of Hyderabad; UGC-DAE-Consortium for Scientific Research; 1Defence Metallurgical Research Laboratory

4:35 PM
Consolidation and Behavior of Bulk Iron Nitride Soft Magnets via Spark Plasma Sintering: Baolong Zheng; Todd Monson; Yizhang Zhou; Jean-Pierre Delplanque; Stanley Atcitty; Enrique Lavernia; 1University of California at Irvine; 1Sandia National Laboratories; 1University of California at Davis

4:55 PM
Consolidation of Bulk Ferrimagnetic Rare Earth Iron Garnets: Chad Warren; Pathikumar Sellaappan; Yasuhiro Kodera; Javier Garay; 1University of California, San Diego; 1University of California, Riverside

Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Coatings and Environmental Resistance
Program Organizers: Akane Suzuki, GE Global Research; Martin Heilmayer, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

Wednesday PM Room: Pacific 16
March 1, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Carlos Levi, University of California, Santa Barbara; Daniel Monceau, CNRS, CIRIMAT laboratory

2:00 PM Invited
Design of Next Generation Intermetallic Bond Coatings: David Jorgensen; Wesley Jackson; Akane Suzuki; Tresa Pollock; 1University of California, Santa Barbara; 1General Electric Global Research

2:30 PM Invited
Modelling of Kirkendall Pores Formation during the Fabrication and the Ageing of Pt-based Diffusion Coatings on Nickel Base Superalloys: Daniel Monceau; Pauline Audigier; Clara Desgranges; Aurélie Rouax Vande-Put; 1CNRS, CIRIMAT Laboratory; 1CIRIMAT Laboratory; 1CEA

3:00 PM
The Influence of Bond Coats on Crack Progression during Sustained Peak Low-Cycle Fatigue: Marissa Lafata; Tresa Pollock; 1University of California, Santa Barbara

3:30 PM Break

4:00 PM
Kinetically and Structural Processes Affecting Alumina-scale Establishment during Early-stage Oxidation of Ni-base Alloys: Yihong Kang; Juan Alvarado-Orozco; Judith Yang; Brian Gleeson; 1University of Pittsburgh; 1CiDESi

4:20 PM Invited
A Perspective on the Challenges to Thermal Barrier Coatings: Carlos Levi; 1University of California, Santa Barbara

4:50 PM Invited
The Effect of Borosilica Pack-Cementation Coatings on the Oxidation Resistance of Mo-Si-B-Based Alloys: John Perepeiko; Daniel Schlepke; Camelia Gombola; Martin Heilmayer; 1University of Wisconsin-Madison; 1Karlsruhe Institute of Technology

5:20 PM
Oxidation Behavior of Silicide Coatings Produced by Molten Salt Technique on the Nb-1Zr-0.1C Alloy: Megha Tyagi; Vishwanadh B; S. K. Ghosh; Raghvendra Tewari; 1Bhabha Atomic Research Centre

5:40 PM
Functionally Graded Tungsten/EUROFER Coating for Plasma Facing Components of Fusion Power Plants: Jorir Aktaa; Dandan Qu; Robert Vallen; Marius Wirtz; Jochen Linke; 1Karlsruhe Institute of Technology (KIT); 1Forschungszentrum Jülich (FZJ)
Materials Processing Fundamentals — Metal Extraction

Program Organizers: Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

Wednesday PM  Room: 17B  Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM  Applied Statistical Analysis on the Calculation Process in the Ferronickel Production: Fabio Soares¹; Denis Shevchenko²; Alexey Levechenko²; Alexey Avdeev¹; Alexander Vodin¹; Vitaly Rudik¹; Stanislav Kovalchuk¹; "Pronico"

2:20 PM  The Chemical Stability and Electrochemical Behavior of Dy2O3 in Molten CaCl2: Jianxun Song¹; 'K. U. Leuven'

2:40 PM  Kinetics of Manganese Reductive Alloying with Carbon and Silicon: Brian Jamieson¹; Kenneth Coley¹; 'McMaster University'

3:00 PM  Synthesis of TiO2 by Hydrolysis of Titanyl Sulphate Solution under an Alternating Electric Field: Li Fu¹; Dongmei Luo¹; Bin Liang¹; Zhao Zhang¹; 'School of Chemical Engineering, Sichuan University, China'

3:20 PM  Break

3:35 PM  Study for Leaching Process of Low Grade Copper Ore: Dong Ju Shie¹; Sung Ho Jou¹; Chang Hyun Oh¹; Shun Myung Shin¹; 'Korea Institute of Geoscience and Mineral Resources'

3:55 PM  Predominant Areas on a Partial Pressure Diagram for Multi-Component Systems: I. Comparison Equilibrium-Line and Mass-Balanced Point Methods: H.H. Huang¹; Courtney Young¹; 'Montana Tech'

4:15 PM  Predominant Areas on a Partial Pressure Diagram for Multi-Component Systems: II. Applications, Gibbs Phase Rule and 3D Visualization: H.H. Huang¹; Courtney Young¹; 'Montana Tech'

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Creep, Creep-Fatigue and Related High Temperature Mechanical Behavior

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

Wednesday PM  Room: 24A  Location: San Diego Convention Center

Session Chairs: M. Mathew, Saintgitts College of Engineering; Nilesh Kumar, North Carolina State University

2:00 PM  Keynote

Applying Conventional Creep Mechanisms to Ultrafine-grained Materials: Megumi Kawasaki¹; Terence Langdon¹; 'Hanyang University; 'University of Southern California

2:30 PM  Invited

Multiaxial Creep and Creep-fatigue: James Stubbins¹; Kuan-Chen Lan¹; John Sanders¹; Mohsen Dadfarzadi¹; Petros Sotfonis¹; Hsiao-Ming Tung¹; Xiang Liu¹; Calogero Sollima¹; Kun Mo¹; Giuseppe Brunetti¹; 'University of Illinois

2:50 PM  Invited

Creep and Creep Fatigue of Alloy 709 Using In situ Heating during SEM and EBSD Observation: Afsaneh Rabiei¹; Hangyue Li²; Paul Bowen²; 'North Carolina State University; 'Birmingham University

3:10 PM  Invited

Cyclic Deformation Behavior of Modified 9Cr–1Mo Steel at Elevated Temperatures: Vikil Singh¹; Preeti Verma¹; 'Indian Institute of Technology (Banaras Hindu University)

3:30 PM  Break

3:45 PM  Keynote

Environmentally-benign Pb-free Solder Alloys: Complex Load Bearing Materials in Electronic Packaging: Nikhilesh Chawda¹; 'Arizona State University

4:15 PM  Invited

Effect of Thermo-mechanical History on the Creep Behavior of Sn-Ag-Cu Solders: Babak Talebanpour¹; Indranath Dutta¹; 'Washington State University

4:35 PM  Modelling of the Fracture of Precipitate and Austenitic Matrix Interfaces During Creep: Liang Huang¹; Maxime Sauzay¹; 'French Alternative Energies and Atomic Energy Commission

4:55 PM  Invited

Characterisation of Mechanical Properties Using Ball Indentation, Small Punch Creep and Impression Creep Methods: MD Mathew¹; 'Saintgitts College of Engineering (formerly at Indira Gandhi Center for Atomic Research)

Mechanical Behavior of Nanostructured Materials — Modeling and Thermal Stability, Radiation, Corrosion of Nanocrystals

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

Wednesday PM  Room: 30D  Location: San Diego Convention Center

Session Chairs: Xinghang Zhang, Purdue University; John Balk, University of Kentucky; Aashish Rohatgi, Pacific Northwest National Laboratory

2:00 PM  Invited

Computational Studies of Materials Properties at the Nanometer Scale: Donald Brenner¹; 'North Carolina State University

2:25 PM  Invited

Toward Quantitative 3D Microstructure-property Relations in Nano- and Poly-crystalline Materials: Mo Li¹; 'Georgia Institute of Technology

2:50 PM  Understanding, Controlling, and Creating Martensitic Phase Transformations in Nanostructured Polycrystals and Metamaterials: Sam Reeve¹; Yang Wang¹; Karthik Guda Vishnu¹; Alejandro Strachan¹; 'Purdue University

3:10 PM  Electromechanical Coupling Enhanced by Polar Nanoregion Vibrations: Michael Manley¹; Douglas Abernathy¹; Raffi Sahul¹; Jeff Lynn¹; Andy Christianson¹; Paul Stonaha¹; Jeff Lynn¹; 'Oak Ridge National Laboratory; 'Meggett Sensing Systems; 'National Institute of Standards and Technology

3:30 PM  Break

3:50 PM  Invited

Development of Age-hardenable Nanolaminate Thin Films: David Bahr¹; Chang-Eun Kim¹; Nicolas Briot¹; T. Balk²; 'Purdue University; 'University of Kentucky

4:15 PM  Invited

Mechanical Properties and Thermal Stabilization of Nanocrystalline Aluminum and Aluminum Alloys: Khaleed Youssef¹; Ronald Scattardgod²; Carl Koch²; 'Qatar University; 'North Carolina State University

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4:00 PM
Thermal Stability and Grain-boundary Segregation in Al-Alloy Thin Films: Aashish Rohatgi; Arun Devaraj; Rama Venmuri; Libor Kovarik; Xiujian Jiang; Girishdar Nandipati; Suveen Mathaudhu; Wenbo Wang; Jason Trelleicz; Pacific Northwest National Laboratory; Stony Brook University

5:00 PM
Enhanced Thermal Stability of Ultrafine-grained Aluminum Fabricated by Applying a Fast Cooling Rate after Hot Rolling: Pei-Ling Sun; National Sun Yat-Sen University

5:20 PM
Effects of Ultrafine Grain Structure on Al Alloy Response to Corrosive Environments: Troy Topping; University of Wisconsin-Madison

5:40 PM
Evidence that Abnormal Grain Growth Precedes Fatigue-crack Initiation: Timothy Furnish; Daniel Bufford; Khalid Hattar; Christopher O'Brien; Stephen Foiles; Apurva Mehta; Douglas Van Campen; Brad Boyce; Sandia National Laboratories; SLAC National Accelerator Laboratory

**Microstructural Processes in Irradiated Materials — Fusion Materials and High-Temperature Alloys**

*Program Organizers:* Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l'énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, Laboratory; Chu-Chun Fu, Commissariat à l'énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Laboratoire de Mécanique, Chinese Academy of Science; Xiaoilei Wu, Institute of Mechanics, Chinese Academy of Science

Wednesday PM  Room: Del Mar
March 1, 2017  Location: Marriott Marquis Hotel & Marina

**Session Chairs:** Gary Was, University of Michigan; Chad Parish, Oak Ridge National Laboratory

2:00 PM  Invited

IOM/Mehl Award Lecture: Microstructure of Irradiated Materials: Steven Zinkle; University of Tennessee; Oak Ridge National Laboratory

2:50 PM
Microstructural Processes in Neutron-irradiated Tungsten: Chad Parish; Xunxiang Hu; Lauren Garrison; Philip Edmondson; Kun Wang; Lance Snead; Yutai Katoh; Oak Ridge National Laboratory; Massachusetts Institute of Technology

3:10 PM
Evolution of Microstructure of Tungsten under Irradiation with Tungsten Ions: Emmanuel Autissier; Marie-France Barthe; Pierre Desargdrin; Cécile Genevois; Brigitte Decamps; Robin Schaüblin; Yves Serruys; CNRS; ETH Zurich; CEA

3:30 PM
Understanding the Effects of Helium Implantation Damage in Tungsten: Combining Multi-technique Experiments and Atomistic Modeling: Felix Hofmann; Duc Nguyen-Manh; Daniel Mason; Mark Gilbert; Sergii Dudaev; Isaure deBroglie; Jeffrey Eliason; Ryan Duncan; Alexei Maznev; Keith Nelson; Christian Beck; Wenjun Liu; University of Oxford; Culham Centre for Fusion Energy; École Polytechnique; University of Minnesota; Massachusetts Institute of Technology; Argonne National Laboratory

3:50 PM  Break

4:05 PM
Microstructure and Mechanical Properties of Neutron-irradiated Tungsten Foil for Laminate Composites: Lauren Garrison; Chad Parish; Xunxiang Hu; Tachyun Hwang; Takaaki Koyanagi; Jens Reiser; Lance Snead; Yutai Katoh; Oak Ridge National Laboratory; Karlsruhe Institute of Technology; Massachusetts Institute of Technology

4:25 PM  Invited

Mechanism of Reduced Radiation Damage Identified in Equiatomic Multicomponent Single Phase Alloys: Flyura Djurabekova; Fredric Granberg; Kai Nordlund; William J. Weber; Yanwen Zhang; University of Helsinki; Oak Ridge National Laboratory

4:55 PM
Comparison of Neutron and Ion Irradiation Effects on Microstructure of MA957: Jing Wang; Nathan Bailey; Mychailo Tolozeckoi; Daniel Schreiber; Frank Garner; Y. Kupriianova; A. Kalchenko; V. Voyevodin; Lin Shao; Pacific Northwest National Laboratory; University of California at Berkeley; Radiation Effects Consulting; Kharkov Institute of Physics and Technology; Texas A&M University

5:15 PM
Neutron Irradiation Damage in Ferritic ODS Steel MA957: Xiang Liu; Yinhin Mao; Wei-Ying Chen; Yaqiu Wu; James Stubbins; University of Illinois at Urbana Champaign; Argonne National Laboratory; Center for Advanced Energy Studies

5:35 PM
Impact of He Concentration on the Microstructure of W Using TEM with In Situ Ion Irradiation: Robert Harrison; Mathes Tunes; Graeme Greaves; Jonathan Hinks; Stephen Donnelly; University of Huddersfield

**Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Novel and Complex Materials I**

*Program Organizers:* Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huajian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Wednesday PM  Room: 24B
March 1, 2017  Location: San Diego Convention Center

**Session Chairs:** Xavier Sauvage, Normandy University; Mingxin Huang; The University of Hong Kong

2:00 PM
Engineering the Ductile Crack Path by Controlling the Microstructure: Ankita Srivastava; Shmuel Osovski; Alan Needleman; Texas A&M University; Technion-Israel Institute of Technology

2:20 PM
Improved Balance of Mechanical Properties in Cryomilled Al-Mg Alloy Through Thermomechanical Processing: Holden Hyer; Clara Hofmeister; Yongho Sohn; Bhaskar Majumdar; New Mexico Tech; University of Central Florida

2:40 PM
Stabilization of Nanocrystalline Fe-Zr Alloys by Nanoscale Zr-rich Clusters: Yizeng Chen; Northwestern Polytechnical University

3:00 PM
Improving Composite Ductility through Corrugated Reinforcement Architecture: Mark Fraser; Hatem Zurob; Peidong Wu; McMaster University

3:20 PM  Break

3:35 PM  Invited

Ultra-strong and Ductile Nanotwinned Steel: Peng Zhou; Rened Li; Xu Wang; Mingxin Huang; The University of Hong Kong; Ansteel Group

4:00 PM
Multi Scale Modeling of Mechanical Behavior of Covalently Cross-linked SWCNT Aerogels: Ankit Gupta; Andy Jiang; Elizabeth Holm; Carnegie Mellon University

4:20 PM  Invited

Multiscale and Multiphase Structures Obtained by Large Deformation Processes to Achieve Unique Properties Combinations: Xavier Sauvage; Normandy University

4:45 PM
Designing Optimal Bimodality in Harmonic Architectured Materials Using Statistical Synthetic Model: Hyung Keun Park; Jaimyun Jung; Hyoung Seop Kim; Pohang University of Science and Technology
Nanostructured Surfaces for Improved Functional Properties — Session II
Program Organizers: Rajeev Gupta, The University of Akron; Homnero Casaneda, Texas A&M University; Sandip Harimkar, Oklahoma State University; Arvind Agarwal, Florida International University; Bobby Mathan, James Cook University

Wednesday PM Room: Pacific 23 Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM
Fabrication of Mesoporous Gold-coated Polystyrene Particles for Enzyme Immobilization: Seongcheol Choi1; Rafael Vazquez-Duhalft; Olivia Gravee1; 1University of California, San Diego; 2Universidad Nacional Autonoma de Mexico

2:20 PM
Directional Wetting at the Nano Scale: Mohammad Khalkhalif; Hao Zhang1; Qingxia (Chad) Liu1; 1University of Alberta

2:40 PM
High Surface Area Novel Copper and Copper Oxide Nanostructures for Clean Energy Generation: Gökhân Demirci1; Cagla Ozgit-Akgun1; Esin Camci-Akca1; 1Aselsan Inc.

3:00 PM
Fabrication of Au-coated Ag Nanowires for OLED Applications: Sunho Kim1; Hoo-Jeong Lee1; 1Sungkyunkwan University

3:20 PM Break

3:35 PM
Thermally Reduced Graphene Oxide Film on Soda Lime Glass and Its Temperature-time Dependence of de-bonding Energy: Raj Kumar1; R. Manoj Kumar1; Debrupa Lahiri1; Indranil Lahiri1; 1Indian Institute of Technology Roorkee

3:55 PM
Mechanical Properties and Electrochemical Behaviour of Electroless Ni-P-BN(H) Coating on 1050 Aluminium Substitute with Nanostructured Anodic Oxide Interlayer: Mustafa Kokcubas1; Michele Curioni1; Nurhan Cansever1; 1Yildiz Technical University; 1University of Manchester

4:15 PM
Effect of Slurry Flow Rate on Planarization of c-plane (0001) GaN Surface by Chemical Mechanical Planarization (CMP) Method: P Parthiban1; Dibakar Das1; 1University of Hyderabad

4:35 PM
Development of Nano-sized Intra-precipitates in Nanostructured Materials Using the Pre-existing Embryo and Desired Texture: Hongyun Luo1; Pingwei Xu1; 1Beihang University

4:55 PM
Effect of Surface Nanostructuring on the Liquid Aluminizing Behavior of Ti6Al4V: Qingsong Mei1; Ye Ma1; Juying Li1; Feng Chen1; 1Wuhan University; 2Wuhan Polytechnic University

Pan American Materials Congress Plenary — Session IV

Wednesday PM Room: Marina G Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM Plenary
What Do Snakes Have to Say About Tribology? Biomimetics Applied to Friction and Wear Studies: Alejandro Toro1; 1National University of Colombia

2:40 PM Plenary
Toward a Federation of American Materials Societies: The European Experience: Pedro D. Portella1; 1Federal Institute of Testing and Materials BAM

3:20 PM Break

Pan American Materials Congress: Advanced Biomaterials — Scaffolds and Nanobiomaterials
Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Wednesday PM Room: Mission Hills Location: Marriott Marquis Hotel & Marina

Session Chairs: Carlos Schvezov, Instituto de Materiales de Misiones; IMAM; Horacio Espinosa, Northwestern University

3:40 PM Invited
Synthesis of Fish Scale Extracted Hydroxyapatite and Chitosan Composite Scaffolds by Freeze Casting for Biomedical and Environmental Applications: Wen-Kuang Liu1; Bor-Shuang Liaw1; Haw-Kai Chang1; Po-Yu Chen1; 1National Tsing Hua University

4:10 PM
Chemical Composition Effect of Sol-gel Derived Bioactive Glass Over Bioactivity Behavior: Lindsey Quintero1; Diana Escobar1; 1Universidad de Antioquia

4:30 PM
Injectability Evaluation of Bone-graft Substitutes Based on Carrageenan and Hydroxyapatite Nanorods: Jazmin Gonzalez ocampo1; Claudia Ossa Orozco1; 1University of Antioquia

4:50 PM
Comparative Analysis of Neural Cell Behaviour on Carbon Nanofiller Reinforced Polymeric Substrates: Pallavi Gupta1; Murali Kumarswamy1; Partha Roy1; Debrupa Lahiri1; 1IIT Roorkee

5:10 PM
Comparative Spectroscopic Studies on the Interaction of Nickel Selenide Quantum Dots with Serum Albumins: Selvaraj Naveenraj1; Ramalinga Mangalaraja1; Thangaraj Pandiyarajan1; Sambandam Anandan1; 1University of Concepcion; 1National Institute of Technology Trichy

Pan American Materials Congress: Materials for Infrastructure — Session I
Program Organizers: Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en quimica aplicada

Wednesday PM Room: Pacific 21 Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

3:40 PM Invited
Porous Asphalt Mixtures With 100% Siderurgic Aggregates: Marta Skaf1; Vanesa Ortega-Lopez1; Angel Aragon1; Jose San-Jose1; Javier Gonzalez2; 1University of Burgos; 2UPV/EHU

4:10 PM
Physical and Mechanical Properties of Bricks with Added Industrial Waste: Alejandro Martinez1; 1Universidad de Santander

4:30 PM
Portland Cement Paste Blended With Pulverized Coconut Fibers: Yailath Louiza Lopera1; Henry Colorado Lopera1; 1Universidad de Antioquia

4:50 PM
Fiber Reinforced Concrete Manufactured with Electric Arc Furnace Slag: Vanesa Ortega-Lopez1; Jose Fuente-Alonso1; Amaia Santamaria1; Marta Skaf1; Juan Manso1; 1University of Burgos; 2UPV/EHU

5:10 PM
Performance of Hydraulic Mixes Manufactured with Electric Arc Furnace Slag Aggregates: Amaia Santamaria1; Vanesa Ortega-Lopez2; Marta Skaf2; Ignacio Marcos2; Jose-Tomas San Jose2; Javier Gonzalez1; 1University of Basque Country; 2University of Burgos

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Pan American Materials Congress: Materials for Transportation and Lightweighting — Aluminum Processing

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo Leon

Wednesday PM Room: Marina D March 1, 2017 Location: Marriott Marquis Hotel & Marina

Session Chair: Mary Wells, University of Waterloo

3:40 PM Introductory Comments Invited 1
3:45 PM Design and Thermo-mechanical Processing of Steel Grade APIX70 PSL2 for Use in Line-pipe at Oil&Gas Industry: Adriana Berlanga1; 2Ternium
4:05 PM Materials for Facilities liquefied Petroleum Gas as NFPA: Diego Venegas1; 4University of Concepcion
4:45 PM High Temperature In-Situ X-ray Analysis of a Lean Duplex Stainless Steel: Adriana Rocha1; 2Andrea Pedroza; 3Gabriela Pereira; 4LNDI/COPPE/UFRJ

Pan American Materials Congress: Minerals Extraction and Processing — Waste Treatment and Processing

Program Organizers: Mery Gómez-Marquín, Asociacion Peruana de Metalurgia Materiales y Minerales-APMMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosi; Carlos Sampaio, UFRGS

Wednesday PM Room: Marina E March 1, 2017 Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

3:40 PM Comparative Study of Gas Reduction of Pure Zinc Ferrite and Zinc Ferrite Contained into Electric Arc Furnace Dusts: Mery Gómez-Marquín1; 2Jose Carlos D’Abreu2; 3Universidad Nacional de Ingenieria; 4Pontificia Universidad Catolica del Rio de Janeiro
4:00 PM Biotechnological Recycling of Precious Metals Sourced from Post-consumer Products: Norizo Saito1; 2Toshiyuki Nomura1; 3Yasuhiro Konishi1; 4Osaka Prefecture University
4:20 PM Extraction of Gold from Sands and Slimes Tailings Dump from Mazowe Mine, Zimbabwe: Alain Banshti1; 2Baladin Projects
4:40 PM Reduction Kinetics and Characterization Study of Synthetic Magnetite Micro Fines: Saikat Kuila1; 2Ritayan Chatterjee; 3Dinabandhu Ghosh1; 4Jadavpur University
5:00 PM Novel Adsorbent from Iron Ore Concentration Tailings for Toxic Cationic Dye Removal from Water: Yongmei Wang1; 2Alejandro Lopez-Valdivieso3; 4Teng Zhang1; 2Tze Mwamulima; 3Changsheng Peng2; 4College of Environmental Science and Engineering, Ocean University of China; Instituto de Metalurgia, Universidad Autonoma de San Luis Potosi; 3Instituto de Metalurgia, Universidad Autonoma de San Luis Potosi; 4College of Environmental Science and Engineering, Ocean University of China
5:20 PM Removal of Heavy Metals from Water with Nano-Sheet Molybdenite as Adsorbent: Feifei Jia1; 2Shaoxian Song2; 3Wuhan University of Technology

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Superplasticity, Wear, Corrosion, Magnetic, Electric and Functional Properties

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Wednesday PM Room: Marina F March 1, 2017 Location: Marriott Marquis Hotel & Marina

Session Chairs: Roberto Figueiredo, Universidade Federal de Minas Gerais; Kaveh Edalati, Kyushu University

3:40 PM Achieving Superplasticity in a Bi-Sn Alloy Processed by Equal-channel Angular Pressing: Fariba Naghdi1; 2Roberto Figueiredo3; 4Terence Langdon2; 5University of Southampton; 4Universidade Federal de Minas Gerais; 5University of Southern California
4:00 PM Formation of Ultrafine-Grained Structure in NiTi alloys by ECAP: “Conform”: Egor Prokofiev1; 2Ivan Lomakin1; 3Dmitry Gunderov2; 4Ruslan Valiev1; 5Saint Petersburg State University; 6Ufa State Aviation Technical University
4:20 PM
Evaluation of the Effect of Grain Refinement by Severe Plastic Deformation on Biocompatibility and Corrosion Rate of Pure Magnesium: Claudio Silva; Ana Celeste Oliveira; Cintia Costa; Roberto Figueiredo; Maria de Fátima Leite; Marivalda Magalhães; Vanessa Lins; Terence Langdon; Federal University of Minas Gerais; University of Southampton

4:40 PM
Wear Resistance of an Ultrafine-grained Cu-Zr Alloy Processed by High-pressure Torsion: Jitraporn Wongsa-Ngam; Jianwei Li; Jie Xu; Terence Langdon; King Mongkut’s Institute of Technology Ladkrabang; Harbin Institute of Technology; University of Southern California

5:00 PM
Wear Resistance and Electroconductivity of Copper and CuCrZr Alloy Subjected to Severe Plastic Deformation: Alexander Zhilyaev; Anna Morozova; Jose Maria Cabrera; Rustam Kaibyshev; Fundació CTM Centre Tecnològic; Belgorod State University; Universitat Politècnica de Catalunya

5:20 PM
High-Pressure Torsion of Ceramics with Functional Properties: Kaveh Edalati; Hadi Razavi-Khosroshahi; Masayoshi Fuji; Zenji Horita; Kyushu University; Nagoya Institute of Technology

5:40 PM
Nanostructured Al-Mg-Si Alloys for Electrical Conductors: Ilchat Sabirov; Ruslan Valiev; Georgiy Raab; Alexandre Arutyunyan; Maxim Murashkin; IMDEA Materials Institute; Ufa State Aviation Technical University; Saint Petersburg State University

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Pb-free Soldering & UB M
Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Cheng University; Jae-Ho Lee, Hongik University; Ikuo Ohnuma, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yes-wen Yen, National Taiwan Univ of Science & Tech

Wednesday PM  Room: 25A
March 1, 2017  Location: San Diego Convention Center

Session Chairs: Yee-wen Yen, National Taiwan University of Science and Technology; Cheng-En Ho, Yuan Ze University

2:00 PM
One-step Electrodeposition of Gold Dendrites in Aminosilane-contained Electrolyte and Their Applications: Hau Nga Yu; Shien Ping Feng; The University of Hong Kong

2:20 PM
Development of Sn-free and Sn-containing Low Melting Solder Alloys: Chih-Hao Chen; Albert T. Wu; BoonHo Lee; HsiangChuan Chen; ChangMeng Wang; National Central University; SHENMAO Technology Inc.

2:40 PM
A Colorful Titanium Foil as a Photoanode Substrate for Dye-sensitized Solar Cells under Back-side Illumination: Chih-Hsiang Huang; Chih-Ming Chen; National Chung Hsing University

3:00 PM
Solderability of Ultrathin-Ni(P)-type Au/Pd(P)/Ni(P)/Cu Pad: P Content Effect of the Pd(P) Film: Ying-Syuann Wu; Pei-Tzu Lee; Ming-Kai Lu; Tsai-Tung Kuo; Cheng-En Ho; Yuan Ze University; Uyemura Limited Company

3:20 PM
Niobium Pentoxide Hole-blocking Layer for Perovskite Solar Cell: Rui Cheng; Yu Ting Huang; Shien Ping Feng; The University of Hong Kong

3:40 PM Break

3:55 PM
Thermal Capacitive Electrochemical Cycle on Supercapacitor: Xia Wang; Shen Ping Feng; The University of Hong Kong

4:15 PM
Analysis of Electrochemical Impedance Spectroscopy of Dye-sensitized Solar Cells with a Blocking Layer: Yen-Chiao Chen; Chih-Ming Chen; National Chung Hsing University

4:35 PM
Pulse Pb-UPD to Achieve a High Gap-filling of Cu Film Deposited on Trenched Ru/p-SIOCH/Si Substrate: Jhih-Yan Wang; Jai-Lin Wu; Jau-Shiung Fang; National Formosa University

4:55 PM
Thermomigration of Cu-Sn and Ni-Sn Intermetallic Compounds during Reliability Test in SnAg Solder Joints: Po-Ning Hsu; National Chiao Tung University

5:15 PM
Using Sn-Bi-Zn Solder Layer as the LED Die-attach Material by Controlling Position of Zn in the Solder Layer: Yue Kai Tang; Chengyi Liu; National Central University

Phase Transformations and Microstructural Evolution — Ti & Zr
Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sudarsanam Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

Wednesday PM  Room: 16B
March 1, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM
Investigation of Alpha/Beta Interface Structure in a Titanium Alloy Using Aberration-Corrected Scanning Transmission Electron Microscope: Yifeng Zheng; Robert Williams; William Clark; Hamish Fraser; The Ohio State University

2:20 PM
Influences of Pre-existing Defects on the Morphology and Variant Selection of Precipitates in Alpha/Beta Ti-alloys: Di Qu; Rongpei Shi; Pengyang Zhao; Wejie Lyu; Yunzhi Wang; Shanghai Jiao Tong University; The Ohio State University

2:40 PM
Microstructure Evolution and Recrystallization in Linear Friction Welded Titanium Alloys: Riddhiman Bhattacharya; Thomas Broderick; John Allison; University of Michigan, Ann Arbor; GE Aviation

3:00 PM
Coupling Phase-field Models with Equilibrium Thermodynamics to Simulate Porosity Evolution in Nuclear Fuel: Michael Welland; Eric Tenuta; Markus Piro; Canadian Nuclear Laboratory

3:20 PM Break

3:40 PM
Primary Alpha Plate Growth in Ti6246: Abigail Ackerman; David Rugg; David Dye; Imperial College, London; Rolls-Royce plc.

4:00 PM
Study on Phase Stability, Correlated Deformation Microstructure and Mechanical Properties in a Metastable β-type Ti-Nb-Zr-Ta-O Alloy: Sumin Shin; Kenneth Vecchio; University of California, San Diego

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Preliminary Technical Program

Solar Cell Silicon — Silicon Production, Crystallization, and Properties

Program Organizers: Shadia Ikhmayies, Al Isra University; Neale Neelameggham, Ind LLC

Wednesday PM  Room: 19
March 1, 2017  Location: San Diego Convention Center

Funding support provided by: Cosponsored by Energy Committee (pending committee approval)

Session Chairs: Shadia Ikhmayies, Al Isra University; Huayi Yin, MIT

Solid State Precipitation — Session I

Program Organizers: Seth Imhoff, Los Alamos National Laboratory; Robert Hackenberg, Los Alamos National Laboratory; Gregory Thompson, University of Alabama

Wednesday PM  Room: 24C
March 1, 2017  Location: San Diego Convention Center

Session Chair: Seth Imhoff, Los Alamos National Laboratory

2:00 PM
Understanding the Precipitation and Orientation Relationships in Transition Metal Carbides and Nitrides: Christopher Weinberger; Hang Yu; Bradford Schulz; Robert Morris; Xiao-Xiang Yu; Gregory Thompson; Drexel University; University of Alabama

2:30 PM
An Experimental and Modelling Study on Precipitation during Tempering of Martensitic Alloys: Tao Zhou; Joakim Odqvist; Peter Hedström; KTH Royal Institute of Technology

2:50 PM
Carbide Precipitation during Heating in Martensitic Steels: Xiaoging Cai; Richard Sisson; Worcester Polytechnic Institute, Center for Heat Treating Excellence

3:10 PM
Precipitation Behavior in Ni-Ti-Zr Shape Memory Alloys: Suzanne Kornegay; Monica Kapoor; B. Chad Hornbuckle; Othmane Benanfa; Ronald Noebe; Mark Weaver; Gregory Thompson; University of Alabama; National Energy Technology Laboratory; Army Research Laboratory; NASA Glenn Research Center

3:30 PM Break

3:50 PM
Kinetics of Discontinuous Precipitation upon Age-hardening of Deformed and Recrystallized Invar-Sn Alloys: Maryam Abkiloglu; Olena Volkova; Institute of Iron and Steel Technology, Technische Universitats Bergakademie Freiberg

4:10 PM Invited
Prediction of Size, Temperature and Composition-dependent Precipitate/Matrix Interfacial Energies: Ernst Kozeschnik; Bernhard Sonderegger; TU Wien; TU Graz

4:40 PM
Predicting Orientation Relationships: A Simple Algorithm for Generating Near-coincidence Site Lattices in General Bravais Lattice Systems: Srikanth Patada; Arash Banadaki; North Carolina State University

5:00 PM
Investigating the Formation Path of Delta Hydrides in Zirconium Fuel Rod Claddings by Multi-Phase Field Modeling: Jacob Bair; Mohsen Asle Zaeem; Missouri University of Science and Technology

The John Cahn Memorial Symposium — Session II

Program Organizers: James Warren, National Institute of Standards and Technology; W. Craig Carter, MIT; Carol Handwerker, Purdue University; Y. Mishin, George Mason University

Wednesday PM  Room: 22
March 1, 2017  Location: San Diego Convention Center

Session Chairs: Carol Handwerker, Purdue University; Y. Mishin, George Mason University

2:00 PM Invited
Beyond the Gorsky Effect – Exploring Larché-Cahn Open System Elasticity in Experiment: Shan Shi; Jörg Weissmüller; Helmholtz-Zentrum Geesthacht; Hamburg University of Technology

2:30 PM Invited
Phase Transition and Anomalous Diffusion in Metastable β Ti-Mo: Srinivasan Srivilliputhur; Niraj Gupta; Srikumar Banerjee; University of North Texas

3:00 PM Invited
How Some Quasicrystals Might Grow: Jean Taylor; Rutgers University and Courant Institute, NYU

3:30 PM Break

3:50 PM Invited
John Cahn and Aesthetics of Materials: Leonid Bendersky; NIST

4:20 PM Invited
Quasi-history of Quasi-crystallinity: Olivier Hardouin Duparc; Ecole Polytechnique

4:50 PM Invited
John Cahn's Boss, Really?: Lyle Schwartz; Courtesy Professor at the University of South Florida

5:20 PM Concluding Comments
8th International Symposium on High Temperature Metallurgical Processing — Treatment and Recycling of Slag/Wastes

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

Thursday AM  Room: 18  Location: San Diego Convention Center

Session Chairs: Baogun Zhao, The University of Queensland; Matthew Andriese, Michigan Technological University

8:30 AM  Introductory Comments

8:35 AM
Introduction of Matte Droplets in Copper Smelting Slag: Xiangfeng Cheng1; Zhixiang Cui1; Leonel Leonel Contreras2; Mao Chen1; Anh Nguyen1; Baogun Zhao1; 1The University of Queensland; 2Dongying Fangyuan Nonferrous Metals; Codelco

8:55 AM
Dissolution Behavior of Fe from Glassy Oxide Phase in Steelmaking Slag: Shohei Koizumi1; Xu Gao1; Shigeru Ueda1; Shin-ya Kitamura1; 1Tohoku University; 2Institute of Multidisciplinary Research for Advanced Materials, Tohoku University

9:15 AM
Penetration Depth of Microwave in Tire Rubber: Yuzhe Zhang1; Jiann-Yang Hwang1; Zhiwei Peng1; Matthew Andriese1; Bowen Li1; Xiaodi Huang1; Xindi Wang1; Xin Yan1; 1Michigan Technological University; 2Michigan Technological University; 3Central South University; 4Michigan Technological University; 5Advanced Materials R&D Center of WISCO

9:35 AM
Effect of FeO and CaO/SiO2 on the Degree of Metallization during Carbothermic Reduction of EAF Slags: Jongbae Kim1; Il Sohn2; 1Yonsei University

9:55 AM
Effect of TiO2 on Thermophysical Properties and Structure of P-bearing Steelmaking Slags: Zhanjun Wang1; Zuotai Zhang1; Mei Zhang1; Min Guo1; 1University of Science and Technology Beijing; 2South University of Science and Technology of China

10:15 AM Break

10:35 AM
Analysis for Optimum Conditions for Recovery of Valuable Metals from E-Waste through Black Copper Smelting: Mohammad Al Hossaini Shuva1; M Akbar Rhamdhan1; Geoffrey A Brooks2; Syed Masood1; Markus A Reuter1; Muhamad Firdaus1; 1Swinburne University of Technology; 2Helmholtz Institute Freiberg for Resource Technology

10:55 AM
The Reduction of Chromite or Chromium Slag with Silicon Wafer Kerlooss: Jong Ho Kim1; 1Research Institute of Industrial Science and Technology

11:15 AM
Precipitation Behavior of MxTi3-xO5 in the Titanium-Bearing Electric Furnace Slag: Pujiang Zheng1; Xiaoaming Qu1; Guanzhou Qiu1; Yufeng Guo1; Tao Jiang1; 1Central South University

11:35 AM
Research on the Slag Type of Laterite Ores Smelting Reduction: Liu Chang1; 1Shanghai University

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Aerospace and Aluminum Alloys

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

Thursday AM  Room: 7B  Location: San Diego Convention Center

Funding support provided by: TMS: Additive Manufacturing Committee

Session Chairs: Behrang Poorganji, YTC America Inc.; Kenta Yamanaka, Tohoku University

8:30 AM Invited
Alcoa Additive Manufacturing: A Revolution in the Making: John Barnes1; Chris Aldridge2; 1Alcoa

9:00 AM
Evolution of Aluminum Alloys Structure at Production Phases of 3D Products by Methods of Additive Technologies: Ivan Redkin1; Victor Mann1; Aleksandr Krokhin2; Aleksandr Alabin2; Sergey Zmanovskiy1; Valentin Konkevich1; 1RUSAL Global Management B. V.

9:20 AM
Characterization of Multiperforated Plates Manufactured by SLM and EBM for Aeronautical Applications: Marc Thomas1; Océane Lambert2; Cécile Davoine1; Fabienne Popoff2; Corinne Dupuy2; Patrice Peyre2; Rémy Dendievel1; 1ONERA; 2ENSAM ParisTech; 3SiMaP

9:40 AM
The Effect of Heat Treatments and Micro-mechanism Investigation on Anisotropic Creep and Low Cycle Fatigue properties of IN718 Processed by Selective Laser Melting: Changpeng Li1; Guofeng Chen1; Zhiqiang Zhao2; Zhongjiao Zhou2; 1Corporate Technology, Siemens; 2Tsinghua University

10:00 AM Break

10:20 AM
Emerging High-strength Aluminum Alloys for Selective Laser Melting: Todd Mower1; 1MIT Lincoln Laboratory

10:40 AM
AlSi10Mg Lattice Structures Processed by Selective Laser Melting: Influence of the Geometry and the Heat Treatments on the Microstructure: Pauline Delroisse1; Olivier Rigo2; Pascal Jacques1; Aude Simar1; 1Université Catholique de Louvain; 2Sirris

11:00 AM
Porosity Determination in Powder Bed Aluminum Alloy: Lisa Delbier1; Jay Carroll1; Jeff Rodelas1; 1Sandia National Laboratories

11:20 AM
Understanding the Columnar-to-Equiaxed Transition in Additive Manufacturing: Mark Easton1; Dong Qiu1; Mitesh Patel2; Gii Wang3; Milan Brandt1; David Stifohn2; 1Royal Melbourne Institute of Technology University; 2University of Queensland

11:40 AM
Direct Laser Metal Deposition of Eutectic Al-Si Alloy for Automotive Applications: Amrinder Singh1; Abhishek Ramakrishnan2; Guru Dinda3; 1Wayne State University
Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Feedstock

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

Thursday AM  Room: 7A  Location: San Diego Convention Center

Session Chairs: Chantal Sudbrack, NASA Glenn Research Center; Bryan Mcenerney, Jet Propulsion Laboratory

8:30 AM Invited Investigation of Powder Feedstock Variability for SLM Alloy 718: Chantal Sudbrack; David Ellis; NASA Glenn Research Center

9:00 AM The Influence of Gas Cooling in Context of Wire Arc Additive Manufacturing: A Novel Strategy of Affecting Grain Structure and Size: Philipp Henckell; Technische Universitat Ilmenau

9:20 AM Tomography and 3D Grain Mapping for Additive Manufacturing Qualification: Leah Laverty; Hirshikesh Bale; Jeff Gelb; Amo Merkle; Carl Zeiss X-ray Microscopy, Inc.

9:40 AM Invited Qualification Development for AlSi10Mg for Robotic Spaceflight: Bryan Mcenerney; R. Dillon; John Paul Borgonia; Daniel Weinstock; Andrew Shapiro-Scharlotta; Jet Propulsion Laboratory

10:10 AM Break

10:30 AM Numerical Investigations of the Coating Process during Powder Bed Additive Manufacturing: Mustafa Megahed; Wolfgang Ottow; ESI Group

10:50 AM In-process Monitoring of Cross Contamination in Laser Powder Bed Fusion Additive Manufacturing: Mahdi Jamshidinia; Paul Boulware; Jacob Marchal; Heimdall Mendoza; Lance Cronley; Scott Newhouse; EWI

11:10 AM Microstructure and Mechanical Properties of Laser Deposited Ni/WC Metal Matrix Composite Coatings: Abhishek Ramakrishnan; Anrinder Singh; Guru Dinda; Wayne State University

11:30 AM Invited Phase-field Modeling of Microstructure Evolution during Additive Manufacturing of Ti-6Al-4V Alloys: Yanzhou Ji; Lei Chen; Long Qing Chen; Penn State University; Mississippi State University

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session VII

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

Thursday AM  Room: 33C  Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Representation of Materials Microstructure for Modeling: Veronica Livescu; Curt Bronkhorst; George Gray; Carl Trujillo; Daniel Martinez; James Valdez; Bineh Ndefru; Olivia Dippo; Roberta Beal; Los Alamos National Laboratory

8:50 AM Determination for Dynamic Fracture Toughness of Linear Elastic Materials Using the Large Dimensional Hopkinson Tube: Chunhua Guo; Ding Yuan; Peijun Zhou; Kennth. S. Vecchio; Fengchun Jiang; Harbin Engineering University; University of California, San Diego La Jolla

9:10 AM Determination of Geometrically Necessary Dislocations in Large Shear Strain Localization in Metals: Chuayi Zhu; Veronica Livescu; Tyler Harrington; Olivia Dippo; George T. Gray III; Kenneth Vecchio; UC San Diego; Los Alamos National Laboratory

9:30 AM High Temperature Dynamic Mechanical Behavior Characterization of Ti-6Al-4V Using a NEW Compression Kolsky Bar Technique: Sindhura Gangireddy; Steven Mates; NIST

9:50 AM Break

10:10 AM Dissecting Dislocation Dynamics Simulations: The Search for the Origins of Dislocation Microstructure Evolution: Ahmed Hussein; Brahim Akdim; Edwin Antilllon; Christopher Woodward; Satish Rao; Tricipanic Parthasarathy; Air Force Research Laboratory; UES Inc.; EPFL

10:30 AM Toward a Description of Disinclination Densities Using Orientation Imaging Data: Asher Leff; Christopher Weinberger; Mitra Taheri; Drexel University

10:50 AM Effects of Crystal Orientation on Shock Induced Dislocation Dynamics of Single Crystalline Copper: Anupam Neogi; Nilanjan Mitra; IIT Kharagpur

11:10 AM Dislocation Interaction and Fatigue Damage Evolution at Grain Boundaries Studied by In-situ Cyclic Loading of Bi-crystalline Micro Samples: Christian Motz; Jorge Rafael Velayarace; Saarland University

11:30 AM On the Optimization of a Biaxial Tensile Test Specimen Design: Dilip Banerjee; Mark Iadicola; Adam Creuziger; NIST

11:50 AM Microstructure Characterisation of Drilled Chips of 316L Stainless Steel: Guocai Chai; Raveendra Sirisk; Fritz Yah; Sandvik Materials Technology; Sandvik Coromant

Advanced High-Strength Steels — Processing of Advanced Steels

Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Amy Clarke, Colorado School of Mines; Young-Kook Lee, Yongsei University; Matthias Millitzer, The University of British Columbia

Thursday AM  Room: 17A  Location: San Diego Convention Center

Session Chairs: Dirk Ponge, Max-Planck-Institut fuer Eisenforschung; Mingxin Huang, The University of Hong Kong

8:30 AM Properties and Applications of Industrially Processed Hot Rolled High-manganese TWIP Steels: Thorsten Roesler; Maximilian Nagel; Johan Driesen; Andreas Tomitz; Jens Overraith; Harald Hofmann; Helmut Richter; Hans Ferkel; Thyssenkrupp Hohenlimburg; Thyssenkrupp Steel Europe

8:50 AM Hot Stamping Process for Steel Parts with Higher Ductility: Ersoy Erisir; Oezg Bilir; Kocaeli University

9:10 AM Process Window for Heavy Plastic Deformation of a Ferritic-austenitic Steel: Katharina Schwarz; Timo Muller; Anton Hohenwarter; Reinhard Pippel; Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; Department of Materials Physics, University of Leoben, Austria
9:30 AM Invited
Free the Electron: Mitigating Polaronic Bottlenecks in Cathode Materials: Sarbajit Banerjee; Texas A&M University

8:55 AM Invited
Increasing Ionic Conductivity with Highly Ionizing Radiation: Jacob Shamblin; Cameron Tracy; Rodney Ewing; Joshua Sangoro; Caitlin Taylor; Maulik Patel; William Weber; Raúl Palomares; Eric O’Quinn; Maik Lang; The University of Tennessee; Stanford University

9:15 AM
Mechanical Degradation and Optimization of Solid Electrolyte Interphases in Li Ion Batteries: Brian Sheldon; Ravi Kumar; Anton Tokranov; Xingchengu Xia; Brown University; General Motors

9:35 AM Invited
Multifunctional Graphene-based Hybrid Nanomaterials for Renewable Energy: Sanju Gupta; Western Kentucky University

9:55 AM Break

10:15 AM Invited
Nanoscale Electrochemistry with In Situ Transmission Electron Microscopy: Reza Shahbazian-Yassar; University of Illinois at Chicago

10:40 AM
Preparation and Characterization of Equatorium Adenophorum-derived Activated Carbon by Microwave-heating KOH and K2CO3 Activation: Li Chunyang; Zhang Libo; Xia Hongying; Cheng Song; Shu Jianhua; Kunming University of Technology and Science

11:00 AM Invited
High Energy Density Lithium Ion Battery Based on Li2O Activation: Ali Abouimrane; Yanjie Cui; Zonghai Chen; Ilias Belharouak; Hamdi Yahia; Huiming Wu; Rajeev Assary; Larry Curtis; Khalil Amine; Hamad Bin Khalifa University; Argonne National Laboratory

Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Session V
Program Organizers: Sinn-wen Chen, National Tsing Hua University; Franck Gascoin, ENSICAEN University of Caen; Soon-jik Hong, Kongju National University; Philippe Jund, Université de Montpellier; Lan Li, Boise State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University

Thursday AM Room: 22
March 2, 2017 Location: San Diego Convention Center

Session Chairs: Franck Gascoin, Laboratoire CRISMAT; Yang-yuan Chen, Academia Sinica

8:30 AM Invited
Diamond-Like and “Diamond-Unlike” Ternary Copper Based Semiconductors for Thermoelectrics: Donald Morelli; Michigan State University

8:50 AM Invited
Intrinsic Thermoelectric Properties of SnSe Single Crystals and Its Associates: Yong-yuan Chen; P.C. Wei; Institute of Physics, Academia Sinica

9:10 AM
Engineering High-zT In-doped GeTe: The Phase Equilibria and Thermoelectric Properties: Jie-Ru Deng; Hsin-jay Wu; Department of Materials and Optoelectronic science, National Sun Yat-sen University

9:30 AM
Thermoelectric Properties of PbTe-based Materials Fabricated by a Melt Spinning Method: Preyakarn Eaksuwanchai; Ken Kuroaski; Michihiro Ohta; Priyanka Jood; Yuji Ohishi; Hiroaki Muta; Shinsuke Yamanaka; Osaka University; AIST

9:50 AM
Thermoelectric Properties of Amorphous Half-Heusler Thin Films Synthesized by Magnetron Sputtering: Liangliang Li; Tsinghua University

10:10 AM Break

10:30 AM Invited
Exploratory Research of New Polar Chalcogenides: Robin LeFevre; Stefan Maier; David Berthebaud; Franck Gascoin; CRISMAT Laboratory

10:50 AM Invited
Theoretical and Experimental Investigation of the Electronic Structure and Thermoelectric Properties of the Fe3V1Al Heusler Compound: Subrahmaniam Bandaru; Florence Rouessac; Philippe Jund; ICGM-Montpellier University

11:10 AM
Thermoelectric Properties of MnTe- and MnTe2-based Materials: Quansheng Guo; Takao Mori; NIMS

11:30 AM
Thermoelectric Performance of Undoped and Ag Doped Mg2Sn Alloys: Rameshkrumar Varma; Sitarama Kada; Matthew Barnett; Deakin University

11:50 AM
The Impact of Various Wafer Cleans on Surface Recombination in Crystalline Silicon: Huider Ali; Kristopher Davis; Winston Schoenfeld; University of Central Florida

12:10 PM Concluding Comments

Advanced Materials for Energy Conversion and Storage — Functional Materials II

Thursday AM Room: 15A
March 2, 2017 Location: San Diego Convention Center

Session Chairs: Reza Shahbazian-Yassar, University of Illinois at Chicago; Paul Ohodnicki, NETL

8:00 AM Invited
Microstructure and Mechanical Properties of Nano/ultra-fine Structured High Strength Steels for High Temperature Structural Applications: Hasan Koton; Kris Darling; Konya NEU; U.S. Army Research Laboratory

9:50 AM
Quantitative Analysis of the Precipitate Coarsening in HSLA Steels: Yiqiang Wang; Clark Samuel; Janik Vit; Richard Heenan; Kun Yan; Sridhar Seetharaman; Peter Lee; University of Manchester; University of Warwick; ISIS Facility, Science and Technology Facilities Council

10:10 AM Break

10:30 AM
Related Mechanisms in Athermal and Deformation-induced Martensitic Transformation in Austenitic Fe-Cr-Ni Alloys: Ye Tian; Annika Borgenstam; Peter Hedström; KTH Royal Institute of Technology

10:50 AM
Thermodynamic-mechanical Modeling of Deformation-induced Martensitic Transformation Aided by In-situ Magnetic Measurements during Tensile Tests: Michael Hauser; Marco Wendler; Olena Volkova; Javad Mola; TU Bergakademie Freiberg

11:10 AM
Computational Design of Metastable Retained Austenite in Advanced High Strength Steels: Hao Chen; Zhigang Yang; Chi Zhang; Zongbiao Dai; Tsinghua University

11:30 AM
Modelling Microstructural Alterations in Bearing Steels undergoing Cyclic Loading: Hanwei Fu; Enrique Galindo-Nava; Pedro Rivera-Diaz-del-Castillo; University of Cambridge

11:50 AM Concluding Comments
Aluminum Reduction Technology — Technology Development
Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Thursday AM Room: 2
March 2, 2017 Location: San Diego Convention Center

Session Chair: Till Reek, Trimet Aluminium SE

8:30 AM Introductory Comments

8:35 AM
Implementation of D18+ Cell Technology at EGA Jebel Ali Smelter: Daniel Whitfield; Sergey Akhmetov; Jose Blasques; Harishchandra Devadiga; 1Emirates Global aluminium (EGA)

9:00 AM
Enabling Efficient Heat Recovery from Aluminium Pot Gas: Daniel Clos; Trond Andresen; Petter Nekså; Sverre Johnsen; Ragnhild Aune; 1SINTEF Energy research; 2SINTEF Materials and Chemistry; 3Norwegian University of Science and Technology

9:25 AM
DX+ Ultra — EGA High Productivity, Low Energy Cell Technology: Nadia Ahli; Abdalla Zarouni; Michel Reverdy; 1Emirates Global aluminium (EGA)

9:50 AM
Crane Electrical Isolation Monitoring in Potlines: New CANDI 4.0 Development: Serge Despinasse; Eric Norel; Fabienne Virieux; 1Fives ECL; 2Fives Sollos

10:15 AM
The Successful Implementation of AP40 Technology at Kitimat: Patrice Desroisiers; Martin Robitaille; Pierre Luc Voyer; Silvino Caetano; René Gariépy; Olivier Martin; Pascal Robert; 1Rio Tinto; 2Rio Tinto Alcan

Program Organizers: Shi Jie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafig Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Thursday AM Room: 15B
March 2, 2017 Location: San Diego Convention Center

Session Chair: Maurits Van Camp, Umicore Group Research & Development

8:30 AM
Corrosion Mitigation Approaches for High Temperature Energy Production: Judith Vidal; 1National Renewable E

8:50 AM

9:10 AM
Thermal Energy Storage in Orientationally Disordered “Plastic Crystals”: Dhanesh Chandra; Renhai Shi; Murli Tirumala; Daryl Nelson; 1Uni. of Nevada, Reno

9:30 AM
Corrosion Mechanism of Haynes 230 with Ni Crucible in MgCl2-KCl: Yuxiang Peng; Ramana Reddy; 1The University of Alabama

9:50 AM Break

10:10 AM
Functional Syntactic Foams: Titania Coated Glass Microballoons for Environmental Cleanup: Krishan Chawla; 1University of Alabama at Birmingham

10:30 AM
Conceptualization of Doped Black P Thin Films for Potential Use in Photovoltaics with Validation from First Principle Calculations: Sayan Sarkar; Wei Zeng; Michael Free; 1University of Utah

10:50 AM
Energy Efficiency and Sustainability in Steel Production: Lauri Holappa; 1Aalto University

11:10 AM
Application of Surface Effect on Metallurgical Processes: Kuo-Chih Chou; 1University of Science & Technology Beijing

Bulk Metallic Glasses XIV — Mechanical and Other Properties I
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Thursday AM Room: 33B
March 2, 2017 Location: San Diego Convention Center

Session Chairs: Koichi Tsuchiya, NIMS; Upadrasta Ramamurti, Indian Institute of Science

8:30 AM Invited
Thermal and Mechanical Properties of Deformation-Induced Amorphous Phase in Zr-Cu-Al Alloys: Koichi Tsuchiya; Jian Qiang; Fanqiang Meng; 1NIMS, NIMS; University of Tsukuba; 2Ams Laboratory, University of Iowa

8:50 AM Invited
Crystallization Behavior and Soft Magnetic Properties of (FeCo36B36Si36Nb16)36Co36B19.2Si4.8Nb4 1Bulk Metallic Glass: Mihai Stoica; 1Parthiban R.; Ivan Kaban; Sergio Scudino; Jürgen Eckert; 1IFW Dresden, Germany; 2ESI Leoben, Austria

9:10 AM
Structural Rejuvenation in Bulk Metallic Glasses with Varying Fictive Temperature: Hui Wang; Wojciech Dmowski; Jittisa Ketkaew; Jan Schroer; Zengquan Wang; Takeshi Egami; 1University of Tennessee, Knoxville; 2Yale University

9:30 AM
Controllable Thermal Stress and Micro-cracking in Processing Metallic Glasses by Selective Laser Melting: Ning Li; Di Ouyang; Jianji Zhang; Lin Liu; 1Huaizhong University of Science and Technology

9:50 AM Invited
On the Fracture Toughness and Fatigue Strength of Ni-based Glasses: Bernd Gludovatz; Edwin Chang; Mingxi Zheng; Jong Na; Maximilian Launey; Mario Demetriou; William Johnson; Robert Ritchie; 1Lawrence Berkeley National Laboratory; 2Glassmetal Technology Inc; 3Calttech

10:10 AM Break

10:30 AM
Bulk Metallic Glasses Composites Produced via Severe Plastic Deformation – Microstructure and Mechanical Properties: Lisa Kreuzer; Verena Maier-Kiener; Karoline Kornout; Yannick Champion; Reinhard Pippau; 1Erich Schimid-Institute of Materials Sciences, Austrian Academy of Sciences; 2Department Physicial Metallurgy and Materials Testing; 3Grenoble INP

10:50 AM
The Origins of Excellent Soft Magnetism in Fe65.5Cr4Mo4Ga4P12B5.5C5 Bulk Metallic Glasses: T. D. Shen; B. R. Sun; S. W. Xin; 1Yanshan University
11:10 AM
Rapid Degradation of Azo Dye by Co-Si-B Metallic Glass Powder: Xin Dong Qin; ZhengKun Li; ZhengWang Zhu; HuaMeng Fu; Hong Li; AiMin Wang; HongWei Zhang; HaiFeng Zhang; 1Instiute of Metal Research, Chinese Academy of Sciences

11:30 AM Invited
Crack Propagation of Metallic Glasses: Gang Wang1; J. Li1; J. Yi1; I. Hussain1; W. Y. Wang1; 1Shanghai University

Bulk Metallic Glasses XIV — Structures and Modeling I
Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University
Thursday AM Room: 33A
March 2, 2017 Location: San Diego Convention Center

Session Chairs: Karin Dahmen, University of Illinois at Urbana Champaign; Xie Xie, The University of Tennessee, Knoxville

8:30 AM Invited
Modeling Slips in Solids and Comparison to Experiments: Karin Dahmen1; Michael LeBlanc2; Peter Liaw3; Robert Maass4; Jonathan Uhl1; Wendelin Wright1; Xie Xie1; 1University of Illinois at Urbana Champaign; 2University of Illinois at Urbana-Champaign; 3The University of Tennessee, Knoxville; 4Retired; 5Bucknell University

8:50 AM Invited
On the Proper Determination of Power Law Exponents for Slip Statistics Using Experimental Data from Bulk Metallic Glasses: Wendelin Wright1; Michael LeBlanc2; Aya Nawano2; Xiaojun Gu1; J.T. Uhl1; Karin Dahmen1; 1Bucknell University; 2University of Illinois at Urbana-Champaign; 3Retired

9:10 AM Invited
The Statistics of Thermally Activated Structural Excitations in a Model Amorphous Solid: Peter Derlet1; Robert Maass2; 1Paul Scherrer Institut; 2University of Illinois at Urbana-Champaign

9:30 AM Invited
‘Crystal Genes’ in Metallic Liquids and Glasses: M. Kramer1; Y. Sun1; F. Zhang1; Z. Ye1; Y. Zhang1; X. Fang1; Z. Ding1; C. Z. Wang3; M.I. Mendelev5; R.T. Ott1; K.M. Ho1; R.E. Napoli1; 1Iowa State University; 2University of Science and Technology of China, Hefei, Anhui 230026, China

9:50 AM Effect of Size on the Intermittent Deformation Behavior of Metallic Glass Particles: So Yeon Kim1; Jinwoo Kim3; Koji Nakayama2; Karin Dahmen1; Eun Soo Park1; 1Seoul National University; 2Tohoku University; 3University of Illinois at Urbana-Champaign

10:10 AM Semi Finished Products Traceability Improvement with Laser Marking: Jean-Francois Desmeules1; Benoît Côté1; Jean-Daniel Dufour1; 1Dynamic Concept; 2Aluminerie Alouette Inc.

