February 26 – March 2, 2017 • San Diego, California, USA

TMS 2017

146th Annual Meeting & Exhibition

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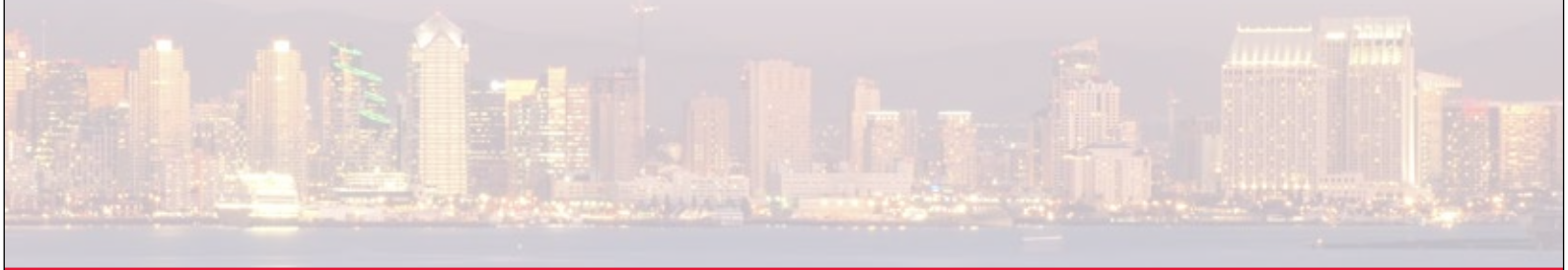
PRELIMINARY

TECHNICAL PROGRAM



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

Sunday PM
February 26, 2017

Room: Plenary Session Room
Location: San Diego Convention Center

Session Chair: Jeremy Busby, Oak Ridge National Laboratory

6:00 PM Introductory Comments

6:05 PM Plenary
Grand Science Challenges to Energize a New Era of Innovation: *Harriet Kung*[1]; [1]DOE Office of Basic Energy Sciences

6:35 PM Plenary
Advancement of Energy Industries and Related Critical Materials in China: *Zhiling Tian*[1]; [1]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*[1]; [1]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*[1]; [1]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*[1]; [1]Brookhaven National Laboratory

9:00 AM Invited
Carbon-metal Oxides Nanocomposites by Atomic Layer Deposition: *Nicola Pinna*[1]; [1]Humboldt-Universität zu Berlin

9:30 AM Invited
Sequential Infiltration Synthesis (SIS) for Versatile Nanomaterials Fabrication: *Seth Darling*[1]; Jeffrey Elam[1]; [1]Argonne National Laboratory

10:00 AM Break

10:20 AM Invited
Organometallic Infiltration into Polymers toward the Formation of Hybrid Organic-inorganic Nanomaterials: *Jesse Jur*[1]; Halil Akyildiz[1]; Richard Padbury[1]; [1]North Carolina State University

10:50 AM Invited
Bi_2Te_3 Nanowire Materials and Devices: Interplay between Thermoelectric and Topological Insulators Properties: *Kornelius Nielsch*[1]; [1]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 Hunyadi Murph*[1]; [1]Savannah River National Laboratory & University of Georgia

11:40 AM
Graphene-ZnO Hybrid with Enhanced Electronic Properties by Atomic Layer Deposition: *Myung Mo Sung*[1]; [1]Hanyang University

12:00 PM
Ultra-high Elastic Strain Energy Storage in AlOx-infiltrated SU-8 Photoresist Nanopillars: *Keith Dusoe*[1]; Aaron Stein[2]; Chang-Yong Nam[2]; Seok-Woo Lee[1]; [1]University of Connecticut; [2]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. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim 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[1]; De Qiu Fan[1]; Yousef Mohassab[1]; *H.Y. Sohn*[1]; [1]University of Utah

9:45 AM
Synthesis of Chromite for Subsequent Carburization by Methane-hydrogen Gas Mixture: *Vincent Canaguier*[1]; Leiv Kolbeinsen[1]; Ingeborg-Helene Svenum[2]; [1]Norwegian University of Science and Technology; [2]SINTEF Materials and Chemistry

10:05 AM Break

10:20 AM
Effects of Hydrogen-enriched Reduction on Metallurgical Properties of Iron-bearing Burdens under BF Operation with Cog Injection: Hongtao Wang[1]; *Mansheng Chu*[1]; Chuanguang Bi[2]; Zhenggen Liu[1]; [1]Northeastern University; [2]Shanghai Meishan Iron and Steel Corporation Ltd

10:40 AM
Investigations on Matrix Reactivity towards the Efficiency of the LSI Process: *Simge Tülbez*[1]; Arcan Dericioglu[1]; [1]Middle East Technical University

11:00 AM
Refractory Challenges in Lead Recycling Furnaces: *Dean Gregurek*[1]; Katja Reinharter[1]; Viktoria Reiter[1]; Christine Wenzl[1]; Alfred Spanring[1]; [1]RHI AG

11:20 AM
Synthesis of Carbide Ceramics via Reduction of Adsorbed Anions on an Activated Carbon Matrix: *Grant Wallace*[1]; Jerome Downey[1]; Jannette Chorney[1]; David Hutchins[1]; Alaina Mallard[1]; [1]Montana Tech of the Univ of MT

11:40 AM
Metals and Mattes Air Atomization: A New Method to Increase Productivity: Sina Mostaghel[1]; *Lily Lai Chi So*[1]; Santiago Faucher[1]; [1]Hatch Ltd.

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

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

Monday AM
February 27, 2017

Room: 7B
Location: San Diego Convention Center

Funding support provided by: TMS: Additive Manufacturing Committee

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

8:30 AM Introductory Comments

8:35 AM Invited
Influence of Feedstock Characteristics in Additive Manufacturing: *Todd Palmer*[1]; [1]Penn State

9:05 AM Invited
The Origin and Effect of HAZ Banding in Large Scale Wire-Arc Additive Manufacture with Ti-6Al-4V: Alistair Ho[1]; Jack Donoghue[1]; Thays Machry[2]; Jialuo Ding[3]; Filomeno Martina[3]; Stewart Williams[3]; *Phil Prangnell*[1]; [1]The University of Manchester; [2]Airbus Group Innovations; [3]Cranfield University

9:35 AM
Investigation on the Effect of Process Parameters on the Grain Structures Formed during Wire-arc Additive Manufacture (WAAM) of 2xxx Series Aluminium Alloys: *Joseph Fixter*[1]; Philip Prangnell[1]; Eloise Eimer[2]; Jialuo Ding[2]; Stewart Williams[2]; [1]University of Manchester; [2]Cranfield University

9:55 AM
Investigation into the Different Behavior of Gas and Water Atomized 316L Stainless Steel Powders in Selective Laser Melting: *Umberto Scipioni Bertoli*[1]; Alexander Wolfer[2]; Manyalibo Matthews[3]; Saad Khairallah[3]; Kevin Wheeler[4]; Dogan Timucin[4]; Jean-Pierre Delplanque[2]; Julie Schoenung[1]; [1]University of California, Irvine; [2]University of California, Davis; [3]Lawrence Livermore National Laboratory; [4]NASA

10:15 AM Break

10:35 AM Invited
Selective Electron Beam Melting: A Powder Bed Based Additive Manufacturing Technology for High Performance Materials: *Carolin Körner*[1]; [1]Universität Erlangen-Nürnberg

11:05 AM
Additive Manufacturing of Metals: Differing Microstructures with Varying Builds: *Roberta Beal*[1]; Veronica Livescu[1]; Manny Lovato[1]; [1]Los Alamos National Laboratory

11:25 AM Invited
Small Features and Microstructures in 3D Printed Heat Exchangers: Samikshya Subedi[1]; Erfan Rasouli[2]; Eric Truong[2]; Vinod Narayanan[2]; *Anthony Rollett*[1]; [1]Carnegie Mellon University; [2]University of California Davis

11:55 AM
Fundamental Study of the Effect of Process Variables in LMD Repairs with Inconel 718: *Faye McCarthy*[1]; Chris Heason[2]; Gavin Baxter[2]; Phil Prangnell[1]; [1]The University of Manchester; [2]Rolls Royce Plc

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 Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Monday AM
February 27, 2017

Room: 7A
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 Gray*[1]; Veronica Livescu[1]; Cameron Knapp[1]; Carl Trujillo[1]; Roberta Beal[1]; David Jones[1]; [1]Los Alamos National Laboratory

8:50 AM
Microstructures of Nickel-base Superalloy IN100 Fabricated through Scanning Laser Epitaxy: *Amrita Basak*[1]; Ranadip Acharya[1]; Suman Das[1]; [1]Georgia Institute of Technology

9:10 AM
Development of Titanium Alloys Optimized for Additive Manufacturing Employing Laser Deposition of Powders: Brian Welk[1]; *Hamish Fraser*[1]; [1]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 Wu*[1]; Donald Brown[2]; Bjorn Clausen[2]; John Elmer[1]; [1]Lawrence Livermore National Laboratory; [2]Los Alamos National Laboratory

9:50 AM
Influence of Powder Characteristics on the Defects and Oxidation of High Purity Tungsten Produced via Selective Laser Melting (SLM): *Amanda Field*[1]; Luke Carter[1]; Nicholas Adkins[1]; Mike Gorley[2]; Moataz Attallah[1]; [1]University of Birmingham; [2]UKAEA

10:10 AM Break

10:30 AM
Processing, Microstructure, and Tensile Behavior of MarM-247 Fabricated by Electron Beam Melting: *Michael Kirka*[1]; Yousub Lee[1]; Alfred Okello[1]; Christopher Romanoski[2]; Kinga Unocic[1]; Michael Massey[3]; Suresh Babu[3]; Ryan Dehoff[3]; [1]Oak Ridge National Laboratory; [2]Vanderbilt University; [3]University of Tennessee

10:50 AM
Additive Manufacturing of Polymer-derived Ceramics: Zak Eckel[1]; Scott Biesboer[1]; Kenneth Cante[1]; John Martin[1]; Brennan Yahata[1]; Jacob Hundley[1]; *Tobias Schaedler*[1]; [1]HRL Laboratories, LLC

11:10 AM
A Comparison of Mechanical Properties of Additively Manufacturing and Conventionally Manufactured Components: *Joy Forsmark*[1]; [1]Ford Motor Company

11:30 AM
Additive Manufacturing of Alloy 718 by Powder Bed Fusion Methods: *John Porter*[1]; Brian Hayes[1]; Kenneth Davis[2]; Holly Garich[3]; Francesco Simonetti[4]; [1]UES Inc; [2]CalRAM; [3]Faraday Technology, Inc.; [4]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
February 27, 2017

Room: 33C
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
Recent Applications of Micromechanical Modeling Directly Coupled with Advanced Characterization Techniques of Polycrystalline Materials: *Ricardo Lebensohn*[1]; Reeju Pokharel[1]; [1]Los Alamos National Laboratory

8:50 AM
Effects of Crystallographic Structure on Damage Evolution Using Diffraction-amalgamated Grain-boundary Tracking Technique: *Kyosuke Hirayama*[1]; Hiroyuki Toda[1]; Teruyuki Shimoji[1]; Yasuto Tanabe[1]; Kentaro Uesugi[2]; Akihisa Takeuchi[2]; [1]Kyushu University; [2]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 Khademi*[1]; Carl Boehlert[1]; Thomas Bieler[1]; Masahiko Ikeda[2]; Samantha Daly[3]; Zhe Chen[3]; [1]Michigan State University; [2]Kansai University; [3]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[1]; *Yongjuan Jing*[2]; Ben Britton[3]; [1]Imperial College London ; [2]Beijing Research Institute of Aviation Engineering; [3]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[1]; Hamidreza Abdolvand[2]; Zhen Zhang[3]; Fionn Dunne[3]; Angus Wilkinson[1]; [1]University of Oxford; [2]Western University; [3]Imperial College London

10:30 AM
Analysis of Strain Localization During Creep of a Polycrystalline Superalloy Using SEM-DIC: *Connor Slone*[1]; Michael Mills[1]; [1]The Ohio State University

10:50 AM
High Resolution Strain Measurements in a Polycrystalline Superalloy during Deformation at Intermediate Temperature: *J.C. Stinville*[1]; M.P. Echlin[1]; W.C. Lenthe[1]; F. Bridier[2]; M. Soare[3]; S. Ismonov[3]; P. Bocher[4]; T.M. Pollock[1]; [1]University of California Santa Barbara; [2]DCNS Research; [3]GE Global Research; [4]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*[1]; Elizabeth Holm[1]; [1]Carnegie Mellon University

11:30 AM
In-situ Neutron Diffraction Studies of Load Path Changes in 316L and AZ31: *Tobias Panzner*[1]; Tram Trang[1]; Karl Sofinowski[2]; Steven Van Petegem[1]; Manas Upadhyay[1]; Helena Van Swygenhoven[2]; [1]Paul Scherrer Institut; [2]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*[1]; Anirban Patra[2]; Wei Wen[2]; Steven Van Petegem[1]; Tobias Panzner[1]; Ricardo Lebensohn[2]; Carlos Tome[2]; Helena Van Swygenhoven[3]; [1]Paul Scherrer Institute; [2]Los Alamos National Laboratory; [3]Paul Scherrer Institute & EPFL

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 Militzer, The University of British Columbia

Monday AM
February 27, 2017

Room: 17A
Location: San Diego Convention Center

Session Chairs: Tilmann Hickel, Max-Planck-Institut für Eisenforschung; Dong Woo Suh, Pohang University of Science and Technology

8:30 AM Invited
Ab Initio Guided Design of High Strength Steels: Where Do We Stand?: *Joerg Neugebauer*[1]; Gerard Leyson[1]; Xie Zhang[1]; Fritz Koermann[1]; Blazej Grabowski[1]; Tilmann Hickel[1]; [1]Max-Planck-Institut fuer Eisenforschung

9:00 AM
Paving the Bridge from Ab Initio to Atomistic Modeling of Advanced High-strength Steels: *Christopher Barrett*[1]; Haitham El Kadiri[1]; Robert Moser[2]; [1]Mississippi State University; [2]US Army Corps of Engineers - ERDC

9:20 AM
Interface Guided Design of High-strength Steels: A Dream Coming True?: *Ivan Gutierrez-Urrutia*[1]; [1]National Institute for Materials Science

9:40 AM
Is Twinning Important for Twinning-induced Plasticity Steels?: *Mingxin Huang*[1]; [1]The University of Hong Kong

10:00 AM
New Law to Describe Plastic Anisotropy in BCC Metals: *Lucile Dezerald*[1]; David Rodney[2]; Emmanuel Clouet[3]; Lisa Ventelon[3]; François Willaime[3]; [1]Université de Lorraine; [2]Université Lyon 1; [3]CEA Saclay

10:20 AM Break

10:40 AM
Deformation-Induced Martensite: A Thermodynamic Study: *Gh. Ali Nemaollahi*[1]; Soundes Djaziri[1]; Yujiao Li[1]; Blazej Grabowski[1]; Christoph Kirchlechner[1]; Aleksander Kostka[2]; Shoji Goto[1]; Dierk Raabe[1]; Gerhard Dehm[1]; Jörg Neugebauer[1]; [1]Max-Planck Institut für Eisenforschung; [2]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*[1]; [1]Thermo-Calc Software AB

11:20 AM
Data Science Approaches for Predicting Fatigue Strength of Steels: *Ankit Agrawal*[1]; Alok Choudhary[1]; [1]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*[1]; [1]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
February 27, 2017

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*[1]; Eruj Arif[1]; Cameron Carroll[1]; Vincent Pilolli[1]; Snjezana Balaz[2]; [1]Department of Chemical Engineering, Youngstown State University; [2]Department of Physics and Astronomy, Youngstown State University

9:00 AM
A New Ni-free Beta-Ti Alloy with Large and Stable Room Temperature Super-elasticity: *Song Cai*[1]; J Schaffer[1]; [1]Fort Wayne Metals Research Products Corp.

9:20 AM
A Novel Strengthening Strategy Using Stacking Faults for Biomedical Co–Cr–Mo Alloys: *Kenta Yamanaka*[1]; Manami Mori[2]; Shigeo Sato[3]; Akihiko Chiba[1]; [1]Tohoku University; [2]National Institute of Technology, Sendai College; [3]Ibaraki University

9:40 AM
Additive Manufacturing of Titanium Orthopedic Implants: A Note on Process, Material, and Design: *Ebrahim Asadi*[1]; Warren Haggard[1]; [1]University 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*[1]; Nora Abu Bakr[1]; [1]German University in Cairo, GUC

10:40 AM
Biomimetic Tooth Repair: Amelogenin-derived Peptides Enable In Vitro and In Vivo Enamel Remineralization: *Deniz Yucesoy*[1]; Carolyn Gresswell[1]; Sanaz Saadat[1]; Hanson Fong[1]; Sami Dogan[1]; Mehmet Sarikaya[1]; [1]University of Washington

11:00 AM
Cellular Response of Escherichia Coli to Mg-2Zn-2Gd Alloy with Different Grain Structure: Mechanism of Disruption of Colonization: *Pramanshu Trivedi*[1]; K.C. Nune[1]; R.D.K. Misra[1]; A.K. Patel[2]; K. Balani[2]; R. Jayganthan[2]; [1]University of Texas at El Paso, Texas; [2]Indian Institute of Technology

11:20 AM
Characterization of Chitin Synthesized from Snail Shell: *Samson Adeosun*[1]; Oluwashina Gbenebor[1]; Emmanuel Akpan[1]; Adebayo Olaleye[1]; [1]University of Lagos

11:40 AM
Failure Analysis and Fatigue Properties of a New Generation ß-based Ti-Nb Alloy and Cp-4 Titanium Osteosynthesis Plates: *André Reck*[1]; Andreas Kaiser[2]; Stefan Pilz[1]; Ulrich Thormann[2]; Volker Alt[2]; Annett Gebert[3]; Christian Heiß[2]; Martina Zimmermann[1]; [1]Dresden University of Technology; [2]University Hospital Giessen-Marburg GmbH; [3]Leibniz Institute for Solid State and Materials Research Dresden

12:00 PM
Functionalization of Dental Titanium Implants for Improved Osteointegration: Genevieve Pourroy[1]; Fabienne Perrin-Schmitt[2]; Van Quang Le[1]; Mathilde Giraudel[1]; Caroline Fischer[2]; Géraldine Koenig[2]; Leandro Jacomine[3]; Luc Behr[4]; Alain Chalom[4]; Laurence Fiette[4]; Alexis Morlet[4]; *Adele Carradò*[1]; [1]Université de Strasbourg IPCMS; [2]Université de Strasbourg INSERM, UMRS1121; [3]Institute Charles Sadron; [4]Institut 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; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Monday AM
February 27, 2017

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[1]; Fabio Di Gioacchino[1]; Rocio Munoz-Moreno[1]; Mark Dixon[2]; Nigel Martin[2]; *William Clegg*[1]; [1]University of Cambridge; [2]Rolls-Royce plc

9:05 AM
In Situ TEM Imaging of Defects in Metallic Samples Deforming at High Strain Rates: *Thomas Voisin*[1]; Michael Grapes[1]; Yong Zhang[1]; Nicholas Lorenzo[2]; Jonathan Ligda[2]; Brian Schuster[2]; Tian Li[3]; Melissa Santala[3]; Geoffrey Campbell[3]; Timothy Weihs[1]; [1]Johns Hopkins University; [2]Army Research Laboratory; [3]Lawrence Livermore National Laboratory

9:25 AM
Investigating Grain Rotations in Ultrafine-grained Aluminum Films Using In Situ TEM Straining with Automated Crystal Orientation Mapping: *Ehsan Izadi*[1]; Amith Darbal[2]; Rohit Sarkar[1]; Jagannathan Rajagopalan[1]; [1]Arizona State University; [2]AppFive LLC.

9:45 AM Invited
A Greater Understanding of Deformation in BCC Nanocrystalline Metals Using Quantitative In Situ TEM Techniques: *Mitra Taheri*[1]; Gregory Vetterick[1]; Asher Leff[1]; M Marshall[2]; Khalid Hattar[2]; J. Kevin Baldwin[3]; Amit Misra[4]; [1]Drexel University; [2]Sandia National Laboratories; [3]Los Alamos National Laboratory; [4]University 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*[1]; [1]The University of Alabama

10:50 AM
A New Designed Rig for In Situ Neutron Diffraction Creep Experiments under Different Boundary Conditions: *Yiqiang Wang*[1]; Saurabh Kabra[2]; Shuyan Zhang[2]; Sayeed Hossain[1]; David Smith[1]; [1]University of Bristol; [2]ISIS, Science and Technology Facilities Council

11:10 AM
Progress in In-situ Testing in the Electron Microscope at Cryogenic Temperatures: *Jeffrey Wheeler*[1]; [1]ETH Zurich

11:30 AM
Dislocation Drag Coefficient Measurements via In-situ Micropillar Compression Experiments: *Tommaso Giovannini*[1]; Finn Giuliani[1]; Daniel Balint[1]; Ayan Bhowmik[1]; [1]Imperial 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 Balila*[1]; Jeffrey Wheeler[2]; Juri Wehrs[3]; James Best[3]; Johannes Michler[3]; Christoph Kirchlechner[1]; Gerhard Dehm[1]; [1]MPIE GmbH; [2]ETH Zurich; [3]EMPA-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
February 27, 2017

Room: 14B
Location: San Diego Convention Center

Session Chairs: Naiyang Ma, Arcelor Mittal; Randolph Kirchain, MIT

8:30 AM
Understanding Scrap Recycling and the Potential of Hand-held Elemental Analyzers: *Teija Mortvedt*[1]; Adam Gesing[2]; Subodh Das[3]; Gabrielle Gaustad[1]; Elsa Olivetti[4]; [1]Rochester Institute of Technology; [2]Gesing Consultants; [3]Phinix, LLC; [4]Massachusetts Institute of Technology

8:50 AM
Characteristics of Municipal Solid Waste Incineration Bottom Ash with Particulate Matters PM2.5 ~PM10: *Ahn Ji Whan*[1]; Thenepalli Thriveni[2]; [1]KOrea Research Institute of Geoscience and Mineral Resources(KIGAM); [2]Korea 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 Vahidi*[1]; Praneet Arshi[1]; Fu Zhao[1]; [1]Purdue University

9:30 AM
Scoping the Potential of Coal Ash as a Source of Rare Earth Elements: *Gabrielle Gaustad*[1]; Vasken Xhaxhollari[1]; Eric Williams[1]; Saptarshi Das[1]; [1]Rochester Institute of Technology

9:50 AM Break

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

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

10:50 AM
Development of a Separation Process of NBR/ HNBR Rubber from Metal Substrate: Mariana Nascimento[1]; *Sarah Scardelatto*[1]; [1]Centro Universitário Fundação Santo André

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

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

Monday AM
February 27, 2017

Room: 21
Location: San Diego Convention Center

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

8:30 AM Introductory Comments

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

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

9:15 AM Invited
Combinatorial Approach in Thermoelectric Materials Research: *Winnie Wong-Ng*[1]; Yonggao Yan[2]; Joshua Martin[1]; Makoto Otani[1]; Sara Barron[1]; Nam Nguyen[1]; Evan Thomas[3]; Kevin Talley[1]; Martin Green[1]; [1]NIST; [2]Wuhan University of Technology; [3]AFRL

9:35 AM
Data Science Approaches for Predicting Thermoelectric Properties: Al'ona Furmanchuk[1]; *Ankit Agrawal*[1]; Alok Choudhary[1]; [1]Northwestern University

9:55 AM Invited
High-Throughput Computational Screening for Two-Dimensional Thermoelectric Materials: *Lan Li*[1]; Izaak Williamson[1]; [1]Boise State University

10:15 AM Break

10:35 AM Invited
Thermoelectricity in Full-Heusler Systems:
From Ab-initio Calculations Towards Promising Materials Design: *Ernst Bauer*[1]; Igor Knapp[1]; Sergei Khmelevskyi[1]; Peter Prenninger[2]; [1]Vienna University of Technology; [2]AVL List

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

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

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

11:55 AM
Thermoelectric Properties of Synthesized Sulfides –Adjusted on First Principle Calculation for Screening-: *Tomohiro Sato*[1]; Shuhei Ishikawa[1]; Toshiki Akamune[1]; Ken-ichi Saitoh[1]; Masanori Takuma[1]; Yoshimasa Takahashi[1]; [1]Kansai University

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Plenary Session

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
February 27, 2017

Room: 15B
Location: San Diego Convention Center

Session Chair: HONG YONG SOHN, University of Utah

9:20 AM
Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies-Contributions of Professor Ramana Reddy: *Shijie Wang*[1]; [1]National Institute of Technology

9:50 AM
Towards the Innovation Economy:
An Industry Perspective on Radical Innovation
: Tom Hennebel[1]; Isabel Vermeulen[1]; Karolien Vasseur[1]; Lennart Scheunis[1]; Christina Meskers[1]; Marleen Esprit[1]; *Maurits Van Camp*[1]; [1]Umicore

10:20 AM Break

10:35 AM
Status of the Development of a Novel Flash Ironmaking Technology: *H.Y. Sohn*[1]; Yousef Mohassab[1]; Mohamed Elzohiery[1]; De Qiu Fan[1]; Amr Abdelghany[1]; [1]University of Utah

11:05 AM
Innovations and Insights in Fluid Flow and Slime Adhesion for Improved Copper Electrorefining: *Weizhi Zeng*[1]; Michael Free[1]; Shijie Wang[2]; [1]University of Utah; [2]Rio Tinto Kennecott Utah Copper

11:35 AM
Molten Flux Design for Solid Oxide Membrane-Based Electrolysis of Aluminum from Alumina: Shizhao Su[1]; Thomas Villalon[1]; *Uday Pal*[1]; [1]Boston University

12:05 PM
Effect of Slag Phase on Mixing and Mass Transfer in a Model Creusot Loire Uddeholm (CLU) Converter: *Rauf Eric*[1]; Admire Chaendera[1]; [1]University of the Witwatersrand

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
February 27, 2017

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*[1]; Seth Imhoff[2]; Damien Tourret[2]; John Gibbs[2]; James Mertens[2]; Younggil Song[3]; Kamel Fezzaa[4]; James Hunter[2]; Michelle Espy[2]; Frank Merrill[2]; Fesseha Mariam[2]; Carl Wilde[2]; Brian Patterson[2]; Ricardo Lebensohn[2]; Joseph McKeown[5]; John Roehling[5]; Theron Rodgers[6]; Jonathan Madison[6]; Paul Gibbs[6]; Kevin Baldwin[2]; Alain Karma[3]; [1]Colorado School of Mines; [2]Los Alamos National Laboratory; [3]Northeastern University; [4]Argonne National Laboratory; [5]Lawrence Livermore National Laboratory; [6]Sandia National Laboratories

8:50 AM
4D Synchrotron X-ray Tomography of Dendritic Microstructure Evolution in a Co Based Alloy during Solidification: *Mohammed Azeem*[1]; Peter Rockett[2]; Andre Phillion[3]; Shyamprasad Karagadde[1]; Robert Atwood[4]; Loic Courtois[1]; Peter Lee[1]; [1]Manchester University; [2]Oxford University; [3]McMaster University; [4]Diamond Light Source

9:10 AM
Quantifying Dendritic Evolution in Mg Alloys Using In Situ Synchrotron Tomography: *Enyu Guo*[1]; André Phillion[2]; Daniil Kazantsev[1]; Sansan Shuai[3]; Tao Jing[3]; Peter Lee[1]; [1]University of Manchester; [2]McMaster University; [3]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*[1]; Enzo Liotti[1]; Andrew Lui[1]; Sundaram Kumar[1]; Keyna O'Reilly[1]; Patrick Grant[1]; [1]University of Oxford

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

Application to Coarsening Dendritic Solid-Liquid Mixtures: *Yue Sun*[1]; Ahmet Cecen[2]; Surya Kalidindi[2]; Peter Voorhees[1]; [1]Northwestern University; [2]Georgia Institute of Technology

10:10 AM Break

10:30 AM
Four Dimensional Real-time Studies of Metal Solidification under External Fields: *Wenjia Du*[1]; Chuangnan Wang[1]; Billy Koe[1]; Jiawei Mi[1]; [1]University of Hull

10:50 AM
Scandium Effect on Undercooling and Dendrite Morphology of Al–4.5 wt.%Cu Droplets: *Jonas Valloton*[1]; Abdoul-Aziz Bogno[1]; Daniel Auras[1]; Marie Bedel[2]; Guillaume Reinhart[3]; Hani Henein[1]; [1]University of Alberta; [2]ENSAM; [3]Aix Marseille Univ, CNRS, IM2NP

11:10 AM
Fluid Flow and Its Influence on Crystal Growth Kinetics in Undercooled Melts: *Dieter Herlach*[1]; Sven Reutzel[1]; Sven Binder[1]; Hailong Peng[1]; Thomas Voigtmann[1]; [1]Deutsches Zentrum für Luft- und Raumfahrt

11:30 AM
In-situ Observation of Multiple Equiaxed Dendrite Interaction under Reduced Gravity Conditions: *Laszlo Sturz*[1]; Janin Eiken[1]; Gerhard Zimmermann[1]; [1]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
February 27, 2017

Room: Pacific 21
Location: Marriott Marquis Hotel & Marina

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

8:30 AM Invited
Principles of Molecular Biomimetics versus Materials Science and Engineering: *Mehmet Sarikaya*[1]; [1]University of Washington

9:10 AM Invited
Materials Construction through Peptide Design and Solution Assembly: *Darrin Pochan*[1]; [1]University of Delaware

9:40 AM Invited
Interfaces Drive the Mechanics of Hard Biological Materials: Discrete Element Models and Bioinspired Prototypes: *Francois Barthelat*[1]; [1]McGill University

10:10 AM Break

10:30 AM Invited
Engineering Solid Binding Proteins to Control Functional Nanostructure Assembly, Solid Interactions and Inorganic Mineralization: *François Baneyx*[1]; [1]University of Washington

11:10 AM
Quasiparticle Approach to Self-assembly Kinetics of DNA and RNA Molecules: *Helena Zapolsky*[1]; Mykola Lavrskyi[1]; Armen Khachaturyan[2]; [1]University of Normandy, Rouen; [2]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
February 27, 2017

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*[1]; Clara Minas[1]; Davide Carnelli[1]; Elena Tervoort[1]; [1]ETH Zurich

9:00 AM
Intrinsic and Extrinsic Control of Bioinspired Freeze Casting: *Steven Naleway*[1]; Marc Meyers[2]; Joanna McKittrick[2]; [1]University of Utah; [2]University of California, San Diego

9:20 AM
Bio-inspired Flexible Armors with 3D Printed Tailored Architectures: *Roberto Martini*[1]; Yanis Balit[1]; David VanZyl[1]; Francois Barthelat[1]; [1]McGill University

9:40 AM
Fabrication and Characterization of Bioinspired Alumina with a Bulk Metallic Glass Matrix: *Amy Wat*[1]; Jein Lee[2]; Bernd Gludovatz[3]; Eun Soo Park[2]; Robert Ritchie[1]; [1]University of California, Berkeley; [2]Seoul National University; [3]Lawrence Berkeley National Laboratory

10:00 AM Break

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

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

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

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

Bulk Metallic Glasses XIV — Alloy Development and Application 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

Monday AM
February 27, 2017

Room: 33A
Location: San Diego Convention Center

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

8:30 AM Keynote
Buckle Modes: A Simple Model for the Thermodynamics of Configurational Excitations in Metallic Glass Forming Liquids: *William Johnson*[1]; [1]California Institute of Technology

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

9:20 AM Invited
The Development, Manufacturing and Testing of New Robotics Gearbox Enabled by Bulk Metallic Glass (Part 2): *Douglas Hofmann*[1]; Scott Roberts[1]; Peter Dillon[1]; [1]NASA JPL/Caltech

9:40 AM Invited
Manufacturing of Metallic Glasses by Rapid Discharge Forming: *Marios Demetriou*[1]; William Johnson[2]; [1]Glassimetal Technology; [2]California Institute of Technology

10:00 AM Invited
Interface-Mediated Monatomic Metallic Glasses Formation Through Ultrafast Liquid Quenching: Li Zhong[1]; Jiangwei Wang[1]; Hongwei Sheng[2]; Ze Zhang[3]; *Scott Mao*[1]; [1]University of Pittsburgh; [2]George Mason University; [3]Zhejiang University

10:20 AM Break

10:40 AM Invited
Fabrication and Characterization of Roll Bonded, Laminated Bulk Metallic Glass/Metal Composites: Sina Shahrezaei[1]; Stephanie O'Keeffe[2]; Irene Beyerlein[3]; *Suveen Mathaudhu*[1]; [1]University of California Riverside; [2]Liquidmetal Techologies, Inc.; [3]University of California, Santa Barbara

11:00 AM Invited
Improving the Fracture Toughness of Bulk Metallic Glasses by Thermomechanical Treatments: *Jamie Kruzic*[1]; Bosong Li[1]; Shenghui Xie[2]; Hamed Shakur Shahabi[3]; Sergio Scudino[3]; Jürgen Eckert[4]; [1]UNSW Australia; [2]Shenzhen University; [3]IFW Dresden; [4]Montanuniversität Leoben

11:20 AM Invited
Formation and Properties of Biodegradable Mg-Zn-Ca-Sr Bulk Metallic Glasses for Biomedical Applications
: *Shujie Pang*[1]; Haifei Li[1]; Ying Liu[1]; Peter K. Liaw[2]; Tao Zhang[1]; [1]Beihang University; [2]University of Tennessee

11:40 AM Invited
Critical Cooling Rate versus Critical Heating Rate in BMG-forming Alloys: C.W. Ryu[1]; *E.S. Park*[1]; G.W. Lee[2]; K.F. Kelton[3]; [1]Seoul National University; [2]Korea Research Institute of Standards and Science; [3]Washington University

Ceramic Materials for Nuclear Energy Research and Applications — Microstructural Evolution under Irradiation in Oxide Ceramics

Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Monday AM
February 27, 2017

Room: Palomar
Location: Marriott Marquis Hotel & Marina

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

8:30 AM Invited
Ceramic Materials for Nuclear Energy Research and Applications: *Kurt Sickafus*[1]; [1]University of Tennessee

9:00 AM
Alpha-damage Formation in Mixed Americium-uranium Compounds: *Thierry Wiss*[1]; Oliver Dieste[1]; Rudy Konings[1]; Ondrej Benes[1]; Jean-Yves Colle[1]; Joaquina Zappey[1]; Florent Lebreton[2]; Thibaud Delahaye[2]; Enrica Epifano[2]; Philippe Martin[2]; Christine Guéneau[2]; Damien Prieur[1]; Joe Somers[1]; [1]European Commission; [2]CEA

9:20 AM
Microstructural Characterization of the Processes, Stability, and End-of-Range Effects in Heavily Irradiated Pyrochlores: *Terry Holesinger*[1]; James Valdez[1]; Cortney Kreller[1]; Yongqiang Wang[1]; Blas Uberuaga[1]; [1]Los Alamos National Laboratory