10:35 AM Structural Integrity Assessment of Pressurized Ladles for Aluminum Smelting: Maher Al-Dojayli1; Pouya Zangeneh1; Alexandre Lamoureux1; Daniel Richard1; Pierre-Louis Allaire1; Hamid Ghorbani1; 1Hatch

11:00 AM
Have Recent Advances in Direct Chill Casting Made Us Less Safe?: Alex Lowery1; 1WISE CHEM LLC

11:25 AM Concluding Comments

Characterization of Minerals, Metals, and Materials — Composites
Program Organizers: Shadia Ikhamayes, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CarmentMATERIALS; Jiayn-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute
Thursday AM Room: 31A
March 2, 2017 Location: San Diego Convention Center

Session Chairs: Jiayn-Yang Hwang, Michigan Technological University; Marcos Fernandes, USP

8:30 AM
Effect of Vulcanization Characteristics on Mechanical Properties of Natural Rubber-Organoclay Nanocomposites: Marcos Fernandes1; Christiano Bastos Andrade1; Fabio Esper1; Francisco Valenzuela Diaz1; Helio Wiebeck1; 1USP
8:50 AM
Study on Mechanical Epoxy Matrix Composites Reinforced with Pure Ramie Fabric: Caroline Gomes de Oliveira; Janine Feitosa de Deus; Ygor Macabu de Moraes; Marcos Vinicius Fonseca Ferreira; Frederico Margem Montei; Anna Neves; Carlos Vieira; Janaina Vieira; Dhiymila Mantovani; Jean Margem; State University of Northern Rio de Janeiro; Military Institute of Engineering; USECNSA

11:05 AM
Bending Tests in Polyester Composites Reinforced with Palf Fibers: Maria Carolina Teles; Frederico Margem; Sergio Neves; State University of the Northern Rio de Janeiro; Faculdade Redentor; Instituto Militar de Engenharia

11:25 AM
Influence of EM Radiation on the Mechanical Properties of Organic Bentonites-HIPS Nanocomposites: Francisco Mondelo Garcia; Amanda Roban; Giselle Colis; Jesus Eduardo Ruiz; Esperidiana Moura; Maria das Graças Valenzuela; Tania Moliner; Jose Luis Valin Rivera; Francisco Valenzuela-Diaz; Instituto Superior Politecnico Jose Antonio Echeverria; Centro de Biomateriales Universidad de la Habana; Instituto de Pesquisas Energéticas e Nucleares; Universidade Federal do ABC; Universidade de Sao Paulo

11:45 AM
Preparation and Characterization of Clay Exfoliation and Vegetal Fibre on Properties of Recycled Low Density Polyethylene (rLDPE) Amauche Achiassin-Udenko; Coida Renata; Francisco Valenzuela-Diaz; Gerald Onyedika; Moura Esperidiana; Martin Ogwuegbu; Graça Valenzuela; Federal University of Technology, Owerri; Universidade de Sao Paulo Escola Politecnica; Instituto de Pesquisas Energéticas e Nucleares, IPEN-CNEN/SP

8:30 AM
Characterizing Ballistic Resistance: Legacy Methods Versus Novel Statistical Tools: Frederik Coghe; Royal Military Academy (BE MoD)

8:50 AM
A Forward Modeling Approach to Defect Characterization in a Scanning Electron Microscope: Saransh Singh; Marc De Graef; Carnegie Mellon University

9:10 AM
In-Situ Femtosecond Laser Milling Technique for Microstructural Characterization: Tomoko Sano; Jonathan Ligda; US Army Research Laboratory

9:30 AM
Development of A New Recycling Process of PGM from Metal-supported Catalyst Using Complex Oxide: Takashi Nagai; Hiroki Kumakura; Kenji Abe; Rentaro Seki; Daiki Noguchi

9:50 AM
In Situ Mechanical and Thermal Damage Mechanisms Investigation in Asteroidal Rocks: Jefferson Cuadra; Kavan Hazeli; Harry Marst; KT Ramesh; Lawrence Livermore Nation Laboratory; University of Alabama in Huntsville; Johns Hopkins University

10:10 AM Break

10:25 AM
Tensile Behavior of Epoxy Matrix Composites Reinforced with Pure Ramie Fabric: Caroline Gomes de Oliveira; Janine Feitosa de Deus; Ygor Macabu de Moraes; Marcos Vinicius Fonseca Ferreira; Frederico Margem Maylaert; Sergio Neves Monteiro; Luiz Gustavo Xavier Borges; UENF - Universidade Estadual do Norte Fluminense Darcy Ribeiro; Faculdade Redentor; Institute of Military Engineering.

11:05 AM
Bending Tests in Polyester Composites Reinforced with Palf Fibers: Maria Carolina Teles; Frederico Margem; Sergio Neves; State University of the Northern Rio de Janeiro; Faculdade Redentor; Instituto Militar de Engenharia.

11:25 AM
Influence of EM Radiation on the Mechanical Properties of Organic Bentonites-HIPS Nanocomposites: Francisco Mondelo Garcia; Amanda Roban; Giselle Colis; Jesus Eduardo Ruiz; Esperidiana Moura; Maria das Graças Valenzuela; Tania Moliner; Jose Luis Valin Rivera; Francisco Valenzuela-Diaz; Instituto Superior Politecnico Jose Antonio Echeverria; Centro de Biomateriales Universidad de la Habana; Instituto de Pesquisas Energéticas e Nucleares; Universidade Federal do ABC; Universidade de Sao Paulo.
Characterization of Minerals, Metals, and Materials — Welding and Solidification
Program Organizers: Shadia Ikthmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Firrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

Thursday AM Room: 31B March 2, 2017 Location: San Diego Convention Center
Session Chairs: Chenguang Bai, Chongqing University; Pasquale Spena, Free University of Bozen-Bolzano

8:30 AM
Characterization of Explosively Bonded Interfaces for High Contaminant Sensitivity Environments: Olivia Underwood; Jonathan Madison; Lisa Deibler; Jeffrey Rodelas; Sandia National Laboratories

8:50 AM
Investigation on the Local Mechanical Behavior of Laser Weldments in AHSS TWBs: Pasquale Russo Spena; Luca Cortese; Filippo Nalli; Daniel Reiterer; Free University of Bozen-Bolzano; Sapienza - Università di Roma; IDM Südtirol-Alto Adige

9:10 AM
Microstructural Evolution of Porous Materials by Magnetic Freeze Casting: Pooya Niksiar; Michael Frank; Joanna McKinrick; Michael Porter; Department of Mechanical Engineering, Clemson University, Clemson; Materials Science and Engineering Program, University of California, San Diego

9:30 AM
Mechanical Characterization of Weldment Zones of Selected Oil and Gas Pipeline Steel: Bodude Adebayo; University of Lagos

9:50 AM
Influence of Cooling Rate on Solidification of the Ti-37.8Cu-18.7Ni Alloy: Walman Castro; Universidade Federal de Campina Grande

10:10 AM Break

10:25 AM
Reconstruction of Solidification History from the Cast Microstructure of a Vacuum Arc Remelted Nickel Alloy 718 Ingot: Thomas Ivanoff; Trevor Watt; Eric Tallef; University of Texas at Austin; StrataSys

10:45 AM
The Effects of Refractory Element Addition on the Long Term Stability and Microstructural Characteristics of Nickel-Based Superalloys: Rasim Eris; M. Vedat Akdeniz; Amdulla O. Mekhrabov; Novel Alloys Design and Development Laboratory (NOVALAB), Department of Metallurgical and Materials Engineering, Middle East Technical University

11:05 AM
Interfacial Strength Characterization in a High-modulus Low-density Steel-based Fe-TiB2 Composite: Yezhuang Li; Mingxin Huang; The University of Hong Kong

Computational Materials Discovery and Optimization — From Bulk to Materials Interfaces and 2D Materials — Kinetics and Processing
Program Organizers: Richard Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Thursday AM Room: 11A March 2, 2017 Location: San Diego Convention Center
Session Chair: To Be Announced

8:30 AM
Solute Transport in Mg: Beyond the 8-frequency Model: Ravi Agarwal; Dallas Trinkle; University of Illinois, Urbana-Champaign

8:50 AM
Elucidating Ordering and Decomposition Processes in Alloys from First-principles: Aniruth Raju Nataraj; John Thomas; Brian Puchala; Anton Van der Ven; University of California; University of Michigan

9:10 AM
Exploration of Amorphous Silica Glass Using Molecular Dynamics and Density Functional Theory: William Schill; Michael Ortiz; California Institute of Technology

9:30 AM
The Evolution of Precipitates in an Al-Cu Alloy Investigated with Phase Field Theory: Patrick Shower; Balasubramaniam Radhakrishnan; James Morris; Amit Shyam; Oak Ridge National Laboratory

9:50 AM
Phase Field Crystal Modeling of Grain Boundaries in Two-dimensional Binary Materials: Doaa Tahal; Simiso Mkhotya; Ken Elder; Zhi-Feng Huang; Wayne State University; University of Swaziland; Oakland University

10:10 AM Break

10:25 AM
Compliant Substrate Epitaxy: Au on MoS2: Yuzhi Zhou; Daisuke Kiriya; Eugene Haller; Joel Ager; Ali Javey; Daryl Chran; University of California, Berkeley and Lawrence Berkeley National Laboratory

10:45 AM
Effects of Rarefied Atmospheres on Freezing and Sublimation: Rahul Basu; VTU

11:05 AM
Modelling of Ni Nanohoneycomb Actuation in Water: Yuqi Zhang; Alfonso Hing Wan Ngan; The University of Hong Kong

11:25 AM
Modeling the Hydroforming of Large Grain Niobium Tube: Aboozar Mapar; Thomas Bieler; Farhang Pourboghrat; Michigan State University; The Ohio State University

11:45 AM
Band Gap Opening in 2D Bi-layered Silicon Film: Zhonghang Ji; Yan Zhuang; Wright State University
### Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions — Uncertainty Quantification and Model Validation for Classical Force Fields

**Program Organizers:** Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida; Li Ma, NIST; Shawn Coleman, ARL; Jeff Doak, QuesTek Innovations, LLC; Fadi Abdeljawad, Sandia national Laboratory

**Thursday AM**

<table>
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<tr>
<th>Time</th>
<th>Session Title</th>
<th>Chair</th>
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| 9:00 AM      | Development of Semi-Empirical Potentials Suitable for Simulation of Phase Transformations in Titanium | Niaz Abdolrahim; Stephen Boundaries and Defects II Program Organizers:  
1:  Richard Hennig;  
2:  Shawn Coleman, ARL;  
3:  Jeff Doak, QuesTek Innovations, LLC;  
4:  Fadi Abdeljawad, Sandia national Laboratory |
| 9:20 AM      | Evaluation and Comparison of Classical Interatomic Potentials through a User-friendly Interactive Web-interface: Kamal Choudhary; Faical Congo | Francesca Tavazza; National Institute of Standards and Technology |
| 10:00 AM     | Evaluation of Atomic Potentials for Silicon: Ganga P. Purja Pun; Y. Mishin | George Mason University |
| 10:10 AM     | Break                                                                       |           |
| 10:30 AM     | Uncertainty Quantification of Classical Interatomic Potentials: Eugene Ragasa; Christopher O’Brien; Richard Hennig; Stephen Foiles; Simon Phillpot | University of Florida; Sandia National Laboratories |
| 11:00 AM     | Molecular Dynamics, Dislocation Interactions and Uncertainty: Lucas Hale; Zachary Trautt; Chandler Becker | National Institute of Standards and Technology |

### Deformation and Transitions at Interfaces — Grain Boundary Interactions with Dislocation and Twins in Hexagonal Metals

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

**Thursday AM**

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<th>Time</th>
<th>Session Title</th>
<th>Chair</th>
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<tr>
<td>8:30 AM</td>
<td>Influence of Twin-grain Boundary Interactions on Further Twin Growth and Twin Transmission in HCP Metals: Carlos Tome; M. Arul Kumar; Irene J. Beyerlein</td>
<td>Los Alamos National Lab</td>
</tr>
<tr>
<td>8:50 AM</td>
<td>Investigation of Dislocation Activities during Slip Transmission across Alpha/ Beta Interface in Ti-alloy Using Microscopic Phase-Field: Pengyang Zhao; Chen Shen; Ju Li; Michael Mills; Yunzhi Wang</td>
<td>The Ohio State University; GE Global Research, US; Massachusetts Institute of Technology</td>
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<td>9:10 AM</td>
<td>Slip-induced Twinning in Ti: Maryam Ghazisaeidi</td>
<td>Ohio State University</td>
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<td>9:30 AM</td>
<td>[To12] Twin Faceting on Non-tilt Interfaces: Christopher Barrett; Haitham El Kadiri</td>
<td>Mississippi State University</td>
</tr>
<tr>
<td>9:50 AM</td>
<td>Intergranular and Transgranular Fracture Modes in H.C.P. Alloys: Ismail Mohamed; S. Ziaei; Mohammed Zikry</td>
<td>North Carolina State University</td>
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<td>10:10 AM</td>
<td>Break</td>
<td></td>
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<tr>
<td>10:30 AM</td>
<td>Dislocation/Interface Interaction in Titanium: Molecular Dynamics Study: Mohammad Shahrivar Hooshmand; Maryam Ghazisaeidi</td>
<td>The Ohio State University</td>
</tr>
</tbody>
</table>
11:10 AM Invited
Hydrometallurgical Processing of Copper Smelter Dust for Copper Recovery as Nanoparticles: A Review: Daniel Okanigbe; Tshwane University of Technology (TUT)

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Transient Liquid Phase Bonding and Nanosolder
Program Organizers: Fan-Yi Ouyang, National Tsing Hua University; C. Robert Kao, National Taiwan University; Albert T Wu, National Central University; Faw Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nagita, The University of Queensland

Thursday AM Room: 30E Location: San Diego Convention Center

Session Chairs: Fan-Yi Ouyang, National Tsing Hua University; Tae-Kyu Lee, Portland State University

8:30 AM
Transient Liquid Phase Processing of Sn-Cu Alloys for Soldering Applications: Stuart McDonald; Syeda Mehreen; Flora Somidin; Arif Mihd Salleh; Kazuhiro Nagita; Nihon Superior Centre for the Manufacture of Electronic Materials

8:50 AM
Low Thickness Au-In TLP Hermetic Encapsulation: Eyup Can Demir; Oguzhan Temel; Tayfun Akin; Eren Kalay; METU; METU MEMS

9:10 AM
Microstructural Evolution and Mechanical Performance of High-Bi, Sn-Bi Transient Liquid Phase Bonds: John Holaday; Carol Harderker; Purdue University

9:30 AM
Microstructure and Thermomechanical Properties of Nanoparticle-added Sn-Ag-Cu Solder Paste: Kyoung-Ho Kim; Jung-Hwan Bang; Junichi Koike; Jonghyuk Yoon; Songhee Yim; Bum-Gyu Back; Jae-Pil Jung; Sehoon Yoo; Korea Institute of Industrial Technology; Tohoku University; KD One; University of Seoul

9:50 AM Break

10:10 AM
Effect of Lead-free Nanosolder Additions on the IMC Formation and Growth of Solder Paste on Cu Substrate: Evan Wermick; Zhiyong Gu; University of Massachusetts Lowell

10:30 AM
Nano Solder Interconnections by Low Temperature Soldering of Cu6Sn5: Ying Zhong; University of California, San Diego

Energy Materials 2017: Materials for Coal-Based Power — Session IV
Program Organizers: Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Zhengdong Liu, China Iron & Steel Research Institute Group; Sebastien Dryepondt, Oak Ridge National Laboratory

Thursday AM Room: 12 Location: San Diego Convention Center

Session Chair: Gordon Holcomb, NETL, U.S. Department of Energy

8:30 AM Invited
A New Austenitic Heat-Resisting Steel SP2215 for 620-630° USC Boiler Tubing Application: Xishan Xie; University of Science and Technology Beijing

9:10 AM
Development of Wrought Ni-Cr-Al Alloy with High Temperature Corrosion Resistance: Yoshihiro Koyanagi; Hiroyuki Takabayashi; Shigeki Ueta; Daido Steel Co., Ltd.

Program Organizers: Raul Rebak, GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Hosemann, University of California Berkeley; Jian Li, CanmetMATERIALS

Thursday AM  Room: Miramar  Location: Marriott Marquis Hotel & Marina

Session Chairs: Zhengdong Liu, China Iron & Steel Research Institute Group; Yiyin Shan, Institute of Metal Research, Chinese Academy of Sciences

8:30 AM Invited
Environmental Assisted Cracking of the Additively Manufactured Austenitic Stainless Steel in High Temperature Water: Xiaoyuan Lou1; Paul Emigh1; Michelle Othon1; ‘GE Global Research

9:10 AM Invited
Effect of Steam Pressure on the Oxidation Behaviour of Alloy 625: Shengli Jiang1; Xiao Huang2; Wenjing Li3; Pei Liu3; ‘Institute of Metal Research, Chinese Academy of Sciences; ‘Carleton University; ‘Canadian Nuclear Laboratories; ‘CANMET

9:50 AM
Calculation of Phase Equilibria and Properties in Multi-Component Molten Salt Systems: Shuanglin Chen1; Weisheng Cao1; Fan Zhang1; Chuan Zhang1; Jun Zhu1; ‘CompuTherm LLC

10:10 AM Break

10:25 AM
IASC Behavior of Nickel-based Alloys in Light Water Reactors (LWRs): Mi Wang1; Miao Song1; Gary Was1; ‘University of Michigan

10:45 AM
Neutron Irradiation Effect on 0.4t-CT Specimen of Alloy 690 Tested at Elevated Temperature: Joo-Hag Kim1; Jong-Wook Kim1; ‘KAERI

11:05 AM
Oxidation of Alloy 690 in Simulated Pressurized Water Reactor Primary Environment: Wenjuan Kuang1; Xiao Wang2; Peng Wang2; Gary Was2; ‘University of Michigan

11:25 AM
Compatibility Research of Fission Product Tellurium and Alloy N in Molten Salt Reactor: Z.J. Li1; ‘Shanghai Institute of Applied Physics CAS

11:45 AM
Friction Stir Processing of Degraded Austenitic Stainless Steel Nuclear Fuel Dry Cask Storage System Canisters: Ben Sutton1; Kenneth Ross2; Glenn Grant2; Gary Cannell3; Greg Frederick3; Robert Couch3; ‘Electric Power Research Institute; ‘Pacific Northwest National Laboratory; ‘Fluor Enterprises, Inc.

Energy Technologies — CO2 Management and Sustainable Metallurgical Processes

Program Organizers: Lei Zhang, University of Alaska Fairbanks; Jaroslav Drellich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu, Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Abo Akademi University

Thursday AM  Room: 13  Location: San Diego Convention Center

Session Chairs: Donna Guillen, Idaho National Laboratory; Cong Wang, Northeastern University; Fiseha Tesfaye, Abo Akademi University

8:40 AM Invited
Large scale energy storage through heat balance shifts at Aluminium Smelters: Mark Taylor1; ‘University of Auckland

9:00 AM Invited
Transforming the way electricity is consumed during the aluminium smelting process: Mark Dorreen1; Linda Wright2; Geoff Matthews3; Pretesh Patel4; David Wong5; ‘Light Metals Research Centre, The University of Auckland; ‘One World Consulting Limited; ‘Energia Potior Limited; ‘Auckland Uniservices Limited
9:20 AM Invited
Disordered 3D Multi-layer Graphene Anode Material from CO2 for Sodium-Ion Batteries: Hui (Claire) Xiong; Kassipoeia Smith; Wei Wei; Yun Hang Hu; 'Boise State University; 'Michigan Technological University

9:40 AM
Power Generation Using Combined In-situ Combustion with CO2 Separation and Sequestration: Subodh Das; Jeff Saey; 'Phinix, LLC; 'University of Kentucky

10:00 AM Break

10:15 AM Invited
The Thermodynamics of Slag Forming Inorganic Phases in Biomass Combustion Processes: Daniel Lindberg; Fiseha Tesfaye; 'Åbo Akademi University

10:35 AM
Leaching of Sb from TROF Furnace Doré Slag: Petteri Halli; Simon Jolivet; Andreas Klöverskjöld; Petri Latstonenmaa; Benjamin Wilson; Mari Lundström; 'Aalto University; 'Polycythe Grenoble; 'Boliden Harjavalta

10:50 AM Invited
Potential CO2 Emission Reduction and H2 Production Using Industrial Slag Wastes Originating from Different Industrial Sectors: Jinichiro Nakano; James Bennett; Anna Nakano; 'US Department of Energy National Energy Technology Laboratory

11:15 AM
The Effect of Pitch on the Metallurgical Properties of Iron Coke: Qiu Shuxing; 'Chongqing University

11:35 AM
Absorption of Atmospheric CO2 Using Banana Peel Waste: Ajit Gaikwad; Krishna Vootha; Likhith Nalluri; A.K.M. Monayem Mazumder; Ramesh Guduru; 'Lamar University

Fracture Properties and Residual Stresses in Small Dimensions — Fracture Testing Methodologies
Program Organizers: Daniel Kiener, University of Leoben; Marco Sebastiani, Roma TRE university; Nagamani Jaya Balila, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Thursday AM  Room: 21  Location: San Diego Convention Center

Session Chairs: Nathan Mara, Los Alamos National Laboratory; Richard Vinci, Lehigh University

1100K

8:30 AM Invited
SEM-based In-situ Fracture Measurements of Ceramics and Metals: Richard Vinci; 'Lehigh University

9:00 AM
In Situ Stable Fracture of Sapphire-Niobium Interfaces: Rui Hao; Giorgio Sernicola; Eduardo Saiz; 'Finn Giuliani; 'University of Illinois at Urbana-Champaign; 'Imperial College London

9:20 AM
Measurement of the Fracture Toughness of Thin Films by Pillar Splitting: Effect of Materials Structure and Indenter Geometry: Matteo Ghidelli; Marco Sebastiani; 'University of Roma Tre

9:40 AM Invited
Enhancing Ductility of Metal-Metal (BCC-HCP) and Metal-Ceramic Multilayered Nanocomposites: Nathan Marra; Siddhartha Pathak; William Mook; Youxing Chen; Nan Li; Jon Baldwin; 'Jian Wang; Irene Beyerlein; 'Los Alamos National Laboratory; 'University of Nevada, Reno; 'Sandia National Laboratories; 'University of Nebraska, Lincoln

Friction Stir Welding and Processing IX — Industrial Applications
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Thursday AM  Room: 9  Location: San Diego Convention Center

Session Chairs: Anthony Reynolds, University of South Carolina; Lars Cederqvist, SKF

10:10 AM Break

10:30 AM
Indentation Fracture Experiments on Single Crystal Olivine from 300K to 1100K: David Armstrong; Katie Kumamoto; David Wallis; Steve Roberts; Angus Wilkinson; Jessica Warren; Lars Hansen; 'University of Oxford; 'Stanford University; 'University of Delaware

10:50 AM
Small-scale Testing Methodology to Study Fracture Toughness of Interfaces in Multilayered Systems: Adnan Özekcin; Richard Vici; Srinivasan Rajagopalan; 'ExxonMobil Research and Engineering Company; 'Lehigh University

11:10 AM
Orientation Dependent Fracture Behaviour of LiTaO3 and LiNbO3 Single Crystals: Manuel Gruber; Raul Bermejo; Jeroen Bielen; Peter Supanic; Robert Danzer; 'Daniel Kiener; 'Montanuniversität Leoben; 'Epcos Netherlands B.V.; A TDK Group company

11:30 AM
Extraordinary Stability of Clamped Beam Fracture Toughness Specimen: Stress Intensity Factor Solutions and New Insights on Possibilities at Small Dimensions: Nagamani Jaya Balila; Vikram Jayaram; 'MPIE GmbH; 'Indian Institute of Science, Bangalore

8:30 AM Keynote
Growth of Friction Stir Welding and Processing: Contributions of Murray W. Mahoney: Rajiv Mishra; 'University of North Texas

9:10 AM Invited
Industrial Application of FSW at HFW: Bryan Tweedy; 'HFW

9:30 AM Invited
Friction Stir Welding Parameter Development of AA7075 for Hot Stamping Applications: Francois Nadeau; 'Nia Harrison; 'National Research Council of Canada (NRC); 'Ford Motor Company

9:50 AM Invited
Friction Stir Welding, Development Approach and Feedback for Aerospace Applications: Amarlyis Ben Attar; Jean-Pierre Bonnafe; 'Institut de Soudure; 'Airbus Safran Launchers

10:10 AM Break

10:30 AM
A Novel Approach for Joining EN AW 1070 Stranded Wire and EN CW 004A Contact Elements by Friction Stir Spot Bonding: Anna Regensburg; René Schürer; Jean Pierre Bergmann; Helmut Steinberg; Jan Ansvar Gerken; 'Technische Universität Ilmenau; 'Nexans Autoelectric GmbH

10:50 AM
Joining Al 6061 to ZE41A Mg Alloy by Friction Stir Welding Using a Cold Spray Transition Joint: Todd Curtis; Victor Kenneth Champagne, III; Michael West; 'Christian Widener; 'South Dakota School of Mines and Technology; 'University of Massachusetts

11:10 AM Invited
Refill Friction Stir Spot Welding Aerospace Aluminum Alloys: Enkshaikhan Boldsaikhan; Shintaro Fukada; Mitsuo Fujimoto; Kenichi Kamimuki; Hideki Okada; Brent Duncan; 'Brian Brown; 'Wichita State University; 'Kawasaki Heavy Industries

www.tms.org/TMS2017
Effect of Tool Runout in Friction Stir Welding of Aluminum Alloy for Structural Applications: Luqman Hakim Ahmad Shah1; Shi Hui Guo2; Scott Walbridge1; Adrian Gerlich1; 1University of Waterloo

Gamma (FCC)/Gamma-Prime (L12) Co-Based Superalloys II — Mechanical Behavior II
Program Organizers: Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology Beijing; Alessandro Mottura, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Thursday AM  Location:  Marriott Marquis Hotel & Marina
Thursday AM  Room:  Palomar
Session Chairs: Qiang Feng, University of Science and Technology Beijing; Eric Lass, NIST

8:30 AM Invited
Creep Behavior in a Strengthened Co-Al-W-base Single Crystal Superalloys: Song Lu1; Haijing Zhou2; Fei Xue1; Wendao Li1; William Yi Wang1; Zi-Kui Liu1; Qiang Feng1; 1University of Science & Technology Beijing; 2Northwestern Polytechnical University; 3The Pennsylvania State University

9:00 AM
Dislocation Interactions during High-temperature Creep and Yield of Polycrystalline Co-Ni-Al-W-based Superalloys and L12 γ’ Phases: Vassili Vorontsov1; Caroline Taylor1; Henry Chan1; Paul Mulvey1; Mark Hardy1; David Dye1; 1Imperial College London; 2Rolls-Royce plc

9:20 AM
Double Minimum Creep of a Ta-containing Single Crystal Co-base Superalloy: Fei Xue1; Christopher Zenk1; Steffen Neumeier1; Mathias Göken1; 1Friedrich-Alexander-Universität Erlangen-Nürnberg

9:40 AM
The Influence of Cr in Strengthened Co-base Superalloys: Christopher Zenk1; Ivan Povstugar1; Steffen Neumeier1; Mathias Göken1; 1FAU Erlangen-Nürnberg; 2MPIE Düsseldorf

10:00 AM AM Break

10:20 AM
Analyzing the Tension/Compression Asymmetry in Creep Deformed Single Crystal Co-base Superalloys: Malte Lena1; Yolita Eggeler1; Christopher Zenk1; Steffen Neumeier1; Mathias Göken1; Philip Wolfgramm2; Gunther Eggeler1; Erhard Speicher1; 1FAU Erlangen-Nürnberg; 2Ruhr-Universität Bochum

10:40 AM
The Grain Boundary Pinning Effect of the μ-phase in Polycrystalline L12 Hardened Co-base Superalloys: Lisa Freund1; Steffen Neumeier1; Mathias Göken1; 1Friedrich-Alexander-Universität Erlangen-Nürnberg

11:00 AM
Solute-vacancy Binding Energies and Diffusion Rates in fcc Cobalt: A First-principles Database: Shahab Naghavi1; Vinay Hegde1; Chris Wolverton1; 1Northwestern University

11:20 AM
Influence of Replacement of Ta by Nb in a Co-base Superalloys: Alex Costa1; Marcus Salgado1; Eder Lopes1; Carlos Nunes1; Andre Tschiptschin1; 1LNNano-CNPM; 2The Engineering School of Lorena (EEL-USP); 3Faculty of Mechanical Engineering of University of Campinas; 4Metallurgical and Materials Department of University of Sao Paulo

11:40 AM Concluding Comments

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GAT-2017 (Gamma Alloys Technology - 2017) — Novel Processing - Additive Manufacturing, SPS and Ductility
Program Organizers: Young-Won Kim, GameTek LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Salliot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Thursday AM  Room: Solana
March 2, 2017  Location: Marriott Marquis Hotel & Marina
Session Chairs: Rui Yang, Institute of Metal Research; Rob Haun, Retech Systems

8:30 AM Invited
Advantages of PM Processing for Gamma Titanium Aluminides: Andrzej Wojciechynski1; Joseph Muha1; 1ATI Powder Metals

8:55 AM Invited
Fatigue Thresholds in γ’-TiAl Alloys Produced by Additive Manufacturing: Mauro Filippini1; Stefano Beretta1; Luca Patriarca1; 1Politecnico di Milano

9:20 AM
Effect of Homogenization on Microstructure and Mechanical Properties of EBM Ti-48Al-2Cr-2Nb: Moshen Seifi1; Ayman Salem2; Daniel Satko2; John Lewandowski1; 1Case Western Reserve University; 2Materials Resources LLC

9:40 AM
Characterization of a High Nb-TiAl Alloy Components Fabricated by Additive Manufacturing using Electron Beam Melting: Wenbin Fan1; Junpin Lin1; Yongfeng Liang1; Hui Peng1; Hongbo Gyu1; 1University of Science and Technology Beijing; 3Beihang University of Aeronautics and Astronautics

10:00 AM
Repair of γ-TiAl Turbine Blades by Use of Laser Additive Manufacturing: Silja-Katharina Rittinghaus1; Andreas Weisheit1; Michael Mathes1; 1Fraunhofer ILT (Institute for Laser Technique); 2Kassel University of Applied Sciences

10:20 AM Break

10:35 AM Invited
Spark Plasma Sintering of a TiAl Alloy and of Near-net Shape Blades: Alain Courret1; Jean-Philippe Monchoux1; Thomas Voisin1; Marc Thomas2; 1CEMES/ CNRS; 2DMMP/ONERA

11:00 AM
In-situ Experiments to Determine the Creep Law Describing the SPS densification of a TiAl Powder: Martins David1; Grumbach Fanny2; Maniere Charles2; Salliot Pierre1; Bellet Michel1; Mocellin Katia1; Estournes Claude1; 1SAFRAN; 2CIRIMAT; 3CEMES; 4CNRS CIRIMAT

11:20 AM Invited
Manufacturing Issues in Rapid Thermal Processing of γ-TiAl Alloys: Marc Thomas1; Alain Courret1; Jean-Philippe Monchoux1; 1ONERA; 2CEMES
High Entropy Alloys V — Structures and Characterization
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University
Thursday AM Room: 32A
March 2, 2017 Location: San Diego Convention Center
Session Chairs: Mitra Taheri, Drexel University; E-Wen Huang, National Chiao Tung University

8:30 AM Invited
In Situ TEM Investigation of the Thermal, Mechanical, and Corrosion Stability of High Entropy Alloys: Mitra Taheri1; Elaf Anber1; Daniel Scotto-D’Antuono2; Wayne Harlow3; Haoyan Diao4; Peter Liaw1; Drexel University, University of Pennsylvania; 1University of Tennessee

8:50 AM Invited
Uncovering the Dislocation Dynamics Leading to Planar Slips in High-entropy Alloy Nanopillars: Yang Hu1; Li Shu2; Peter Liaw1; Karin Dahmen3; Jian Min Zuo4; 1University of Illinois at Urbana-Champaign; 2University of Tennessee; 3University of Illinois at Urbana-Champaign; 4University of Illinois

9:10 AM Invited
Nanoscale Phase Separation in Al0.5CoCrFeNiCu High Entropy Alloys, as Studied by Atom Probe Tomography: Keith Knipping1; Joshua Tharpe2; Peter Liaw1; U.S. Naval Research Laboratory; 1University of Tennessee

9:30 AM
Plastic Deformation Mechanisms in A3S and Cantor’s HEA Alloys Investigated by In Situ TEM Straining Experiments: Marc Legros1; Michal Mroz2; Anna FRACZKIEWICZ; 1CEMES-CNRS; 2Ecole des Mines de St-Etienne

9:50 AM Invited
Small Angle Neutron Scattering Study of HEA Microstructure Evolution with Temperature and Applied Magnetic Field: Louis Santodonato1; Lisa DeBeer-Schmitt1; Kenneth Littrell1; Peter Liaw1; Oak Ridge National Laboratory; 1The University of Tennessee

10:10 AM Break

10:30 AM Invited
Structural Transition in High Entropy Alloy CoCrFeMnNi under High Pressure: E-Wen Huang1; Yi-Hung Chen2; Chin-Ming Lin3; Chia-En Hsu4; Jien-Wei Yeh5; Ke An6; National Chiao Tung University; National Tsing Hua University of Education; National Tsing Hua University; Oak Ridge National Laboratory

10:50 AM Invited
Complex Structural Factors Governing Unique Properties of FCC High Entropy Alloys Studied by Theory and Experiment: Hyun Seok Oh1; Eun Soo Park1; Fritz Körmann1; Gerard Leyson1; Duancheng Ma1; Sang Jun Kim1; Blazej Grabowski1; Cemal Cem Tasan1; Dierk Raabe1; Seoul National University; Delft University of Technology; Max-Planck Institut für Eisenforschung GmbH; Massachusetts Institute of Technology

11:10 AM Invited
Composition, Temperature, and Crystal Size Effects on the Mechanical Response of AlCoCrFeNi High Entropy Alloy: Gi-Dong Sim1; Quan Jiao1; Peter K. Liaw2; Rajiv Mishra1; Jaafar Ei-Awady1; Johns Hopkins University; University of Tennessee; University of North Texas

11:30 AM
An In Situ TEM Observation on Thermal Stability of High Entropy Alloys: Elaf Anber1; Dan Scotto D’Antuono2; Andrew Lang1; Haoyan Diao4; Peter Liaw2; Drexel University; 1The University of Tennessee

High Entropy Alloys V — Structures and Modeling I
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Thursday AM Room: 32B
March 2, 2017 Location: San Diego Convention Center
Session Chairs: Michael Widom, Carnegie Mellon University; Wei Chen, Illinois Institute of Technology

8:30 AM Invited
Partial Chemical Ordering of Body Centered Cubic High Entropy Alloys: Michael Widom1; 1Carnegie Mellon University

8:50 AM
Theoretical Investigation of Structural and Electronic Properties of Entropy-stabilized Oxides: Zsolt Rak1; C. M. Rost1; J. P. Maria2; D. W. Brenner1; 1NCSU

9:10 AM Invited
Unusually Low and Spatially Varying Stacking Fault Energy in Equimolar Multicomponent Alloys: Qingjie Li1; Evan Ma2; Johns Hopkins University

9:30 AM Invited
Elastic Properties of High-entropy Alloys from First-principles: Wei Chen1; Haoyan Diao4; Peter Liaw2; Illinois Institute of Technology; University of Tennessee

9:50 AM Invited
Predicting Structural and Chemical Properties of Mo-based Refractory High-entropy Alloys: Aayush Sharma1; Prashant Singh2; D. D. Johnson3; Peter Liaw4; Ganesh Balasubramanian5; Iowa State University; Ames Laboratory; University of Tennessee

10:10 AM Break

10:30 AM
Constitutive Modeling of CrMnFeCoNi High Entropy Alloys: Hyoung Seop Kim1; POSTECH

10:50 AM
Atomistic Simulations in a Model FCC High Entropy Alloy: Effects of Annealing: Edwin Antillon1; Christopher Woodward2; Satish Rao3; Ahmed Hussein4; Triplicane Parthasarathy5; 1UES; 2AFRL; 3EPFL

11:10 AM
Phase Prediction via Ab-initio Monte Carlo Simulation for High-entropy Alloys: Changning Niu1; Wolfgang Windl1; Maryam Ghazisaeidi1; Ohio State University

11:30 AM
Investigation of High Entropy Alloys based on Continuum Dislocation Dynamics: Navid Kermanshahimonfared1; Hesam Askari2; Ioannis Mastorakos1; 1Clarkson University; 2University of Rochester

11:50 AM
Ordering Effects and Dislocation Structures in High Entropy Alloys: A Computational Approach: Leonie Koch1; Alexander Stukowski1; Karsten Albe2; TU Darmstadt
High Temperature Electrochemistry III — Materials Electrochemistry II

Thursday AM Room: 16A Location: San Diego Convention Center
March 2, 2017

Session Chairs: Guy Fredrickson, Idaho National Lab; Prabhat Tripathy, Idaho National Laboratory

8:30 AM Electrochemical and Thermodynamic Properties of Gadolinium Chloride in LiCl-KCl Eutectic Salt: Prashant Bagri1; Michael Simpson1; 1University of Utah
9:00 AM Electrochemical Synthesis of TaC in Molten Salt: Xin Li1; Xingli Zou1; Shangshu Li1; Kai Zheng1; Yinshuai Wang1; Qian Xu1; Xionggang Lu1; 1Shanghai University
9:30 AM Thermochemical Properties of Barium-Bismuth Alloys Determined by Emf Measurements: Timothy Lichtenstein1; Nathan Smith1; Hojong Kim1; 1Penn State University
10:00 AM Break
10:20 AM Next-generation Molten Oxide Energy Materials R&D: Valery Belousoy1; 1Baikov IMET RAS
10:50 AM Effects of Oxide Precursor Preparation Parameters on the Electrochemical Reduction of Tantalum Pentoxide in Calcium Chloride Melt: Maureen Chorney1; Bridger Hurley1; Prabhat Tripathy1; Jerome Downey1; 1Montana Tech of the University of Montana; 2Montana Tech of the University of Montana; 3Idaho National Laboratory
11:20 AM The Effect of Temperature on Electrochemical Codeposition of Mg-Ni Hydrogen Storage Alloys from Molten Salt System: Gökhan Orhan1; 1Istanbul University

Magnesium Technology 2017 — Corrosion
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Thursday AM Room: 5B Location: San Diego Convention Center
March 2, 2017

Session Chairs: Kiran Solanki, Arizona State University; Ilaksh Adlakha, Arizona State University

8:30 AM Role of Mechanical Loads on the Corrosion Behavior of Mild-Steel and AE-44 Structural Joint: Ilaksh Adlakha1; Benyamin Gholami1; Nitin Muthegowda1; Kiran Solanki1; 1Arizona State University; 2COMSOL
8:50 AM An Electrochemical Investigation of Mg-Ni Hydrogen Storage Alloys by Mechanical Alloying: Gökçe Haşçi Ağaoglu1; Gökhan Orhan1; 1Istanbul University
9:10 AM Corrosion and Creep Resistance of Thixomolded® Magnesium Alloys: Ricardo Bucolin1; Hajo Dieringa1; Carsten Blawert1; Hagen Frank1; Chamini Mendis1; Andreas Lohmüller1; Karl Kainer1; Norbert Hort1; 1Helmholtz-Zentrum Geesthacht; 2Neue Materialien Fürth Gmbh (NMF)
9:30 AM Corrosion Properties of Mg-6Al-0.3Mn-aSn-bZn Alloys: Chang Dong Yin1; Sang Kyu Woo1; Nam Ryong Kim1; Ha Sik Kim1; Bong Sun You1; 1Korea Institute of Materials Science; 2University of Science and Technology
9:50 AM Corrosion of Magnesium-aluminum (Mg-Al) Alloys – An Interplay between Al Content and CO2: Mohnes Esmaeili1; Jan-Erik Svensson1; Lars-Gunnar Johansson1; 1Chalmers University of Technology
10:10 AM Break
10:30 AM Excimer Laser Processing of Al Containing Mg Alloys for Improved Corrosion Resistance: Michael Mella1; John Scully1; James Fitz-Gerald1; 1University of Virginia
10:50 AM Effect of Al and Sn on Discharge Behavior of Mg Alloy as Anode for Mg-Air Battery: Kim Sang-hyun1; Park Jun-ho1; Kim Hee-san1; Kim Jae-joong1; Kwon Oh-duck1; 1POSCO; 2Hongik university
11:10 AM Utilization of a Partially Non-aqueous Electrolyte for the Spatial Mapping of Mg Corrosion Using a Model Mg-Al Electrode: Leslie Bland1; Rebecca Schaller2; John Scully1; 1University of Virginia; 2Sandia National Laboratory
11:30 AM Voltammetric Studies of Extruded Pure Magnesium in Different Electrolytes and Its Corrosion Morphology: Petra Maier1; Leon Gentzsch1; Norbert Hort2; 1University of Applied Sciences Stralsund; 2Helmholtz-Zentrum Geesthacht

Magnesium Technology 2017 — Magnesium-Rare Earth Alloys II
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Thursday AM Room: 5A Location: San Diego Convention Center
March 2, 2017

Session Chairs: Wim Sillekens, European Space Agency; Dmytro Orlov, Lund University

8:30 AM Microstructure and Mechanical Properties of Mg-Zn-Gd Alloys after Rolling or Extrusion Processes: Rongshi Chen1; M.G. Jiang1; J. Luo1; H. Yan1; C. Xu1; S. Kamado1; 1Institute of Metal Research Chinese Academy of Sciences; 2Nagaoka University of Technology
8:50 AM A Comparative Study on the Microstructure, Mechanical Properties, and Hot Deformation of Magnesium Alloys Containing Zinc, Calcium and Yttrium: K.P. Rao1; K. Suresh1; Hajo Dieringa1; 1City University of Hong Kong; 2Bharathiar University; 1Helmholtz-Zentrum Geesthacht
10:00 AM Addition of Holmium & Erbium and Hot-rolling effects on the Microstructure and Mechanical Properties of Mg-Li based Alloys: Charles Mug1; Zheng Zhongwu1; Zhao Yu1; Hao Guo1; Songsong Xu1; 1Harbin Engineering University
9:30 AM Bonding Environments in a Creep-resistant Mg-RE-Zn Alloy: Deep Choudhury1; S. Srinivasan1; Mark Gibson1; Rajarshi Banerjee1; 1University of North Texas; 2CSIRO
9:50 AM Microstructural and Numerical Investigation on the Shear Response of a Rare-earth Magnesium Alloy Sheet: Michael Nemko1; Armin Abedini1; Clifford Butcher1; Peidong Wu1; Michael Worswick1; 1University of Waterloo; 2McMaster University
10:10 AM Break
10:30 AM Solute Effect on Strength and Formability of Mg: A First-principle Study: Pulkit Garg1; Mehul Bhatia1; Suveen Mathaudhu1; Kiran Solanki1; 1SEMTE; 2University of California - Riverside
Materials Engineering of Soft Magnets for Power
and Energy Applications — Advanced Soft Magnetic
Material Characterization and Development Techniques
Program Organizers: Paul Ohodnicki, National Energy Technology
Laboratory; Francis Johnson, GE Global Research; Alex Leary, Carnegie
Mellon University; Tanjore Jayaraman, University of Michigan; Lajos
Varga, Wigner Research Center for Physics
Thursday AM  Room: 25B
March 2, 2017  Location: San Diego Convention Center

Session Chairs: Lajos Varga, Wigner Research Centre for Physics;
Tanjore Jayaraman, University of Michigan

8:30 AM Invited
Advanced Magneto-Optical Domain Analysis in Soft Magnetic Materials:
Rudolf Schaefer1; 1Leibniz Institute for Solid State and Materials Research (IFW)
Dresden

9:00 AM Invited
Measurement System for Soft Magnetic Materials under High Excitation and
DC Biased Conditions: JC Sun1; 1Bs&T Frankfurt am Main GmbH

9:30 AM Multi-parameter Magnetic Material Characterization for High Power Medium
Frequency Converters: Richard Beddingfield1; Subhashish Bhattacharya1; 1North
Carolina State University

9:50 AM Break

10:05 AM Invited
Unique Magnetostriction of Fe68.8Pd31.2 Attributable to
de-twinning Mechanism: Jake Steiner1; Abdellah Lisfi2; Tomoyuki Kakeshita3;
Takashi Fukuda1; Manfred Wuttig1; 1University of Maryland; 3Morgan State
University; 2Osaka University

10:35 AM Large Magnetocaloric Effect in Gd Substituted NiMnIn
Metamagnetic Shape Memory Alloys: Jasson Estalayo1; Christian Aguilar2; Pablo
Alvarez-Alonso3; Patricia Lazpita1; Juan Camarillo1; Horacio Flores-Zúñiga1;
Volodmyr Chernenko1; 2Dept. Electricity & Electronics, University of the Basque
Country; 3IPICYT; 1BCMmaterials

10:55 AM Direct Measurement of the Magnetocaloric Effect in NiMnIn
Ribbons: Christian Aguilar2; Pablo Alvarez-Alonso3; Daniel Salazar2; Horacio Flores-
Zúñiga1; Volodmyr Chernenko1; 2IPICYT; 3Dept. Electricity & Electronics,
University of the Basque Country; 1BCMmaterials

11:15 AM Combinatorial High-throughput Discovery of Magnetic Materials in Thin
Films: Abraham Anapolsky1; 1Intemolecular Inc.
### Materials for High Temperature Applications: Next Generation Superalloys and Beyond — Ir Alloys and Next Generation Superalloys

**Program Organizers:** Akane Suzuki, GE Global Research; Martin Heilmair, Karlsruhe Institute of Technology (KIT); Pierre Sallot, Safran Tech; Stephen Coryell, Special Metals Corporation; Joseph Licavoli, NETL - Department of Energy; Govindarajan Muralidharan, Oak Ridge National Laboratory

**Thursday AM**  
Room: Balboa  
Location: Marriott Marquis Hotel & Marina

**Session Chairs:** Govindarajan Muralidharan, Oak Ridge National Lab; Stephen Coryell, Special Metals Corporation

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>Invited</td>
<td>Weldability and Weld Properties in Iridium Alloys: Roger Miller; George Ulrich; Govindarajan Muralidharan; Oak Ridge National Laboratory</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>Invited</td>
<td>Oxidation Resistance of Aluminized Ir-based Refractory Alloys: Hideyuki Murakami; Masahide Yamashina; Kazuya Shimoda; National Institute for Materials Science</td>
</tr>
<tr>
<td>9:30 AM</td>
<td>Invited</td>
<td>Dynamic High-temperature Kolsky Tension Bar Techniques for DOP-26 Iridium Alloy Characterization: Bo Song; Kevin Nelson; Ronald Lipinski; John Bignell; George Ulrich; Easo George; Sandia National Laboratories; Oak Ridge National Laboratory; Ruhr University Bochum</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Break</td>
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<tr>
<td>10:20 AM</td>
<td>Invited</td>
<td>Effect of Trace Levels of Si on Grain Boundary Segregation in an Ir Alloy: Dean Pierce; Govindarajan Muralidharan; Lee Heatherly; Cecil Carmichael; George Ulrich; Oak Ridge National Laboratory</td>
</tr>
<tr>
<td>10:40 AM</td>
<td>Invited</td>
<td>Long Term Grain Growth Behavior of Ir-Alloy DOP-26*: Govindarajan Muralidharan; Dean Pierce; Ethan Fox; Seth Lawson; Cecil Carmichael; Easo George; George Ulrich; Oak Ridge National Laboratory; Ruhr University Bochum</td>
</tr>
<tr>
<td>11:00 AM</td>
<td></td>
<td>Atom Probe Tomography Study of Sigma Phase in Long Term-thermally Exposed High Refractory Ni-based Superalloy: Stoitchko Antonov; Jiajie Huo; Qiang Feng; Dieter Isheim; David Seidman; Sammy Tin; Illinois Institute of Technology; State Key Laboratory for Advanced Metals and Materials; Northwestern University Center for Atom Probe Tomography (NUCAPT)</td>
</tr>
<tr>
<td>11:20 AM</td>
<td></td>
<td>The Effect of Molybdenum on the Microstructure and Properties of Model Quinary Nickel-based Superalloys: Amy Goodfellow; Enrique Galindo-Nava; Nick Jones; Mark Hardy; Howard Stone; University of Cambridge; Rolls Royce plc</td>
</tr>
<tr>
<td>11:40 AM</td>
<td></td>
<td>Stacking Fault Energies in Ni-based L1, Alloys from First-principles: Abed Al Hasan (Abed) Bresdi; Joshua Allen; Alessandro Mottura; University of Birmingham</td>
</tr>
<tr>
<td>12:00 PM</td>
<td></td>
<td>Portevin-Le Chatelier Effect in a Ni-Co Based Superalloys with Different Gamma Prime Content: Chuanyong Cui; Institute of Metal Research</td>
</tr>
<tr>
<td>12:20 PM</td>
<td></td>
<td>Nanosized TaC Precipitates for Strengthening High-Temperature Co-Re Based Alloys: Ralph Gilles; Debashis Mukherji; Pavel Strunz; Lukas Karge; Premysl Beran; Armin Krikel; Michael Hofmann; Joachim Roessler; TU Muenchen; TU Braunschweig; Nuclear Physics Institute of the CAS; Nuclear Physics Institute of the CAS; Helmholtz Zentrum Geesthacht</td>
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</table>

### Materials Processing Fundamentals — Solid-state Processing

**Program Organizers:** Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

**Thursday AM**  
Room: 17B  
Location: San Diego Convention Center

**Session Chair:** To Be Announced

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td></td>
<td>Microstructural and Mechanical Behavior Evolution of Uranium During Thermal-Mechanical Deformation Processing: Daniel Coughlin; Rodney McCabe; Kester Clarke; Jeffrey Scott; Robert Forsyth; Donald Brown; Bjorn Clausen; David Alexander; Los Alamos National Laboratory; Colorado School of Mines</td>
</tr>
<tr>
<td>8:50 AM</td>
<td></td>
<td>Gleeble Sintering Simulations of Cryomilled Aluminium AA5083: Frank Kellogg; Jennifer Sietins; Brandon McWilliams; Anit Giri; Steven Kilczewski; Kyy Cho; Bowhead Science and Technology; US Army Research Laboratory; SURVICE Engineering Company; Bennett Aerospace</td>
</tr>
<tr>
<td>9:10 AM</td>
<td></td>
<td>Phase Transformation and Precipitation Modeling of Hypereutectic Al-Mn Alloy during Solidification: Jiwon Park; Jae-Gil Jung; Chang-Seok Oh; Korea Institute of Materials Science</td>
</tr>
<tr>
<td>9:30 AM</td>
<td></td>
<td>Experimental Study and Modeling of the Stress Field in Macroscopic Creep Feed Grinding Process: Zhenguang Nie; Gang Wang; Yiming (Kevin) Rong; Tsinghua University</td>
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<tr>
<td>9:50 AM</td>
<td></td>
<td>Break</td>
</tr>
<tr>
<td>10:10 AM</td>
<td></td>
<td>Mathematical Modelling of Residual Stresses in End Milling: Sunday Ojolo; University of Lagos</td>
</tr>
<tr>
<td>10:30 AM</td>
<td></td>
<td>Study on Microstructure of Ferritic Stainless Steel Joints Using Electrically Assisted Brazing: Viet Tien Luan; Yong-Ha Jeong; Ju-Ri Kim; Gi Dong Park; Sung-Tae Hong; Hyun-Min Sung; Heung Nam Han; Kwang-Sun Yu; Seok-Hyun Kim; University of Ulsan; Seoul National University; S Jeong Industrial Co. Ltd.</td>
</tr>
<tr>
<td>11:00 AM</td>
<td></td>
<td>Preliminary Investigations into the Nano/Microstructural Design of Nanocomposites for Combustion Synthesis Processing: Mehdul Chaushan; Prathmesh Modli; Vanessa Bundy; K. Morsi; San Diego State University</td>
</tr>
<tr>
<td>11:10 AM</td>
<td></td>
<td>Machining Behaviour of Biodegradable Polymer: Force, Damage and Temperature Analysis: Mridusmita Roy Choudhury; Kishore Deb Nath; National Institute of Technology Meghalaya</td>
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<tr>
<td>11:30 AM</td>
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<td>Evaluation Feature of Nano Grain Growth of TiO2 Thin Film via Sol-gel Route: Habibollah Aminirastabi; Z.Z. Weng; X.Z. Xiong; G.Ji; H Xue; Xiamen University</td>
</tr>
</tbody>
</table>
Materials science for high-performance permanent magnets — search for new hard magnets / non-rare earth magnets

Program organizers: Satoshi Hirosawa, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Gutfleisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Thursday AM  Room: 24C  Location: San Diego Convention Center
March 2, 2017
Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Takashi Miyake, National Institute of Advanced Industrial Science and Technology; Christian Elsässer, Fraunhofer-Institut für Werkstoffmechanik

8:30 AM Invited
Search for substitutes of magnetic materials containing critical elements by high-throughput screening and multi-scale modeling approaches: Christian Elsässer; Wolfgang Körner; Georg Krugel; Daniel Urban; Fraunhofer IWM Freiburg

8:55 AM Invited
Towards high-performance permanent magnets without rare earths: Konstantin Skokos; Technische Universität Darmstadt

9:20 AM Invited
Bulk high-throughput experimentation to discover new hard magnets: Dagmar Goll; Gerhard Schneider; Aalen University

9:45 AM
Search for new rare-earth-free hard magnetic materials using solution growth: Valentin Taufour; Tej Lamichhane; Michael Onysczcak; Olena Palasyuk; David Parker; Sergey Bud’ko; Paul Canfield; University of California-Davis, Critical Material Institute; Ames Laboratory, Critical Material Institute; Oak Ridge National Laboratory, Critical Material Institute

10:05 AM Break

10:20 AM
L10-FeNi films with coercivity in excess of 1 kOe: A combinatorial sputtering approach: Georgios Giannopoulos; Andreas Kaidatzis; Gaspare Varvaro; Ruslan Salikhov; Vasillis Psycharis; Sara Laureti; Alberto Maria Testa; Michael Farle; Dimitris Niarchos; NCSR Demokritos; ISM-CNR, Faculty of Physics and Center for Nanointegration (CENIDE)

10:40 AM
Structure and Magnetic Properties of Fe3Sn1-xMx (M=Sb, P): Margaret Gjoka; Vasillis Psycharis; Charalampos Saraefdis; Eamonn Devlin; Dimitris Niarchos; NCSR Demokritos; Department of Physics, Aristotle University of Thessaloniki

11:00 AM
Magnetic Anisotropy of epitaxially grown Li1-Mn-(Ga,Al) alloy thin films: Takao Suzuki; Siqian Zhao; University of Alabama

11:20 AM
Microstructural Characterization of Magnetic MnAl Alloys: Merve Genc; Ozgun Acar; Ilkay Kalay; Eren Kaya; METU; Cankaya University

11:40 AM
Magnetic Anisotropy and microstructure interplay in Fe16N2 based permanent magnets: Md Meheddi; Yanfeng Jiang; Jian-Ping Wang; University of Minnesota

Mechanical and creep behavior of advanced materials: A SMD Symposium honoring prof. K. Linga Murty — Miscellaneous structure-property correlations

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

Thursday AM  Room: 24A  Location: San Diego Convention Center
March 2, 2017
Session Chairs: Koteswararao Rajulapati, University of Hyderabad; Walid Mohamed, Argonne National Laboratory

8:30 AM Keynote
Structure-property relationships in steel fibers: Krishan Chawla; University of Alabama at Birmingham

9:00 AM Invited
Indentation Probes for Measurements of Localized Materials Properties: David Bahr; Michael Maughan; Raheleh Mohammad Rahimi; Purdue University; University of Idaho

9:20 AM Invited
Spherical Nanoindentation Stress-strain Curves: Surya Kalidindi; Georgia Institute of Technology

9:40 AM Invited
Surface Finish Effects on Fracture Behavior of Sn-4Ag-0.5Cu solder joints: Jamie Krucz; Dick Casali; UNSW Australia; Intel Corporation

10:00 AM Break

10:15 AM Invited
The Wigner Energy Spectral Fingerprints of Radiation Damage: Penghui Cao; Sean Lowder; Ki-Jana Carter; Michael Short; Massachusetts Institute of Technology

10:35 AM Invited
Mechanical and microstructural effects of thermal aging on cast duplex stainless steels by experiment and finite element method: Samuel Schwarm; Sarah Mburu; R. Prakash Kolli; Daniel Perea; Jia Liu; Sreeramanurthy Ankem; University of Maryland, College Park; Pacific Northwest National Laboratory

10:55 AM Invited
Digital Stress Imaging in Mesoscale Microstructure Dependent Deformation Visualized Using Nano-mechanical Raman spectroscopy: Role of initial manufacturing originated residual stresses: Vikas Tomar; Purdue University

11:15 AM
Fracture Behavior and Grain Boundary Sliding during High-temperature Low-stress deformation of AZ31 Magnesium alloy: Peiman Shahbeigi Roodposhti; Korukonda Murty; University of Connecticut; North Carolina State University

11:35 AM Invited
On the strain rate sensitive characteristics of Nanocrystalline Aluminum Alloys: Koteswararao Rajulapati; University of Hyderabad
Microstructural Processes in Irradiated Materials — Zr-Alloys and Advanced Modeling

Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Thursday AM  Room: Del Mar  Location: Marriott Marquis Hotel & Marina

Session Chairs: Enrique Martinez Saez, Los Alamos National Laboratory; Fabien Onimus, CEA-Saclay

8:30 AM Invited
Deformation Mechanisms and Radiation Induced Damage in Zirconium Alloys: A Multi-scale Approach: Fabien Onimus1; L. Dupuy1; Frederic Mompiou2; M. Bon3; ‘CEA; ‘CEMES-CNRS

9:00 AM
Quantifying Irradiation-induced Defect Densities in Zr Through Changes in X-ray Diffraction Line Profiles - Insights from Atomistic Modeling. Rory Hulse1; Christopher Race1; Michael Preuss1; ‘University of Manchester

9:20 AM
Effects of Heavy-ion (Zr+) Irradiation on Zr-2.5Nb Alloy Studied by X-ray Diffraction, Nanodiffusionology, and TEM: Qiang Wang1; Levente Balogh1; Mark Daymond1; Zhongwen Yao1; ‘Queen’s University

9:40 AM
In-Situ TEM Triple Beam Irradiation of Zirconium Alloys at Elevated Temperature: Brittany Mintifering1; Khalid Hattar1; David Senor1; Clark Snow1; ‘Sandia National Laboratories; ‘Pacific Northwest National Laboratory

10:00 AM  Break

10:15 AM Invited
Thermal Activation of Dislocations in Large Scale Obstacle Bypass: Enrique Martinez Saez1; Cameron Sobie1; David MacDowell1; Laurent Capolungo1; ‘Los Alamos National Laboratory; ‘Georgia Institute of Technology

10:45 AM
Fast, Vacancy-free Climb of Dislocation Loops in bcc Metals: Thomas Swinburne1; Sergei Dudarev1; ‘Culham Centre For Fusion Energy

11:05 AM
Dynamics of Interaction between Point Defects and Dislocations in bcc Iron Using SEAKMC Simulations: Haituan Xu1; ‘University of Tennessee

11:25 AM
Multi-scale Modeling of Vacancy-mediated Solute Diffusion Near an Edge Dislocation under Irradiation: Zebo Li1; Trinkle Dallas1; Thomas Garnier1; Venkateswara Mang1; Maylise Nastar1; Pascal Bellon1; Robert Averback1; ‘Department of Nuclear, Plasma, Radiological Engineering, University of Illinois, Urbana-Champaign; ‘Department of Materials Science and Engineering, University of Illinois, Urbana-Champaign; ‘Materials Science and Engineering, University of Arizona; ‘CEA, DEN, Service de Recherches de Metallurgie Physique; ‘Department of Materials Science and Engineering, University of Illinois, Urbana-Champaign

11:45 AM
Multiscale Simulation of Fast Neutron Damage in Beryllium: Pavel Vladimirov1; Vladimir Borodin1; ‘Karlsruhe Institute of Technology; ‘National Research Center “Kurchatov Institute”


Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huajian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiao lei Wu, Institute of Mechanics, Chinese Academy of Science

Thursday AM  Room: 24B  Location: San Diego Convention Center

Session Chairs: Hyoung Seop Kim, POSTECH; X. Wendy Gu, UC Berkeley

8:30 AM Invited
Properties of Metallic Lattices Used as Hosting Structures: Guilhem Martin1; Oleg Liashenko1; Damien Fabregue1; Didier Bouvard1; Jean-Jacques Blandin1; ‘Univ. Grenoble Alpes; ‘Univ. Lyon

8:55 AM
Multiscale Architected Materials with Composition and Grain Size Gradients Manufactured Using High-pressure Torsion: Hyoung Seop Kim1; ‘POSTECH

9:15 AM
A Design Concept for Tough, Strong and Damage-tolerant Composites by Utilizing the Yield Stress Inhomogeneity Effect: Masoud Sistaninia1; Otnaer Kolednik2; ‘Materials Center Leoben Forschung GmbH; ‘Erich Schmid Institute of Materials Science, Austrian Academy of Sciences

9:35 AM
Self-assembled Nanoparticle Superlattices with High Elastic Modulus: X. Wendy Gu1; David Koshy1; Xingchen Ye1; Paul Alivisatos1; ‘UC Berkeley

9:55 AM
Multi-scale Modelling of Mechanical Behavior and Deformation in Materials with Gradient Microstructures: Hao Lyu1; Mehdi Hamid1; Hussein Zbib4; ‘Washington State University

10:15 AM  Break

10:30 AM Invited
Multi-scale Cu/Nb Nanocomposite Wires Processed by Severe Plastic Deformation for High Pulsed Magnets: Assessing Size and Architecture Effects on the Resistance to High Stress: Ludovic Thilly1; Florence Lecouturier1; Jean Rony Medy1; Patrick Villechaisse1; Pierre-Olivier Renault1; ‘Pprime Institute - University of Poitiers; ‘LNCMI

10:55 AM
Characterization and Modeling of Deformation Mechanisms in Polymer Matrix Composites: A Digital Image Correlation and Finite Element Study: Jay Patel1; Pedro Peralta1; ‘Arizona State University

11:15 AM Invited
The Thermal-mechanical Compromise for Insulation Materials: Bernard Yrieix1; ‘EDF R&D

11:40 AM
Impact Behavior of Lattice Structures Produced by Selective Laser and Electron Beam Melting: Pauline Dellossé1; Nicolas Bruzy1; Olivier Rigo1; Sébastien Michotte1; Eric Maire1; Jérôme Adrien1; Pascal Jacques1; Thierry Massart1; Aude Simar1; ‘Université Catholique de Louvain; ‘Ecole Centrale de Nantes; ‘Sirris; ‘Institut national des sciences appliquées de Lyon; ‘Université Libre de Bruxelles
Pan American Materials Congress: Advanced Biomaterials — Antibacterial and Nanostructured Materials

Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Thursday AM  Room: Mission Hills
March 2, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Xiaodong Li, University of Virginia; Pablo Zavattieri, Purdue University

8:30 AM  Invited
Carboxyl-functionalized Zinc Oxide Nanoparticles and Its Antiproliferative Effect in Cervical Cell Lines: Lisbeth Almeida-Ramón1; Mayra Alvarez-Lemus1; Erick De la Cruz Hernández2; Rosendo López-González2; Gilberto Torres-Torres2; Socorro Oros-Ruiz2; Patricia Quintana-Owen2; ‘Juarez Autonomous University of Tabasco; ‘Autonomous Metropolitan University-Iztapalapa; ‘CINVESTAV-Merida

9:00 AM  Investigation on Passive Film Structure and Antibacterial Property of 316L Stainless Steel by Cu-added Nitric Acid Passivation Treatment: Jin-Long Zhao1; Da-Kc Xu1; Xin-Rui Zhang1; Changle Wang1; Ke Yang2; ‘Institute of Metal Research, Chinese Academy of Sciences

9:20 AM  An Experimental study on 304L Cu-bearing Antibacterial Stainless Steel for Its Integrated Performance Optimization as a Versatile Biomaterial: M. Babar Shahzad1; Tong Xi1; Changle Wang1; Ke Yang2; ‘Institute of Metal Research, Chinese Academy of Sciences

9:40 AM  Effects of Dialium Guineense Based Zinc Nanoparticle Material on the Inhibition of Microbes Inducing Microbiologically Influenced Corrosion: Joshua Okeni1; Gbaadebo John1; Taiwo Owoeye1; Elizabeth Okeniyi1; Deborah Akinlabi1; Olugbenga Taiwo1; Olufisayo Awotoye1; Ojo Ige1; Yemisi Obafemi1; ‘Covenant University, Ota, Nigeria

10:00 AM  Evaluation of Doped SiO2-TiO2 Nanoparticles as Possible Agents in Photodynamic Therapy: Rosendo López González2; Mayra Alvarez Lemus2; Jose de la Rosa Vázquez2; Erick De la Cruz Hernández2; Dora Frías Marquez2; ‘Juarez Autonomous University of Tabasco; ‘ESIME

10:20 AM  Break

8:30 AM  Effect of Heat Input on the Microstructure and Toughness of Welded API X120 Pipeline Steel in H2S and Moderate Temperature Environments: Paul Okonkwo1; R. Shakoor2; A Mohamed3; ‘Qatar University; ‘Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering

8:50 AM  The Corrosion Behavior of Newly Developed API X120 Pipeline Steel in H2S and Moderate Temperature Environments: Paul Okonkwo1; R. Shakoor2; A Mohamed3; ‘Qatar University; ‘Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering

9:00 AM  Evaluation of Non-destructive Techniques (Thermography, Ultrasound and Eddy Current) for Detection of Failures in Metallic Substrates with Composite Anticorrosive Coatings: Marcella Grosso1; Priscila de Almeida1; Clara Johanna Pacheco1; Jane Soares1; João Marcos Rebelo1; Sergio Soares1; Isabel Cristina Margarit-Mattos1; Gabriela Pereira1; ‘UFRJ; ‘Petrobras

9:50 AM  Break PM Coffee Break

10:05 AM  A Study on the Mechanisms Responsible for Dynamic Strain Aging Phenomenon in Inconel 718 Superalloy: Monica Rezende1; Sinara Gabriel1; Leonardo Araújo1; Jean Dille1; Luiz Henrique de Almeida1; ‘UFRJ

10:25 AM  Structural Integrity of Pipelines: Anibal Di Luch1; Nicolas Oyarzabal1; ‘Comision Nacional de Energia Atomic; ‘Instituto Tecnologico de Buenos Aires

10:45 AM  Panel Discussion

Pan American Materials Congress: Materials for Oil and Gas Industry — Welding Technology, Corrosion Protection, Non-Destructive Evaluation, and Structural Integrity

Program Organizers: Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

Thursday AM  Room: Marina G
March 2, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Lorenzo Gomez, UNAM; Adriana Rocha, UFRJ

8:30 AM  Effect of Heat Input on the Microstructure and Toughness of Welded API X120 Pipeline Steel in H2S and Moderate Temperature Environments: Paul Okonkwo1; R. Shakoor2; A Mohamed3; ‘Qatar University; ‘Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering

8:50 AM  The Corrosion Behavior of Newly Developed API X120 Pipeline Steel in H2S and Moderate Temperature Environments: Paul Okonkwo1; R. Shakoor2; A Mohamed3; ‘Qatar University; ‘Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering

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9:50 AM  Break PM Coffee Break

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10:45 AM  Panel Discussion

Pan American Materials Congress: Materials for Transportation and Lightweighting — Composite Materials I

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Thursday AM  Room: Marina D
March 2, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: Elvi Dalgaard, Pratt amd Whitney Canada

8:30 AM  Izod Impact Tests in Polyester Matrix Composites Reinforced with Fique Fabric: Artur Camposo Pereira1; Foluke Salgado de Assis1; Sergio Neves Monteiro1; Henry Colorado1; ‘Instituto Militar de Engenharia; ‘Universidad de Antioquia

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8:50 AM
Nanodiamond: A Potential Reinforcement for Epoxy Composites: Ankita Bishri1; Pallavi Gupta2; Debrupa Lahiri1; 1Indian Institute of Technology Roorkee

9:10 AM
Tailored Carbide Powder Morphologies: Synthesis, Sintering, and Mechanisms of Formation: Tianqi Ren1; Olivia Graeve1; 1University of California, San Diego

9:30 AM
Nano-Additive Reinforcement of Thermoplastic Microballoon Epoxy Syntactic Foams: Kerrick Dando1; David Salem2; 1CAPE Lab, SDSM&T

9:50 AM
Advantages of Hot Compression in the Manufacture of AIB4C Composites: Lucio Vazquez1; Dulce Velázquez1; Angel Muñoz2; David Luna1; Gilberto Torres1; Elizabeth Garfías1; Manuel Vite1; 1Universidad Autónoma Metropolitana

Pan American Materials Congress: Minerals Extraction and Processing — Hydrometallurgical Processing
Program Organizers: Mery Gómez Marroquin, Asociacion Peruana de Metalurgia y Minerales-APMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosi; Carlos Sampalo, UFRGS
Thursday AM  Room: Marina E
March 2, 2017  Location: Marriott Marquis Hotel & Marina
Session Chair: To Be Announced

8:30 AM
Investigating the Dissolution Characteristics of Strontium Sulfide: Ibrahim Göksel Hitiz1; Aysegül Bilen1; Rasit Sezer1; Emre Yilmaz1; Selim Ertrük1; Cüneyt Arslan1; 1Istanbul University; 2Istanbul Technical University; 3Karadeniz Technical University

8:50 AM
Dissolution Thermodynamics of Smithsonite in Alkaline Iminodiacetate Aqueous Solution: Dou Aichun1; YU Lei1; 1Jiangsu University, China

9:10 AM
Preparation of High Grade Industrial Copper Compound from a Nanoscale Malachite Mineral by Hydrometallurgical Process: Alafara Babu1; Ruth Sanni1; Abdulrahman Abubakar1; Rafiu Bale1; Folahan Adekola1; Abdulganiu Alabi1; 1University of Ilorin, Nigeria.

9:30 AM
Pressure Leaching of Hemimorphite in Ammonium Chloride Solution: Duoyiqiang Zhao1; Shenghai Yang1; Hao Li1; Yongming Chen1; Jing He1; Chaobo Tang1; 1Central South University

9:50 AM
Gold Recovery from Waste Solutions of PCB Gold Plating Process using Hydro Cyclone Reactor for Demonstration Study: Mosoki Rue1; Soo-kyung Kim2; Jea-chun Lee2; 1Korea University of Science and Technology; 2Korea Institute of Geoscience and Mineral Resources

10:10 AM Break

10:20 AM
Leaching of Spent Ni-Mo Hydrodesulphurization (HDS) Catalyst in Oxalic Acid Solutions: Sedat Ilhan1; 1Bogazici University

10:40 AM
Working Experience with the New WOX Plant to Treat Zinc Waelzoxide at ZGH Boleslaw SA, Poland: Angel Selke1; Leszek Stence1; Miroslaw Fatyga1; Bogdan Pieczonka1; Lukasz Zieba1; 1Ingenium GmbH; 2ZGH Boleslaw SA

11:00 AM
Synthesis of AgCN Nanowire Membranes in Aqueous Solutions from Silver Diecyanide Ions: Armando López-Miranda1; Gonzalo Viramontes-Gamboa1; Alejandro López Valdivieso1; 1Universidad Michoacana de San Nicolás de Hidalgo; 2Universidad Autónoma de San Luis Potosi

11:20 AM Study on Leaching Valuable Elements from Bayan Obo Tailings: Bo Zhang1; Xiangxun Xue1; He Yang1; Xiaowei Huang1; Jianxin Han1; 1Northeastern University

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Additional Topics in SPD Processing and Mechanical Properties
Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya
Thursday AM  Room: Marina F
March 2, 2017  Location: Marriott Marquis Hotel & Marina
Session Chair: To Be Announced

8:30 AM
Effect of Annealing of ZK60 Magnesium Alloy after Processing by High-pressure Torsion: Seyed Alireza Torbat Sarraf1; Shima Sabaghianrad1; Terence G. Langdon1; 1University of Southern California

8:50 AM
Severe Plastic Deformation as a Tool to Tune Magnetic Properties: Carmen M. Cepeda-Jimenez1; Juan Ignacio Beltran1; Antonio Hernando2; Miguel Angel Garcia1; Félix Yndurain1; Alexander Zhilyaev5; Maria Teresa Perez Prado2; 1IMDEA Materials Institute; 2Instituto de Magnetismo “Salvador Velayos”, UCM, ADIF, CSIC; 3Instituto de Cerámica y Vidrio, CSIC; 4Universidad Autónoma de Madrid; 5Fundació CTM Centre Tecnològic

9:10 AM
Investigation of Crystallographic Texture and Stored Energy after Cross Accumulative Roll-bonding of Fe-36Ni (Invar) Alloy: Hiba Azeddine1; Kamel Tirsatine1; Thierry Baudin1; Marie-Hélène Mathon1; Anne-Laure Helbert1; François Brisset1; Djamel Bradai1; 1University of M’sila; 2USTHB; 3Université Paris-Saclay; 4Laboratoire Léon Brillouin

9:30 AM
Microstructure and Mechanical Behavior of UFG Mg-22Zn-2Gd: Samalda God1; Y Wang1; A Srinivasan1; R Jayagathan1; Jing Tao Wang1; 1Nanjing University of Science and Technology; 2CSIR – National Institute for Interdisciplinary Science and Technology (NIIST); 3Indian Institute of Technology, Madras

9:50 AM Break

10:10 AM
Microstructural Evolution of TWIP Steels during ECAP: Jessica Calvo1; Wang Lei1; José Antonio Benito1; José María Cabera1; 1Universitat Politècnica de Catalunya (UPC)

10:30 AM
Current-assisted-extrusion of Structural Amorphous Metals: Insight into Microstructure Formation and Mechanical Properties: Ekaterina Novitskaya4; Sebastian Diaz de la Torre3; Tizpaty Esquivel-Castro3; Guillermo Dieguez-Trejo3; 1University of California, San Diego; 2Instituto Politecnico Nacional

10:50 AM
Effect of Annealing on Microstructure and Magnetic Properties of Nanocrystalline Metastable Cu-Cu Solid Solutions: Andrea Buchmaier1; Stefan Hartl1; Jörg Schmauch2; Hisham Aboulfadil3; Andreas Verch3; Heinz Krenn3; Reinhard Pippan3; 1Erich Schmid Institute, Austrian Academy of Sciences; 2Experimentalphysik, Saarland University; 3Chair of Functional Materials, Saarland University; 4INM-Leibniz Institute for New Materials; 5Institute of Physics, Karl-Franzens University Graz

11:10 AM
Mechanical Behavior and Adiabatic Shear Localization of Ultrafine-grained Titanium: Zehou Li1; Bingfeng Wang2; Shiteng Zhao1; Ruslan Z. Valiev1; Kenneth S. Vecchio1; Marc A. Meyers1; 1University of California, San Diego; 2Central South University; 3Institute of Physics of Advanced Materials

11:30 AM
Dynamic Tensile Failure of Nanocrystalline Tantalum: Eric Hahn1; 1University of California, San Diego
Phase Transformations and Microstructural Evolution — Steels and Shape Memory, and General

Session Chair: To Be Announced

Thursday AM  Room: 16B
March 2, 2017  Location: San Diego Convention Center

8:30 AM
Thermal Stabilization of Bainite: Sk Hasan1; Shiv Singh1; 1IIT Kharagpur

8:50 AM
A Preliminary In-situ TEM Study of Migration Properties of Interfaces between Austenite and Ferrite in a Duplex Stainless Steel: Juan Du1; Frederic Mompiou2; Wen-Zheng Zhang3; 1Tsinghua University; 2CEMES-CNRS and University of Toulouse

9:10 AM
Characterizing Ni-Ti-Ga Shape Memory Alloys: Oscar Figueroa1; Michele Manuel1; 1University of Florida

9:30 AM
Development of a Shell Model of Phase Interfaces and Application to Grain Boundary Porosity in Nuclear Fuel: Andrew Prudil1; Michael Welland1; 1Canadian Nuclear Laboratory

9:50 AM Break

10:10 AM
The Kinetics of Ferromagnetic Tau Phase Formation in Mn-Al Alloys: Ozgun Acar1; Merve Genc1; Ilkay Kalay2; Eren Kalay2; 1METU; 2Cankaya University

10:30 AM
Orientational Dependence of Shock Induced Phase Transition of Single Crystal Copper: Anupam Neogi1; Nilanjan Mitra1; 1IIT Kharagpur

10:50 AM
The Microstructure Evolution of HAVAR Co-Base Alloy during Cold Rolling: Daniel Moreno1; Shlomo Haroush1; Louisa Mersennick2; Vladimir Ezersky1; Ido Silverman1; Yaniv Gelbstein1; Roni Shneck1; 1Soreq - nrc; 2Ben-Gurion University

Solar Cell Silicon — Silicon Impurity Removal and Refining

Program Organizers: Shadia Ikhmayies, Al Isra University; Neale Neelameggham, IND LLC

Thursday AM  Room: 19
March 2, 2017  Location: San Diego Convention Center

Funding support provided by: Co-sponsored by Energy Committee (pending committee approval)

Session Chairs: Neale Neelameggham, IND LLC; Christian Liebscher, Max-Planck-Institut für Eisenforschung GmbH

8:30 AM
Effect of Magnesium Addition on Removal of Impurities from Silicon by Hydrometallurgical Treatment: Stine Espelien1; Gabriella Tranell1; Jafar Safarian1; 1NTNU

8:50 AM
Evaporation Removal of Boron in Molten Silicon Using Reactive Fluxes: Ye Wang1; Kazuki Morita1; 1Sichuan University; 2The University of Tokyo

9:10 AM
Study on the Segregation Behavior of Impurities during Solvent Refining Process: Li Jiyuan1; Tan Yi1; 1Dalian University of Technology

Solid State Precipitation — Session II

Program Organizers: Seth Imhoff, Los Alamos National Laboratory; Robert Hackenberg, Los Alamos National Laboratory; Gregory Thompson, University of Alabama

Thursday AM  Room: 25A
March 2, 2017  Location: San Diego Convention Center

Session Chair: Seth Imhoff, Los Alamos National Laboratory

8:30 AM Invited
Self-organization by Strain Accommodation in the Formation of Long-range Stacking Order Structure in Mg-RE-TM Alloys: Tadashi Furuhara1; Xinfu Gu1; 1Tohoku University

9:00 AM
Effects of Clustering and Trace Elements on Precipitation Hardening of Al-Mg-Si Alloys: Stefan Pogatscher1; Marion Werinos1; Peter Uggowitzer1; 1Montanuniversitaet Leoben; 2ETH Zürich

9:20 AM Invited
Clustering and Precipitation in Al-Cu-Li Alloys: Influence of Minor Solute Additions on the Competition between Kinetic Paths: Alexis Deschamps1; Frederic De Geuser1; Eva Gumbmann1; Rosen Ivanov1; Christophe Sigl1; 1Grenoble Institute of Technology; 2Constellium Technology Centre

9:50 AM
Effect of Ca Additions on the Ageing Behavior of Mg-15Gd-0.5Zr Alloy: Houwen Chen1; Chenglong Liu1; Jian-Feng Nie1; 1Chongqing University; 2Monash University

10:10 AM Break

10:30 AM Invited
The Role of Electron Microscopy in the Understanding of Precipitation in Light Alloys: Jian-Feng Nie1; 1Monash University

11:00 AM
The Effects of ECAP on the Precipitation Behavior of Al 2024: Guher Tan1; Eren Kalay2; Hakan Gur1; 1Mersin University; 2METU

11:20 AM
Analysis of Crystal Structures with Icosahedral Local Order in Al-Fe-V-Si Alloys After Solidification at Intermediate Cooling Rates: Joseph Jankowski1; Michael Kaufman1; Amy Clarke1; Stephen Midson1; Krish Krishnamurthy1; 1Colorado School of Mines; 2Honeywell

11:40 AM
Precipitate Structures in Mg Alloys Containing Nd and Y: Ellen Solomon1; Emmanuelle Marquis1; 1University of Michigan
Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Microstructure and Microstructural Evolution

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

Thursday PM Room: 7B Location: San Diego Convention Center

Funding support provided by: TMS: Additive Manufacturing Committee

Session Chairs: Eric Lass, NIST; Phil Prangnell, The University of Manchester

2:00 PM Invited Microstructure and Mechanical Properties Evolution of Biomedical Co-Cr-Mo Alloys Produced by Electron Beam Additive Manufacturing: Akihiko Chiba1; Tohoku University

2:30 PM Additively Manufactured 17-4 PH Stainless Steel: Toward Conventional Wrought Behavior: Eric Lass1; Mark Stoudt1; Sudha Cheruvathur1; Lyle Levine1; Yaakov Idell1; ‘National Institute of Standards and Technology

2:50 PM Grain Structure Engineering for Metal Additive Manufacturing: Fuyao Yan1; Wei Xiong1; Gregory Olson1; ‘Northwestern University

3:10 PM On the Development of a a+a’ Dual-Phase Microstructure for Electron Beam Melted Ti-6Al-4V: Tensile Behavior and Thermal Stability: Charlotte de Formanoir de la Cazerie1; Alice Brulard1; Guilhem Martin1; Frédéric Prima1; Sébastien Michotte4; Edouard Rivièrê4; Adrien Dolumont4; Stéphane Godel4; ‘Université Libre de Bruxelles; ‘Université Grenoble Alpes; ‘PSL Research University, Chimic ParisTech – CNRS; ‘Sirris; ‘Université de Mons

3:30 PM Break

4:00 PM Size Dependence of Deformation Response of 316 Steel Made by Additive Manufacturing: Minh-Son (Son) Pham4; ‘Imperial College London

4:10 PM Microstructure and Mechanical Behavior of Additively Manufactured Austenitic Stainless Steel: Thale Smith4; Kaka Ma3; Baolong Zheng3; Joshua Sugar4; Chris San Marchi4; Julie Schoenung4; ‘University of California, Davis; ‘Colorado State University; ‘University of California, Irvine; ‘Sandia National Laboratories

4:30 PM Massive Transformation in Ti-6Al-4V Additively Manufactured by Selective Electron Beam Melting: Ma Qian1; Shenglu Lu1; Huiping Tang1; David StJohn1; ‘Royal Melbourne Institute of Technology; ‘State Key Laboratory of Porous Metal Materials, Northwest Institute for Nonferrous Metal Research; ‘The University of Queensland

4:50 PM Concluding Comments
Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Defects and Mechanical Properties

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

Thursday PM
March 2, 2017
Location: San Diego Convention Center

Session Chairs: Brad Boyce, Sandia National Laboratory; Robert Warren, Worcester Polytechnic Institute

2:00 PM Invited
High-throughput Testing Reveals Rare, Catastrophic Defects: Brad Boyce; Brad Salzbrenner; Bradley Jared; Jeffrey Rodelas; Jonathan Madison; Jay Carroll; ‘Sandia National Laboratories

2:30 PM
Characterization of the Elastic Properties and Microstructure of SLM Al-10Si-Mg: David Wikin; Scott Sitzman; Yong Kim; Paul Adams; Robert Castaneda; ‘The Aerospace Corporation

2:50 PM
Normal Track Size Related and Abnormal Lack of Fusion Defects Formed during Selective Laser Melting of CoCrMo Alloy: Kourosh Darvish; Z. Chen; T. Pasang; ‘Auckland University of Technology

3:10 PM
Stress State, Strain Rate and Temperature Dependence of an Electron Beam Additive Manufactured Ti6Al4V: Omar Rodriguez; Paul Allison; Wilumb Whittington; David Francis; Oscar Rivera; Y. Kevin Chao; Bo Cheng; ‘The University of Alabama; ‘Mississippi State University

3:30 PM Break

3:50 PM Invited
Positional Dependence of Pore Morphology, Size and Orientation in SEBM Ti-6Al-4V and Influence on Mechanical Properties: Ma Qian; Joe Elambasseril; Huiping Tang; Shenglu Lu; Wei Xu; Milan Brandt; ‘RMIT University (Royal Melbourne Institute of Technology); ‘State Key Laboratory of Porous Metal Materials, Xi’an, China; ‘Macquarie University

4:20 PM
Effect of the Isotropism and Anisotropic Work Hardening on the Micromechanics Behavior in Textured Inconel 718 by Electron Beam Additive Manufacturing: Qingge Xie; Alexandru Dan Stoica; Sarma B. Gorti; Radhakrishnan Balasubramaniam; Gian Song; Hassina Z. Bilheux; Michael M. Kirka; Ryan R. Dehoff; Jean-Christophe Bilheux; Ke An; ‘Oak Ridge National Laboratory

4:40 PM
Multiscale Mechanical Property Measurement and Microstructural Characterization of Additively Manufactured Ti-6Al-4V Components: Tugce Ozturk; Xinyi Gong; Soumya Mohan; Surya Kalidindi; Anthony Rollett; ‘Carnegie Mellon University; ‘Georgia Institute of Technology

5:00 PM
Microstructural Evolution, Fatigue Crack Growth Mechanisms, and Effects of Heat Treatment and HIP in Ti-6Al-4V Alloys Fabricated by Electron Beam Melting: Robert Warren; Haize Galarraga; Diana Lados; Ryan Dehoff; Michael Kirka; ‘Worcester Polytechnic Institute; ‘Oak Ridge National Laboratory

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session VIII

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

Thursday PM
March 2, 2017
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM
Progress on Measuring the Transient Dynamic Strength of Rapidly Heated Plain Carbon Steels: Steven P. Bates; Sindhra Gangireddy; Mark Stought; ‘National Institute of Standards and Technology

2:20 PM
Parameter Estimation in Crystal Plasticity Based Material Models: Aritra Chakraborty; Philip Eisenlohr; ‘Michigan State University

2:40 PM
High Resolution Strain Mapping around Hydrides in Zirconium Alloy: Bhus Thomas; David Lunt; Philipp Frankel; Michael Preuss; Aidan Cole-Baker; ‘School of Materials, University of Manchester; ‘Rolls-Royce Plc

3:00 PM

3:20 PM Break

3:40 PM
Microstructural Characterization of Inconel 600 Tubes after Tensile Tests at Various Temperatures and Strain Rates: Cécile Davoine; Vincent Marcaton; David Leveque; Fabienne Popoff; Nicolas Horezan; Denis Boivin; Gerald Portemont; ‘Onera the French Aerospace Lab

4:00 PM
Formability Enhancement and Damage Initiation Mechanisms under Static and Dynamic Loading Conditions in Bainitic Steels: Behnam Shakerifard; Jesus Galan Lopez; Denis Jorge Badiola; Frank Hisker; Stefan Van Bohemen; Kangyung Zhu; Viktoria Savrav; Leo Kestens; ‘TU Delft; ‘M2i; ‘CEIT; ‘ThyssenKrupp Steel Europe AG; ‘TATA steel; ‘AMMR; ‘UGent

4:20 PM
Multi-scale Modeling of Microstructural Spin in Crystal Plasticity for Phenomenological Models: Christopher Kohar; John Bassani; Raja Mishra; Kaan Inal; ‘University of Waterloo; ‘University of Pennsylvania; ‘General Motors Research & Development Center

4:40 PM
Physics Based-crystal Plasticity Modeling of Single Crystal Niobium: Tias Mait; Philip Eisenlohr; Di Kang; Thomas Bieler; ‘Michigan State University

5:00 PM
Effect of 3D Crystallographic Orientation on Evolution of Corrosion in Aluminum Alloys: Hrishikesh Bale; Tyler Stannard; Jeff Gelb; Erik Lauridsen; Leah Lavery; Arno Merkle; Nikhilesh Chawla; ‘Carl Zeiss X-ray Microscopy, Inc.; ‘Arizona State University; ‘Xnovo Technology ApS

Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafig Aliam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Thursday PM Room: 16A Location: San Diego Convention Center

Session Chair: Michael Free, University of Utah

2:00 PM
Vaporization Thermodynamics of Mg, K, and Rb Using Kaudson Torsion Effusion Thermogravimetry Method: L.-N. N. Nforbi; Anjali Talekar; Dhanesh Chandra; Wen-Ming Chien; Kai Lau; Hans Hagemann; Yaroslav Filinchuk; J-C Zhao; Un. of Nevada, Reno; SRI International (Retired); Un. of Geneva; Un. of Louvain (Belgium); Other

3:20 PM
Thermodynamic Studies on the Mg-B System using Solid State Electrochemical Cells: Muhammad Imam; Ramana Reddy; The University of Alabama

2:40 PM
Reduction Behavior and Kinetics of Comilog-based SiMn Slags: Trine Larssen; Merete Tangstad; Norwegian University of Science and Technology

3:00 PM
Empirical Activation Energies of MnO and SiO2 Reduction In SiMn Slags between 1500 and 1650°C: Pyungkwa Kim; Ryo Suzuki Kawamoto; Trine Larssen; Merete Tangstad; Norwegian University of Science and Technology; The University of Tokyo

2:50 PM
Metal Silicides for High-Temperature Thermoelectric Application: Mallikharjuna Bogala; Ramana Reddy; The University of Alabama

3:15 PM
Computational Fluid Dynamic Based Process Modeling of Reverberatory Furnaces Used for Lead Recycling: Alexandra Anderson; Patrick Taylor; Gregory Bogen; Colorado School of Mines

3:40 PM Break

4:00 PM
CFD Modeling of Slag-Metal Reactions and Sulfur Refining Evolution in an Argon Gas-Stirred Ladle Furnace: Qing Gao; April Pitts; Laurentiu Nastac; University of Alabama

4:25 PM
Numerical Study of the Fluid Flow and Temperature Distribution in DC non-transferred Arc Thermal Plasma Reactor: Yadong Li; Ramana Reddy; University of Alabama

4:50 PM
Multiphase Simulation of Slag Eye Formation in an Inert Gas Shrouded Tundish by a Hybrid Multi-fluid VoF Approach: Christoph Kratzsch; Saikat Chatterjee; Amjad Asad; Donghui Li; Kinno Chattopadhyay; Rüdiger Schwarze; TU Bergakademie Freiberg; University of Toronto
Bulk Metallic Glasses XIV — Mechanical and Other Properties II

Program Organizers: Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

Thursday PM Room: 33B
March 2, 2017 Location: San Diego Convention Center

Session Chairs: Rainer Wunderlich, Ulm University; Gary Shiflet, University of Virginia

2:00 PM Invited
Thermophysical Properties of the Zr-based Bulk Metallic Glass Forming Alloy VTIT06a in the Liquid Phase on the Ground and on ISS: Rainer Wunderlich1; Anup Gangopadhyay2; Christopher Pueblos; Kenneth Kelton1; Hans Fecht3; Ulm University; Washington University

2:20 PM Invited
Degradation Behavior of Bulk Metallic Glasses – Corrosion, Erosion, and Wear: Ayyagar Aditya1; Sandeep Mukherjee2; University of North Texas

2:40 PM Invited
Effects of Ion Irradiation on the Mechanical and Microstructural Properties of Two Different Bulk Metallic Glass Alloys: Jamieon Brecht1; Hongbin Bi2; Steven Zinkle1; University of Tennessee; Oak Ridge National Laboratory

3:00 PM Invited
Electronic Mechanism of Ductile-to-Brittle Transformation in Amorphous Calcium-based Alloys: Andrew Cheung1; Gary Shiflet2; University of Virginia

3:20 PM
A High-Throughput Approach to Identifying Metallic Glasses and Characterizing Their Mechanical Properties: Juan Wang1; Peter Tsai2; Katharine Flores2; Department of Mechanical Engineering and Materials Science, Washington University in Saint Louis; Institute of Materials Science and Engineering, Washington University in Saint Louis

3:40 PM Break

4:00 PM
Material Behavior in Micro Milling of Zirconium based Bulk Metallic Glass: Boyuan Xie1; Marouj Kumar1; David Yan1; Xiaoliang Jin1; Oklahoma State University; University of Wisconsin-Green Bay

4:20 PM
The Corrosion and Wear Behaviors of a ZrCuNiAl Bulk Metallic Glass in Simulated Groundwater: Yongliang Huang; Hongbo Fan; Jing Liu; Zhihui Ning; Jianfei Sun; Harbin Institute of Technology

4:40 PM
The Effect of Phase Transformation on the Magnetocaloric Effect in Co-based Heusler Alloys: Young Do Kim1; SongYi Kim1; Hye Ryeong Oh1; Hyeon-shik Kim1; Young Do Kim1; MinHa Lee1; Korea Institute of Industrial Technology; Hanyang University

5:00 PM
Effect of Sm Micro-alloying on the Mechanical Behavior and Crystallization Kinetics of Cu-Zr-Al BMGs: Fatih Sikart1; Ilkay Kalay2; Sezer Ozerine1; Eren Kalay3; METU; Cankaya University

5:20 PM
Accurate Peak Prediction of Pair Correlation Functions in Metallic Glasses: Jun Ding1; Mark Asta2; Robert Ritchie1; Lawrence Berkeley National Laboratory

5:40 PM
Modeling Deformation in Amorphous Materials via Evolution of Discrete Shear Transformation Zones: Babak Kondori1; Ahmed Benzerga1; Alan Needleman2; Texas A&M University

6:00 PM
Modeling the Mechanics Responsible for Strain Delocalization in Metallic Glass Matrix Composites: Casey Messick1; Eric Homer2; Brigham Young University

6:20 PM
Shear Banding of Metallic Glass under Multi-axial Stress States by Shear Transformation Zone Dynamics Simulationszone Dynamics Simulations: Neng Wang1; Liu Li1; University of Alabama

6:40 PM
The Origin of Alloy Compositions: Chuang Dong1; Qing Wang1; Dalian University of Technology

7:00 PM Break

7:00 PM Invited
Deformation Behavior of Metallic Glasses with Shear Band Like Atomic Structure: A Molecular Dynamics Study: Cheng Zhang1; Qingping Cao2; Xiaodong Wang1; Dongxian Zhang1; Jianzhong Jiang1; Zhejiang University

7:40 PM Invited
Subtle Influence of the Factors on Mechanical Properties of Nanoscale Metallic Glasses: Qi Zhang1; Mo Li1; Qian Xuesen laboratory of Space Technology, China Academy of Space Technology; Georgia Institute of Technology

8:00 PM
Orientation Dependent Energy and Strength of Metallic Crystalline-amorphous Interface: Ehsan Alishtabi1; Chuang Deng2; University of Manitoba; University of Manitoba

8:50 PM
The Multiple Shear Bands and Plasticity in Metallic Glasses: An Origin from Stress Inhomogeneity: Guannan Yang1; Yang Shao1; Kefu Yao1; Tsinghua University
Thursday PM
March 2, 2017
Room: 31B
Location: San Diego Convention Center
Session Chairs: Zhiwei Peng, Central South University; Bo Lan, Imperial College London Department of Mechanical Engineering

Characterization of Minerals, Metals, and Materials —
Materials Extraction

Program Organizers: Shadia Ikhmayes, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jian-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Ferrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

2:00 PM
Leaching of Copper-Cobalt Tailings from the Democratic Republic of Congo: Yotamu Hara1; Shadreck Chama2; Douglas Mazwi Musowoya3; Golden Kaluba4; Jimmy Machona5; Stephen Parirenyatwa6; Tina Chanda7; Paul Chishimba8; 1Leeds University; 2Copperbelt University

2:20 PM
Optimum Operating Conditions for Extraction of Lignin Precursors from Palm Fruit Bunch: Emmanuel Akpom1; Samson Adeosun2; M. Usman3; 1Ambrose Alli University; 2University of Lagos

2:40 PM
Experimental Determination of Macro-texture in hcp and Cubic Materials Using Ultrasound: Bo Lan1; Fiomn Dunne2; Michael Lowe3; 1Imperial College London

3:00 PM
Selection on the Process for Enriching Gold from Refractory Gold Ores by Smelting: Weifeng Liu1; 1Central South University

3:20 PM
Selection on the Process for Removing and Recovering Antimony from Antimonial Refractory Gold Ores: Weifeng Liu1; Shuai Rao2; 1Central South University

3:40 PM Break

3:55 PM
Characterization of Spent Printed Circuit Boards from Computers: Zhiwei Peng1; Jiaxing Yan2; Hongjin Zhang3; Xiaolong Lin4; Jian-Yang Hwang5; Guanghui Li6; Yuanbo Zhang7; Tao Jiang8; 1Central South University

4:15 PM
Study of the Effect of the Initial Nucleation Mechanism of Lead Anode Oxidation Film on Internal Stress in Chromic Acid Electrolyte: Yankai Wang1; Jianzhong Li2; 1Northeastern University

4:35 PM
In Situ Observation of the Precipitation of Copper Sulfate Hydrate on the Copper Based Anode Surface: Yuia Nintomiya1; Hideaki Sasaki2; Takeshi Yoshikawa3; Masafumi Maeda4; 1The University of Tokyo; 2Ehime University

4:55 PM
Upgrading of Copper and Cobalt from the Democratic Republic of Congo Tailings: Yotamu Hara1; Shadreck Chama2; Mazwi Doglas Musowoya3; Golden Kaluba4; Jimmy Machona5; Kawunga Nyirenda6; Paul Chishimba7; Stephen Parirenyatwa8; 1Copperbelt University; 2Leeds University

Characterization of Minerals, Metals, and Materials — Non-Ferrous Metals

Program Organizers: Shadia Ikhmayes, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jian-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering; Ferrao Donato, Collegio Universitario, Italy; Mingming Zhang, ArcelorMittal Global R&D; Zhiwei Peng, Central South University; Juan P. Escobedo-Diaz, UNSW Australia; Chenguang Bai, Chongqing University; Eren Kalay, METU; Ramasis Goswami, Naval Research Laboratory; Jeongguk Kim, Korea Railroad Research Institute

2:00 PM
Defect Structures in the Intermetallic Compounds Ag3Sn and Cu3Sn: Haibo Yu1; Yu Sun2; Seok-Woo Lee3; Paul Canfield4; S. Pamir Alpay5; Mark Aindow6; 1University of Connecticut; 2Ames Laboratory & Iowa State University

2:20 PM
Mechanical Behavior of Light Metal Alloys with Grain Size Distribution in a Wide Range of Strain Rates: Vladimir Skripnyak1; Vladimir V. Skripnyak2; Evgenia Skripnyak3; Irina Vaganova4; Natalia Skripnyak5; 1National Research Tomsk State University

2:40 PM
Microstructure Evolution during Thermo-mechanical Processing of Low-symmetry Metals: Rodney McCabe1; Miroslav Zecevic2; Daniel Coughlin3; Sven Vogel1; Bjorn Clausen1; Donald Brown1; 1Los Alamos National Laboratory

3:00 PM
A Comparison of Gallium and Xenon Plasma Focused Ion Beam Techniques for the Interrogation of Aluminum Alloy Microstructures: Alexis Ernst1; Mei Wei2; Mark Aindow3; 1University of Connecticut

3:20 PM
Effect of Alloying Elements on Diffusing Bonding Parameters in Al6063 Alloy: Sila Atabay1; Arcan Dericioglu2; 1Middle East Technical University

3:40 PM Break

3:55 PM
Composition Dependent Martensitic Transformation and Softening of Elastic Constants: Le Zhou1; Abhishek Mehta2; Arpit Giri3; Kyo Chol4; Yongho Sohn5; 1University of Central Florida; 2SURVICE Engineering Company; 3US Army Research Laboratory

4:15 PM
Study of Texture Evolution in Copper Tubes Due to the Tilting of the Die during Drawing: Farzad Foadian1; Mohammad Masafi2; Adele Carradó3; Heinz-Günter Brokmeier4; Heinz-Steinberger5; 1Clausthal University of Technology; 2Institut de Physique et Chimie des Matériaux de Strasbourg

4:35 PM
Recrystallization Behavior of Al Added Low Density Medium Mn Steel: Arnab Sarkar1; Tapas Bandhopadhyay2; 1Indian Institute of Technology, Kharagpur

4:55 PM
Texture Patterns in Orientation Gradient Thin Films: Elizabeth Ellis1; Markus Chmielus2; Marissa Linne3; Shefford Baker4; 1Cornell University; 2University of Pittsburgh; 3University of Michigan

5:15 PM
Characterization of Surface Microstructure and Passive Film Formed on Nanostructured Ti-6Al-4V Alloy Produced by Cryogenic Burning: Jun Tang1; Hongyun Luo2; 1Beijing University of Aeronautics and Astronautics
Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions — Uncertainty Quantification for Multiscale and Continuum Methods (FEM, Crystal Plasticity, etc.)