9:40 AM
Probing Oxygen Defects in Ion Irradiated Actinide and Analogue Oxides Using Neutron Total Scattering: *Raul Palomares*[1]; Jacob Shamblin[1]; Cameron Tracy[2]; Christina Trautmann[3]; Maik Lang[1]; [1]The University of Tennessee; [2]Stanford University; [3]GSI Helmholtzzentrum für Schwerionenforschung

10:00 AM Break

10:20 AM Invited
High Burn-up Nuclear Fuel, Impact of Fission Gases: *Jean Noirot*[1]; Philippe Bienvenu[1]; Isabelle Zacharie-Aubrun[1]; Karine Hanifi[1]; Laurent Fayette[1]; Aurelien Moy[1]; Yves Pontillon[1]; [1]CEA

10:50 AM Invited
Irradiation Effects on Electrochemical Performance of TiO2 Anode: *Janelle Wharry*[1]; Kassiopeia Smith[2]; Hui Xiong[2]; Darryl Butt[3]; [1]Purdue University; [2]Boise State University; [3]University of Utah

11:20 AM
Role of Ion Species in Radiation Effects of Lu2Ti2O7: Dongyan Yang[1]; *Yuhong Li*[1]; [1]Lanzhou University

11:40 AM
In-Situ Tritium Measurements from γ-LiAlO2 Pellets Irradiated in TMIST-3A: *Walter Luscher*[1]; David Senor[1]; Kevin Clayton[2]; [1]Pacific Northwest National Laboratory; [2]Idaho 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
February 27, 2017

Room: 25B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
High Resolution Coherent Imaging for Materials: *Anthony Rollett*[1]; [1]Carnegie Mellon University

9:10 AM
Applications of High Resolution Coherent X-Ray Imaging Techniques for Investigating Additively Manufactured Materials: *Ross Cunningham*[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

9:30 AM
3D Imaging of High-pressure Induced Deformation Twinning in a Nanocrystal: *Xiaojing Huang*[1]; Wenge Yang[2]; Ross Harder[3]; Yugang Sun[4]; Ming Lu[1]; Yong Chu[1]; Ian Robinson[5]; Ho-kwang Mao[2]; [1]Brookhaven National Laboratory; [2]HPSTAR; [3]Advanced Photon Source; [4]Center for Nanoscale Materials; [5]University College London

9:50 AM
Nanoscale Chemical Imaging of an Individual Catalyst Particle with Soft X-ray Ptychography: *Johanna Weker*[1]; Anna Wise[1]; Sam Kalirai[2]; Maryam Farmand[3]; David Shapiro[3]; Florian Meirer[2]; Bert Weckhuysen[2]; [1]SLAC National Accelerator Laboratory; [2]Utrecht University; [3]Lawrence Berkeley National Laboratory

10:10 AM Break

10:30 AM
3D X-ray Imaging of Defect Dynamics in Nanostructured Materials: *Andrew Ulvestad*[1]; [1]Argonne National Laboratory

11:00 AM
Characterizing Evolving Processes through Coupled CDI and Molecular Dynamics Studies: *Mathew Cherukara*[1]; Kiran Sasikumar[1]; Subramanian Sankaranarayanan[1]; Ross Harder[1]; [1]Argonne National Lab

11:30 AM
Coherent Diffractive Imaging with Wavelength Spatial Resolution using 13.5nm High Harmonics: Full Field, High-contrast Imaging on a Tabletop: Dennis Gardner[1]; Michael Tanksalvala[1]; Elisabeth Shanblatt[1]; Xiaoshi Zhang[2]; Benjamin Galloway[1]; Christina Porter[1]; Robert Karl[1]; Charles Bevis[1]; *Margaret Murnane*[1]; Henry Kaptyen[1]; Daniel Adams[1]; Giulia Mancini[1]; [1]University of Colorado; [2]KM Labs

11:50 AM
Revolutions in Coherent X-ray Sources Will Enable Dynamic Nanometer Scale Strain Imaging in Structural Materials: *Richard Sandberg*[1]; Saryu Fensin[1]; Ross Harder[2]; John Barber[1]; Richard Sheffield[1]; Reeju Pokharel[1]; Ricardo Lebensohn[1]; Cris Barnes[1]; [1]Los Alamos National Laboratory; [2]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, 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

Monday AM
February 27, 2017

Room: 32B
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*[1]; Anil Saigal[1]; Michael Zimmerman[1]; [1]Tufts University

8:50 AM
Aging Behaviour in $Ni_{0.5}Co_xMn_{2.5-x}O_4$ (x=0.5, 0.8 and 1.1) Thermistors: *Gökhan Hardal*[1]; Berat Yüksel Price[1]; [1]Istanbul University

9:10 AM
Adsorption of Lead from Aqueous Solutions to Bentonite and Composite: *Zhu Shu Jing*[1]; Ying Qin[2]; [1]Michigan Technological University; [2]Wuhan University of Technology

9:30 AM
Fabrication of Transparent Lanthana-doped Yttria Ceramics by Spark Plasma Sintering
: *Esin Korkmaz*[1]; [1]Istanbul Technical University

9:50 AM
Microstructure and Mechanical Properties of Silicon Doped Boron Carbide: *Luoning Ma*[1]; Fatih Toksoy[2]; Kelvin Xie[1]; Kanak Kuwelkar[2]; Richard Haber[2]; Kevin Hemker[1]; [1]Johns Hopkins University; [2]Rutgers University

10:10 AM Break

10:25 AM
Synthesis and Characterization of Textured BCZT Ceramics Prepared by Molten Salt Synthesis Method: Jai Shree K[1]; Chandrakala E[1]; *Dibakar Das*[1]; [1]University of Hyderabad

10:45 AM
Mechanical Analysis of Artificial Stone Produced with Glass Waste in Polymeric Matrix: Lucas Martins[1]; *Carlos Maurício Vieira*[1]; Elaine Carvalho[1]; Sérgio Monteiro[2]; [1]UENF; [2]IME

11:05 AM
Phase Transformation of Andalusite-Mullite and Its Roles to Microstructure and Sinterability of Refractory Ceramic: *Bowen Li*[1]; Mengsheng He[1]; Huaguang Wang[1]; [1]Michigan Technological University

11:25 AM
Structural Characterization of LaxSr1-xCoO3 (LSC 113) / (LaxSr1-x)2CoO4 (LSC 214) Hetero-Interface Cathode for Intermediate Temperature Solid Oxide Fuel Cells: *Dogancan Sari*[1]; Eren Kalay[1]; Tayfur Ozturk[1]; [1]METU

11:45 AM
Production and Characterization of Magnesium Aluminate Spinel (MgAl2O4) Ceramics with Ligth Transmission by Spark Plasma Sintering: *Seyran Saridas*[1]; Filiz Sahin[1]; [1]Istanbul Technical University

Characterization of Minerals, Metals, and Materials — Soft 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 ; 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 AM
February 27, 2017

Room: 31B
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 Heili*[1]; Andrew Bielawski[2]; John Kieffer[2]; [1]University of Michigan ; [2]University of Michigan

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

9:10 AM
Comparative Analysis of Curaua Fiber Density Using the Geometric Characterization and Pycnometry Technique: *Natália Maciel*[1]; Carolina Ribeiro[1]; Janaina Vieira[1]; Jordana Ferreira[1]; Frederico Margem[1]; Carlos Maurício Vieira[1]; Sérgio Monteiro[2]; Cláudio Roberto Marciano[1]; [1]UENF; [2]IME

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

9:50 AM
Tensile Behavior of Epoxy Matrix Composites Reinforced with Eucalyptus Fibers: *Caroline Gomes de Oliveira*[1]; Anna Carolina Cerqueira Neves[1]; Gilson Vieira Fernandes[1]; Marcos Vinícius Fonseca Ferreira[1]; Frederico Margem Muylaert[2]; Sérgio Neves Monteiro[3]; [1]UENF - Universidade Estadual do Norte Fluminense; [2]Faculdade Redentor; [3]Instituto Militar de Engenharia

10:10 AM Break

10:25 AM
Izod Toughness Behavior of Continuous PALF Fibers Reinforced Polyester Matrix Composites: *Gabriel Glória*[1]; Giulio Altoé[2]; Maycon Gomes[3]; Maria Carolina Teles[1]; Frederico Muylaert[1]; Carlos Mauricio Vieira[1]; Sérgio Monteiro[4]; [1]State University of the Northern Rio de Janeiro; [2]Pontifícia Universidade Católica do Rio de Janeiro; [3]Instituto Federal Fluminense; [4]Instituto 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: Julyana Santana[1]; Angel Ortiz[1]; Rene Oliveira[1]; Vijaya Rangari[2]; Olgun Güven[3]; *Esperidiana Moura*[1]; [1]Instituto de Pesquisas Energéticas e Nucleares; [2]Tuskegee University; [3]Hacettepe University, Department of Chemistry, Polymer Chemistry Division

11:05 AM
Izod Impact Tests in Epoxy Matrix Reiforced with Fique Fibers: Maria Carolina Teles[1]; Sérgio Monteiro[2]; Djalma Souza[1]; *Frederico Margem*[3]; [1]State University of the Northern Rio de Janeiro; [2]Instituto Militar de Engenharia; [3]Faculdade Redentor

11:25 AM
Radiation Effects on Crosslinking of Butyl Rubber Compounds: *Sandra Scagliusi*[1]; Elizabeth Cardoso[1]; Ademar Lugao[1]; [1]IPEN

11:45 AM
Viscoelastic Properties of Human Dental Pulp Tissue: *Burak Ozcan*[1]; Ece Bayrak[1]; Cevat Erisken[1]; [1]TOBB University of Economics and Technology

12:05 PM
The Dimensional Characterization of Jute Fabric Strips for Reinforcement in Composite Polymeric: *Frederico Margem*[1]; Sergio Monteiro[2]; Vinícius de Oliveira Barbosa[3]; Glênio Fernando Daniel[3]; André Raeli Gomes[3]; Victor Barbosa de Souza[3]; [1]UENF; [2]IME; [3]Redentor

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

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

Monday AM
February 27, 2017

Room: 11A
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
Invariant Representations for Robust Materials Prediction: *Gus Hart*[1]; Conrad Rosenbrock[1]; Gábor Csányi[2]; [1]Brigham Young University; [2]Cambridge University

9:00 AM
A Tetrahedron Tiling Method for Crystal Structure Prediction: *Qijun Hong*[1]; Axel van de Walle[1]; [1]Brown University

9:20 AM
An Unsupervised Pattern Recognition Approach for Local Structural Analysis of Condensed Matter: *Arash Dehghan Banadaki*[1]; Srikanth Patala[1]; [1]North Carolina State University

9:40 AM
A Tree Search Approach to Designing Kinematically Active Molecular Materials: Charles Manion[1]; Ryan Arlitt[1]; Laura de Sousa Oliveira[2]; Matthew Campbell[1]; *P Greaney*[2]; [1]Oregon State University; [2]University of California, Riverside

10:00 AM Break

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

10:45 AM
Design of Experiments Approach to Optimizing Complex Bond Order and Reactive Potentials: *Efrain Hernandez-Rivera*[1]; Souma Chowdhury[2]; Mark Tschopp[1]; Shawn Coleman[1]; [1]U.S. Army Research Lab; [2]University of Buffalo

11:05 AM
The OpenKIM Testing Framework for Interatomic Potentials
: *Ellad Tadmor*[1]; Ryan Elliott[1]; Daniel Karls[1]; Matthew Bierbaum[2]; James Sethna[2]; [1]University of Minnesota; [2]Cornell University

11:25 AM
On the Fly Materials Design Using Efficient Global Optimization Techniques
: *Anjana Talapatra*[1]; Thien Duong[1]; Raymundo Arroyave[1]; [1]Texas A&M University

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

Computational Thermodynamics and Kinetics — Microstructure Evolution 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

Monday AM
February 27, 2017

Room: 11B
Location: San Diego Convention Center

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

8:30 AM Invited
Predicting the Evolution of He Precipitate Networks in Metals Using Phase-field Models: Dina Yuryev[1]; *Michael Demkowicz*[2]; [1]Massachusetts Institute of Technology; [2]Texas A&M University

9:00 AM
3-D Phase-field Modeling of Electromigration-induced Damage in Polycrystalline Thin Films : Grain-boundary Slit Propagation and Hillock Formation: *Arnab Mukherjee*[1]; Kumar Ankit[2]; Britta Nestler[2]; [1]Karlsruhe University of Applied Sciences; [2]Karlsruhe Institute of Technology

9:20 AM
Capillary-Mediated Interfacial Perturbation Fields: Their Exposure via Phase Field Equilibration: *Martin Glicksman*[1]; Kumar Ankit[2]; [1]Florida Institute of Technology; [2]Karlsruhe Institute of Technology (KIT), Campus South

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

10:00 AM Break

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

10:50 AM
Strong Interfacial Energy Anisotropy in the PRISMS-PF Phase Field Model Code: *William Andrews*[1]; Stephen DeWitt[1]; Shiva Rudraraju[1]; Larry Aagesen[2]; Katsuyo Thornton[1]; [1]University of Michigan; [2]Idaho National Lab

11:10 AM
First-principles/Phase-field Modeling of Equilibrium □^' Precipitation in Al-Cu Alloys: *Kyoungdoc Kim*[1]; M. P. Gururajan[2]; C. Wolverton[1]; P. W. Voorhees[1]; [1]Northwestern University; [2]Indian Institute of Technology Bombay

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

Defects and Properties of Cast Metals — Defects I - Molten Metal and Inclusions

Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Monday AM
February 27, 2017

Room: 23A
Location: San Diego Convention Center

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[1]; John Coleman[2]; Amy Marconnet[1]; *Matthew Krane*[2]; [1]School of Mechanical Engineering, Purdue University; [2]School of Materials Engineering, Purdue Center for Metal Casting Research, Purdue University

8:55 AM Invited
Casting Defects Prediction and Control in GE's Brilliant Factory: *Lang Yuan*[1]; Ade Makinde[1]; Huijuan Dai[1]; Aymeric Moinet[1]; Matteo Bellucci[1]; [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*[1]; Laurentiu Nastac[1]; Luke Brewer[1]; Vishweshwar Arvikar[2]; Ilya Levin[2]; [1]The University of Alabama; [2]Nemark Alabama

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

9:55 AM Break

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

10:35 AM
Modeling of Mechanical Properties of Al Oxide Films Using Molecular Dynamics: *Jialin Liu*[1]; Qigui Wang[2]; Yue Qi[1]; [1]Michigan State University; [2]General Motors Company

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

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

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

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

Deformation and Transitions at Interfaces — Grain Boundary Structure

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

Monday AM
February 27, 2017

Room: 23B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
Influence of Grain Boundary Structure and Character on the Deformation Mechanisms of Grain Boundaries
: *Diana Farkas*[1]; Bryan Kuhr[1]; Ian Robertson[2]; Gary Was[3]; [1]Virginia Tech; [2]University of Wisconsin; [3]University of Michigan

8:50 AM Invited
Quantifying Structure-Property Relationships of Grain Boundaries and Interfaces at the Atomic Scale for Design of Polycrystalline Materials: *Mark Tschopp*[1]; [1]Army Research Laboratory

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

9:30 AM Invited
Alloy Stabilization of Nanocrystalline Grain Structures: Case Study of Pt-Au: *Stephen Foiles*[1]; Christopher O'Brien[1]; Ping Lu[1]; Michael Chandross[1]; Nicholas Argibay[1]; Brad Boyce[1]; [1]Sandia National Laboratories

9:50 AM Invited
Kinetic Monte Carlo Simulations of Grain Boundary Kinetic Events: *Kathleen Alexander*[1]; Christopher Schuh[1]; [1]Massachusetts Institute of Technology

10:10 AM Break

10:30 AM Invited
The Role of Collective Atomic Motion on Interface Migration and Deformation: *Hao Zhang*[1]; [1]University of Alberta

10:50 AM Invited
Grain Boundaries, Disorder, and Mass Transport in Complex Oxides: *Blas Uberuaga*[1]; Romain Perriot[1]; [1]Los Alamos National Laboratory

11:10 AM
Non-Arrhenius Grain Growth, Interfacial Complexion Transitions and the Grain Boundary Character Evolution in SrTiO3: *Madeleine Kelly*[1]; Gregory Rohrer[1]; Wolfgang Rheinheimer[2]; Michael Hoffmann[2]; [1]Carnegie Mellon University; [2]KIT

11:30 AM Invited
The Impact of Irradiation Dose Rate and Temperature on Grain Structure Evolution in Nuclear Fuel: *Michael Tonks*[1]; [1]Pennsylvania State University

11:50 AM Invited
The Effect of Interface Elastic Fields on Interface Sink Strengths: Aurelien Vattre[1]; Thomas Jourdan[1]; Hepeng Ding[2]; Cosmin Marinica[1]; *Michael Demkowicz*[2]; [1]CEA; [2]Texas A&M University

12:10 PM Invited
Virtual Diffraction of Grain Boundaries: Characterize, Optimize, and Drive Motion
: *Shawn Coleman*[1]; [1]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: 30E
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*[1]; Chien-Min Liu[1]; Tien-Lin Lu[1]; Han-wen Lin[1]; Yi Cheng Chu[1]; Chia-Ling Lu[1]; Jing-Ye Juang[1]; Kuan-Neng Chen[1]; King-Ning Tu[2]; [1]National Chiao Tung University; [2]University of California at Los Angeles

8:50 AM
The Materials Science of Solder Joints in Cu Pillar/Interposer Geometries: Francis Mutuku[1]; Mohammed Genanu[2]; Babak Arfaei[3]; *Eric Cotts*[2]; Eric Perfecto[4]; [1]Universal Instruments; [2]Binghamton University; [3]Ford Motor Co; [4]Global Foundries

9:10 AM
Mechanisms of Copper Pumping and Its Impact on the Reliability of 3D Electronic Devices: *Hanry Yang*[1]; Tae-Kyu Lee[2]; Indranath Dutta[1]; [1]Washington State University; [2]Portland State University

9:30 AM
Influence of Annealing Conditions on the Microstructure of Cu-filled Through-silicon Vias: *Zhao Xuewei*[1]; Limin Ma[1]; Fu Guo[1]; [1]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: *Leh-Ping Chang*[1]; Hsin-Yuan Chen[1]; Fan-Yi Ouyang[1]; [1]National Tsing Hua University

10:30 AM
Fabrication and Characterisation of Electroplated Nanotwinned-copper Films on Polymer Substrates: *Liang-Hsien Chang*[1]; Chih Chen[2]; Dyi-Chung Hu[3]; Ray Tain[4]; Yu-Hua Chen[4]; [1] National Chiao Tung University; [2]National Chiao Tung University; [3]SiPlus Company; [4]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*[1]; Fei-Yi Hung[1]; Truan-Sheng Lui[1]; [1]National Cheng Kung University

11:10 AM
In-situ Evolution of the Nanoporous Microstructure of Sintered Ag at High Temperature: Azdine Nait-Ali[1]; Diouwel Tandiang[1]; Marc Legros[2]; Yijin Liu[3]; Douglas Van Campen[3]; *Xavier Milhet*[1]; [1]Institut Pprime CNRS; [2]CEMES CNRS; [3]SLAC National Accelerator Laboratory

Energy Materials 2017: Materials for Energy Conversion with Emphasis on SOFC — Session I

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

Monday AM — Room: 12
February 27, 2017 — Location: San Diego Convention 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*[1]; Jeffry Stevenson[1]; [1]Pacific Northwest National Laboratory

9:05 AM
Oxygen Reduction Reaction Mechanisms on Ruddlesden-Popper Cathodes for Intermediate-Temperature Solid Oxide Fuel Cells: Wenyuan Li[1]; Bo Guan[1]; Xinxin Zhang[1]; *Xingbo Liu*[1]; [1]West Virginia University

9:25 AM Invited
Oxygen Reduction Reaction at the Cathode of Solid Oxide Fuel Cell Enhanced with oxide particles: *Changrong Xia*[1]; [1]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*[1]; Enrique Ruiz-Trejo[1]; Antonio Bertei[1]; Farid Tariq[1]; Vladimir Yufit[1]; Nigel Brandon[1]; [1]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*[1]; Manuel Würth[2]; Boshan Mo[1]; Uday Pal[1]; Srikanth Gopalan[1]; Soumendra Basu[1]; [1]Boston University; [2]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*[1]; Devin Harkins[1]; Kyle Brinkman[1]; [1]Clemson University (CU)

11:10 AM
Mitigation of Chromium Poisoning in Solid Oxide Fuel Cells: *Jeffrey Fergus*[1]; [1]Auburn University

Energy Materials 2017: Materials for Gas Turbines — Coatings

Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group

Monday AM
February 27, 2017

Room: 13
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*[1]; Vaishak Vishwanathan[1]; Gopal Dwivedi[1]; [1]Stony Brook University

9:10 AM Invited
Thermal Barrier Coatings for More Efficient Gas-Turbine Engines: *Nitin Padture*[1]; [1]Brown University

9:40 AM
Evolution of the Thermal Conductivity of Sm2Zr2O7 under CMAS Attack: Ahmet Bakal[1]; Kai Roebbecke[1]; Honglong Wang[1]; Wenzhuo Deng[1]; Xingxing Zhang[1]; *Jeffrey Fergus*[1]; [1]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*[1]; [1]Oak Ridge National Laboratory

10:50 AM
Thermal Gradient Mechanical Fatigue Testing and Life Modeling of Thermal Barrier Coating Systems: *Zhongjiao Zhou*[1]; Changpeng Li[2]; Guofeng Chen[2]; Xu Hua[2]; [1]Tsinghua University; [2]Corporate Technology, Siemens

11:10 AM
Porous Yttria-stabilized Zirconia Microspheres for Advanced Reflective Thermal Barrier Coatings: *Ricardo Castro*[1]; Pieter Stroeve[1]; Roland Faller[1]; Maria Perez-Page[1]; Dereck Muche[1]; [1]University of California, Davis

11:30 AM Invited
Electrodeposited MCrAlY Coatings for Gas Turbine Engine Applications: *Ying Zhang*[1]; [1]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
February 27, 2017

Room: 14A
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Keynote
Stabilizing Nanostructures in Metals via Interface Architectures: Xiaochun Liu[1]; *Ke Lu*[1]; [1]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*[1]; [1]Colorado School of Mines

9:30 AM Invited
Bulk Nanomaterials with Superior Strength and Thermostability: *Ruslan Valiev*[1]; Ilchat Sabirov[2]; Maxim Murashkin[3]; Nariman Enikeev[3]; [1]Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; [2]IMDEA Materials Institute; [3]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*[1]; [1]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*[1]; James Kelly[2]; Gauri Khanolkar[3]; Michael Rauls[4]; Andrea Hodge[3]; Veronica Eliasson[3]; [1]University of California San Diego; [2]Alfred University; [3]University of Southern California; [4]California Institute of Technology

11:20 AM
The World of Water Reactive or Degradable Alloys: Oilfield, Defense, Bio-Medical and Beyond: *Indranil Roy*[1]; [1]Schlumberger

11:50 AM
Sensitivity Variation of Nanomaterials at Different Operating Temperature Conditions: *Enobong Bassey*[1]; Philip Sallis[2]; Krishnamachar Prasad[2]; [1]Coventry University; [2]Auckland University of Technology

Energy Materials 2017: Materials in Clean Power — Session I

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

Monday AM
February 27, 2017

Room: 15A
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*[1]; Amit Shyam[1]; Sumit Bahl[2]; Charles Hawkins[1]; Dana McClurg[1]; [1]Oak Ridge National Laboratory; [2]Indian Institute of Science

9:00 AM
Microstructural Stability of High Cr Containing FeCrAl Alloys with Minor Alloying Additions: *Yukinori Yamamoto*[1]; Bruce Pint[1]; Benjamin Shassere[2]; Sudarsanam Babu[2]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

9:20 AM Invited
Effect of Pressure and Thermal Cycling on Compatibility in CO2 for Concentrated Solar Power Applications: *Bruce Pint*[1]; Robert Brese[1]; James Keiser[1]; [1]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*[1]; Bin Zhu[1]; [1]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 Mumm*[1]; [1]University of California-Irvine

11:00 AM
Early Stage Oxidation of Alloy 617 in CO_2 Power Cycle Environments: *Richard Oleksak*[1]; John Baltrus[1]; Casey Carney[1]; Jinichiro Nakano[1]; Anna Nakano[1]; Gordon Holcomb[1]; Omer Dogan[1]; [1]National Energy Technology Laboratory

11:20 AM
Nickel-doped Titania Nanotube Arrays and Their Application in Hydrogen Production: *Joaquin Tirano Vanegas*[1]; Hugo Zea[1]; Claudia Luhrs[2]; [1]Universidad Nacional de Colombia; [2]Naval Postgraduate School

11:40 AM
Phase Relation Prediction for $Ag_xCu_{1-x}Ga_yIn_{1-y}Se_2$ PV Absorber Layers: Zhi Li[1]; Christopher Muzzillo[1]; Shun-li Shang[2]; Jianyun Shen[3]; Po-Hsin Liao[1]; Zi-kui Liu[2]; *Timothy Anderson*[1]; [1]University of Florida; [2]Pennsylvania State University; [3]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
February 27, 2017

Room: 31A
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 Comments Speaker: Prof. Ian Robertson / Bai Cui

8:45 AM Invited
Linking Hydrogen-enhanced Plasticity to Hydrogen-induced Failure Mode: Kelly Nygren[1]; Shuai Wang[2]; *Ian Robertson*[2]; [1]University of Illinois; [2]University of Wisconsin-Madison

9:25 AM
Effects of Trace Impurities on the Strength and Fracture of Hydrogen-Charged Ni-201: *Samantha Lawrence*[1]; Richard Karnesky[1]; Khalid Hattar[1]; Stephen Foiles[1]; Brian Somerday[2]; [1]Sandia National Laboratories; [2]Southwest Research Institute

9:45 AM
Macro- and Micro-scale Study of Hydrogen Susceptibility of Advanced High Strength Sheet Steels: *Yiran Lu*[1]; Shrikant Bhat[2]; Clyde Briant[1]; Sharvan Kumar[1]; [1]Brown University; [2]ArcelorMittal, Global R&D

10:05 AM Break

10:20 AM Invited
Hydrogen-Induced Fracture: From Fundamentals to Prognosis: *Petros Sofronis*[1]; Mohsen Dadfarnia[1]; Akihide Nagao[2]; Shuai Wang[3]; May Martin[1]; Brian Somerday[4]; Reiner Kirchheim[5]; Robert Ritchie[6]; Ian Robertson[3]; [1]University of Illinois; [2]JFE Steel Corporation; [3]University of Wisconsin; [4]South West Research Institute; [5]Georg-August-Universität Göttingen; [6]University of California-Berkeley

11:00 AM
Atomic Insights on Hydrogen Embrittlement in Iron: Ilaksh Adlakha[1]; *Kiran Solanki*[1]; [1]Arizona State University

11:20 AM
Effects of Internal and External Hydrogen Environments on Crack Growth in an Iron Based Superalloy: *Neville Moody*[1]; Warren Garrison[2]; S. Robinson[1]; M. Perra[1]; William W. Gerberich[3]; [1]Sandia National Laboratories; [2]Carnegie Mellon University; [3]University of Minnesota

11:40 AM
Hydrogen Embrittlement and Hydrogen-enhanced Strain-induced Vacancies in a-iron: *Yuya Matsumoto*[1]; Nami Kurihara[1]; Hiroshi Suzuki[1]; Kenichi Takai[1]; [1]Sophia 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
February 27, 2017

Room: 23C
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 Wisner[1]; Ryan Whitmore[1]; Konstantinos Baxevanakis[1]; *Antonios Kontsos*[1]; [1]Drexel University

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

9:10 AM
Strain Field Mining of Cyclic Damage Accumulation in Nonwoven Fiber Composites: *Yoon Joo Na*[1]; James Collins[1]; Christopher Muhlstein[1]; [1]Georgia Institute of Technology

9:30 AM Invited
Correlation of Microstructural Configurations to Fatigue Indicator Parameters: *Sushant Jha*[1]; Robert Brockman[2]; Rebecca Hoffman[2]; Vikas Sinha[3]; William Porter[2]; Dennis Buchanan[2]; Adam Pilchak[4]; James Larsen[4]; Reji John[4]; [1]US Air Force Research Laboratory/Universal Technology Corporation; [2]University of Dayton Research Institute; [3]UES, Inc.; [4]US Air Force Research Laboratory

9:50 AM
Investigation of Neighborhood Effects on Crack Initiation Sites in Different Ti Microstructures: *Vahid Tari*[1]; Michael Groeber[2]; Adam Pilchak[2]; Anthony Rollett[1]; [1]Carnegie Mellon University; [2]Air 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 Wilkinson[1]; Brian Phung[1]; Jacob Hochhalter[1]; *Ashley Spear*[1]; [1]University of Utah

10:50 AM Invited
Correlating Experiments and Simulations to Develop Predicative Capabilities for Fatigue Crack Initiation in Ni-based Superalloys: Jun Jiang[1]; Fionn Dunne[1]; *T Ben Britton*[1]; [1]Department of Materials, Imperial College

11:10 AM
A General Probabilistic Framework Combining Experiments and Simulations to Identify the Small Crack Driving Force: *Andrea Rovinelli*[1]; Michael Sangid[1]; Ricardo Lebensohn[2]; Wolfgang Ludwig[3]; Yoann Guilhem[4]; Henry Proudhon[5]; [1]Purdue University; [2]Los Alamos National Lab; [3]ESRF; [4]ENS de Cachan; [5]MINES ParisTech

11:30 AM
Cloud-based Data-driven Modeling for Fatigue Life Prediction in Ti-6Al-4V: *Ayman Salem*[1]; Joshua Shaffer[1]; Richard Kublik[1]; Daniel Satko[1]; [1]Materials Resources LLC

Friction Stir Welding and Processing IX — High Temperature Applications I

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

Monday AM
February 27, 2017

Room: 9
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 Curtis*[1]; Bharat Jasthi[1]; Christian Widener[1]; Michael West[1]; Brendon Kellogg[1]; [1]South Dakota School of Mines and Technology

8:55 AM Invited
FSW Studies to Achieve High Charpy Impact Energy in 19 mm Thick ASTM-A6 Steel: Murray Mahoney[1]; Russell Steel[1]; *Dale Fleck*[1]; Steve Larson[1]; Trever Davis[1]; [1]MegaStir

9:15 AM Invited
Friction Stir Processing of 304L Stainless Steel for Crack Repair: *Michael Miles*[1]; Cameron Gunter[1]; Fengchao Liu[1]; Tracy Nelson[1]; [1]Brigham Young University

9:35 AM
Influence of Underwater Operation on Friction Stir Welding of Medium Carbon Steel: *Tomoko Miyamori*[1]; Yutaka Sato[1]; Hiroyuki Kokawa[1]; [1]Tohoku University

9:55 AM Invited
Friction Stir Welding of Steel-two Innovative Welding Methods: *Hidetoshi Fujii*[1]; [1]Osaka University

10:15 AM Break

10:30 AM Invited
High Temperature Properties and Microstructures of ODS and RAFM Alloys FSW: *Wei Tang*[1]; Xinghua Yu[1]; David Hoelzer[1]; Zhili Feng[1]; [1]Oak Ridge National Lab

10:50 AM
Feasibility of Iridium Containing Nickel Base Superalloy Tool to Friction Stir Spot Welding of High Strength Steel: *Kunihiro Tanaka*[1]; Tatsuya Nakazawa[1]; Koichi Sakairi[1]; Yutaka Sato[2]; Hiroyuki Kokawa[2]; Toshihiro Omori[2]; Kiyohito Ishida[2]; [1]Tanaka Kikinzoku Kogyo K.K.; [2]Tohoku University

11:10 AM
Effect of Friction Stir Processing on Microstructure and Mechanical Properties of Cast Eglin Steel (ES-1): *Vedavyas Tungala*[1]; Matthew Carl[1]; Amit Arora[2]; Marcus Young[1]; Rajiv Mishra[1]; Kyu Cho[3]; Raymond Brennan[3]; [1]University of North Texas; [2]Indian institute of technology, Gandhinagar; [3]Army Research Laboratory

11:30 AM
Friction Stir Processing of 2507 Super Duplex Stainless Steel: Microstructure and Corrosion Behaviour: *M.K. Mishra*[1]; G. Gunasekaran[2]; A.G. Rao[2]; B.P. Kashyap[1]; N. Prabhu[1]; [1]Indian Institute of Technology Bombay; [2]Naval Materials Research Laboratory

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; Nuggehalli Ravindra, New Jersey Institute of Technology

Monday AM
February 27, 2017

Room: 33B
Location: San Diego Convention Center

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

8:30 AM Introductory Comments

8:40 AM Invited
The Grain Refinement of Martensitic Steel by Thermal Processes: *John Morris*[1]; [1]University of California Berkeley

9:10 AM Invited
Extreme Deformation and Failure of Materials: *Marc Meyers*[1]; Bruce Remington[2]; Chris Wehrenberg[2]; Hye-Sook Park[3]; T. Remington[3]; Eduardo Bringa[4]; Bimal Kad[1]; Eric Hahn[1]; Shiteng Zhao[1]; [1]University of California San Diego; [2]Lawrence Livermore National Laboratory; [3]Lawrence Livermore National Labboratory; [4]CONICET- Universidad Nacional de Cuyo

9:40 AM Invited
Application of Thermodynamics to Rare Earth-based Alloy Design: *Patrice Turchi*[1]; Aurelien Perron[1]; Per Soderlind[1]; Alexander Landa[1]; Orlando Rios[2]; [1]Lawrence Livermore National Laboratory; [2]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*[1]; Chih Chen[1]; [1]National Chiao Tung University

10:45 AM Invited
Low-Temperature and Pressureless Cu-to-Cu Bonding By Electroless Nickel Plating: *C. Robert Kao*[1]; [1]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[1]; *Vikas Tomar*[1]; [1]Purdue University

11:45 AM
High-throughput Computational Discovery of Epitaxial Thin Films with Enhanced Ferroelectric Properties: *Thomas Angsten*[1]; Lane Martin[1]; Mark Asta[1]; [1]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
February 27, 2017

Room: 16A
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*[1]; Brady Butler[1]; Jonathan Ligda[1]; Z. Zak Fang[2]; Matt Dunstan[2]; [1]United States Army Research Laboratory; [2]University of Utah

8:50 AM
Titanium Hydrides Enhancing Improvement of Ductility of PM a-Ti Material: *Katsuyoshi Kondoh*[1]; Takafumi Mimoto[1]; Junko Umeda[1]; Hisashi Imai[1]; [1]Osaka University

9:10 AM
A New PEG/PMMA Based Titanium Feedstock for Metal Injection Moulding: *Peng Cao*[1]; Muhammad Hayat[1]; [1]University of Auckland

9:30 AM
Titanium-Based Alloys with Gradient Structures Fabricated by Blended Elemental Powder Metallurgy (BEPM): Dmytro Savvakin[1]; Pavlo Markovsky[1]; Orest Ivasishin[1]; *Sergey Prikhodko*[2]; [1]G.V. Kurdyumov Institute for Metal Physics, National Academy of Science of Ukraine; [2]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*[1]; Ola Harrysson[2]; Jack Beuth[1]; Fred Higgs III[1]; Anthony Rollett[1]; [1]Carnegie Mellon University; [2]North Carolina State Univ.