Program Organizers: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida; Li Ma, NIST; Shawn Coleman, ARL; Jeff Doak, QuesTek Innovations, LLC; Fadi Abdeljawad, Sandia national laboratory

Thursday PM
March 2, 2017
Location: San Diego Convention Center

Funding support provided by: TMS Chemistry and Physics of Materials Committee

Session Chair: Li Ma, National Institute of Standards and Technology

2:00 PM
A Novel Method of Analyzing Constitutive Model Parameters Using Canonical Correlation Analysis: Sudipto Mandal1; Anthony Rollett2; Carnegie Mellon University

2:20 PM
A Statistical FEA Method for Predicting Glass Fracture in Consumer Electronic Products: Marc Zampino1; Shankar Ganapathysubramanian1; Ben Tan1; Guru Ramanathan1; Amazon/Lab126

2:40 PM
Finite Element Analysis of Influence of Phase Distribution and Shape Variation of Phases on Charge Transport in a Dual Phase System: Fazle Rabbi1; Kenneth Reifsnider1; University of South Carolina; University of Texas at Arlington

3:00 PM
An Integrated Microstructure Development and Crystal Plasticity Approach with Uncertainty Quantification for Multi-scale Constitutive Model Development.: Maxwell Pinz1; George Weber1; Somnath Ghosh1; Johns Hopkins University

3:20 PM
Break

3:40 PM
Uncertainty Quantification in the Multiscale Simulation of Materials: Richard LeSar1; Iowa State University

4:10 PM
Hierarchical Multiscale Modeling and Parametric Analysis of Polyvinyl Alcohol/Montmorillonite Nanocomposites: William Lawrimore1; Justin Hughes1; Bhasker Paliwal1; Mei Chandler1; Kyle Johnson1; David Francis1; Mark Horstemeyer1; Engineer Research and Development Center; Center for Advanced Vehicular System

4:30 PM
Quantifying Material Variability and Uncertainty for Welded and Additively-manufactured Structures Using Multiscale A Posteriori Error-estimation Techniques: Joseph Bishop1; Judith Brown2; Sandia National Laboratories

4:50 PM
Community-driven Benchmark Problems for Phase Field Modeling: Andrea Jokisaari1; Peter Voorhees1; Jonathan Guyer2; James Warren2; Olle Heinonen1; Nordwestern University; National Institute of Standards and Technology; Argonne National Laboratory

5:10 PM
Functional Uncertainty Quantification in Materials Modeling: Sam Reeve1; Alejandro Strachan1; Purdue University

Computational Thermodynamics and Kinetics — Diffusion and Kinetics II

Program Organizers: Niaz Abdolrahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

Thursday PM
Room: 11A
March 2, 2017
Location: San Diego Convention Center

Session Chair: Ebrahim Asadi, University of Memphis

2:00 PM Invited
A Molecular Simulation Study of the Effect of Composition Gradients on Intermetallic Nucleation: Peng Yi1; Michael Falk1; Timothy Weihs1; Johns Hopkins University

2:30 PM
Defect Migration Using Atomistic-continuum Coupling: Liam Huber1; Raheleh Hadian1; Blazej Grabowski1; Jörg Neugebauer1; Max-Planck-Institut für Eisenforschung GmbH

2:50 PM
Diffusion Mechanisms of ‘Fast Diffusers’ in Ti Alloys: Alessandro Mottura1; Lucia Scotti1; University of Birmingham

3:10 PM
Measurement of Diffusion Coefficients and Investigation on Precipitation in Mg-based Systems Using Diffusion Experiments: Wei Zhong1; Ji-Cheng Zhao1; The Ohio State University

3:30 PM
Break

3:50 PM
Quasiparticle Approach to Diffusional Atomic-scale Kinetics in Complex Structures: Helena Zapolsky1; Mykola Lavrskyi1; Gilles Demange1; Armen Khachaturyan1; Renaud Patte1; University of Normandy, Rouen; University of California and Rutgers University

4:10 PM
Dissimilar Solid-Liquid Interface Free Energy and Anisotropy of Metals Using Molecular Dynamics Simulations: Seyed Alireza Etesami1; Ebrahim Asadi2; University of Memphis

4:30 PM
Kinetic Monte Carlo Simulations of the Growth of Gold Thin Films: Michele Fullarton1; Darnel Allen1; Aleksandr Chernatynskiy1; Simon Phillpot1; University of Florida; University of Wyoming; Missouri University of Science and Technology

4:50 PM
Nonlinear Elastic Effects in Phase Field Crystal and Amplitude Equations: Comparison to Ab Initio Simulations of bcc Metals and Graphene: Claas Häuser1; Martin Friak2; Marc Weikamp1; Jörg Neugebauer1; Nigel Goldenfeld1; Bob Svendsen1; Robert Spatschek1; Forschungszentrum Jülich; Institute of Physics of Materials, Academy of Sciences of the Czech Republic; MPIE; University of Illinois at Urbana-Champaign; RWTH Aachen University

5:10 PM
Theory and Simulation of Quantum Dot Formation in Heteroepitaxial Grown Thin Films under External Forces: Nur Seda Aydin1; Ersin Emre Ören1; Bionanodesign Laboratory, Department of Biomedical Engineering, TOBB University of Economics and Technology, Ankara, Turkey
Deformation and Transitions at Interfaces — Deformation and Grain Growth in Polycrystalline Materials

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

Thursday PM Room: 23B March 2, 2017 Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
The Zero-energy Grain Boundary and Consequences to Grain Growth: Ricardo Castro1; Nazia Nafsin1; 1University of California, Davis

2:20 PM Invited
Exploring the Role of Texture, Grain Boundary Character, and Grooving on Grain Growth in Metallic Thin Films: Khalid Hattar1; Daniel Bufford1; Stephen Foiles1; Fadi Abdeljawad1; 1Sandia National Laboratories

2:40 PM Invited
Electric Field Effects on Grain Boundary Formation and Grain Growth: Klaus van Benthen1; 1University of California, Davis

3:00 PM Invited
Blocky Alpha Grain Growth in Zircalloy4: Vivian Tong1; T Ben Britton1; 1Department of Materials, Imperial College

3:20 PM Invited
EBSD Observations of Deformation at Grain Boundaries: David Field1; 1Washington State University

3:40 PM Break

4:00 PM
Transformation, Deformation and Special Grain Boundary Generation — Theoretical Analysis and Phase Field Simulations: Yipeng Gao1; Yunzhi Wang1; 1The Ohio State University

4:20 PM
Deformation at Grain Boundaries and Triple Junctions in Oligocrystalline Nickel: Ying Chen1; Mingjie Li1; 1Rensselaer Polytechnic Institute

4:40 PM
Correlating Dislocation Configurations to Deformation Behavior in Cyclically Deformed Additive Manufactured IN718: Yung Suk Yoo1; Todd Book1; Michael Sangid1; Josh Kacher1; 1Georgia Tech; 1Purdue University

5:00 PM Invited
Effects of Materials and Processing Parameters on the Roughness of Recrystallization Boundaries: Dorte Jensen1; YuBin Zhang1; Jun Sun1; 1DTU Risø

Energy Materials 2017: Materials for Coal-Based Power — Session V

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

Thursday PM Room: 12 March 2, 2017 Location: San Diego Convention Center

Session Chair: Jeffrey Hawk, NETL, U.S. Department of Energy

2:00 PM Invited
Alloy Design of Creep-resistant High Entropy Alloys for Elevated-Temperature Applications: Peter Liu1; Haoyan Diao1; Chuan Zhang1; Fan Zhang1; Karin Dahmen1; 1The University of Tennessee; 2The University of Tennessee; 3CompuTherm, LLC.; 4University of Illinois at Urbana-Champaign

2:40 PM
Continued Development of a Cast Superalloy, IN740 for Advanced Power Generation Applications: Kyle Rozman1; Jeff Hawk1; Paul Jablonski1; 1National Energy Technology Laboratory

3:00 PM Invited
Creep Behavior and Microstructural Stability in Cast Strengthened Nickel Superalloys: Jeffrey Hawk2; John Sears2; Paul Jablonski2; 1U.S. Department of Energy, National Energy Technology Laboratory; 2AECOM

Program Organizers: Raul Rebak, GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Hosemann, University of California Berkeley; Jian Li, CanmetMATERIALS

Thursday PM Room: Miramar
March 2, 2017 Location: Marriott Marquis Hotel & Marina

Session Chair: Peter Hosemann, University of California Berkeley

Advanced ODS FeCrAl Alloys for Accident-tolerant Fuel Cladding: Sebastien Dryepondt1; Caleb Massey1; Philip Edmondson1; Kurt Terrani1; Oak Ridge National Laboratory

Minimizing Hydrogen Diffusion through FeCrAl Alloy Accident Tolerant Fuel Cladding: Raul Rebak1; Young Kim1; GE Global Research

The Mechanical Response of Advanced Claddings during Proposed Reactivity Initiated Accident Conditions: Mahmut Cin hic1; Nicholas Brown1; Kurt Terrani1; Rick Lowden1; Donald ERDMAN III1; Oak Ridge National Laboratory

Systematic Studies on Dispersoid Stability and Swelling Resistance in ODS Alloys under Ion Irradiation Conditions: Hyosim Kim1; Jonathan Gigax1; Tianyi Chen1; Frank Garner1; Lin Shao1; Texas A&M University

In-situ Observation on the Oxides Stability under Laser and/or Electron Beams Irradiations in 9Cr-ODS Steel: Wang Hui1; Yang Zhanbing1; Yang Subing1; Watanabe Seichi1; Shibayama Tamaki1; University of Science & Technology Beijing; School of Metallurgical and Ecological Engineering, State Key Laboratory of Advanced Metallurgy, University of Science and Technology Beijing; Centre for Advanced Research of Energy and Materials, Faculty of Engineering, Hokkaido University

A Preliminary Investigation on the Phase Transformation Kinetics Behavior of an U-10wt%Mo Cast and Homogenized Alloy: Saumyadeep Jana1; Arun Devaraj1; Vineet Joshi1; Curt Lavender1; PNPL

First Principles Study of Electronic Structure and Thermo-mechanical Properties of the Components of Accident Tolerant Nuclear Fuel: UO2 and UB2; Eriemoo Jossou1; Linu Malakkal2; Dotun Oladimeji1; Barbara Szpunar2; Jerzy Szpunar1; University of Saskatchewan

First Principles Investigations of Alternative Nuclear Fuels: Barbara Szpunar1; linu Malakkal2; Eriemoo Jossou1; J.A. Szpunar1; University of Saskatchewan
Fracture Properties and Residual Stresses in Small Dimensions — Interface Dominated Fracture
Program Organizers: Daniel Kienler, University of Leoben; Marco Sebastiani, Roma TRE university; Nagamani Jaya Ballia, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Thursday PM
Room: 21
Location: San Diego Convention Center

Session Chairs: Rafael Soler, MPIE; Nan Li, Los Alamos National Laboratory

2:00 PM Invited
Temperature-Dependent Failure Mode of Metal-Ceramic Interfaces:
- Rafael Soler
- Sriram Venkatesan
- Johannes Zechner
- Michael Nelliebel
- Roman Roth
- Josef Fugger
- Gerhard Dehm
- Max-Planck-Institut für Eisenforschung GmbH
- KAI - Kompetenzzentrum Automobil- und Industrielektronik
- Infineon Technologies AG

2:30 PM
Oxide-induced Substrate Cracking in Ti and Stainless Steels Driven by Pulsed Laser Irradiation: Jesus Morales Espeso; David Bahr; Purdue University

2:50 PM
Fracture Toughness of Beryllium Using In situ X-ray and Digital Image Correlation Techniques: Carl Cady; Cheng Liu; George Gray; Neil Bourne; Los Alamos National Laboratory

3:10 PM
Improved Fracture Resistance of Brittle Molybdenum Thin Films on Polymide with Stress Tailoring: Megan Cordill; Tanja Jörg; Aleksandr Glushko; Robert Franz; Jörg Winkler; Christian Mitterer; Ersch Schmid Institute of Materials Science; Department of Physical Metallurgy and Materials Testing, Montanuniversität Leoben; Business Unit Coating, PLANSEE SE

3:30 PM Break

3:50 PM Invited
Enhanced Fracture Toughness of Mg/Nb Laminated Composites: Nan Li; Youxing Chen; Siddhartha Pathak; Jian Wang; Jon Baldwin; Amit Misra; Nathan Mara; Los Alamos National Laboratory; University of Nevada, Reno

4:20 PM
The Surface Residual Stress of High-frequency Induction Brazing of Cemented Carbide to Alloy Steel: Jia Ju; Zhiang Liu; Shuting Lou; Ting Ruan; Nanjing Institute of Technology

4:40 PM Concluding Comments

Friction Stir Welding and Processing IX — Control and Simulation
Program Organizers: Yuri Hovanski, Brigham Young University; Rajiv Mishra, University of North Texas; Yutaka Sato, Tohoku University; Piyush Upadhyay, Pacific Northwest National Laboratory; David Yan, University of Wisconsin-Green Bay

Thursday PM
Room: 9
Location: San Diego Convention Center

Session Chairs: Enkhsaikhan Boldsaikhan, Wichita State University; John Baumann, Boeing Research & Technology

2:00 PM Introductory Comments

2:10 PM Invited
Depth and Temperature Control during Friction Stir Welding of 5 cm Thick Copper Canisters: Lars Cederqvist; Olof Garpinger; Swedish Nuclear Fuel and Waste Management Company

2:30 PM
Direct Pin Tool Temperature Measurements in Friction Stir Welding: Xiaoqian Mu; Stanley Howard; South Dakota School of Mines and Technology

2:50 PM
Effect of Pin Tool Profile on Metal Flow, Torque and Forces during Friction Stir Welding-limiting Friction Cases: Narges Dialami; Miguel Cervera; Michele Chiumenti; Carlos Agelet de Saracibar; CIMNE

3:10 PM Invited
Measuring the Advancing Side Separation Forces during Self-reacting FSW of Al: Scott Rose; John Baumann; Sean Thuston; Eric Thomas; Brian Martinek; The Boeing Company

3:30 PM Break

3:50 PM
Predicting Lap Shear Strength for Friction Stir Scribe Joining of Dissimilar Materials: Erwin Barker; Piyush Upadhyay; Yuri Hovanski; Xin Sun; Pacific Northwest National Lab

4:10 PM Invited
Simultaneous Independent Control of Tool Axial Force and Temperature in Friction Stir Processing: Kenneth Ross; Glenn Grant; Jens Darsell; David Catalini; Pacific Northwest National Laboratory

4:30 PM
Model Based Process Window for FSW of AA7075-T6 Plates: Elizabeth Hoyos; Escuela de Ingeniería de Antioquia

4:50 PM
Prediction of Mechanical Properties of Friction Stir Welds through Microstructural Data: Akbar Heidarzadeh; Hesam Askari; Azarbaijan Shahid Madani University; University of Rochester

GAT-2017 (Gamma Alloys Technology - 2017) — Technologically Critical Areas - Discussions
Program Organizers: Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Thursday PM
Room: Solana
March 2, 2017
Location: Marriott Marquis Hotel & Marina

Session Chairs: Junpin Lin, Univ. of Science and Technology Beijing; Wilfried Smarsly, MTU Aero Engines GmbH

2:00 PM Panel Discussion Topic 2 (Additive Manufacturing Processes for Gammalloys) - Discussion Lead Team: S-K. Rittinghaus (Fraunhofer), Marc Thomas (ONERA), Dennis Dimiduk (BlueQuartz), Mhosen Sefli (Case Western), Wenbin Kan (USTB), Mauro Filippini (Polimi), Andrzej Wojcieszynski (ATI Metals), Young-Won Kim (Gamteck)

2:35 PM Panel Discussion Topic 3 (Directional Processing) - Discussion Lead Team: Ruirun Chen (HIT), Jun Shen (NWPUI), Michael Oehring (HZG), Zhixiang Qi (NJUST), Hao Jin (IMR), Myunghoon Oh (KNIT), Rui Yang (IMR), Young-Won Kim (Gamteck)

3:05 PM Panel Discussion Topic 4 (Microstructure-Defects-Life) - Discussion Lead Team: Mauro Filippini (Polimi), Martin Schloffer (MTU), Ernie Crist (Alcoa), Rob Haun (Retech), Adrienne Muth (Gatech), Thomas Edwards (Cambridge), Matthew Dahar (Case Western), Dennis Dimiduk (BlueQuartz), Young-Won Kim (Gamteck)

3:30 PM Break Introduction

3:50 PM Panel Discussion Topic 5 (Industrial Turbine Blade Gammalloys and Processes) - Discussion Lead Team: Sivavash Zamani (MAPNA), Fritz Appel (HZG), Jun Zhang (Siemens), Florian Pyczak (HZG), Thomas Broderick (GE), Young-Won Kim (Gamteck)
High Entropy Alloys V — Structures and Modeling II
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riversides; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Thursday PM  Room: 32B
March 2, 2017  Location: San Diego Convention Center

Session Chairs: Karin Dahmen, University of Illinois at Urbana Champaign; James Morris, The University of Tennessee, Knoxville

2:00 PM Invited
A Computational Investigation on Diffusion in High-entropy Alloys: Chuan Zhang1; Fan Zhang2; Shuanglin Chen1; Weisheng Cao2; Jun Zhu1; Haoyian Diao2; Peter Liaw2; 1CompuTherm LLC; 2University of Tennessee

2:20 PM Invited
Modeling Slips in Slowly Deformed High Entropy Alloys and Comparison to Experiments: Karin Dahmen1; XJ Gu2; Li Shu3; Aya Nawano1; Shuying Chen1; Peter Liaw2; Jonathan Uhlf1; Wendelin Wright1; Jien-Wei Yeh1; 1University of Illinois at Urbana Champaign; 2Bucknell University; 3University of Illinois at Urbana Champaign; 4The University of Tennessee, Knoxville; 5Retired; 6National Tsing Hua University

2:40 PM Invited
Modeling Fundamental Properties of High Entropy Alloys: James Morris1; 1Oak Ridge National Laboratory

3:00 PM
Using a Large Scale Modelling Technique for Selection of HEAs Containing Atypical Elements: Bob Snell1; Iain Todd1; Russell Goodall1; 1University of Sheffield

3:20 PM Invited
Atomistic Modeling of Solid-solution Structures of High Entropy Alloys: Guofeng Wang1; Zhenyu Liu1; Yinkai Lei1; 1University of Pittsburgh

3:40 PM Break

4:00 PM Invited
Predicted Properties of NiFeCrCo Based HEAs from First Principles: Douglas Irving1; Changning Niu1; Alex Zaddach1; Adedapo Oni1; James LeBeau1; Carl Koch1; 1North Carolina State University

4:20 PM Invited
The Serrations of TiZrTM1TM2 (TM=Hf, Mo, Ta, V and W) High Entropy Alloys: An Integrated First-principles Calculation and Finite-elements Method Study: William Yi Wang1; FengBo Han1; Yi Dong Wu1; Deyi Lin1; Bin Tang1; Jun Wang1; Shun-Li Shang1; Yi Wang1; HongChao Kou1; Xi-Dong Hui1; Karin Dahmen1; Peter Liaw2; JinShan Li1; Zi-Kui Liu1; 1Northwestern Polytechnical University; 2University of Science and Technology Beijing; 3Institute of Applied Physics and Computational Mathematics; 4The Pennsylvania State University; 5University of Illinois at Urbana Champaign; 6The University of Tennessee

4:40 PM Invited
Understanding and Designing High-entropy Alloys using a Cluster-plus-Glue-Atom Model: Qing Wang1; Xiaona Li1; Chuang Dong1; Peter K. Liaw2; 1Dalian University of Technology; 2University of Tennessee

5:00 PM Invited
A Multifaceted Approach to Analyze the Serration Behavior in High Entropy Alloys and Other Material Systems: Janieson Brecht1; Xie Xie1; Shuying Chen1; Haoyan Diao2; Yunzhu Shi2; Tengfei Yang3; Bilin Chen4; Karin Dahmen1; Peter Liaw2; Steven Zinkle1; 1University of Tennessee; 2University of Illinois at Urbana Champaign

5:20 PM
New Deformation Twinning Mechanism in Equi-molar Multi-component Alloys with Low Stacking Fault Energy: Qingjie Li1; Evan Ma1; 1Johns Hopkins University

5:40 PM Fatigue Behavior of High-entropy Alloys: Peiyong Cheng1; Bilin Chen1; Michael Hemphill1; Zhi Tang1; Tao Yuan1; Gongyao Wang2; Che-Wei Tsai1; Andrew Chuang1; Carl D Lundin1; Jien-Wei Yeh1; Mohns Seifit1; Dongyue Li1; John L Lewandowski1; Karin A Dahmen2; Peter K Liaw2; 1University of Tennessee; 2University of Knoxville; 3Ohio University; 4National Tsing Hua University; 5Case Western Reserve University; 6State Key Laboratory for Advanced Metals and Materials; 7University of Illinois at Urbana-Champaign

High Entropy Alloys V — Thermal and Other Properties
Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, University of California Riversides; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Thursday PM  Room: 32A
March 2, 2017  Location: San Diego Convention Center

Session Chairs: Nobuhiro Tsuji, Kyoto University; Thanh Tran, NSWC Carderock

2:00 PM Invited
Recrystallization and Grain Growth in High Entropy Alloys: Nokceun Park1; Tilak Bhattacharjee1; Yoshihiko Nakamura1; Xian Li2; Rajeshwar Eleti1; Yu Bai1; Akinobu Shibata1; Nozukiyo Taji1; 1Yeungnam University, Kyoto University

2:20 PM Invited
Aluminum Diffusion in High Entropy Alloys: K. Michael Mathes1; Thanh Tran2; Peter Liaw3; 1University of Tennessee; 2Naval Surface Warfare Center - Carderock Division

2:40 PM Invited
Deformation Characteristics and Thermomechanical Processing of Complex Concentrated Alloys: Mageshwari Komarasamy1; Rajiv Mishra1; 1University of North Texas

3:00 PM Invited
Structural and Thermodynamic Properties of a Lightweight AlTiVCr High Entropy Alloy: Yong-Jie Hu1; Yong-Jie Qiu1; N Birbilis1; Zi-Kui Liu1; 1The Pennsylvania State University; 2Monash University

3:20 PM Invited
High-entropy Alloys Properties and Short- and Long-range Ordering Predicted via Electronic-Structure-based Thermodynamics: Duane Johnson1; Prashant Singh1; Andrei Smirnov1; 1Ames Laboratory/Iowa State University

3:40 PM Break

4:00 PM Invited
Dynamic Behavior and Grain Refinement of AlxCoCrFeNi High-entropy Alloy: Zezhou Li1; Shiteng Zhao1; Haoyan Diao2; Shima Sabbaghianrad1; Terence G. Langdon1; Peter K. Liaw2; Marc A. Meyers1; 1University of California, San Diego; 2The University of Tennessee, Knoxville; 3University of Southern California

4:20 PM Invited
Stress State, Strain Rate and Temperature Sensitivity of AlxCrCoFeNi1-x High Entropy Alloys (HEAs): Omar Rodriguez1; Paul Allison1; Haoyan Diao2; Peter Liaw2; Neng Wang1; Lin Li1; 1University of Alabama; 2University of Tennessee
4:00 PM
Experimental Demonstration of Isotope-free Simultaneous Measurement of Self- and Inter-diffusion Coefficients: Esin Schulz; Irina Belova; Graeme Murch; Yongho Sohn; University of Central Florida; The University of Newcastle

5:00 PM
Application of a High Accuracy Diffusion Kinetics Formalism to High Entropy Alloys: Alan Allnatt; Irina Belova; Tumpa Paul; Graeme Murch; University of Western Ontario; The University of Newcastle

5:20 PM
Uncovering Micro Mechanisms during Tensile Deformation for an Outstanding High Entropy Alloy via In Situ Neutron Diffraction: Biao Cai; Bin Liu; Yiqiang Wang; Ken Yan; Saurabh Kabra; Peter Lee; Yong Liu; University of Manchester; Central South University; ISIS Facility

Magnesium Technology 2017 — Mechanical Behavior: Twinning, Plasticity, Texture, and Fatigue III
Program Organizers: Kiran Solanki, Arizona State University; Dmytro Orlov, Lund University; Alok Singh, National Institute for Materials Science; Neale Neelameggham, Ind LLC

Thursday PM  Room: 5B  Location: San Diego Convention Center
Session Chairs: Christopher Barrett, Mississippi State University; Scott Whalen, Pacific Northwest National Laboratory

2:00 PM
Microstructure and Texture Evolution during Hot Deformation of Cast-Homogenized ZK60 Magnesium Alloy: Amir Hadadzadeh; Sargib Shaha; Mary Wells; Hamid Jafari; Bruce Williams; University of Waterloo; CanmetMATERIALS, Natural Resources Canada

2:20 PM
Development of <10-10> Texture during Tensile Test at Room Temperature: Zhuoran Zeng; Mingzhe Bian; Shiwei Xu; Chris Davies; Nick Birbilis; Jian-Feng Nie; Monash University; Baosteel Group Corporation

2:40 PM
Effect of Ca on the Microstructure, Texture and Mechanical Properties in Mg-Zn-Mn Based Alloy: Byoung-Chan Sulh; Taisuke Sasaki; Taiki Nakata; Shigebaru Kamado; Kazuhiro Hono; National Institute for Materials Science; Nagaoa University of Technology

3:00 PM
Evaluation of In Vitro Fatigue Properties of Biodegradable Mg-0.3at.%Ca Alloy: Naoko Ikei; Akhito Taguma; Taichi Uemura; Toshiji Mukai; Kobe University

3:20 PM
Mechanical Properties and Fatigue Strength of Extruded Cobalt-containing Magnetic Magnesium Alloys: Christian Demming; Christian Klose; Leibniz Universität Hannover

3:40 PM Break

4:00 PM
Neutron Diffraction and Acoustic Emission Measurement during Loading and Unloading of Magnesium Aluminium Binary Alloys: Jan Capek; Kristian Mathis; Charles University in Prague

4:20 PM
Texture Weakening and Grain Refinement by High Speed Rolling and Annealing of an AZ31 Magnesium Alloy: Jing Su; Stephen Yue; McGill University

4:40 PM
The Relative Contributions of Deformation Modes to AZ31 Rolling Textures in Different Temperature Regimes: Matthew Steiner; Jishnu Bhattacharyya; Sean Agnew; University of Virginia

5:00 PM
Effects of Texture and Triaxiality on the Plasticity of Magnesium Alloys: Balaji Selvarajou; Shailendra Joshi; Amine Benzerara; National University of Singapore; Texas A&M University

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Modeling
Program Organizers: Ramprakash Prabhakaran, Pacific Northwest National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research; Clarissa Yablinsky, Los Alamos National Laboratory

Thursday PM  Room: Point Loma  Location: Marriott Marquis Hotel & Marina
Session Chair: To Be Announced

3:00 PM
Cluster Dynamics Modeling of Cu Precipitation Hardening in Reactor Pressure Vessel Steels: Xin-Ming Bai; Huibin Ke; Pritam Chakraborty; Yongfeng Zhang; Idaho National Laboratory

3:20 PM
Monte Carlo Modeling of Recrystallization Processes in α-Uranium: Matthew Steiner; Rod McCabe; Elena Garlea; Sean Agnew; University of Virginia; Los Alamos National Laboratory; Y-12 National Security Complex

3:40 PM Break

4:00 PM
Continuum-level Modeling of Irradiation Damage Cascades with Explicit Microstructure Representation: Jesse Carter; Jared Tannenbaum; Richard Smith; Bettis Laboratory, BMPC

4:20 PM
Mesoscale Modeling of δ-Hydride Nucleation and Growth in α-Zirconium: Andrea Jakissari; Katsuyo Thornton; Olle Heinonen; Northwestern University; University of Michigan; Argonne National Laboratory

4:40 PM
Phase Field Modeling of PWR Cladding Corrosion with the HOGNOSE Code: Andrew Dykhuis; Michael Short; Massachusetts Institute of Technology

5:00 PM
Thermodynamic Modeling and Continuum Scale Fuel Performance Simulations: Jacob McMurray; Srdjan Simunovic; Theodore Besmann; Benjamin Gaston; Markus Piro; Oak Ridge National Laboratory; University of South Carolina; Canadian Nuclear Laboratories
Materials Engineering of Soft Magnets for Power and Energy Applications — Advanced Silicon Steels and Soft Magnetic Alloys for Rotating Electrical Machinery

Program Organizers: Paul Ohodnicki, National Energy Technology Laboratory; Francis Johnson, GE Global Research; Alex Leary, Carnegie Mellon University; Tanjore Jayaraman, University of Michigan; Lajos Varga, Wigner Research Center for Physics

Thursday PM Room: 25B
March 2, 2017 Location: San Diego Convention Center

Session Chair: Alex Leary, Carnegie Mellon University

2:00 PM Invited
Amorphous Soft Magnetic Core for the Stator of the Electric Motor: Aleksandra Kolano-Burian1; Roman Kolano1; Marcin Polak1; Marek Hreczka1; 1Institute of Non-Ferrous Metals

2:30 PM Invited
Advanced Soft Magnetic Materials for Highly-efficient Electric Motors: Josefina Silveira1; Vladimir Keylin1; Michael McHenry2; 1INEICIN, Facultad de Ingenieria, Universidad de Buenos Aires - CONICET; 2Carnegie Mellon University

3:00 PM Invited
Opportunities and Challenges in the Additive Manufacture of Soft Magnetic Silicon Steel Parts: Processing, Material Properties and Component Design: Michele Garbaldi1; Ian Ashcroft2; Richard Hague1; 1The University of Nottingham; 2University of Windsor

3:30 PM Break

3:45 PM Invited
Effect of Annealing Time on the Texture of a 2.8% Si Non-Oriented Electrical Steel after Inclined and Skew Rolling: Mehdi Mehdii1; Youallang He2; Erik Hilinski1; Afsaneh Edrisy1; 1University of Windsor; 2Carnegie Mellon University

4:15 PM Invited
Effects of Cooling Rate on 6.5% Silicon Steel Ordering: Brandt Jensen1; Chad Macziewski1; Kevin Dennis1; Lin Zhou1; Wei Tang1; Olena Palasyuk2; Levitas Valery2; Matthew Kramer1; Jun Cui2; 1Ames Laboratory; 2Iowa State University

4:45 PM Invited
Novel Silicon Steel Nanocomposites via Severe Shear Deformation Approaches: Trevor Clark1; Hellen Jiang2; Nicole Overman1; Suveen Mathaunudi1; 1University of California, Riverside; 2Pacific Northwest National Laboratory

5:05 PM Magnetic Properties of Shear-textured Fe-Si Sheet Produced by Simple Shear Deformation: Andrew Kistus1; Srinivasan Chandraskear1; Kevin Trumble1; 1Purdue University

Materials Science for High-Performance Permanent Magnets — Synthesis and Processing

Program Organizers: Satoshi Hirosawa, National Institute for Material Science; Matthew Kramer, Iowa State University; Oliver Gutfleisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Thursday PM Room: 24C
March 2, 2017 Location: San Diego Convention Center

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Matthew Kramer, The Ames Laboratory; Hae-Woong Kwon, Pukyong National University

2:00 PM Invited
Fabrication of Submicrometer-sized SmFe3N4 Hard Magnetic Particles: Toshiharu Teranishii1; Hsin-Lun Wu1; Ryota Sato1; 1Kyoto University

2:30 PM Coercivity and Strength Enhancement of a Binder Jetted NdFeB Bonded Magnet by (Pr, Nd)-Cu-Co Alloy Infiltration: Li Li1; Angelica Tirado1; Benjamin Conner1; Amy Elliott2; Orlando Rios1; Haidong Zhou1; M. Parans Paramanathan1; 1Oak Ridge National Laboratory; 2University of Tennessee

2:50 PM Recent Developments in High Coercivity Nd-lean Nd-Fe-B Infiltrated Magnets: Daniel Salazar1; Andreas Martin-Cid1; Jose Garriaonandia1; Rajeshkar Madugundo1; Jose Manuel Barandiaran1; George Hadjipanayis1; 1BCMaterials; 2University of the Basque Country (UPV/EHU); 3University of Delaware

3:10 PM High Magnetic Field Processing of Melt-spun Permanent Magnet Alloys: Michael McGuire1; Orlando Rios1; Ben Conner1; William Carter1; Lin Zhou1; Brandt Jensen1; Kewei Sun1; Mianliang Huang1; Olena Palasyuk1; Kevin Dennis1; Ikenna Nebedim1; 1Oak Ridge National Laboratory; 2The Ames Laboratory

3:30 PM Break

3:50 PM Structural Evolution in Alnico — A Transmission Electron Microscopy and Atom Probe Tomography Study: Lin Zhou1; Wei Guo2; Jon Poplawsky2; Wei Tang1; Iver Anderson1; Matt Kramer1; 1Ames Lab; 2Oak Ridge National Laboratory, Center for Nanophase Materials Sciences

4:10 PM Powder-processed High-performance Alnico Magnets by Thermal Gradient Control: Emma White1; Aaron Kassen1; Wei Tang1; Matthew Kramer1; Iver Anderson1; 1Ames Laboratory

4:30 PM Reduced Cobalt Energy Efficient “Green” Alnico: Andrei Palasyuk1; Brandon Kiel1; Kevin Dennis1; Wei Tang1; Lin Zhou1; Aaron Kassen1; Emma White1; Mathew Kramer1; Iver Anderson1; 1Ames Laboratory; 2Iowa State University, DMSE
Microstructural Processes in Irradiated Materials — Nuclear Fuels and Ceramics

Program Organizers: Thak Sang Byun, Pacific Northwest National Laboratory; Chu-Chun Fu, Commissariat à l’énergie atomique et aux énergies alternatives (CEA); Djamel Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Marnivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Thursday PM
March 2, 2017
Room: Del Mar
Location: Marriott Marquis Hotel & Marina

Session Chairs: Mark Asta, University of California-Berkeley; William Weber, University of Tennessee

2:00 PM Invited
Amorphization and Recrystallization in Ion-irradiated Ceramics: William Weber; Eva Zarkadoula; Ritesh Sachan; Haizhou Xue; Yanwen Zhang; 1University of Tennessee; 2Oak Ridge National Laboratory

2:30 PM
Insights on Dramatic Radial Fluctuations in Track Formation by Energetic Ions: Ritesh Sachan; Yanwen Zhang; Eva Zarkadoula; Matthew Chisholm; William Weber; 1Oak Ridge National Laboratory; 2University of Tennessee

2:50 PM
Characterization of Radiation Effects in Complex Oxides: New Application of Neutron Total Scattering Techniques: Jacob Shamblin; Eric O’Quinn; Raul Palomares; Maik Lang; 1University of Tennessee

3:10 PM Invited
Energetics of Trivalent Substitutional Elements in Uranium Dioxide: Combined Computational and Experimental Investigations: Jonathan Solomon; Lei Zhang; Alexandra Navrotsky; Mark Asta; 1University of California, Berkeley; 2University of California, Davis

3:40 PM Break

3:55 PM
Raman Characterization of Electron Irradiated UO2 to Determine U Displacement Threshold: Ionel Desgranges; ritesh mohon; patrick Simon; aurelien canizares; florian duval; pierre desgardin; marie-france Barthé; christophe jegou; sandrine miro; 1CEA; 2CNRS

4:15 PM
Quantification of Irradiation Defects in Silicon Carbide Using Raman Spectroscopy: Takaaki Koyanagi; Michael Lance; Yutai Katoh; 1Oak Ridge National Laboratory

4:35 PM
Mesoscale Modelling of Radiation-induced Recrystallization and Fission Gas Bubble Formation in Metallic U-Mo Fuel: Linyun Liang; Zhi-Gang Mei; Abdellatif Yacout; 1Argonne National Laboratory

4:55 PM Conclusion Comments

Pan American Materials Congress: Advanced Biomaterials — Implants, Bone Graft and Drug Delivery

Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Thursday PM
March 2, 2017
Room: Mission Hills
Location: Marriott Marquis Hotel & Marina

Session Chairs: Mayara Alvarez-Lemus, Juarez Autonomous University of Tabasco; Ke Yang, Institute of Metal Research, Chinese Academy of Sciences

2:00 PM
In Vivo Study on New Coronary Stents Made of Nickel-free High-nitrogen Stainless Steel: Qingchuan Wang; Shanshan Chen; Hui Yang; Bingchun Zhang; Ke Yang; 1Institute of Metal Research, Chinese Academy of Sciences
2:00 PM
Effect of Rapid Solidification on the Microstructure of a Biomaterial Co-Cr-Mo-C Alloy
Hamid-Reza Erfanian-Naziftoosi, Hugo Lopez
1; Hugo Lopez1; Hamid-Reza Erfanian-Naziftoosi1; 1University of Wisconsin-Milwaukee

2:40 PM
Influence of Time and Temperature of Acid Treatment in the Morphology and Roughness of Osseointegrable Implants: Ariel do Lago1; Beatriz Torres1; Carlos Elias1; 1Instituto Militar de Engenharia

3:00 PM
Optical Properties of CeO2@ZnO Core@shell Nanostructures Synthesized by Solvolothermal Method: Saved Farhangan1; Felipe Sanhueza1; Pandiarajan Thangaraj1; Mangalaraja Ramalinga Viswanathan1; 1Concepcion University

3:20 PM Break

3:40 PM
Investigation of Properties in Glass-ceramics Based on Li2O-SiO2 System during Li2SiO3-Li2Si2O5 Transformation: Bruno Simba1; Marcos Ribeiro1; Claudinei Santos2; Paulo Suzuki2; Luis Hein2; Manuel Alves2; 1Unesp-FEG - Universidade Paulista-Faculdade de Engenharia de Guaratinguetá; 2UESJ-FAT - Universidade do Estado do Rio de Janeiro-Faculdade de Tecnologia; 3USP-EEL - Universidade de São Paulo-Escola de Engenharia de Lorena

4:00 PM
Structure and Toughening Mechanism of Carp Fish Scales: Haocheng Quan1; Wen Yang2; Robert Ritchie2; Marc Meyers1; 1UCSD; 2ETH-Zurich; 3Lawrence Berkeley National Laboratory

4:20 PM
Synthesis and Characterization of Ni0.5Zn0.5Fe2O4@mSiO2 Core Shell Nanocarrier for Drug Delivery Applications: Mohd Qasim1; Khushnuma Asghar1; Dibakar Das1; 1University of Hyderabad

4:40 PM
Zirconium Alloys for Orthopaedic & Dental Implants: A Review: Afrin Mehjabeen1; Ma Qian2; 1RMIT

Pan American Materials Congress: Materials for Transportation andLightweighting — Composite Materials II
Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan, Mangalaraja. University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo León

Thursday PM  Room: Marina D
March 2, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM
An Improved Silicon Carbide Monofilament for the Reinforcement of Metal Matrix Composites: Michael Rix1; 1TISICS

2:20 PM
Effect of Al2O3 Volume Percentage on the Mechanical Properties and Strengthening Effect in Al Alloy Nano Composites Fabricated by Ultrasonic Assisted Solidification Technique: Neeraj Srivastava1; 1Indian Institute of Technology Roorkee

2:40 PM
Effect of Annealing on the Electrical Properties of PA6/MWNT/CU Composites: Saeed Doagou Rad1; A Islam1; J. Jensen1; 1Technical University of Denmark

3:00 PM
Experimental and Density Functional Theory Studies of SmMn2O4 Mullitetype Oxide as NO Oxidation Catalyst: Sampreetha Thampy1; 1University of Texas at Dallas; 2Dongguan Innovative New Materials Co. Ltd.; 3University of Texas at Dallas and Dongguan Innovative New Materials Co. Ltd

3:20 PM Break

3:40 PM
Investigation on Mechanical Properties of Sic, Al2O3 and B4C Micro Particulates Reinforced in Aluminum Matrix Composite: Gopal Kumareshan1; K Kalachivel1; A Rajadurai1; 1Production Technology, MIT Campus, Anna University.

4:00 PM
Synthesis of Energetic Composites in Ti-Al-B-C System by Adiabatic Explosive Compaction: Mikhail Chikhradze1; 1G.Tsulukidze Mining Institute/F. Tavadze Institute of Metallurgy and Materials Science/Georgian Technical University; 2San Diego State University

4:20 PM
Nanocomposites Mechanical and Tribological Properties using Graphene Coated Ceramic Nanoparticles for Light Weight Applications: Ahmed Ghazaly1; Mohamed Shokri1; Sandy El-Mohgazi1; Ahmed Fathy1; Mohamed Emara1; Hanadi Salem1; 1American University in Cairo; 2Canadian College
Pan American Materials Congress: Materials for Transportation and Lightweighting — Joining

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Daiglaar, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autónoma de Nuevo Leon

Thursday PM  Room: Marina G
March 2, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM
Joining of Sandwich Materials – Concepts for Local Force Transmission into Innovative Vehicle Structures: Carmen Scholz1; Sebastian Wagner2; Gundolf Kopp1; Horst Friedrich1; 1German Aerospace Center; 2NMI Natural and Medical Sciences Institute at the University of Tübingen

2:20 PM
Influence of Robotic GMAW Welding Parameters on the Mechanical Properties of Thick Structural Steel Plates: Manuel Vázquez Esteban1; Argelia Miranda Pérez1; Rolando Praga-Alejo2; Gladys Pérez Medina1; 1Corporación Mexicana de Investigación en Materiales; 2Universidad Autónoma de Coahuila

2:40 PM
Joining Dissimilar Materials across Varying Length Scales by Impact Welding: Anupam Vivek1; Taesoon Lee1; Glenn Daehn1; 1Ohio State University

3:00 PM
Evaluation of Distortion in Pulse Spray Welding Joints of Hsla A572 Steel for Heavy Agricultural Equipment: Eduardo Raymundo Rivera Sanchez1; Gladys Yerania Perez Medina1; Eduardo Hurtado Delgado1; Leonardo Carrasco Gonzalez1; Argelia Fabiola Miranda Perez1; 1COMIMSA

3:20 PM Break

3:40 PM
Comparison of the Single Pulse and the Second Pulse Current on the Fusion Zone Microstructure and Mechanical Properties of the TRIP Steel Welds: Miguel Fernando Delgado Pamanes1; Sergio Rodriguez1; Victor Hugo Hernandez1; Simitrio Ignacio RUIZ1; 1IPN - UPIIZ; 2UAF

4:00 PM
Vaporizing Foil Actuator Welding as a Solution for Joining Automotive Steel and Aluminum Alloys: Anupam Vivek1; Bert Liu1; Glenn Daehn1; 1Ohio State University

4:20 PM
Study of the discontinuities generated by GMAW process applied in AISI 1018 steel using NDT phased array and their microstructural correlation.: Luis Aguilar-Pérez1; Gladys Pérez-Medina1; Argelia Miranda-Pérez1; Rolando Praga-Alejo1; 1Corporación Mexicana de Investigación en Materiales; 2Universidad Autónoma de Coahuila

Pan American Materials Congress: Minerals Extraction and Processing — Ore Processing

Program Organizers: Mery Gómez Marroquin, Asociacion Peruana de Metallurgia Materiales y Minerales-AMPMMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosí; Carlos Sampaio, UFRGS

Thursday PM  Room: Marina E
March 2, 2017  Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM
Preparation Conditions and Performance of Nano/Amorphous Hybrid Oxide Coated Titanium Anode for Oxygen Evolution in Electrowinning: Masafumi Yasuno1; Masatsugu Morimoto1; 1Doshisha University

2:20 PM
Improving Quality of Coke Made from Chinese Xinjiang Gas Coal with High Strength Modifier: Qiang Wu1; Zizong Zhu1; Guojing Shi1; Feng Wang1; Zilong Wang1; Yangyang Xie1; 1Chongqing University

2:40 PM
Process of Improving the Flotation Using Ultrasonic Bombardment: Erivelto Souza1; Orimar Reis1; Denise Pereira1; Luis Borges2; Jeisa Rodrigues1; 1UFSJ; 2IFMG-OP; 3QTEC; 4UFOP/DEMIN

3:00 PM
Preliminary Analysis of the Application of Sensor Based Sorting on a Limestone Mine in the Region Caçapava do Sul, Brazil: Régis Paranhos1; Evandro Santos2; Carlos Petter1; Aaron Young1; Moacir Veras1; 1Unipampa; 2Dagoberto Barcelos SA; 3UFGRS

3:20 PM Break

3:40 PM
The Compact Flowsheet for Ore Communion and Processing: George Mover1; Volodymyr Golovan1; 1Black Iron Inc.

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Phase, Interface and Crystalline Defects Evolution during SPD

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Thursday PM  Room: Marina F
March 2, 2017  Location: Marriott Marquis Hotel & Marina

Session Chairs: Ruslan Valiev, Ufa State Aviation Technical University; Gerhard Wilde, University of Muenster

2:00 PM
Ultrafine Grain Structure and Thermal Stability of Al-Fe Alloys Processed by Severe Plastic Deformation: Amandine Duchaussoy1; Xavier Sauvage1; Kaveh Edalati1; Zenji Horita1; Gilles Renou1; Alexis Deschamps3; Frédéric De Geuser4; 1Normandy University; 2WPI, International Institute for Carbon-Neutral Energy Research; 3WPI, International Institute for Carbon-Neutral Energy Research; 4Univ. Grenoble Alpes, SIMAP

2:20 PM
Grain Boundary Structure and Diffusivity of Severely Strained Metals and Alloys: Gerhard Wilde1; 1University of Muenster

2:40 PM
Insights into Deformation Induced Grain Boundary Migration in Ultrafine-grained Metals: Oliver Renk1; Pradipta Ghosh1; Reinhard Pippan1; 1Erich Schmid Institute of Materials Science

3:00 PM
Non-destructive Evolution of Defects in Ultrafine-grain Magnesium during Tensile Tests: Augusta Cerceau Isaac Neta1; Lorena Aarão1; Roberto Figueiredo1; Ângelo Malachias1; 1Universidade Federal de Minas Gerais

3:20 PM
A High Resolution X-ray Diffraction Line Profile Analysis of Mg-Ce and Mg-Nd Alloys after HPT Processing: Hiba Azzeddine1; Yousf Islam Bourezg2; Zdenek Matej2; Yi Huang3; Djamel Bradai3; Terence G. Langdon4; 1University of M’sila; 2USTHB; 3Max IV Laboratory; 4University of Southampton

3:40 PM Break

4:00 PM
Interface Phenomena in SPD-processed Nanomaterials: Ruslan Valiev1; Maxim Murashkin1; Dmitry Gundersen2; 1Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; 2Ufa State Aviation Technical University
4:20 PM
Outstanding Mechanical Properties of High-Pressure Torsion Processed Multiscale Clad Layer of Twinning Induced Plasticity Steel and Interstitial Free Steel: Hyounge Seop Kim1; 1POSTECH

4:40 PM
Fatigue Behavior of Friction Stir Processed Ultrafine Grained 5024 Al Alloy: Shivakant Shukla1; Mageshwari Komarasamy1; Rajiv Mishra1; 1University of North Texas

4:20 PM
Creep Deformation in Bulk Metallic Glasses: A Review: Kania Smith1; Michael Kassner1; 1University of Southern California

5:00 PM
Shock Compression Behavior of Ti-Based Monolithic Bulk Metallic Glass and its Composite: Rene Diaz1; Manny Gonzales1; Greg Kennedy1; David Scripka1; Ali Khosravan1; Surya Kalindini1; Douglas Hofmann1; Naresh Thadani1; 1Georgia Institute of Technology; 1NASA Jet Propulsion Laboratory

Solar Cell Silicon — Silicon Photovoltaics
Program Organizers: Shadia Ikhmayies, Al Isra University; Neale Neelameggham, Ind LLC

Thursday PM  Room: 19  Location: San Diego Convention Center

Funding support provided by: Cosponsored by Energy Committee (pending committee approval)

Session Chairs: Mohamad Zbib, Phoenicia University; York Smith, University of Utah

2:00 PM
A Solution to Reduce the Effects of Sandblasting on Photovoltaic Cells Used for Solar Energy: Mohamad Zbib1; 1Phoenicia University

2:20 PM
Electrodynamic Eddy Current Separation of End-of-Life PV Materials: York Smith1; James Nagel1; Raj Rajamani1; 1University of Utah

2:40 PM
Investigation on Quartz Crucibles for Monocrystalline Silicon Ingots for Solar Cells: Marisa Di Sabatino1; 1NTNU

3:00 PM
Influence of Oxygen Content on the Wettability of Silicon on Graphite: Zineb Benouahmane1; Lifeng Zhang1; Yaqiong Li1; 1University of Science and Technology Beijing

3:20 PM
Particle Separation in Silicon Ingot Casting Using AC Magnetic Field: Valdis Bojarevics1; Georgi Djambazov1; Koulis Pericleous1; 1University of Greenwich

Solid State Precipitation — Session III
Program Organizers: Seth Imhoff, Los Alamos National Laboratory; Robert Hackenberg, Los Alamos National Laboratory; Gregory Thompson, University of Alabama

Thursday PM  Room: 25A  Location: San Diego Convention Center

Session Chair: Seth Imhoff, Los Alamos National laboratory

2:00 PM
Invited
Atomic Theory of Spinodal Decomposition: Maylise Nastar1; 1CEA

2:30 PM
Spinodal Decomposition and Ordering Transformation in U6Nb Alloy: Luke Hsiung1; 1Lawrence Livermore National Laboratory

2:50 PM
Atom Probe Characterization of Phase Separation during Age Hardening of a U-6wt.%Nb Alloy: Clarissa Yablinsky1; Seth Imhoff1; Yaqiao Wu1; Amy Clarke1; Robert Hackenberg1; 1Los Alamos National Laboratory; 1Center for Advanced Energy Studies / Boise State; 1Colorado School of Mines
3:10 PM
Understanding the Decomposition Process of Immiscible Fe-Cu-Ag Alloy: B. Hornbuckle1; Anthony Roberts1; Tom Luckenbaugh1; Kris Darling1; 'U.S. Army Research Laboratory

3:30 PM Break

3:50 PM Invited
Hydride Precipitates in Zirconium Alloys: Evolution of Dissolution and Precipitation Temperatures during Thermal Cycling Correlated to Microstructure Features: Egle Confor1; Stephane Cohendoz2; Patrick Girault1; Cyril Berziou1; Xavier Feaugas1; 'University of La Rochelle

4:20 PM
Effect of Metalloid Addition on Anomalous Primary Crystallization of Al-RE Metallic Glasses: Mustafacan Kutsal1; Burcu Cam1; Eren Kalay1; 'METU

2017 Technical Division Student Poster Competition — Extraction and Processing Division (EPD) Graduate Students

Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

SPG-1: Additive Manufacturing of Clay Modified with Electric Arc Furnace Steel Dust (EAF Dust): Edisson Ordoñez2; Henry Colorado1; 'Universidad de Antioquia
SPG-2: Application of Zr And Ti as Anode Material in Metal-Air Batteries at Elevated Temperatures: Seyed Amirhossein Saeedi1; Emilio Ramirez1; Daniel Mummi1; 'University of California at Irvine
SPG-3: Beneficiation of Ancylite: Hao Cui1; Corby Anderson1; 'Colorado School of Mines
SPG-4: Investigation Phase Transformation Route in Mn-Al Alloys: Ozgun Acar1; Ayse Gene1; Yunus Kalay1; Ilkay Kalay1; 'Middle East Technical University; 'Cankaya University
SPG-5: On the Microstructure of Magnesium Alloy AZ91/SiC Metal Matrix Composites: Seyyedeh Nooshin Mortazavi1; 'Chalmers University of Technology
SPG-6: SiMn Reduction with Comilog Ore: Trine Larssen1; 'Norwegian University of Science and Technology
SPG-7: Single Phase Cementite Synthesizes by Mechanical Alloying: Ahmed Al-Joubori1; C. Suryanarayana1; 'University of Central Florida
SPG-8: Solvent Extraction of Praseodymium (III) and Terbium (III) from Mixed REEs Solution Using PC88A and Cyanex572 Extractant Diluted in Kerosene: Vivek Agarwal1; Mohammad Sadegh Safarzadeh1; 'South Dakota School of Mines and Technology
SPG-9: Trace Elements Analysis of Ultrahigh-purity Gallium by Direct and Indirect Method: Kyungjean Min1; David Johnson1; Kevin Trumble1; 'Purdue University

2017 Technical Division Student Poster Competition — Extraction and Processing Division (EPD) Undergraduate Students

Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

SPU-1: Silicon Carbide (SiC) Adsorption and Carburization onto an Activated Carbon Matrix: Alaina Mallard1; 'Montana Tech of the University of Montana
SPU-2: Synthesis of Silicates on the Micro-scale: Alec Affolter1; 'University of Tennessee

2017 Technical Division Student Poster Competition — Functional Materials Division (FMD) Graduate Students

Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

SPG-10: Effect of Different Aging Heat Treatments on Microstructural Evolution and Transformation Temperatures in a NiTiHfAl Shape Memory Alloy: Flavia Gallo1; Hunter Henderson; Michael Kesler; Britanni Maskley; Brandon Saraydar; Michele Manuel; 'Cidade Universitaria
SPG-11: Enhancing Li+ Interfacial Charge-transfer by Highly Oxygen-deficient Lithium Titanate Oxide with Conformal Amorphous Carbon for Lithium-ion Batteries: Ralph Nicolai Nasara1; Shih-kang Lin1; 'National Cheng Kung University
SPG-12: Evaluation on Reliability of Ag-alloy Wire under Cl- environment: Yan Wen Tsau1; Jui-Nung Wang1; Fan Yi Ouyang1; 'National Tsing Hua University
SPG-13: Interfacial Reactions in Co/In/Cu Joints by Transient Liquid Phase Bonding in Thermoelectric Modules: Tsu-Ching Yang1; Sinn-Wen Chen1; 'National Tsing Hua University
SPG-14: Interfacial Reactions in Transient Liquid Phase Bonding of Cu/Ga/ Ni and Cu/Ga/Co: Ji-min Lin1; Sinn-wen Chen1; 'National Tsing Hua University
SPG-15: The Role of Morphology in the Supercapacitance of Rare Earth Oxides: Aadithya Jayaranjan1; Tamil Selvan Sakthivel1; Sudipta Seal1; 'University of Central Florida
SPG-16: The Thermal Stability of Copper Nanotwinned Thin Film with Different Interlayers: Leh-Ping Chang1; Hsin-Yuan Chen1; Fan-Yi Ouyang1; 'National Tsing Hua University
SPG-17: Wettability-based Mitigation of Scale Formation: Leonid Rapoport1; Susmita Dash1; Kripa Varanasi1; 'MIT
SPG-18: Why and How the Electromigration Effect Occurs?: Yu-chen Liu1; Shih-kang Lin1; Shang-Jui Chiu1; Yen-Ting Liu1; Hsin-Yi Lee1; 'National Cheng Kung University; 'National Synchrotron Radiation Research Center

2017 Technical Division Student Poster Competition — Functional Materials Division (FMD) Undergraduate Students

Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

SPU-3: Development of High Gain and Self-Deployable CubeSat Antennas Using Nickel-Titanium Shape Memory Alloys: Britanni Maskley1; Hunter Henderson; Harry Shaw1; Michele Manuel; 'University of Florida; 'NASA
SPU-4: Discovery of New Ternary Compounds and Scintillators of the A4BX6 Family: Jesse Johnson1; Luis Stand1; Bryan Chakoumakos1; Mariya Zhuravleva1; Mary Koschan1; Chuck Melcher1; 'University of Tennessee-Knoxville; 'Department of Energy-Oak Ridge National Lab
SPU-5: Single Crystal Synthesis of Multiferroic Metal-organic Frameworks: Nicholas Combs1; Quinten Eustace1; 'University of Tennessee - Knoxville
2017 Technical Division Student Poster Competition — Light Metals Division (LMD) Graduate Students

Monday PM  Room:  Hall B1
February 27, 2017  Location:  San Diego Convention Center

Session Chair:  To Be Announced

SPG-19: Application of Computational Thermodynamics & Kinetics to Rare Earth Reduction in Magnesium Alloys: Kyle Fitzpatrick-Schmidt; Danielle Cote; Diran Apelian; 'Worcester Polytechnic Institute

SPG-20: Effect of Strontium and Calcium Concentration on Microstructure and in vitro Degradation Rate: David Christianson; Hunter Henderson; Alex Wilson-Heid; Michele Manuel; 'University of Florida

SPG-21: Feedstock Powder Analysis for Additive Manufacturing Applications: Caitlin Walde; Danielle Cote; Richard Sisson; Victor Champagne; 'WPI; 'US Army Research Laboratory

SPG-22: Numerical Investigation on Gas Bubble Behaviors in Aluminum Reduction Cell with Slotted Anode: Mejia Sun; Baokuan Li; Jian-ping Peng; 'Northeastern University

SPG-23: Orientation and Length Scale Effect in Deformation Mechanism in Pure Magnesium: Ali Kheiravani; Surya Kalidindi; 'Georgia Institute of Technology

SPG-24: Thermodynamic & Kinetic Model Application to Strengthening Mechanisms of Aluminum Alloys for Additive Manufacturing: Derek Tsaknopoulos; Danielle Cote; Richard Sisson; Victor Champagne; 'Worcester Polytechnic Institute

2017 Technical Division Student Poster Competition — Light Metals Division (LMD) Undergraduate Students

Monday PM  Room:  Hall B1
February 27, 2017  Location:  San Diego Convention Center

Session Chair:  To Be Announced

SPU-6: Fabrication of Novel Aluminum Welding Fillers Reinforced with NbB2 Nanoparticles: Lourdes Cruz; Andres Calle; Victoria Nadal; 'University of Puerto Rico at Mayaguez

SPU-7: Influence of Mn on Mechanical Properties in Aluminum Alloy 6082: Aedan Callaghan; Jasmine Majdpour; Lucas Alexander; Amir Farkoosh; Mihriban Pegkuleuyuz; 'Department of Materials Engineering, McGill University

SPU-8: Phase Stability of hcp MgSc Alloys via Cluster Expansion and Monte Carlo Methods: Adam Shaw; Gregory Pomrehn; Aurora Pribram-Jones; Patrick Conway; Michael Ferry; Kevin Laws; Lori Bassman; 'The Boeing Company; 'Lawrence Livermore National Lab; 'University of New South Wales

SPU-9: Thermodynamic Assessment and Microstructural Analysis of AA 6082 with Increased Addition of Manganese: Lucas Alexander; Jasmine Majdpour; Aedan Callaghan; Amir Farkoosh; Mihriban Pegkuleuyuz; 'McGill University

SPG-25: A Study on the Development of High Efficiency Cooling Channel Fabricated by Explosive Welding Process in the High Pressure Die Casting Mold: Sang Soo Shin; Chang Yong Choi; 'PNU; 'Ohsung Tech

SPG-26: Bulk Metallic Glass Casting: Insights into Critical Cooling Using High-speed IR Monitoring and Fast DSC: Fabian Haag; Güven Kurtuldu; Jörg Lößner; 'ETH Zurich

SPG-27: Design of New Ni-Based Superalloys for Electron Beam Additive Manufacturing Process: Curtis Frederick; Ryan Dehoff; Michael Kirka; Edwin Schwalbach; Michael Haines; Austin Staub; Suresh Babu; 'University of Tennessee, Knoxville; 'Oak Ridge National Laboratory; 'Air Force Research Laboratory

SPG-28: Dynamic Transformation of Austenite to Ferrite during Rolling above the Ac3 Temperature: Samuel Rodrigues; Clodualdo Aranas Jr; John Jonas; 'McGill University

SPG-29: Effect of Beam Oscillation on Electron Beam Welding of Ti-6Al-4V Alloy: Jyotirmaya Kar; Sanat Kumar Roy; Gour Gopal Roy; 'IIT Kharagpur

SPG-30: Ex-situ and In-situ TEM Investigation of Texture Dependent Strain Rate Sensitivity of Bauschinger Effect in Ultrafine-grained Al Films: Ehsan Izadi; Jagannathan Rajagopalan; 'Arizona State University

SPG-31: Grain Size Effect on the Deformation of Nanograined Metallic Multilayers: Sixie Huang; Caizhi Zhou; 'Missouri University of Science and Technology

SPG-32: In-situ Observation of Diffusion Behavior and Microstructural Evolution on Interfaces in Al/Cu Bimetal: Fei Cao; Fenfen Yang; Huijun Kang; Zongning Chen; Tiqiao Xiao; Tongmin Wang; 'Dalian University of Technology; 'Dalian University of Technology; 'Shanghai Institute of Applied Physics, Chinese Academy of Sciences

SPG-33: Iron’s Role in the Refinement of Aluminum-silicon by Trace Amounts of Strontium: Tara Power; Sunantha Shankar; Jeffrey Hoyt; 'McMaster University

SPG-34: Mechanical and Microstructural Evaluation of Ultra High Speed FSW of Aluminum Alloys: Jingyi Zhang; Piyush Upadhayay; Yuri Hovanski; David Field; 'Washington State University; 'Pacific Northwest National Laboratory; 'Brigham Young University

SPG-35: Non Equilibrium Thermodynamics of Quench and Partition Steels: Amit Behera; 'Northwestern university

SPG-36: Preparation of TiB2 by Mechanochemical Reaction between Al, B2O3 and TiO2: Petra Hanusova; 'Brno University of Technology, Faculty of Mechanical Engineering

SPG-37: Seed Layer Mediated Crystallization of Amorphous Structural Thin Films to Yield Gradient Microstructures: Rohit Sarkar; Jagannathan Rajagopalan; 'Arizona State University

SPG-38: The Effects of Transition Metal Element Addition on the Temporal Evolution and Microstructural Characteristics of Nickel-based Superalloys: Rasim Eris; 'Middle East Technical University
**PRELIMINARY TECHNICAL PROGRAM**

**2017 Technical Division Student Poster Competition — Materials Processing and Manufacturing Division (MPMD) Undergraduate Students**

<table>
<thead>
<tr>
<th>Session Chair: To Be Announced</th>
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<tbody>
<tr>
<td>SPG-10: A Cellular Bioactivity of Sol-Gel Derived Borate Glass-Polycaprolactone Electrospun Scaffolds: William Lepry; Sophia Smith; Liliana Liverani; Aldo Bocceccini; Showan Nazhat; McGill University; University of Erlangen-Nuremberg</td>
</tr>
<tr>
<td>SPG-11: Development of Bimodal Ferrite Grain Distribution to Enhance the Ductility of Dual Phase 600 (DP 600) Steel: Jisha Krishnan; Monideepa Mukherjee; Anish Karmakar; Shiv Brat Singh; Indian Institute of Technology Kharagpur; Tata Steel</td>
</tr>
<tr>
<td>SPG-12: Use of Carbon Fiber Laminates for the Manufacture of Leg Prosthetics: Javier Pascacio Chávez; Benjamin González Vizcarra; Miriam Sierrañeros Hernández; Universidad Autónoma de Baja California</td>
</tr>
<tr>
<td><strong>2017 Technical Division Student Poster Competition — Structural Materials Division (SMD) Undergraduate Students</strong></td>
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<tr>
<td>Session Chair: To Be Announced</td>
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<tr>
<td>SPG-40: A Preliminary Study on the High Energy Ball Milling and Spark Plasma Sintering of Fe-9Cr Alloy: Arnab Kande; University of Idaho</td>
</tr>
<tr>
<td>SPG-41: Corrosion Behavior of Alloy 800H in Supercritical CO2: Lucas Teeter; Benjamin Adam; Jacob Mahaffey; Mark Anderson; Julie Tucker; Oregon State University; University of Wisconsin Madison</td>
</tr>
<tr>
<td>SPG-42: Evaluation of Interfacial Layer of Friction Stir Welded Joint of AA6022-T4 and DP600 Sheets: Tianhuo Wang; Harpreet Sidharia; Rajiv Mishra; Piyush Upadhyay; Yuri Hovanski; Glenn Grant; Blair Carlson; University of North Texas; Pacific Northwest National Lab; General Motors</td>
</tr>
<tr>
<td>SPG-43: Evaluation on Oxidation Behavior of Nanocrystalline CrN Deposited Zr-4 Alloys at High Temperature: Cheng-Wei Shen; Fan-Yi Ouyang; Kai-Ping Chang; National Tsing Hua University</td>
</tr>
<tr>
<td>SPG-44: Formation of Large-sized and Ductile CuZr-based Bulk Metallic Glass Composite: Wenhui Song; Yuan Wu; Jie Zhou; Di Cao; Fei Zhang; Qing Du; Hui Wang; Xiongjun Liu; Zhaoping Lu; University of Science and Technology Beijing</td>
</tr>
<tr>
<td>SPG-45: Frequency, Hold Time and Overload Effects on Crack Growth Rates in Alloy 617 at 800°C in Air: Dylan Addison; Jamie Kruzic; Oregon State University; University of New South Wales</td>
</tr>
<tr>
<td>SPG-46: High Strain Rate Deformation and Work Hardening in Ti-1Al-4V Alloy: Zachary Kloenne; Gopal Viswanathan; Matthew Thomas; Michael Lorreto; Hamish Fraser; Center for Accelerated Maturation of Materials; TIMET; University of Birmingham</td>
</tr>
<tr>
<td>SPG-47: Medium-Range Correlations and Its Impact on Properties in Al-RE Marginal Glass Forming Alloys: Mustafacan Katsal; Eren Kalay; Middle East Technical University</td>
</tr>
<tr>
<td>SPG-48: Non-destructive 3D Characterization of the Microstructural Evolution of Additively Manufactured Materials: Tugce Oztürk; David Menasché; Robert Suter; Anthony Rollett; Carnegie Mellon University; Hamiltonian Group LLC</td>
</tr>
<tr>
<td>SPG-49: Optimization of the Diffusion Bonding Process for Al 6063 Alloy: Sila Atahay; Arcan Dercioglu; Middle East Technical University</td>
</tr>
<tr>
<td>SPG-50: Nanocrystallization in Cu-Zr-Al-Sm Metallic Glasses: Fatih Sikan; Ilkay Kalay; Yunus Eren Kalay; Middle East Technical University; Cankaya University</td>
</tr>
<tr>
<td>SPG-51: The Activity of Pyramidal Slip Systems in a Mg-3Al-1Zn Alloy during High Cycle Fatigue: Li Tan; Xiyan Zhang; Guangjie Huang; Qing Liu; Chongqing University</td>
</tr>
<tr>
<td>SPG-52: The Effect of Plasma Mark on Steel Structural Integrity: Sujely Soto; Jeffrey Rossin; Michael Kesler; Edward George; Steve Duke; Michele Manuel; University of Florida; E&amp;S Consulting, Inc; Florida Department of Transportation</td>
</tr>
<tr>
<td>SPG-53: TRIP Titanium Alloy Design: Fan Meng; Jia-Yi Yan; Wei Xiong; Gregory Olson; Northwestern University; KTH Royal Institute of Technology; University of Pittsburgh</td>
</tr>
</tbody>
</table>

**2017 Technical Division Student Poster Competition — Structural Materials Division (SMD) Undergraduate Students**

<table>
<thead>
<tr>
<th>Session Chair: To Be Announced</th>
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<tbody>
<tr>
<td>SPG-13: Austenite Stability Dependence of the Mechanical Properties in medium-Mn Steels: Neil Krich; Binhan Sun; Stephen Yue; McGill University</td>
</tr>
<tr>
<td>SPG-14: Chloride Transport Properties in Nanoparticle Modified Concrete: Evan Hess; University of Akron</td>
</tr>
<tr>
<td>SPG-15: Lifetime Prediction of FeCrAl Alloys through Statistical Modeling and High-Temperature Cycling Testing: Christina Cox; Sebastien Dryepondt; Josh Turan; Oak Ridge National Laboratory</td>
</tr>
<tr>
<td>SPG-16: Optimizing Electron Tomography of Bone and Bone-implant Specimens: Madeline Perrin; Xiaoyue Wang; Kathyrn Grandfield; McMaster University</td>
</tr>
<tr>
<td>SPG-17: Stacking Fault Energies of Complex Alloys Calculated from Special Quasirandom Structures: Jonas Kaufman; Greg Pommern; Aurora Pribram-Jones; Michael Ferry; Kevin Law; Lori Bassman; Harvey Mudd College; Boeing Company; Lawrence Livermore National Laboratory; School of Materials Science and Engineering, UNSW Australia</td>
</tr>
</tbody>
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**2017 Technical Division Young Professional Poster Competition — Functional Materials Division (FMD)**

<table>
<thead>
<tr>
<th>Session Chair: To Be Announced</th>
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<tbody>
<tr>
<td>YP-1: Influence of Dissolved Oxygen Content on the Oxidation Behavior of Ni-based Alloys in High Temperature Water Vapor: Yang Zhou; Xi an Thermal Power Research Institute</td>
</tr>
<tr>
<td>YP-2: Isothermal and Non-isothermal Studies of Pt-Rh Thermocouple Failure Caused by Two Phosphorus Diffusion Mechanisms: Anna Nakano; Inichiro Nakano; James Bennett; U.S. Department of Energy, National Energy Technology Laboratory/AECOM; U.S. Department of Energy, National Energy Technology Laboratory</td>
</tr>
</tbody>
</table>
2017 Technical Division Young Professional Poster Competition — Structural Materials Division (SMD)

Monday PM  Room:  Hall B1  Location:  San Diego Convention Center
February 27, 2017

Session Chair:  To Be Announced

YP-9: Body-centered Phase of Shock Loaded Single Crystal Copper: Anupam Neogi1; Nilanjan Mitra1; ‘HIT Kharagpur

YP-10: Effect of Neutron Irradiation on Friction Stir Processed ODS Alloys (MA956 and MA754): Ramprasad Prabhakaran1; Yaqiao Wu1; Jiatun Burns1; James Cole1; Indrajit Charit1; Rajiv Mishra1; KL Murty1; TS Byn1; ‘Pacific Northwest National Laboratory; ‘Boise State University; ‘Idaho National Laboratory; ‘University of Idaho; ‘University of North Texas; ‘North Carolina State University

YP-11: In Situ Irradiation of Multilayer (TiN, TiAlN) Ceramic Coating for Accident Tolerant Zr-alloy Fuel Clddings: Jing He1; Douglas Wolfe1; Arthur Motta1; Meiimei Li1; Mark Kirk1; ‘Argonne National Laboratory; ‘Pennsylvania State University

YP-12: Study of Magneto-optical Characteristics of Cerium Substituted Yttrium Iron Garnet Thin Films on Quartz Substrates: Mohammad Gharibshahi1; ‘Satrap Pars.Co & Islamic Azad University of Ahvaz

2017 Technical Division Young Professional Poster Competition — Light Metals Division (LMD)

Monday PM  Room:  Hall B1  Location:  San Diego Convention Center
February 27, 2017

Session Chair:  To Be Announced

YP-3: Effect of Hot Extrusion on Mechanical and Corrosion Properties of a MgCaSr Alloy: Hunter Henderson1; Alex Wilson-Heid1; Michele Manuel1; ‘University of Florida

YP-4: Increased Shear Deformation through Friction Stir Back Extrusion of Mg AZ31B: Textural Evolution and Its Relationship to Mechanical Properties: Justin Milner1; Fadi Abu-Farha1; ‘NIST; ‘Clemson University

2017 Technical Division Young Professional Poster Competition — Materials Processing and Manufacturing Division (MPMD)

Monday PM  Room:  Hall B1  Location:  San Diego Convention Center
February 27, 2017

Session Chair:  To Be Announced

YP-5: A Study of Brittle Fracture Mechanism of Non-quenched and Tempered N80 Tubing Used in Gas and Oil Well: Caihong Lu1; Chun Feng1; ‘Tubular Goods Research Institute of China National Petroleum Corporation

YP-6: Commercial-ready Large Scale Manufacturing of Light-weight Aluminum Metal Matrix Composite: Yicong Zhang1; Mark Sommer1; Marco Currel1; Andrew Parker1; Miguel Verduzco1; William Harrigan1; Alfred Sommer1; ‘Gamma Alloys

YP-7: Octo-Strain: A Novel Multiaxial Loading Device for In-situ Stress Measurements through Neutron Diffraction: Justin Milner1; Thomas Gnäupel-Herold1; ‘NIST

YP-8: The Materials Science behind Ice Cream Making: Dana Zöllner1; ‘TU Dresden

8th International Symposium on High Temperature Metallurgical Processing — Poster Session I

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

Monday PM  Room:  Hall B1  Location:  San Diego Convention Center
February 27, 2017

Session Chair:  Weifeng Liu, Central South University

E-1: A Mini-pilot Plant for a Novel Flash Ironmaking Process: Amr Abdelghany1; Yousef Mohassab1; De Qiu Fan1; Mohamed Elzohiery1; ‘H.Y. Sohn1; ‘University of Utah

E-2: A New Method to Detect the High Temperature Distribution in the Ironmaking and Steelmaking Industry: Dongdong Zhou1; Shusen Cheng1; ‘University of Science and Technology Beijing

E-3: Effect of Inner Shape on Blast Furnace Performance for Iron Making: Xun Zhang1; ‘University of Science and Technology Beijing

E-4: Effect of Lance Configurations on Coal Flow and Combustion Characteristics: HaiHong He1; Zhenfeng Zhou1; Jingsong Wang1; Qingguo Xue1; Yuyan Zhang1; Yinli Liu1; ‘University of Science and Technology Beijing

E-5: Feasibility of Replacing the Internal Refractory (Iranian Production) and Implementation of Pilot in Almahdi Aluminum Line Production: Moshen Amerjahouei1; Borzu Baharvand1; ‘Islamic Azad University; ‘Almahdi-hormozal aluminum Company

E-6: Inclusion Evolution during Ladle Furnace Refining and Deformation during Rolling Process for MRT-2.5: Yanan Jia1; Liguang Zhu1; Zengxun Liu1; Caijun Zhang1; ‘University of Science and Technology Beijing; ‘North China University of Science and Technology

E-7: Kinetics and Reduction Behavior of Self-reducing Briquettes Containing Blast Furnace Dust: Shengli Wu1; Feng Chang1; Jianliang Zhang1; Hua Lu1; ‘University of Science and Technology Beijing

E-8: Melting Separation Slag and Metal Phases of High Grade of Vanadium-bearing Titanomagnetite Metallized Pellets: Chao Lv1; Kun Yang2; Shaojun Bai1; Shuming Wen1; ‘Kunming University of Science and Technology; ‘Kunming University of Science and Technology

E-9: Model Analysis of the Phenomena of Pulverized Coal Injection in Blast Furnace: Tian Chen1; Shusen Cheng1; Wenxuan Xu1; ‘University of Science and Technology Beijing

E-10: Possible Method for the Controlling of Carburization Content of Pig Iron: A New Finding: Guan Wang1; Jingsong Wang1; Qingguo Xue1; ‘University of Science and Technology Beijing

E-11: Research on Injection of COG in Middle-upper Part of COREX Melter Gasiifier: Shengli Wu1; Jiacong Zhang1; Zhekai Zhang1; Mingyin Kou1; Tianjie Wen1; ‘University of Science and Technology Beijing

E-12: Study on Vanadium-titanium Gas-based Direct Reduction-grinding and Separation Process: Jinkun Tang1; ‘Beijing Shenwu Environment & Energy Technology CO., Ltd.

E-13: Effect of Silicon on Removal of Phosphorus from High Phosphorus Si-Mn Alloy by CaO-Based Slag: Shiqiang Zhou1; Zizong Zhu1; Yuchuan Ding1; Shengnan Zhou1; ‘Chongqing University

E-14: A Study for Reconstructing the Three-dimensional Temperature Field of a Blast Furnace Raceway Based on Monte Carlo Method: Yan Li1; Shusen Cheng1; Ruixuan Zhang1; ‘University of Science and Technology Beijing

E-15: High Temperature Distribution Measurement of the Blast Furnace Raceway through Imaging Techniques and Optimization Algorithms: Ruixuan Zhang1; Shusen Cheng1; Yan Li1; ‘University of Science and Technology Beijing
E-16: Cleanliness Control Technology of Cold Rolled Steel Sheets: Haibo Li; Peng Yuan; Bin Chen; Xinhua Wang; Guosen Zhu; Shougang Research Institute of Technology; 2University of Science and Technology Beijing; 3Shougang Jingtang Iron and Steel Co., Ltd.

E-17: Behaviour of Silicon in Nickel Laterite by Carbothermic Reduction in Vacuum: Lei Shi; Tao Q; Dachun Liu; Yang Tian; Bin Yang; Yongnian Dai; 1University of Science and Technology Beijing; 2Chongqing University of Science and Technology

E-18: Thermodynamics Study on Phosphorus Distribution between CaO-SiO2-3CaO2P2O5 Solid Solution and Liquid slag: Chao Jiang; Ming-Mei Zhu; Rui-Rui Zhao; Zhang-Guang Gao; 1Chongqing University

E-19: Effect of Super Gravity on the Solidification Structure and C Segregation of High Carbon Steel: Yuhao Yang; Bo Song; Gaoyang Song; Zeyun Cai; 1University of Science and Technology Beijing

E-20: Burden Composition and Structure Optimization in Blast Furnace Operation Based on Multi-objective Programming: Baoxiang Wang; 1North China University of Science and Technology

E-21: The Research and Engineering Practice of the Lead Oxygen-enriched Flash Smelting: Baozhong Ma; Chengyang Wang; Yongqiang Chen; 1Institute of Metallurgical and Ecological Engineering, Beijing University of Science and Technology; 2Institute of Metallurgical and Ecological Engineering, Beijing University of Science and Technology; 3Central South University; 4Chongqing University of Science and Technology

E-22: Inclusions Characterization of Hot Work Die Steel H13 in the Process of EAF-LF-VD-CC: Haixia Zhang; Guozi Wu; Lina Sun; Ren Chen; Dongping Zhan; 1Liaoning Institute of Science and Technology; 2Northeastern University

E-23: Two-step Copper Smelting Process at Dongying Fangyuan: Zhi Wang; Zhixian Cui; Chunbing Wei; Haibin Wang; 1Dongying Fangyuan Nonferrous Metals Co., Ltd.

E-24: Extraction of Metals from Industrial Wastes by Using Transferred Arc Plasma: Arup Kumar Mandal; Om Prakash Sinha; 1Indian Institute of Technology, (BHU)

E-25: Rate and Mechanism for Reduction of MnO and SiO2 from SiMn Slags: Pyungwa Kim; Merete Tangstad; 1Norwegian University of Science and Technology

E-26: Effect of CaO Addition on the Behavior of Vanadium and Phosphorus during Oxidation and Leaching Process: Zhang Tao; Zhou Wang; Li Dongwei; Diao Jiang; 1Chongqing University of Education; 2Chongqing University

8th International Symposium on High Temperature Metallurgical Processing — Poster Session II
Program Organizers: Jiann-Yang Hwang, Michigan Technological University; Tao Jiang, Central South University; Mark Kennedy, Proval Partners SA; Onuralp Yücel, ITU; P. C. Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinlik, Attilum University

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Room: Hall B1
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Session Chair: Yuanbo Zhang, Central South University

E-27: Investigation on the Phase Transformation of Vanadium during the Direct Reduction Process: Wen-Feng Tan; Bing Xie; Pan Gu; Hong-Yi Li; Jiang Diao; Wang Zhou; 1Chongqing University

E-28: Effect of AI2O3 Content on the Crystallization Behavior of Blast Furnace Slag Using Single Hot Thermocouple Technique: Qin Yuelin; Yang Yanhua; Zhang Qianying; Deng Nengyun; 1Chongqing University Of Science and Technology

E-29: Investigation of the Carbothermic Reduction of Chromium-containing Vanadium Extraction Residue: Pan Gu; Jiang Diao; Wen-Feng Tan; Bing Xie; Wang Zhou; Zhen Zhang; 1Chongqing University

E-30: Effect of TiO2 on the Viscosity of High Alumina BF Slag: Zhiming Yan; Zhengde Pang; Wei Lv; Xuewei Lv; Jian Xu; Guibao Qiu; Chenguang Bai; 1Chongqing University, Chongqing China

E-31: Experimental Study on the Electrical Conductivity of CaO-SiO2-Al2O3-CaF2-Na2O-MgO Slag System: Li Zhao; Yu Wang; Shu-chao Wang; 1Chongqing University

E-32: Decarbonization of Spent Petrochemical Catalysts via Microwave Oxidation Roasting: Bingqiu Liu; Peng Liu; Libo Zhang; Haigang Dong; Jinhui Peng; 1 Kunming University of Science and Technology; 2State Key Laboratory of Advanced Technology for Comprehensive Utilization of Platinum Metals

E-33: Removal of Methylene Blue by Copper Ion-modified Eupatorium Adenophorum-based Activated Carbon: Kinetic, Thermodynamics. Isotherm Investigation: Li Chunchang; Zhang Libo; Xia Hongying; Cheng Song; Shu Jianhua; 1Kunming University of Science and Technology

E-34: Effects of Blowing Conditions on the Dispersion States of Materials Charged into Bottom Blown Oxygen Furnace: Dongxing Wang; Yan Liu; Zhang Ting-an; Xiaolong Li; 1Northeastern University

E-35: Characteristic of Subsurface Hooks in Slabs And Behavior of Inclusions Entrainment at High Speed Continuous Casting: Peng Yuan; Haibo Li; Chenxi Ji; Bin Chen; 1Shougang Research Institute of Technology

E-36: Assessment of Crystallization Kinetic Study of Phosphate–enriched Phase in CaO–SiO2–FeO–P2O5–Fe2O3 Steelmaking Slags: Jin-yun Li; Zhang Mei; Guo Min; 1University of Science and Technology Beijing

E-37: Research on the Flow Behavior of Molten Slag through Pore: Yingli Liu; Qingqiu Xue; Jingsong Wang; Guang Wang; 1University of Science and Technology Beijing

E-38: Removal of Cd(II) Ion from Aqueous Solution by Adsorption on Wasted Low Grade Phosphorus-containing Iron Ore: Xiaoli Yuan; Wentang Xia; Juan An; Xiaoyan Xiang; Xuejiao Zhou; Jianguo Yin; Wenqiang Yang; 1Chongqing University of Science and Technology

E-39: One-step Extraction of Lead from Spent Lead-acid Battery Paste via Reductive Sulfur-fixing Smelting: Thermodynamic Analysis: Yun Li; Yongming Chen; Chaobo Tang; Shenghai Yang; Lulu Guo; Jing He; Motang Tang; 1Central South University

E-40: Influence of Hot Charge on Blast Furnace Performance for Iron Making: Huiqing Tang; 1University of Science and Technology Beijing

E-41: Effect of FeO Content in Laterite Nickel Slag on the Corrosion Behaviour of Refractory Materials: Shuming Huang; Jialai Xue; Zengjie Wang; 1University of Science and Technology Beijing; 2Beijing University of Technology

E-42: Investigation and Application of Evolution System of Stock Surface Gas Flow Distribution in Blast Furnace: Wenzhao Xu; Shusen Cheng; Guolei Zhao; 1University of Science and Technology Beijing


E-44: Influence of Converter Slag on Decomposition Behavior of Limestone during BOF Steelmaking Process: Huai Lu; Wen-Wen Mao; Chen-Xiao Li; Hong Li; 1University of Science and Technology Beijing

E-45: Study on the Effect of Liquid Core Reduction on Mechanical Properties of 50Mn2V Hot-rolled Strip: Ming-feng Ye; Guang-liang Wu; Jia-hua Ren; 1Central South University

E-46: Comparison of the Ringing Characteristics between Acid and Alkaline Iron Ore Pellets Powder in Kiln: Yong-Bin Yang; Xin Min; Qian Li; Bin Xu; Tao Jiang; Xiao-liang Liu; Yan Zhang; 1Central South University

E-47: Ab-initio Molecular Dynamics Simulation of High Temperature Sulfur Evaporating Behavior in Vacuum: Fansong Liu; Yuezhen Zhou; Duchun Liu; Xumin Chen; Chongfang Yang; Wei Li; 1Kunming University of Science and Technology

E-48: Precipitation of Arsenic as Scorodite both at Atmospheric and Hydrothermal Conditions: Zhonglin Ye; 1Yunnan Copper Smelting & Processing Complex

E-49: An Energy Consumption Theory for Coke Degradation in Blast Furnace: Qihang Liu; 1Xi’an University of Architecture and Technology
Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Poster Session

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

Monday PM

Room: Hall B1
February 27, 2017
Location: San Diego Convention Center

Funding support provided by: TMS: Additive Manufacturing Committee

Session Chair: To Be Announced

A-1: A Study of Multiple Interfaces in Stainless Steel 316L. Components Fabricated by Laser Powder Injection Deposition: Baoalong Zheng1; Nancy Yang2; Joshua Yee3; Thale Smith4; James Haley5; Yizhang Zhou4; Enrique Lavermia4; Julie Schoenung6; 1University of California at Irvine; 2Sandia National Laboratories; 3University of California at Davis

A-2: Additive Manufacturing of Ti6Al4V with GMAW: Correlation between Processing and Homogeneous Microstructural Properties: Philipp Henckell7; 1Technische Universität Ilmenau

A-3: Additive Manufacturing to Produce Standard and Custom Alloy Titanium: James Withers1; Sion Pickard1; 1MER Corporation

A-4: Aiming for Modeling-assisted Tailored Designs for Additive Manufacturing: Dayalan Gunasegaram1; Anthony Murphy2; Sharen Cummins3; Vincent Lemiale4; Gary Delaney5; Yuguang Li6; Yuqing Feng7; 1CSIRO

A-5: Alloy Design for Additive Manufacturing: Preliminary Results for Al-Be Alloys: Alex Plotkowski1; Niyanth Sridharan1; Zachary Sims2; Ryan Ott2; Ryan Dehoff3; Sudarsanam Babu4; Orlando Rios5; 1University of Tennessee - Knoxville; 2Oak Ridge National Laboratory; 3Amer Laboratory

A-6: Bonding Features and Microstructural Evolution in Cold Sprayed Metallic Coatings and Bulks: A New Materials Perspective: Yu Zou1; Eric Irissou2; Jean-Gabriel Legoux2; Stephen Yue3; 1Massachusetts Institute of Technology; 2National Research Council Canada (NRC); 3McGill University

A-7: Build Theme Modifications to Investigate Microstructural Development in Additively Manufactured 17-4PH Stainless Steel Parts: Yu Sun1; Mark Aindow1; Rainer Hebert2; 1University of Connecticut

A-8: Characterization of Carbide Precipitates in Nickel-Base Superalloy MAR-M247 Fabricated through Scanning Laser Epitaxy: Amrita Basak1; Suman Das1; 1Georgia Institute of Technology

A-9: Characterization of Dissimilar Joint between Inconel 718 and Alloy Steel by Laser Engineered Net Shaping: Hoyeol Kim1; Zhihao Liu1; Yingze Zhou1; Weilong Cong1; Hong-Chao Zhang1; 1Texas Tech University

A-10: Classification, Effects, and Prevention of Build Defects in Powder-bed Fusion Printed Inconel 718: Arthur Brown1; Zachary Jones1; William Tilson1; 1NASA-Marshall Space Flight Center; 2Jacobs-ESSSA Group

A-11: Cold Gas Dynamic Spray Deposition for Additive Repair of AA7075 and AA2024 Structures: Luke Brewer1; William Story1; Sieglind Nagi2; Florian Vogel1; Benjamin White1; James Jordon1; Gregory Thompson1; 1University of Alabama

A-12: Additive Manufacturing of High Performance NdFeB Bonded Permanent Magnets: M. Parans Paramathanan1; Ling Li2; Orlando Rios3; Brian Post1; Vlastimil Kunc1; Cajetan Niebedim1; 1Oak Ridge National Laboratory; 2Ames Laboratory

A-13: Design of Biodegradable/Biocompatible Magnesium Alloy and Its Additive Manufacturing Process: Ebrahim Asadi1; Warren Haggard1; 1University of Memphis

A-14: Development of Diffusion Mobility Descriptions for Additive Manufactured Ti-6Al-4V: Greta Lindwall1; Kil-Won Moon2; Yaakov Idell2; Maureen Williams1; Fan Zhang1; Andrew Allen1; Nikolas Hrabe3; Lyle Levine1; Carolyn Campbell1; 1National Institute of Standards and Technology

A-15: Direct Metal Writing: Controlling the Rheology through Microstructure: Wen Chen1; Luke Thornley1; Hannah Coe1; Eric Duoss2; Andrew Pascale1; Joshua Kunz1; Christopher Spadaccini1; 1Lawrence Livermore National Lab

A-16: Effect of Build Orientation on the Microstructure and Mechanical Properties of Selective Laser Melted Ti-6Al-4V Alloys: Patrick Hartuan1; Mohsen Eshraghi1; 1California State University, Los Angeles

A-17: Effect of Material Phase Transformation in Residual Stress and Deformation Simulation of Selective Laser Melting Process: Nachiket Patil1; Deepankar Pal1; Javed Akaram1; Pradeep Chalavadi1; Chong Teng1; Kai Zeng1; Brent Stucker1; 13DSIM, LLC

A-18: Effect of Microstructure on the High-temperature Oxidation Behavior of Inconel 718 Manufactured via Electron Beam Melting: Alfred Okello1; Michael Kirk1; Ryan Dehoff2; 1Oak Ridge National Laboratory

A-19: Effect of Print Parameters on Microstructure of EBM Printed Ti-6Al-4V: Colleen Hilla1; Sean Yoder1; Peeyush Nandwana1; Ryan Dehoff1; Kinga Unocic1; 1University of Pittsburgh; 2Oak Ridge National Laboratory

A-20: Effects of Recycled Powder on Build Integrity in Metal Based Additive Manufacturing: Katherine Wellmon1; Nancy Yang1; Julie Schoenung1; 1University of California, Irvine; 2Sandia National Laboratories

A-21: Electron Microscopy Study of Non-metallic Inclusions in Additively Manufactured 17-4PH Stainless Steel Parts: Yu Sun1; Mark Aindow1; Rainer Hebert1; 1University of Connecticut

A-22: Fatigue and Fracture in Additive Manufacturing Metals: Findings from a Recent NIST/ASTM Workshop: Nikolas Hrabe1; Steve Daniewicz1; Nima Shamsaei1; Nicholas Barbosa1; 1National Institute of Standards and Technology; 2Mississippi State University

A-23: Finite Element Analysis of Hybrid Additive Manufacturing to Print Location Specific Mechanical Properties by Sequential Laser Shock Peening: Michael Sealy1; Guru Madireddy1; Chao Li1; Yuebin Guo1; 1University of Nebraska-Lincoln; 2The University of Alabama

A-24: Grain Growth and Heat Flux Direction during Selective Laser Melting of CoCrMo Alloy: Zhan Chen1; M.A.L. Phan1; K. Darvish1; 1Auckland University of Technology

A-25: High-strength, Corrosion-resistant, Weldable Aluminum Powders for Additive Manufacturing: Nhon Vo1; Amireza Sanaty-Zadeh1; Davaadorj Bayansanj1; Evander Rumos1; David Seidman1; 1NanoAl LLC

A-26: In Situ Characterization of Defects Formation and Microstructure Evolution in Selective Laser Melting of Metals: Lianyi Chen1; 1Missouri University of Science and Technology

A-27: In Operando Synchrotron X-ray Imaging of Selective Laser Melting: Chu Lan Alex Leung1; Robert Atwood1; Michael Towrie1; Philip Witthers1; Peter Lee1; 1University of Manchester; 2Diamond Light Source Ltd.; 3Science Technology Facilities Council

A-28: Incorporating Complex Thermal Histories in Grain Microstructure Simulations of Additively Manufactured 316L SS: Kyle Johnson1; Theron Rodgers1; Joseph Bishop1; 1Sandia National Laboratories

A-29: Laser Additive Manufacturing of Nanoparticles Reinforced Aluminum: Ting Chiang Lin1; Jingzhou Zhao1; Chezheng Cao1; Xiaochun Li1; 1University of California Los Angeles

A-30: Machine Learning Approaches to Optimize Additive Manufacturing Parameters for SLM of Inconel 718: Brandon Kappes1; Henry Geerlings1; Senthilmaranuvi Moorthy1; Andrew Petersen1; Douglas Van Bossuyt1; Aaron Stebner1; 1Colorado School of Mines
A-31: Microstructure vs. Mechanical Properties for Different Al Alloys Deposited by Cold Spray Process: Reza Rokni1; Steve Nutt1; ‘University of Southern California

A-32: Modeling the Effects of Texture on Process-structure-property Evolution in Additively Manufactured Metals: Judith Brown1; Joseph Bishop2; Theron Rodgers3; ‘Sandia National Laboratories

A-33: Phase Field Modeling of Solidification Microstructure during Laser Sintering of Inconel 625: Supriyo Ghosh1; Jonathan Guyer1; ‘National Institute of Standards and Technology

A-34: Physical Based Modeling of Laser Powder Bed Fusion Process Applied to Inconel 718: Ranadip Acharya1; John Sharon1; Alexander Staroselsky1; Tahany El-Wardany1; Vijay Jagdale1; Gajawalli Srinivasan1; William Tredway1; ‘United Technologies Research Center

A-35: Prediction of the Balling Effect by a Mesoscale Transient Model Combining Heat Transfer and Fluid Flow: Yi Li1; Yousub Lee1; Ji-Cheng Zhao1; Wei Zhang1; ‘The Ohio State University

A-36: Progress toward Predicting Rapidly Solidified Microstructures of Metallic Alloys: John Roehling1; Aurelien Perron1; Jean-Luc Fattebert2; Gabe Guss3; Manyalibo Matthews1; Patrice Turchi1; Joseph McKeown1; ‘Lawrence Livermore National Laboratory

A-37: Role of Grain Orientation and Prior Beta Grain Structures on the Anisotropic Behavior of Additively Manufactured Ti-6Al-4V Components: Jay Keist1; Daoudi Waryoba1; Todd Palmer1; ‘Applied Research Laboratory Penn State; ‘Penn State DuBois

A-38: Strengthening of 316L Stainless Steel by the Addition of Nanoparticles: Bandar AlMagouri1; Dariusz Grzesiak2; Jenn-Ming Yang2; ‘University of California Los Angeles; ‘West Pomeranian University of Technology

A-39: Sub-surface Material Interactions in Laser Polishing Electron Beam Additive Manufactured Ti6Al4V Components: Yingtao Tian1; Wojciech Gora1; Aldara Pan Cabo2; Lakshmi Parimi2; Duncan Hand2; Philip Prangnell1; ‘The University of Manchester; ‘Heriot-Watt University; ‘GKN Aerospace

A-40: Sulfuric Acid Corrosion to Simulate Microbial Influenced Corrosion on Stainless Steel 420: Jacob Miller1; Holly Martin1; ‘Youngstown State University

A-41: Synchrotron X-ray Characterization of Powder-bed Fusion Laser Melt Traces on Solid Nickel-based Super Alloy Plates: Thien Phan1; Lyle Levine1; Mark Stoudt1; Jarred Heigel1; ‘National Institute of Standards and Technology

A-42: The Role of Post-welding Heat Treatment on the Properties of Al-6061 Fabricated by UAM: Zach Thompson1; Maxim Gussev1; Niyanth Sridharan1; Mark Norfolk1; Kurt Terrani1; S. S. Babu1; ‘Oak Ridge National Laboratory; ‘The University of Tennessee, Knoxville; ‘Fabrisonic

A-43: Utilization of In Situ Process Monitoring for Determining Consistency in Additive Manufacturing and flaw Detection: Jake Raplee1; Suresh Babu1; Michael Kirka1; Ralph Dinwiddie1; Ryan Dehoff1; ‘University of Tennessee Knoxville; ‘Oak Ridge National Laboratory

Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Poster Session Program Organizers: John Carpenter, Los Alamos National Laboratory; David Bourrell, University of Texas - Austin; Allison Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Monday PM Room: Hall B1
February 27, 2017 Location: San Diego Convention Center

Session Chair: To Be Announced

A-44: A Partial Solution to Modeling the Anisotropic Material Properties of Fused Deposition Modeling ABS: Part 2 of 2: Ross Fischer1; Keenan Jewkes1; Scott Kessler1; ‘Colorado Mesa University

A-45: A Simulation Framework for Quantifying Uncertainty in the Mechanical Performance of Additively Manufactured Parts: Kai Wing Kelvin Leung1; Azadeh Keshtgar1; Nagaraja Iyer1; ‘Technical Data Analysis Inc.

A-46: Composite Powder Consolidation Using Selective Laser Melting: Input Energy/Porosity Morphology/Balling Effect Relation: Hala Salem1; Hanadi Salem2; Moataz Attallah3; ‘The American University in Cairo; ‘University of Birmingham

A-47: Current Process Limitations of Synthetic Rock Fabrication Using Additive Manufacturing: Kevin Hodder1; John Nyckha2; Rick Chalaturnyk2; ‘University of Alberta

A-48: Design and Additive Manufacturing of a Scale Model Heat Exchanger for Geothermal Applications: Adrian Sabau1; James Klett1; Derek Byrd1; Keith Carver1; Frederick List III1; Yoram Polsky1; ‘Oak Ridge National Laboratory

A-49: Effect of Hot Isostatic Pressing on Fatigue Properties and Particle Shedding of Additively Manufactured Ti-6Al-4V-ELI: Julius Bonini1; Kaitlyn Mazza2; Joan Morra1; Ernesto Rios1; Kevin Knight1; Ho Mei Leung1; ‘Lucideon M + P; ‘Renovis Surgical Technologies, Inc.; ‘Knight Mechanical Testing

A-50: Evaluation of Graphene Reinforced Aluminum Prepared by Ball Milling and Selective Laser Melting: Yachao Wang1; Jing Shi1; Shiqiang Lu1; ‘University of Cincinnati; ‘Nanchang Hangkong University

A-51: Experimental Technique for Extracting Local Mechanical Behavior from AM Components with Spatially Varying Mechanical Properties for Correlation with FEA Modeling: Denver Seely1; David Francis1; ‘Mississippi State University/Centers for Advanced Vehicular Systems

A-52: Exploring the Possibilities of Using Quenching Dilatometry and Dynamic Mechanical Analysis Techniques to Measure Additive Manufactured Materials: Alexander Matkuta1; ‘Linseis

A-53: Feasibility Study of Making ß-TiAl Parts with Electron Beam Melting: Pathway towards Additively Manufacturing Complex Engine Components: Erkan Cakmak1; Indrani Sen1; Peeyush Nandwana1; Thomas Watkins1; Ryan Dehoff1; Roger England1; Allen Haynes1; ‘Oak Ridge National Laboratory; ‘India Institute of Technology Kharagpur; ‘Cummings Inc.

A-54: In Situ Neutron Diffraction Measurements on Additively Manufactured Stainless Steel: Bjorn Clausen1; Donald Brown1; John Carpenter1; Kester Clarke2; Amy Clarke2; John Bernardin1; Dusan Spremjak1; James Thompson1; ‘Los Alamos National Laboratory; ‘Colorado School of Mines

A-55: In Situ Nondestructive Evaluation for Achieving Closed Loop Feedback Control of Ultrasonic Additive Manufacturing: Venkata Karthik Nadimpalli1; Li Yang1; Peter Nagy1; ‘University of Louisville; ‘University of Cincinnati

A-56: Microstructure-property Relations of Additively Manufactured 17-4 PH and 316L Steels: John Smugeresky1; Josh Sugar1; David Keicher1; ‘Additive Manufacturing Materials Consultants; ‘Sandia National Laboratories

A-57: Microstructure and Mechanical Properties of Ti-6Al-4V Additively Manufactured by Selective Electron Beam Melting: H. P. Tang1; Shenglu Lu1; Jian Wang1; ‘Northwest Institute for Nonferrous Metal Research ; ‘Northwest Institute for Nonferrous Metal Research

A-58: Microstructure Evolution in Additively Manufactured Ti-6Al-4V Alloys: Joseph McKeown1; Rupalee Mulay1; Jeffrey Florando1; Mukul Kumar1; ‘Lawrence Livermore National Laboratory

A-59: Microstructure, Mechanical and Electrical Properties of Pure Metallic Microstructures Fabricated Using 3D Localized Electrodeposition: Majid Minavand1; ‘University of Texas at Dallas

A-60: Modeling and Testing of ‘Fundamental Primitives’ in Metal Lattices Fabricated via Electron Beam Melting (EBM): Rachel Collou1; Tyler Ray1; Steven Wehmeyer1; Matthew Begley1; ‘University of California, Santa Barbara

A-61: Nanomechanical Characterization of Functionally Graded Al-Fe MMC Processed by Additive Friction Stir Processing: Paul Allison1; Oscar Rivera1; Zack McClelland1; Jianqing Su1; Nanci Hardwick1; ‘University of Alabama; ‘US Army ERDC; ‘Aeroprobe Corporation

A-62: Numerical Investigation of Surface Morphology with Different Laser Scanning in Selective Laser Melting: Ya Che Wu1; Weng Sing Hwang1; Cheng Hung San1; Yang Shan Lin1; Chih Hsiang Chang1; ‘National Cheng Kung University (NCKU); ‘Industrial Technology Research Institute (ITRI)

A-63: Particle Charging during Electron-beam Additive Manufacturing: Zachary Cordero1; Harry Meyer1; Peeyush Nandwana1; Ryan Dehoff1; ‘Oak Ridge National Laboratory
A-64: Physics-based Surrogate Model for Uncertainty Quantification of Single Track Geometry in Selective Laser Melting: Alexander Wolfer; Umberto Scipioni Bertoli; Kevin Wheeler; Dogan Timucin; Manyaliba Matthews; Saad Khairallah; Andrew Anderson; Rose McCullen; Julie Schoenung; Jean-Pierre Delplanque; 1University of California, Davis; 2University of California, Irvine; 3NASA Ames Research Center; 4Lawrence Livermore National Laboratory

A-65: Plasticity and Damage Modeling Capturing Strain-rate and Stress-state Effects of Solid State AFS Additively Manufactured Aluminum Alloys: Oscar Rivera1; Omar Rodriguez1; J. Brian Jordon1; Zackery McClelland1; Jianqing Su1; Nanci Hardwick1; Paul Allison1; 1The University of Alabama; 2US Army ERDC; 3Aeroprobe Corporation

A-66: Post-processing Effects on AM Pore Geometry: Richard Fonda1; Amanda Levinson1; David Rowenhorst1; 1Naval Research Laboratory


Additive Manufacturing: As-built Part Quality and Microstructure: Youshub Lee1; Mike Kirk1; Alfredo Okello1; Jake Bulman1; Naren Raghavan1; John Turner1; Ryan Dehoff1; 1Oak Ridge National Laboratory; 2University of Tennessee

A-69: Processing-structure-property Correlation for Fused Deposition Modeling of Graphene-polyactic Acid Composites: Pranjal Nautiyal1; Daniela Montero Zambrano1; Benjamin Boesel1; Arvind Agarwal1; 1Florida International University

A-70: Production and Additive Manufacturing of TiNi Powders by PREP: Gang Chen1; Jingou Yin1; Nan Liu1; Huiping Tang1; Muhammad Dilawer Hayat1; Peng Cao1; 1Northwest Institute for Nonferrous Metal Research; 2The University of Auckland

A-71: Recyclability Study on a Gamma-TiAl Alloy for use in Electron Beam Melting Additive Manufacturing: Peeyush Nandwana1; Ryan Dehoff1; William Peter1; 1Oak Ridge National Laboratory

A-72: Relating Crack Formation to Process Parameters in MarM-247 Fabricated by Electron Beam Melting: Christopher Romanoski1; Michael Kirk1; 1Vanderbilt University; 2Oak Ridge National Laboratory

A-73: Report on a Large Collaborative Project Focused on Capturing all AM Process and Build Data for Combination with an ICME Ready Software Environment Driving towards Certification: Will Marsden1; Deborah Mies1; 1Granta

A-74: Stainless 316L Powder Recyclability and Oxygen Pickup as Applicable to Selective Laser Melting (SLM): Daniel Galicki1; Fred List1; 1University of Tennessee/Oak Ridge National Laboratory; 2Oak Ridge National Laboratory

A-75: Systematic Approach to Quantifying the Anisotropic Elastic Modulus of FDM Materials: Sven Voigt1; James McGuffin-Cawley1; Jennifer Carter1; 1Case Western Reserve University

A-76: The Effect of Laser Energy Density on the Microstructure and Mechanical Properties of Ti-6Al-4V alloys by Selective Laser Melting: Dang Khoa Do1; Peifeng Li1; 1Nanyang Technological University

A-77: The Effect of Surface Finish on Performance in Additive Manufacturing: Joy Gockel1; 1Wright State University

A-78: The Interaction between Material and Process Parameters in Additive Manufacturing: Sneha Narura1; Colt Montgomery1; Jack Beuth1; 1Carnegie Mellon University

A-79: Understanding the Role of Process Variables on Mechanical Properties: Wes Everhart1; Paul Korincko1; John Bobbitt1; Marissa Reigel1; Michael Morgan1; 1Honeywell National Security Campus; 2Savannah River National Laboratory

A-80: Vapor Bath Treatment of Fused Filament ABS for Fatigue Life Improvement: Taylor Tosaya1; Michael Maughan1; 1University of Idaho

A-81: Weldability of Direct Metal Laser Sintering (DMLS) Produced Parts: Bishal Silwal1; 1Georgia Southern University

A-82: In-Process Layer-by-layer Surface Characterization of Metals Fabricated using Laser Engineered Net Shaping (LENS): Andrew Kastas1; David Keicher1; Michael Brumbach1; Brendan Nation1; Nicolas Argibay1; 1Sandia National Laboratories

Advanced High-Strength Steels — Poster Session
Program Organizers: Tilmann Hickel, Max-Planck-Institut fuer Eisenforschung GmbH; Wolfgang Bleck, RWTH Aachen; Arny Clarke, Colorado School of Mines; Young-Kook Lee, Yonsei University; Matthias Miiller, The University of British Columbia

Monday PM
Room: Hall B1
February 27, 2017
Location: San Diego Convention Center

Session Chair: To Be Announced

F-1: 3D Micromechanical Modeling of Dual Phase Steels Using the Representative Volume Element Method and Response Surface Methodology: Parametric Study: Tarek Belgasam1; Hussein Zbib1; 1Washington State University

F-2: Atom Probe Tomography Studies of Complex Oxide Formations in Oxide Dispersion Strengthened Steels: Dallin Barton1; Monica Kapoor1; Florian Vogel1; B. Chad Hornbuckle1; Kris Darling1; Gregory Thompson1; 1University of Alabama; 2National Energy Technology Laboratory; 3Army Research Laboratory; 4Army Research Laboratory

F-3: Carbide Banding Formation and Prevention in 2100 Bearing Steels: Ersoy Erisir1; Oguz Bilir1; Ahmet Gezmisoglu1; 1Kocaeli University

F-4: Cold Deformation Behaviour of Ultrafine-grained Dual Phase Steel Manufactured with Use of a Dynamic Austenite-ferrite Transformation: Dominik Dziecie1; Krzysztof Muszkala1; Janusz Maj1; Peter Hodgson1; 1University of Cambridge; 2AGH University of Science and Technology; 3Deakin University

F-5: Controlling Springback in Dual-Phase Steels: Milan Agnani1; Peter van Liempt1; Jilt Sietisma1; Zalau Arevchabalet1; 1Delft University of Technology; 2Tata Steel Research, Development and Technology

F-6: Design of Ultra-high-strength Fe-Cr-Mn-Ni-C Stainless Steels with Enhanced Ductilities: Marco Wendler1; Michael Hauser1; Olena Volkova1; Javad Mola1; 1TU Freiberg

F-7: Effect of Austenite Grain Size on Deformed Microstructures and Tensile Properties of Austenitic Fe-24.5Mn-4Cr-0.45C Alloy: Sang-In Lee1; Hyeon-Seok Lim1; Byoungchul Hwang1; 1Seoul National University of Science and Technology / Department of Materials Science and Engineering

F-8: Effect of Initial Microstructure on the Grain Size of “Warm Deformed” 4140 Steel: Sammy Tin1; 1Illinois Institute of Technology

F-9: Effect of Plastic Deformation at Elevated Temperatures on the Hardenability of Boron Steels: Mehmet Ozgiyt1; Eregli Iron & Steel Works, Co

F-10: Effects of Deformation on Hydrogen Solubility and Diffusion in Alloyed Fe-Mn Alloys: Claas Hitter1; Saifuang Deng1; Xie Zhang1; Albert Giansk1; Robert Spatschek1; 1Forschungszentrum Jülich; 2MPIE

F-11: Effects of Microstructure on the Strain Rate Sensitivity of Advanced Steels: Rakan Alturk1; Steven Mate1; Fadi Abu-Farha1; Zeren Xu1; 1Clemson University; 2National Institute of Standards and Technology

F-12: Excellent Mechanical Properties Balance of Fine 0.1C-2Si-5Mn Fresh Martensite and Ferrite+Austenite Steels: Shiro Torizuka1; 1University of Hyogo

F-13: In-situ Synchrotron X-ray Diffraction Study on the Micromechanical Behavior of Medium Manganese Transformation-induced Plasticity Steel at Low Temperature: Minghe Zhang1; Yandong Wang1; Longfei Li1; Qingbao Wu1; Fangmin Guo1; Yang Reri1; 1University of Science and Technology Beijing; 2Argonne National Laboratory

F-14: Influence of Asymmetrical Cold Rolling on Crystallographic Texture of o-TRIP Steels: Ramón Botello1; Eustáquio Baeta1; Leonardo Araujo1; Luiz Paulo Brandao1; 1IME; 2IME, 3IME; 4IME, 5IME

F-15: Investigating Deformation Mechanisms in TWIP by Marciniak Multiaxial Testing: Brian Lot1; Adam Creuziger1; Timothy Foecke1; 1National Institute of Standards and Technology
**PRELIMINARY TECHNICAL PROGRAM**

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**F-16:** Mechanical Evaluation of Hypo and Hypereutectic Chromium Carbide Hard Facing Steels; Yasser Fouad; Bakr Rabeel; Hamad Alharbi; "King Saud University; "German University in Cairo

**F-17:** Microstructure-based Modeling of Tensile Properties in High-strength Pipeline Steels; Byoungchul Hwang; Sang-In Lee; Seung-Yong Lee; Hwan Gyo Jung; "Seoul National University of Science and Technology; "POSCO

**F-18:** Microstructure and Mechanical Properties of GMAW Welds in TWIP Steels; Alexander Zaddach; Yen-Chih Liao; Zhaoqian Liu; Carlos Cardenas; Diego Lozano; "Lincoln Electric; "Metalsa

**F-19:** Modeling the Interplay between Transformation and Plasticity in Low-carbon Steels. A Micro-level Constitutive Model / RVE Approach; Manuel Petersmann; Georges Cailletaud; Thomas Antretter; "Montanuniversitaet Leoben; "Mines ParisTech

**F-20:** Modelling of Hot Deformation Behavior during Ingot Breakdown Process of Medium Carbon Low Alloy Steel Using Hansel-Spittel Approach; Kanwal Chadha; Davood Shariari; Mohammad Jahazi; "ETS

**F-21:** Multi-stage Martensitic Phase Transformation in Steel/Copper Nanolaminates: An In Situ X-ray Study; Kaiyuan Li; Yadong Ren; Yang Ren; Lishan Cui; "China University of Petroleum-Beijing; "APS, Argonne National Laboratory

**F-22:** Orientation Dependence of Microstructure and Texture Evolution during Tensile Testing of a TWIP Stainless Steel; Reza Rahimi; Olena Volkova; Horst Biermann; Javad Mola; "Technical University of Freiberg-Institute of Iron and Steel Technology; "Technical University of Freiberg-Institute of Materials Engineering

**F-23:** Review of Bake Hardening Mechanisms of Ultra Fine Grained and Coarse Grained Low Carbon Steel Sheets; Uma Gupta; Vishnu Sharma; Malay Banerjee; "MNIT Jaipur

**F-24:** Role of Initial Microstructural in Micro Constituents of Dual Phase Steels; Eros Erdis; Oguz Bilir; "Kocaeli University

**F-25:** Roles of Soft/Hard Phases and Their Grain Size on Mechanical Properties of Ferrite + Martensite Dual Phase Steels: Myeong-heum Park; Akinobu Shibata; Wu Gong; Stefanus Harjo; Takuro Kawasaki; Yu Bai; Nobuhiro Tsuji; "Kyoto Univ; "Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University; "JAEA J-PARC Center

**F-26:** Tension-Compression Asymmetry and Relationships to the Microstructure in Advanced High Strength Steels; Jun Hu; Fadi Abu-Farha; "Clemson University

**F-27:** Nano-sized Intermetallic Kappa Phase Strengthening in Al-alloyed Steels for Automotive Applications; Wenwen Song; Wolfgang Bleck; "RWTH Aachen University

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**Advances in Environmental Technologies: Recycling and Sustainability Joint Session — Poster Session**

*Program Organizers:* John Howarter, Purdue University; Mark Kennedy, Proval Partners SA; Naiyang Ma, ArcelorMittal; Elsa Olivetti, Massachusetts Institute of Technology; Randolph Kirchain, Massachusetts Institute of Technology

**Monday PM**

**Room:** Hall B1  
**Location:** San Diego Convention Center

**Session Chair:** To Be Announced

**D-4:** Chronopotentiometry Applied to the Determination of Copper Transport Properties through a Cation-exchange Membrane; Kayo Barros; Jorge Tenório; Denise Espinosa; "University of São Paulo (USP)

**D-5:** Effect of Flow Rate on Metals Adsorption of Synthetic Solution Using Chelating Resin Dowex XUS43605 in Column Experiments; Isadora Perez; Mónica Correa; FlaviaSilvas; Jorge Tenório; Denise Espinosa; "University of São Paulo

**D-6:** Evaluation of the Silver Recovery from Solid Industrial Wastes in an Electrochemical Reactor; Pedro Ramirez Ortega; Victor Reyes Cruz; María Veloz Rodriguez; Laura García Hernandez; "Universidad Tecnológica de Tulancingo; "Universidad Autónoma del Estado de Hidalgo

**D-7:** Preparation of Core-shell Fe3O4@SiO2 Nanoparticles from Iron Tailing via Chemical Co-precipitation Method; Chao Lv; Shuming Wen; Kun Yang; Shaqjun Bai; "Kunming University of Science and Technology

**D-8:** Recycling of Worn Lithium Ion Batteries through a Process of Co-grinding with PVC; Luz Ocampo Carmona; Juan Betancur Pulgarin; Juan Sanchez Echeverri; "Universidad Nacional de Colombia

**D-9:** Chemical Reduction of Fe(III) in Nickel Laterite Wastewater to Recover Metals by Ion Exchange; Ailton Botelho Junior; Monica Jimenez; Denise Espinosa; Jorge Tenório; "University of São Paulo

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**Computational Methods and Experimental Approaches for Uncertainty Quantification and Propagation, Model Validation, and Stochastic Predictions — Poster Session**

*Program Organizers:* Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, University of Florida; Li Ma, NIST; Shawn Coleman, ARL; Jeff Doak, QuesTek Innovations, LLC; Fadi Abdeljawad, Sandia national Laboratory

**Monday PM**

**Room:** Hall B1  
**Location:** San Diego Convention Center

**Funding support provided by:** TMS Chemistry and Physics of Materials Committee

**Session Chairs:** Shawn Coleman, U.S. Army Research Laboratory; Francesca Tavazza, National Institute of Standards and Technology

**B-1:** Error Reduction in Cross-Sectional Measurements of Materials from Imaged Grayscale Volumes; Trevor Lancon; "FEI

**B-2:** Fidelity in Gas Dynamics Simulations; James Kahelin; "San Diego State University

**B-3:** Numerical Simulation of Ultrasonic Propagation in Calcium Ferrite Melt; Ruirui Wei; "Chongqing University

**B-4:** Ab Initio Scaling Laws for the Formation Energy of Interstitial Defect Clusters in Body-centered-cubic Metals; Mihai-Cosmin Marinica; "DEN-Servicio de Recherches de Métallurgie Physique, CEA, Université Paris-Saclay

**B-5:** Coupled Elasto-plastic Self-consistent and Finite Element Crystal Plasticity Modeling: Applications to Sheet Metal Forming Processes; Milovan Zecevic; Marko Knezevic; "University of New Hampshire

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**Advanced Materials for Energy Conversion and Storage — Poster Session**

*Program Organizer:* Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

**Monday PM**

**Room:** Hall B1  
**Location:** San Diego Convention Center

**Session Chair:** To Be Announced

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**D-1:** Perylene Polymides-based Cathode Materials for High-capacity and Long-cycle Secondary Lithium-ion Batteries; Michael Rubyra; Ramalinga Viswanathan Mangalaraja; Sambandam Anandan; "University of Concepcion; "National Institute of Technology

**D-2:** Tunable Oxygen-deficient Li4Ti5O12 Structure for High-performance Rechargeable Li-ion Batteries; Ralph Nicolai Nasara; Shih-kang Lin; "National Cheng Kung University
B-6: Finite Element Prediction of Single Particle Cold Spray Impact: Jeremy Schreiber1; Ivi Sridi2; Timothy Eden3; Victor Champagne3; 1Penn State University; 2U.S. Army Research Laboratory

B-7: Numerical Simulation of the Mechanical Behavior of Zr-Nb Alloys over a Wide Range of Strain Rates: Egegniya Skripnyak1; Natalia Skripnyak1; Vladimir Skripnyak1; 1National Research Tomsk State University

B-8: Probabilistic Homogenization of Microstructure-Sensitive Crystal Plasticity and Fatigue Crack Nucleation Models for Ti Alloys: Deniz Ozturk1; Shravan Kohla2; Sonnath Ghosh3; 1Johns Hopkins University

Computational Thermodynamics and Kinetics — Poster Session
Program Organizers: Niaz Abdolrahim, University of Rochester; Stephen Foiles, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory; Raymundo Arroyave, Texas A & M University

Monday PM  Room:  Hall B1  Location: San Diego Convention Center

Session Chair: To Be Announced

B-9: A Mathematical Model for the Heat Preservation of Torpedo Ladle: Shiwei Liu1; 1Xi’an University of Architecture and Technology

B-10: Comprehensive Investigation of Solute Diffusion and Flux Coupling with Point Defects in bcc Iron Alloys: Luca Messina1; Maylis Nastari1; Pér Olsson2; Nils Sandberg2; 1CEA Saclay; 2KTH Royal Institute of Technology; 3SSM Strålsäkerhetsmyndigheten

B-11: Control Technique Study of Non-metallic Inclusions in Low Carbon Steel by Rare Earth Final Decarburization: Peng Bowen1; 1Shanghai University

B-12: Developing Iridium-based Alloys as Effective Catalysts for Direct Ethanol Fuel Cells: Lúda Mehdizadehgan Namin1; Nathaniel Deskins1; Koretaka Yuge2; 1Worcester Polytechnic Institute; 2Kyoto University

B-13: Effect of Cooling Rate on Phase Transformation and Microstructure Evolution in a Large Size Forged Ingot of Medium Carbon Low Alloy Steel: Emna Ben Fredj1; Hadi Ghasemi Nanesa1; Davood Shahriari1; Jean-Boët Morin1; Mohammad Jahazi1; 1ETS; 2FINKSTEEL - SOREL

B-14: First-principles Study on Interface Segregation for MoSi2-MoS5Si3 Pseudobinary Alloys: Koretaka Yuge1; Toshihiro Yamazaki2; Yuichiro Koizumi3; Kyoosuke Kishida1; Haruyuki Inui4; 1Department of Materials Science and Engineering, Kyoto Univ.; 2Tokoh University

B-15: Formation and Control of CaS Inclusion in Gear Steel 20MnCr5: Xu Jie1; Fu Jianxun2; Wu Yanxin3; Li Xu4; 1Shanghai University

B-16: Kinetics of the a/c Interface Migration in Fe-Mn and Fe-Ni Alloys: Jianing Zhu1; Tao Chen1; Chi Zhang1; Zhigang Yang1; Haiven Luo1; 1Tsinghua University; 2University of Science&Technology Beijing

B-17: Investigations on the Mechanical Deformation of Amorphous Alloy Nanowires Using Phase-field Modeling and Thermodynamics Avalanche Models: G.P. Zheng1; 1Hong Kong Polytechnic University

B-18: Modeling of the Molar Volume of the Al-Co-Ni-W System: Ursula Kattner1; Ericlass1; Peisheng Wang1; 1National Institute of Standards and Technology

B-19: Morphological Stability of Rods: Fei Wang1; Oleg Tschukin1; Michael Selzer1; Britta Nestler1; 1Karlsruhe Institute of Technology

B-20: Role of the Particle Morphology on the Zener Pinning Effect: A Phase-field Approach: Koanok Chang1; Junhym Juwon1; Chghan-Kwuhee2; 1Korea Atomic Energy Research Institute

B-21: Strain Functionals for Characterizing Atomistic Simulations and Potential Functions: Edward Kober1; Edward Kober1; 1Los Alamos National Laboratory

B-22: Studies on the Effect of Solution Heat Treatment on Surface and Subsurface Microstructure in Single Crystal Superalloys: Dimitra Spathara1; Duncan Putman2; Nils Warnken3; 1University of Birmingham; 2Rolls-Royce Plc.