10:30 AM
Sintering of Titanium-Magnesium Alloys with Stable Nanocrystalline Structure: *Kathrin Graetz*[1]; Christopher Schuh[1]; [1]Massachusetts Institute of Technology

10:50 AM
Enhanced Texture and Magnetic Energy Product in Alnico Magnets Utilizing Solid State Processing: *Aaron Kassen*[1]; Emma White[1]; Wei Tang[1]; Lin Zhou[1]; Matthew Kramer[1]; Iver Anderson[1]; [1]Iowa State University

11:10 AM
Size-Scaled High-Performance Alnico Magnets with Enhanced Mechanical Properties and Near-Final Shape: *Liangfa Hu*[1]; Iver Anderson[1]; Aaron Kassen[1]; Emma White[1]; Wei Tang[1]; Lin Zhou[1]; Matt Kramer[1]; [1]Ames Laboratory

11:30 AM
Self-propagating High-temperature Synthesis for Synthesizing Tantalum Carbide from Ta Metal Scraps: *Jae-Jin Sim*[1]; Sang-Hun Choi[1]; Won Ju[1]; Won-Jung Choi[1]; Basit Ali[1]; Tae-Hyuk Lee[2]; Kyung-Mook Lim[1]; Bum-Sung Kim[1]; Taek-Soo Kim[1]; Kyoung-Tae Park[1]; [1]Korea Institute of Industrial Technology; [2]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, Gamteck LLC; Wilfried Smarsly, MTU Aero Engines AG; Junpin Lin, University of Science and Technology Beijing; Pierre Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Monday AM
February 27, 2017

Room: Pacific 17
Location: Marriott Marquis Hotel & Marina

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

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

8:40 AM Keynote
Development and Application of Gamma TiAl Components: *Wilfried Smarsly*[1]; Joerg Esslinger[1]; [1]MTU Aero Engines GmbH

9:15 AM Invited
Advancement of Plasma Cold-hearth Melting for Production of Gamma Titanium Aluminide Alloys within Arconic: *Ernie Crist*[1]; Fusheng Sun[1]; [1]Arconic Titanium & Engineered Products

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

10:00 AM
Development of a Die-casting Technology to Produce TiAl Turbine Blades: *Jan Schievenbusch*[1]; Rüdiger Tiefers[1]; Romuald Laqua[1]; Matthias Bünck[1]; [1]Access e.V.

10:20 AM Break

10:35 AM Invited
Implementation of □-TiAl Alloys for Low Pressure Turbine Blades: Opportunities and New Challenges: *Pierre Sallot*[1]; Guillaume Martin[1]; Stéphane Knittel[1]; [1]SAFRAN

11:00 AM
Investment Casting of TiAl Low Pressure Turbine Blades with Precise Preheating Temperature Control in the Furnace: *Lang-Ping Zhu*[1]; Jian-chong Li[1]; Dong Huang[1]; Qian Luo[1]; Hai Nan[1]; [1]Beijing Institute of Aeronautical Materials

11:20 AM Invited
Titanium Aluminide Investment Casting Technology Development: *Matthias Bünck*[1]; Todor Stoyanov[1]; Rüdiger Tiefers[1]; Jan Schievenbusch[1]; [1]Access e.V.

11:45 AM
High Temperature and High Strain Rate Deformation Behavior of Powder Metallurgical TiAl-Nb Composite: *Yong Liu*[1]; Bin Liu[1]; Qihong Fang[2]; Xiang Zan[3]; [1]Central South University; [2]Hunan University; [3]Hefei 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 Charit, University of Idaho

Monday AM
February 27, 2017

Room: 31C
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 Smith*[1]; [1]Oxford University

9:20 AM Invited
Atomic-scale Analytical Tomography: *Thomas Kelly*[1]; [1]CAMECA Instruments, Inc.

9:50 AM
Unique Insights from the Correlated Combination of Atom Probe and Electron Tomography: *Peter Wells*[1]; Stephan Krämer[1]; Christian Oberdorfer[2]; Soupitak Pal[1]; Yuan Wu[1]; Takuya Yamamoto[1]; G. Odette[1]; [1]UC Santa Barbara; [2]Ohio 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 Odette*[1]; Peter Wells[1]; Nicholas Cunningham[2]; Nathan Almirall[1]; [1]University of California Santa Barbara; [2]ATI

11:00 AM Invited
Revisiting Field Ion Microscopy: *Baptiste Gault*[1]; Michal Dagan[2]; Shyam Katnagallu[1]; Frédéric De Geuser[3]; François Vurpillot[4]; Dierk Raabe[1]; Michael Moody[2]; [1]Max-Planck-Institut für Eisenforschung GmbH; [2]University of Oxford; [3]CNRS, SIMAP; [4]Normandie Université

11:30 AM Invited
Quantification of Hydrogen using Atom Probe Tomography: *Daniel Haley*[1]; Yi-Sheng Chen[1]; Paul Bagot[1]; Michael Moody[1]; [1]University 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
February 27, 2017

Room: 10
Location: San Diego Convention Center

Session Chairs: Jerry Gibbs, Department of Energy; Dognwon 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 Jr*[1]; Anil Sachdev[1]; Tyson Brown[1]; [1]General Motors

9:10 AM Invited
Application of ICME in the Development of Cast Steel Alloys: *Rick Huff*[1]; Caian Qiu[1]; Adrian Catalina[1]; [1]Caterpillar

9:50 AM Break

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

10:45 AM Invited
Progress and Gaps in Thermodynamic Modeling for the Development of Advanced Cast Aluminum Alloys using Integrated Computational Materials Engineering: *Mike Walker*[1]; Andrew Bobel[2]; WeiWei Zhang[3]; Nick Hatcher[3]; Abhinav Saboo[3]; Dana Frankel[3]; Kyoungdoc Kim[2]; Christopher Wolverton[2]; [1]General Motors; [2]Northwestern University; [3]QuesTek Innovations, LLC

11:25 AM Invited
An Assessment of Modeling Tools for High Temperature Aluminum Alloy Development: The Good, the Bad and the Ugly: *Amit Shyam*[1]; Dongwon Shin[1]; Shibayan Roy[1]; Adrian Sabau[1]; Yukinori Yamamoto[1]; James Haynes[1]; [1]Oak Ridge National Laboratory

Interface-Mediated Properties of Nanostructured Materials — Nanolaminates and Nanotwinned 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
February 27, 2017

Room: Pacific 23
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*[1]; Pascal Bellon[1]; Robert Averback[1]; [1]University of Illinois

8:50 AM Invited
Plasticity in Small-scale Metallic Composites: *Amit Misra*[1]; Jian Wang[2]; [1]University of Michigan; [2]University of Nebraska

9:20 AM Invited
Intrinsic Twin Boundary Defects and Strength in Nanotwinned Ag and Ag-Cu Alloys: *Frederic Sansoz*[1]; Xing Ke[1]; Qiongjiali Fang[1]; [1]The University of Vermont

9:50 AM Break

10:10 AM Invited
Strength and Fracture of Nanoscale Multilayer Films: Andreas Kelling[1]; Inga Knorr[1]; *Cynthia Volkert*[1]; [1]University of Göttingen

10:40 AM Invited
Collective Deformation Mechanisms and their Effect on Nanoscale Interfacial Networks: *Timothy Rupert*[1]; [1]University of California, Irvine

11:10 AM
Intrinsic Surface Stress Effects on Surface Dislocation Nucleation in Nanoscale Pristine Metals: *Qingjie Li*[1]; Bin Xu[2]; Evan Ma[1]; [1]Johns Hopkins University; [2]Shanghai JiaoTong University

11:30 AM
Influence of Crystalline Nanoprecipitates on Shear-band Propagation in Cu-Zr-based Metallic Glasses: A Computational Study: Tobias Brink[1]; *Karsten Albe*[1]; [1]TU Darmstadt

Light Metals — Keynote Session

Monday AM
February 27, 2017

Room: 1A
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
February 27, 2017

Room: 5A
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[1]; Lin Jiang[2]; Xin Wang[3]; M. Kumar[4]; Irene Beyerlein[4]; Julie Schoenung[3]; Mo Li[5]; Subhash Mahajan[2]; *Enrique Lavernia*[2]; [1]University of California Irvine; [2]University of California, Davis; [3]University of California, Irvine; [4]Los Alamos National Laboratory; [5]Georgia Institute of Technology

9:25 AM Keynote
Targeting High Impact R&D for Automotive Magnesium Alloys: *William Joost*[1]; [1]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*[1]; [1]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*[1]; [1]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
February 27, 2017

Room: Cardiff
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*[1]; Jan-Fong Jue[1]; Brandon Miller[1]; Jian Gan[1]; Adam Robinson[1]; James Madden[1]; Assel Aitkaliyeva[1]; [1]Idaho National Laboratory

8:50 AM
Nanoscale Structural and Compositional Analysis of U-10Mo Fuels: *Arun Devaraj*[1]; Vineet Joshi[1]; Libor Kovarik[1]; Saumyadeep Jana[1]; Bruce Arey[1]; Curt Lavender[1]; [1]Pacific Northwest National Laboratory

9:10 AM
Recrystallization Texture in U10Mo Alloy: *Karun Kalia*[1]; David Field[1]; Vineet Joshi[2]; [1]Washington State University; [2]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*[1]; Brandon Miller[2]; Julie Tucker[1]; [1]Oregon State University; [2]Idaho National Laboratory

9:50 AM
Eutectoid Transformation Kinetics of As-Cast U - 8 wt% Mo Established by In Situ Neutron Diffraction: *Matthew Steiner*[1]; Christopher Calhoun[1]; Robert Klein[1]; Ke An[2]; Elena Garlea[3]; Sean Agnew[1]; [1]University of Virginia; [2]Oak Ridge National Lab; [3]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*[1]; Gwan Yoon Jeong[2]; Dong-Seong Sohn[2]; [1]Argonne National Laboratory; [2]UNIST

10:50 AM
Microstructural Development of UMo-Al Dispersion Fuels after Thermal Annealing: *Laura Jamison*[1]; Bei Ye[1]; Sumit Bhattacharya[2]; Abdellatif Yacout[1]; [1]Argonne National Laboratory; [2]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*[1]; Curt Lavender[1]; Vineet Joshi[1]; [1]Pacific Northwest National Laboratory

11:30 AM
An Integrated Simulation for Deformation and Irradiation-Induced Grain Growth in, U-10 wt%Mo: *William Frazier*[1]; Vineet Joshi[1]; Shenyang Hu[1]; [1]Pacific 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 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

Monday AM
February 27, 2017

Room: Pacific 16
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]; [1]Office of Naval Research

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

9:30 AM
The Influence of Ta and Ti on Heat-treatability and □/□'-partitioning of High W Containing Re-free Nickel-based-superalloys: *Nils Ritter*[1]; Ralf Rettig[1]; Robert Singer[1]; [1]University of Erlangen-Nuremburg

9:50 AM
Improved 3rd Generation Single Crystal Superalloy CMSX-4® Plus: *Jacqueline Wahl*[1]; Ken Harris[1]; [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*[1]; Qianying Shi[2]; Qiang Feng[1]; [1]University of Science and Technology Beijing; [2]University of Michigan

10:50 AM
Improved Creep Strength of Nickel-base Superalloys by Optimized \947/\947'-partitioning Behavior of Solid Solution Strengthening Elements
: *Steffen Neumeier*[1]; Martin Pröbstle[2]; Sven Giese[2]; Ralf Rettig[2]; Mathias Göken[2]; [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*[1]; Zhuangming Li[2]; Zailing Zhu[3]; Masood Hafez Haghighat[2]; Stefan Zaefferer[2]; Dierk Raabe[2]; Roger Reed[3]; [1]Carnegie Mellon University; [2]Max-Planck Institut für Eisenforschung GmbH; [3]University of Oxford

11:30 AM
Influence of Stress Trriaxiality and Relaxation on the Creep Behavior under Oxidizing Conditions of the Nickel-based Single-crystal Superalloy CMSX-4: Experiments and Numerical Approach: *Vincenzo Caccuri*[1]; Jonathan Cormier[2]; Rodrigue Desmorat[3]; Clara Moriconi[4]; [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: *Shenyan Huang*[1]; Yan Gao[1]; Akane Suzuki[1]; Ke An[2]; [1]GE Global Research; [2]Oak Ridge National Lab

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Introductory Session: Unique Mechanical Behavior and Technologies

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 AM
February 27, 2017

Room: 24A
Location: San Diego Convention Center

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

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

8:35 AM Keynote
Creep, Deformation and Fracture Studies of Materials for Various Technologies in the Nuclear Materials Research Group at NC State: *Korukonda Murty*[1]; [1]North Carolina State University

9:05 AM Keynote
Superhard Materials: Discovery of Q-phases and Direct Conversion of Carbon into Diamond and h-BN into c-BN: *Jagdish (Jay) Narayan*[1]; Anagh Bhaumik[1]; [1]North Carolina State University

9:35 AM Invited
Anisotropy and Creep Mechanisms during the Hot Forming of Light Alloy Sheet Materials: *Eric Taleff*[1]; [1]The University of Texas at Austin

9:55 AM Keynote
In-situ TEM Observation of the Peculiar Movement of <c+a> Dislocations in Mg: Dalong Zhang[1]; Lin Jiang[1]; Irene Beyerlein[2]; Julie Schoenung[1]; Subhash Mahajan[3]; *Enrique Lavernia*[1]; [1]University of California-Irvine; [2]Theoretical Division, Los Alamos National Laboratory; [3]Chemical Engineering and Materials Science, University of California, Davis

10:25 AM Break

10:40 AM Invited
The Representation of Grain Boundary Texture Using Hyperspherical Harmonics: *Srikanth Patala*[1]; Jeremy Mason[2]; [1]North Carolina State University; [2]Bogaziçi University

11:00 AM Invited
Irradiation Creep of Zr-Alloys: *Malcolm Griffiths*[1]; Grant Bickel[1]; Robert DeAbreu[1]; Wenjing Li[1]; [1]Canadian Nuclear Laboratories

11:20 AM
The Microstructural Evolution of Hot Deformed Ti-IF Steel: Philip Noell[1]; *Ryann Rupp*[1]; Eric Taleff[1]; [1]The University of Texas at Austin

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

Room: 30D
Location: San Diego Convention Center

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

8:30 AM Introductory Comments

8:40 AM Invited
High Temperature Mechanical Properties of Ultrafine-grained and Nanocrystalline Materials: Megumi Kawasaki[1]; Roberto Figueiredo[2]; *Terence*

Langdon[3]; [1]Hanyang University; [2]Universidade Federal de Minas Gerais; [3]University of Southern California

9:05 AM Invited
15 Years SPD-Processed Bulk Nanostructured Materials: From Mechanical to Functional Highlights: *Michael Zehetbauer*[1]; [1]University of Vienna

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

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

10:20 AM Break

10:40 AM Invited
Twinning in Small-scaled BCC Crystals: Jiangwei Wang[1]; Zhi Zeng[2]; Christopher Weinberger[3]; Ze Zhang[4]; Ting Zhu[2]; *Scott Mao*[1]; [1]University of Pittsburgh; [2]Georgia Institute of Technology; [3]Sandia National Laboratories; [4]Zhejiang University

11:05 AM
Mechanical Properties of Nanotwinned Al: *Xinghang Zhang*[1]; Sichuang Xue[1]; Qiang Li[2]; Dan Bufford[3]; Yue Liu[4]; Haiyan Wang[2]; [1]Texas A&M University; [2]Purdue University; [3]Sandia National Laboratories; [4]Los Alamos National Laboratory

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

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

Monday AM
February 27, 2017

Room: Del Mar
Location: Marriott Marquis Hotel & Marina

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

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

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

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

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*[1]; Matthew Topping[1]; Philipp Frankel[1]; Michael Preuss[1]; [1]The University of Manchester

10:00 AM
High Resolution EBSD and Strain Mapping of Nanoindentatation in Ion-irradiated Steels: *Anna Kareer*[1]; Hamid Abdolvand[2]; Steve Roberts[1]; [1]University of Oxford; [2]Western University

10:20 AM Break

10:35 AM Invited
Deformation Behavior of Ion-irradiated Materials under Nanoindentation: *Ryuta Kasada*[1]; Satoshi Konishi[1]; Hyoseong Gwon[1]; Takeshi Miyazawa[1]; Masami Ando[1]; Hiroyasu Tanigawa[1]; [1]Kyoto University

11:05 AM
Characterizing Radiation Damage in Stainless Steels Using Spherical Nanoindentation Stress-Strain Curves: *Jordan Weaver*[1]; Siddhartha Pathak[2]; Ashley Reichardt[3]; Peter Hosemann[3]; Nathan Mara[1]; [1]Los Alamos National Laboratory; [2]University of Nevada Reno; [3]University of California Berkeley

11:25 AM
Novel Methods of Recording Flow Curves in Proton Irradiated Material: *Albert Smith*[1]; Jack Donoghue[1]; Bartlomiej Winiarski[1]; Alistair Garner[1]; Nick Riddle[2]; Keith Wilford[2]; Philip Withers[1]; Michael Preuss[1]; [1]University of Manchester; [2]Rolls-Royce

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

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

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
February 27, 2017

Room: 24B
Location: San Diego Convention Center

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

8:30 AM Introductory Comments

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

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

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

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

10:05 AM Break

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

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

11:10 AM Invited
Stress and Strain Gradients in a Low Carbon Steel Deformed under Heavy Sliding: *Xiaodan Zhang*[1]; Niels Hansen[1]; Xiaoxu Huang[1]; [1]Technical University of Denmark

11:35 AM
Novel Contributions to Deformation and Properties in Gradient Materials: *Shan "Cecelia" Cao*[1]; Christian Roach[1]; Yuntian Zhu[1]; Suveen Mathaudhu[1]; [1]University of California Riverside

Nanocomposites IV: Nanoscience for Renewable Energy — NanoScience Part I

Program Organizers: Changsoo Kim, University of Wisconsin-Milwaukee; Simona Murph, Savannah River National Laboratories; Muralidharan Paramsothy, NanoWorld Innovations (NWI); Meisha Shofner, Georgia Institute of Technology

Monday AM
February 27, 2017

Room: Pacific 25
Location: Marriott Marquis Hotel & Marina

Session Chairs: Simona Murph, Savannah River National Laboratory (SRNL); Muralidharan Paramsothy, NanoWorld Innovations (NWI)

8:30 AM Keynote
Multifunctional Materials for Renewable Energy Technologies: *Federico Rosei*[1]; [1]INRS

9:10 AM Invited
Ceramic Composites in Diverse Applications Ranging from Oxygen Production to Nuclear Waste Immobilization: *Kyle Brinkman*[1]; [1]Clemson University

9:50 AM Break

10:10 AM Invited
Conditions for Effective Nanocrystal Shape Control in Colloidal SILAR Reactions: *Andrew Greytak*[1]; [1]University of South Carolina

10:50 AM Invited
Hydrogen Storage, Ionic Conduction, and Photophysical Properties of Fullerene Based Materials: *Joseph Teprovich*[1]; Patrick Ward[1]; Aaron Washington[1]; Hector Colon-Mercado[1]; Ragaiy Zidan[1]; [1]Savannah River National Laboratory

Nanostructured Materials for Nuclear Applications II — Session I

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 AM
February 27, 2017

Room: Pacific 24
Location: Marriott Marquis Hotel & Marina

Session Chairs: Khalid Hattar, Sandia National Laboraory ; Mitra Taheri , Drexel University

8:30 AM Invited
Understanding and Predicting Nanoscale Precipitate Formation and Associated Reactor Pressure Vessel Embrittlement: *Dane Morgan*[1]; Huibin Ke[1]; Mahmood Mamivand[1]; Shipeng Shu[1]; Henry Wu[1]; Peter Wells[2]; Nicholas Cunningham[2]; Nathan Almirall[2]; G. Robert Odette[2]; [1]University of Wisconsin - Madison; [2]University of California, Santa Barbara

9:00 AM
Search for Radiation Resistance Materials: As Revealed by Computer Simulations: *Fei Gao*[1]; Liangliang Liu[1]; Nanjun Chen[1]; Chenyang Lu[1]; Lumin Wang[1]; [1]University of Michigan

9:20 AM
Kinetic Mote Carlo Simulation of Radiation-induced Segregation in Quaternary Fe-Ti- Y-O: *Christopher Nellis*[1]; Celine Hin[1]; [1]Virginia Tech

9:40 AM
Molecular Dynamic Cascaide Simulations of Yttria Nanoclusters in an Alpha Fe Matrix: *Mike Higgins*[1]; Fei Gao[1]; [1]University of Michigan

10:00 AM Break

10:20 AM Invited
Irradiation Response of Nanostructured Oxides to Ionization and Displacement Damage: *Yanwen Zhang*[1]; Dilpuneet Aidhy[2]; Tamas Varga[3]; Philip Edmondson[1]; Fereydoon Namavar[4]; William Weber[5]; [1]Oak Ridge National Laboratory; [2]University of Wyoming; [3]Pacific Northwest National Laboratory; [4]University of Nebraska Medical Center; [5]University of Tennessee

10:50 AM
Evolution of Microstructures and Mechanical Properties of Zr-containing Ferritic Alloys under Self-ion Irradiation: *Tianyi Chen*[1]; Mo-Rigen He[2]; Lizhen Tan[1]; Ying Yang[1]; Beata Tyburska-Püschel[2]; Kumar Sridharan[2]; [1]Oak Ridge National Laboratory; [2]University of Wisconsin, Madison

11:10 AM
Stability of 14YWT Nanostructured Ferritic Alloys under Irradiation and Thermal Aging: *Eda Aydogan*[1]; Stuart Maloy[1]; Osman Anderoglu[1]; Sven Vogel[1]; Clarissa Yablinsky[1]; Nathan Almirall[2]; G. Robert Odette[2]; Jonathan Gigax[3]; Lloyd Price[3]; Di Chen[3]; Lin Shao[3]; Frank Garner[3]; [1]Los Alamos National Laboratory; [2]University of California Santa Barbara; [3]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*[1]; Marquis Kirk[2]; Meimei Li[2]; Mitra Taheri[1]; [1]Drexel University; [2]Argonne National Laboratory

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Phase Stability on Energy Materials

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

Monday AM
February 27, 2017

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*[1]; Yi Wang[1]; Samad Firdosy[2]; Zi-Kui Liu[1]; Samad Firdosy[2]; Kurt Star[2]; Jean-Pierre Fleurial[2]; Vilupanur Ravi[2]; [1]Pennsylvania State University; [2]Jet Propulsion Laboratory/California Institute of Technology

9:00 AM
Phase Transformations at Thermoelectric-Metal Interfaces – Experimental Analysis: *Samad Firdosy*[1]; Kurt Star[1]; Jean-Pierre fleurial[1]; Vilupanur Ravi[2]; Yong-Jie Hu[3]; Yi Wang[3]; Zi-Kui Liu[3]; [1]Jet Propulsion Laboratory/California Institute of Technology; [2]Jet Propulsion Laboratory/California Institute of Technology and Cal Poly Pomona, Pomona, Ca; [3]Pennsylvania State University

9:20 AM
Thermal-to-electrical Energy Conversion Using Ferroelectric Materials: *G.P. Zheng*[1]; [1]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*[1]; Yu Zhong[1]; [1]Florida International University

10:00 AM
Weight Loss Mechanism of (La0.8Sr0.2)0.98MnO3±d During Thermal Cycles: *Shadi Darvish*[1]; Yu Zhong[1]; [1]Florida International University

10:20 AM Break

10:35 AM Invited
Thermodynamics and Electrochemical Behavior of Advanced Electrode Materials for Lithium Batteries: *Hans Seifert*[1]; [1]Karlsruhe Institute of Technology

11:00 AM Invited
Intermetallic Alloy Systems for Li-ion Batteries: *Clemens Schmetterer*[1]; Siegfried Fürtauer[1]; Alexander Beutl[1]; Hans Flandorfer[1]; [1]University of Vienna

11:25 AM
Calorimetry on Coin Cells with a DSC-like Battery Calorimeter for Lithium-ion Batteries: *David Henriques*[1]; Hans Giel[1]; Torsten Markus[1]; [1]Mannheim University of Applied Sciences

11:45 AM
Dependence of Grain Size Distribution on the Conductivity of Ceria - Approach by Spark Plasma Sintering: Po-Heng Lin[1]; Eric Tseng[1]; *Shih-Yun Chen*[2]; Yang-Yuan Chen[3]; [1]National Taiwan University of Science and Technology; [2]National Taiwan University of Science and Technology, ; [3]Institute of Physics, Academia Sinica

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; Deep Choudhuri, University of North Texas; Raju Ramanujan, Nanyang Technological University; Monica Kapoor, National Energy Technology Lab

Monday AM
February 27, 2017

Room: 16B
Location: San Diego Convention Center

Session Chair: To Be Announced

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

: *Goune Mohamed*[1]; Fréderic Danoix[2]; Xavier Sauvage[2]; Didier Huin[3]; Lionel Germain[4]; [1]ICMCB-Bordeaux1; [2]GPM - Université de Rouen; [3]ArcelorMittal; [4]Université de Lorraine

9:00 AM
An Experimental Assessment of the α + α' Miscibility Gap in Fe-Cr: *Alexander Dahlstrom*[1]; Frederic Danoix[1]; Peter Hedstrom[2]; Joakim Odqvist[2]; Helena Zapolsky[1]; [1]Normandy University; [2]KTH (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 Inomoto*[1]; Hidenori Nako[1]; [1]Kobe Steel, Ltd.

9:40 AM
Direct Observation of the Movement of the Austenite-ferrite Interface in Fe-C-Mn Steels: William Rainforth[1]; *John Nutter*[1]; [1]The 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 Ren*[1]; [1]Argonne National Laboratory

10:50 AM
Harnessing the Kirkendall Effect for the Fabrication of Metallic Microtubes and Hollow Scaffolds: *Ashley Paz y Puente*[1]; Dinc Erdeniz[1]; David Dunand[1]; [1]Northwestern University

11:10 AM
Interfacial Energy Evaluation in Binary Systems Using Diffusion-Multiples and Simulations: *Qiaofu Zhang*[1]; Surendra Makineni[2]; John Allison[2]; Ji-Cheng Zhao[1]; [1]The Ohio State University; [2]University 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 Eggeler*[1]; Erdmann Spiecker[1]; [1]Friedrich Alexander Universität Erlangen-Nürnberg

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

Program Organizers: Adele Carradò, 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
February 27, 2017

Room: Pacific 18
Location: Marriott Marquis Hotel & Marina

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

8:30 AM Keynote
Osteogenic Potential of a Biomimetic Layer-by-layer Platform: Khalil Abdelkebir[1]; Fabien Gaudière[1]; Laura Tesson[1]; Jean-Pierre Vannier[1]; Hassan Atmani[1]; Sandrine Morin-Grognet[1]; Béatrice Labat[1]; *Guy Ladam*[1]; [1]University of Rouen Normandy

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

9:30 AM
Osteoanabolic Implant Materials for Orthopaedic Treatment: *Xiaobo Chen*[1]; Yun-Fei Ding[1]; Rachel Li[2]; M. Nakai[3]; M. Niinomi[3]; Paul Smith[2]; Nick Birbilis[1]; [1]Monash University; [2]The Australian National Universtiy; [3]Tohoku University

9:50 AM Break

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

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

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

11:30 AM
Super-stretchable Metallic Interconnect Films with a Linear Strain of up to 100%: Yeasir Arafat[1]; Indranath Dutta[1]; *Rahul Panat*[1]; [1]Washington State University

Student-Run Symposium: Building Bridges – Connecting Academic and Industry Research — Session I

Program Organizers: Katherine Vinson, The University of Alabama; Omar Rodriguez, The University of Alabama; Ben White, The University of Alabama; Dallin Barton, The University of Alabama; Rachel White, The University of Alabama

Monday AM
February 27, 2017

Room: 22
Location: San Diego Convention Center

Session Chairs: Omar Rodriguez, The University of Alabama; Dallin Barton, The University of Alabama

8:30 AM Introductory Comments Dr. Garry W. Warren

8:40 AM Invited
Building Bridges: Transitioning from Academia to Industry: *Lucille Giannuzzi*[1]; [1]EXpressLO LLC

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

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

9:40 AM Invited
Four Pillars of Academia: A Cultural Shift to include Entrepreneurship: *Michael Sealy*[1]; [1]University 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; Nitin Chopra, The University of Alabama

Monday PM
February 27, 2017

Room: Pacific 26
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*[1]; [1]Gwangju Institute of Science and Technology

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

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

3:30 PM Break

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

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

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

5:10 PM
Novel *In Situ* Electrical Characterization of the Dielectric Deposition Process on 2-D Transition Metal Dichalcogenides: *Antonio Lucero*[1]; Lanxia Cheng[1]; Joy Lee[1]; Jaebeom Lee[1]; Xin Meng[1]; Arul Ravichandran[1]; Young-Chul Byun[1]; Jaegil Lee[1]; Jiyoung Kim[1]; [1]University 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 Keskinkilic, Atilim University

Monday PM
February 27, 2017

Room: 18
Location: San Diego Convention Center

Session Chairs: Varadarajan Seshadri, Universidade Federal de Minas Gerais; Yousef Mohassab, University of Utah

2:00 PM Introductory Comments

2:05 PM
A CFD Based Algorithm for Kinetics Analysis of the Reduction of Hematite Concentrate by H2+CO Mixtures in a Drop Tube Reactor: De Qiu Fan[1]; Mohamed Elzohiery[1]; Yousef Mohassab[1]; *H.Y. Sohn*[1]; [1]University of Utah

2:25 PM
A Continuous Dynamic Process Model to Design a Carbon Profile toward Yield Improvement: *Mohammed Tayeb*[1]; Narottam Behera[1]; Raja Mathu[2]; [1]SABIC Metals SBU; [2]HADEED

2:45 PM
Alloy Yield Prediction Model Based on the Data Analysis in EAF Steelmaking Process: *Lingzhi Yang*[1]; [1]Central South University

3:05 PM
Analysis of Jet Behavior and Surface Fluctuations in the Meniscus of Fluid in a Physical Model of a Beam Blank Mold and CFD Modelling: Johne Peixoto[1]; Weslei Gabriel[2]; Ciro Silva[2]; Leticia Ribeiro[2]; Carlos Silva[2]; Itavahn Silva[2]; *Varadarajan Seshadri*[3]; [1]Federal University of Brazil, Ouro Preto ; [2]Federal University of Brazil, Ouro Preto; [3]Universidade Federal de Minas Gerais

3:25 PM
CFD Study of Gas-liquid Phase Interaction Inside a Submerged Lance Smelting Furnace for Copper Smelting: Guangwu Tang[1]; Armin Silaen[1]; Hongjie Yan[2]; Zhixiang Cui[3]; Zhi Wang[4]; Haibin Wang[4]; Kaile Tang[2]; Ping Zhou[2]; *Chenn Zhou*[1]; [1]Purdue University Northwest; [2]Central South University; [3]Dongying Fangyuan Nonferrous Metals, ; [4]Dongying Fangyuan Nonferrous Metals,

3:45 PM Break

4:05 PM
Debottlenecking High Temperature Metallurgical Plants through Modeling and Simulation: *Kamal Adham*[1]; [1]Hatch Ltd.