B-23: The Environment Dependent Dynamic Charge Potential for III-V Materials: Abduljabar Absyoud1; Abu Asaduzzaman1; Keith Runge2; Pierre Demyier1; Krishna Muralidharan1; 1University of Arizona

B-24: Thermodynamic Modeling of Al-Fe-Cr Ternary System: Shusen Wang1; Zhu Li1; Zhiwei Qin1; Shihua Wang1; Xionggang Lu1; Chonghe Li2; 1Shanghai University

B-25: Thermodynamically Based Comparisons of GMCE Refrigerant Performance: Timothy Brown1; Patrick Shamberger2; 1Texas A&M University

Deriving Value from Challenging Waste Materials: Recycling and Sustainability Joint Session — Poster Session
Program Organizers: John Howarter, Purdue University; Elsa Olivetti, Massachusetts Institute of Technology; Mingming Zhang, Arcelormittal Global R&D; Randolph Kirchain, Massachusetts Institute of Technology; Henry Colorado, Universidad de Antioquia

Monday PM  Room:  Hall B1  Location: San Diego Convention Center

Session Chair: To Be Announced

D-10: Indium Extraction of Obsolete LCD Screen: Gabrielle Jimenez1; Viviane Morais1; Jorge Tenório1; Denise Espinosa1; 1USP

D-11: Alternative Method for Materials Separation from Crystalline Silicon Photovoltaic Modules: Pedro Forastieri de Almeida Prado1; Jorge Alberto Soares Tenório1; Denise Crocce Romano Espinosa1; 1University of São Paulo

D-12: Calcium Aluminate Cement Paste Blended with Steel Slag: John Zapatka1; Alexandra Loaiza1; Henry Colorado1; 1Universidad de Antioquia

D-13: Structure-Property Relation Of Asphalt Blended With Electric Arc Furnace Dust (EAFD): Iulial Loaiza Lopera1; 1Universidad de Antioquia

D-14: Preparation Study of Ceramic Materials with Red Mud and Flying Ash as Raw Materials: Chen Shichao1; 1Beijing Shenu Environment & Energy Technology Co., Ltd.

D-15: Research on Optimization of Sintering Mixture with Low-grade Complex Ore: Yutuan Ding1; Zizong Zhu1; Zhiqiang Zhou1; Hao Xiong1; 1College of Material Science and Engineering, Chongqing University

D-16: Bioleaching Process for Metal Recovery from Waste Materials: Solange Ulimara1; Carlos Rosario1; Jorge Tenório1; Denise Espinosa1; 1University of São Paulo

D-17: The Characterization of Hydrotalcite-like Compounds Derived from Blast Furnace Slag : Synthesis, Flame Retardancy: Jian Peng1; Hongwei Guo1; Kang Wan1; Peng Li1; Bingji Yan1; Jinjue Wang1; 1Soochoow University

D-18: Study on Adsorption Performance of Ammonia by Zeolite Synthesized from Blast Furnace Slag: Lizheng Tang1; Hongwei Guo1; Kang Wan1; Peng Li1; Bingji Yan1; Jinjue Wang1; 1University of Science and Technology of Beijing; 2Soochoow University; 3Soochoow University

D-19: Preparing Ferrosilicon Alloy with Copper Slag: Ruirui Wei1; 1Chongqing University

D-20: Chemical Analysis of Sludge Originating from Industrial Painting Performed in Brazil: Rita Alvarenga1; Henrique Santos1; Beatriz Mendes1; 1Universidade Federal de Viçosa

D-21: Removal of Magnesium from Liquor Produced by Nickel Mining by Photovoltaic Modules: Jorge Tenório1; Denise Espinosa1; Carlos Rosario1; Jorge Tenório1; Denise Espinosa1; 1Soochow University

D-22: Studies on the Effect of Solution Heat Treatment on Surface and Subsurface Microstructure in Single Crystal Superalloys: Dimitra Spathara1; Duncan Putman2; Nils Warnken3; 1University of Birmingham; 2Rolls-Royce Plc.
Program Organizers: Subodh Das, Phinin, LLC; Zhancheng Guo, University of Science and Technology Beijing; Minfang Han, China University of Mining and Technology, Beijing; Teruhisa Horita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Xingbo Liu, West Virginia University
Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center
Session Chair: To Be Announced

C-1: Preparation of Battery-grade Ferrous Oxalate by Screening of Reaction Conditions: Keyu Zhang1; Xiaoyang Yang1; Jian Wu1; Yaqiu Yao2; ‘Kuming University of Science and Technology’
C-2: Synthesis and Characterization of Electrodes Made from Banana Peel for Multivalent Batteries: Tazmin Munu1; Ramesh K. Guduru2; ‘Lamar University’

Energy Materials 2017: Materials for Coal-Based Power — Poster Session
Program Organizers: Jeffrey Hawk, U.S. Department of Energy, National Energy Technology Laboratory; Sebastien Dryepondt, Oak Ridge National Laboratory
Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center
Session Chair: To Be Announced

C-3: Atomic-scale Modeling of Point Defects, Phase Stability, and the Formation Mechanism of Z Phases CrMN (M=V, Nb, Ta): Daniel Urban1; Christian Elsaesser1; ‘Fraunhofer IWM Freiburg’
C-4: Effect of High-frequency Induction Hardening on Stress Corrosion of a 12% Cr Martensitic Stainless Steel: Tong Kang1; Dongfang Steam Turbine Works
C-5: Formation Mechanism of Z Phases CrMN (M=V, Nb, Ta): Christian Elsaesser1; ‘Fraunhofer IWM Freiburg’

Energy Materials 2017: Materials for Gas Turbines — Poster Session
Program Organizers: Jeffrey Ferguson, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group
Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center
Session Chair: To Be Announced

C-9: Composition Effects on the Characteristics of Glass Sealants for Intermediate Temperature Solid Oxide Fuel Cell Applications: Xue-Fang Wang1; Yang-Fu Hsu1; Zu-You Liu2; ‘National Taipei University of Technology’
C-10: Effect of Sn on the Microstructure and Mechanical Properties of AM90 Extruded Alloy: K Song1; FS Pan1; LB Wang1; CH Duan1; Hua Du1; Ying Luo1; J She1; L Wu1; ‘Nuclear Power Institute of China’; ‘Chongqing University’

Program Organizers: Raul Rebak, GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Hosemann, University of California Berkeley; Jian Li, CanmetMATERIALS
Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center
Session Chair: Raul Rebak, GE Global Research

C-11: Effect of Thermal Debinding and Sintering Conditions on Mechanical Properties of Silica-based Ceramic Cores: Jeong-gu Yeo1; Jeong-Soo Park1; Young-Hwan Kim1; ‘Korea Institute of Energy Research’
C-12: Microstructures and Deposition Mechanisms of Thermal Barrier Coatings Produced by PS-PVD: Xiaohua Yuan1; DongFang Turbine Co., LTD., DongFang Electric Corporation
C-13: Mullitization of Fused Silica on Silica-based Ceramic Cores by Colloidal Alumina Infiltration: Jeong-gu Yeo1; Jeong-Soo Park1; Young-Hwan Kim1; ‘Korea Institute of Energy Research’
C-14: Solidification Behavior and Microstructure of Inconel 625 Superalloy under Electromagnetic Field: Tao Wang1; Fei Wang1; Engang Wang1; ‘Northeastern University, China’
C-15: Study on the Undercoolability and Single Crystal Castability of Nickel-based Superalloys: Wang Haiwei1; Ma De-Xin1; Yang Gong-xian1; Gong Xiu-fang1; Zhang Qiong-yuan1; ‘Dongfang Turbine Co., LTD’
C-16: Temperature Dependence of the Fracture Behavior of X-750 alloy and Effect of Heat Treatment: Christopher Marsh1; Djamel Kaounmi1; ‘University of South Carolina’; ‘North Carolina State University’
GAT-2017 (Gamma Alloys Technologies - 2017) — Poster Session

Program Organizers: Young-Won Kim, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Gestestacht; Dennis Dimiduk, BlueQuartz Software LLC

Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center

Session Chairs: Lin Song, Northwestern Polytechnical Univ.; Todor Stoyanov, ACCESS; Jieren Yang, Northwestern Polytechnical Univ.

F-29: Effect of Crack Location, Size and Shape on the Mechanical Behavior of TC4/Ti4Al Welded Joints: Chengli Dong; 1AECC/BIAM

F-30: Flow Stress Behavior of Ti-45Al-12Nb with Ultrafine Grains during Hot Compression Deformation: Hua Chen; Xue Bo Gong; 1Changchun University of Technology

F-31: Influence of Hot Processing Parameters on Dynamic Recrystallization Behavior of Ti-47Al-2Nb-2Cr Alloy: Lianxi Hu; Zhipeng Wan; Yu Sun; 1Harbin Institute of Technology

F-32: Phase Equilibria of $\beta/\beta_{\gamma}$ in Ti-Al and Ti-Al-(5, 8)Nb Systems: Yong Xu; Meijie Yu; Rongfu Liu; Xianzhong Wang; Zhigang Wang; Yongfeng Liang; Junpin Lin; 1Shandong Jianzhu University; 2Shandong University; 1University of Science and Technology Beijing

F-33: Vacuum Brazing of Ti-48Al-2Cr-2Nb Alloy: Yusheng Cai; Renci Liu; Dong Liu; Yuyou Cui; Rui Yang; 1Institute of Metal Research, Chinese Academy of Sciences

F-34: Joining Process of Gamma-TiAl and Structural Steel with Insert Metals by Friction Welding: Myunghoon Oh; Joongook Park; Kiyoung Kim; Kyoungkyun Kim; Ho Seung Jang; Younghwan Hong; 1Kumoh National Institute of Technology; 2Asian Friction Welding Co., Ltd.; 1Suwon Science College

F-35: Microstructure and Mechanical Properties of Powder Metallurgy Ti-22Al-25Nb Alloy Fabricated by Hot-pressing Sintering: Yu Sun; Heng Zhang; Siqiu Wang; Lianxi Hu; 1Harbin Institute of Technology

F-36: Study on Milling of a TiAl Alloy under Minimum Quantity of Lubrication Condition: Sajjad Kolahdouz; Sivavash Zamani; Fatemeh Heydari; Ali Bakhshi; 1MAPNA Turbine Blade Eng. & Mfg. Co. - PARTO

F-37: Microstructural Evolution and Evaluation of Mechanical Behaviors of the Cast Ti-Al-Mo-Nb-(B, Mm) Alloys: Sajjad Kolahdouz; Lianxi Hu; Chunyu de Toulouse; ICA (Institut Clément Ader), ISAE, Université de Toulouse

F-38: Observation of Modulated Structure in High Nb-containing TiAl Alloy by Synchrotron Radiation and Electron Microscopy: J. Sun; 1Shanghai Jiaotong University

F-39: Origin of Enhanced Ductility of TiAl Alloys: A Hybrid Study on the Deformation Behavior of Gamma Phase in TiAl Alloys Using In-situ Transmission Electron Microscopy Experiments and Molecular Dynamics: Seong-woong Kim; Seung-Hwa Ryu; Jaemin Kim; Young-Sang Na; Seung-Eun Kim; Jong-Tack Yeom; Andrew Minor; 1Korea Institute of Materials Science (KIMS); 2KAIST; 3Lawrence Berkeley National Laboratory

F-40: TiAl-based Intermetallic Alloy with Addition of Zirconium: Sangwoo Kim; Hyouk-Chon Kwon; Hyo-soo Lee; 1Korea Institute of Industrial Technology

F-41: Plastic Deformation Behaviour and Crack Initiation Mechanisms of γ-TiAl in High Temperature, High Cycle Fatigue: Thomas Edwards; Fabio Di Gioacchino; Nigel Martin; Mark Dixon; William Clegg; 1Department of Materials Science and Metallurgy, University of Cambridge; 2Rolls-Royce plc

F-42: Interfacial Reaction between TiAl and Ca(Y)-doped BaCrO3 Crucible: Hao Zhang; Mingyang Li; Baotong Li; Guangyou Chen; Ziwei Qin; Xionggang Lu; Chonghe Li; 1Shanghai University

F-43: Atom Probe Investigation of the Partitioning of Impurities in TiAl Alloy: Gong Zheng; Zhiyuan Qi; Yingbo Peng; Guang Chen; 1Nanjing University of Science and Technology

F-44: Fracture and Fatigue Crack Growth Behavior of Wrought Gamma Titanium Aluminide Ti-43Al-4Nb-1Mo in Different Microstructure Conditions: Matthew Duhar; Thomas Podbeseck; Sesh Tamirisakandala; John Lewandowski; 1Case Western Reserve University; 2Alcoa Titanium & Engineered Products

F-45: Fine Structure of Ordinary Dislocation Dipoles and their Evolution in Deformed Gamma-TiAl via Atomistic Simulations: Yan He; Zhao Liu; Hao Wang; Dongsheng Xu; Rui Yang; 1Institute of Metal Research, Chinese Academy of Sciences

F-46: Hot Working Behavior and Microstructural Evolution of as-cast Ti-42Al-5.5Mo Alloy: Hao Xu; Bo Chen; Yingche Ma; Lei Shu; Kui Liu; 1Institute of Metal Research

F-47: Hot Deformation Behavior of Powder Metallurgical TiAl Alloy: Na Liu; 1Beijing Institute of Aeronautical Materials

F-48: Gamma Phase Nucleation from Stacking Fault in TiAl Alloys: Chunya Teng; Yonghong Li; Zhanrong Ren; Dongsheng Xu; Rui Yang; 1China Aero-Polytechnology Establishment; 2Institute of Metal Research, Chinese Academy of Sciences

F-49: Determination of the Isothermal Sections of the Ti-Al-Nb Ternary System at 1300 °C and 1400 °C: Shuai Xu; Yong Xu; Xianjun Xu; Jianping He; Yongfeng Liang; Junpin Lin; 1University of Science and Technology Beijing; 2Shandong Jianzhu University; 3Zhongyuan University of Technology

F-50: High-energy Synchrotron Radiation Investigation of the Massive Transformation in a Ti-Al-Nb-Ta Alloy: Marcus Willi Rackel; Andreas Stark; Gleb Dovzhenko; Florian Pyczak; 1Helmholtz-Zentrum Geesthacht

F-51: Characterization of Thermal Deformation Behavior of a Novel Ti-47Al-Cr-Mo-5.0Fe-0.05Y Alloy: Xiaopeng Wang; Fantao Kong; Qin Sun; Zhang Zhong; Shouzhen Cao; Yuyong Chen; 1Harbin Institute of Technology

F-52: Microstructure and Mechanical Properties of High Nb Containing TiAl Alloy Sheets: Fantao Kong; 1Harbin Institute of Technology

F-53: Multi-direction Forging and Superplastic Deformation Characteristic of High Nb Containing TiAl Alloys: Bin Tang; 1Northwestern Polytechnical University

F-54: Properties at High Temperatures of the IRIS Alloy Densified by Spark Plasma Sintering: Soumya Naanani; Jean-Philippe Monchoux; Catherine Mabru; Alain Coutet; 1Cemès; 2ICA (Institut Clément Adé), ISAE, Université de Toulouse

F-55: Effect of AI Content on the Microstructure and Tensile Properties of Cast Ti-xAl-15Nb-1Mo Alloy: Liangliang Liu; Dong Liu; Yuyou Cui; Rui Yang; 1The Institute of Metal Research (IMR), Chinese Academy of Sciences (CAS)

Job Candidate Poster Session — Job Candidate Poster Session

Program Organizers: Ebrahim Asadi, University of Memphis; Michael Tonks, Pennsylvania State University; E-Wen Huang, National Chiao Tung University

Monday PM  Room: Hall B1
February 27, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

JOE-1: About Me, Yi-Hung Chen: E-Wen Huang; Yi-Hung Chen; 1National Chiao Tung University

JOE-2: Computational Researcher Specialized in Phase Formation Theory and Characterization of Multi-component Alloys: Changning Niu; 1Ohio State University

JOE-3: Experimental Material Scientist with Microscopy and Diffraction Tools: Raghavendra K G; 1Indira Gandhi Centre for Atomic Research, Homi Bhabha National Institute
G-1: The Effects of Added Molybdenum on Corrosion of 36L Stainless Steel; Tahsin Rahman; J. E. Indacoechea; W. L. Ebert; University of Illinois at Chicago; Argonne National Laboratory

G-2: Fabrication and Microstructures of Burnable Absorber-coated Oxide Pellets for Advanced Nuclear Fuel; Qusai Mstarihi; Yong Kim; Ho Ryu; Korea Advanced Institute of Science and Technology

G-3: Diffusion Studies in the Development of an FCC1 Barrier for High-Burnup Metallic Nuclear Fuel; Daniel Eichel; James Vollmer; TerraPower, LLC

G-4: Irradiated Materials Characterization Laboratory at Idaho National Laboratory; Lingfeng He; Brandon Miller; Dean Blanton; Karen Wright; Assel Aittialiysva; Ian Gan; Idaho National Laboratory

G-5: Quantification of the Stress-Stabilization of Tetragonal ZrO2; Mitra Taheri; Wayne Harlow; Drexel University

G-6: Steam Oxidation Resistance of Silicidal and Aluminide-coated Refractory Metals; Woonjin Lim; Hyun Gil Kim; Hojin Ryu; Korea Advanced Institute of Science and Technology; Korea Atomic Energy Research Institute

G-7: Advanced Electron Microscopy of Ceramic Products in Irradiated TRISO Fuel; Rachel Seibert; Chad Parish; Kurt Terrani; Jeff Terry; Illinois Institute of Technology; Oak Ridge National Laboratory

G-8: Phase Field Modeling of Fission Gas Behavior in Metallic Nuclear Fuel; San-Qiang Shi; Pengchung Liu; Xin Wang; Pengcheng Zhang; The Hong Kong Polytechnic University; Institute of Materials

G-9: Asymptotic Expansion Homogenization of Thermal Conductivity and Elasticity of Irradiated Hafnium-Aluminum Composite Performed on Reconstructed and Synthetic Microstructures; William Harris; Donna Guillen; North Carolina State University; Idaho National Laboratory

G-10: Wear Study Comparison of Accident Tolerant FeCrAl Cladding, Zircalo-2 and SS304 against X750; Raghunath KanakaIa; Christian Williams; Sobhan Patnaik; Raul Rebak; University of Idaho; GE Global Research

G-11: A Composite Waste Form for Electrochemical Processing Wastes; Xin Chen; J. Ernesto Indacoechea; William Ebert; University of Illinois at Chicago; Argonne National Laboratory

G-12: A Proposed Mechanism of Corrosion of Nickel by Tellurium in Molten Salt; Natasha Skowronska; Sam McAlpine; MIT

G-13: Exposing the Mechanisms of Pellet-Cladding Interaction Using Atomistic Simulation; Adam Plowman; C.T. Gillen; Alistair Garner; P. Wiringgalil; Michael Preuss; Philipp Frankel; Christopher Race; University of Manchester

G-14: Fission Gas Release and Swelling of Uranium Nitride Based on the Rate Theorey; Jing Liu; Yedong Gao; Yang Du; Bo Zhang; Di Yun; Xi’an Jiaotong University

G-15: Production and Characterization of Thick Plasma Sprayed Tungsten Coatings for Nuclear Fusion Applications; Edward Rowe; Patrick Grant; David Armstrong; Elizabeth Sury; University of Oxford; UKAEA

G-16: Simulation of Constituent Redistribution and Fuel Restructuring in MOX Fuel; Yang Du; Xi’an Jiaotong University

G-17: Thermodynamic Properties of Strontium-Bismuth Alloys for Electrochemical Separation of Strontium; Nathan Smith; Timothy Lichtenstein; Jarrod Gesualdi; Hojung Kim; Pennsylvania State University
E-52: Bulging of Cylindrical Blanks during Forging: Ahmed Elkholy¹; ¹Kuwait University

E-53: Control of Low Melting Point MnO-SiO2-Al2O3 Inclusions in Low Carbon Thin-Strip Continuous Casting Steel: Jing Chen²; ¹Shanghai University

E-54: Effect of Modeling Flows on Mixing Time in 40L Ladle with Bottom Gas Blowing Process: Le Wang³; Liu Liu⁴; Bingji Yan⁵; ¹Central Iron and Steel Research; ²Soochow University School of Iron and Steel

E-55: Effect of Temperature, Concentration and Particle Size of the Solid Solution of Potassium-ammonium Arsenojarosita Medium NaOH: Aislinn Teja Ruiz¹; Francisco Patiño Cardona²; Julio Cesar Juárez Tapia³; Mirzaim Uriel Flores Guerrero⁴; Iván A. Reyes Dominguez⁵; Martín Reyes Pérez⁶; Aislinn Teja Ruiz⁷; ¹Universidad Autónoma del Estado de Hidalgo; ²Universidad Politécnica Metropolitana de Hidalgo; ³Universidad Tecnológica de Tultepec; ⁴Universidad Autónoma de San Luis Potosí

E-56: Effects of Zr on the Microstructure and Mechanical Properties of EH36 Shipbuilding Steel: Dapeng Zhao¹; Xiaodong Zou¹; Cong Wang¹; ¹Northeastern University (China)

E-57: Genetic Influence of Mold Corner Structure on the Strand Corner Temperature in Secondary Cooling Zone during Slab Continuous Casting: Sheng Yu¹; Dengfu Chen²; Pei Xu³; Mujun Long⁴; Kui Lv⁵; Huamei Duan⁶; ¹Chongqing University

E-58: Growth Kinetics on Boriding Process and Mechanical Behaviour of AISI P20 Steel: Martin Ortiz¹; Miguel Flores²; Milton Espinosa³; Oscar Gómez⁴; Daniel Sánchez⁵; ¹Universidad Autónoma del Estado de Hidalgo; ²Instituto Tecnológico y de Estudios Superiores de Monterrey-ITESM Campus Santa Fe; ³Instituto Tecnológico de Tlaxcala-ITTCL

E-59: Manufacturing of Diaphragm Bellows by a Combined Process of Hydroforming and Axial-crushing: Yong-Shin Lee¹; Eung Zu Kim²; Duck Jae Yoon¹; ¹Kookmin University; ²KITECH

E-60: Numerical Simulation and Experimental Study on Electromagnetic Field and Heat Flow in Electromagnetic Cold Crucible (EMCC): Hyun-Jae Lee¹; Hyun-Do Jung²; Byung-Moon Moon³; ¹Korea Institute of Industrial Technology

E-61: Recent Progress of Blast Furnace Cooling Stave in China: Yong Deng¹; Jian Liang Zhang²; Ke Xin Jiao³; Bing Ji Yan⁴; ¹University of Science and Technology Beijing

E-62: Separately Copper Recovery from Iron by Using Solvent Extraction Process: Shun Myung Shin¹; Dong Ju Shin¹; Sung Ho Joo¹; Chang Hyun Oh¹; ¹Korea Institute of Geoscience & Mineral Resources (KIGAM)

E-63: Solutions for the Polar Orthotropic Functionally Graded Annular Disks Having Variable Profile: Saad Essa¹; ¹Eribil Technical Engineering College

E-64: Study of Electrochemical Reactor Filter-Press Used in the Treatment of Industrial Waste by COMSOL: Pedro Ramirez Ortega¹; Jose Martinez Vasquez¹; Marissa Vargas Ramirez²; ¹Universidad Tecnológica de Tultepec; ²Universidad Autónoma del Estado de Hidalgo

E-65: The Effect of Ti Addition and Aging Treat on Microstructure and Mechanical Properties of a Nb-micralloyed Crack Arrest Steel: Dan Chen¹; ¹Harbin Engineering University

E-66: The Interface Characteristics of high-temperature Melt of CaO-Al2O3-MgO-SiO2 System: Chen Tian¹; Qing-hai Pang²; ¹University of Science and Technology Liaoning
G-31: Synthesis of Pyrochlore Y2Ti2O7 by High Energy Ball Milling of Y2O3 and TiO2 Powders: Esther Simondon; Pierre-François Giroux; Laurent Chaffron; Philippe Castany; Thierry Gloriant; CEA Saclay; INSAS Rennes

G-32: The Effect of Pre-implanted Helium on Cavitition Nucleation and Swelling Rate in Ion-irradiated T91: Anthony Monterossa; Zhijie Jiao; Gary Was; University of Michigan

G-33: The Evolution of Laves Phase in Ferritic-Martensitic Steel Grade 92 under Thermal Aging and Sodium Exposure: Wei-Ting Chen; Meimei Li; Krishnamurti Natesan; Argonne National Laboratory

G-34: TEM Observations on He Bubble Nano Oxide Associations in As-Irradiated X-750 Ni-based Superalloy: Takeshi Toyama; Takuya Yamamoto; Jim Cistone; G. Odette; UCSB; NCEM at LBNL

G-35: In Situ Studies of Nanopores Shrinking during Heavy Ion Irradiation of Nanoporous Au: Jin Li; Cuncai Fan; Jie Ding; Sichuang Xue; Youching Chen; Qiang Li; Haiyan Wang; Xinghang Zhang; Texas A&M University; Los Alamos National Laboratory; Purdue University

G-36: Irradiation Effects on Diffusivity of Copper in Ferromagnetic Iron Studied by Atom Probe Tomography: Takeshi Toyama; Masaki Shimodaira; Keiko Tomura; Naoki Ebisawa; Kazuaki Nagumo; Yasuo Shimizu; Koji Inoue; Yasuyoshi Nagai; Tohoku University

G-37: Multiscale Modelling of Patterned Microstructures in IrradiatedMaterials: Application to AgCu Alloy: Gilles Demangeon; David Simeone; Laurence Luneville; Vassilis Pontikis; GPM/EAFEN, Université de Rouen; DEN/DMN/SMRA/L2M, CEA Saclay; DEN/ESRMA/LLPR, CEA Saclay; DEN/DMN/LSI, CEA Saclay

G-38: Nickel Ion Irradiation Damage In GH3535 Alloy Weld Metal and the Temperature Effect: Hejie Huang; Xiaoling Zhou; Zhiyong Zhu; Shanghai Institute of Applied Physics, Chinese Academy of Sciences

G-39: Radiation-induced Segregation in Proton Irradiated Commercial Fe-Cr-Ni Base Austenitic Alloys: Miao Song; Chad Parish; Gary Was; University of Michigan; Oak ridge national laboratory

G-40: Study of Neutron and Ion Irradiation Damage in Aluminum Alloys: Ziv Ungarish; Benedicte Kapusta; Pierre Gavoire; IRCN; DEN-Service d’Etudes des Matériaux Irradiés, CEA, Université Paris-Saclay

G-41: Correlation of Nano-indentation Properties and Microstructure of Irradiated X-750 Ni-based Superalloy: Pooyan Changtianzou; Zhongwen Yao; Queen’s University

G-42: Ion Irradiation-induced Structural Damage in Different Multi-component Alloys at Elevated Temperatures: Tengfei Yang; Songqin Xia; Yuan Fang; Yong Zhang; Congyi Li; Yugang Wang; Steven Zinkle; Department of Nuclear Engineering, The University of Tennessee; State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing; State Key Laboratory of Nuclear Physics and Technology, Center for Applied Physics and Technology, Peking University

G-43: Effect of Proton Irradiation on Deformation Mechanisms in Model Alloy Fe-20Cr-25Ni: Tianshi Chen; Lihzen Tan; Kumar Sridharan; Haixuan Xu; Oak Ridge National Laboratory; University of Wisconsin-Madison; The University of Tennessee

G-44: Deformation of He Bubble Superlattice in FCC Cu: Ian Winter; Daryl Chrzan; University of California, Berkeley

G-45: Simulations of Irradiated-enhanced Segregation and Phase Separation in Fe-Cu-Mn Alloys: Boyan Li; Ben Xu; Wei Liu; Chuck Henager; Shenyang Hu; Tsinghua University; Pacific Northwest National Laboratory; Tsinghua University; Pacific Northwest National Laboratory

G-46: A Study on Irradiation Induced Microstructure Dependent Thermal Conductivity Change of Zircaloy using Nanomechanical Raman Spectroscopy: Hao Wang; Vikas Tomar; Purdue University

G-47: Oxide Texture as Cause and Effect in the Corrosion of Zirconium Fuel Cladding - An Atomicistic Simulation Study: Maria Tunkova; Christopher Race; Materials Performance Centre, University of Manchester

G-48: The Effect of Niobium on the Irradiation Induced Growth Properties of Zr-Nb Binary Alloys Used for Nuclear Applications: Rebecca Jones; Elisabeth Francis; Philipp Frankel; Aidan Cole-Baker; University of Manchester; Rolls Royce Plc.

G-49: Ex-situ and In-situ Investigation of Heavy Ion Irradiation Damage in Ti-6Al-4V: Aida Amouroussia; Carl Boehlert; Florent Duranteil; Clara Grygiel; Wolfgang Mittig; Isabelle Monnet; Frederique Pellemonne; Michigan State University; CMAP CEA/CNRS/ENSICAEN/UCN; National Superconducting Cyclotron Laboratory- Michigan State University; Facility for Rare Isotope Beams-Michigan State University

G-50: Quantification of Dislocation Densities in Zirconium Hydride by x-ray Line Profile Analysis: Miguel Vicente Alvarez; Javier Santisteban; Pablo Vizzaino; Gábor Birák; Tamás Ungár; Centro Atómico Bariloche; Centro Atómico Ezeiza, Argentina; Étővös University Budapest

G-51: Microstructural Effects on Helium Plasma-materials Interaction in Tungsten: Kun Wang; Chad Parish; Mark Bannister; Oak Ridge National Laboratory; UT-Battelle

G-52: Enhanced Radiation Tolerance and Thermal Fatigue Properties of Nanochannel W Films: Feng Ren; Wenjing Qin; Wuhan University

G-53: Impact of Low Dose ion Irradiation on Raman Spectra and Thermal Conductivity in Beta-SIC: Vinay Chaudhun; M Faisal Riyad; Xinpeng Du; Changdong Wei; Beata Tyburska-Piścich; Ji-Cheng Zhao; Marat Khafizov; The Ohio State University; University of Wisconsin

G-54: Microstructural Response of Si,N, and AlN to Swift Heavy Ion Irradiation: Arno Janse van Vuuren; Vladimir Skuratov; Alexey Volkov; Maxim Zdorovets; Nelson Mandela Metropolitan University; Joint Institute for Nuclear Research; Nazarbayev University; National Nuclear Centre

G-55: In-situ Luminescence Study of LiAO2 Irradiated with 20KeV Negative H Ion Beam: Menglin Qiu; Guangfu Wang; Yingjie Chu; Mi Xu; Li Zheng; College of Nuclear and Technology,Beijing Normal University; College of nuclear and technology,Beijing Normal University

G-56: Temperature and Se Dependence of Latent Track Morphology in TiO2 and Al2O3: Jacques O’Connell; Vladimir Skuratov; CHRTEM; JINR

G-57: Investigation of Microstructural Processes of Glass Irradiated by Ions and Electron Beams: Tieshan Wang; Wei Yuan; Liang Chen; Haibo Peng; Xin Du; Duoifei Zhang; Peng Lv; Mengli Sun; Lanzhou University, School of Nuclear Science and Technology

G-58: Ion Beam Induced Nanocrystal Formation with High Volume Fraction: Daryush Ila; FSU

G-59: Comparison of Microstructures in Neutron and Ion Irradiated Zr-1.0Nb-0.1Fe Cladding Alloys: Jing Hu; Argonne National Laboratory

Phase Transformations and Microstructural Evolution — Poster Session

Program Organizers: Gregory Thompson, University of Alabama; Rajarshi Banerjee, University of North Texas; Sadasivanab Babu, The University of Tennessee, Knoxville; Deep Choudhuri, University of North Texas; Raju Banerjee, University of North Texas; Sudarsanam Babu, The University of

Monday PM Room: Hall B1 Location: San Diego Convention Center

Session Chair: To Be Announced

F-64: Behavior of Single Crystal Titanium under High Strain Rate Deformation: A Molecular Dynamics Study: Sunil Rawat; Nilanjan Mitra; Indian Institute of Technology Kharagpur

F-65: Effects of Microstructural Features on CTOD in Coarse-grained and Inter-critically-heated HAZs of Mn- and Ni-added HSLA Steels: Seok Gu Lee; Dong Ho Lee; Seok Su Sohn; Woo Gyeom Kim; Kyung-Keun Um; Sunghak Lee; POSTECH; POSCO
F-66: Relationship between Reverse Ferrite Transformation and Recrystallization in Low-carbon Al-containing Steels: Shih-Che Chen; Yuan-Tsung Wang; Chun-Te Wu; Hung-Wei Yen; 1National Taiwan University; 2China Steel Corporation

F-67: Solidification Microstructures in Ag,Sn-Cu,Sn Pseudo-Binary Alloys: Hai-Bo Yu; Yi Sun; S. Pamar Alpay; Mark Aindow; 1University of Connecticut

F-68: Morphology of Order-disorder Structures in Rapidly Solidified L12 Intermetallics: Naifusal Haque; 1University of Leeds

F-69: Phase Transformation Kinetics of Fe16Ni2 Based Rare-earth-free Permanent Magnets: Md Mehdeti; Yanfeng Jiang; Jin-Ping Wang; 1University of Minnesota

F-70: The Role of Grain Size Distribution in Nanocrystalline Shape Memory Alloys: Jakub Mikula; Jerry Quek Sui Sin; Shailendra P. Joshi; David T. Wu; Rajeev Ahluwalia; 1A*Star; 2NUS

F-71: W, Nb, and Cr Effects on High-temperature Tensile Properties in Heat-resistant Austenitic Cast Steels: Yong Hee Jo; SeungMun Jung; Seok Su Sohn; Won-Mi Choi; Byeong-Joo Lee; Yong-Jun Oh; Gi-Yong Kim; Seongsik Jang; Sungbak Lee; 1Pohang University of Science and Technology; 2Hanbat National University; 3Kyorang Precision

F-72: Controlling of Mechanical Properties on SUS310S Substrate Used at Superconducting Wire: Seung-gyu Kim; Najung Kim; Sung-gi Choi; Oh-min Kwon; donggik Kwon; 1Seoul National University

F-73: Study on the High Temperature Phase Equilibrium Relationship in CaO-SiO2-10%La2O3-Nb2O5 System for Magnetocaloric Applications: Xiufeng Tang; Hongjin Tan; Michael McLeod; 1University of Tennessee Knoxville; 2The Lincoln Electric Company

F-74: Improved Electrochemical Discharge Kinetics of V-based BCC Metal Hydrides via Microstructure Reduction: Nicholas Weedock; Heng Yang; Hongjin Tan; Brent Fultz; 1California Institute of Technology; 2Linx

F-75: Structure-Property Relations in Doped Ni-Mn-Ga Heusler Alloys for Magnetocaloric Applications: Michael McLeod; Zafer Turgut; Bhaskar Majumdar; 1New Mexico Tech; 2Wright Patterson AF

F-76: In-situ High Energy XRD Study of Optimal Annealing for a Novel Nb/NiTi Nanocomposite: Fangmin Guo; Shijie Hao; Lishan Cui; Yang Ren; 1China University of Petroleum (Beijing)

F-77: Relationship of Microstructural Evolution to Magnetic Properties of Alnico Magnets: Wei Tang; Lin Zhou; Andriy Palasyuk; Kevin Dennis; Jun Cui; Matthew Kramer; Iver Anderson; 1Ames Lab of DOE

F-78: Microstructure Evolution in Martensitic NiTi Using High Microflow Diffraction Microscopy: Ashley Bucsek; Harshad Paranjape; Branden Kappes; Darren Dale; Peter Ko; Margaret Koker; Aaron Stechner; 1Colorado School of Mines; 2Cornell High Energy Synchrotron Source

F-79: Phase Equilibria in the Al-Co-Ni Alloy System: Yang Zhou; Philip Nash; 1Illinois Institute of Technology

F-80: The Effect of Aluminum Content on Recrystallization and Grain Growth in Binary Alpha Titanium Alloys: Anna Trump; John Allison; 1University of Michigan

F-81: Effect of Composition and Thermal Processing on Transformation Characteristics and Equilibrium Phase Stability in NiTiH High Temperature Shape Memory Alloys: Tejas Umale; Bradley Tomes; Ibrahim Karaman; Anjana Talapatra; Raymundo Arroyave; Ruben Santamarta; 1Texas A&M University; 2Universitat de les Illes Balears, Palma de Mallorca, Spain

F-82: Application of ASTAR/PED Orientation Microscopy Technique in Grain Boundary Character Distribution of Nano-size Pure Zirconium: Iman Ghamarian; Peyman Samimi; Gregory Rohrer; Peter Collins; 1Iowa State University

Pioneers in Additive Manufacturing — Poster Session

Program Organizers: James Foley, Los Alamos National Laboratory; Paul Prichard, Kennametal Inc; Iver Anderson, Iowa State University/Ames Laboratory; David Bourell, University of Texas

Monday PM Room: Hall B1 Location: San Diego Convention Center

Session Chair: To Be Announced

A-94: 3D Additive Manufacturing of Metals at Micro/Nanoscale Using Localized Electrodeposition: Majid Minary; 1University of Texas at Dallas

A-95: Direct Metal Write Additive Manufacturing of Rare-earth Modified Aluminum Alloys Using Electromagnetic Heating Systems: William Carter; Zachary Sims; Orlando Rios; Lonnie Love; Brian Post; Randall Lind; Max Neveu; 1Oak Ridge National Laboratory

A-96: FEM Modeling of Steel Additive Manufacturing Using Laser Hot-Wire Process: Zhenguo Nie; Gang Wang; James McGuffin-Cawley; Badri Narayanan; Yiming (Kevin) Rong; 1Tsinghua University; 2Case Western Reserve University; 3The Lincoln Electric Company

A-97: Microstructure Evolution and Galling Properties of Hard Facing Coatings Deposited Using Laser Directed Energy Deposition: Nyant Sridharan; Brian Jordan; Ryan Dehoff; Sudarsaman Babu; 1University of Tennessee Knoxville; 2Oak Ridge National Laboratory

A-98: Novel High Temperature Drop on Demand Liquid Metal-jetting for the Production of Complex 2D and 3D objects: Marco Simonelli; 1Mark East; 2Nesma Aboulkhair; Richard Hague; 3University of Nottingham

Rare Metal Extraction & Processing — Poster Session

Program Organizers: Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhoff, Umicores; Neale Neelemgamgah, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

Monday PM Room: Hall B1 Location: San Diego Convention Center

Session Chairs: Xiaofei Guan, Harvard University; Hojong Kim, The Pennsylvania State University

F-83: Adsorbents for Selective Recovery of Heavy Rare Earth Elements: Takeshi Ogata; Hirokazu Narita; Mikiya Tanaka; 1National Institute of Advanced Industrial Science and Technology

F-84: Behavior of Sec-octylphenoxy Acetic Acid (CA-12) in Yttrium Recovery from High Concentrated Heavy Rare Earths Mixture: Corradino Sposato; Alessandro Blasi; Assunta Romanelli; Giacobbe Braccio; Massimo Morgana; 1Italian National Agency for New Technologies, Energy and Sustainable Economic Development

F-85: The Recovery of Bismuth from Bismuthinite Concentrate through Membrane Electrolysis: Lei Jie; Yang Jian-guang; 1Central South University

F-86: Preparation of Molybdenum Powder from Molybdenite Concentrate through Vacuum Decomposition-acid Leaching Combination Process: Chongfang Yang; Yuezhen Zhou; Wenlong Jiang; Dachun Liu; Fansong Liu; Zewei Liu; 1Kunning University of Science and Technology

F-87: Pressure Leaching Behavior of Molybdenum-nickel Sulfide from Black Shale: Zhigan Deng; 1Kunning University of Science and Technology

F-88: Study for Preparation of Industrial Ammonium Molybdate from Low Grade Molybdenum Concentrate: Zhenwei Liu; Qingwei Qin; Tejyen Chen; Jianhong Yang; 1Wuhan University of Science and Technology

F-89: Selective Recovery of Scandium from Sulfating Roasting Red Mud by Water Leaching: Zhaobo Liu; Hongxi Li; Zhan Zhao; 1University of Science and Technology Beijing
2017 Symposium on Functional Nanomaterials:
Emerging Nanomaterials and Nanotechnology —
Poster Session

Program Organizers: Jiyoung Kim, University of Texas; Stephen McDonnell, University of Virginia; Chang-Yong Nam, Brookhaven National Laboratory; V. U. Unnikrishnan, The University of Alabama; Nitin Chopra, The University of Alabama

Tuesday PM  Room: Hall B1
February 28, 2017  Location: San Diego Convention Center

Session Chairs: Jiyoung Kim, University of Texas at Dallas; Nitin Chopra, Univ. of Alabama; Chang-Yong Nam, Brookhaven National Laboratory; Stephen McDonnell, University of Virginia; Vinu Unnikrishnan, University of Alabama

J-1: Adsorption of Fluoride Gases in Aluminum Production Using Nano Technology: Mohsen Ameriashoaei; 1Khollah Mehrami; 1Mohammad Yousef; 1Kamibiz Bordbar; 1Islamic Azad University; 1Shahid Bahonar University of Kerman

J-2: 12-tungstophosphoric Acid Load on SBA-15 Mesoporous Materials by Ultrafiltration-assisted Impregnation Method: Li Dong Wei; 1Zhang Tao; 2Yang Qiu Ju; 1Chongqing University of Education; 1Chongqing Institute Of Engineering Education

J-3: Applying Nano Technology to Separation Fluorides Emissions with Vermiculite and Zinc Oxide Nanometric: Lee Jang; 1Director

J-4: Directed Self-assembly of Nanoparticles from Immiscible Au-Ni Alloy Thin Films via Laser-induced Thermal Annealing: Sun-Kyu Lee; 1Hye-Jung Lee; 1Hony-Jung Oh; 1Hannbat University

J-5: Electrochemical Corrosion Study in Organic Films Containing Processed Vermiculite and Zinc Oxide Nanometric: Gonçalo Siqueira; 1Hélio Wiebeck; 1Paulo Kanayama; 1Jose Mauro Oliveira; 1Fábio Esper; 1University of Sao Paulo; 1University of Sao Paulo

J-6: Fabrication and Properties Evaluation of LLZO Compacts for Solid Electrolyte by a Spark Plasma Sintering Process: Ik-Hyun Oh; 1Hyun-Kuk Park; 1Jun-Ho Jang; 1KITECH; 1Automotive Components Center

J-7: Green Synthesis Gold Nanoparticles by the Silybum Marianum Extract: Laura Garcia-Hernandez; 1Pedro Ramirez; 1Mizraim Flores; 1Diana Arenas; 1J.Marlen Lemus; 1Mireya Escorcia; 1Universidad Tecnologica De Tulancingo

J-8: Investigation of Microstructure Evolution in 3-D Memory Devices: Chloee Director; 1Purdue University

J-9: Mechanical Properties of Bio-inspired Nanocomposites: Anthony Shank; 1Scott Muller; 1Arun Nair; 1University of Arkansas

J-10: Nano-structure and Mechanical Properties of Ti-Al-Si Alloys for AIP Coating Materials by a PEAS Process: Hyun-Kuk Park; 1Ik-Hyun Oh; 1Jun-Ho Jang; 1KITECH; 1Automotive Components Center

J-11: Novel Synthesis of Variable Size BaTiO3; Colloidal Nanocrystals Doped with Transition Metals as Multiferroic Material: Tommso Costanzo; 1Gabriel Caruntu; 1Central Michigan University

J-12: Prospects of Semimetal Microwires for Thermoelectric Applications: Leonid Konopko; 1Albina Nikolaeva; 1Tito Huber; 1Anna Kobylianskaya; 1IEEN D.Ghiu; 1Howard University

J-13: Study of Ferric Phosphate Cathode Material for Lithium-ion Battery: Jinhua Li; 1Yaochun Yao; 1Kunning University of Science and Technology

J-14: Study on the Bonding Strength of the Copper Circuit Layer(Metal) and Anodic Aluminum Layers(Ceramic): Shin Hyeong-won; 1Hyo-So Lee; 1Seung-Boo Jung; 1KITECH; 1Rare metal group/Emotional Materials & Components Research Center; 1Sungkyunkwan University

J-15: Synthesis of AgNP’s from Industrial Wastes: Pedro Ramirez Ortega; 1Jose Elizalde Mata; 1Jose Navarro Jimenez; 1Rodrigo Islas Hernandez; 1Laura Garcia Hernandez; 1Mizraim Flores Guerrer; 1Universidad Tecnologica De Tulancingo

J-16: Synthesis of Vertical Si Nanowire Arrays Fabricated by Nanoimprinting Lithography and Magnetically Guided Metal-assisted Chemical Etching: Dong Won Chun; 1Tae Kyoung Kim; 1Korea Institute Science and Technology; 1University of California at San Diego

J-17: The Effect of In Situ Magnetic Field and Film Thickness on Magnetic Properties and Residual Stress for Fe-based Amorphous Films: Siho Wang; 1Ho Joon Kim; 1David Laughlin; 1Gianluca Piazza; 1Jingxi Zhu; 1Carnegie Mellon University; 1Sun Yat-sen University

J-18: Theoretical Study of Sulfur Gases Adsorption in Aluminum Smelter with Carbon Nano Tube by Monte Carlo Simulation: Mohsen Ameriashoaei; 1Khollah Mehrami; 1Mohammad Yousef; 1Kamibiz Bordbar; 1Islamic Azad University; 1Shahid Bahonar University of Kerman


J-20: Production of Nano Calcium Silicates by Alternative Methods of Synthesis: Juan Restrepo; 1Oscar Restrepo; 1Jorge Tobón; 1Universidad Nacional de Colombia

J-21: Simple Green Synthesis of Amino Acid Functionalised CdTe/CdSe/ZnSe Core-multi Shell with Improved Cell Viability for Cellular Imaging: Vuyelwa Nefapye; 1Sandile Songca; 1Oluwafemi Oluwatobi; 1Walter Sisulu University; 1University of Johannesburg

J-22: Synthesis of MnO<sub>2</sub>, Nanopowders with Urea and Citric Acid by Solution Combustion Route: Esma Yilmaz; 1M. Seref Sonmez; 1Bora Derin; 1Filiz Cinar Sahin; 1Onuralp Yucel; 1Istanbul Technical University

J-23: Effect of Additives on the Microstructures of Highly-oriented (111) Nanotwinned Cu Lines for a Highly-oriented (111) Carbothermic Reduction: Mohassab

J-25: Effect of Nanocomposite Formulation Containing Chitosan, Aloe Vera Gel and Moringal Oil as Edible Coating on Oranges: Sahin 1; 2Onuralp Yucel; 1Istanbul Technical University

J-26: Functionalization-induced Changes in the Structural and Physical Properties of Carbon Nanofiber via Ionizing Radiation Using Vinyl Monomers: Maria Cecilia Evora; 1Xinyi Lu; 1Nam-Goo Kang; 1Kunlun Hong; 1Roberto Uribe; 1Leonardo G. A. Silva; 1Carla Lake; 1Jimmy Mays; 1Instituto de Estudos Avançados; 1University of Tennessee; 1Oak Ridge National Laboratory; 1Kent State University; 1Institute for Nuclear and Energy Research-IPEN