4:25 PM
Final Temperature Prediction Model Based on Back Propagation Neural Network for Electric Arc Furnace Steelmaking: *Dongping Zhan*[1]; Guoxing Qiu[1]; Zhouhua Jiang[1]; Huishu Zhang[1]; [1]Northeastern University

4:45 PM
Assessment of Slag Entrainment in a RH Degasser through Physical Modelling Using Circulating Fluids of Different Densities/Oil Systems for Simulating Steel Melt/Slag: Johne Peixoto[1]; Natalia Barony[1]; Weslei Gabriel[1]; Carlos Silva[1]; Itavahn Silva[1]; *Varadarajan Seshadri*[2]; [1]Federal University of Ouro Preto; [2]Universidade Federal de Minas Gerais

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
February 27, 2017

Room: 9
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*[1]; [1]BlueQuartz Software, LLC and Ohio State University

4:00 PM Keynote
The Materials Genome Initiative – Leading a Culture Shift in Materials Research: *Kevin Anderson*[1]; [1]Brunswick Corporation – Mercury Marine Division

4:30 PM Keynote
Democratizing Large-scale Data and Machine Learning in Materials Research: *Bryce Meredig*[1]; [1]Citrine Informatics

5:00 PM Keynote
The Materials Genome after Five Years: An Academic Perspective: *Tresa Pollock*[1]; [1]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
February 27, 2017

Room: 7A
Location: San Diego Convention Center

Session Chair: David Bourell, University of Texas

2:00 PM Introductory Comments

2:05 PM Keynote
The New Metallurgy of Additive Manufacturing: *Thomas Starr*[1]; [1]University of Louisville

2:45 PM Keynote
Laser Engineered Net Shaping (LENS™): Past, Present and Future: *David Keicher*[1]; John Smugeresky[1]; [1]Sandia National Laboratories

3:15 PM Keynote
Additive Manufacturing Machines from the University of Texas at Austin: *Joseph Beaman*[1]; Scott Fish[1]; [1]University of Texas

3:45 PM Break

4:00 PM Keynote
Location Specific Control of Solidification Microstructure across AM Alloys and Processes: Sneha Narra[1]; *Jack Beuth*[1]; [1]Carnegie Mellon University

4:30 PM Keynote
Unraveling Out-of-equilibrium Phase and Microstructure Formation in Alloys towards Alloy Design for Additive Manufacturing: *Christian Leinenbach*[1]; Christoph Kenel[1]; Xiaoshuan Li[1]; Toni Ivas[1]; [1]Empa-Swiss Federal Laboratories for Materials Science and Technology

5:00 PM Keynote
The Move to Multifunctionality: Additive Manufacturing of Graded and Multimaterial Structures: *Christopher Tuck*[1]; Ricky Wildman[1]; Ian Ashcroft[1]; Richard Leach[1]; Richard Hague[1]; Adam Clare[1]; [1]University of Nottingham

Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms — Session II

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

Monday PM
February 27, 2017

Room: 33C
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*[1]; [1]Normandy University

2:20 PM
Strain Localization Structures in Textured Magnesium AZ31 under Reversed Loading via Multi-scale Digital Image Correlation: Enver Kapan[1]; Nima Shafaghi[1]; Sevinç Uçar[1]; *Cahit Aydiner*[1]; [1]Bogazici University

2:40 PM
Kink Band Propagation during Plastic Deformation of Bulk Metallic Nanolaminates: *Thomas Nizolek*[1]; Nathan Mara[2]; Rodney McCabe[3]; Irene Beyerlein[4]; Jaclyn Avallone[1]; Tresa Pollock[1]; [1]Materials Department, University of California Santa Barbara; [2]Institute for Materials Science and the Center for Integrated Nanotechnologies, Los Alamos National Laboratory; [3]Materials Science and Technology Division 8, Los Alamos National Laboratory; [4]Mechanical Engineering Department, University of California Santa Barbara

3:00 PM
A Novel In Situ TEM Technique: High Strain Rate Tensile Testing in the Dynamic TEM: *Thomas Voisin*[1]; Michael Grapes[1]; Yong Zhang[1]; Nicholas Lorenzo[2]; Jonathan Ligda[2]; Brian Schuster[2]; Tian Li[3]; Melissa Santala[3]; Geoffrey Campbell[3]; Timothy Weihs[1]; [1]Johns Hopkins University; [2]Army Research Laboratory; [3]Lawrence Livermore National Laboratory

3:20 PM Break

3:40 PM
Deformation and Strengthening Mechanisms in AISI 321 Austenitic Stainless Steel under both Dynamic and Quasi-static Loading Conditions: *Ahmed Tiamiyu*[1]; Akindele Odeshi[1]; Jerzy Szpunar[1]; [1]University of Saskatchewan

4:00 PM
Study of Homophase Interfaces in Structural Materials by ECCI and EBSD in the SEM: *Ivan Gutierrez-Urrutia*[1]; [1]National Institute for Materials Science

4:20 PM
Comparison of Measured and Simulated Elastic Strain States in Crystal Plasticity Simulation of Experimentally Deformed and Characterized Microstructure Patches: *Thomas Bieler*[1]; Chen Zhang[1]; Harsha Phukan[1]; Quan Zhou[1]; Philip Eisenlohr[1]; Martin Crimp[1]; Carl Boehlert[1]; Leyun Wang[2]; Peter Kenesei[3]; Jun-Sang Park[3]; Ruxing Xu[3]; Wenjun Liu[3]; [1]Michigan State University; [2]Shanghai Jiao Tong University; [3]Argonne National Laboratory

4:40 PM
In Situ Strain Mapping of Deformation Processes in Metallic Specimens: *Thomas Pekin*[1]; Colin Ophus[2]; Jim Ciston[2]; Christoph Gammer[3]; Andrew Minor[1]; [1]University of California, Berkeley; [2]National Center for Electron Microscopy; [3]Erich Schmid Institute of Materials Science

5:00 PM
Effect of Thermal and Mechanical Loadings on the Residual Strain Field in a Shot-peened Nickel Based Superalloy Investigated Using the Synchrotron X-ray Microdiffraction Technique: Gader Altinkurt[1]; *Mathieu Fèvre*[1]; Guillaume Geandier[2]; Odile Robach[3]; Moukrane Dehmas[2]; [1]Onera-The French Aerospace Lab; [2]Institut Jean Lamour; [3]CEA

Advanced High-Strength Steels — Recent Developments in High-/Medium Mn Steels

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

Monday PM
February 27, 2017

Room: 17A
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*[1]; Yu-wei Wang[2]; Wei Wu[2]; Feng Zu[2]; Panagiotis Makrygiannis[2]; Fadi Abu-Farha[3]; Xin Sun[4]; Xioahua Hu[4]; Yang Ren[5]; [1]General Motors; [2]AK Steel; [3]Clemson University; [4]Pacific Northwest National Lab; [5]Argonne National Lab

2:35 PM
Segregation Engineering in Medium Manganese Steels: *Dirk Ponge*[1]; Margarita Kuzmina[1]; Alisson Kwiatkoski[1]; Meimei Wang[1]; Stefanie Sandlöbes[1]; Michael Herbig[1]; Dierk Raabe[1]; [1]Max-Planck-Institut für Eisenforschung GmbH

2:55 PM
High Strength Nb-bearing Medium Mn Steel for Warm Stamping: *Jae-Hoon Nam*[1]; Jeongho Han[2]; Young-Kook Lee[1]; [1]Yonsei University; [2]Max-Planck-Institut für Eisenforschung

3:15 PM
High Strain Rate Deformation of High-Mn and Medium-Mn TWIP-TRIP Steel: *Jake Benzing*[1]; Whitney Poling[2]; Dean Pierce[3]; Kip Findley[2]; Dirk Ponge[4]; Dierk Raabe[4]; James Wittig[1]; [1]Vanderbilt University; [2]Colorado School of Mines; [3]Oak Ridge National Laboratory; [4]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[1]; *Joseph McDermid*[1]; Elizabeth McNally[1]; Frank Goodwin[2]; [1]McMaster University; [2]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*[1]; Joseph McDermid[1]; Elizabeth McNally[1]; Frank Goodwin[2]; [1]McMaster University; [2]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 Steenken*[1]; Dieter Senk[1]; Joao L. L. Rezende[1]; [1]RWTH Aachen

4:50 PM
Austenite Formation along Dislocations in Medium Manganese Steels: Margarita Kuzmina[1]; *Dirk Ponge*[1]; Stefanie Sandlöbes[1]; Michael Herbig[1]; Dierk Raabe[1]; [1]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*[1]; Yu-Han Huang[1]; Ching-Yuan Huang[2]; Steve Ooi[3]; [1]National Taiwan University; [2]China Steel Corporation; [3]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
February 27, 2017

Room: Pacific 14
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 Bhatnegar[1]; Cherilyn Sheets[2]; *James Earthman*[1]; [1]University of California, Irvine; [2]Newport Coast Oral Facial Institute

2:30 PM
Orthopedic Implants with Graded Mechanical Behavior Made from Metastable Beta Ti Alloys: *Rubens Caram*[1]; Eder Lopes[1]; [1]University of Campinas

2:50 PM
Preparation and Characterizations of Nano Composites Based on Biphasic Mixture of Bioactive Ceramics for Biomedical Applications: *Nida Iqbal*[1]; Muhammad Abdul Rafiq[1]; [1]Universiti Teknologi Malaysia

3:10 PM
Repelling Biofilm Formation on Dental Materials via Piezoelectric Fillers: *Santiago Orrego*[1]; Anna Pizzano[1]; Kavan Hazeli[2]; Mary Anne Melo[3]; [1]Johns Hopkins University; [2]The University of Alabama in Huntsville; [3]University of Maryland School of Dentistry

3:30 PM Break

3:50 PM
Surface Modified Drug Releasing Total Hip Implant: R. Manoj Kumar[1]; Pallavi Gupta[1]; Partha Roy[1]; *Debrupa Lahiri*[1]; [1]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*[1]; Carlos Grandini[1]; Luis Rocha[1]; [1]UNESP

4:30 PM
The Effects of Inclusions on the Fatigue Performance of Superelastic Nitinol Fine Wires: *Janet Gbur*[1]; John Lewandowski[1]; [1]Case Western Reserve University

4:50 PM
Thermomechanical Processing of Beta-Ti Alloys for Load-bearing Implant Applications: *Stefan Pilz*[1]; André Reck[2]; Mariana Calin[1]; Jens Freudenberger[1]; Martina Zimmermann[2]; Jürgen Eckert[3]; Annett Gebert[1]; [1]Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Germany; [2]Institute of Materials Science, Dresden University of Technology, Dresden, Germany; [3]Department Materials Physics, Montanuniversität Leoben, Leoben, Austria

5:10 PM
Microstructures and Properties of Mg AZ Alloys Subject to High Shear Deformation: *Casey Davis*[1]; Jacob Edick[2]; Terry Lowe[1]; [1]Colorado School of Mines; [2]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 Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Monday PM
February 27, 2017

Room: 32A
Location: San Diego Convention Center

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

2:00 PM Invited
Advanced In Situ Loading Environments for High Energy Synchrotron X-ray Experiments: *Paul Shade*[1]; Basil Blank[2]; Jay Schuren[1]; Joel Bernier[3]; Darren Pagan[3]; David Menasche[4]; Robert Suter[4]; Armand Beaudoin[5]; Peter Kenesei[6]; Jun-Sang Park[6]; Jonathan Almer[6]; Darren Dale[7]; Peter Ko[7]; Todd Turner[1]; [1]Air Force Research Laboratory; [2]PulseRay; [3]Lawrence Livermore National Laboratory; [4]Carnegie Mellon University; [5]University of Illinois at Urbana Champaign; [6]Argonne National Laboratory; [7]Cornell University

2:25 PM
Unveiling the Micromechanical Response of Mg Alloys by EBSD-assisted Slip Trace Analysis
: Carmen M. Cepeda-Jiménez[1]; *María Teresa Pérez Prado*[1]; [1]IMDEA Materials Institute

2:45 PM
Development of a High Temperature Tensile Tester for Micromechanical Characterization of Materials Supporting Meso-Scale ICME Models: Zafir Alam[1]; *David Eastman*[1]; Minjea Jo[1]; Kevin Hemker[1]; [1]Johns Hopkins University

3:05 PM Invited
In Situ Micro-mechanical Testing of Ion Irradiated Materials: *Dhriti Bhattacharyya*[1]; Alan Xu[1]; Lyndon Edwards[1]; [1]ANSTO

3:30 PM Break

3:50 PM
Grain Growth and Mechanical Behavior of Nanostructured Intermetallic Films Studied Using In Situ TEM Annealing and Tensile Straining: *Rohit Sarkar*[1]; Jagannathan Rajagopalan[1]; [1]Arizona State University

4:10 PM
Crystal Size and Temperature Effects on the Transformation in Deformation Modes in Twin Oriented Mg Single Crystals: *Gi-Dong Sim*[1]; Kelvin Xie[1]; Kevin Hemker[1]; Jaafar El-Awady[1]; [1]Johns Hopkins University

4:30 PM Invited
In Situ Characterization of Electromigration and Thermal Cycling Damage and Grain Growth in Cu/Pure Sn/Cu Solder Joints: Antony Kirubanandham[1]; *Nikhilesh Chawla*[1]; [1]Arizona State University

4:55 PM Invited
Plasticity of Nano-Sized Metallic Glasses: *Dongchan Jang*[1]; [1]Korea Advanced Institute of Science and Technology

5:20 PM
In-situ Experiments Combining SEM and X-ray Computed Tomography: Torin Quick[1]; *Nathan Sesar*[2]; Robert Wheeler[3]; [1]Air Force Research Laboratory; [2]Southwestern Ohio Center for Higher Education; [3]MicroTesting Solutions LLC

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
February 27, 2017

Room: 14B
Location: San Diego Convention Center

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

2:00 PM
Accelerating Life-cycle Management Protocols for New Generation Batteries: *Timothy Ellis*[1]; John Howes[2]; [1]RSR Technologies, Inc.; [2]Redland Energy Group

2:20 PM
Recovery of Aluminum from the Secondary Aluminum Production Dust: *Myungwon Jung*[1]; Brajendra Mishra[1]; [1]Worcester Polytechnic Institute

2:40 PM
Fabrication of Aluminum Foam from Aluminum Scrap: *Abdel-Nasser Omran*[1]; Hamza Osman[2]; A. Atlam[2]; Moatasem Kh[2]; [1]Mining and Metallurgical Engineering Depart., Faculty of Engineering, Azhar University; [2]Mining and Metallurgical Engineering Depart., Faculty of Engineering, Azhar University

3:00 PM
A Low Temperature Procedure for the Delamination of Brominated Epoxy Resin of Waste Printed Circuit Boards: *Himanshu Verma*[1]; Kamalesh Singh[1]; Tilak Mankhand[1]; [1]IIT(BHU)

3:20 PM Break

3:40 PM
Recovery of Metals and Nonmetals from Waste Printed Circuit Boards (PCBs) by Physical Recycling Techniques: *Muammer Kaya*[1]; [1]ESOGÜ

4:00 PM
Recovery of Electrolytic Zinc from Aqueous Wastes: An Approach to the Industry of Hot Dip Galvanized: Luz Ocampo Carmona[1]; *Andres Meza Rodriguez*[1]; [1]Universidad Nacional de Colombia

4:20 PM
The Use of Rice Husk Ash as an Aggregate for Foundry Sand Mould Production: *Ayodeji Aapata*[1]; Adams Victoria[2]; [1]Federal Polytechnic Idah; [2]American University of Nigeria

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-jik Hong, Kongju National University; Philippe Jund, Université de Montpellier; Lan Li, Boise State University; Takao Mori, National Institute for Materials Science; Ce-Wen Nan, Tsinghua University; Hsin-jay Wu, National Sun Yat-Sen University

Monday PM
February 27, 2017

Room: 21
Location: San Diego Convention Center

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

2:00 PM Invited
Bottom-up Nanostructuring for Thermoelectrics: *Takao Mori*[1]; [1]National Institute for Materials Science (NIMS)

2:20 PM Invited
Nanostructure and Phonon Engineering in Oxide Thermoelectric Materials: *Michitaka Ohtaki*[1]; [1]Kyushu University

2:40 PM
A Facile Route for Ge Addition to Nanostructured Fe-Si Alloys Towards Improved Thermoelectric Properties: *Naiming Liu*[1]; Wade Jensen[1]; Long Chen[1]; Brian Donovan[1]; Patrick Hopkins[1]; Jerrold Floro[1]; [1]University of Virginia

3:00 PM
Silicon Carbide Particles as Nanoinclusions for Improved Thermoelectrics: *Devin Coleman*[1]; Sabah Bux[2]; Lorenzo Mangolini[1]; [1]University of California, Riverside; [2]Jet Propulsion Laboratory

3:20 PM Invited
Enhancement of Thermoelectric of PbTe Bulks Visa Heterogeneous Nanostructure: *Hongchao Wang*[1]; Junphil Hwang[2]; Chunlei Wang[1]; Woochul Kim[2]; [1]Shandong University; [2]Yonsei University

3:40 PM Break

4:00 PM Invited
Phononic Crystal Nanopatterning in Si and SiGe Thin Films for Thermoelectric Application: *Masahiro Nomura*[1]; [1]University of Tokyo

4:20 PM
Nanostructure of Si/transition Metal Silicide Composite Prepared by a Melt Spinning Method: *Yuji Ohishi*[1]; Tomoki Ebata[1]; Jun Xie[1]; Hiroaki Muta[1]; Ken Kurosaki[1]; Shinsuke Yamanaka[1]; [1]Osaka University

4:40 PM
Incorporation of HfO2 Nanoprecipitates:
Way to Improve Half-Heusler Thermoelectric Material: *Alizée Visconti*[1]; Guillaume Bernard-Granger[2]; Christelle Navone[1]; [1]CEA Grenoble; [2]CEA Marcoule

5:00 PM
Microstructure and Thermoelectric Properties of Silicon and Metal Silicides Nanocomposites Synthesized by a Melt Spinning Method: *Ken Kurosaki*[1]; Sora-at Tanusilp[1]; Yuji Ohishi[1]; Hiroaki Muta[1]; Shinsuke Yamanaka[1]; [1]Osaka University

5:20 PM Invited
Binary Titanium Alloys as Templates for Co-doping Titanium Oxide Photocatalysts: *J. Shang*[1]; Zhengchao Xu[2]; Qi Li[2]; [1]University of Illinois; [2]Institute of Metal Research

Alumina & Bauxite — Digestion and Calcination

Program Organizer: Zhang Ting'an, Northeastern University

Monday PM
February 27, 2017

Room: 5B
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[1]; Alessio Scarsella[1]; Edgar Gasafi[1]; *Hans-Werner Schmidt*[1]; [1]Outotec GmbH

2:30 PM
Evolutional Development of Alkaline Aluminosilicates Processing Technology: Sergey Vinogradov[1]; *Andrey Panov*[2]; Svyatoslav Engalychev[1]; [1]RUSAL Engineering and Technology Center; [2]RUSAL Engineering and Technology Center

2:55 PM
Characterization and Ore Dressing of Bauxite from Brazil: Fernanda Silva[1]; Karoline Ferreira[2]; *Carla Barbato*[3]; Adriana Felix[4]; Luiz Bertolino[5]; Marta Medeiros[6]; Francisco Garrido[6]; Daniel Barcellos[6]; Antônio Guerra[6]; Bruna Novo[7]; Danielle Castro[6]; [1]IQ/UFRJ ; [2]EQ-UFRJ/CETEM; [3]EQ-UFRJ; [4]IFRJ-CMAR; [5]CETEM; [6]IQ/UFRJ; [7]IQ-UFRJ/CETEM

3:20 PM
Process Optimization for Diaspore Digestion Equilibrium Using Response Surface Methodology: *Zhengyong Zhang*[1]; [1]Chalco

3:45 PM Break

4:00 PM
Thermodynamic Analysis and Formation Law of Q Phase of Calcium Aluminate Clinker: Long Lu[1]; Dongdong Ma[1]; Tianxu Zhang[2]; *Bo Wang*[1]; [1]Hebei University of Science and Technology; [2]Chengde Petroleum College

4:25 PM
Leaching Behavior of Alumina from Smelting Reduction Calcium Aluminate Slag with Sodium Carbonate Solution: *Z. F. Tong*[1]; yingjie li[1]; [1]Jiangxi University of Science and Technology

Aluminum Alloys, Processing and Characterization — Alloy Development and Applications

Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Monday PM
February 27, 2017

Room: 4
Location: San Diego Convention Center

Session Chair: In-Ho Jung, McGill University

2:00 PM Introductory Comments

2:05 PM Keynote
Aluminium, Current and Future Development: *Juergen Hirsch*[1]; [1]Hydro Aluminium Rolled Products GmbH

2:35 PM
Design of New 6xxx Series Al Alloy Using the CALPHAD Thermodynamic Database: *Senlin Cui*[1]; Raja Mishra[2]; In-Ho Jung[1]; [1]McGill University; [2]General Motors R&D Center

3:00 PM
Study of an Al-Ca Alloy with Low Young's Modulus: *Jun Yu*[1]; Yasuo ISHIWATA[1]; Yoshihiro TAGUCHI[1]; Daisuke SHIMOSAKA[1]; Ryosuke TANIGUCHI[1]; Takutoshi KONDO[2]; Nobuki TEZUKA[3]; [1]Nippon Light Metal; [2]Nikkei Niigata co. ltd; [3]Tohoku University

3:25 PM
Production of 3004 Aluminum Alloy Sheet for Structural Applications from Twin Roll Casting: *Ali Malcioglu*[1]; Seda Ertan[1]; [1]ASAS Alüminyum Sanayi ve Ticaret A.S.

3:50 PM Break

4:05 PM
Aluminum Alloys with Tailored TiB2 Particles for Composite Applications: Xingtao Liu[1]; Yanfei Liu[1]; David Yan[2]; Qingyou Han[1]; *Xiaoming Wang*[1]; [1]Purdue University; [2]University of Wisconsin-Green Bay

4:30 PM
Development of Low Expansion and High Strength Aluminium Hybrid Composite: *Jamuna Sethi*[1]; Siddhartha Das[1]; Karabi Das[1]; [1]Indian Institute of Technology Kharagpur

**4:55 PM Poster Session Previews
Select poster presenters in the Tuesday, February 28 poster session will give five-minute previews of their work during this time.**

Aluminum Reduction Technology — Electrolyte and Fundamentals, Anode Effects and PFC Emissions

Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Monday PM
February 27, 2017

Room: 2
Location: San Diego Convention Center

Session Chairs: Jayson Tessier, Alcoa; Thor Aarhaug, SINTEF

2:00 PM Introductory Comments

2:05 PM
Bauxite Processing via Chloride Route to Produce Chloride Products and Subsequent Electrolysis of Aluminium Chloride to Produce Aluminium Metal:

Sankar Namboothiri[1]; Subash Mallick[1]; [1]Gharda Scientific Research Foundation

2:30 PM
Stability of Chlorides in Cryolitic Electrolyte: Luis Espinoza-Nava[1]; *Xiangwen Wang*[1]; [1]Alcoa Technical Center

2:55 PM
Co-evolution of Carbon Oxides and Fluorides during the Electrowinning of Aluminium with Molten NaF-AlF3-CaF2-Al2O3 Electrolytes: Mark Dorreen[1]; Margaret Hyland[1]; R. G. Haverkamp[2]; James Metson[1]; Ali Jassim[3]; B.J. Welch[4]; *Alton Tabereaux*[5]; [1]University of Auckland; Light Metals Research Centre; [2]University of Auckland; [3]University of New South Wales; [4]University of Auckland; University of New South Wales; [5]Consultant

3:20 PM
Preventive Treatment of Anode Effects Using On-Line Individual Anode Current Monitoring: *Lukas Dion*[1]; François Laflamme[2]; Antoine Godefroy[2]; Charles-Luc Lagacé[2]; James Evans[3]; László Kiss[1]; Sándor Poncsák[1]; [1]Université du Québec à Chicoutimi; [2]Aluminerie Alouette inc.; [3]Wireless Industrial Technologies

3:45 PM Break

4:00 PM
Partial Anode Effect in a Two-Compartment Laboratory Alumina Reduction Cell: *Henrik Åsheim*[1]; Thor Aarhaug[2]; Wojciech Gebarowski[1]; Asbjørn Solheim[2]; Geir Haarberg[1]; [1]NTNU; [2]SINTEF

4:25 PM
Sodium in Aluminium as a Cell Performance Indicator: A Quantitative Framework
: *Asbjorn Solheim*[1]; [1]SINTEF

4:50 PM
Role of Heat Transfer in the Formation of Carbon Oxides in Smelting Cells: Mark Dorreen[1]; N.E. Richards[2]; *Barry Welch*[3]; [1]Light Metals Research Centre, The University of Auckland; [2]Retired; [3]University of Auckland; University of New South Wales

5:15 PM
Reduction in EGA Jebel Ali Potroom GHG Emissions: *Daniel Whitfield*[1]; Sergey Akhmetov[1]; Najeeba Al-Jabri[1]; [1]Emirates Global Aluminium (EGA)

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Electrometallurgy

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

Monday PM
February 27, 2017

Room: 15B
Location: San Diego Convention Center

Session Chair: Shijie Wang, Rio Tinto Kennecott Utah Copper

2:00 PM
Modeling of Aluminum Electrowinning in Ionic Liquid Electrolytes: *Mingming Zhang*[1]; Ramana Reddy[2]; [1]ArcelorMittal Global R&D; [2]The University of Alabama

2:25 PM
Electrochemical Processing of Rare Earth Alloys: *Karen Osen*[1]; Ana Maria Martinez[1]; Henrik Gudbrandsen[1]; Anne Store[1]; Ole Kjos[1]; [1]SINTEF Materials and Chemistry

2:50 PM
Effect of Cobalt Concentration on the Potential for Oxygen Evolution from Pb-Ca-Sn Anodes in Synthetic Copper Electrowinning Electrolytes: *Charles Abbey*[1]; Michael Moats[1]; [1]Missouri University of Science and Technology

3:15 PM
Corrosion Resistance of Ni-P-Zn Alloy Deposit Coated Using a Sulfate Electroless Bath: *Amir Kordijazi*[1]; Mohsen Manjili[1]; [1]University of Wisconsin–Milwaukee

3:40 PM Break

4:00 PM
Cobalt Electrodeposition from Cobalt Chloride Using Urea and Choline Chloride Ionic Liquid: Effect of Temperature, Applied Voltage, and Cobalt Chloride Concentration on Current Efficiency and Energy Consumption: *Andrea Kim*[1]; Ramana Reddy[1]; [1]University of Alabama

4:25 PM
METTOP-BRX Technology – Eliminating Concerns and Highlighting Potentials of the Concept of Tankhouse Optimization: *Andreas Filzwieser*[1]; Iris Filzwieser[1]; Stefan Wallner[1]; [1]Mettop GmbH

4:50 PM
Mathematical Modeling of Molten Salt Electrolytic Cells for Sodium and Lithium Production: Donghui Li[1]; Lei Gao[1]; Boyd Davis[2]; Rüdiger Schwarze[3]; Amjad Asad[3]; Christoph Kratzsch[3]; *Kinnor Chattopadhyay*[1]; [1]University of Toronto; [2]Kingston Process Metallurgy inc; [3]TU Bergakademie Freiberg

5:15 PM
An Investigation on the Kinetics and Mechanism of Alkali Reduction of Mine Waste containing Titaniferous Minerals for the Recovery of Metals: *Stephen Parirenyatwa*[1]; Animesh Jha[1]; Lidia Escudero Castejon[1]; Sergio Sanchez-Segado[1]; Yotamu Hara[1]; [1]University of Leeds

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
February 27, 2017

Room: 19
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 Mohagheghi[1]; *Melis Serefoglu*[1]; [1]Koc University

2:20 PM Invited
Effect of Crystal Orientation Relationships on Lamellar Eutectic Solidification Microstructures: *Sabine Bottin-Rousseau*[1]; Oriane Senninger[1]; Gabriel Faivre[1]; Silvère Akamatsu[1]; [1]UPMC-CNRS

2:40 PM
Influence of Crystal Orientation on the Dynamical Selection of Propagative Cellular Solidification Patterns: Younggil Song[1]; Sabine Bottin-Rousseau[2]; *Silvere Akamatsu*[2]; Alain Karma[1]; [1]Northeastern University; [2]CNRS - UPMC

3:00 PM
4D Synchrotron X-ray Quantification of the Cellular to Dendritic Transition: Biao Cai[1]; *Peter Lee*[1]; Andrew Kao[2]; Andre Phillion[3]; Koulis Pericleous[4]; [1]University of Manchester; [2]University of Greenwich; [3]McMaster University; [4]University of Greenwich

3:20 PM
Thermal Analysis of Cu-Cu2O Eutectic: Cécile FOSSE[1]; Manuel Castro-Román[2]; *Jacques Lacaze*[1]; Luc Robbiola[1]; [1]Université de Toulouse; [2]CINVESTAV Saltillo

3:40 PM Break

4:00 PM
Microstructural Development During Thin Film Solidification: Comparison of Experiments and Simulations: *Theron Rodgers*[1]; Amy Clarke[2]; John Gibbs[3]; James Mertens[3]; Daniel Coughlin[3]; Harrison Whitt[3]; Joseph McKeown[4]; John Roehling[4]; J. Baldwin[3]; Seth Imhoff[3]; Damien Tourret[3]; Jonathan Madison[1]; [1]Sandia National Laboratories; [2]Colorado School of Mines; [3]Los Alamos National Laboratories; [4]Lawrence Livermore National Laboratory

4:20 PM
Investigation of the Metatectic Reaction in Boron Containing Steels: *Kara Luitjohan*[1]; Matthew Krane[1]; Volkan Ortalan[1]; David Johnson[1]; [1]Purdue University

4:40 PM
Solidification Characteristics of CNTs/Mg Composite with Ultrasonic: *Yuansheng Yang*[1]; Fuze Zhao[1]; Xiaohui Feng[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

5:00 PM
Microstructure Characteristics of A356 Nanocomposites Manufactured via Ultrasonic Cavitation Processing under Controlled Solidification Conditions: *Yang Xuan*[1]; Laurentiu Nastac[1]; [1]The 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; Jaroslaw 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 Perry*[1]; [1]Nottingham Trent University

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

2:50 PM
Engineering Hydrogels with Bioactive Nanomaterials for Bone Regeneration Applications: Settimio Pacelli[1]; Ryan Maloney[1]; *Arghya Paul*[1]; [1]University of Kansas

3:20 PM Invited
Engineered Bio-Nano Interfaces of Titanium Biomedical Implants: *Sermin Utku*[1]; [1]Yeditepe 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 Biocompatiblity: Adam Drelich[1]; Roger Guillory[1]; Jeremy Goldman[1]; *Jaroslaw Drelich*[1]; [1]Michigan Technological University

4:40 PM
A Bone-mimetic 3D Metastasis Cancer Tumor Model: *Kalpana Katti*[1]; MD Shahjahan Molla[1]; Sumanta Kar[1]; Dinesh Katti[1]; [1]North Dakota State University

5:00 PM
Nanostructured Surfaces for Dental Implant Applications: *Carlos Elias*[1]; Daniel Fernandes[1]; [1]Instituto Militar de Engenharia

5:30 PM
Modulation of Antimicrobial Peptide Activity at the Medical Implant Interface through Chimeric Peptide Spacer Design: *Cate Wisdom*[1]; Sarah VanOosten[1]; Kyle Boone[1]; Paul Arnold[2]; Malcolm Snead[3]; Candan Tamerler[4]; [1]University of Kansas, Bioengineering Program; [2]University of Kansas Medical Center, Department of Neurosurgery; [3]The University of Southern California, Center for Craniofacial Molecular Biology, Herman Ostrow School of Dentistry; [4]University of Kansas, Mechanical Engineering Department

Biological Materials Science — Biomaterials and Biomedical Applications

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

Monday PM
February 27, 2017

Room: Pacific 15
Location: Marriott Marquis Hotel & Marina

Session Chairs: Francois Barthelat, McGill University; Benjamin Hatton, University of Toronto

2:00 PM Keynote
Peptide-Enabled Materials & Systems for Technology & Medicine: *Mehmet Sarikaya*[1]; David Starkebaum[1]; Carolyn Gresswell[1]; Deniz Yucesoy[1]; Hanson Fong[1]; [1]University of Washington

2:40 PM
Nano- and Micro- scale Mechanical Properties of the Sclera following Proteoglycan Degradation: Zhuola Zhuola[1]; *Riaz Akhtar*[1]; [1]University of Liverpool

3:00 PM
Synthesis of Magnetic Nanoparticles as Effective Hyperthermia Agent: *Jun Ding*[1]; [1]National University of Singapore

3:20 PM
Localized Nanomechancial Characterization of Arterial Stiffening in Human Arteries with the PeakForce Quantitative Nanomechanical Mapping Technique: *Zhuo Chang*[1]; Riaz Akhtar[2]; Maria Hansen[3]; Lars Rasmussen[4]; Po-Yu Chen[5]; Paolo Paoletti[6]; [1]University of Liverpool; [2]Centre for Materials and Structures, School of Engineering, University of Liverpool; [3]Department of Cardiothoracic and Vascular Surgery, Odense University Hospital; [4]Department of Clinical Biochemistry and Pharmacology, Centre of Individuakized Mmedicine In Arterial Diseases, Odense University Hospital; [5]Department of Materials Science and Engineering, National Tsing Hua University; [6]Centre for Engineering Dynamics, School of Engineering, University of Liverpool

3:40 PM Break

3:50 PM Invited
Engineering Antibacterial and Anti-Biofilm Surfaces: Dalal Asker[1]; *Benjamin Hatton*[2]; [1]University of Toronto; Alexandria University; [2]University of Toronto

4:20 PM
Development of Sponge Structure and Casting Conditions for Absorbable Magnesium Bone Implants: *Stefan Julmi*[1]; Christian Klose[1]; Ann-Kathrin Krüger[1]; Peter Wriggers[1]; Hans Jürgen Maier[1]; [1]Leibnitz Universitaet Hannover

4:40 PM
Wet-lay Textile Technique for Biological Fiber Reinforced Hydrogel Scaffolds: Andrew Wood[1]; *Vinoy Thomas*[1]; [1]University of Alabama at Birmingham

5:00 PM
Mechanical Properties of Synthetic Bone and Tissue Simulants: *Andrew Brown*[1]; Juan Pablo Escobedo-Diaz[1]; Paul Hazell[1]; [1]UNSW Australia

5:20 PM
Design of Novel Low-Ni Shape Memory Alloys for Biomedical Applications: *Dana Frankel*[1]; Ida Berglund[1]; Weiwei Zhang[1]; Nicholas Hatcher[1]; Jason Sebastian[1]; Gregory Olson[2]; [1]QuesTek Innovations LLC; [2]Northwestern University

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
February 27, 2017

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. Terdik[1]; David Weitz[1]; *Frans Spaepen*[1]; [1]Harvard School of Engrg & Appl Sciences

2:30 PM Invited
Structure Modulation and Brittle-to-ductile Transition in Metallic Glasses: *Juergen Eckert*[1]; [1]Montanuniversität Leoben

2:50 PM Invited
Thin Film Metallic Glasses: Novel Diffusion Barrier Materials for Solar Cell and Electronic Packaging Applications: Chia-chi Yu[1]; Cheng-Min Lee[1]; Chia-Lin Li[1]; Chia-Hao Chang[1]; *Jinn Chu*[1]; [1]National Taiwan University of Science and Technology

3:10 PM
Improving the Glass Formation and Mechanical Behavior of Ni-free TiZr-based Bulk Metallic Glasses by Ga Additions

: *Mariana Calin*[1]; Supriya Bera[1]; Ramasamy Parthiban[1]; Mihai Stoica[1]; Jürgen Eckert[2]; [1]IFW Dresden; [2]Montanuniversität Leoben

3:30 PM Break

3:50 PM
Minimizing Losses in Ferromagnetic Metallic Glass Power Transformers: *Michael Floyd*[1]; Marios Demetriou[2]; William Johnson[1]; [1]California Institute of Technology; [2]Glassimetal Technology

4:10 PM Invited
Property Enhancement of BMG Based Nanoglasses Prepared by RF Sputtering of Thin Films
: *Hans Fecht*[1]; Pierre Denis[1]; [1]Ulm University

4:30 PM Invited
Design and Development of Catalytic Amorphous Metals for Energy Conversion and Environmental Remediation: *Sundeep Mukherjee*[1]; [1]University of North Texas

4:50 PM
Manufacturing of Cu-based Metallic Glasses Matrix Composites by Spark Plasma Sintering
: *Sandrine Cardinal*[1]; Jean-Marc Pelletier[1]; Guoquiang Xie[1]; Jichao Qiao[1]; [1]INSA

Cast Shop Technology — Continuous Strip Casting

Program Organizer: David Gildemeister, Alcoa Technical Center

Monday PM
February 27, 2017

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 Matsui*[1]; Koichi Takahashi[1]; [1]UACJ Corporation

2:30 PM
Influence of Process Conditions on Segregation Behavior in Twin-Roll Casting of an AlFeSi Alloy: *Christian Schmidt*[1]; Dag Mortensen[2]; Kai Karhausen[1]; [1]Hydro Aluminium Rolled Products GmbH; [2]Institute for Energy Technology

2:55 PM
Effect of Magnesium Content on Microstructure and Mechanical Properties of Twin-Roll Cast Aluminum Alloys: *Onur Meydanoglu*[1]; Cemil Isiksaçan[1]; Hatice Mollaoglu Altuner[1]; Mert Günyüz[1]; Onur Birbasar[1]; [1]Assan Alüminyum San. Tic. AS

3:20 PM Break

3:35 PM
Influence of Sticking on the Roll Topography at Twin-roll Casting of Aluminum Alloys: *Olexandr Grydin*[1]; Florian Nürnberger[2]; Mirko Schaper[1]; [1]University of Paderborn; [2]Leibniz Universität Hannover

4:00 PM
Material Surface Roughness Change in Twin Roll Casting of Aluminium as Cast Sheet Product: *Ali Ulus*[1]; Ceyhun Kuru[1]; Özgür Özsahin[1]; Sadik Kaan Ipek[1]; Eda Dagdelen[1]; [1]Teknik Aluminium

4:25 PM
Twin-roll Casting of Aluminum-steel Clad Strips: Static and Dynamic Mechanical Properties of the Composite: *Mykhailo Stolbchenko*[1]; Olexandr Grydin[1]; Mirko Schaper[1]; [1]Paderborn University

Cast Shop Technology — Foundry and Shape Casting

Program Organizer: David Gildemeister, Alcoa Technical Center

Monday PM
February 27, 2017

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 Farooq*[1]; Randolph Kirchain[1]; Richard Roth[1]; Alan Luo[2]; Diran Apelian[3]; Andrew Klarner[2]; Joshua Curto[4]; Libo Wang[4]; [1]Massachusetts Institute of Technology; [2]The Ohio State University; [3]Worcester Polytechnic Institute ; [4]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 Messer*[1]; Uwe Vroomen[1]; Andreas Bührig-Polaczek[1]; [1]Foundry Institute RWTH Aachen University