J-27: Mechanical Properties of Highly (111)-oriented Nanotwinned Cu: M. Seref Sonmez; 1Bora Derin; 1Filiz Cinar Sahin; 1Onuralp Yucel; 1Istanbul Technical University

J-28: Phosphorus Gasification from High-phosphorsiron Ore during Low-temperature Electrodeposition and its Thermal Stability: Yen-Chieh Chen; 1Chih Chen; 1National Chiao Tung University

J-29: Study of Nano-twinned Cu Prepared by Carbothermic Reduction: Yuanyuan Zhang; 1Shin Hyeong-won; 1S.H. Choe; 1S.D. Feng; 1The Hong Kong Polytechnic University

J-31: Two-step Annealing of Bilayer Cu and the Mechanism of Grain Growth on (100)-oriented Cu Film: Hsin Jong Liu; 1Chih Chen; 1National Chiao Tung University

J-32: Effect of High Temperature Annealing in Hydrogen and Air on the Catalytic Property of Nanoceria: Huan-Pei Lan; 1Hong Yong Sohn; 1Yousef Mohassab; 1Qingcai Liu; 1Baoqiang Xu; 1Chongqing University; 1University of Utah; 1Kunming University of Science and Technology

J-33: Effect of Nanocomposite Formulation Containing Chitosan, Aloe Vera Gel and Moringal Oil as Edible Coating on Oranges: Adetunji Oluwatobi; 1Aboyeji Oluseun; 1Shahid Bahonar University of Kerman

J-34: Effect of High Temperature Annealing in Hydrogen and Air on the Catalytic Property of Nanoceria: Huan-Pei Lan; 1Hong Yong Sohn; 1Yousef Mohassab; 1Qingcai Liu; 1Baoqiang Xu; 1Chongqing University; 1University of Utah; 1Kunming University of Science and Technology

J-35: Effect of Nanocomposite Formulation Containing Chitosan, Aloe Vera Gel and Moringal Oil as Edible Coating on Oranges: Adetunji Oluwatobi; 1Aboyeji Oluseun; 1Shahid Bahonar University of Kerman

J-36: Functionalization-induced Changes in the Structural and Physical Properties of Carbon Nanofiber via Ionizing Radiation Using Vinyl Monomers: Maria Cecilia Evora; 1Xinyi Lu; 1Nam-Goo Kang; 1Kunlun Hong; 1Roberto Uribe; 1Leonardo G. A. Silva; 1Carla Lake; 1Jimmy Mays; 1Instituto de Estudos Avançados; 1University of Tennessee; 1Oak Ridge National Laboratory; 1Kent State University; 1Institute for Nuclear and Energy Research-IPEN

J-37: Mechanical Properties of Highly (111)-oriented Nanotwinned Cu Lines: Wei-Ling Lai; 1Chih Chen; 1National Chiao Tung University

J-38: Phosphorus Gasification from High-phosphorsiron Ore during Low-temperature Electrodeposition and its Thermal Stability: Yen-Chieh Chen; 1Chih Chen; 1National Chiao Tung University

J-39: Tailoring the Shear Band Width in Metallic Glasses: KC Chan; 1S.H. Chen; 1S.D. Feng; 1The Hong Kong Polytechnic University

J-40: Two-step Annealing of Bilayer Cu and the Mechanism of Grain Growth on (100)-oriented Cu Film: Hsin Jong Liu; 1Chih Chen; 1National Chiao Tung University

J-41: Study of Ferric Phosphate Cathode Material for Lithium-ion Battery: Jinhua Li; 1Yaochun Yao; 1Kunning University of Science and Technology
Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Poster Session

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

Tuesday PM  Room:  Hall B1
February 28, 2017  Location:  San Diego Convention Center

Session Chair:  To Be Announced

L-1: Analysis of Compact Forced Simple-Shear and Compact Forced Double-Shear Specimens for Shear Localization in Materials: Thomas Lebrun

L-2: Characterization of a Biocompatible Co-Cr-W Alloy by means of Correlative Microscopy and Nanoindentation Experiments: Irmgard Weissensteiner; Patrick Voigt; Helmut Clemens; Verena Maier-Kiener; Montanuniversität Leoben; Titanium Solutions GmbH

L-3: Displacement Rate and Temperature Equivalence in Stochastic Cluster Dynamics Simulations of Irradiated Pure alpha-Fe: Aaron Dunn; Britany Muntifering; Remi Dingeveille; Khalid Hattar; Laurent Capolungo; TMS; Sandia National Laboratories; Los Alamos National Laboratory

L-4: Error Analysis of the Dictionary Approach to Electron Backscatter Diffraction Indexing: Farangis Ram; Saransh Singh; Marc De Graef; Carnegie Mellon University

L-5: Microstructural Development During Particle/Substrate Impacts in Cold Spray of Gas Atomized Aluminum Alloy Powders: Benjamin Bedard; Tyler Flanagan; Sumit Suresh; Avinash Dongare; Seok-Woo Lee; Harold Brody; Xuemei Wang; Victor Champagne; Mark Window; University of Connecticut; United Technologies Research Center; U.S. Army Research Laboratory

L-6: NIAI Oxidation Reaction Processes Studied In Situ Using MEMS-Based Closed-Cell Gas Reaction Transmission Electron Microscopy: Kunga Unocic; Dongwon Shin; Raymond Unocic; Lawrence Allard; ORNL

L-7: Prediction of Hot Deformation Flow Stress Curve by Hot Torsion Testing of a Biomedical Ti-Mo-Zr-Fe Alloy: Ana Paula Guerra; Leonardo Campanelli; Murilo Santos; Pierre-Louis Personnaz; Claudemirio Bolfarini; Paulo Sergio da Silva; Federal University of São Carlos

L-8: The Thermal Stability of Cr-Cu Nanostructured Materials Revealed at the Atomic Resolution: Zao Li; Jinjing Guo; Julian Rosalie; Erich Schmid Institute of Materials Science, Academy of Science and Academies

L-9: Unidirectional Fibre Composite Characterisation from X-ray Tomography: Monica Emerson; Ying Wang; Kristine Jespersen; Lars Mikkelson; Philip Withers; Knut Conradsen; Vedrana Dahl; Anders Dahl; Technical University of Denmark; The University of Manchester

Advanced Materials in Dental and Orthopedic Applications — Poster Session

Program Organizers: Tolou Shoukhari, University of Illinois at Chicago; Grant Crawford, South Dakota School of Mines and Technology; Terry Lowe, Colorado School of Mines; Luis Rocha, UNESP, Univ. Estadual Paulista, Faculdade de Ciências; Rajendra Kasinath, DePuy Synthes Products, LLC

Tuesday PM  Room:  Hall B1
February 28, 2017  Location:  San Diego Convention Center

Session Chair:  To Be Announced

H-1: Changing in the Elastic Modulus of Ti-10Mo-Zr System Alloys by Specific Heat Treatments: Raoul Araújo; Gabriela Suárez; Carlos Grandini; UNESP/Bauru

H-2: Correlation between the Presence of Martensitic Phase and Mechanical Properties of Ti-15Mo-Zr Alloys with Potential Orthopedic Application: Fábio Vicente; Marília Buzalaf; Carlos Grandini; UNIP; USP - Universidade de São Paulo; UNESP- Univ. Estadual Paulista

H-3: In Vitro Perfomance Study to Long Periods of Ti-15Nb Alloy: Karolyne Sousa; Pedro Kuroda; Luciano da Silva; Carlos Grandini; Tatiana Donato; Universidade Estadual Paulista

H-4: Structure and Microstructure of Ti-25Ta-Zr Alloys: Pedro Kuroda; Fernanda Quadros; Carlos Grandini; Univ. Estadual Paulista

H-5: Titanium-magnesium Composite for Dental Implants (BIACOM): Martin Balog; Mateja Snajdar; Peter Krizik; Zdravko Schauperl; Zlatko Stancic; Amir Catic; The Slovak Academy of Sciences; Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb; School of Dental Medicine, University of Zagreb

Advanced Thermo-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques — Poster Session

Program Organizers: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.; Sanjit Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; Maria Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Tuesday PM  Room:  Hall B1
February 28, 2017  Location:  San Diego Convention Center

Session Chair:  To Be Announced

L-10: Deformation Characteristics of NiTi Alloys: Sujith S; Indrani Sen; IIT Kharagpur

L-11: High Temperature Dynamic Mechanical Response of Titanium Alloys: Sindhuра Gangireddy; Steven Mates; NIST

Alloys and Compounds for Thermoelectric and Solar Cell Applications V — Student Poster Session

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

Tuesday PM  Room:  Hall B1
February 28, 2017  Location:  San Diego Convention Center

Session Chair:  Sinn-wen Chen, National Tsing Hua University

L-12: Bi0.5Sb1.5Te3 Thin Films with Bulk-like Thermoelectric Properties on Glass and Flexible Substrates: Elli Syneou; Christiana Nicolaou; Ioannis Giapintzakis; University of Cyprus

Program Organizers: Shijie Wang, Rio Tinto Kennecott Utah Copper; Michael Free, University of Utah; Shafiq Alam, University of Saskatchewan; Mingming Zhang, Arcelor Mittal; Patrick Taylor, Colorado School of Mines

Tuesday PM  Room: Hall B1  Location: San Diego Convention Center

Session Chair: Brad Wesstrom, Freeport-McMoRan

N-1: Effect of Particle Size of Coal and Pyrolysis Temperature on Combustion Reactivity of Coal Char: Implications for Granular Coal Char Injection in a Blast Furnace: Chong Zou1; Cheng Ma1; Junxue Zhao1; Xi’an University of Architecture and Technology

N-2: Influence of Diluents Dosage on the Performance of High Solid Anti-corrosion Coating by Converter Dust: Jinglong Li1; Hui Li1; Ramana Reddy1; Yungang Li1; North China University of Science and Technology; The University of Alabama

N-3: Treatment of Blast Furnace Gas Washing Water by Utilization of Coagulation Associated with Microwave: Jin-hong Zhang1; Qing-hai Pang1; University of Science and Technology Liaoning

N-4: Permeability Study of Ion-exchange Membranes in the Presence of Cu-HEDP Complexes from a Copper Plating Wastewater Treatment: Juliana Jesus1; Tatiana Scarazzato1; Jorge Tenório1; Denise Espinosa1; University of São Paulo

N-5: High Temperature Properties of Molten Nitrate Salt for Solar Thermal Energy: Applications: Mehedi Molhammad1; Geoffrey Alan Brooks1; Muhammad Akbar Rhamdhani1; Muhammad Firdaus1; Swinburne University of Technology

Bio-Nano Interfaces and Engineering Applications — Poster Session

Program Organizers: Candan Tamerler, University of Kansas; John Nychka, University of Alberta; Kajpana Katti, North Dakota State University; Terry Lowe, Colorado School of Mines

Tuesday PM  Room: Hall B1  Location: San Diego Convention Center

Session Chair: To Be Announced

H-6: Development of Functional Peptides with β-sheet Structures for the Self-assembly on Two-dimensional Materials: Kohei Sakuma1; Tokyo Institute of Technology

H-7: Regeneration Sands Foundry for Deterioration Bacterial in Industrial Scale: Viviane Rodrigues1; Bruno Karolski1; Jorge Tenório1; University of São Paulo

H-8: Effect of Doped Magnesium in Titanium Nitride Coatings on Behavior of Mesenchymal Stem Cells: Sakip Onder1; Ayse Calikoglu-Koyuncu1; Kursat Kazmanli1; Mustafa Urgen1; Fatma Nese Kok1; Gamze Torun-Kose1; Islik University; Yeditepe University; Istanbul Technical University

H-9: Determination of Cell Adhesion on Supported Lipid Bilayers by Quartz Crystal Microbalance Sensor: Abdullahim Kılıç1; Majid Jadidi1; Hakan Ozgur Ozer1; Fatma Nese Kok1; Istanbul Technical University

Biological Materials Science — Biological Materials Science Poster Session

Program Organizers: Po-Yu Chen, National Tsing Hua University; Francois Barbelat, McGill University; Michael Porter, Clemson University; Steven Naleway, University of Utah

Tuesday PM  Room: Hall B1  Location: San Diego Convention Center

Session Chair: To Be Announced

H-10: Effect of Cu Content on the Antimicrobial Properties of Copper Alloys: Monika Walkowicz1; Piotr Osuch1; Beata Smyrak1; Andrzej Mamala1; Tadeusz Knych1; Anna Rozanska1; Agnieszka Chmielarczyk1; Dorota Romaniszyn1; Malgorzata Bulanda1; AGH University of Science and Technology; Jagiellonian University Medical College

H-11: Effect of the Oxidation of Copper and its Alloys on the Antimicrobial Efficacy of Touch Surfaces: Monika Walkowicz1; Piotr Osuch1; Beata Smyrak1; Andrzej Mamala1; Tadeusz Knych1; Anna Rozanska1; Agnieszka Chmielarczyk1; Dorota Romaniszyn1; Malgorzata Bulanda1; AGH University of Science and Technology; Jagiellonian University Medical College

H-12: Investigating Biochemical Constituents of Cymbopogon Citratus Leaf: Prospects on Total Corrosion of Concrete Steel-rebar in Acidic-Sulphate Medium: Joshua Okenyi1; Elizabeth Okenyi1; Ohbanke Ogulan1; Taiwo Owode1; Oluseyi Ogulan1; Covenant University, Ota, Nigeria; Crawford University, Igbaza, Nigeria

H-13: Irregularities of Crystallographic Orientation of a Crossed-Lamellar Structure in Cymbiola Nobilis Shell: Hongmei Ji1; Xiaowu Li1; Duolun Chen1; Northeastern University; Ryerson University

H-14: Structure-Property Relations of the Ironclad Beetle (Zopherus nodulus haldemani) Exoskeleton: Vina Nguyen1; Parker Berthelsen1; Hongjoo Rhee1; Melanie Garrett1; Mark Horstemeyer1; Lakesha Williams1; Jun Liao1; Robert Moser1; Rajkumar Prabhu1; Mississippi State University; U.S. Army Engineer Research and Development Center

H-15: Synthesis and Characterization of Mesoporous Forsterite/Magnesium Oxide Composite Powder: Seyed Mehdi Mirhadi1; Fariborz Tavangarian1; Shahreza Branch, Islamic Azad University; Penn State Harrisburg

H-16: The Protective Scales of Atractoestes Spatula and the Production of a Bioinspired Armor: Vincent Sherman1; Nicholas Yaraghi1; Marc Meyers1; David Kisailus1; University of California, San Diego; University of California, Riverside

H-17: Microstructural Characterization of Freeze-casted Al2O3 Scaffold: Guan-Lin Liu1; Yi-Ting Liao1; Joe-Ming Chang1; Hsiao-Ming Tung1; Institute of Nuclear Energy Research

H-18: Two-step Sintering Effects on the Microstructure and Mechanical Properties of Forsterite Scaffolds: Fariborz Tavangarian1; Lindsay Childs1; Guoqiang Li1; Dakota Wooten1; Bryant Cornell1; Penn State Harrisburg; Morehead State University; Louisiana State University
H-20: Bioinspired by Porcupine Quills: Freeze Cast Porous Scaffolds Strengthened by Shrink Wrap and Infiltration with Biodegradable Materials: Michael Frank; Ali Ismail; Louis Guibert; Jerry Ng; Joyce Mok; Cindy Ayala; Sze Hei Siu; Joanna McKittrick; UC San Diego; École Polytechnique de l’Université de Nantes

H-21: Bone Remodeling under Tooth Loading: Kangning Su; Jing Du; Li Yuan; Pennsylvania State University; Shenzhen People’s Hospital, 2nd Clinical Medical College of Jinan University

H-22: Design and Analysis of Beetle Wings Inspired Foldable Materials by the Origami Approach: Chi-Huaan Tung; Cheng-Chun Shih; Po-Yu Chen; National Tsing Hua University

H-23: Development of 3D Template Freeze Casted Hydroxyapatite/Magnesium Alloy Biodegradable Implants: Yafour Maker; Jae-Young Jung; Kathryn Kang; Michael Frank; Joanna McKittrick; UC San Diego


H-25: Mammal Horns as Natural Weapons: Yuchen Zhang; UCSD

H-26: Microstructural Origins of the Dynamic Behavior of Wood and Bioinspired Designs: Albert Matsushita; Damian Gonzalez; Michael Frank; Jae-Young Jung; Joanna McKittrick; University of California, San Diego

H-27: Porous 45S5 Bioglass®-based Scaffolds Using Stereolithography: Effect of Partial Pre-sintering on Structural and Mechanical Properties of Scaffolds: Boonlom Thavornyutikarn; Ernesto Gonzalez Cruz; UC San Diego

H-28: Production of Zinc-Magnesium Alloy Wires by Thermal Drawing for Pediatric Bioabsorbable Stent Applications: Injoo Hwang; Daniel S. Levi; Xiaochun Li; Department of Mechanical and Aerospace Engineering, University of California, Los Angeles; Division of Pediatric Cardiology, Mattel Children’s Hospital, University of California Los Angeles

H-29: Structure-Property Quantification for the Bio-Inspiration of the Great White (Carcharodon carcharias) and the Tiger (Galeocerdo cuvier) Shark’s Teeth: John Wood; Hongjoo Rhee; A. C. McIntosh; R. D. Moser; M. Horstmeyer; R. Prabhu; Mississippi State University; Center for Advanced Vehicular Systems; U.S. Army Engineer Research and Development Center

H-30: Structure and Mechanical Behavior of Human Hair: Yang Zhai; Wen Yang; Bin Wang; Marc Meyers; University of California, San Diego

H-31: Structure and Mechanical Implications of the Pectoral Fin Skeleton in Longnose Skates: Wei Huang; Vladu Lubarda; Watcharapong Hongamrasilp; Jae-Young Jung; Phil Hastings; Joanna McKittrick; University of California, San Diego

H-32: Study of Formation of Passivating Oxides in Thin Films of Ti-Nb for Biomedical Applications: Ernesto Gonzalez Cruz; Pedro Nascenté; Patricia Sato; Universidade Federal de Sao Carlos

H-33: Surface Magnetized Hydroxyapatite for Multi-Axis Strengthened Bone Implants with Magnetic Freeze Casting: Michael Frank; Cindy Ayala; Louis Guibert; Keyur Karandikar; Chin-Hung Liu; Sze Hei Siu; Olivia Graeve; Joanna McKittrick; UC San Diego; École Polytechnique de l’Université de Nantes

H-34: Comparison of Deproteinization Methods for Porcine Femoral Cortical Bone: Frances Su; Peter Shyu; Yik Tung Tracy Ling; Ekaterina Novitskaya; Kyungh Seo; Sofia Lambert; Kimberlin Zarate; Olivia Graeve; Iwona Jasiuk; Joanna McKittrick; University of California, San Diego; University of Illinois at Urbana-Champaign; Centro de Enseñanza Técnica y Superior - Campus Mexico; Hilltop High School

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### Bulk Metallic Glasses XIV — Poster Session

**Program Organizers:** Peter Liaw, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee; Yunfeng Shi, Rensselaer Polytechnic Institute; Xie Xie, The University of Tennessee; Gongyao Wang, The University of Tennessee; Jianzhong Jiang, Zhejiang University

**Tuesday PM Room:** Hall B1 **Location:** San Diego Convention Center

**Session Chair:** To Be Announced

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**L-24:** Deformation Behavior of a Ti-Zr-based Bulk Metallic Glass Matrix Composite: Kevin Kaufmann; Laura Andersen; Kenneth Vecchio; University of California, San Diego

**L-25:** Effect of Annealing on the Magnetic Properties of Fe-based Amorphous Alloys: Song Yi Kim; HyeRyeong On; A Young Lee; Hyun Ah Kim; Min Ha Lee; Kitech

**L-26:** Micro-imprinting of High Strength Hf-based Bulk Metallic Glass Using by Athermal Method: Song Yi Kim; Min Ha Lee; Korea Institute of Industrial Technology

**L-27:** Phase Separation in Cu47.5Zr48Al4Co0.5 Bulk Metallic Glass: William Rainforth; Haiyun Wang; The University of Sheffield

**L-28:** Solid-state Amorphization of W-containing Alloy Powders: Young Jun Kwon; Christopher A Schuh; Hoon Kwon; Ki Sub Cho; Kookmin University; MIT

**L-29:** Structural Stabilities and Mechanical Responses of Ni-transition Metal Binary Glass-forming Alloys: Hehsang Ahn; Jinwoo Kim; Soyeon Kim; Eun Soo Park; Seoul National University

**L-30:** The Effects of Nitrogen Addition on the Magnetic Properties of Fe-based Amorphous Alloy: HyeRyeong On; Minha Lee; SONGYI Kim; A-Young Lee; Gyu Hyeon Park; Hyun-ah Kim; Jongryoul Kim; KITECH; Hanyang University

**L-31:** Thermal Induced Reversible Devitrification in Zr-Pt Binary Alloy: Hyun Ah Kim; A Young Lee; Hye Ryeong Oh; Gyu Hyeon Park; Song Yi Kim; Ryan T. Ott; Do Hyang Kim; Min Ha Lee; Korea Institute of Industrial Technology; Ames Laboratory (USDOE); Yousei University

**L-32:** Dissolution Equilibrium between TiZr-based Metallic Glass Melt and Titanium Alloy: Zhongkun Li; Zhengwang Zhu; Huameng Fu; Aimin Wang; Hong Li; Hongwei Zhang; Haifeng Zhang; Institute of Metal Research, Chinese Academy of Sciences

**L-33:** Extending the Realm of Glass Transition Temperature and Strength Relation in Metallic Glasses: Hehsang Ahn; Jiwon Kim; Soyeon Kim; Eun Soo Park; Seoul National University

**L-34:** Viscous Flow Densification during Spark Plasma Sintering of Fe Based Amorphous Alloy Powder: Tanaji Paul; Sandip Harimkar; Oklahoma State University

**L-35:** Comparative Analysis of the Tribological Behavior of Hf-BMGs and H-crystalline Alloys: Manuel Abad; Luke Mortimer; Phil Meagher; David Browne; University College Dublin
K-1: Characteristics of Stamp Charging Coke and Top Charging Coke: Bing Gao;צויעון תכון וטכנולוגיה בייג'}

K-2: Contribution to the β Relaxation Study of the HDPE, LDPE and LLDPE: Washington Oliani; Luis Filipe Lima; Harumi Otuguro; Hélio Ferreto; Ademar Luga; Ducler Parra;  'Nuclear Energy Research Institute – IPEN/USP; 'Universidade Federal de Uberlândia

K-3: Synthesis and Structural Characterization of BaTiO3 Doped with Gd3+: Juan Pablo Hernández Lara; Miguel Perez Labra; Francisco Raúl Barrientos Hernández; Alberto Arenas Flores; José Antonio Romero Serrano; Aurelio Hernández Ramirez; Pandiyan Thangarasu; 'Autonomous University of Hidalgo State; 'ESIQIE-IPN; 'National Autonomous University of México.

K-4: The Influence of Titanium Content on the Sinter Ore Phase Structure and the Crack: Dongdong Zhou; Shusen Cheng; Yongqiang Bai; 'University of Science and Technology Beijing; 'China Metallurgical Industry Planning and Research Institute

K-5: Accelerated Degradation of the Polypropylene Inducing Thermal Aging: Rebecca Romano; Washington Oliani; Ducler Parra; Ademar Lugao; 'Nuclear Energy Research Institute – IPEN/USP

K-6: Stress and Deformation Analysis of Top Combustion Hot Blast Stove Shell: Kun Jin; Shusen Cheng; 'University of Science and Technology Beijing

K-7: Automated Optical Microstructural Characterization of Thermal Spray Coatings: Satya Ganti; Elizabeth Jenkins; Rabi Bhattacharya; Veeraraghavan Sundar; 'UES Inc.

K-8: Effect of Exposure to Salt Spray in Multiple-use Mortars with Addition and Waste from Paper Production: Afonso Azevedo; Jonas Alexandre; Niander Aguiar; Gustavo Xavier; Sergio Monteiro; Victor Souza; Markusuel Marvila; IFF; UENF; 'IME; 'UFF

K-9: Effects of Wet Grinding on the Structure and Granularity of Biological Origin Aragonite and Its Polymorphic Transformation into Calcite: Tong Yanhu; He Mingsheng; 'Beijing University of Technology; 'R&D Center of WISCO, Wuhu 430080, China

K-10: A Kinetic Model for the Growth of FeB and Fe2B Phases on the AISI M2 Borided Steel during the Powder-pack Boriding: Miguel Flores; 'Matin Ortiz; Oscar Gómez; Milton Espinosa; Joaquín Osegua; 'Escuela Superior de Ciudad Sahagún-Universidad Autónoma del Estado de Hidalgo; 'Instituto Tecnológico y de Estudios Superiores de Monterrey campus Estado de México; 'Instituto Tecnológico de Yucatán-ITESM Campus Santa Fe

K-11: Addition of Cellulose Nanofibers in Reactive Powder Concrete: Felipe Machado; Leonardo Pedroti; Joao Victor Lemes; Gustavo Lima; Lucas Fiorelli; Wellington Fernandes; Rita Alvenega; Jonas Alexandre; 'Universidade Federal de Viçosa; 'Universidade Estadual Norte Fluminense

K-12: Alkaline Decomposition of Synthetic Thallium Jarosite in NaOH and CaO Medium: Hernán Islas; Francisco Patiño; Iván Reyes; 'Mizraim Flores; Sayra Ordóñez; Martin Reyes; Elia Palacios; Victor Flores; 'Universidad Autónoma del Estado de Hidalgo; 'Universidad Politécnica Metropolitana de Hidalgo; 'Universidad Autónoma de San Luis Potosí; 'Universidad Tecnológica de Tulancingo; 'Instituto Politécnico Nacional; 'Escuela Superior de Zimapán Universidad Autónoma del Estado de Hidalgo

K-13: Application of Membrane Separation Technology in Wastewater Treatment of Iron and Steel Enterprise: Leizhang; 'Wuhan Iron and Steel Company

K-14: Boiler Ashes Incorporation in Mixed Mortar Using Experimental Planning in Simplex Network: Marina Caetano; Leonardo Pedroti; Gustavo de Lima; Igor Andrade; Wellington Fernandes; Rita Alvenega; Gustavo Xavier; Afonso Azevedo; Caio Torres; Ricardo Almeida; 'UFV; 'UENF

K-15: Brillouin Scattering Study on Elastic Properties of Bulk zp No Single Crystal: Pingping Fan; YongQun Wu; 'Shanghai University

K-16: Characterization and Leaching Proposal of Ag (1) from a Zn Concentrate in a S, O - M. E. Alasín Teja Ruiz; Julio Juárez Tapia; Leticia Hernández Cruz; Martín Reyez Pérez; Uriel Flores Guerrero; Ivan Reyes Dominguez; Elicer Mendez; 'Universidad Autónoma del Estado de Hidalgo

K-17: Characterization of Mercury Jarosite: Sayra Ordoñez; Francisco Patiño; Mizraim Flores; Ivan Reyes; Elia Palacios; Victor Flores; Martin Reyes; Ister Mireles; Hernán Islas; 'Universidad Autónoma del Estado de Hidalgo; 'Universidad Politécnica Metropolitana de Hidalgo; 'Universidad Tecnológica de Tulancingo; 'Universidad Autónoma de San Luis Potosi; 'Instituto Politécnico Nacional; 'Escuela Superior de Zimapán Universidad Autónoma del Estado de Hidalgo

K-18: Chemical and Mineralogical Characterization of a Mixed Sulphide Ore at Zimapán, Hidalgo: Laura Angeles; Martin Reyes; Miguel Pérez; Elia Palacios; Francisco Patiño; Ivan Reyes; Mizraim Flores; 'Universidad Autónoma del Estado de Hidalgo; 'Instituto Politécnico Nacional; 'Universidad Politécnica Metropolitana de Hidalgo; 'Universidad Autónoma de San Luis Potosi; 'Universidad Tecnológica de Tulancingo

K-19: Brazilian Bentonite Characterizing Its Use in Clay/Polymers Nanocomposites: Francisco Valenzuela-Diaz; Diálima Dias; Rogerio Sakahara; Guillerme Cardoso; Gilca Botelho; 'Universidade de Sao Paulo; 'IPEN; 'UNIGRAM/USP; 'UFABC

K-20: Characterization of a Bentonitic Clay and Its Use in Bleaching Brazilian Nut Oil: Alexandre Machado; Jivaldo Matos; Flavio Carvalho; Adriano Araujo; Christiano Andrade; 'Universidade das Graças Silva-Valenzuela; 'Universidade Valenzuela-Díaz; 'Universidade de Sao Paulo; 'Universidade Federal do ABC

K-21: Characterization of Biodegradable Mulch Black Films Incorporated with Organics Fertilizers and Rice Husk Ash: Julio Harada; Camila Amorim; Paula Braga; Abner Cabral Neto; José Ricardo Macedo; Luci Diva Machado; Leonardo Silva; Derval Rosa; 'IPEN-CNEN/SP; 'Universidade Presbiteriana Mackenzie; 'Universidade Federal do ABC

K-22: Characterization of Polyamide 6 with Coloidal Silicon Dioxide (Aerosil®) Irradiated and Non Irradiated: Camila Amorim; Julio Harada; Jessica Mouna; Waldir Ferro; Leonardo Silva; 'IPEN-CNEN/SP; 'Rhdia Poliamida e Especialidades Ltda; 'Radici Plastics Ltda

K-23: Characterization of Steel Production Dust and Their Use in Structural Ceramics: Alexandre Machado; Jivaldo Matos; Flavio Carvalho; Adriano Araujo; 'Universidade das Graças Silva-Valenzuela; 'Universidade Valenzuela-Díaz; 'INOVAT/USP; 'Universidade de Sao Paulo; 'Universidade Federal de Sergipe; 'Universidade Federal do ABC

K-24: Charpy Toughness Behavior of Jute Fabric Reinforced Polyester Matrix Composites: Foleuke de Assis; Sergio Monteiro; Artur Pereira; 'Fabio Braga; 'Military Institute of Engineering

K-25: Clay: Characterization and Evaluation of the Application Potential: Gustavo Lima; Leonardo Pedroti; Wellington Fernandes; Jonas Alexandre; Afonso Azevedo; Carlos Mauricio Vieira; 'Universidade Federal de Viçosa - UFV; 'Universidade Estadual do Norte Fluminense Darcy Ribeiro

K-26: Determination of Ten Impurity Elements in Tin Concentrate and Smelting Products by ICP-AES: Junske Wang; Ping Long; Jian Wu; Wenli Zhang; Peipei Liu; Xinhun Ren; Bin Yang; 'Kunming University of Science and Technology
K-60: Steel Slag: Analysis of Application in Cementitious Materials: Gustavo Lima; Leonardo Pedroti; José Carlos Junior; Wellington Fernandes; Sergio Monteiro; 1Universidade Federal de Viçosa - UFV; 2Universidade Federal de São João del Rei; 3Instituto Militar de Engenharia

K-61: Reactive Powder Concrete Production with the Addition of Granite Processing Waste: Joao Vitor Lemes; Gustavo Lima; Felipe Gabriel Machado; Leonardo Pedroti; Lucas Fiorese; Wellington Fernandes; Rita Alvarenga; Sergio Monteiro; 1Universidade Federal de Viçosa; 2Instituto Militar de Engenharia

K-62: Study of Synergistic Effect of Light Stabilizer Additive, Conventional and Nanoparticles, Applied to Polyethylene Films Submitted to Ultraviolet Radiation: Patricia Pvededa; Leonardo Silva; 1Instituto de Pesquisas Energéticas e Nucleares - IPEN/CNEN-SP

K-63: Stress and Deformation Analysis of Hot Blast Stove Piping System: Kun Iyan; Shusen Cheng; 1University of Science and Technology Beijing

K-64: Saw Dust of Waste as Part Substitution Fine Aggregate in Structural Concrete: Niander Cerqueira; Victor Souza; Victor Bartolazzi; Heni Gazal; João Victor Silveira; Mairaynne Souza; Olivia Campinho; André Gomes; 1Universidade Estadual Do Norte Fluminense Darcy Ribeiro - UENF; 2UFF; 3Faculdade Redentor

K-65: Study of Calcined Mixtures from Industrial Residues for Production of Agglomerates: Leticicia Fernandes; Leonardo Pedroti; Elisson Ferreira; Rita Alvarenga; Larice Justino; 1Wellington Fernandes; 2Universidade Federal de Viçosa

K-66: Study of the Effect of Surface Liquid Flow during Column Flotation of Mining Tailing of the Dos Carlos Dam: Javier Flores Budillo; Juan Hernandez Ávila; Eleazar Salinas Rodríguez; Isao Rivero Landero; Maria Reyes Valderrama; Eduardo Cerecedo Sáenz; Martin Reyes Pérez; Mauricio Guerrero Rodríguez; 1Universidad Autónoma del Estado de Hidalgo


K-68: Study on Bending Test on Concrete Structural Use Crumb Rubber as Substitute to Fine Aggregate: Niander Cerqueira; Victor Souza; BRUNO PAILHA; Pâmela Berço; Afonso Azevedo; Victor Bartolazzi; 1Universidade Estadual do Norte Fluminense Darcy Ribeiro - UENF; 2UFF; 3Faculdade Redentor

K-70: Thermal and Mechanical Properties of Films by Poly(Butylene Succinate-Co-L-Lactate)/Brazilian Clay: Maria das Graças Silva-Valenzuela; Rafaela Sadka; Bianca Michel; Antonio Munhoz; Francisco Valenzuela-Diaz; Shu Hui Wang; 1Federal University of ABC; 2University of Sao Paulo; 3Mackenzie Presbyterian University

K-71: Surface Characterization of FeS, and Pulp during Grinding in an Inert Mill: Martin Reyes; Elia Palacios; Francisco Patiño; Miguel Pérez; Mizzaim Flores; Iván Reyes; Laura Aislin; Aislinn Teja; 1Universidad Autónoma del Estado de Hidalgo; 2Instituto Politécnico Nacional; 3Universidad Politécnica Metropolitana de Hidalgo; 4Universidad Tecnológica de Tulancingo.; 5Universidad Autónoma de Sinaloa Potosi

K-72: Synthesis of ZnO and TiO2 Nanocomposites for Antibacterial Activity: Luiz Kmatsu; 1Washington Oliani; 2Ademar Lugao; 3Duclerc Parra; 4Nuclear and Energy Research Institute

K-73: Texture Analysis and Anisotropic Properties of a Rolled CuZn36 Brass Alloy: Athanasios Vazdirvanidis; George Pantazopoulos; Anagnostis Troufatzis; Andreas Rikos; 1ELKEME; 2ELKEME

K-74: Characteristic of Emeralds from Malipo,Yunnan Province: Xioxuan Ye; Yue Jiang; Bijuin Guo; Chun Xia; 1China University of Geosciences

K-75: Weibull Analysis of the Behavior on Flexural Strength of Clayey Ceramic Incorporated with Fluorescent Lamp Glass Waste Powders for Different Firing Temperature: Aline Morais; Carlos Mauricio Vieira; Sergio Monteiro; 1Instituto Federal Fluminense - IFF; 2State University of the North Fluminense Darcy Ribeiro; 3Military Institute of Engineering - IME, Materials Science Department

K-76: Advanced Ion Column Solution for Low Ion Damage Characterization and Ultra-fine Process: Sang Hoon Lee; Mostafa Mazaouz; Liang Zhang; Mauricio Gordilho; Micah Ledoux; Jeff Blackwood; 1FEI

K-77: Characterization and Mechanical Properties of Additively Manufactured Stainless Steel 316L: M.A. Bevan; A.A.H. Ameri; D. East; Juan P. Escobedo-Díaz; A.D. Brown; M.Z. Quadir; P.J. Hazell; 1School of Engineering and Information Technology, UNSW Australia; 2Manufacturing Flagship, CSIRO Clayton; 3Microscopy and Microanalysis Facility (MMF), John de Laeter Centre (JdLC), Curtin University

Defects and Properties of Cast Metals — Poster Session

Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Tuesday PM  Room: Hall B1  Location: San Diego Convention Center

L-36: Effect of the Addition of Ce and Si on the Hot Cracking Behavior of SiMn Alloy during the Solidification Process: Zizong Zhu; Zhiqiang Zhou; Shengnan Zhou; Yuchuan Ding; 1Chongqing University

L-37: Improved Wear Resistance of Hadfield Steel Through the Addition of Nb Containing Carbides: Vijay Bhatia; Gwenaëlle Proust; 1University of Sydney

L-38: Improving Heat Transfer in Spent Nuclear Fuel Disposal Packages Using Metallic Void Fillers: Container-Filler Interfacial Gap Closure using Zn Coated Steel with Near Eutectic Zn-Al: Yongoo Park; Thomas McKrell; Michael Driscoll; 1Massachusetts Institute of Technology

L-39: Influence of Different Cooling Microstructure on Surface Cracks of HSLA Steel Plate by DHC: Bangliu Wang; 1Anhui Polytechnic University

L-40: Modeling and Prediction of Shrinkage Porosity Formation in Steel Ingot: Chaojie Zhang; Yanping Bao; Min Wang; Lechen Zhang; 1University of Science and Technology Beijing

L-41: Numerical Analysis of Coupled Turbulent Flow and Macroscopic Solidification in a Billet Continuous Casting Mold with Electromagnetic Stirring: Hanghang An; Yanping Bao; Min Wang; Lihua Zhao; 1University of Science and Technology Beijing

L-42: Solidification Path of Fe Bearing Phases in the Effect of Sr and Cooling Rate in Al-Si Hypoeutectic Alloys: Jeyakumar Manickaraj; Anton Gorny; Sumanth Shankar; 1McMaster University

Deformation and Transformations at Interfaces — Poster Session

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

Tuesday PM  Room: Hall B1  Location: San Diego Convention Center

L-43: A Hybrid Fast Fourier Transform Based Elasto-Viscoplastic Formulation: Jaspreet Nagra; Abhijit Brahme; Ricardo Lembensohn; Raja Mishra; Kaan Inal; 1University of Waterloo; 2Los Alamos National Laboratory; 3General Motors Research and Development Center

L-44: Dislocation and Twin Interactions with Specific Ag/Cu Interfaces: Ben Eftink; 1University of Illinois

L-45: Controlling the Deviation of Twins in Inconel 600 Alloy by Hot Rolling: Sandeep Sabh; Shashank Sherkat; 1Indian Institute of Technology Kanpur

L-46: Correlation of Bendability of CuAg Conductors with Their Tensile Properties: Rongmei Niu; Ke Han; Jun Lu; Doan Nguyen; 1National High Magnetic Lab
L-47: Deformation Mechanisms in Ti/TiN Multi-layered Thin Films: Tarang Mungole1; Bilal Mansoor2; Georges Ayoub3; David Field1; 1Washington State University; 2Texas A and M University, Doha, Qatar; 3American University of Beirut

L-48: Development of Synthetic Driving Force Methods in HCP Crystals and Comparison to Existing Techniques: Matthew Giaciszewski1; Shawn Coleman1; Ian Bakst1; Mark Tschopp1; Christopher Weinberger1; 1Colorado State University; 2Army Research Lab

L-49: Different Hardening Effect between Twin Boundary and Grain Boundary in Mg Alloys: Haisui Yu1; Yunchang Xin1; Qing Liu1; 1Chongqing University

L-50: Dual Effects of Point Defects on Shear-coupled Grain Boundary Migration in BCC Tungsten: Liangliang Niu1; Ying Zhang1; Xiaolin Shu1; Guang-Hong Lu1; Fei Gao1; 1University of Michigan; 2Beihang University

L-51: Effect of Deformation Heterogeneity of TWIP Steels on Near Boundary Twinning Behavior Using Crystal Plasticity Simulation: Jaimyun Jung1; Jae Ik Yoon1; Jung Gi Kim1; Marat Latypov1; Jin You Kim1; Hyoung Seop Kim1; 1POSTECH; 2Georgia Tech; 3POSCO

L-52: Effect of Electric Fields on Grain Boundary Characteristics in Ceramics: Wei Qin1; 1University of California, Davis

L-53: Grain Boundary Mechanisms in Nickel-based Superalloys: John Rotella1; Martin Droets2; Sammy Tin1; Michael Sangid1; 1Purdue University; 2Illinois Institute of Technology

L-54: Heterogeneous Residual Stress in Nanocrystalline Cu: Lei Cao1; Arkaprabha Sengupta1; Daniel Pantuso1; Marisol Koslowski1; 1University of Nevada, Reno; 2Intel Corporation; 3Purdue University

L-55: In-situ EBSD Study on Recrystallization Nucleation in Deformed Al: Guolin Wu1; 1Chongqing University

L-56: Influence of Deformation Processing on the Supercrystal Behavior of NCAXB Alloys: Cheng Zhang1; Kenneth Vecchio1; 1Department of NanoEngineering and Materials Science and Engineering Program, University of California, San Diego

L-57: Interaction of Grain Boundaries with Nano-clusters in Immiscible Alloys: R. K. Koj1; M. Rajagopalan1; K. A. Darling1; J. J. Keeskes1; K. N. Solanki1; Y. Mishin1; 1George Mason University; 2Arizona State University; 3US Army Research Laboratory

L-58: Interface Controlled Work Hardening Ability in Ultrafine-grained Ti-6Al-4V Alloy with Bimodal Microstructure: Yan Chong1; Tilak Bhattacharjee1; Ruixiao Zheng1; Tsji Nobuhiro1; 1Kyoto University

L-59: Mechanical Characterization of Ti-6Al-4V Titanium Alloy at Multiple Length Scales Using Spherical Indentation Stress-strain Measurements: Jordan Weaver1; Surya Kalidindi1; 1Los Alamos National Laboratory; 2Georgia Institute of Technology

L-60: Non-uniform Magnetostress in Magnetic Shape-memory Alloys: Anthony Hobza1; Peter Müllner1; 1Boise State University

L-62: Investigation of Melting Behavior and Morphology Change of Sn Nanowires based on Infra-red (IR) Heating Method: Jirui Wang1; Fan Gao1; Zhiyong Gu1; 1University of Massachusetts Lowell

L-63: Study on Thermomechanical Properties of Graphene-added Solder Paste for Automotive Electronics: Sang Jun Park1; Dong-Yurl Yu1; Kyoung-Ho Kim1; Junghwan Bang1; Soong-Keun Hyun1; Yong-Ho Ko1; 1Korea Institute of Industrial Technology; 2Dept. of Materials Science and Engineering, Inha University

L-64: Synchrotron X-ray Study of Sn Whisker Growth Induced by Electromigration: Cheng-En Ho1; Wan-Zhen Hsieh1; Pei-Tzu Lee1; Cheng-Hsien Yang1; 1Yuan Ze University

Environmental Assisted Cracking: Theory and Practice — Poster Session

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

Tuesday PM  Room:  Hall B1
February 28, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

L-65: High Pressure Hydrogen Embrittlement of Fe-30Mn-0.2C-(1.5)Al High-Mn Steel: Seung-Jong Lee1; Han-Jin Kim1; Jin-Yoo Seo1; Jae-Hyeok Shim1; Joonho Lee2; Byoungchul Hwang1; 1Seoul National University of Science&Technology; 2Korea University; 3Korea Institute of Science and Technology

L-66: The Characterization of Grain Boundary Precipitates in Aluminum-Magnesium Alloys at Mildly Elevated Temperatures: Sarah Fakler1; 1University of Virginia

L-67: The Influence of Global Slip Behavior on Hydrogen Environment-Assisted Cracking in Monel K-500: Zachary Harris1; James Burns1; 1University of Virginia

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Poster Session

Program Organizers: Ashley Spear, University of Utah; Jean-Briac Le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongquang Zhai, University of Kentucky

Tuesday PM  Room:  Hall B1
February 28, 2017  Location: San Diego Convention Center

Session Chair: To Be Announced

L-68: A Strain Energy Based Damage Model for Fatigue Crack Initiation and Growth: Peter Huffman1; 1John Deere

L-69: Acoustic Induced Vibration and Failure Assessment in Piping: Fluid-Structural-Interface: Bakr Rabei1; Mariz Mattar1; 1German University in Cairo, GUC

L-70: Crack Initiation and Propagation Modeling Using Extended Finite Element Method (XFEM): A Review: Musahour Alazwari1; Singiresu Rao1; 1University of Miami

L-71: Crack Initiation in a Ni-based Superalloy Studied by Miniaturised Ultrasonic Fatigue Testing: Jicheng Gong1; Isaac Cabrera1; Angus Wilkinson1; 1University of Oxford

L-72: Creep, Damage and Fatigue Failure of Sn3.0Ag0.5Cu Solder Joints: Travis Dale1; Dennis Chan1; Chaitra Chavali1; Carol Handwerker1; Ganesh Subbarayan1; 1Purdue University

L-73: Development of Advanced Nickel-Titanium-Hafnium Alloys for Tribology Applications: Sean Mills1; Ronald Noebe1; Christopher DelaCorte1; Aaron Steben1; 1Colorado School of Mines; 2NASA Glenn Research Center
L-74: Effect of Laser Ablation Coating Removal (LACR) on the Fatigue Behavior of a Steel Substrate: Md Shamsujjoha1; Sean Agnew2; James Brooks2; James Fitz-Gerald1; 1University of Virginia; 2Newport News Shipbuilding

L-75: Effects of Deformation Behaviors on S-N fatigue Properties of High-Mn Steels at Ambient and Cryogenic Temperatures: Hyokyung Song1; Daeho Jung1; Wongyu Seo1; Jeyhun Lee1; Sangshik Kim1; 1Gyeongsang National University; 2Changwon National University

L-76: Fatigue Crack Behaviour in the Investment Cast Ti6Al4V Part: Kalenda Mutombo1; Levy Chauke1; CSIR

L-77: Fatigue Crack Initiation and Fatigue Crack Growth Behavior of Pre-Corroded AA7050-T7451: Noelle Easter Co1; James Burns1; 1University of Virginia

L-78: Fatigue Prediction Life of a Surface Modified Femoral Stem: Paulo Sergio da Silva1; Leonardo Campanelli1; Ana Paula Guerra1; Claudemiro Bolfarini1; 1Federal University of São Carlos

L-79: Finite Element Analyses of Pure Ni Cold Spray Particle Impact Related to Coating Crack Behavior: Pasquale Cavalliere1; 1University of Salento

L-80: Impact of Rivet Head Piercing on Tensile and Fatigue Properties in CFRP to Aluminum Self-Piercing Rivets: Harish Rao1; Jidong Kang1; Katherine Avery1; Joao Moraes2; Xuming Su2; 1CanmetMATERIALS; 2Ford Motor Company

L-81: Micromechanical Analysis of Acoustically Induced Vibration; Piping Bulging and Thinning: Bakr Rabeeh1; Alaa Mazroua1; Marwa Abdelbaqy1; 1German University in Cairo, GUC

L-82: Strain Energy Density Based Fatigue Life Prediction of Notched Panels Using a Control Volume Approach: Casey Holycross1; M.-H Herman Shen2; Onome Scott-Emuakpor1; Tommy George1; 1AFRL; 2The Ohio State University

L-83: The Effect of Rare-earth Additions on Low-cycle Fatigue Behavior in Mg Alloys: Aeriel Murphy1; John Allison1; 1University of Michigan

L-84: The Effects of Microstructure on Fatigue in a Polycrystalline Nickel Base Superalloy at Intermediate Temperature: J.C. Stinville1; M.P. Echlin1; P.G. Callahan1; W.C. Lenthe1; E. Marin1; J. Miao1; T.M. Pollock1; 1University of California Santa Barbara; 2GE Research; 3University of Michigan

L-85: VHCF Strength of Spring Steel with Small Scratches: Yoshiro Nishimura1; Masahiro Endo1; Keiji Yanase2; Yuichi Ikeda2; Yuya Tanaka2; Susumu Miyakawa2; Nobuyuki Miyamoto2; 1Denso Corporation; 2Fukuoka University

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L-85: VHCF Strength of Spring Steel with Small Scratches: Yoshiro Nishimura1; Masahiro Endo1; Keiji Yanase2; Yuichi Ikeda2; Yuya Tanaka2; Susumu Miyakawa2; Nobuyuki Miyamoto2; 1Denso Corporation; 2Fukuoka University

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Poster Session: Fatigue in Materials
Program Organizers: Ashley Spear, University of Utah; Jean-Briac le Graverend, Texas A&M University; Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Tuesday PM  Room: Hall B1  Location: San Diego Convention Center
February 28, 2017

Session Chair: To Be Announced

M-1: A Comparison between Quenching and Furnace Cooling after Sintering of Al-4Cu-1.5Mg Alloy: Byangmin Aha1; SeHwan Lee2; 1Ajou University; 2Ehwa Diamond Industrial Co., Ltd.

M-2: Advances in Automated Optical 3D Materials Characterization: Satya Ganti1; Brian Hayes1; Veeraraghavan Sundar1; 1UES Inc.

M-3: Analyzing Polycrystalline Grain Microstructures in Thin Films: Abu Onci1; Thomas Hempel2; Bodo Kalkofen2; Thorsten Halle2; Dana Zöllner2; 1Otto von Guericke University Magdeburg

M-4: Correlation between Corrosion Resistance and Microstructure of Al-12Si Eutectic Alloy: Centre Bas1; Yurdanur Temel1; Eda Ergun Songul1; Derya Disparin2; Gokhan Orhan1; 2Istanbul University

M-5: Corrosion Characteristics of Ti-free B Grain Refined A360: Eda Ergun Songul1; Centre Bas1; Derya Disparin2; Gokhan Orhan1; 2Istanbul University
M-6: Densification Mechanism of Fe based Amorphous Alloy Powder during Spark Plasma Sintering: Tanaji Pad; Sandip Harimkar; 1Oklahoma State University

M-7: Determination of Retained Stress by Jominy Method in Al-Cu Alloys: Ibrahim Hizli1; Burak Tasli2; Eray Erzi3; Derya Disipnar1; 1Istanbul University

M-8: Development of Cu-Alloy Films for Energy-saving LED Applications: Chon-Hsin Liu1; 1Asia-Pacific Institute of Creativity/Biotechnology

M-9: Direct Conversion of Celestite to SrCO3 by Wet Milling: Rasit Sezer1; Aysegil BILEN1; Ibrahim Gökseł HIZLI1; Selim ERTÜRK1; Cüneyt ARSLAN1; 1Karadeniz Technical University; 1Istanbul Technical University; 1Istanbul University

M-10: Effect of Strontium on Surface Oxide Structure of Liquid Al-12Si Alloy: Ugur Alev; Gurer Zeren2; Derya Disipnar1; Cem Kahruman1; 1Istanbul University

M-11: Enhancement of Strength and Formability for Super-light Mg-Li Alloys: Hyeon-Taek Sori1; Yong-Ho Kim1; Hyo-Sang Yoo1; 1Korea Institute of Industrial Technology

M-12: Evaluation of Anodized Aluminum Potential for Use as an Interposer for the Test Socket Industry: Boon-Chai Ng1; Will Allen1; Dominique Tan-Ng2; 1Andrews University; 2Andrews Academy

M-13: Fabrication of Cu-Be Alloy Matrix CNT Composite and Enhancement of Materials Properties: Kwang-jin Lee1; Yeong-seok Kim2; Sang-don Mun2; 1Korea Institute of Industrial Technology; 2Chonbuk National University

M-14: Global Solar Radiation as an Alternative to Energy Production for Leoben; Paul Ebenberger3; Peter Uggowitzer3; 1KITECH; 2AGH Univeristy of Science and Technology; 3University Of Lagos; 4Asia-Pacific Institute of Creativity/Biotechnology

M-15: Graphite Supported Template Synthesized Intermetallic Co-Ni Nanoparticles for Biomedical Applications: Mehmet Burcin Piskin1; Ivana Markova1; Emre Karaduman1; Ivan Zahariev1; Yildiz Technical University; 1University of Chemical Technology and Metallurgy-Sofia, Bulgaria; 1Yildiz Technical University

M-16: Hot Deformation Properties of 5xxx Aluminium Alloys for Automotive Applications: Paul Ebenberger1; Bodo Gerold2; Ramona Prillhofer3; Anna-Catharina Kail1; Peter Uggowitzer1; Stefan Pogatscher1; 1Montanuniversitaet Leoben; 2AMAG rolling GmbH; 3ETH Zürich

M-17: Improvement of Corrosion Resistance of Liquid Metal Steel by Ni-electrodeposition with Reduced Graphene Oxide: Jung-Woo Choi1; Gye-Won Kim1; Bongyoung Yoo1; Dong-Hyuk Shin2; 1Hanyang University

M-18: Influence of Addition of Alumina Nanoparticles on Thermoelectric Properties of Bi0.4Sb1.6Te3 Fabricated by Mechanical Alloying and Vacuum Hot Pressing: Pee-Yew Lee1; 1National Taiwan Ocean University

M-19: Influence of Microstructure and Strain Hardening on Rheological and Fatigue Resistance of Cu-Ag Alloys Wires: Artur Kawecki1; Kings Korzen2; Eliza Sieja-Smaga1; Andrzej Nowak1; Tadeusz Knych1; Andrzej Mamala1; Beata Smyrak1; Malgorzata Zasadzinska1; 1AGH University of Science and Technology

M-20: Role of ZnO Nanoparticle Reinforcing the Ductility of Al-Si Alloys: Sangjoon Lee1; Donghyun Bae1; Yonsei University

M-21: Sigma-phase Formation in the Reaction Zone between Mo-41Re Alloy and SiC during Diffusion Bonding: Seung-Sik Jung1; Sun-Kyu Lee1; Godwin Kwaame Ahiala1; Yong-Jun Oh1; 1Hanbat National University

M-22: Study on a Bipolar Plate Corrosion Properties for an STS316 and STS430 Specimen’s on the PEMFC Environment by the Surface treatment through Low-temperature TAIACRN PVD Process: Min Seok Moon1; Myeong Han Yoo1; Joon Hyuk Song2; Je Ha Oh1; Jong Il Rho2; Shin Jae Kang1; Kee Do Woo1; Sung Mo Yang1; Young Choi1; 1Korea Institute of Carbon Conversion Technology; 2Chonbuk National University; 1KITECH

M-23: Study on the Behavior of Ultrafine-grained, Precipitation Strengthened Steels at High Strain Rates: Janusz Majda1; Remigiusz Bloniarz1; 1AGH University of Science and Technology

M-24: Study of the Effects of High Temperature Processing on Microstructure and Texture Evolution in Ti Alloys based on Reconstruction of Beta Phase Using EBSD Data: Maciej Szymula1; Mateusz Sternański1; Łukasz Madej1; Brad Wynne1; Krzysztof Muszka1; 1AGH University of Science and Technology; 2The University of Sheffield

M-25: Structural Characterization of NaF–AlF3 Melts Used in Aluminium Refining by High-temperature Raman Spectroscopy: Xiaowei He1; Jingling Liu1; Guowei Li1; Zhongping Shi1; Bingliang Gao2; Wenju Tao2; Jianguy Yu2; Zhaowen Wang1; 1Northeastern University

M-26: Synthesis and Characterization of Al-B4C Powders by Mechanical Alloying: Hao Guo1; ZhongWu Zhang1; Yu Zhao1; Songsong Xu1; Junpeng Li1; Jing Zhang1; 1College of Materials Science and Chemical Engineering, Harbin Engineering University

M-27: The Effect of Temperature on Fracture and Fatigue in the High-entropy Alloy CrMnFeCoNi: Keli Thurston1; Bernd Gludovatz2; Guillaume Laplanche2; Anton Hohenwarter1; Robert Ritchie3; 1UC Berkeley; 2Lawrence Berkeley National Laboratory; 3Ruhu University; 1Montanuniversität Leoben

M-28: Thermomechanical Fatigue Behavior of Heat-resistant Cast Austenitic Stainless Steel for Automobile Turbocharger Housing: Godwin Kwame Ahiala1; Seungmun Jung1; Sunghak Lee1; Yong-Jun Oh1; 1Hanbat National University; 2Pohang University of Science and Technology

M-29: Transitioning Ideas to Reality: Melding Casting and Additive Manufacturing to Advance Engineering Education: Matthew Willard1; James McGuffin-Cawley1; 1Case Western Reserve University

M-30: Ultrasonic Vibration Assisted Laser Surface Engineering of Aluminium Alloys: Sourabh Biswas1; Seyyed Habib Alavi1; Sandip Harimkar1; 1Oklahoma State University

M-31: Variation of Thermal Diffusivity of Cu-RGO Composites by SPS Process: Hye-Soo Lee1; Yeo-Reum Lee1; Sangwoo Kim1; 1KITECH

M-32: Correlation between Microstructure Evolution and Mechanical Properties of Al 6061 Alloy Fabricated by Differential Speed Rolling after Cryogenic Treatment: Haewoong Yang1; Yong Hwan Lee1; Dananessa Paradinda Putra1; Young Gun Ko1; 1Yeungnam university

High Entropy Alloys V — Poster Session

Program Organizers: Peter Liaw, University of Tennessee; Michael Gao, National Energy Technology Laboratory; Suveen Nigel Mathaudhu, National Chung Hsing University; Yong-Jun Oh, Yonsei University; Jung-A Lee, Yonsei University; Khurram Yaqoob, National Chung Hsing University; Jin Yeon Kim, Ewha Womans University; Jin Yeon Kim, Ewha Womans University; Ji In Lee, University of Tennessee; Jiin Yeon Kim, Ewha Womans University; Eun Soo Park, Research Institute of Advanced Materials, Department of Materials Science and Engineering, Seoul National University; Jin Yeon Kim, Ewha Womans University; Songsong Xu, Northeastern University; Ming-Hung Tsai, National Chung Hsing University; Dong-Hyuk Shin, Yeungnam University

Tuesday PM Room: Hall B1 Location: San Diego Convention Center

Session Chair: To Be Announced

L-86: Annealing Twin Evolution and Grain Boundary Engineering during Recrystallization in CoCrFeNiMn High Entropy Alloys: Christopher Barry1; Elaf Anber1; J. Liu1; Yong Zhang1; Mitra Taheri1; 1Drexel University; 2University of Science and Technology Beijing

L-87: Atomic-scale Homogenization in an fcc-based High-entropy Alloy via Severe Plastic Deformation: Hao Yuan1; Ming-Hung Tsai1; Gang Sha1; Fan Liu1; Zenji Horita1; Yuntian Zhu1; Jing Tao Wang1; 1Nanjing University of Science and Technology; 2Nitional Chang Hsing University; 3Kyushu University; 1North Carolina State University

L-88: Construction of Pseudo Binary Phase Diagram in FeCoCrNi-Cu High Entropy Alloy System: Kook Noh Yoon1; Eun Soo Park1; 1National Chiao Tung University; 2Kyushu University; 3Yonsei University; 4University of Tennessee
L-90: Mechanical Properties of Entropy Stabilized Oxides: Tyler Harrington1; Matthew Quinn2; William Mellor3; Joshua Gild4; Jian Luo5; Kenneth Vecchio6; 1Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; 2Department of NanoEngineering, UC San Diego; 3Materials Science and Engineering Program, UC San Diego

L-91: Precipitation in High-entropy FeNiMnAlCr Alloy: Margaret Wu1; Zhangwei Wang2; Paul Munroe3; Ian Baker1; 1Dartmouth College; 2University of New South Wales

L-92: The Fabrication and Oxidation Behavior of High-entropy Refractory Metal Carbides: Tyler Harrington1; Lavina Backman1; Joshua Gild1; Jian Luo1; Elizabeth Opila1; Kenneth Vecchio1; 1Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; 2Department of Materials Science and Engineering, University of Virginia; 3Materials Science and Engineering Program, UC San Diego

L-93: The Role of Mass Scattering on Thermal Transport across Multiple Engineering Program, UC San Diego

L-94: Microstructure and Properties of the VNbMoTaW High Entropy Alloy Prepared Powder Metallurgy: Jong Hwa Lim1; Ki Buem Kim2; Jin Kyu Lee3; 1Kongju National University; 2Sejong University; 3Kongju National University

L-95: A Combinatorial Assessment of AlxCrCuFeNi (0 < x < 1.5) Complex Concentrated Alloys: Microstructure, Microhardness, and Magnetic Properties: Bharat Gwalani1; Tushar Borkar2; Deep Choudhuri2; Rajarshi Banerjee1; 1University of North Texas Denton

L-96: An Assessment of the Lattice Strain in the CrMnFeCoNi High-Entropy Alloy: Lewis Owen1; Ed Pickering1; Helen Playford1; Howard Stone1; Matthew Tucker1; Nicholas Jones1; 1University of Cambridge; 2University of Manchester; 3STFC ISIS Facility; 4Spallation Neutron Source

L-97: Deformation Behavior and Solid Solution Hardening of Al-containing Refractory High-entropy Alloys: Hans Chen1; Alexander Kuffmann1; Bronislava Gor2; Daniel Schliepahke1; Christoph Seemüller1; Julia Wagner1; Hans-Jürgen Christ1; Martin Heilmair1; 1Karlsruhe Institute of Technology (KIT); 2University of Siegen; 3University of Stuttgart

L-98: Development of Lightweight High Entropy Alloys using a CALPHAD Approach: Xuejun Huang1; Weihua Sun1; Alan Luo1; 1The Ohio State University

L-99: Development of Refractory High Entropy Alloy Matrix Composite Coating using Laser Cladding Technique: Gabrielle Martin1; Bharat Jasti1; Michael West1; James Tomich1; Joshua Hammell1; Christian Widener1; 1University of Alabama - Birmingham; 2South Dakota School of Mines and Technology

L-100: Effects of Cr Content on AlCoCrFeNi High-entropy Alloys on their Microstructure and Mechanical Properties: Taos-Tsung Shun1; Wei Jhe Hung2; Hsiang Chen Chang1; Che-Fu Lee1; 1Feng Chia University

L-101: Exploring the Effects of Grain Refinement in Non-equiatomic High Entropy Alloys: Benjamin MacDonald1; Zhiqiang Fu1; Baolong Zheng1; Weiping Chen; Julia Ivanisenko1; Yizhang Zhou1; Horst Hahn1; Enrique Lavernia1; 1University of California Irvine; 2South China University of Technology; 3Karlsruhe Institute of Technology

L-102: High Throughput Exploration of High Entropy Alloys for High Temperature and Nuclear Applications via Diffusion Multiples: Owaiss Waseem1; Soon Hyung Hong: Ho Jin Ryu1; 1Korea Advanced Institute of Science and Technology

L-103: Liquid Phase Separation in Equiatomic High-entropy Alloys Containing Copper: Nicholas Derimon2; Abraham Mumin3; Reza Abbaschian1; 1University of California, Riverside; 2Nuclear Research Center-Negev

L-104: Microstructural Investigations of a Nanocrystalline TiZrHfNbTa High-entropy Alloy: Benjamin Schuh1; Jean-Philippe Couzinié2; Verena Maier-Kieneser1; Bernhard Völker1; Anton Hohenwarter1; 1Montanuniversität Leoben; 2CNRS & Université Paris-Est; 3Montanuniversität Leoben

L-105: Positron Annihilation Study on Equiatomic Multicomponent Alloys: Shuhei Yoshida1; Tilak Bhattacharjee1; Yu Bai1; Kazuki Sugita1; Masataka Mizuno1; Hideki Araki2; Nobuhiro Tsuji1; 1Kyoto University; 2Osaka University; 3Kyoto University / Elements Strategy Initiative for Structural Materials (ESISM)

L-106: Stability of Ordered Precipitates in Face Centered Cubic based High Entropy Alloys-Al 0.3 CoFeCrNi and Al 0.3 CuFeCrNi 2 and their Effect on Mechanical Properties: Bharat Gwalani1; Vishal Soni1; J.Y. Hwang2; Deep Choudhuri1; Rajarshi Banerjee1; 1University of North Texas Denton; 2Institute of Advanced Composite Materials, Korea Institute of Science and Technology

L-107: Structural and Mechanical Characterization of Refractory High Entropy Alloys: Boliang Zhang1; Yang Mu1; Yi Zhang1; Bin Zhang1; Wen Jin Meng1; Shengmin Guo1; 1Louisiana State University; 2Louisiana State University

L-108: Synthesis of High-entropy Metal Diborides and Fluorite Oxides: Joshua Gild1; Yuanzao Zhang1; Tyler Harrington1; Kenneth Vecchio1; Jian Luo1; 1University of California, San Diego

L-109: Thermal Properties of Entropy Stabilized Alloys: Jeffrey Braun1; Ashutosh Giril1; Zsolt Rak1; Mina Lim2; Christina Rost1; John-Paul Maria1; Donald Brenner1; Patrick Hopkins1; 1University of Virginia; 2North Carolina State University

L-110: Thermodynamic Approach for Designing New FCC High Entropy Alloy: Won-Mi Choi1; Seungmung Jung1; Yong Hee Jo1; Sunghak Lee1; 1POSTECH

L-111: Thermomechanical and Nanoindentation Study of High Entropy Alloys Derived from Equilibrium Solidification: Artashes Ter-Isahakyan1; 1University of Kentucky

L-112: Corrosion-resistant Nobility of AlxCrCoFeNi High-entropy Alloys: Yuzhu Shi1; Liam Collins1; Rui Feng2; Bin Yang1; Peter Liaw1; 1University of Science and Technology Beijing; 2Oak Ridge National laboratory; 3The University of Tennessee

L-113: Microstructural Details and Indentation Behavior of Microcrystalline and Nanocrystalline Ti-Ni-Cr-Co-Fe High-entropy Alloy: Abhijit Abhijit1; G. Madhusudhan Reddy1; Koteswararao Rajulapati1; 1University of Hyderabad

In-situ Methods for Unraveling Structure-Property Relationships in Light Metals — Poster Session
Program Organizers: Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

Tuesday PM
February 28, 2017
Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

I-19: Development of Plasticity Models via Point-by-Point Comparison with HREEBSD and Microscale DIC: Timothy Ruggles1; Geoffery Komarito2; Jacob Hochhalter1; Saikumar Yeratapally1; 1National Institute of Aerospace; 2NASA Langley Research Center

I-20: Effects of Alloying Elements and Processing on Deformation Mechanisms and Properties of Mg-Li base Alloys: Zhongwu Zhang1; Yun Zou1; Jian Li1; Hong Wang1; Ke An1; 1Harbin Engineering University; 2China Academy of Engineering Physics; 3Oak Ridge National Laboratory

I-21: Parameter Study and Experimental Validation of Crystal-scale Finite Element Analyses of Titanium Alloys: Kayleigh Nelson1; Euan Wielewski1; 1University of Glasgow

I-22: The Application of Synchrotron X-ray Tomography in the Solidification of Mg Alloys: Enyu Guo1; Samsun Shau2; André Philliond1; Tao Jing1; Peter Lee1; 1University of Manchester; 2Tsinghua University; 3McMaster University
I-23: A High-specific-strength and Corrosion-resistant Magnesium Alloy: Wanguang Xu; Michael Ferrry; 'University of New South Wales

I-24: A Study on the Mechanical Characteristic of Heat Dissipation Magnesium Alloy by Thixomolding Process: Ho Seung Jang; Jong Moon Park; Sueng Hoon Yang; No Jin Park; Min Su Park; Myung Hoon Oh; 'Kumoh National Institute of Technology/Science and Engineering; 'Jangwontech Co. Ltd.

I-25: Characterization of Ultrafine Grained WE43 Magnesium Alloy by Equal-channel Angular Pressing and High Pressure Torsion Process: Camilla De Souza; Tung Nguyen; Marc Meyers; Bingfeng Wang; 'University of California, San Diego; 'Central South University, P.R. China

I-26: Constrained Groove Pressing of AZ31 and ZE10 Magnesium Alloys: Marzia Zimina; Jan Bohlen; Dietmar Letzig; Gerrit Kurz; Michaela Slapakova; Jan Bajer; Miroslav Cieslar; 'Charles University in Prague; 'Helmholtz-Zentrum Geesthacht

I-27: Damage and Fracture in Magnesium AZ31, Experiments and Modeling: Babak Kondori; Ahmed Benzeruga; 'Texas A&M University

I-28: Development of High Strength Mg Alloys with Good Formability at Room Temperature: T.T.T. Trang; J. Zhang; A. Zargarian; J.H. Kim; J.H. Hwang; Nack J. Kim; 'Graduate Institute of Ferrous Technology (GIFT) and CAAM, Pohang University of Science and Technology (POSTECH); 'Harbin Engineering University

I-29: Effects of Alloying Elements on Mechanical and Corrosion Properties of Extruded Mg-Al-Ca Alloys: Hyunkyu Lim; Wonsok Yang; Tae yang Kwak; Youngkyun Kim; Young-Ok Yoon; Shae K. Kim; 'KITECH

I-30: Enhancement of Impact Fracture Toughness of Magnesium Alloys by Microstructure Modification: Yoshiji Mukei; Takayuki Hase; Naoko Ikeo; Masatake Yamaguchi; 'Kobe University; 'Japan Atomic Energy Agency

I-31: First-Principles Model of Alloy-dependent Magnesium Corrosion: Krista Limner; Joseph Labukas; Michael Garvey; Santana Chaudhuri; Jan Andzelm; 'U.S. Army Research Laboratory; 'University of Illinois Urbana-Champaign

I-32: First Principles Modeling of <c+a> Dislocations in an Mg-Y Alloys: Daniel Buey; Maryam Ghaziaiedi; 'Ohio State University

I-33: Formability Analysis on Optimized Condition of Superplastic Forming of Magnesium Alloy Sheet

I-38: Magnesium Based Biodegradable Composites for Orthopedic Application: Satish Jaiswal; Pallavi Gupta; Partha Roy; Debrupa Lahiri; 'Indian Institute of Technology Roorkee

I-39: Mechanical and Microstructural Characterization of a Multi-Axis Forged AZ31 Billet: Christian Roach; Lauren Oh; Xavier Hernandez; Suveen Mathaudhu; 'University of California, Riverside

I-40: Microstructures and Tensile Properties of As-cast Magnesium AM60-based Composite Containing Alumina Fibres and Nano Particles: Junxiong Zhou; Li Fang; Xuezhi Zhang; Henry Hu; 'University of Windsor

I-41: Negative Difference Effect of Mg Alloy AZ31D in NaCl Solutions: Shuoshuo Xu; 'University of Illinois at Chicago

I-42: Origin of Non-Schmid Behavior of [-1011] Deformation Twinning in Mg: Akio Ishii; Shigenobu Ogata; 'Osaka University

I-43: Phase Transformations of Long Periodic Stacking Ordered (LPSO) Phases at Finite Temperature in Magnesium-Gadolinium-Aluminum Ternary System: Hongyun Kim; Yi Wang; Laszlo Keeskes; Kristopher Darling; Zi-Kui Liu; 'Pennsylvania State University; 'US Army Research Laboratory

I-44: Production of Mg-Li Alloys by Vacuum Almnimothermic Reduction Process: Wang Yaowu; Xianwei Hu; Northeastern University of China; Northeastern University of China

I-45: Quasi-static and Dynamic Behavior and Microstructural Evolution of WE43 Rare Earth Magnesium Alloy: Experiments and Crystal Plasticity Modeling: Mohammad Jaheedi; Miroslav Zecevic; Brandon McWilliams; Irene Beyerlein; Marko Knezevic; 'Department of Mechanical Engineering, University of New Hampshire; 'Weapons and Materials Research Directorate, US Army Research Laboratory; 'Department of Mechanical Engineering, Materials Department, University of California at Santa Barbara

I-46: Solid State Recycling of AZ31 Mg Alloy Using Equal Channel Angular Pressing: Majid Al-Maharbi; Ramanathan Arunachalam; Sayad Zahid Qamar; 'Sultan Qaboos University

I-47: Strengthening Mechanism of AZ31 Magnesium with Gradient Structure: Maryam Jamalian; David P Field; 'Washington State University

I-48: Study on Electric and Thermal Properties of Mg Alloys with Sn and Ca Elements: Yong-Ho Kim; Hyeong-Sang Yoo; Chang-Gi Jung; Hyeon-Tack Son; 'Korea Institute of Industrial Technology

I-49: Study on the Reverse Reaction between Magnesium Vapor and CO in the Carbothermic Reduction of Magnesium under Vacuum: Yang Tian; Baoqiang Xu; Bin Yang; Dachun Liu; Hai Liu; 'Kunming University of Science and Technology

I-50: Surface Integrity Characterization from Shot Peening a Biodegradable Magnesium Alloy: Michael Sealy; Yuebin Guo; Ziyu Liu; Chao Li; 'University of Nebraska-Lincoln; 'The University of Alabama

I-51: Textural Contributions to Strengthening in Mg-RE Alloy with Nanospaced Stacking Faults: Heathar Salvador; Vishnu Bhattacharyya; Yuntian Zhu; Sean Agnew; Suveen Mathaudhu; 'University of California, Riverside; 'University of Virginia; 'North Carolina State University

I-52: The Deformation Behavior of Mg-2Zn Alloy Sheet Containing Oxygen Atoms: Seung Won Kang; Dognhyun Bae; 'Yonsei University

I-53: The Effect of Annealing on the Properties of AW5754 Aluminum Alloy - AZ31 Magnesium Alloys Produced with Explosion Welding: Martin Sahul; Miroslav Sahul; Jan Lokaj; Petr Nesvadba; 'Slovak University of Technology in Bratislava; 'OZM Research, Ltd.

I-54: Refining in Mg Welds with Arc Oscillation: Tao Yuan; 'Beijing University of Technology
L-114: Effects of Blade Curvature on Fatigue Life of Nickel-based Single Crystal Structures with Film-cooling Holes: Zhixun Wen1; Yamin Zhang1; Youliang Li1; Zhufeng Yue1; ‘Northwestern Polytechnical University

L-115: High Temperature Tensile Properties and Related Microstructural Evolution of Grade 92 Steel: Somayeh Pasebani1; Sultan Alsagabi1; Indrajit Charit1; ‘University of Idaho

L-116: In Situ Investigation on the Micromechanical Behavior of the CuZr-based BMGC by Neutron Diffraction: Dongmei Wang1; Ke An2; Juan Mu2; Yan Chen2; Yandong Wang2; Haiyan Xu2; ‘Northeastern University 2Oak Ridge National Laboratory; 2Oak Ridge National Laboratory; 2Northeastern University

L-117: Mechanical and Creep Behavior of EPDM: Saeed Babahomamadi1; Jahan Rasty1; ‘Texas Tech University

L-118: Understanding of Microstructure and Mechanical Properties of Friction Stir Processed Al-bearing, High-Cr Ferritic Stainless Steel: Anumat Sittiko1; Vedavayas Tungalala1; Indrajit Charit1; Rajiv Mishra1; ‘University of Idaho; 1University of North Texas

L-119: Mechanical Properties and Serrated Flow in Al-bearing, High-Cr Accident-tolerant Ferritic Steel: Ankan Guria1; Indrajit Charit1; ‘University of Idaho

L-120: Spherical Nanoindentation Creep Behavior of Inium at Room Temperature: Woo-Jin Kim1; Jung-A Lee2; Yakai Zhao1; Jae-il Jung1; ‘Hanyang University

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

L-121: Cyclic Response of Friction-stir Processed Ultra-fine Grained Copper: Salar Salah1; G Guven Yapici1; ‘Ozyegin University

L-122: Projectile Induced Deformation Twinning in Nanocrystalline Aluminum: Siuchuang Xue1; Zhe Fan2; Olawale Lawal2; Thevanaram Ramathasan2; Yue Liu1; Kaiyuan Yu1; Edwin Thomas1; Xinghang Zhang1; ‘Texas A&M University; 1Rice University; 2Los Alamos National Laboratory; 2China University of Petroleum; 2Purdue University

L-123: Aluminum with High Modulus and Superior Strength by Self-Dispersed TiC Nanoparticles: Chezheng Cao1; Abdolreza Javadi1; Weiqing Liu1; Xiaochun Li1; ‘University of California, Los Angeles; 1Harbin Institute of Technology

L-124: Multiscale Modeling of Deformation Behavior in Metal/Ceramic Multilayer Nanoocomposites: Mohsen Damadami1; Iman Salehinia1; Georges Ayoubi1; Hussein Zbib2; ‘Washington State University; 1Northern Illinois University; 2University of Michigan-Dearborn

L-125: Competition between Slip and Martensitic Transformation of Retained Austenite in Carbon-steel/Copper Nanolaminates: Yadong Ru1; Yang Ren2; Lishan Cui1; Kaiyuan Yu1; ‘China University Of Petroleum Beijing; 1X-ray Science Division, Argonne National Laboratory

L-126: The Influence of Glassy Phase on the Crack Healing Efficiency of Silicon Carbide/Spinel Ceramic: Fariborz Tavangarian1; Guoqiang Li1; ‘Penn State Harrisburg; 1Louisiana State University

L-127: Deformation Behavior Transition in Small-sized Metallic Glasses Depending on External Variables: So Yeon Kim1; Jinwoo Kim1; Andrew Minor2; Eun Soo Park3; ‘Seoul National University; 1Lawrence Berkeley National Laboratory

L-128: The Thermal Stability of Cryomilled 5083 Aluminum Containing Diamantane Nanoparticles: Wald Hanno1; Khinlay Maung2; Mohammed Enayati1; ‘Military Technical College; 2Precision Castparts Corp.; 1Department of Materials Engineering, Isfahan University of Technology; 2Department of Chemical Engineering and Materials Science, University of California, Irvine

L-129: Dynamic Behavior of Ultra High Molecular Weight Polyethylene Reinforced with Ceramics Nanoparticles at High Strain Rates: Édouard Junior1; Sergio Monteiro2; Ricardo Weber2; Alaelson Vieira2; ‘Military Institute of Engineering

L-130: Molecular Dynamics Study of the Creep Behavior of Metallic Glasses and Glass-composites: Constanze Kalcher1; Tobias Brink1; Jochen Rohrer1; Alexander Stukowski1; Karsten Albe1; ‘Technische Universität Darmstadt

L-131: Dislocation Engineering in Novel Nanowire Structures: Chris Chow1; Sam Reeve2; Alejandro Strachan2; ‘Purdue University

L-132: An Experimental Investigation of Deformation Mechanisms in FCC Thin Films: Marissa Linne1; Samantha Daly2; ‘University of Michigan; 1University of California, Santa Barbara

L-133: Impact of Heat Treatments at Varying Temperature on the Strength and Ductility of Nanotwinned Inconel: Nathan Heckman1; Andrea Hodge1; ‘University of Southern California

L-134: Mechanical Characterization of fcc and bcc Metals by Extraction Nanoin indentation Stress-strain Curves: Alexander Leitner1; Verena Maier-Kiener1; Reinhard Fritz1; Daniel Kiener1; ‘Montanuniversität Leoben

L-135: Multi-stages Spiral Twist Extrusion: A Novel Severe Plastic Deformation Technique for Bulk Nanostructured Materials: Waleed El-Garaihy1; Dina Fouad2; Hanadi Salem2; ‘Qassim University; 1American University in Cairo

L-136: Superelasticity, Micaceous Plasticity and Size Effects of Novel Intermetallic Compound CaFe6As2: At Small Length Scales: John Sypek1; Christopher Weinberger2; Paul Canfield2; Sergey Bud’ko2; Seok-Woo Lee1; ‘University of Connecticut; 1Drexel University; 2Iowa State University

L-137: Deformation Induced Martensite Phase Transformation and Reverse Transformation in Stainless Steels as a Function of Milling Time and Annealing Temperature: Ahmet Batibay1; Hasan Kotan1; Hakan Gungunese1; Kris Darling1; ‘Necmettin Erbakan University; 1Corum Hiitit University; 1US Army Research Laboratory

L-138: Manipulating the Grain Boundary Structure of an Ultrafine Grained Cu-Zr Alloy to Enhance Strain Hardening Capability and Strength: Dengshan Zhou1; Deliang Zhang1; ‘Northeastern University

L-139: Enhanced Mechanical and Electrical Properties of Nanocrystalline Cu Matrix Nano composite with In-situ Formed NbC Nanoparticles: Wei Zeng1; Dengshan Zhou1; Deliang Zhang1; ‘Shanghai Jiaotong University

L-140: Effects of the Angle between Micro-crack and Loading Direction on Crack Propagation of Single Crystal — TiAl Alloy: Ruicheng Feng1; Jiuntao Lu1; Haiyan Li1; Hui Cao1; Zhiyuan Rui1; ‘Lanzhou University of Technology

L-141: Tensile Properties of Perovskite in Flexible Solar Cells: Seung-min Ahn1; Eui Dae Jung1; Myoung Hoon Song1; Ju-Young Kim1; ‘UNIST

L-142: Fabrication and Characterization of Aluminum-ceramic Nanotubes (Al-CNT) Functionally Graded Cylindrical Composites: Amal Eswai1; Ehab Salama1; Sherry Morad1; ‘American University in Cairo; 1American University in Cairo

Wednesday, February 28, 2017
Location: San Diego Convention Center
Session Chair: To Be Announced
L-143: High Strength and High Conductivity Wires Made from Cu-Ag Alloys Designed for the Construction of High Magnetic Fields Generators: Eliza Siesta-Snaga; Artur Kawecki; Tadeusz Knych; Andrzej Mamula; Krystian Franczak; Kinga Korzen; Grzegorz Kiesiewicz; Pawel Kwasniewski; 1; AGH University of Science and Technology

L-144: Mechanical Characterization of Cold Sprayed Aluminum Alloy Using Micropipser Compression: Tyler Flanagan; Benjamin Bedard; Sumit Suresh; Mark Andow; Avinash Dongare; Harold Brody; Xuemei Wang; Victor Champagne; Seok-Woo Lee; 1; University of Connecticut; 1; United Technologies Research Center; 1; U.S. Army Research Laboratory

L-145: Development and Characterization of Sputter Deposited Nickel-molybdenum-tungsten Thin Films for High Temperature MEMS Applications: Gianna Valentin; Gigdon Sim; Jessica Krogstad; Timothy Weils; Kevin Hemker; 1; Johns Hopkins University; 1; University of Illinois at Urbana-Champaign

L-146: Mechanical Behavior of Sub-micron-sized Nanocrystalline Pillars under Monotonic and Cyclic Loading: Jung-A Lee; Brandon B. See; Moo-Young Seok; Yakai Zhao; Upadrasta Ramamurty; Ting Y. Tsui; Jae-il Jung; 1; Hanyang University; 1; University of Waterloo; 1; Indian Institute of Science

L-147: Nonindention Response of Fe-10%Cr Structures with Voids: An Atomistic Study: Mohammad Abu-Shams; Ishraq Shabib; 1; Central Michigan University

L-148: Preparation and High Temperature Deformation of Nanocrystalline MgO: Darren Dewitt; Yasuhiko Kodera; Harry Green; Javier Garay; 1; University of California, San Diego; 1; University of California, Riverside

L-149: Solute Atoms Enhance Tensile Ductility in a Nanostructured Mg-Al Alloy: Yaojin Lin; Shulei Li; Zhigang Yan; Haiming Wen; Enrique Lavernia; 1; Wuhan University of Technology; 1; University of California, San Diego; 1; Idaho State University; 1; University of California, Irvine

L-150: Strong, Ductile, Thermally Stable Cu-based Metal-intermetallic Nanocrystallized Alloys: Keith Dusoe; Sriman Vijayan; Thomas Bissell; Mark Andow; Seok-Woo Lee; 1; University of Connecticut

L-151: Synthesis of Bulk Single-crystalline Quasicrystal Approximant YCd, and Its Small-scale Mechanical Properties: Gyinho Song; Tai Kong; Paul Canfield; Seok-Woo Lee; 1; University of Connecticut; 1; Iowa State University

L-152: Flexibility of Perovskite LED Based on Mechanical Properties of Component Materials: Si Hoon Kim; Jae Choul Yu; Young-Cheon Kim; Yun-Seok Nam; Myoung Hoon Song; Ju-Yong Kim; 1; UNIST

L-153: The Influence of Severe Plastic Deformation on the Fatigue Crack Growth Behavior of Pure Metals and Alloys: Thomas Leitner; Anton Hohenwarter; Reinhard Pippan; 1; Montanuniversität Leoben; 1; Austrian Academy of Sciences

L-154: The Precipitation and Strengthening Behavior of Ultrafine Structured Al-7wt%Si-0.3wt%Mg Alloy: Jianmio Liang; Zhen Zhang; Xun Yao; Yifeng Zheng; Delliang Zhang; 1; Shanghai Jiao Tong University

L-155: Towards an Understanding of Shear Band Formation in Nanocrystalline and Ultrafine-grained Single Phase Materials: Oliver Renk; Pradiptha Ghosh; Reinhard Pippan; 1; Erich Schmid Institute of Materials Science

L-156: Effect of Annealing Temperature on Texture Transformation in FCC Thin Films: Nathaniel Rogers; Rakha King; Margaret Kirkland; Laurel Vincent; Brandon Hoffman; Shefford Baker; 1; Cornell University; 1; Houghton College

L-157: Anisotropy of Solute Effect on Dislocation Slip in an HCP Metal: A Molecular Simulation Study of Mg Alloys: Peng Yi; 1; Johns Hopkins University

L-158: A Study on Growth Nanotwins for CuZn Synthesized by Electrodeposition and Magnetron Sputtering: Chelsea Appleget; Andrea Hodge; 1; University of Southern California

L-159: Atomic Simulation of Creep Deformation in Metallic Nanoglasses: Omar Adjoud; Karsten Albe; 1; Technische Universität Darmstadt; 1; Technische Universität Darmstadt

L-160: Effects of the Processing Variables on Microstructural Homogeneity Manufactured by High Pressure Double Torsion: Mohammad Jakeli; Irene Beyerlein; Marko Knezevic; 1; Department of Mechanical Engineering, University of New Hampshire; 1; Department of Mechanical Engineering, Materials Department, University of California at Santa Barbara

L-161: Grain Growth in Nanostructured Materials during Cyclic Loading: Is the Description Complete?: Marlene Kapp; Olivier Renk; Thomas Leitner; Bo Yang; Reinhard Pippan; 1; Erich Schmid Institute of Materials Science; 1; Montanuniversität Leoben

L-162: Microstructural Influences on the Transition to Drag Dominated Dislocation Motion at High Rates of Strain: Scott Turnage; Kristopher Darling; Kiran Solanki; 1; Arizona State University; 1; Army Research Laboratory

L-163: Low Temperature Compositional Patterning in Plastically-deformed Immiscible Alloys: Nirav Paud; Yinon Ashkenazy; Pascal Bellon; Robert Averback; 1; University of Illinois at Urbana-Champaign; 1; The Hebrew University of Jerusalem

L-164: Effect of High Temperature Annealing Time and Temperature on Microcrack, Micro-nanostructures and Mechanical Properties of a 14YWT Nanostructured Ferritic Alloy: Md Ershadul Alam; Souptik Pal; Yuan Wu; 1; G. R. Odette; 1; University of California, Santa Barbara

L-165: Microstructure and Mechanical Behavior of Nanostructured FeMn Biorecorable Alloy: Anqi “Angol” Yu; Michael Heiden; Christian Roach; Lia Stanciu; Suveen Mathaudhu; 1; University of California Riverside; 1; Purdue University

L-166: Stress-driven Microstructural Evolution and Grain Boundary Doping in Nanocrystalline Alloys: A Direct Link Revealed by Quantitative In Situ Electron Microscopy: Mo-Rigen He; Gyusook Kim; Sarita Samudrala; Peter Feller; Andrew Bean; Julie Cairney; Daniel Gianola; 1; University of Wisconsin-Madison; 1; University of Pennsylvania; 1; University of Sydney; 1; University of California-Santa Barbara

L-167: On the Relationship between the Grain Boundary Character and the Microhardness in Nanocrystalline Ni-W: Mathieu Lagarde; Nissha Shakibi Nia; Julie Bourgon; Egle Conforto; Patrick Girault; Stefano Cehndore; Juan Cresus; Xavier Feaugas; Catherine Savall; 1; Université de La Rochelle; 1; ICMP E

L-168: Surface Rebound of Relativistic Dislocations Directly and Efficiently Initiates Deformation Twinning: Qingjie Li; Ju Li; Zhi-Wei Shan; Evan Ma; 1; Johns Hopkins University; 1; Massachusetts Institute of Technology; 1; Xi’an Jiaotong University

L-169: Thermal Stability and Mechanical Behaviour of Electrodeposited Nanocrystalline Iron: Fijay Kumar D; Prasad MJNV; 1; Indian Institute of Technology Bollym

L-170: Twinning-dominated Deformation in Body-centered Cubic Tungsten Nanowires: Jiangwei Wang; 1; Zhijiang University

L-171: UV Light, Temperature and Humidity Effects on the Mechanical Behavior of Nanocomposites: Claudia Luhrs; Stephanie Rockford; Sarah Menon; Hugo Zer; 1; Naval Postgraduate School; 1; Universidad Nacional de Colombia

Multiscale Architected Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Poster Session

Program Organizers: Yuntian Zhu, North Carolina State University; Irene Beyerlein, University of California, Santa Barbara; Yves Brechet, Grenoble Institute of Technology; Huijian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Tuesday PM
Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

L-172: Principle of One-step Synthesis for Multilayered Structures Using Tube High-pressure Shearing: Zheng Li; Pin Fang Zhang; Hao Yuan; Kui Lin; Ying Liu; De Liang Yin; Jing Tao Wang; Terence Langdon; 1; Nanjing University of Science and Technology; 1; University of Southampton
Pan American Materials Congress: Advanced Biomaterials — Poster Session
Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Tuesday PM Room: Poster Area Location: Marriott Marquis Hotel & Marina

J-37: Electrochemical Supercapacitor Based on the Hierarchical Coral-like ZnCo2O4 Nanowires: John Ananthan Rajesh1; Jae-Hong Kim1; Woo-Sik Jung1; Kwang-Soon Ahn1; Yeungnam University

Pan American Materials Congress: Advanced Manufacturing — Poster Session
Program Organizers: Sonia Bruhl, UTN - National University of Technology, Ricardo Castro, University of California, Davis; Dachamir hotza, UFSC

Tuesday PM Room: Poster Area Location: Marriott Marquis Hotel & Marina

J-39: Development of Economic Ta2O5-based Catalytic System towards Efficient Oxygen Evolution Reaction via Surface Engineering: Jun Ding1; 1National University of Singapore

PAN-1: Control of Shell Thickness on CeO2-ZnO Core-shell by Surfactant Assisted Co-precipitation Methods: Felipe Sanhueza1; Ramalinga Mangalaraja1; Stephano Morales1; Saeed Farhang1; Elizabeth Elgueta1; University of Concepcion

PAN-2: Elastic Modulus of Ternary Titanium Alloys for Biomedical Applications: Marcos da Silva1; Raúl Araújo1; Pedro Kuroda1; Carlos Grandini1; Unesp/Bauru

J-42: Thermal Diffusivity of Cu-based Composite Materials by Volume Fraction Using SPS Process: Sangwook Kim1; Hyouk-Chon Kwon1; Hyou-soo Lee1; Korea Institute of Industrial Technology

PAN-10: Surface Characterisation of Anodised Zirconium with Proven Bioactivity: Andrea Gomez Sanchez1; Maria Katunar1; Silvia Ceré1; INTEMA - CONICET

J-41: Surfactant Assisted Synthesis of Brown TiO2 and Its Photocatalytic Activity: Swati Naik1; Gabriel Caruntu1; Central Michigan University

PAN-11: Wear of TiO2 Nanofilm Synthesized on Ti6Al4V and 316 Stainless Steel: Jonathan M. Schuster1; Mario Rosenberger1; Carlos Schvezov1; IMAM (UNaM-Conicet)

J-40: Novel Bilayered Nanostructured Ni-Co-SiC/Zn-Ni Composite Coating with Exceptional Tribological and Corrosion Properties by Pulse Electrodeposition: Swastika Bumbha1; Saptarshi Das1; Arghya Patra1; Srijan Sengupta1; Siddhartha Das1; Karabi Das1; IIT Kharagpur; Heritage Institute of Technology, Kolkata

PAN-12: Influence of Dendritic Morphology on the Strain Field of Dendritic Solidification Structures: Alejandro Moreno1; Mario Rosenberger1; Carlos Schvezov1; Facultad de Ciencias Exactas, Quimicas y Naturales - Universidad Nacional de Misiones; Instituto de Materiales de Misiones

J-38: Grain Boundary Density Dependence of Radiation Induced He Bubble Formation in Nanocrystalline Fe and Ni Thin Films: James Nathaniel1; Asher Loff1; Jon Baldwin1; Osman El-Atwani1; Khalid Hattar1; Mitra Taheri1; Drexel University, Haiming Wen1; Idaho State University

PAN-9: Selective Laser Sintering of Co-Cr-Mo Alloy for Dental Applications: Claudinei Santos1; Alexandre Habibe1; Paula Silva1; Bruna Simba1; UERJ; USP-EEL

J-11: Wear of TiO2 Nanofilm Synthesized on Ti6Al4V and 316 Stainless Steel: Jonathan M. Schuster1; Mario Rosenberger1; Carlos Schvezov1; IMAM (UNaM-Conicet)

Pan American Materials Congress: Advanced Manufacturing — Poster Session
Program Organizers: Sonia Bruhl, UTN - National University of Technology, Ricardo Castro, University of California, Davis; Dachamir Hotza, UFSC

Tuesday PM Room: Poster Area Location: Marriott Marquis Hotel & Marina

J-173: Fabrication of Functionally Graded Materials via Asymmetric Cold Rolling: Tyler Harrington1; Jordan Furlong2; Roxan Afshari1; Chaoyi Zhu1; Kenneth Vecchio2; 1Department of NanoEngineering and Materials Science and Engineering Program, University of California San Diego; 2Department of NanoEngineering, University of California San Diego
Pan American Materials Congress: Materials for Green Energy — Poster Session

Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday PM
Room: Poster Area
February 28, 2017
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

Pan American Materials Congress: Materials for Oil and Gas Industry — Poster Session

Program Organizers: Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

Tuesday PM
Room: Poster Area
February 28, 2017
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

Pan American Materials Congress: Materials for Transportation and Lightweighting — Poster Session

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Tuesday PM
Room: Poster Area
February 28, 2017
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

Pan American Materials Congress: Materials for Infrastructure — Poster Session

Program Organizers: Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en quimica aplicada

Tuesday PM
Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

Pan-13: Microhardness Assessment of 316L Stainless Steel Fabricated by Laser Engineered Net Shaping: Katherine Acord1; Thale Smith2; Julie Schoenung3; 1University of California, Irvine; 2University of California, Davis

Pan-14: Extrusion and Flash Sintering of Nickel Oxide-Samarium Doped Ceria (NIO-SDC) Nanostructure Composite Microtubular Anodes for Solid Oxide Fuel Cells: Ramalinga Viswanathan Mangalaraja1; Jonathan Usaba1; Hernán Valle2; Jorge Durango3; Marta Lopez4; Chan Siew Hwa1; 1University of Concepcion; 2Nanyang Technological University

Pan-15: Green Extract of Mate Tea as Corrosion Inhibitor of Copper and Aluminum: Ana Derna1; Claudia Méndez2; Liliana Gassa3; Alicia Ares4; 1FCEQYN-UNAM; 2IMAM (CONICET-UNAM); 3INIFTA; 4CONICET/FCEQYN-UNAM


Pan-17: Influence of Organic Solvent on Pt Nanoparticles Synthesis on MWCNT for ORR: Carolina Silva Carrillo1; Edgar Reynoso-Soto1; Rosa-Maria Felix Navarro1; Balter Trujillo-Navarrete3; Jose Chavez-Carayvar1; Francisco Paraguay-Delgado; Gabriel Alonso-Nuñez1; 1Instituto Tecnologico de Tijuana; 2Instituto de Investigacion En Materiales, Universidad Nacional Autonoma de Mexico; 3Centro de Investigacion de Materiales Avanzados; 4Centro de Nanociencia Y Nanotecnologia, Universidad Autonoma de Mexico

Pan-18: One-pot “Green” Synthesis of Nitrogen Doped Porous Titania Nanospheres for Photocatalytic Degradation of Direct Blue-71: Nalanthiran Pugazhenthiran1; Panneerselvan Sathishkumar2; Ramalinga Mangalaraja2; Sambandam Anandan3; Sepperalmurugesan4; 1University of Concepcion; 2University of Antioquia; 3National Institute of Technology - Trichy; 4Madurai Kamaraj University

Pan-19: Plasma-enhanced Solar Fuel Production with Gold-metall Oxide Hybrid Nanomaterials: Christian Engelbrekt1; Matt Law2; Jingdong Zhang3; 1Technical University of Denmark; 2University of California Irvine

Pan-20: Platinum Salts Synthesis as Precursors to Get Heterogeneous Catalysts for Biofuels Production: Adriana Martinez1; Sherly Acosta1; Jonathan Sierra2; Carlos Guerrerob; 1Universidad Nacional de Colombia ; 2Universidad Nacional de Colombia

Pan-21: Structural and Magnetic Properties of Nano Cobalt Ferrites for Green Refrigeration Technology: Prabhakaran Thandapani1; Mangalaraja R.V.2; 1University of Concepcion; 2University of Concepcion

Pan-22: Structural and Optical Properties of Graphene-based Nano-architectures Decorated with (Ag, Cu) Metal Nanoparticles: Udayabhuskar Rednam1; Mangalaraja R. V.1; Pandiyarajan Thangaraj2; Karthikeyan B.3; 1University of Concepcion; 2National Institute of Technology, Trichy

Pan-23: Synthesis of Mesoporous TiO2 for Photo-anode in Dye-synthesized Solar Cell: Victor Gonzalez1; Edgar Reynoso1; Balter Trujillo1; Rosa Felix1; 1Instituto Tecnologico de Tijuana

Pan-24: Tape Casting and Flash Sintering of Nickel Oxide-Gadolinium Doped Ceria (NO-GDC) Nanostructure Composite Anode for Solid Oxide Fuel Cells: Jonathan Usaba1; Mangalaraja Ramalinga Viswanathan1; Miguel Niño1; Jorge Durango3; Marta Lopez4; Chan Siew Hwa1; 1University of Concepcion; 2Nanyang Technological University
PRELIMINARY TECHNICAL PROGRAM

Panel: Leaching of Celestite Concentrate in Hel Media with BAC12-NAC1
Addition: Enre Yilmaz1; Aysegul Bilen1; Rasit Sezer2; Selim Ertuk3; Ibrahim Hizli4; Cuneyt Arslan1; 1Istanbul Technical University; 2Istanbul University

Tuesday PM  Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

Panel: Mechanical Activation Strengthen the Leaching of Oxide-sulphide Zinc Ore: Kun Yang1; Shiwei Li1; Chao1; Libo Zhang1; Jinjui Peng1; 1Kuming University of Science and Technology

Panel: Production of Strontianite from Celestite Ore in Carbonate Media: Ibrahim Hizli1; Aysegul Bilen1; Rasit Sezer2; Selim Ertuk3; Cuneyt Arslan1; 1Istanbul Technical University; 2Istanbul University- ATUM; 3Karadeniz Technical University

Panel: Recovery of Zinc from Oxide–sulfide Zinc Ore through Oxidation and Chelation: Kun Yang1; Libo Zhang1; Chao Lv1; Shiwei Li1; Jinjui Peng1; 1Kuming University of Science and Technology

Panel: The Direct Leaching of Micro-disseminated Gold Concentrate by Bromide Process and the Characterization of Leaching Products: Chao Li1; Hongxu Li1; Qiankun Jing1; 1University of Science and Technology Beijing

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Poster Session
Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Tuesday PM  Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

Panel: Biotechnologies for Water Recycling in the Mineral Industry: Natalia Barbouza1; Sueli Bertolino2; Renata Guerra-Sá1; Versiane Leão1; 1Universidade Federal de Ouro Preto; 2Universidade Federal de Uberlandia

Panel: Effects of Ethylenediamine on Smithsonite Flotation: Chao Lv1; Shuming Wen1; Shaojun Bai1; Kun Yang1; 1Kuming University of Science and Technology; 2Kuming University of Science and Technology

Panel: Electrochemical Preparation of Ti5Si3/TiC Composite from Titanium-rich Slag in Molten CaCl2: Shangshu Li1; Xingli Zou1; Xionggang Lu1; Kai Zheng1; Xin Li1; Yinhua Wang1; 1Shanghai University

Panel: Kinetic Study on the Leaching of Vanadium-bearing Converter Slag with Dilute Sulfuric Acid: Junyi Xiang1; Qingyun Huang1; Xuewei Lv1; Chenguang Bai1; 1School of Materials Science and Engineering, Chongqing University; 2School of Materials and Metallurgical Engineering, Chongqing University of Science and Technology
Pan American Materials Congress: Steels — Poster Session

Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIM/RV - Universidade Federal Fluminense

Tuesday PM
February 28, 2017
Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

PAN-60: Effect of Titanium Sulfide Precipitates on Grain Size in Low Carbon Steel: Yuan Wu; 1Shanghai University

PAN-61: Hydrogen Gaseous Embrittlement Effect over Mechanical Properties of a Heat Treated Experimental Microalloyed Steel with Different Cooling Rates: Julio Villalobos; 2Edgar Lopez; 2Octavio Vazquez; 2Sergio Serna; 2Bernardo Campillo; 3CIICAP; 3Universidad del Istmo, Campus Tehuantepec; 4Instituto Tecnológico de Morelia; 5ICF-UNAM, FQ-UNAM

PAN-62: Influence of Oxide Size and Composition on MnS Formation in Continuous Casting Slab of Low Carbon Steel: Fangjie Li; 1Shanghai University

PAN-63: Kinetic Study of the Austenite Decomposition during Continuous Cooling in a Welding Steel: Octavio Vázquez-Gómez; 2Edgar López-Martínez; 3Alexis Gallegos-Pérez; 3Heber Santoyo-Avilés; 3Héctor Vergara-Hernández; 3Bernardo Campillo; 4Instituto Tecnológico de Morelia - CONACyT; 5Universidad del Istmo; 6Instituto Tecnológico de Morelia; 7Ternium México; 8Universidad Nacional Autónoma de México

PAN-64: Study of Ductile Austempered Iron Alloyed with V, Mo AND Cr: Fatima Alicia de la Rosa Castañeda; 1IPN - UPIIZ

PAN-65: Study of the Machining of Nodular Iron Alloyed with V-Mo-Cr with or without Treatment: Luis Lauro Flores Santos; 1IPN - UPIIZ

PAN-66: Tempering Response of Bainitic and Martensitic Microstructures: Igor Vieira; 1Emmanuel De Moor; 2Colorado School of Mines

PAN-67: Using CCT and TTT Diagrams Obtained by Simulation for Developing AHSS: Jose Pacheco; 1Jose Cruz; 2Pedro Garcia; 1Jose Lopez; 3Jose Gutierrez; 4Jose Quezada; 1DICIM UASLP; 2Facultad de Ingeniería UASLP; 3Instituto Tecnológico de Morelia; 4Instituto de Metalurgia UASLP

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Poster Session

Program Organizers: Shih-kang Lin, National Cheng Kung University; Chao-hong Wang, National Chung Cheng University; Jae-Ho Lee, Hongik University; Yee-wen Yen, National Taiwan University of Science and Technology; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, University; Ikuo Ohnuma, National Institute for Materials Science (NIMS); Chao-hong Wang, National Chung Cheng University; Jae-Ho Lee, Hongik University; Shih-kang Lin, National Cheng Kung University

Tuesday PM
February 28, 2017
Room: Hall B1
Location: San Diego Convention Center

Session Chair: Shih-kang Lin, National Cheng Kung University

L-178: Degradation Mechanism of Piezoelectric Materials: Hooman Sabarou; 1Florida International University

L-179: Effect of Silver Precursor Addition on Shear Strength of Cu-Cu Joints with Silver Nanoparticle Paste: Hung-Tao Chen; 1National Cheng Kung University

L-180: Investigating Mixed Crystal Solid Solution of High Performance Scintillators KBa2I5:Eu & KSr2I5:Eu: Jesse Johnson; 1Luis Stand; 1Mariya Zhuravleva; 1Merry Koschan; 1Chuck Melcher; 1University of Tennessee-Knoxville

L-181: Microstructural and Optical Properties of Cr1-xAlxN Films Synthesized by Reactive Magnetron Sputtering: Ting-Kan Tsai; 1Shu Wei Yang; 2Jing Heng Li; 1Nation Formosa University

L-182: Stretchability Characteristics of Thin Metal Films on Polydimethylsiloxane Substrates with the Parylene Adhesion Layer for Stretchable Electronic Packaging: Donghyeon Park; 1Soo Jin Shin; 2Jae-Ho Lee; 1Tae-Sung Oh; 1Hongik University

Recent Developments in Biological, Structural, and Functional Thin Films and Coatings — Poster Session

Program Organizers: Adele Carradó, Université de Strasbourg IPCMS; Nancy Michael, University of Texas at Arlington; Ramana Chintalapalle, UTEP; Heinz Palkowski, Clausthal Univ of Technology; Vikas Tomar, Purdue Univ; Nuggehalli Ravindra, NJIT

Tuesday PM
Room: Hall B1
Location: San Diego Convention Center

Session Chairs: Ramana Chintalapalle, University of Texas at El Paso, UTEP; Nuggehalli Ravindra, New Jersey Institute of Technology

H-35: Effects of Carbon Coating on Magnetic Susceptibility of NiTi Alloy: Ari Shin; 1Sang Jin Park; 1Jun Hyun Han; 1Chungnam National University

H-36: Investigation of Mechanical Properties of W1-yMoO Nanocomposite Thin Films: P. Dubey; 1G. Lopez; 2G. Martinez; 3C. Ramana; 1University of Texas at El Paso

H-37: Microstructure and Optical Properties of HfO2/Mo/HfO2 Based Heat Mirrors and Their Potential Use for Efficient Windows Applications: Juan Gomez; 1Paritosh Dubey; 1C. Ramana; 1University of Texas at El Paso

H-38: Preparation of Porous Titanium Oxide Film by Sol-gel Method: Baoqiang Xu; 1National Engineering Laboratory for Vacuum Metallurgy, Key Laboratory of Nonferrous Metals Vacuum Metallurgy of Yunnan Province, Kunming University of Science and Technology

H-39: Structure Property Relationship of Tannic Acid Based Copolymers for Anti-oxidant Infused Wound Dressing: Matthew Korey; 1John Howarter; 1Purdue University

H-40: Structure Property Relationship Studies of Electron Beam Welded Dissimilar Steel to Fe-Al Alloy Joints: Soumitra Kumar Dinda; 1Gour Gopal Roy; 1Prakash Siragami; 1Indian Institute of Technology, Kharagpur; 1University of Warwick

H-41: Effect of Bias Induced Microstructure on Mechanical Properties of Nanocrystalline ZrW2N Coatings: P. Dubey; 1S. Srivastava; 2R. Chandra; 3C. Ramana; 1University of Texas at El Paso; 2Indian Institute of Technology Roorkee

L-174: Investigation on Interfacial Reactions between the Multi-walled Carbon Nanotubes Reinforced Sn-Ag-Cu Composite Solders with Cu: Gita Hermana; 1Shu Fu; 1Yee Yen; 1National Taiwan University of Science and Technology

L-175: Application of Computational Thermodynamics in SOFCs: Shadi Darvish; 1Yu Zhong; 1Florida International University

L-176: Bandgap-enlarged Magnesium-doped Aluminum Zinc Oxide Films by Reactive Sputtering Using Mg and Al-Zn Metallic Targets: Jia-Shuang Fang; 1D.R. Jung; 2F.J. Po; 3C. Hsu; 1National Formosa University

L-177: Calorimetric Investigation of the Liquid Sn-3.8Ag-0.7Cu Alloy with Minor Additions of Mn and Ni: Andrey Yakymovych; 1Hans Flandorfer; 2Herbert Ipser; 1University of Vienna
Solid State Precipitation — Poster Session
Program Organizers: Seth Imhoff, Los Alamos National Laboratory; Robert Hackenberg, Los Alamos National Laboratory; Gregory Thompson, University of Alabama

Tuesday PM  Room: Hall B1
February 28, 2017  Location: San Diego Convention Center

Session Chair: Seth Imhoff, Los Alamos National Laboratory

L-183: Analysis of Beta’ Cu4Ti Precipitation in Cu-Ti Alloys by Conventional and Diffusion-couple Methods: Felipe Hernandez-Santiago¹; Victor Lopez-Hirata²; Maribel Saucedo-Muñoz²; Pamela Hernandez-Duran³; Erika Avila-Davila⁴; ¹Instituto Politecnico Nacional (ESIME); ²Instituto Politecnico Nacional (ESIQIE); ³Instituto Tecnologico de Pachuca

L-184: Carbide Precipitation in a Low-alloy Ferritic Steel: Maribel Saucedo-Muñoz¹; Victor Lopez-Hirata¹; Rodrigo Gomez-Martinez¹; Arturo Ortiz-Mariscal¹; Jose Villegas-Cardenas²; Jorge Gonzalez-Velazquez⁴; ¹Instituto Politecnico Nacional (ESIQIE); ²Universidad Politecnica (Valle de México)

L-185: Nanocomposites Ti/B/TiO2 by Mechanical Alloy Synthesis: Diana Jaramillo¹; ¹Centro de Investigacion y Desarrollo Tecnologico en Electroquimica
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