2:55 PM
X-Ray Computed Tomographic Investigation of High Pressure Die Castings: *Shouxun Ji*[1]; Douglas Watson[2]; Zhongyun Fan[1]; [1]Brunel University; [2]Jaguar Cars Ltd

3:20 PM
The Comparison of Intensive Riser Cooling of Castings after Solidification in Three Classic Metals: *Shangguan Haolong*[1]; Kang Jinwu[1]; [1]Tsinghua University

3:45 PM Break

4:00 PM
Sequential Gravity Casting in Functionally Graded Aluminum Alloys Development: *Mario Rosso*[1]; Silvia Lombardo[1]; Federico Gobber[1]; [1]POLITECNICO di Torino

4:25 PM
Assessment of Eutectic Modification Level in Al-Si Alloys via Thermal Analysis: Maiada Abdelrahman[1]; *Mahmoud Abdu*[1]; Waleed Khalifa[1]; [1]Cairo University

Ceramic Materials for Nuclear Energy Research and Applications — Fuel Performance Modeling and Fundamental Defect Science in Ceramics

Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Monday PM
February 27, 2017

Room: Palomar
Location: Marriott Marquis Hotel & Marina

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

2:00 PM Invited
Highlights of Ceramic Nuclear Fuel Research within the Nuclear Energy Advanced Modeling and Simulation (NEAMS) Program: *Chris Stanek*[1]; [1]Los Alamos National Laboratory

2:30 PM
Modeling the Effect of Percolation on Fission Gas Release in UO2 Nuclear Fuels: *Larry Aagesen*[1]; Daniel Schwen[1]; [1]Idaho National Laboratory

2:50 PM
Irradiation-induced Recrystallization in UO2: A Phase Field Study: *Karim Ahmed*[1]; Xianming Bai[1]; Yongfeng Zhang[1]; Daniel Schwen[1]; Cody Permann[1]; Bulent Biner[1]; [1]Idaho National Laboratory

3:10 PM
Sensitivity Analysis and Uncertainty Quantification of the MARMOT Mesoscale Fuel Performance Code: *Marina Sessim*[1]; Michael Tonks[1]; Jie Lian[2]; [1]Pennsylvania State University; [2]Rensselaer Polytechnic Institute

3:30 PM Break

4:00 PM Invited
Theoretical and Experimental Investigation of the Interrelationship Between Radiation Damage and Ionic Transport in Pyrochlore: *Blas Uberuaga*[1]; Romain Perriot[1]; James Valdez[1]; Terry Holesinger[1]; Yongqiang Wang[1]; Cortney Kreller[1]; [1]Los Alamos National Laboratory

4:30 PM
Atomistic Simulation of Swift Heavy Ion Irradiation Effects in UO_2 and CeO_2: *Ram Devanathan*[1]; [1]Pacific Northwest National Laboratory

4:50 PM
First-principles Modeling of Point Defects in (U,Pu)O2 Mixed Oxide Fuel: *Michel Freyss*[1]; Marjorie Bertolus[1]; Ibrahim Cheik Njifon[1]; Lei Shi[1]; [1]CEA, DEN

5:10 PM
One-Dimensional String-like Relaxation in Actinide Oxides: *Ajay Annamareddy*[1]; Jacob Eapen[1]; [1]NC State University

Characterization of Materials through High Resolution Coherent Imaging — Coherent 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

Monday PM
February 27, 2017

Room: 25B
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM
Coherent X-ray Diffraction Measurements of Lattice Distortions Caused by Ion Bombardment: *Felix Hofmann*[1]; Edmund Tarleton[1]; Ross Harder[2]; Nicholas Phillips[3]; Jesse Clark[4]; Ian Robinson[5]; Brian Abbey[3]; Wenjun Liu[2]; Yevhen Zayachuk[1]; Christian Beck[1]; [1]University of Oxford; [2]Argonne National Lab; [3]LaTrobe University; [4]SLAC National Accelerator Laboratory; [5]University College

2:30 PM
Unraveling the Structure-function Relationships in Ion Implanted Nanodiamonds: Salman Maqbool[1]; Alastair Stacey[2]; Nicholas Phillips[1]; Henry Kirkwood[1]; Brett Johnson[2]; Ross Harder[3]; David Hoxley[1]; *Brian Abbey*[1]; [1]La Trobe University; [2]The University of Melbourne; [3]Advanced Photon Source

3:00 PM
Imaging Strain Fields by Ptychographic Topography: *Steven Van Petegem*[1]; Ana Diaz[1]; Maxime Dupraz[1]; Ainara Irastorza[1]; [1]Paul Scherrer Institut

3:20 PM Break

3:40 PM
Progress towards Dichroic Bragg Coherent Diffractive Imaging: *Jonathan Logan*[1]; Ross Harder[1]; Luxi Li[1]; Daniel Haskel[1]; Daniel Rosenmann[1]; Martin Holt[1]; Yihua Liu[1]; Tenzin Sangpo[1]; Robert Winarski[1]; Ian McNulty[1]; [1]Argonne National Laboratory

4:10 PM
Photoelastic Ptychography: A New Approach for Quantitative Stress Determination: *Guido Cadenazzi*[1]; Keith Nugent[1]; Nicholas Anthony[1]; Brian Abbey[1]; [1]La Trobe University

4:30 PM
Soft-X-ray Ptychographic Imaging of Shale: Namhey Lee[1]; Peter Nico[1]; David Shapiro[1]; Manika Prasad[2]; Timothy Kneafsey[1]; *Benjamin Gilbert*[1]; [1]Lawrence Berkeley National Lab; [2]Colorado School of Mines

4:50 PM
Polychromatic Bragg Coherent X-ray Diffraction Imaging for Rapid Measurements: *Wonsuk Cha*[1]; Stephan Hruszkewycz[1]; Matthew Highland[1]; Ross Harder[1]; Wenjun Liu[1]; Ruqing Xu[1]; Paul Fuoss[1]; [1]Argonne National Laboratory

5:10 PM
Coherent X-ray Imaging at Future High Brightness Synchrotron Sources: *Ross Harder*[1]; [1]Argonne National Lab

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 ; 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
February 27, 2017

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[1]; [1]Carnegie Mellon University

2:20 PM
Characterization of Low-zinc Electric Arc Furnace Dust: *Zhiwei Peng*[1]; Xiaolong Lin[1]; Jiaxing Yan[1]; Jiann-Yang Hwang[1]; Yuanbo Zhang[1]; Guanghui Li[1]; Tao Jiang[1]; [1]Central South University

2:40 PM
Formation of ZrO_2 in Coating on AZ31 Mg Alloy via Plasma Electrolytic Oxidation: Phase and Structure of Zirconia: *Jung-Woo Choi*[1]; Gye-Won Kim[1]; Bongyoung Yoo[1]; Dong-Hyuk Shin[1]; [1]Hanyang University

3:00 PM
Gamma-radiation Effect on Biodegradability of Synthetic PLA Structural Foams PP/HMSPP Based: *Elizabeth Cardoso*[1]; Sandra Scagliusi[1]; Ademar Lugão[1]; [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*[1]; Esperidiana Moura, A. B.[1]; Glauson Mahado[1]; René Oliveira[1]; [1]IPEN - Instituto de Pesquisas Energéticas e Nucleares

3:40 PM Break

3:55 PM
Study on the Electrically Assisted Springback Reduction of Super-elastic Titanium Alloys: *Yong-Ha Jeong*[1]; Viet Tien Luu[1]; Trung Thien Nguyen[1]; Sung-Tae Hong[1]; Hyunwoo So[2]; Heung Nam Han[3]; Sangwoo So[4]; Hyun-Tae Hwang[4]; [1]University of Ulsan; [2]LG electronics; [3]Seoul National University; [4]Ulsan Technopark

4:15 PM
Electrical and Microstructural Investigation of $Ni_{0.5}Co_{0.5}Cu_{0.3}Zn_{0.3}Mn_{1.4}O_4$ Temperature Sensors: *Gökhan Hardal*[1]; Berat Yüksel Price[1]; [1]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*[1]; Michael Carpenter[2]; Xiaobing Ren[1]; [1]Xi'an Jiaotong University; [2]University of Cambridge

4:55 PM
Synthesis of ZnO Micro Prisms on Glass Substrates by the Spray Pyrolysis Method: *Shadia Ikhmayies*[1]; [1]Al Isra University

Characterization of Minerals, Metals, and Materials — Nano 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 ; 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
February 27, 2017

Room: 32B
Location: San Diego Convention Center

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

2:00 PM
Enhanced Physical Properties of Thin Film Nanocomposites: *T. Thuy Minh Nguyen*[1]; Sathish Lageshetty[1]; Paul Bernazzani[1]; [1]Lamar University

2:20 PM
Grain Size and Mechanical Properties in Severely Rolled Duplex Steel: *John Carpenter*[1]; Nan Li[1]; Rodney McCabe[1]; Nathan Mara[1]; Irene Beyerlein[2]; [1]Los Alamos National Laboratory; [2]University of California - Santa Barbara

2:40 PM
Effect of Incorporation of POSS into Fluoroelastomer Matrix: *Heloisa Zen*[1]; Ademar Lugão[1]; [1]IPEN

3:00 PM
A Study on the Size and Type of Inclusions in Si-Mn Combined Deoxidated Low Carbon Steel Strip: *Ting Wang*[1]; [1]Shanghai University

3:20 PM
To Twin or Not to Twin in Boron Carbide: *Kelvin Xie*[1]; Fatih Toksoy[2]; Vlad Domnich[3]; James McCauley[4]; Rich Haber[3]; Kevin Hemker[1]; [1]Johns Hopkins University; [2]Rutgers University ; [3]Rutgers University; [4]U.S. Army Research Lab

3:40 PM Break

3:55 PM
Dispersion of Nano-SiO2 Sand Particles in GFRP Composite via Hand Lay-up Technique: Zuhaib Jamil[1]; *Shahab Khushnood*[1]; Sirjeel Isaac[1]; Kamran Ghafoor[1]; Muhammad Salman Shahid[1]; Imran Abdul Shakoor[1]; [1]University of Engineering & Technology Taxila

4:15 PM
The Influence of Grain Boundaries and Grain Orientations on the Stochastic Responses to Low Load Nanoindentation in Cu: *Benjamin Schuessler*[1]; Pui Ching Wo[1]; Hussein Zbib[1]; [1]Washington State University

4:35 PM
Magnetic Property and Core-shell Nanostructure of Ni Nanoparticles Coated on Si3N4 Powders: *Huazhang Zhai*[1]; [1]Beijing Institute of Technology

4:55 PM
Dielectric Property, Characterization and Preparation of 3Y-ZrO2/TiO2 Solid Solution Ceramics: *Huazhang Zhai*[1]; [1]Beijing Institute of Technology

5:15 PM
Effect of Argon Gas Purging of Spark Plasma Sintered ZrB_2+SiC Nano-powder Composites: *Naidu Seetala*[1]; Owen Reedy[1]; Lawrence Matson[2]; HeeDong Lee[3]; Thomas Key[3]; [1]Gramblimg State University; [2]Wright-Patterson Air Force Research Lab; [3]UES, Inc.

5:35 PM
Formation of Three Dimensional ZnO Micro Flowers from self Assembled ZnO Micro Discs: *Shadia Ikhmayies*[1]; [1]Al Isra University

Computational Materials Discovery and Optimization – From Bulk to Materials Interfaces and 2D Materials — 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
February 27, 2017

Room: 11A
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Polyphony in B Flat -- Is the Two-dimensional Boron Truly Emerging?: *Boris Yakobson*[1]; Yuanyue Liu[2]; [1]Rice University; [2]Caltech

2:30 PM
Topology-Scaling Identification of Layered Compounds and Stable Exfoliated 2D Materials: Michael Ashton[1]; Joshua Paul[1]; Susan Sinnott[2]; *Richard Hennig*[1]; [1]University of Florida; [2]Pennsylvania State University

2:50 PM
Two-Dimensional Multiferroics for Novel Multifunctional Mechano-Opto-Electronic Devices: Hua Wang[1]; *Xiaofeng Qian*[1]; [1]Texas A&M University

3:10 PM
Opening Electronic Band Gaps in 2D Materials by Deformation Twins: *Dingyi Sun*[1]; David Rojas[2]; Mauricio Ponga[2]; [1]California Institute of Technology; [2]University of British Columbia

3:30 PM Break

3:45 PM Invited
Tailoring Properties of 2D Transition Metal Dichalcogenides: Looking Beyond Graphene: *Talat Rahman*[1]; [1]University of Central Florida

4:15 PM
Structural and Vibrational Properties of Transition Metal Dichalcogenide Polymorphs: *Kamal Choudhary*[1]; Arunima Singh[1]; Francesca Tavazza[1]; [1]National Institute of Standards and Technology

4:35 PM Invited
Van der Waals Interactions in Nanoscale Materials: A Solved Problem ?: *Alexandre Tkatchenko*[1]; [1]University of Luxembourg

5:05 PM
Two-Dimensional Materials-by-Design for Electronic and Energy Conversion Applications: *Lan Li*[1]; Izaak Williamson[1]; [1]Boise State University

5:25 PM
A Three-Dimensional Phase-Field Crystal Model for 2D Materials Using Multiple-Point Correlation functions: *David Montiel*[1]; Guanglong Huang[1]; Matthew Seymour[2]; Nikolas Provatas[2]; Katsuyo Thornton[1]; [1]University of Michigan; [2]McGill 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
February 27, 2017

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 Wolverton*[1]; [1]Northwestern University

2:30 PM
Computational Design and Optimization of Shape Memory Alloys for Solid State Cooling and Refrigeration: *Brian Blankenau*[1]; [1]University of Illinois

2:50 PM
Development of Gibbs Energy Functionals for Phase Field Crystal Modelling of Metastable Phase Evolution in Aluminium Alloys: *Xiang Ma*[1]; Zhaohu Wang[1]; Qiang Du[1]; [1]SINTEF Materials and Chemistry

3:10 PM Invited
High Temperature Aluminum Alloy Development: Computational Thermodynamics and Kinetics: *Amit Shyam*[1]; Dongwon Shin[1]; Shibayan Roy[1]; Lawrence Allard[1]; Yukinori Yamamoto[1]; James Haynes[1]; [1]Oak Ridge National Laboratory

3:40 PM Break

4:00 PM
Development of a Thermodynamic Database for a Co Based Superalloy for GT Vanes to Predict the Service Induced fcc-hcp Martensitic Transformation: *Erica Vacchieri*[1]; Gabriele Cacciamani[2]; Giacomo Roncallo[2]; Alessio Costa[1]; [1]Ansaldo Sviluppo Energia S.p.A.; [2]Chemistry Department, University of Genoa

4:20 PM
Thermodynamic Models for the Design of Stable Nanocrystalline Alloys: *Jason Trelewicz*[1]; Heather Murdoch[2]; Fadi Abdeljawad[3]; [1]Stony Brook University; [2]Army Research Laboratory; [3]Sandia National Laboratories

4:40 PM
Surface Stability of Austenitic Stainless Steel Alloys under Pressurized Water Reactor (PWR) Conditions: *Zsolt Rak*[1]; Donald Brenner[1]; [1]NCSU

5:00 PM
Metropolis-Hastings Algorithm for Bayesian Uncertainty Analysis of CALPHAD Model: *Thien Duong*[1]; Pejman Honarmandi[1]; Raymundo Arroyave[1]; [1]Texas A&M University

Defects and Properties of Cast Metals — Defects II & Properties I

Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Monday PM
February 27, 2017

Room: 23A
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Introductory Comments Defects 2 session

2:05 PM
Reducing Freckle Formation with External Magnetic Fields: *Andrew Kao*[1]; Koulis Pericleous[1]; [1]University of Greenwich

2:25 PM
Modelling the Effects of Fluid Flow on Microstructure Evolution at the Component Scale: *Matthaios Alexandrakis*[1]; Andrew Kao[1]; Koulis Pericleous[1]; [1]University of Greenwich

2:45 PM
Determining Eutectic Grain Size and Casting Defects in an Al-12Si-0.8Cu-0.5Fe-0.9Mg-0.7Ni-0.2Zn Alloy: Jiehua Li[1]; Bernd Oberdorfer[2]; Daniel Habe[2]; *Peter Schumacher*[3]; [1]University of Leoben; [2]Austrian Foundry Research Institute; [3]University 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 Kärkkäinen*[1]; Laurentiu Nastac[1]; Luke Brewer[1]; Vishweshwar Arvikar[2]; Ilya Levin[2]; [1]The University of Alabama; [2]Nemak

3:25 PM Break

3:45 PM Introductory Comments Properties 1 Session

3:50 PM Invited
Influence of Geometry and Aluminum Content on the Microstructure and Tensile Behavior of HPDC Mg AM Series Alloys: *Erin Deda*[1]; John Allison[1]; [1]University of Michigan

4:10 PM
Corrosion Behaviour of V and B Grain Refined A360: *Eda Ergun Songul*[1]; Cemre Bas[1]; Derya Dispinar[1]; Gökhan Orhan[1]; [1]Istanbul University

4:30 PM
Assessment of the Impact of Water-Cooled Chill Technology on Microstructure Length-Scales in an A319 Engine Block Casting: *Farzaneh Farhang Mehr*[1]; Steve Cockcroft[1]; Daan Maijer[1]; Robert MacKay[2]; Wade Marquardt[3]; [1]UBC; [2]Nemak of Canada Corporation; [3]Highland Foundry Ltd.

4:50 PM
Defect Bands in an A356 Wheel Fabricated by Horizontal Squeeze Casting: *Xiusong Huang*[1]; [1]Department of Mechanical Engineering, Tsinghua University

Deformation and Transitions at Interfaces — Defects/ Grain Boundary Interactions

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

Monday PM
February 27, 2017

Room: 23B
Location: San Diego Convention Center

Session Chair: Remi Dingreville, PO box 5800

2:00 PM Invited
A Concurrent Atomistic-continuum Study of Sequential Slip Transfer of Curved Dislocations across Grain Boundaries: Shuozhi Xu[1]; *David McDowell*[1]; Liming Xiong[2]; Youping Chen[3]; [1]Georgia Institute of Technology; [2]Iowa State University; [3]University of Florida

2:20 PM Invited
Investigation of Slip Transfer across Grain Boundaries with Application to Cold Dwell Facet Fatigue: Zebang Zheng[1]; Daniel Balint[1]; *Fionn Dunne*[1]; [1]Imperial College

2:40 PM
Atomistic Simulation Algorithm for Studying Dislocation Glide Loop – Grain Boundary Interactions in Aluminum: Khanh Dang[1]; Laurent Capolungo[2]; *Douglas Spearot*[1]; [1]University of Florida; [2]Los Alamos National Laboratory

3:00 PM
A Micro-Compression Test Study of Grain Boundary Sliding: *Jicheng Gong*[1]; Angus Wilkinson[1]; [1]University of Oxford

3:20 PM Invited
Criteria for Grain Boundary Dislocation Nucleation on Different Slip Systems Obtained by Atomistic Simulations: *Eric Homer*[1]; Ricky Wyman[1]; [1]Brigham Young University

3:40 PM Break

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

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

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

5:00 PM Invited
Stresses in Reverse-deformed Single Crystal Cu: Quantitative Tests of the Composite Model: *Lyle Levine*[1]; Thien Phan[1]; I-Fang Lee[2]; Ruqing Xu[3]; Yaakov Idell[1]; Michael Kassner[2]; [1]National Institute of Standards and Technology; [2]University of Southern California; [3]Argonne National Laboratory

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

Electrode Technology — Anode Characterization

Program Organizer: Houshang Alamdari, Laval University

Monday PM
February 27, 2017

Room: 1B
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 Rørvik*[1]; Lorentz Lossius[2]; [1]SINTEF Materials & Chemistry; [2]Hydro Aluminium

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

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

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

3:45 PM Break

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

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

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

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

Monday PM
February 27, 2017

Room: 30E
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*[1]; Zhiqiang Chen[1]; Greg Baty[1]; Thomas R. Bieler[2]; Choong-Un Kim[3]; [1]Portland State University; [2]Michigan State University; [3]University 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*[1]; Chulmin Oh[1]; [1]Korea Electronics Technology Institutue(KETI)

2:40 PM
Thermocycling Stress Induced Slip Band Sliding in Ultra-thin ENEPIG Joints: *Tzu-Ting Chou*[1]; Cheng-Ying Ho[1]; Wei-Yu Chen[1]; Jenq-Gong Duh[1]; [1]National 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*[1]; [1]National 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*[1]; Minwoo Kim[1]; Taik-Min Lee[1]; Hoo-Jeong Lee[2]; Inyoung Kim[1]; [1]Korea Institute of Machinery & Materials (KIMM); [2]Sungkyunkwan University

4:00 PM
The Strengthening Effects of Bismuth in Aged Lead-Free Solder Alloys Characterized using Transmission Electron Microscopy (TEM): *André Delhaise*[1]; Doug Perovic[1]; [1]University of Toronto

4:20 PM
Development of an Interatomic Potential for ß-Sn: *Pulkit Garg*[1]; G.P. Pun[2]; Nik Chawla[1]; Kiran Solanki[1]; [1]SEMTE; [2]Department of Physics and Astronomy, George Mason University

Energy Materials 2017: Materials for Energy Conversion with Emphasis on SOFC — Session II

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
February 27, 2017

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: 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*[1]; Su Jung Han[1]; Hwasoo Lee[1]; [1]Stony Brook University

2:30 PM
Chromium Impurity Effects on SOFC Cathodes Using Half-cell Measurements: *Yiwen Gong*[1]; Yuexing Zhu[1]; Soumendra Basu[1]; Uday Pal[1]; Srikanth Gopalan[1]; [1]Boston University

2:50 PM Invited
Development of Solid Oxide Fuel Cell Residential CHP System: *Yuya Takuwa*[1]; Shuichi Inoue[1]; Minoru Suzuki[1]; [1]Osaka Gas Co.,Ltd

3:15 PM
Effect of Strontium Content and Strain on Surface Segregation in LSCF: Yang Yu[1]; Karl Ludwig[1]; Srikanth Gopalan[1]; Uday Pal[1]; *Soumendra Basu*[1]; [1]Boston University

3:35 PM Break

3:55 PM
Fabrication and Operation of a 600W Anode-supported Tubular SOFC Stack: *Zhengguang Yu*[1]; Shaorong Wang[2]; [1]Dongfang Turbine Co.,Ltd ; [2]Shanghai Institute of Ceramics, Chinese Academy of Sciences

4:15 PM
Phase Stability and Electrical Properties of La2NiO4: Rare-Earth Doped Ceria Composite Cathode Materials for Solid Oxide Fuel Cells: Deniz Cetin[1]; Sophie Poizeau[2]; *Srikanth Gopalan*[1]; [1]Boston University; [2]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
February 27, 2017

Room: 13
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM
Development of a New High Strength and Hot Corrosion Resistant Directionally Solidified Superalloy DZ409: *Juntao Li*[1]; Jiantao Wu[1]; Ping Yan[1]; Jianxin Dong[2]; Lei Wang[3]; Qiang Zeng[1]; [1]China Iron & Steel Research Institute Group; [2]University of Science and Technology Beijing; [3]Northeastern University

2:40 PM Invited
Deposit-Induced Hot Corrosion and Materials Design Strategies to Reduce Its Impact: *Brian Gleeson*[1]; [1]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[1]; Dong Wang[1]; Langhong Lou[1]; *Jian Zhang*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

3:30 PM Break

3:50 PM Invited
Advanced Characterization of the Hot Corrosion Behavior of Gas Turbine Alloys under Burner Rig Test Exposures: *Maryam Zahiri Azar*[1]; Kliah Soto Leytan[1]; Daniel Mumm[1]; [1]The University of California, Irvine

4:20 PM Invited
Efforts to Introduce TiAl Alloys for Gas Turbine Applications: *Ji Zhang*[1]; Helena Oskarsson[2]; [1]China Iron and Steel Research Institute Group; [2]Siemens Industrial Turbomachinery AB

4:50 PM
Effect of Alloying Elements (Cr and Al) in Nickel-based Alloys in Molten Sulfate Environments: *Kuldeep Kumar*[1]; Hojong Kim[1]; [1]The Pennsylvania State University

5:10 PM Invited
The Materials, Manufacturing and Equipments of the Large Disk Forgings for Industrial Gas Turbines: *Shichong Yuan*[1]; [1]China National Erzhong Group Co.

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
February 27, 2017

Room: 14A
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*[1]; [1]University of Vienna

2:30 PM Invited
Gradient Materials: Microstructure, Texture and Properties: Jordan Moering[1]; Xiaolei Wu[2]; *Yuntian Zhu*[1]; [1]North Carolina State University; [2]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*[1]; [1]Texas A&M University

3:30 PM Break

3:50 PM Keynote
The Microstructural Origin of the Multifunctional Properties of Energy Metals: *Niels Hansen*[1]; [1]Technical University of Denmark

4:20 PM
The Microstructure Characterization and Mechanical Properties of Powder Metallurgy Corrosion Resistant Nickel-alloy PM625: *Liang Zheng*[1]; Guoqing Zhang[1]; Xiuqing Xu[2]; Yang Liu[1]; Michael Gorley[3]; Zuliang Hong[4]; Sarah Day[5]; Chiu Tang[5]; [1]Beijing Institute of Aeronautical Materials; [2]CNPC Tubular Goods Research Institute; [3]Culham Centre for Fusion Energy; [4]University of Oxford; [5]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[1]; Manasa Varanasi[1]; *Kripa Varanasi*[1]; [1]Massachusetts Institute of Technology

5:15 PM
Processing Aluminum 6061 by Equal Channel Angular Extrusion for Oil and Gas Applications: *Ramatou Ly*[1]; Karl T. Hartwig[1]; Homero Castaneda-Lopez[1]; [1]University Texas A&M

Energy Materials 2017: Materials in Clean Power — Session II

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
February 27, 2017

Room: 15A
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*[1]; Ömer Dogan[1]; Joseph Tylczak[1]; Casey Carney[2]; Kyle Rozman[1]; Jeffrey Hawk[1]; [1]National Energy Technology Laboratory; [2]National Energy Technology Laboratory, AECOM

2:30 PM
Corrosion of Energy System Materials in Supercritical Carbon Dioxide (sCO2): *Benjamin Adam*[1]; Lucas Teeter[1]; Sebastien Teysseyre[2]; Julie Tucker[1]; [1]Oregon State University; [2]Idaho National Laboratory

2:50 PM
Manipulating Creep through Modifying Gamma Prime Coarsening Rate in Haynes 282 for A-USC Power Plants: *Jeffrey Hawk*[1]; John Sears[2]; Paul Jablonski[1]; [1]U.S. Department of Energy, National Energy Technology Laboratory; [2]AECOM

3:10 PM
Defect Chemistry of Black Anatase TiO_2: An Ab Initio Study: *Heechae Choi*[1]; Taeseup Song[2]; Seungchul Kim[3]; [1]Virtual Lab Inc. ; [2]Yeungnam University; [3]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 Grant*[1]; David Catalini[1]; Jens Darsell[1]; Anthony Reynolds[1]; Suveen Mathaudhu[1]; [1]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 Kapoor*[1]; Omer Dogan[1]; Brian Paul[2]; Rajesh Saranam[2]; Patrick McNuff[2]; [1]National Energy Technology Lab; [2]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 Popovic*[1]; Alan Bolind[1]; Mark Asta[1]; Peter Hosemann[1]; Ruijie Shao[1]; [1]UC Berkeley

5:10 PM
Ca Doping Effects on Electrical Conductivity of $Li_4Ti_5O_{12}$:First-principle Study: *Haneol Cho*[1]; Heechae Choi[2]; Kyu Hwan Lee[1]; [1]Korea University of Science and Technology; [2]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
February 27, 2017

Room: 31A
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 Was*[1]; Drew Johnson[1]; Ian Robertson[2]; Diana Farkas[3]; [1]University of Michigan; [2]University of Wisconsin; [3]Virginia Tech

2:40 PM
Correlating Grain Boundary Microchemistry in Austenitic Stainless Steels with Their Susceptibility to Irradiation-assisted Stress Corrosion Cracking: *Mo-Rigen He*[1]; Drew Johnson[2]; Bai Cui[3]; Gary Was[2]; Ian Robertson[1]; [1]University of Wisconsin-Madison; [2]University of Michigan; [3]University of Nebraska-Lincoln

3:00 PM
The Role of Deformation in the Oxidation of Type 304SS in Pressurized Water Reactor Environments: *Kevin Fisher*[1]; Bryan Miller[2]; Earl Johns[2]; Emmanuelle Marquis[1]; [1]University of Michigan; [2]Bechtel Marine Propulsion Corporation

3:20 PM
Fundamental Mechanisms of Mitigating Stress Corrosion Cracking of Austenitic Stainless Steels by Laser Shock Peening: *Bai Cui*[1]; Fei Wang[1]; Xiaoxing Qiu[1]; Chenfei Zhang[1]; Yongfeng Lu[1]; Michael Nastasi[1]; [1]University of Nebraska–Lincoln

3:40 PM Break

4:00 PM
Modeling Corrosion Damage and Crack Propagation Using Novel Meshless Peridynamics Framework: *Srujan Rokkam*[1]; Michael Brothers[1]; Max Gunzburger[2]; Kishan Goel[3]; [1]Advanced Cooling Technologies, Inc.; [2]Florida State University; [3]Naval Air Systems Command

4:20 PM
Numerical Modelling of Galvanic Structural Joints Subjected to Combined Environmental and Mechanical Loading: *Ilaksh Adlakha*[1]; Scott Turnage[1]; Sridhar Niverty[1]; Nikhilesh Chawla[1]; Kiran Solanki[1]; [1]Arizona State University

4:40 PM
Peridynamic Modeling of Autonomous Lacy Cover Formation and of SCC: *Siavash Jafarzadeh*[1]; Ziguang Chen[1]; Florin Bobaru[1]; [1]University of Nebraska-Lincoln

5:00 PM
Crack Growth Prediction for Stress Corrosion Cracking and Corrosion Fatigue of Irradiated Stainless Steels
: *Robert Fuller*[1]; Jutima Simsiriwong[2]; Nima Shamsaei[2]; [1]Entergy Operations; [2]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; Tongguang Zhai, University of Kentucky

Monday PM
February 27, 2017

Room: 23C
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 Ghosh*[1]; [1]Johns Hopkins University

2:40 PM Invited
Perspectives and Prospects for Microstructure-based Models to Quantify Fatigue Life
: *Dennis Dimiduk*[1]; [1]BlueQuartz Software, LLC

3:00 PM
Advances in Mesoscale Crystal Plasticity under Cyclic Loading: *Gustavo Castelluccio*[1]; [1]Sandia National Laboratories

3:20 PM Invited
Physically-based Simulation of Surface Microcrack Initiation and Comparison with Experimental Data: *Maxime Sauzay*[1]; Jia Liu[1]; Jérôme Hazan[1]; [1]CEA

3:40 PM Break

4:00 PM
Simulation of Microstructurally-influenced Fatigue Crack Propagation: *Patrick Golden*[1]; Robert Brockman[2]; Rebecca Hoffman[2]; William Musinski[1]; Sushant Jha[3]; Reji John[1]; [1]Air Force Research Laboratory; [2]University of Dayton Research Institute; [3]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[1]; Yan Jin[1]; Zhiqiang Xu[2]; *Tongguang Zhai*[1]; [1]University of Kentucky; [2]Yanshan University

4:40 PM
Statistical Prediction of Crack Initiating Rate from Pre-fractured Constituent Particles in High Strength Al Alloys: *Pei Cai*[1]; Yan Jin[1]; Lin Yang[1]; Tongguang Zhai[1]; [1]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: *Loic Signor*[1]; Van Truong Dang[1]; Patrick Villechaise[1]; Samuel Hemery[1]; [1]Pprime Institute (CNRS - ISAE/ENSMA - Poitiers University)

Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin — Process-Property-Performance Correlations: Q-D, 2-D and 3-D Materials & Structures

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

Monday PM
February 27, 2017

Room: 33B
Location: San Diego Convention 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*[1]; [1]North Carolina State University

2:40 PM Invited
Elastic Coupling between Layers in Two-dimensional Materials: Yang Gao[1]; Angelo Bongiorno[2]; *Elisa Riedo*[1]; [1]City University of New York Advanced Science Research Center,The City College of New York; [2]CUNY College of Staten Island

3:10 PM
Synthesis and Characterization of Nitrogen-vacancy (NV) Centers in Diamond Nanostructure Formed by Laser Annealing Technique: *Anagh Bhaumik*[1]; Ariful Haque[1]; Jagdish Narayan[1]; [1]North Carolina State University

3:30 PM Break

3:45 PM Invited
In-situ TEM Characterization of Nanoscale Systems in Complex Environments: *Shen Dillon*[1]; [1]University of Illinois at Urbana-Champaign

4:15 PM Invited
Materials Science in Two Dimensions: *Daniel Kaplan*[1]; [1]U.S. Army RDECOM-ARDEC

4:45 PM
Pulsed Laser Deposition of Cubic Boron Nitride Films: *Ariful Haque*[1]; Anagh Bhaumik[1]; Jagdish Narayan[1]; [1]NCSU

5:05 PM Invited
Quantum Dot Formation In Core-Shell Nanowires
: Q. Zhang[1]; S.H. Davis[1]; *Peter Voorhees*[1]; [1]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
February 27, 2017

Room: 16A
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*[1]; Emma White[1]; Jonathan Regele[2]; Vince McDonell[3]; David Byrd[1]; Ross Anderson[1]; [1]Ames Laboratory; [2]Iowa State University; [3]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*[1]; Sang-Hun Choi[1]; Jae-Jin Sim[1]; Won Ju[1]; Basit Ali[1]; Tae-hyuk Lee[2]; Kyung-Mook Lim[1]; Bum-Sung Kim[1]; Taek-Soo Kim[1]; Kyoung-Tae Park[1]; [1]Korea Institute of Industrial Technology; [2]Sheffield University

3:00 PM
Fabrication of Ti Powder by Combined Techniques of Cold Crucible and Gas Atomization: *Taek-Soo Kim*[1]; Sun-Woo Nam[1]; Sang-Hyun Lee[1]; Jae-Jin Sim[1]; Seok Jun Seo[1]; Kyung-Mook Lim[1]; Bum-Sung Kim[1]; Kyoung-Tae Park[1]; [1]Korea Institute of Industrial Technology

3:20 PM
Microstructural Development in Binary Aluminum-Copper Alloy Powders during Gas Atomization: *Tian Liu*[1]; Luke Brewer[1]; [1]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[1]; Richard Dolbec[1]; *Thomas Kinsey*[1]; [1]Tekna Plasma Systems Inc

4:20 PM
Mesoscale Modeling of Single Particle Impact Induced Microstructural Evolution during Cold Spray of Aluminum Powders: *Sumit Suresh*[1]; Benjamin Bedard[1]; Tyler Flanagan[1]; Seok-Woo Lee[1]; Mark Aindow[1]; Harold Brody[1]; Xuemei Wang[2]; Victor Champagne[3]; Avinash Dongare[1]; [1]University of Connecticut; [2]United Technologies Research Center; [3]U.S. Army Research Laboratory

4:40 PM
Algorithmic Prediction of Bulk Properties from Powdered Feedstock Consolidated via Laser-assisted Cold Spray: *Aaron Birt*[1]; Diran Apelian[1]; [1]Worcester Polytechnic Institute

5:00 PM
Formation of Nano-lamellar Structure in Ni-Al High-density Energetic Material by Cryomilling: *Minseok Oh*[1]; Byungmin Ahn[1]; [1]Ajou University

5:20 PM
Microstructural Evolution in Dilute Mg-X Binary Alloys Processed by Mechanical Alloying: *Christian Roach*[1]; Kiran Solanki[2]; Suveen Mathaudhu[1]; [1]UC: Riverside; [2]Arizona State University

GAT-2017 (Gamma Alloys Technology - 2017) — Surface Protection with Panel Discussion, and Posters Briefing

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

Monday PM
February 27, 2017

Room: Pacific 17
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*[1]; [1]DECHEMA-Forschungsinstitut

2:25 PM
Effect of Surface Condition on the RT Tensile Properties and Oxidation Resistance of TiAl Alloys: *Bochao Lin*[1]; Renci Liu[1]; Qing Jia[1]; Yuyou Cui[1]; Rui Yang[1]; [1]Institue of Metal Research

2:45 PM
Mechanical Properties and Environment Induced Embrittlement of a High Nb Containing TiAl Alloy: *Tiebang Zhang*[1]; Zeen Wu[1]; Hongchao Kou[1]; Jinshan Li[1]; [1]Northwestern 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
February 27, 2017

Room: 31C
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 Olson*[1]; [1]Northwestern University

2:30 PM Invited
Solute Segregation to Migrating Ferrite/Austenite Interfaces: *Hatem Zurob*[1]; Brian Langelier[1]; Hugo Van Landeghem[2]; Andreas Korinek[1]; Baptiste Gault[3]; Gianluigi Botton[1]; [1]McMaster University; [2]SIMaP; [3]Max-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 UCSB ATR-2 Irradiation: *Nathan Almirall*[1]; Peter Wells[1]; Takuya Yamamoto[1]; G. R. Odette[1]; Randy Nanstad[2]; Keith Wilford[3]; Tim Williams[3]; Lynne Ecker[4]; David Sprouster[4]; [1]University of California Santa Barbara; [2]Oak Ridge National Laboratory; [3]Rolls Royce; [4]Brookhaven National Laboratory

3:20 PM Break

3:40 PM Invited
Nanoalloys & Nanoparticles for Catalysis: Insights from Atom Probe Tomography & Complementary Techniques: Paul Bagot[1]; Eric Marceau[2]; Anne-Félicie Lamic-Humbolt[3]; Daniel Haley[1]; Tomas Martin[1]; Michael Moody[1]; George Smith[1]; Qifeng Yang[1]; *Tong Li*[4]; [1]University of Oxford; [2]Université Lille 1; [3]Université Pierre et Marie Curie; [4]Ruhr-Universität Bochum; Max-Planck-Institut für Eisenforschung

4:10 PM
Grain Boundaries in Molybdenum.
The Role of Segregation for an Improved Ductility
: *Katharina Babinsky*[1]; Sophie Primig[2]; Wolfram Knabl[3]; Alexander Lorich[3]; Helmut Clemens[1]; Verena Maier-Kiener[1]; [1]Montanuniversität Leoben; [2]UNSW Australia; [3]Plansee SE

4:30 PM
Prediction of Segregation Induced Precipitation at Dislocations via Atomistic Simulations: *Chad Sinclair*[1]; Evgeniya Dontsova[2]; Joerg Rottler[1]; [1]University of British Columbia; [2]University of Houston

4:50 PM
Local Order and Lattice Dynamics in a Shape Memory Strain Glass Alloy: *Paul Stonaha*[1]; Michael Manley[1]; [1]Oak 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
February 27, 2017

Room: 10
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. Kim[1]; M.P. Guruajan[1]; C. Wolverton[1]; *Peter Voorhees*[1]; [1]Northwestern University

2:40 PM Invited
Case Studies and Gap Analyses in ICME for Structural Materials in Automotive Applications: *Xin Sun*[1]; [1]Pacific 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 Aitharaju*[1]; [1]General Motors

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

4:55 PM Invited
Limitation of the ICME Approach for Mg Alloy Production via Twin Roll Casting Process: *In-Ho Jung*[1]; [1]McGill 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
February 27, 2017

Room: Pacific 23
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 Wang*[1]; [1]University of Nebraska-Lincoln

2:30 PM Invited
Fracture Behavior of Nanostructured Heavily Cold Drawn Pearlite: Influence of the Interface: *Nagamani Jaya Balila*[1]; Christoph Kirchlechner[1]; Gerhard Dehm[1]; [1]MPIE GmbH

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

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

3:40 PM Break

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

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

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

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

5:35 PM
Molecular Dynamics Simulation of Face-centered Cubic Metallic Nanospheres under Uniaxial Compression: Selim Bel Haj Salah[1]; *Celine Gerard*[1]; Laurent Pizzagalli[1]; [1]Institut Pprime, CNRS - ENSMA - Université de Poitiers

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

Session Chair: To Be Announced

No Abstract Found!

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

Session Chair: To Be Announced

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

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

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

3:00 PM
Sensitivity Analysis on the Temperature of U–Mo/Al Plate-type Dispersion Fuel: *Faris B. Sweidan*[1]; Jeong Sik Yim[2]; Ho Jin Ryu[1]; [1]Korea Advanced Institute of Science and Technology; [2]Korea Atomic Energy Research Institute (KAERI)

3:20 PM
Characterization of Metallic Ffuel Slugs Fabricated by Injection Casting: *Jeong-Yong Park*[1]; Jong-Hwan Kim[1]; Ki-Hwan Kim[1]; Hoon Song[1]; Jung-Won Lee[1]; Seok-Jin Oh[1]; Seoung-Woo Kuk[1]; Young-Mo Ko[1]; Yoon-Myung Woo[1]; Chan-Bock Lee[1]; [1]Korea 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*[1]; [1]Los Alamos National Laboratory

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

4:40 PM
Fabrication and Characterization of TRISO Particles Using 800µm Uranium Nitride and Surrogate ZrO2 Kernels: *Brian Jolly*[1]; Grant Helmreich[1]; Kevin Cooley[1]; John Dyer[1]; Kurt Terrani[1]; [1]Oak 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 Parga*[1]; Jeffery Aguiar[1]; Isabella van Rooyen[1]; [1]Idaho National Laboratory

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

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

Monday PM
February 27, 2017
Room: Pacific 16
Location: Marriott Marquis Hotel & Marina

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

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

2:50 PM
Gamma-Prime Strengthened Superalloys for Heavy Duty Gas Turbine Applications: *Andrew Detor*[1]; Reza Sharghi-Moshtaghin[1]; Ning Zhou[1]; Shenyan Huang[1]; Richard DiDomizio[1]; [1]General Electric Global Research

3:10 PM
ICME Approach to Design □'/□" Composite Precipitate Microstructure for Ni-based IN718 Super Alloys: *Rongpei Shi*[1]; Donald McAllister[1]; Ning Zhou[2]; Andrew Detor[2]; Richard DiDomizio[2]; Sanket Sarkar[2]; Michael Mills[1]; Yunzhi Wang[1]; [1]The Ohio State University; [2]GE Global Research

3:30 PM Break

3:50 PM Invited
About the Predictability of Microstructure Evolution upon Thermomechanical Processing of Nickel-based Superalloys: *Nathalie Bozzolo*[1]; Charbel Moussa[1]; Marc Bernacki[1]; [1]MINES ParisTech

4:20 PM
Solubility Limits and Phase Stability in Advanced Polycrystalline Ni-base Superalloys: *Sammy Tin*[1]; [1]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 McCarley*[1]; Martin Detrois[1]; Sammy Tin[1]; [1]Illinois Institute of Technology

5:00 PM
Benchmarking Multi-scale Models with Microtensile Experiments and 3D Microstructural Characterization of René 88DT: *David Eastman*[1]; Paul Shade[2]; Michael Uchic[2]; George Weber[1]; Somnath Ghosh[1]; Will Lenthe[3]; Tresa Pollock[3]; Kevin Hemker[1]; [1]Johns Hopkins University; [2]AFRL; [3]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 Sampson*[1]; Rich DiDomizio[1]; Reza Sharghi-Moshtaghin[1]; Sharon Huang[1]; [1]GE Global Research

5:40 PM
Room and Elevated Temperature Fatigue Life Improvement of ATI 718Plus Using LSP Treatment: *Micheal Kattoura*[1]; Seetha Ramaiah Mannava[1]; Dong Qian[2]; Vijay Vasudevan[1]; [1]University of Cincinnati; [2]University of Texas at Dallas

Materials Science for High-Performance Permanent Magnets — Nd-Fe-B: Microstructure and Properties

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

Monday PM
February 27, 2017

Room: 24C
Location: San Diego Convention Center

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Satoshi Hirosawa, National Institute for Materials Science; Josef Fidler, Vienna University of Technology

2:00 PM Invited
The Current State and Future of the Rare Earth Magnets: *Hajime Nakamura*[1]; [1]Shin-Etsu Chemical Co., Ltd.

2:30 PM
Quantifying the True Enhancement in Coercivity by Dy Diffusion into Sintered Nd-Fe-B Alloys: *Cajetan Nlebedim*[1]; Matthew Kramer[1]; [1]Ames Laboratory, US Department of Energy

2:50 PM
Microstructure and Coercivity in Ultra-fine Grained Nd-Fe-B Sintered Magnets: *Taisuke Sasaki*[1]; Tadakatsu Ohkubo[1]; Yasuhiro Une[2]; Hirokazu Kubo[2]; Masato Sagawa[2]; [1]National Institute for Materials Science; [2]Intermetallics Co. Ltd.

3:10 PM Invited
Grain Size Refinement of Ga-doped Nd-Fe-B Magnet: *Yasuhiro Une*[1]; Kazuhiro Kubo[1]; Tetsuhiko Mizoguchi[1]; Takahiko Iriyama[1]; Masato Sagawa[1]; Masashi Matsuura[2]; Satoshi Sugimoto[2]; [1]Intermetallics Co., Ltd; [2]Tohoku University

3:40 PM Break

4:00 PM Invited
High-coercivity Dy-free Nd-Fe-B Permanent Magnets: *Kazuhiro Hono*[1]; [1]National Institute for Materials Science

4:30 PM
Microstructural Engineering of Nd-Fe-B Permanent Magnets with Significantly Reduced Dy: *Matt Tianen*[1]; Catherine Galligan[1]; Jie Li[1]; Peter Moran[1]; Yongmei Jin[1]; [1]Michigan Tech

4:50 PM
Electrical Resistivity Enhancement by Doping with Eutectic DyF_3–LiF Salt Mixture in Nd-Fe-B Die-upset Magnet: *Hae-Woong Kwon*[1]; Kyung Min Kim[1]; Dong Hwan Kim[2]; Jung Gu Lee[3]; Ji Hoon Yu[3]; [1]Pukyong National University; [2]Star-group Ind. Co.; [3]Korea Institute of Materials Science

5:10 PM
Coercivity Enhancement of Hot-deformed NdFeB Magnets by GBDP with NdHx and Metallic Nanoparticles: *Junggoo Lee*[1]; Heeryoung Cha[1]; Younkyoung Baek[1]; Jihun Yu[1]; Haewoong Kwon[1]; [1]Korea Institute of Materials Science

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

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
February 27, 2017

Room: 24A
Location: San Diego Convention Center

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

2:00 PM Keynote
Fundamentals of Creep in Aluminum Over a Very Wide Temperature Range: *Michael Kassner*[1]; Kamia Smith[1]; [1]University of Southern California

2:30 PM Invited
Development of Creep-Resistant Austenitic Stainless Steels for High Temperature Applications: *Philip Maziasz*[1]; [1]Oak Ridge National Laboratory

2:50 PM Invited
Dislocation Cross-slip Controlled Creep at High Stresses and Transitional Creep Mechanisms in Zircaloy-4: *Boopathy Kombaiah*[1]; Korukonda Linga Murty[2]; [1]Carnegie Mellon University; [2]North Carolina State University

3:10 PM Invited
Mechanisms Governing the Creep Behavior of High Temperature Alloys for Generation IV Nuclear Energy Applications: *Vijay Vasudevan*[1]; Xingshuo Wen[2]; Laura Carroll[3]; Richard Wright[3]; T. L. Sham[4]; [1]University of Cincinnati; [2]Electrodiesel Corp; [3]Idaho National Laboratory; [4]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 Mishra*[1]; [1]University of North Texas

4:15 PM Invited
Uniaxial and Multiaxial Miniature Specimen Creep Testing of Single Crystal Ni-base Superalloys (SX): *Gunther Eggeler*[1]; Philip Wollgramm[1]; David Bürger[1]; Lijie Cao[1]; Xiaoxiang Wu[1]; Alireza Parsa[1]; [1]Ruhr University Bochum

4:35 PM
TerraPower HT9 Mechanical and Thermal Creep Properties: *Cheng Xu*[1]; Micah Hackett[1]; [1]TerraPower

4:55 PM
Creep Behavior of a Microstructurally Stable Nanocrystalline Alloy: K. Darling[1]; M Rajagopalan[2]; M Komarasamy[3]; M Bhatia[2]; B Hornbuckle[1]; R Mishra[3]; *Kiran Solanki*[2]; [1]ARL; [2]Arizona State University; [3]UNT

5:15 PM
On the Creep Behavior of Dual-Scale Particle Strengthened Nickel Based Alloy: Aniket Dutt[1]; *Somayeh Pasebani*[2]; Indrajit Charit[2]; Rajiv Mishra[1]; [1]University of North Texas; [2]University 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
February 27, 2017

Room: 30D
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
Processing and Properties of Nanostructured Metallic Systems: *John Lewandowski*[1]; [1]Case Western Reserve University

2:25 PM
Dependence of Shear Mixing on Alloy Properties: A Study on Cu-X-Mo Ternary Alloys: *Nisha Verma*[1]; Nirab Pant[1]; John Beach[1]; Pascal Bellon[1]; Robert Averback[1]; [1]University of Illinois at Urbana-Champaign

2:45 PM Invited
Mechanical Alloying by Severe Plastic Deformation: *Reinhard Pippan*[1]; Andrea Bachmaier[1]; Lisa Kraemer[1]; Pradipta Ghosh[1]; Karoline Kormout[1]; Timo Mueller[1]; Anton Hohenwarter[2]; Oliver Renk[1]; [1]Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; [2]Montanuniversität Leoben

3:10 PM
Nanostructured Ferritic Steels: Synthesis, Microstructure and Mechanical Properties

: Somayeh Pasebani[1]; *Indrajit Charit*[1]; Yaqiao Wu[2]; Jatuporn Burns[2]; James Cole[3]; Darryl Butt[2]; [1]University of Idaho; [2]Boise State University; [3]Idaho National Laboratory

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 Zhang*[1]; Dengshan Zhou[1]; Xun Yao[2]; Jiamiao Liang[2]; Wei Zeng[2]; Charlie Kong[3]; Paul Munroe[3]; [1]Northeastern University; [2]Shanghai Jiao Tong University; [3]University of New South Wales

4:15 PM
Mechanical Properties of Aluminum Composites with Nano Alumina Reinforcement
: *William Harrigan*[1]; [1]Gamma Technology, LLC

4:35 PM Invited
Ultrahigh-strength Nanostructured Magnesium Alloys via Mechanical Alloying: *Suveen Mathaudhu*[1]; [1]University of California Riverside

5:00 PM
Suppressing Oxide Nanoparticle Coarsening and Cu Nanograin Growth in Nanostructured Cu Matrix Nanocomposites by Adding Ti: *Dengshan Zhou*[1]; Wei Zeng[2]; Charlie Kong[3]; Paul Munroe[3]; Deliang Zhang[1]; [1]Northeastern University; [2]Shanghai Jiao Tong University; [3]The University of New South Wales

5:20 PM
Achieving Enhanced Room Temperature Ductility in Bulk Nanostructured Mg: *Xin Wang*[1]; Lin Jiang[1]; Dalong Zhang[1]; Enrique Lavernia[1]; Julie Schoenung[1]; [1]University of California, Irvine

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 Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Monday PM
February 27, 2017

Room: Del Mar
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 Odette*[1]; Peter Wells[1]; Takuya Yamamoto[1]; Nathan Almirall[1]; Randy Nanstad[2]; [1]University of California Santa Barbara; [2]Oak Ridge National Laboratory

2:30 PM
Structural Characterization of Precipitates in Neutron Irradiated Surveillance Reactor Pressure Vessel Steels: *David Sprouster*[1]; E Dooryhee[1]; S Ghose[1]; M Elbakhshwan[1]; P Wells[1]; T Stan[1]; N Almirall[2]; G. R. Odette[2]; M. Sokolov[3]; R. Nanstad[3]; L Ecker[1]; [1]Brookhaven National Laboratory; [2]Materials Department, University of California, Santa Barbara; [3]Oak Ridge National Laboratory

2:50 PM
Modeling Cu-Mn-Ni-Si Precipitation in Reactor Pressure Vessels: *Mahmood Mamivand*[1]; Huibin Ke[1]; Peter Wells[2]; George Odette[3]; Dane Morgan[1]; [1]University of Wisconsin-Madison; [2]University of California-Santa Barbara ; [3]University of California-Santa Barbara

3:10 PM
Kinetic Monte Carlo Modeling of CuMnNiSi Precipitation in Reactor Pressure Vessel Steels: *Shipeng Shu*[1]; Dane Morgan[1]; Peter Wells[2]; Nathan Almirall[2]; Robert Odette[2]; [1]University of Wisconsin-Madison; [2]University of California, Santa Barbara

3:30 PM
Phase-field Modelling of Gamma-precipitate Behaviour in RPV Steel: *Kunok Chang*[1]; Junhyun Kwon[1]; [1]Korea Atomic Energy Research Institute

3:50 PM Break

4:05 PM Invited
Effect of Heat Load on Microstructural Development in Irradiated Steels: *Naoyuki Hashimoto*[1]; Eriko Suzuki[2]; [1]Hokkaido University; [2]Japan Atomic Energy Agency

4:35 PM
Instrumental Methodology at the Atomic Scale
to a Better Understanding of Grain Boundary
Segregation Mechanisms in Steels: *Alfiia Akhatova*[1]; Bertrand Radiguet[1]; Fabien Cuvilly[1]; Emmanuel Cadel[1]; Auriane Etienne[1]; Laurence Chevalier[1]; David Gibouin[1]; Philippe Pareige[1]; [1]GPM, University of Rouen

4:55 PM
Hardening Mechanism of a Neutron Irradiated Reactor Pressure Vessel Steel Studied by APT, PAS and WB-STEM: *Masaki Shimodaira*[1]; Takeshi Toyama[1]; Kenta Yoshida[1]; Koji Inoue[1]; Yasuyoshi Nagai[1]; Toshimasa Yoshiie[2]; Milan Konstantinovic[3]; Robert Gerard[4]; [1]Tohoku University; [2]Kyoto University; [3]SCK-CEN; [4]Tractebel ENGIE

5:15 PM
Chemistry Factor Development for Prediction of Reactor Pressure Vessel Embrittlement: *Peter Wells*[1]; Takuya Yamamoto[1]; Huibin Ke[2]; Nathan Almirall[1]; Dane Morgan[2]; G Odette[1]; [1]UC Santa Barbara; [2]University of Wisconsin, Madison

5:35 PM
Computer Simulation of Defect-free Channel Formation by the Monte Carlo Method: *Peter Doyle*[1]; Kelsa Benensky[1]; Steven Zinkle[1]; [1]University of Tennessee, Knoxville

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
February 27, 2017

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 Ameyama*[1]; Mie Ota[1]; [1]Ritsumeikan University

2:25 PM
Deformation Mechanisms in Multiscale Architectured Harmonic-structured Nickel: *Dmytro Orlov*[1]; Stephen Hall[1]; Jinming Zhou[1]; Mie Ota[2]; Kei Ameyama[2]; [1]Lund University; [2]Ritsumeikan University

2:45 PM Invited
Atomistic and Mesoscale Modeling Investigation of Deformation Mechanisms in Heterogeneous Materials: *Shenyang Hu*[1]; [1]Pacific Northwest National Laboratory

3:10 PM Invited
Tensile Properties of Heterogeneous Structures Embedded with Nanotwins: *Nairong Tao*[1]; F.K. Yan[1]; H.Y. Yi[1]; Y. Zhang[1]; Y.S. Li[1]; [1]Shenyang National Laboratoty for Materilas 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 Godfrey*[1]; Kainan Zhu[1]; Chenglu Zhang[1]; [1]Tsinghua University

4:20 PM Invited
Taming Microstructure of Nanostructured Alloy through the Concurrence of Phase Transition and Grain Growth: *Feng Liu*[1]; [1]Northwestern Polytechnical University

4:45 PM Invited
Tuning Heterogeneity in Metals for Better Hardenability and Deformability: Examples from TWIP Steels and High Entropy Alloys: *Yujie Wei*[1]; [1]LNM, Institute of Mechanics, CAS

5:10 PM
Heterogeneous Structures: A New Paradigm for Designing Super Strong and Tough Materials: Xiaolei Wu[1]; *Yuntian Zhu*[2]; [1]Institute of Mechanics, Chinese Academy of Sciences; [2]North 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; Muralidharan Paramsothy, NanoWorld Innovations (NWI); Meisha Shofner, Georgia Institute of Technology

Monday PM
February 27, 2017

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 Larson[1]; Weijie Huang[1]; *Yiping Zhao*[1]; [1]University of Georgia

2:40 PM
Introducing Dislocation Lines for Controlled Thermal Conductivity in Si-based Nanocomposites by Liquid-phase Sintering: *Jun Xie*[1]; Yuji Ohishi[1]; Satoshi Ichikawa[1]; Aikebaier Yusufu[2]; Hiroaki Muta[1]; Ken Kurosaki[1]; Shinsuke Yamanaka[1]; [1]Osaka University; [2]University of Fukui

3:00 PM
Fabrication of Silicon/Graphite Nanocomposite as Promising Anode Material for Lithium-ion Battery Applications: *Maziar Ashuri*[1]; Qianran He[1]; Leon Shaw[1]; [1]Illinois Institute of Technology (IIT)

3:20 PM Break

3:40 PM Invited
Photonic Curing for Advanced Thin Film and Device Development: *Pooran Joshi*[1]; Teja Kuruganti[1]; Tolga Aytug[1]; [1]Oak Ridge National Laboratory

4:20 PM
Surface-Functionalized Nanoporous Carbons for Kinetically Stabilized Complex Hydrides through Lewis acid-Lewis base Chemistry: *Christopher Carr*[1]; Eric Majzoub[1]; [1]University of Missouri St. Louis

4:40 PM
Polypyrrole Coated Silver Nanowire Supercapacitors: Recep Yuksel[1]; *Husnu Unalan*[1]; [1]Middle East Technical University

Nanostructured Materials 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
February 27, 2017

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 Yao[1]; Fengyuan Lu[2]; *Jie Lian*[1]; [1]Rensselaer Polytechnic Institute; [2]Louisiana State University

2:30 PM Invited
Magnetic and Electrical Responses of Nanomaterials under Irradiation - New Type of Radiation Detection
: *You Qiang*[1]; [1]University of Idaho

3:00 PM
Point Defect Diffusion in Oxide Dispersion Strengthened Steels: *Markus Mock*[1]; Karsten Albe[1]; [1]TU Darmstadt

3:20 PM
Defect Evolution in Stannate Pyrochlores under Swift Heavy Ion Irradiation: *Chien-Hung Chen*[1]; Cameron Tracy[1]; Maik Lang[2]; Christina Trautmann[3]; Rodney Ewing[1]; [1]Stanford University; [2]University of Tennessee; [3]GSI Helmholtz Centre for Heavy Ion Research

3:40 PM Break

4:00 PM Invited
Probing Nanoscale Damage Gradients in Irradiated Materials with Spherical Nanoindentation: *Siddhartha Pathak*[1]; Jordan Weaver[2]; Cheng Sun[2]; Yongqiang Wang[2]; Russ Doerner[3]; Surya Kalidindi[4]; Nathan Mara[2]; [1]University of Nevada, Reno; [2]Los Alamos National Laboratory; [3]University of California at San Diego; [4]Georgia Institute of Technology

4:30 PM
Radiation Effects on the Mechanical Properties of Nanoporous Gold: *Nicolas Briot*[1]; T. John Balk[1]; Remi Dingreville[2]; Khalid Hattar[2]; [1]University of Kentucky; [2]Sandia National Laboratories

4:50 PM
Radiation Resistance of a FeCr Model Alloy Nanostructured by Severe Plastic Deformation: *Bertrand Radiguet*[1]; Nariman Enikeev[2]; Marina Abramova[2]; Julia Ivanisenko[3]; Helena Zapolsky[1]; Xavier Sauvage[1]; Auriane Etienne[1]; Cristelle Pareige[1]; Ruslan Valiev[2]; [1]GPM UMR CNRS 6634 - Université et INSA de Rouen; [2]Ufa State Aviation Technical University; [3]Institute of Nanotechnology, Karlsruke Institute for Technology

5:10 PM
Synthesis and Microstructural Characterization of Zirconium Oxide Dispersion Strengthened Model Alloy and 9 Cr Ferritic Steel: *Raghavendra K G*[1]; Arup Dasgupta[1]; Raj Narayan Hajra[1]; K. Jayasankar[2]; S. Saroja[1]; [1]IGCAR Kalpakkam; [2]CSIR-IMMT

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; Ikuo Ohnuma, National Institute for Materials Science (NIMS); Chih-Ming Chen, National Chung Hsing University; Thomas Reichmann, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Monday PM
February 27, 2017
Room: 25A
Location: San Diego Convention 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*[1]; [1]NatIonal Cheng Kung University

2:30 PM
Searching for New Permanent Magnetic Phases: The Systems Bi-Mn-T (T = Ni, Rh, Pt): Peter Kainzbauer[1]; Martin Marker[1]; Klaus Richter[1]; *Herbert Ipser*[1]; [1]University of Vienna

2:50 PM
Phase Stability of Mixed-Cation Alkaline-Earth Hexaborides: Insights from X-ray Diffraction and High-resolution Transmission Electron Microscopy: *James Cahill*[1]; Michael Alberga[2]; Doreen Edwards[2]; Scott Misture[2]; Victor Vasquez[3]; Olivia Graeve[1]; [1]University of California, San Diego; [2]Alfred University; [3]University of Nevada, Reno

3:10 PM
Effect of Structural Order on Pulsed Laser Crystallization Kinetics of Amorphous Germanium Thin Films: *Tian Li*[1]; Leonardus Bimo Bayu Aji[1]; Tae Wook Heo[1]; Melissa Santala[2]; Sergei Kucheyev[1]; Geoffrey Campbell[1]; [1]Lawrence Livermore National Laboratory; [2]Oregon State University

3:30 PM Break

3:50 PM
In-situ Characterization of the Transverse Propagation Mechanism for Crystallization of Amorphous Germanium and the Resulting Microstructure: *Garth Egan*[1]; Tian Li[1]; John Roehling[1]; Joseph Mckeown[1]; Geoffrey Campbell[1]; [1]Lawrence Livermore National Laboratory

4:10 PM
High Temperature Phase Stability of α_2-Cu_3Al in Binary Cu-Al Alloys: Issues in the Al-Cu Phase Diagram
: *Valery Ouvarov-Bancalero*[1]; Choong-Un Kim[1]; [1]The University of Texas at Arlington

4:30 PM
Thermodynamic Study on PMN-PT Single Crystals: *Hooman Sabarou*[1]; Yu Zhong[1]; [1]Florida International University

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
February 27, 2017
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*[1]; Robert Williams[1]; Rajarshi Banerjee[2]; Dipankar Banerjee[3]; Hamish Fraser[1]; [1]The Ohio State University; [2]University of North Texas; [3]Indian Institute of Science

2:20 PM
Completeness of Omega Phase Transformation in Beta Ti Alloys Studied by X-ray Diffraction: *Petr Harcuba*[1]; Jana Šmilauerová[1]; Václav Holý[1]; [1]Charles University in Prague

2:40 PM
Anomalous X-ray Diffraction Study of ω Phase Particles in Ti-15Mo: *Jana Šmilauerová*[1]; Václav Holý[1]; Petr Harcuba[1]; Miloš Janecek[1]; [1]Charles University in Prague

3:00 PM
Deformation Modes in High-pressure \969-phase of Zr: A First-principles Study: *Anil Kumar*[1]; M. Arul Kumar[1]; Irene Beyerlein[1]; [1]Los 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*[1]; Wenjie Wang[1]; Shihuai Zhou[1]; Matthew Besser[1]; Matthew Kramer[1]; Ryan Ott[1]; [1]Ames Laboratory

4:00 PM
Microstructural and Texture Transitions Observed Using Shear Assisted Processing and Extrusion (ShAPE) of Melt Spun AZ91E Precursors: *Nicole Overman*[1]; Scott Whalen[1]; Matt Olszta[1]; Karen Kruska[1]; Jens Darsell[1]; Vineet Joshi[1]; Hellen Jiang[1]; Suveen Mathaudhu[1]; [1]Pacific Northwest National Laboratory

4:20 PM
Neutron Diffraction Study on Atomic Structures and Phase Transition of Magnesium-lithium Alloy: *Ye Cui*[1]; Zhongwu Zhang[1]; [1]Harbin Engineering University

4:40 PM
Solute Segregation in Aluminum Alloys: *Dongwon Shin*[1]; Shibayan Roy[1]; Baishakhi Mazumder[1]; Larry Allard[1]; James Haynes[1]; Amit Shyam[1]; [1]Oak Ridge National Laboratory

Rare Metal Extraction & Processing — Rare Earth Elements I

Program Organizers: Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhof, Umicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

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

Session Chairs: Shafiq 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 Dreisinger*[1]; [1]Search Minerals

2:35 PM
Recovery of Critical Rare Earth Elements for Green Energy Technologies: *Rajesh Kumar Jyothi*[1]; Jin-Young Lee[1]; [1]Korea Institute of Geoscience and Mineral Resourses (KIGAM)

3:00 PM
Selective Reduction and Separation of Europium from Mixed Rare-earth Oxides from Waste Fluorescent Lamp Phosphors: *Mark Strauss*[1]; Brajendra Mishra[1]; Gerald Martins[2]; [1]WPI; [2]Colorado School of Mines

3:25 PM
Application of Rare Earths for Higher Efficiencies in Energy Conversion: *William Judge*[1]; Z.W. Xiao[1]; Georges Kipouros[1]; [1]University of Saskatchewan

3:50 PM Break

4:10 PM
Microwave Treatment for Extraction of Rare Earth Elements from Phosphogypsum: Adrian Lambert[1]; Jason Tam[1]; *Gisele Azimi*[1]; [1]University of Toronto

4:35 PM
Selective Separation of Rare Earth Elements Utilizing Vapor Phase Extraction: *Katelyn Lyons*[1]; Jerome Downey[1]; Jannette Chorney[1]; [1]Montana Tech of the Univesity of Montana

5:00 PM
Observation of Oxidation of Nd-Magnet In High Temperature Recycling/ Recovery Process: *Muhamad Firdaus*[1]; M Rhamdhani[1]; W Rankin[2]; Kathie Mcgregor[2]; Yvonne Durandet[1]; Nathan Webster[2]; [1]Swinburne University of Technology; [2]CSIRO Minerals Resources

Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Multiscale Modeling of Thin Films

Program Organizers: Adele Carradò, 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 PM
February 27, 2017

Room: Pacific 18
Location: Marriott Marquis Hotel & Marina

Session Chairs: Ramana Chintalapalle, University of Texas at El Paso, UTEP; Adele Carradò, Université de Strasbourg IPCMS

2:00 PM Keynote
Atomic-Scale Modeling of Thin Films and Nanomaterials: *Christine Goyhenex*[1]; [1]IPCMS

2:40 PM
Transmission Probability of Diffusing Particles – A Case Study: *Kinnari Shah*[1]; Ravindra Nuggehalli[1]; [1]New Jersey Institute of Technology

3:00 PM
Magnetic Field Assisted Assembly - Modeling, Design and Implementation: *Yan Liu*[1]; Nuggehalli Ravindra[1]; [1]New Jersey Institute of Technology

3:20 PM
Interface Mechanical Strength and Interface Elastic Constants Calculations in Thin Films of Polymer Composites, and Natural Materials: *Devendra Verma*[1]; Vikas Tomar[1]; [1]Purdue University

3:40 PM Break

4:00 PM
Modeling of Spatial Temperature Distribution in Silicon: *Ashvin Kumar Vasudevan*[1]; Chihlin Huang[1]; Nuggehalli Ravindra[1]; [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*[1]; Yuehong Zheng[1]; Miao Wang[1]; Chuang Dong[1]; [1]Dalian University of Technology

4:40 PM
Black Silicon Based Microbolometer: *Sita Rajyalaxmi Marthi*[1]; ASAHEL BANOBRE[1]; Nuggehalli Ravindra[1]; [1]New Jersey Institute of Technology

Student-Run Symposium: Building Bridges – Connecting Academic and Industry Research — Session II

Program Organizers: Katherine Vinson, The University of Alabama; Omar Rodriguez, The University of Alabama; Ben White, The University of Alabama; Dallin Barton, The University of Alabama; Rachel White, The University of Alabama

Monday PM
February 27, 2017

Room: 22
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*[1]; [1]Office of Naval Research

2:20 PM Invited
Ultra-high Temperature Materials: Academia's Role in Material Development to Technology Insertion: *Daniel Butts*[1]; [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*[1]; [1]Lawrence Livermore National Laboratory

3:00 PM
Fundamental Principles for a Successful Collaboration between University and Metalworking Industries: *Silvia Lombardo*[1]; Federico Simone Gobber[1]; Mario Rosso[1]; [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
February 28, 2017

Room: Pacific 26
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[1]; *Arun Nair*[1]; [1]University of Arkansas

8:50 AM
A Screening of Transition Metal Nitrides with Dopants as Electrocatalysts for Oxygen Reduction Reaction: *Doosun Hong*[1]; Soonho Kwon[1]; Hyuck Mo Lee[1]; [1]KAIST

9:10 AM
Atomic and Electronic Structures of Stabilized Metal Monolayer: *Kyeongjae Cho*[1]; [1]University of Texas at Dallas

9:30 AM Invited
Theory and Applications for Two-dimensional Phase Change Materials: Yao Li[1]; Karel-Alexander Duerloo[1]; Yao Zhou[1]; *Evan Reed*[1]; [1]Stanford University

10:00 AM Break

10:20 AM Invited
New 2-D Material Recipes from Scratch: *Susan Sinnott*[1]; [1]Penn State University

10:50 AM
Controlling Topological Phase Transition in Van Der Waals Stacked 2-D Materials for Topological Device Applications: *Xiaofeng Qian*[1]; [1]Texas A&M University

11:10 AM Invited
Cu-based Nanoparticles and Nanowires for Applications in Printed Electronics and Transparent Electrode: Changsoo Lee[1]; Na Rae Kim[1]; Jahyun Koo[1]; Cho Rong Chu[1]; *Hyuck Mo Lee*[1]; [1]KAIST

11:40 AM Invited
Correlation between Morphology and Field Emission Behavior of Various CuO Nanostructures: Gurjinder Kaur[1]; Krishna Saini[1]; Narasimha Pulagara[1]; *Indranil Lahiri*[1]; [1]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 Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim 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 Bloated Metal Droplet and Slag Containing Iron Oxide: *Kezhuan Gu*[1]; Kenneth Coley[1]; Neslihan Dogan[1]; [1]McMaster University

8:55 AM
Kinetic Study of Low Grade Nickel Ores by Pyrometallurgical Processes: *Sandra Diaz*[1]; Oscar Restrepo[1]; [1]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*[1]; Bing Xie[1]; Zhao-Qun Ke[1]; Jiang Diao[1]; Wen-Feng Tan[1]; Yu-Hao Liu[1]; Hong-Yi Li[1]; Tao Zhang[1]; [1]Chongqing University

9:35 AM
Effect of Carbon to Hematite (Fe2O3) Molar Ratio on the Reduction Behaviour of Iron Ore-coal Composite Pellets in Multi-layer Bed Rotary Hearth Furnace (RHF): *Srinibash Mishra*[1]; Gour Gopal Roy[2]; [1]Indian Institute of Technology Kharagpur; [2]Indian Institute of Technology Kharagpur

9:55 AM
The Kinetics Study on the Reaction Rate Constant of Pulverized-coal Combustion at Different Heating Rates: *Ruiling Du*[1]; [1]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*[1]; Stefan Luidold[1]; Christine Wenzl[2]; Christoph Wagner[2]; [1]Montanuniversitaet Leoben; [2]RHI AG

10:55 AM
Thermodynamic Calculation on the Reactivity between Slag and Ti-stabilized Stainless Steel: *Zhuo Chen*[1]; Kun-peng Xu[1]; Sheng-ping He[1]; Qian Wang[1]; [1]Chongqing University

11:15 AM
Phase Equilibria and Thermodynamics of CaO-SiO2-Dy2O3 System: *Fei Wang*[1]; Thu Hoai Le[2]; Bin Yang[1]; Muxing Guo[2]; [1]Kunming University of Science and Technology; [2]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 Semiatin, AFRL; Kinga Unocic, Oak Ridge National Laboratory; Joseph Licavoli, Michigan Technological University; Behrang Poorganji, 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*[1]; [1]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*[1]; John Paul Borgonia[1]; Ashley Reichardt[2]; Bryan McEnerney[1]; Andrew Shapiro[1]; Peter Hosemann[2]; [1]Jet Propulsion Laboratory; [2]University of California, Berkeley

9:30 AM
Characterization of Maraging Steel to Austenitic Stainless Steel Gradient Components Fabricated with Laser Deposition: *Ashley Reichardt*[1]; John Paul Borgonia[2]; R. Peter Dillon[2]; Bryan McEnerney[2]; Andrew Shapiro[2]; Peter Hosemann[1]; [1]University of California, Berkeley; [2]Jet Propulsion Laboratory

9:50 AM
Microstructural Control in SLM Ti-6Al-4V: Key Factors Facilitating *In Situ* α Martensite Decomposition: *Wei Xu*[1]; Edward Lui[2]; Ma Qian[2]; Milan Brandt[2]; [1]Macquarie University; [2]Royal Melbourne Institute of Technology University

10:10 AM Break

10:30 AM
Multiphase Samples Built by Additive Manufacturing: *Thomas Watkins*[1]; Amit Shyam[1]; Yukinori Yamamoto[1]; Niyanth Sridharan[1]; Ercan Cakmak[1]; Kinga Unocic[1]; Ryan Dehoff[1]; Sarma Gorti[1]; Srdjan Simunovic[1]; S. Suresh Babu[2]; [1]ORNL; [2]University of Tennessee

10:50 AM
Tailoring the Mechanical Properties of Ni-base Superalloys Processed by Direct Metal Laser Melting (DMLM): *Thomas Etter*[1]; Fabian Geiger[1]; Karsten Kunze[2]; [1]General Electric (Switzerland) GmbH; [2]ETH Zurich (ScopeM)

11:10 AM
Characterization of Microstructure and Material Properties of Selective Laser Sintered Ni-alloy 625: *Kevin Kaufmann*[1]; Tyler Harrington[1]; Kenneth Vecchio[1]; [1]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*[1]; Kevin Chaput[2]; Benjamin Georgin[2]; Edwin Schwalbach[2]; [1]UES, Inc. / AFRL; [2]Wright-Patterson AFRL

11:50 AM
Mapping the Decomposition of ß to a in Composition and Temperature Space in Titanium Alloys: Deep Choudhuri[1]; *Srinivas Mantri*[1]; Chris Yannetta[1]; Rajarshi Banerjee[1]; Dipankar Banerjee[2]; [1]University of North Texas; [2]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 Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Tuesday AM
February 28, 2017

Room: 7A
Location: San Diego Convention Center

Session Chairs: Manyalibo Matthews, Lawrence Livermore National Laboratory; Jason Fox, National Institute of Standards and Technology

8:30 AM Invited
Process Monitoring for Powder Bed Fusion of Metal Alloys Using High Speed Optical Diagnostics: *Manyalibo Matthews*[1]; Gabe Guss[1]; Nicholas Calta[1]; Sheldon Wu[1]; Sonny Ly[2]; Michael Crumb[1]; [1]Lawrence Livermore National Laboratory; [2]LLNL

9:00 AM
The Use of Laser Ultrasound to Detect Defects in Laser Melted Parts: *Phill Dickens*[1]; Sarah Everton[1]; Chris Tuck[1]; Ben Dutton[2]; David Wimpenny[2]; [1]University of Nottingham; [2]MTC

9:20 AM
Embedding Fiber Bragg Gratings with Ultrasonic Additive Manufacturing: *Adam Hehr*[1]; Mark Norfolk[1]; [1]Fabrisonic LLC

9:40 AM
The Development of a L-PBF Test Bed and Evaluation of In-process Sensing Technologies: *Bryant Foster*[1]; [1]EWI

10:00 AM Break

10:20 AM Invited
Using Neutron and High Energy X-ray Diffraction to Probe Additively Manufactured Materials Over a Range of Length and Time Scales: *Donald Brown*[1]; John Carpenter[1]; Bjorn Clausen[1]; Jason Cooley[1]; John Bernal[1]; Mark Bourke[1]; [1]Los Alamos National Lab

10:50 AM
Residual Stress Characterization of Additively Manufactured Components: *Maria Strantza*[1]; Danny Van Hemelrijck[1]; Patrick Guillaume[1]; [1]Vrije 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*[1]; Robert Suter[1]; Anthony Rollett[1]; Jack Beuth[1]; [1]Carnegie Mellon University

11:30 AM
Characterizing Microstructure in Ti Alloys Using Synchrotron-based MicroCT: *Johanna Weker*[1]; Ryan Ott[2]; Yinmin Wang[3]; Kevin Stone[1]; Chris Tassone[1]; Matthew Kramer[4]; Tony Van Buuren[3]; Michael Toney[1]; [1]SLAC National Accelerator Laboratory; [2]AMES; [3]Lawrence Livermore National Laboratory; [4]AMES Laboratory

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 Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Tuesday AM
February 28, 2017

Room: 33C
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
3D Orientation Mapping in the Transmission Electron Microscope: *Søren Schmidt*[1]; Peter Mahler Larsen[1]; Hossein Alimadadi[1]; Takeshi Kasama[1]; Xiaoxu Huang[1]; [1]Technical University of Denmark

8:50 AM
Shear-Coupled Grain Growth and Texture Development in a Nanocrystalline Ni-Fe Alloy during Cold Rolling: *Li Li*[1]; Tamas Ungar[2]; L Toth[3]; Z Skrotzki[4]; Y Ren[5]; Zs Fogarassy[6]; X.T. Zhou[1]; Peter Liaw[7]; [1]Shanghai Institute of Applied Physics-Chinese Academy of Science; [2]Eötvös University Budapest; [3]Université de Lorraine; [4]Technische Universität Dresden; [5]Argonne National Laboratory; [6]Hungarian Academy of Science; [7]The University of Tennessee

9:10 AM
Unambiguous Complexion Identification and Inspection in High Purity Binary Alloy Systems: *Jennifer Schuler*[1]; Timothy Rupert[1]; [1]University of California Irvine (UCI)

9:30 AM
In Situ TEM Compression Testing of IN718 Fabricated by Electron Beam Melting: *Kinga Unocic*[1]; Michael Kirka[1]; Ryan Dehoff[1]; [1]ORNL

9:50 AM Break

10:10 AM
Characterization and Deformation Behavior of Microstructural Gradients in the Low Solvus High Refractory (LSHR) Nickel Base Superalloy
: *Samuel Kuhr*[1]; Gopal Viswanathan[1]; Hamish Fraser[1]; [1]The Ohio State University

10:30 AM
Atomic Resolution Energy Dispersive X-ray Spectroscopy of Segregation Along SESFs in Ni-Based Disk Alloys
: *Timothy Smith*[1]; Bryan Esser[1]; Nikolas Antolin[1]; Robert Williams[1]; Andrew Wessman[2]; Hamish Fraser[1]; Wolfgang Windl[1]; David McComb[1]; Michael Mills[1]; [1]The Ohio State University; [2]GE Aviation

10:50 AM
How Important are the Smallest Grains for their Aggregate Mechanics?: Tias Maiti[1]; *Philip Eisenlohr*[1]; [1]Michigan State University

11:10 AM
The Origin of Stochastic Behavior during Nanoindentation near a Grain Boundary in Cu: Benjamin Schuessler[1]; Mehdi Hamid[1]; *Pui Ching Wo*[1]; Hussein Zbib[1]; [1]Washington State University

11:30 AM
Improved Angular and Spatial Resolution of Measured Lattice Rotations in Highly Deformed Bulk Materials through Combining Low-kV EBSD with the Dictionary Indexing Approach: Ali Gholinia[1]; Timothy Burnett[1]; Bart Winiarski[1]; *Farangis Ram*[2]; Saransh Singh[2]; Marc De Graef[2]; [1]University of Manchester; [2]Carnegie Mellon University

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 Militzer, 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 Körmann*[1]; Ivan Bleskov[2]; Björn Alling[2]; Blazej Grabowski[2]; Biswanath Dutta[2]; Tilmann Hickel[2]; Jörg Neugebauer[2]; [1]Delft University of Technology and Max-Planck-Institut für Eisenforschung; [2]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 Lee*[1]; Seong-Jun Park[2]; Jun-Yun Kang[2]; Siwook Park[1]; Anthony Rollett[3]; Sukbin Lee[4]; Kyu Hwan Oh[1]; Heung Nam Han[1]; [1]Seoul National University; [2]Korea Institute of Materials Science; [3]Carnegie Mellon University; [4]Ulsan National Institute of Science and Technology (UNIST)

9:10 AM
Relationship between Impact Toughness, Prior Austenite Grain Boundaries and Microstructural Morphology in Medium Mn Steel: *Jeongho Han*[1]; Alisson Kwiatkowski da Silva[1]; Dirk Ponge[1]; Dierk Raabe[1]; Sang-Min Lee[2]; Young-Kook Lee[2]; Sang-In Lee[3]; Byoungchul Hwang[3]; [1]Max-Planck-Institut für Eisenforschung; [2]Yonsei University; [3]Seoul National University of Science and Technology

9:30 AM
Experimental Determination of Magnitude of Shear of Stacking Faults, Twins and Alpha'-martensite in TRIP/TWIP Steels: *Anja Weidner*[1]; Horst Biermann[1]; [1]TU Bergakademie Freiberg

9:50 AM
Effect of Interfacial Mn Partitioning on Carbon Partitioning and Interface Migration during Quenching and Partitioning: *Zongbiao Dai*[1]; Jianguo He[1]; Zhigang Yang[1]; Chi Zhang[1]; Hao Chen[1]; [1]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 Wicaksono[1]; Yu Yue[2]; *Matthias Militzer*[1]; [1]The University of British Columbia; [2]Tsinghua University

10:50 AM
Interface Dominated Process in Modern Steels: *Goune Mohamed*[1]; Fréderic Danoix[2]; Xavier Sauvage[2]; Didier Huin[3]; Lionel Germain[4]; [1]ICMCB-Bordeaux1; [2]GPM - Université de Rouen; [3]ArcelorMittal; [4]LEM3-Université de Lorraine

11:10 AM
New Insights in the Atomic Interface Structure of Kappa Carbides in High-Mn Steels: Christian Liebscher[1]; Marta Lipinska-Chwalek[2]; Menji Yao[1]; Michael Herbig[1]; Baptiste Gault[1]; Joachim Mayer[2]; Dierk Raabe[1]; *Christina Scheu*[1]; [1]Max-Planck-Max-Planck-Institut fuer Eisenforschung GmbH; [2]Ernst Ruska-Centrum and RWTH Aachen

11:30 AM
Prediction of Mechanical Properties of Carbide-steel Interfaces from First-principles: *Elric Barbé*[1]; Chu Chun Fu[2]; Maxime Sauzay[1]; [1]CEA, DEN, Service de Recherches Métallurgiques Appliquées; [2]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 Farahani*[1]; Wei Xu[2]; Sybrand van der Zwaag[3]; [1]Delft University of Technology ; [2]Northeastern University, China; [3]Delft University of Technology

Advanced Materials for Energy Conversion and Storage — Micro & Macro Reliability

Program Organizer: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

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 Pint*[1]; [1]Oak Ridge National Laboratory

9:05 AM Invited
Importance of Flaws to the Reliability of MMA Substrates: Alex Stark[1]; Sandra Murcia[1]; Amit Pandey[2]; Richard Goettler[2]; *Dwayne Arola*[1]; [1]University of Washington; [2]LG Fuel Cell Systems Inc.

9:30 AM Invited
Precision High Temperature Elasticity Studies of Novel Ceramics: *Joseph Gladden*[1]; Sumudu Tennakoon[1]; Ashoka Karunarathne[1]; Amit Pandey[2]; Richard Goettler[2]; [1]University of Mississippi; [2]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-Curzio*[1]; [1]Oak Ridge National Laboratory

10:40 AM
Elastic-Anelastic-Inelastic Boundaries in Materials for High Temperature Applications: *Amit Pandey*[1]; Robert Wheeler[2]; Amit Shyam[3]; Thomas Stoughton[4]; [1]LG Fuel Cell Systems Inc.; [2]MicroTesting Solutions LLC; [3]Oak Ridge National Laboratory; [4]General Motors Research and Development Center

11:00 AM Invited
Young's Modulus and Poisson's Ratio Changes in Machined Porous Microcracked Cordierite: *Ryan Cooper*[1]; Giovanni Bruno[2]; Yener Onel[2]; Axel Lange[2]; Thomas Watkins[3]; Amit Shyam[3]; [1]University of Connecticut; [2]BAM Federal Institute for Materials Research and Testing; [3]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; María 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 Nanolaminate Thin Films: *David Bahr*[1]; Rachel Schoeppner[1]; Jeffery Wheeler[2]; [1]Purdue University; [2]ETH Zurich

9:10 AM
In-situ Imaging and Diffraction Studies of Shear Band Nucleation and Propagation in Metallic Glass and Composites: *Jia Chuan Khong*[1]; Jiawei Mi[1]; [1]University of Hull

9:30 AM Invited
Plasticity and Time Dependent Stress Relaxation in FCC Nanowires: *Horacio Espinosa*[1]; Rajaprakash Ramachandramoorthy[1]; Yanming Wang[2]; Rodrigo Bernal[1]; Amin Aghaei[2]; Gunther Richter[3]; Wei Cai[2]; [1]Northwestern University; [2]Stanford University; [3]Max Planck Institute

10:00 AM Break

10:20 AM
In-situ Neutron Diffraction Analysis for Dynamic Ferrite Transformation Behavior in Low-carbon Steels: *Akinobu Shibata*[1]; Yasunari Takeda[1]; Wu Gong[1]; Stefanus Harjo[2]; Takuro Kawasaki[2]; Nobuhiro Tsuji[1]; [1]Kyoto University; [2]Japan Atomic Energy Agency

10:40 AM
In Situ 4D Tomographic Examination of Semi-solid Indentation Behaviour in Ni and Co Based Alloys: *Mohammed Azeem*[1]; Chedtha Puncreobutr[2]; Robert Atwood[3]; Rahman Khandaker[4]; David Dye[4]; Peter Lee[1]; [1]Manchester University; [2]Chulalongkorn University; [3]Diamond Light Source; [4]Imperial College London

11:00 AM
In-situ Micro-Laue Diffraction and HR-EBSD Investigation to Understand the Microstructure-deformation Interactions in Dual-phase Titanium Alloy, Ti6242, Using Micro-pillar Compression: Tea-Sung Jun[1]; Xavier Maeder[2]; Gaylord Guillonneau[3]; Johann Michler[2]; Finn Giuliani[1]; *T Ben Britton*[1]; [1]Department of Materials, Imperial College; [2]EMPA; [3]Laboratoire de Tribologie et Dynamique des Système, Université de Lyon

11:20 AM
In Situ X-ray Diffraction Study of Strain Path Change Effects in Al-5wt% Mg (AlMg5) Using a Miniaturized Multiaxial Deformation Machine: Karl Sofinowski[1]; *Maxime Dupraz*[2]; Steven Van Petegem[2]; Helena Van Swygenhoven[1]; [1]Paul Scherrer Institut & EPFL; [2]Paul Scherrer Institut

11:40 AM
Characterizing Thermal- and Moisture-induced Glass Transitions Using Nanoindentation-based Dynamic Mechanical Analysis: *Joseph Jakes*[1]; [1]USDA Forest Products Laboratory

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

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

Tuesday AM
February 28, 2017
Room: 21
Location: San Diego Convention Center

Session Chairs: Albert Wu, National Central University; Soon-jik Hong, Kongju National University

8:30 AM Invited
Enhanced Thermoelectric Figure of Merit in Bi-Sb-Te based Composites with Dispersed ZrO_2 Nanoparticles: Babu Madavali[1]; Chul-Hee Lee[1]; Hyo-Seob Kim[2]; Kap-Ho Lee[3]; *Soon-Jik Hong*[1]; [1]Kongju National University and Institute for Rare Metals; [2]Ames Laboratory; [3]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[1]; Cheng-Tang Li[1]; *Chien-Neng Liao*[1]; [1]National Tsing Hua University

9:10 AM
Fabrication of BiSbTe-based Thermoelectric Materials Using Water Atomization and Spark-plasma Sintering Techniques: *ChulHee Lee*[1]; EunBeen Kim[1]; KapHo Lee[2]; P Dharmaiah[1]; M Babu[1]; SoonJik Hong[1]; [1]Kongju National University; [2]Chungnam National University

9:30 AM
Enhanced Thermoelectric Properties of Sb2Te3 Nanoplates Incorporated Bi0.5Sb1.5Te3 Composites: *Peyala Dharmaiah*[1]; Chul Lee[1]; Dongwon Shin[1]; Jar-Myung Koo[1]; Soon-Jik Hong[1]; [1]Kongju National University

9:50 AM Break

10:10 AM Invited
Interfacial Reactions at the Joints of PbTe Thermoelectric Modules: *Sinn-wen Chen*[1]; Jen-chieh Wang[1]; Ling-chieh Chen[1]; [1]National Tsing Hua University

10:30 AM Invited
Evaluation of Cobalt Diffusion Barrier for Low and Medium Temperature Thermoelectric Module: *Albert T. Wu*[1]; Hsien-Chien Hsieh[1]; Chun-Hsien Wang[1]; [1]National Central University

10:50 AM
Investigation of Defects in CZT Single Crystals: *Bengisu Yasar*[1]; Merve Kabukcuoglu[1]; Yasin Ergunt[1]; Mehmet Parlak[1]; Rasit Turan[1]; Eren Kalay[1]; [1]METU

11:10 AM
Scalable Synthesis of Silicon-implanted CZTS Nanoparticles for Catalysis and Thermoelectrics: *Stephen Exarhos*[1]; Edgar Palmes[1]; Alejandro Alvarez[1]; Lorenzo Mangolini[1]; [1]University of California, Riverside

11:30 AM
Thermoelectric Behaviour of Polyvinyl Acetate /CNT Composites: Hussein Badr[1]; Mostafa Youssef[1]; Mohamed Gamal[1]; Hebatullah Abd-elsalam[1]; Mirna Mohamed[1]; *Iman El Mahallawi*[1]; Ahmed Abdel-rehim[2]; [1]Cairo University; [2]British University in Egypt

Alumina & Bauxite — Bauxite Residues Technology

Program Organizer: Zhang Ting'an, Northeastern University

Tuesday AM
February 28, 2017
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: *Songqing Gu*[1]; Zhonglin Yin[1]; Lijuan Qi[1]; [1]Chalco

9:00 AM
Bauxite Residue Amendment through the Addition of Ca and or Mg Followed by Carbonation: *Luis Venancio*[1]; José Antonio Souza[2]; Emanuel Macedo[2]; Fernando Botelho[2]; Raissa Fonseca[3]; Amanda Oliveira[3]; [1]Federal University of Maranhao ; [2]Federal University of Pará; [3]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: *Yanxiu Wang*[1]; Zhang Ting'an[1]; Guozhi Lv[1]; Xiaofeng Zhu[1]; Weiguang Zhang[1]; Liqun Xie[1]; [1]Northeastern University

9:50 AM
Low Temperature Reduction of Hematite in Red-Mud to Magnetite: *Sumedh Gostu*[1]; [1]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*[1]; Foquan Gu[1]; Jun Luo[1]; Bona Deng[1]; Zhiwei Peng[1]; Tao Jiang[1]; [1]School of Minerals Processing and Bioengineering, Central South University

10:55 AM
Processing Diasporic Red Mud by the Calcification-carbonation Method: Xiaofeng Zhu[1]; Zhang Ting'an[1]; Guozhi Lv[1]; Fangfang Guo[1]; Weiguang Zhang[1]; *Yanxiu Wang*[1]; Liqun Xie[1]; Long Wang[1]; [1]Northeastern University

11:20 AM
Research of Flocculants and Dewatering Additives for Filtration of Red Mud: *Cao Wenzhong*[1]; Zheng Fuliang[1]; Tian Weiwei[1]; Zhong Hong[1]; [1]Nanchang University

11:45 AM
Characterization of Activated Alumina Production via Spray Pyrolysis: *Long Wang*[1]; Zhang Ting'an[1]; Guozhi Lv[1]; Xiaofeng Zhu[1]; Weiguang Zhang[1]; Sida Ma[1]; [1]Northeastern University

Aluminum Alloys, Processing and Characterization — Heat Treatment

Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Tuesday AM
February 28, 2017

Room: 4
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[1]; *Ioan Sava*[1]; Marin Petre[1]; Gheorghe Popa[1]; [1]ALRO

9:00 AM
Precipitation Modeling and Validation of Al-5%Cu-0.4%Mn Alloy Using Quench Factor Analysis: *Yisen Hu*[1]; Gang Wang[1]; Wenguang Wang[1]; Mao Ye[1]; Yiming Rong[1]; [1]Tsinghua University

9:25 AM
Young's Modulus of Al-Si-Mg-Cu Based Alloys under Different Heat Treatment Processes: *Sajjad Amirkhanlou*[1]; Shouxun Ji[1]; Yijie Zhang[1]; Douglas Watson[2]; Zhongyun Fan[1]; [1]Brunel University London; [2]Jaguar Cars Ltd

9:50 AM
Intergranular Corrosion Investigation on EN-AW 6082 Redraw Rod: *Luisa Marzoli*[1]; Dominque Cance[2]; Christiane Matthies[1]; Magali Guizard[2]; Peter Baumgart[2]; Hubert Koch[1]; [1]TRIMETAluminium SE; [2]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*[1]; Aiden Beer[1]; Matthew Barnett[1]; [1]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*[1]; Jae-Gil Jung[1]; Eunji Baek[1]; Jung-Moo Lee[1]; Hyoung-Wook Kim[1]; [1]Korea Institute of Materials Science

11:20 AM
Effect of Interrupted Quenching on Al-Zn-Mg-Cu alloys: *Gernot K.-H. Kolb*[1]; Helmut Antrekowitsch[1]; Daniel Pöschmann[2]; Peter Uggowitzer[3]; Stefan Pogatscher[1]; [1]Montanuniversitaet Leoben; [2]AMAG rolling GmbH; [3]ETH Zürich

11:45 AM
Manganese-induced Precipitation in a Modified AA6061 (Al-Mg-Si-Cu) Alloy during Homogenization: *Gongwang Zhang*[1]; Yi Han[2]; Qi Zhou[3]; Hiromi Nagaumi[2]; Gang Sha[3]; Chad Parish[4]; Donovan Leonard[4]; Tongguang Zhai[1]; [1]University of Kentucky; [2]Suzhou Research Institute for Nonferrous Metals; [3]Nanjing University of Science and Technology; [4]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
February 28, 2017

Room: 2
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 Luneng*[1]; Søren N. Bertel[2]; Jørgen Mikkelsen[2]; Arne P. Ratvik[3]; Tor Grande[1]; [1]NTNU; [2]Skamol A/S; [3]SINTEF Materials and Chemistry

9:00 AM
Aging of Insulating Linings in Aluminium Electrolysis Cells: *Ove Paulsen*[1]; Christian Schøning[1]; Ove Darell[1]; Arne Ratvik[1]; [1]SINTEF

9:25 AM
Cathode Wear Based on Autopsy of a Shut down Aluminium Electrolysis Cell: *Samuel Senanu*[1]; Tor Grande[1]; Arne Petter Ratvik[2]; Zhaohui Wang[2]; Stein Rørvik[2]; Christian Schøning[2]; [1]Norwegian University of Science and Technology; [2]SINTEF Materials and Chemistry

9:50 AM
SPL Recycling and Re-Processing: Victor Mann[1]; Vitalii Pingin[2]; Aleksey Zherdev[2]; Aleksandr Proshkin[2]; Sergey Pavlov[2]; *Yurii Bogdanov*[2]; Vladimir Somov[2]; [1]RUSAL Global Management B.V.; [2]RUSAL ETC LLC

10:15 AM
Alternative Applications of SPL: Testing Ideas through Experiments and Mathematical Modeling: Dawei Yu[1]; Vishnuvardhan Mambakkam[2]; Lei Gao[3]; Donghui Li[2]; *Kinnor Chattopadhyay*[2]; [1]Canmet MINING, Natural Resources Canada; [2]University of Toronto; [3]Kunming University of Science and Technology

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Hydrometallurgy

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 AM
February 28, 2017

Room: 15B
Location: San Diego Convention Center

Session Chair: Shafiq Alam, University of Saskatchewan

8:30 AM
P-CAC, a Unique Separation Technology for PGM Recovery: *Shijie Wang*[1]; Tracy Morris[1]; [1]Rio Tinto Kennecott Utah Copper

8:50 AM
The Physical Characteristics of Electrorefined Copper Starter Sheet Material: Daniel Majuste[1]; Paul Laforest[2]; *Michael Moats*[2]; [1]Universidade Federal de Minas Gerais; [2]Missouri S&T

9:10 AM
Extraction of Copper from Sulfate-chloride Solutions by Using Hydroxyoxime Extractants: *Maria Ruiz*[1]; Ivan Gonzalez[1]; Javier Salgado[1]; Rafael Padilla[1]; [1]University of Concepcion

9:30 AM
Hydrometallurgical Processes for the Recovery of Rare Earths, Nickel and Cobalt in Chloride Medium: *M.A. Halim*[1]; V. I. Lakshmanan[1]; R. Sridhar[1]; Darcy Tait[1]; [1]Process Research Ortech Inc.

9:50 AM Break

10:10 AM
Leaching Characteristics of Sodium-Iron-Silicate Slags: *Doug Schriner*[1]; Patrick Taylor[1]; Joe Grogan[2]; [1]Colorado School of Mines; [2]Gopher Resource

10:30 AM
A Cr^{6+}-free Extraction of Chromium Oxide from Chromite Ores Using Carbothermic Reduction in the Presence of Alkali: *Lidia Escudero Castejon*[1]; Sergio Sanchez-Segado[1]; Stephen Parirenyatwa[1]; Yotamu Hara[1]; Animesh Jha[1]; [1]University of Leeds

10:50 AM
Gold and PGM Recoveries from Complex Feed Streams: *Shijie Wang*[1]; Jeff Lucht[1]; Nickvinder Bhath[1]; [1]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
February 28, 2017

Room: 19
Location: San Diego Convention Center

Session Chairs: Ebrahim Asadi, University of Memphis; Damien Tourret, Los Alamos National Laboratory

8:30 AM
On the Solidification Kinetics of Metal Alloys: A Study Using 3-D Phase Field Modeling and Synchrotron X-ray Image Techniques: *Zhipeng Guo*[1]; Manhong Yang[1]; Shuo Wang[1]; Shoumei Xiong[1]; [1]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*[1]; Bernd Böttger[1]; [1]Access

9:10 AM
Dendritic Grain Growth Competition in Directional Solidification of Alloys: A Phase-field Study
: *Damien Tourret*[1]; Younggil Song[2]; Amy Clarke[3]; Alain Karma[2]; [1]Los Alamos National Laboratory; [2]Northeastern University; [3]Colorado School of Mines

9:30 AM
Phase Field Modelling of Snowflakes Growth: *Gilles Demange*[1]; Helena Zapolsky[1]; Renaud Patte[1]; Marc Brunel[2]; [1]Université de Rouen/GPM/ERAFEN; [2]Université de Rouen/CORIA

9:50 AM
Phase Field Study on Stress Induced Dendrite Fragmentation: Mohammad Ahmed[1]; *Nils Warnken*[1]; [1]University of Birmingham

10:10 AM Break

10:25 AM
Quantitative Phase-Field Crystal Model for Coarsening in Pb-Sn Solid-Liquid Mixtures: Ahmad Nourian Avval[1]; *Ebrahim Asadi*[1]; [1]University of Memphis

10:45 AM
Pattern Formation during In-variant Three-phase Eutectic Growth: *Abhik Choudhury*[1]; [1]Indian Institute of Science

11:05 AM
Pattern Formation during Directional Solidification of the Ternary Eutectic Alloy Al-Ag-Cu under Influence of Velocity Changes: *Johannes Hötzer*[1]; Philipp Steinmetz[2]; Michael Kellner[2]; Anne Dennstedt[3]; Amber Genau[4]; Britta Nestler[2]; [1]University of Applied Science Karlsruhe; [2]KIT; [3] Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR) ; [4]University of Alabama at Birmingham

11:25 AM
Pattern Formation during the Directional Solidification of Ternary Eutectic Alloys and the Influence of the Average Front Undercooling: *Philipp Steinmetz*[1]; Johannes Hötzer[1]; Michael Kellner[1]; Britta Nestler[1]; [1]Karlsruhe Institute of Technology

11:45 AM
Three Dimensional Eutectic Colony Morphologies in Multi-component, Multi-phase Alloys: *Arka Lahiri*[1]; Abhik Choudhury[1]; [1]Indian Institute Of Science

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
February 28, 2017

Room: Pacific 21
Location: Marriott Marquis Hotel & Marina

Session Chairs: Hendrik Heinz, University of Colorado Boulder; Stefano Corni, University of Modena

8:30 AM Invited
Computational Models of Peptide-Surface Interactions Drawn from Bacterial Display Studies: *Margaret Hurley*[1]; Meagan Small[1]; Dimitra Stratis-Cullum[1]; Deborah Sarkes[1]; Justin Jahnke[1]; Jessica Terrell[1]; Hong Dong[1]; [1]US Army Research Laboratory

9:00 AM
Formation of Planer Lipid Bilayers on 2D Materials Assisted by Self-assembled Peptides: *Takakazu Seki*[1]; Tomohiro Tanaka[1]; Yuhei Hayamizu[1]; [1]Tokyo Institute of Technology

9:20 AM Invited
Computational Design of Biological-Inorganic Materials from the Nanoscale: *Hendrik Heinz*[1]; [1]University Of Colorado-Boulder

9:50 AM Break

10:10 AM Invited
Atomistic Simulations of the Interaction of Gold Surfaces and Nanoparticles with Amyloidogenic Proteins and Peptides: *Stefano Corni*[1]; [1]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*[1]; Anurag Sharma[1]; Kalpana Katti[1]; [1]North Dakota State University

11:10 AM
Designing Peptides with Antimicrobial Properties using Rules of Induction: *Kyle Boone*[1]; Kyle Camarda[1]; Candan Tamerler[1]; [1]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
February 28, 2017

Room: Pacific 15
Location: Marriott Marquis Hotel & Marina

Session Chairs: Dwayne Arola, University of Washington; Michael Porter, Clemson University

8:30 AM Invited
Improving the Performance of Dental Restorative Composites: *Jamie Kruzic*[1]; Dmytro Khvostenko[2]; Thomas Hilton[3]; Jack Ferracane[3]; John Mitchell[4]; [1]UNSW Australia; [2]Oregon State University; [3]Oregon Health & Science University; [4]Midwestern University

9:00 AM
Multiscale Experiment and Computational Insight into Mechanical and Electromechanical Behavior of Collagen: Zhong Zhou[1]; Dong Qian[1]; *Majid Minary*[2]; [1]University of Texas at Dallas; [2]University of Texas at Dallas

9:20 AM
Nanofibrous Composites Enriched with Growth Factors for Tendon-bone Interface Regeneration: *Ece Bayrak*[1]; Burak Ozcan[1]; Cevat Erisken[1]; [1]TOBB University of Economics and Technology

9:40 AM
Osteoporosis and Fatigue Fracture Prevention by Analysis of Bone Microdamage: *Gerardo Presbitero*[1]; David Gutierrez[2]; David Taylor[3]; [1]National Autonomous University of Mexico; [2]Center for Research and Advanced Studies (Cinvestav), at Monterrey, Mexico; [3]Trinity College Dublin

10:00 AM Break

10:15 AM Invited
Spatial Variations in the Rate of Aging of Mineralized Tissues: *Dwayne Arola*[1]; W. Yan[1]; C. Montoya[2]; E.A. Ossa[2]; [1]University of Washington; [2]Universidad Eafit

10:45 AM
Time Dependent Deformation Behavior of Aged Dentin: Carolina Montoya[1]; *Alex Ossa*[1]; Dwayne Arola[2]; [1]Eafit University; [2]University of Washington

11:05 AM
The Geometric Effects of a Woodpecker's Hyoid Apparatus for Stress Wave Mitigation: *Lakiesha Williams*[1]; Nayeon Lee[1]; Mark Horstemeyer[1]; Raj Prabhu[1]; Jun Liao[1]; Hongjoo Rhee[1]; Yossef Hammi[1]; Robert Moser[2]; [1]Mississippi State Univ.; [2]US Army Engineering Research and Development Center

11:25 AM
Avoiding Brain Injury: A Structural Role of the Frontal Overhang on the Skull Bone of Woodpeckers: *Jae-Young Jung*[1]; Andrei Pissarenko[1]; Steven Naleway[2]; Kathryn Kang[1]; Nicholas Yaraghi[3]; Eric Bushong[1]; Mark Ellisman[1]; David Kisalius[3]; Marc Meyers[1]; Joanna McKittrick[1]; [1]UC San Diego; [2]University of Utah; [3]UC Riverside

Bulk Metallic Glasses XIV — Structures and Mechanical 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

Tuesday AM
February 28, 2017
Room: 33A
Location: San Diego Convention Center

Session Chairs: Takeshi Egami, The University of Tennessee; Katharine Flores, Washington University

8:30 AM Keynote
Dynamic Atomic Cooperativity in Liquids and Glasses: *Takeshi Egami*[1]; [1]University of Tennessee

9:00 AM Invited
Flexibility Volume as a Universal Structural Parameter to Quantitatively Predict Metallic Glass Properties: *Evan Ma*[1]; [1]Johns Hopkins University

9:20 AM Invited
Deformation Induced Heterogeneities in Metallic Glasses: *Robert Maass*[1]; [1]University of Illinois at Urbana-Champaign

9:40 AM Invited
Hierarchical Heterogeneities in Bulk Metallic Glasses: Peter Tsai[1]; Kelly Kranjc[1]; *Katharine Flores*[1]; [1]Washington University

10:00 AM Invited
A Study on the Formation and Propagation Behavior of Shear Bands in Metallic Glasses: *Ke-Fu Yao*[1]; Guan-Nan Yang[1]; Yang Shao[1]; [1]Tsinghua University

10:20 AM Break

10:40 AM Invited
An Assessment of Ternary Bulk Metallic Glasses: Correlations between Structure, Glass Forming Ability & Stability: *Kevin Laws*[1]; Daniel Miracle[2]; Dmitri Louzguine-Luzgin[3]; Larissa Louzguina-Luzgina[3]; [1]University of New South Wales; [2]Air Force Research Laboratory,; [3]Tohoku University

11:00 AM Invited
High Pressure, High Temperature Structural Study of Zr-based Glasses: *Wojciech Dmowski*[1]; Stanislaw Gierlotka[2]; Yoshihiko Yokoyama[3]; Takeshi Egami[1]; [1]University of Tennessee; [2]Institute of High Pressure Physics of the Polish Academy of Sciences; [3]Tohoku University

11:20 AM Invited
Effect of Stress on Crystallization Pathways in Metallic Glasses: M. Naeem[1]; S. Lan[1]; B. Wang[1]; Yang Ren[2]; *Xun-Li Wang*[1]; [1]City University of Hong Kong; [2]Argonne National Laboratory

11:40 AM
Discovering a Unique Thermal-driven Glass-glass Transition in Metallic Glass: *Qing Du*[1]; Xiongjun Liu[1]; Qiaoshi Zeng[2]; En Ma[3]; Hui Wang[1]; Yuan Wu[1]; Z.P. Lu[1]; [1]University of Science and Technology Beijing; [2]Center for High Pressure Science and Technology Advanced Research; [3]Johns Hopkins University

Cast Shop Technology — Melting, Energy, and Dross

Program Organizer: David Gildemeister, Alcoa Technical Center

Tuesday AM
February 28, 2017
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*[1]; Johannes Rauch[1]; [1]Messer Group

9:05 AM
Case Study of Magnetically-Stirred Casting Furnaces at New Zealand Aluminium Smelters Limited.: *Ray Cook*[1]; Marcos Varayud[1]; Steve Iijima[2]; Eishin Takahashi[2]; [1]New Zealand Aluminium Smelters Limited; [2]Zmag, Ltd.

9:30 AM
Energy Efficiency Status-quo of UK Foundries: The "Small-Is-Beautiful" Project: *Mark Jolly*[1]; Konstantinos Salonitis[1]; Fiona Charnley[1]; Peter Ball[2]; Hamid Mehrabi[1]; Emanuele Pagone[1]; [1]Cranfield University; [2]University of York

9:55 AM Break

10:10 AM
Optimization of Recovery Efficiency for Briquetted Aluminum Chips up to Briquetting Parameters: *Ali Ulus*[1]; Hamdi Ekici[1]; Erdem Güler[1]; [1]Teknik Aluminium

10:35 AM
The Evaluation of Hot Dross Processing Systems: *David Roth*[1]; [1]GPS Global Solutions

Ceramic Materials for Nuclear Energy Research and Applications — Fundamental Defect Science in Ceramics and Thermal Transport

Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Tuesday AM
February 28, 2017
Room: Palomar
Location: Marriott Marquis Hotel & Marina

Session Chairs: Blas Uberuaga, Los Alamos National Laboratory; Marat Khafizov, Ohio State University

8:30 AM Invited
Radiation Damage on UO2 and UN: *Lingfeng He*[1]; Jian Gan[1]; Marquis Kirk[2]; Beata Tyburska-Pueschel[3]; Brian Jaques[4]; [1]Idaho National Laboratory; [2]Argonne National Laboratory; [3]University of Wisconsin-Madison; [4]Boise State University

9:00 AM
Five-dimensional Representation of Grain Boundary Energies in UO2: *Yongfeng Zhang*[1]; Timothy Harbison[2]; Jarin French[2]; Joseph Carmack[3]; Evan Hansen[2]; [1]Idaho National Lab; [2]Brigham Young University-Idaho; [3]University of Arkansas

9:20 AM
Study of Point and Extended Defects in Fluorite UO2 with Variable Charges Empirical Potentials: *Aurélien Soulié*[1]; Jean-Paul Crocombette[1]; Emmanuel Clouet[1]; Frederico Garrido[1]; [1]Comissariat à l'Energie Atomique

9:40 AM
The Roles of Surfaces, Chemical Interfaces, and Disorder on Plutonium Incorporation in Pyrochlores: *Romain Perriot*[1]; Pratik Dholabhai[1]; Blas Uberuaga[1]; [1]Los Alamos National Laboratory

10:00 AM Break

10:20 AM Invited
Effect of Burn-up on the Thermal Conductivity of Fast Reactor MOX Fuel: *Dragos Staicu*[1]; Thierry Wiss[1]; Rudy Konings[1]; [1]European Commission, Joint Research Centre, Nuclear Safety and Security Directorate

10:50 AM Invited
Thermal Transport Properties of Uranium Dioxide from Atomistic Simulations: *Aleksandr Chernatynskiy*[1]; Simon Phillpot[2]; [1]Missouri Science and Technology University; [2]University of Florida

11:20 AM
Molecular Dynamics Simulations of Thermal Transport in Uranium Dioxide with Intrinsic Defects and Fission Products: *Xiang-Yang Liu*[1]; M.W.D. Cooper[1]; K.J. McClellan[1]; J.C. Lashley[1]; D.D. Byler[1]; B.D.C. Bell[2]; R.W. Grimes[2]; C.R. Stanek[1]; D.A. Andersson[1]; [1]Los Alamos National Lab; [2]Imperial College London

11:40 AM
Anisotropic Thermal Conductivity and Interface Resistance in Pyrolytic Carbon Coated Zirconia Particles: *Yuzhou Wang*[1]; David Hurley[2]; Erik Luther[3]; Miles Beaux[3]; Venkateswara Rao[3]; Igor Usov[3]; Marat Khafizov[1]; [1]The Ohio State University; [2]Idaho National Laboratory; [3]Los Alamos National Laboratory

Characterization of Materials through High Resolution Coherent Imaging — Coherent Imaging and Phase Contrast 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

Tuesday AM
February 28, 2017
Room: 25B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Biomimetic CaCO3 Complex Morphologies Studied by Coherent X-ray Diffraction Imaging: *Yuriy Chushkin*[1]; Thomas Beuvier[2]; Federico Zontone[1]; Oxana Cherkas[2]; Alain Gibaud[2]; [1]European Synchrotron Radiation Facility; [2]Université du Maine

9:00 AM
Biological and Bio-inspired Multifunctional Structural Materials: *Ling Li*[1]; [1]Harvard University

9:30 AM
Biological Imaging Using Combined Ptychography and X-ray Fluorescence: *Karolina Stachnik*[1]; Martin Warmer[1]; Pawel Wrobel[2]; Felix Marschall[3]; Istvan Mohacsi[3]; Pontus Fischer[1]; Ismo Vartiainen[4]; Christian David[3]; Marek Lankosz[2]; Alke Meents[1]; [1]Deutsches Elektronen-Synchrotron DESY; [2]AGH University of Science and Technology; [3]Paul Scherrer Institut; [4]University of Eastern Finland

9:50 AM
Speckle-based X-ray Imaging at Diamond Light Source: *Hongchang Wang*[1]; Yogesh Kashyap[1]; Kawal Sawhney[1]; [1]Diamond Light Source

10:20 AM Break

10:40 AM
Real-time Direct and Diffraction Hard X-ray Imaging of Ultra-fast Processes: *Alexander Rack*[1]; Margie Olbinado[1]; Mario Scheel[2]; Jörg Grenzer[3]; Andreas Danilewsky[4]; [1]ESRF; [2]Synchrotron Soleil; [3]Helmholtz-Zentrum Rossendorf; [4]Albert-Ludwigs-University Freiburg

11:20 AM
Some Recent Advances in the Theory and Modeling of Phase Contrast Imaging: *John Barber*[1]; [1]Los Alamos National Laboratory

11:50 AM
Nanoscale 4D Microstructural Evolution of Precipitates in Aluminum Alloys Using Transmission X-Ray Microscopy (TXM): *C. Shashank Kaira*[1]; S.S Singh[1]; C Kantzos[1]; A Kirubanandham[1]; V De Andrade[2]; F De Carlo[2]; Nikhilesh Chawla[1]; [1]Arizona State University; [2]Argonne National Lab

Characterization of Minerals, Metals, and Materials — Alloys

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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 AM
February 28, 2017
Room: 31B
Location: San Diego Convention Center

Session Chairs: Eren Kalay, METU; Juan Escobedo-Diaz , University of New South Wales-Canberra

8:30 AM
Characterization of Surface Roughness of Laser Deposited Titanium Alloy and Copper Using AFM: *Mutiu Erinosho*[1]; Esther Akinlabi[1]; [1]University of Johannesburg

8:50 AM
Contribution of Phosphorus Addition to Strength after Intercritical Hot-rolling in HSLA Steels: *Yan Li*[1]; Wei Ding[1]; zengwu Zhao[1]; [1]Inner Mongolia University of Science and Technology

9:10 AM
Creation of Thermally Stable Precipitate Structures in a Ni-Base Superalloy through Compositional Modification: *Donald McAllister*[1]; Andrew Detor[2]; Richard DiDomizio[2]; Rongpei Shi[1]; Yunzhi Wang[1]; Michael Mills[1]; [1]The Ohio State University; [2]GE Global Research

9:30 AM
Characterizing □' Shape Evolution in Nickel-base Superalloys Using Lower Order Moment Invariants: *Ryan Harrison*[1]; Patrick Callahan[2]; Tresa Pollock[2]; Marc De Graef[1]; [1]Carnegie Mellon University; [2]University of California, Santa Barbara

9:50 AM
Developing Al-Sm Alloys for Structural Applications: *Gokhan Polat*[1]; Eren Kalay[1]; [1]METU

10:10 AM Break

10:25 AM
Microstructural Characterization of Oxide Layers Formed on Fe-Cr-Al-steels during the Exposure to Heavy Liquid Metals: *Miroslav Popovic*[1]; Alan Bolind[1]; Peter Hosemann[1]; Mark Asta[1]; Jan Schroers[2]; [1]UC Berkeley; [2]Yale University

10:45 AM
Investigating the Anisotropic Behaviour of Lean Duplex Stainless Steel 2101: *Ali Ameri*[1]; Juan Escobedo-Diaz[1]; Mahmud Ashraf[1]; Md. Quadir[1]; [1]University of New South Wales-Canberra

11:05 AM
Microstructural Investigation and Impact Testing of Additive Manufactured TI-6AL-4V: Danielle Austin[1]; Ali Ameri[1]; Daniel East[2]; *Juan P. Escobedo-Diaz*[1]; A.D. Brown[1]; M.Z. Quadir[3]; PJ Hazell[1]; Sammy Chan[4]; Matt Bevan[4]; [1]School of Engineering and Information Technology, UNSW Australia; [2]Manufacturing Flagship, CSIRO Clayton; [3]Microscopy and Microanalysis Facility (MMF), John de Laeter Centre (JdLC), Curtin University; [4]UNSW Australia

11:25 AM
Net Shaping of Steel-Tungsten Metal Hybrid via Binder Jet Additive Manufacturing: *Amy Elliott*[1]; Derek Siddel[1]; Christopher Shafer[1]; [1]Oak Ridge National Lab

11:45 AM
Texture Evolution of Binary Mg-Gd Alloys during Extrusion: *Aidin Imandoust*[1]; Haitham El Kadiri[2]; [1]Mississippi State University ; [2]Mississippi State University

12:05 PM
Thermo Chemical Nitriding of Ti6Al4V Alloy: *Farid Siyahjani*[1]; [1]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
February 28, 2017
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*[1]; Anoop Vatti[1]; Suhyun Yoo[1]; Joerg Neugebauer[1]; [1]Max-Planck-Institut fuer Eisenforschung GmbH

9:00 AM
Computational Discovery of Highly Active Catalysts to Enhance Electrochemical Reactions in Li-O2 Batteries: *Jianjun Liu*[1]; [1]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*[1]; [1]Trinity College

9:50 AM Invited
Metal-Organic Frameworks for Gas Capture and Storage: Computational Discovery and Experimental Validation: *Donald Siegel*[1]; [1]University of Michigan

10:20 AM Break

10:35 AM
Machine Learning the Atomistic "Building Blocks" of Grain Boundary Systems: *Conrad Rosenbrock*[1]; Gus Hart[1]; Eric Homer[1]; [1]Brigham Young University

10:55 AM
A Theoretical Study of Interfaces between Transition Metals and a-C:H: Matous Mrovec[1]; *Srinivasan Rajagopalan*[2]; Davide Di Stefano[1]; Christian Elsaesser[1]; [1]Fraunhofer Institute for Mechanics of Materials IWM; [2]ExxonMobil Research and Engineering Company

11:15 AM Invited
Computational Materials Discovery: From Reduced Pt Catalysts to Lightweight Alloys: *Houlong Zhuang*[1]; Alexander Tkalych[1]; Mohan Chen[1]; Emily Carter[1]; [1]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*[1]; Sang Soo Han[1]; [1]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: *Xiao Lu*[1]; Jian-Gang Zhu[2]; David Laughlin[2]; Jingxi Zhu[1]; [1]Sun Yat-sen University-Carnegie Mellon University Joint Institute of Engineering,; [2]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
February 28, 2017
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*[1]; Philip Goins[1]; [1]Carnegie Mellon University

9:00 AM
Construction of Grain Boundary "Phase" Diagrams with Atomistic Simulation: *Shengfeng Yang*[1]; Naixie Zhou[1]; Jian Luo[1]; [1]University of California, San Diego

9:20 AM
Grain Growth in Thin Films as a Truly Three-dimensional Problem: A Simulation Study: *Dana Zöllner*[1]; Ahu Öncü[1]; [1]Otto von Guericke University Magdeburg

9:40 AM
Interaction of Shear-coupled Grain Boundary Motion with Crack Studied by Molecular Dynamics Simulations: Aramfard Mohammad[1]; *Chuang Deng*[1]; [1]University of Manitoba

10:00 AM Break

10:15 AM Invited
Stochastic Grain Boundary Dynamics in a DSC Model for Shear Coupling: Jian Han[1]; Vaclav Vitek[1]; *David Srolovitz*[1]; [1]University of Pennsylvania

10:45 AM
A Universal Discrete Dislocation Model for Thermal Activation and Diffusion-assisted Climb: Run Zhu[1]; *Srinath Chakravarthy*[1]; [1]Northeastern University

11:05 AM
Non-Schmid Effects on Dislocation Core Structure and Influence on Dislocation Mobility in Titanium: *Max Poschmann*[1]; Daryl Chrzan[1]; Mark Asta[1]; [1]UC Berkeley

11:25 AM
A Dislocation Density Approach to Determine Pipe Diffusivity: *Chaoyi Zhu*[1]; Tyler Harrington[1]; Kenneth Vecchio[1]; [1]UC San Diego

11:45 AM
Developing the Third Generation of Calphad Databases - Modelling Al as a Case Study: *Sedigheh Bigdeli*[1]; Alber Glensk[2]; Blazej Grabowski[2]; Alexandra Khvan[3]; Huahai Mao[1]; Malin Selleby[1]; [1]KTH Royal Institute of Technology; [2]Max-Planck-Institut für Eisenforschung GmbH; [3]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
February 28, 2017

Room: 23A
Location: San Diego Convention Center

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 Fan[1]; Andre Phillion[2]; Steven Cockcroft[1]; *Daan Maijer*[1]; Carl Reilly[1]; Lu Yao[1]; [1]University of British Columbia; [2]McMaster University

8:55 AM Invited
The Mechanism of a Rapidly Solidified Structure in Spray Forming: *Hani Henein*[1]; [1]University of Alberta

9:15 AM
Update on Bifilms - The Fundamental Defect in Cast Metals.: *John Campbell*[1]; [1]University of Birmingham

9:35 AM
4D Synchrotron X-ray Imaging of Magnetically Controlled Al Alloy Solidification: *Biao Cai*[1]; Andrew Kao[2]; K. Pericleous[2]; Peter Lee[1]; [1]University of Manchester; [2]University of Greenwich

9:55 AM
In-situ Synchrotron X-ray Imaging of Inter-dendritic Fluid Flow Using a Model Al-Pb Alloy: *Enzo Liotti*[1]; Andrew Lui[1]; André Phillion[2]; Patrick Grant[1]; [1]University of Oxford; [2]McMaster University

10:15 AM Break

10:35 AM Introductory Comments Hot Tearing

10:40 AM Keynote
Prediction of Hot Tearing in Steel and Aluminum alloys: *Andre Phillion*[1]; [1]McMaster University

11:00 AM Keynote
X-ray Imaging of Solidification Cracking during Welding of Steel: *Hongbiao Dong*[1]; [1]University of Leicester

11:20 AM
Hot-tearing of Multicomponent Al-Cu Alloys Based on Casting Load Measurements in a Constrained Permanent Mold: *Adrian Sabau*[1]; Seyed Seyed Mirmiran[2]; Christopher Glaspie[2]; Shimin Li[3]; Diran Apelian[3]; Amit Shyam[1]; J. Haynes[1]; Andres Rodriguez[4]; [1]Oak Ridge National Laboratory; [2]Fiat Chrysler Automobiles North America; [3]Worcester Polytechnic Institute; [4]Nemak Monterrey

11:40 AM
Semi-solid Mechanical Behaviour and Hot-tearing of a 7050 Alloy: Experimental Analysis and Thermomechanical Modeling: *Kjerstin Ellingsen*[1]; Arne Nordmark[1]; Mohammed M'Hamdi[1]; [1]SINTEF

12:00 PM
The Nucleation and Growth of Hot Tearing during Strip Casting Steel: *Wanqiang Xu*[1]; Michael Ferry[1]; [1]The University of New South Wales

12:20 PM
Investigation of Hot Tearing A380.1 In "T Shape Mold": *Muhammet Uludag*[1]; Remzi Cetin[2]; Derya Dispinar[3]; Murat Tiryakioglu[4]; [1]Selcuk University; [2]Halic University; [3]Istanbul University; [4]University 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 Spearot, University of Florida

Tuesday AM
February 28, 2017

Room: 23B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
New Insights into Plasticity at Grain Boundaries by Nano- and Micromechanics: *Christoph Kirchlechner*[1]; Nataliya Malyar[1]; Nicolas Peter[1]; Gerhard Dehm[1]; [1]Max-Planck-Institut für Eisenforschung GmbH

8:50 AM Invited
Grain Boundary-Mediated Deformation Mechanisms Accommodating Mechanical Grain Growth in Nanocrystalline Metals: *Jason Trelewicz*[1]; [1]Stony Brook University

9:10 AM Invited
Studying the Mechanical Response of Regions within Grains and Near Grain Boundaries Using Spherical Nanoindentation: *Siddhartha Pathak*[1]; [1]University 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 Su*[1]; Philip Eisenlohr[1]; Thomas Bieler[1]; Martin Crimp[1]; [1]Michigan State University

9:50 AM Invited
Deformation Mechanisms of Single and Polycrystalline Zirconia Nanopillars: Ning Zhang[1]; *Mohsen Asle Zaeem*[1]; [1]Missouri University of Science and Technology

10:10 AM Break

10:30 AM Invited
Mechanical Characterization of Grain Boundary Regions Using Spherical Nanoindentation: *Shraddha Vachhani*[1]; Roger Doherty[2]; Surya Kalidindi[3]; [1]Hysitron, Inc; [2]Drexel University; [3]Georgia Institute of Technlogy

10:50 AM Invited
Phases and Phase Transformations at Interfaces: Tim Frolov[1]; Mark Asta[2]; *Y. Mishin*[3]; [1]Lawrence Livermore National Laboratory; [2]University of California - Berkeley; [3]George Mason University

11:10 AM Invited
Atomistic Simulations of Transient Testing in Nanocrystalline Al: *Maxime Dupraz*[1]; Zhen Sun[2]; Christian Brandl[3]; Helena Van Swygenhoven[2]; [1]Paul Scherrer Institut; [2]Paul Scherrer Institut & EPFL; [3]Karlsruhe Institute of Technology

11:30 AM
Stabilization of Nanocrystalline Alloys at High Temperatures via Utilizing High-entropy Grain Boundary Complexions: *Naixie Zhou*[1]; Tao Hu[1]; Mingde Qing[1]; Jiajia Huang[1]; Jian Luo[1]; [1]UCSD Nanoengineering

11:50 AM Invited
Observation and Characterization of Grain Boundary Complexions in Hot-pressed Boron Carbide: *Kristopher Behler*[1]; Scott Walck[1]; Christopher Marvel[2]; Jerry LaSalvia[3]; Martin Harmer[2]; [1]U.S. Army Research Laboratory (SURVICE Engineering); [2]Lehigh University; [3]U.S. Army Research Laboratory

12:10 PM Invited
Complexion Transitions in Metals: Unique Opportunities for Mechanical Behavior and Materials Processing: *Timothy Rupert*[1]; [1]University 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 Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Tuesday AM
February 28, 2017

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 Liang[1]; *Kwang-Lung Lin*[1]; [1]National Cheng Kung University

8:50 AM
In situ Characterization of Electromigration Damage in Single Crystal and Bi-crystal Pure Tin Solder Joints: *Marion Branch Kelly*[1]; Antony Kirubanandham[1]; Nikhilesh Chawla[1]; [1]Arizona State University

9:10 AM
*DZ** Value of the Sn Diffuser in Cu_6Sn_5 under Various Current Densities: *Cheng-Hsien Yang*[1]; Pei-Tzu Lee[1]; Han-Lin Chung[1]; Cheng-En Ho[1]; [1]Yuan Ze Univeristy

9:30 AM
Study of Electromigration Mechanism in Pb-free Tricrystals Ball Grid Array Solder Joints: *Yu Tian*[1]; Jing Han[1]; Fu Guo[1]; [1]Beijing University of Technology

9:50 AM
Intermetallic Compound Movement Behavior of Cu Reinforced Composite Solder under Current Stressing: Fu Guo[1]; *Yan Wang*[1]; Jing Han[1]; [1]Beijing University of Technology

10:10 AM Break

10:30 AM
Effective Suppression of Thermomigration-induced Cu Dissolution in Micro-scale Pb-free Interconnects by Ag3Sn interlayer: *Gong-Lin Hong*[1]; Yu-Fang Lin[1]; Fan-Yi Ouyang[1]; [1]Dept. of Engineering and System Science, National Tsing Hua University, Hsinchu, TAIWAN

10:50 AM
Corrosion Resistance for High Reliability Devices: *Tsan-Hsien Tseng*[1]; Albert T. Wu[1]; [1]National 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 Tsau*[1]; Jui-Nung Wang[1]; Fan-Yi Ouyang[1]; [1]National Tsing Hua University

Energy Materials 2017: Energy and Environmental Issues in Materials Manufacturing and Processing — Opportunities in the Steel Industry

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
February 28, 2017

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: *Chunxia Zhang*[1]; Fangqin Shangguan[1]; Haifeng Wang[1]; Shourong Zhang[2]; Ruiyu Yin[1]; [1]Central Iron & Steel Research Institute; [2]Wuhan 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: *Chunqing Tan*[1]; Xuezhi Dong[2]; Yixiang Yuan[2]; [1]Chinese Academy of Science; [2]Chinese Academy of Sciences

9:30 AM
Green Manufacturing Process of Shougang Jingtang Steel Plant: *Fuming Zhang*[1]; Jianxin Xie[1]; [1]Shougang Group

9:50 AM Invited
The Introduction and Process Optimization Research of Oxygen Blast Furnace Ironmaking Technology: *Qingguo Xue*[1]; Zeshang Dong[1]; Jingsong Wang[1]; Zeyi Jiang[1]; Haibin Zuo[1]; Xuefeng She[1]; Guang Wang[1]; [1]University of Science and Technology Beijing

10:10 AM Break

10:30 AM
Prediction and Optimal Scheduling of Byproduct Gases in Steel Mill: Trends and Challenges: Xiancong Zhao[1]; *Hao Bai*[1]; Qi Shi[1]; Zhancheng Guo[1]; [1]State Key Laboratory of Advanced Metallurgy,University of Science and Technology Beijing

10:50 AM
Processing Non-Oriented Electrical Steels Using Inclined/Skew Rolling Schemes: *Youliang He*[1]; Mehdi Sanjari[1]; Erik J. Hilinski[2]; [1]Natural Resources Canada; [2]Tempel 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 Guo*[1]; [1]University of Science and Technology Beijing

11:30 AM
Waste Energy Recovery Technology of Iron and Steel Industry in China: Xu Zhang[1]; *Hao Bai*[1]; Juxian Hao[1]; Zhancheng Guo[1]; [1]State Key Laboratory of Advanced Metallurgy,University of Science and Technology Beijing

Energy Materials 2017: Materials for Energy Conversion with Emphasis on SOFC — Session III

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
February 28, 2017

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 Ramanathan*[1]; [1]Purdue University

8:55 AM Invited
Investigation on Cathode Interlayer and Electrolyte for Improving Electric Power Efficiency of SOFCs: *Takaaki Somekawa*[1]; Yoshio Matsuzaki[1]; Yuya Tachikawa[2]; Hiroshige Matsumoto[2]; Shunsuke Taniguchi[2]; Kazunari Sasaki[2]; [1]Tokyo Gas Co., Ltd.; [2]Kyushu University

9:20 AM Invited
Poisoning Mechanism and Performance Degradation at SOFC Cathode/Electrolyte Interfaces: *Teruhisa Horita*[1]; Masahiro Ishiyama[1]; Katherine Develos-Bagarinao[1]; Haruo Kishimoto[1]; Katsuhiko Yamaji[1]; [1]AIST

9:40 AM
Phase Field Modelling of Microstructure and Conductivity Evolution of SOFC Electrodes: *Yinkai Lei*[1]; Tianle Cheng[1]; Youhai Wen[1]; [1]National Energy Technology Laboratory

10:00 AM Break

10:20 AM
Reactive Synthesis of Spinel Contact Layers with Metallic Precursor Powders: *Jiahong Zhu*[1]; Yutian Yu[1]; [1]Tennessee Technological University

10:40 AM Invited
Electrophoretically Deposited Copper Manganese Spinel Coatings for Interconnections in Solid Oxide Fuel Cells: Zhihao Sun[1]; Srikanth Gopalan[1]; Uday Pal[1]; *Soumendra Basu*[1]; [1]Boston University

11:05 AM
Synthesis and Characterisation of Perovskite Type Anode Material and Its Tape Casting for IT-SOFC Application: *Subhajit Pan*[1]; Ramesh Biswal[1]; Koushik Biswas[1]; [1]IIT Kharagpur

11:25 AM Invited
Modified SOFC Cermet Anodes for Improved Catalysis at High Fuel Utilization: Paul Gasper[1]; Yanchen Lu[1]; *Uday Pal*[1]; Soumendra Basu[1]; Srikanth Gopalan[1]; [1]Boston University

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
February 28, 2017

Room: 13
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
Alloy Development for Promoting □/□' Microstructural Stability and Creep Properties of Multi-component Co-base Superalloys: Wendao Li[1]; Haijing Zhou[1]; Song Lu[1]; Fei Xue[2]; *Qiang Feng*[1]; [1]University of Science and Technology Beijing; [2]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*[1]; Huan Yang[1]; Zhufeng Yue[1]; Chengjiang Zhang[1]; [1]Northwestern Polytechnical University

9:20 AM
Effect of C Addition on Creep and Microstructure Stability of Lamellar TiAl Alloys: *Xiwen Zhang*[1]; Ji Zhang[1]; Jing Zhu[2]; [1]China Iron and Steel Research Institute Group; [2]Tsinghua University

9:40 AM
Revisiting the Sources of Creep Dislocations in Ni-base, Single Crystal Superalloys: *Farangis Ram*[1]; Zhuangming Li[2]; Zailing Zhu[3]; Masood Hafez Haghighat[2]; Stefan Zaefferer[2]; Dierk Raabe[2]; Roger Reed[3]; [1]Carnegie Mellon University; [2]Max-Planck Institut für Eisenforschung GmbH; [3]University of Oxford

10:00 AM Break

10:20 AM
Development Activities for the Manufacture of Rotor Forgings for Turbines in High Efficiency Power Plants: *Nikolaus Blaes*[1]; B. Donth[2]; Andreas Diwo[2]; D. Bokelmann[1]; M. Baues[2]; [1]Saarschmiede GmbH Freiformschmiede ; [2]Saarschmiede GmbH Freiformschmiede

10:40 AM
Mechanisms of Fracture in Laser Powder Bed Additive Manufactured Superalloys: *Håkan Brodin*[1]; Per Sandahl[2]; [1]Siemens Industrial Turbomachinery AB; [2]Exova AB

11:00 AM
Wang: High Temperature Oxidation of the New Type □'-strengthened Cobalt-base Superalloys: *Lei Wang*[1]; Yang Liu[2]; Bo Gao[2]; Xiu Song[2]; Shuyu Yang[3]; [1]Northestern University; [2]Northeastern University; [3]Shenyang University

11:20 AM
Failure Modes and Solutions of 17-4PH Martensite Steel: *Ruiping Su*[1]; Min Wang[2]; Peilin Wu[2]; [1] Baosteel Group; [2]Baosteel Group

Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session III

Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Tuesday AM
February 28, 2017

Room: 14A
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Keynote
Placeholder for Ram Shenoy - Technological Innovation and Creative Destruction in the Energy Sector: *TMS Administration*[1]; [1]Department of Energy-ram.g.shenoy@gmail.com

9:00 AM Keynote
Interfacial Engineering for Efficiency Enhancements in Energy-Water-Food: *Kripa Varanasi*[1]; [1]Massachusetts Institute of Technology

9:30 AM Keynote
Placeholder for TBI - Innovations and Start-ups in Energy and Oil & Gas: *TMS Administration*[1]; [1]TBI

10:00 AM Break

10:20 AM Keynote
Placeholder for Charles S. Knobloch - "Global Intellectual Property Protection" and Its Importance in Energy: *TMS Administration*[1]; [1]Charles@arnold-iplaw.com

10:40 AM Keynote
Placeholder for Rehan Alimohammad - Immigration and Brain Drain in Energy: *TMS Administration*[1]; [1]rehan@aandzlegal.com

11:00 AM Panel Discussion

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
February 28, 2017

Room: 31A
Location: San Diego Convention Center

Session Chairs: John Scully, University of Virginia; Brian Somerday, Southwest Research Institute

8:30 AM Invited
Quantification of Hydrogen-Metal Interactions in Engineering Alloys in Confined Spaces: Challenges and Opportunities: *John Scully*[1]; [1]Univ of Virginia

9:10 AM
The Effect of Microstructural Variation on Hydrogen Environment-Assisted Cracking Susceptibility of Monel K-500: *Zachary Harris*[1]; Brendy Rincon Troconis[1]; John Scully[1]; James Burns[1]; [1]University of Virginia

9:30 AM
Factors Causing Hydrogen Embrittlement of Cold-drawn Pearlitic Steel Fractured under Elastic/Plastic Region: *Ryosuke Konno*[1]; Toshiyuki Manabe[2]; Naoki Matsui[2]; Daisuke Hirakami[2]; Kenichi Takai[1]; [1]Sophia University; [2]Nippon Steel & Sumitomo Metal Corporation

9:50 AM Break

10:00 AM Invited
Factors Governing Hydrogen-Assisted Intergranular Cracking: Ni as a Model System: *Brian Somerday*[1]; Samantha Lawrence[1]; Zachary Harris[2]; [1]Sandia National Laboratories; [2]University of Virginia

10:40 AM
Stacking Fault Energy Based Alloy Identification for Hydrogen Compatibility: *Paul Gibbs*[1]; Patricia Hough[1]; Konrad Thurmer[1]; Brian Somerday[2]; Christopher San Marchi[1]; Jonathan Zimmerman[1]; [1]Sandia National Laboratories; [2]Southwest Research Institute

11:00 AM
Hydrogen Embrittlement Mediated by Reaction between Dislocation and Grain Boundary in Iron: *Liang Wan*[1]; Wen-Tong Geng[1]; Jun-Ping Du[2]; Akio Ishii[1]; Hajime Kimizuka[1]; Shigenobu Ogata[1]; [1]Osaka University; [2]Kyoto University

11:20 AM
Role of Hydrogen on Metal Plasticity: An Ab-Initio Study: *Pulkit Garg*[1]; Ilaksh Adlakha[1]; Kiran Solanki[1]; [1]SEMTE

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Relationships Among Processing, Microstructure, and Fatigue Properties

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

Tuesday AM — Room: 23C
February 28, 2017 — Location: San Diego Convention Center

Session Chair: Ashley Spear, University of Utah

8:30 AM Keynote
Research Directions in Materials Engineering and Fatigue: An NSF Engineering Perspective: *Alexis Lewis*[1]; [1]National Science Foundation

9:10 AM Invited
On the Fatigue Behavior of Additive Manufactured Metallic Materials: *Nima Shamsaei*[1]; Aref Yadollahi[1]; [1]Mississippi State University

9:30 AM
Low Cycle Fatigue Behavior of Direct Metal Laser Sintered Inconel Alloy 718: Experiments and Crystal Plasticity Modeling: *Marko Knezevic*[1]; Saeede Ghorbanpour[1]; [1]University of New Hampshire

9:50 AM
Fatigue Performance of Inconel 718 Superalloy Fabricated via Laser-Based Powder Bed Fusion: *Aref Yadollahi*[1]; Nima Shamsaei[1]; Scott Thompson[1]; Steven Daniewicz[1]; [1]Mississippi State University

10:10 AM Break

10:30 AM
The Effect of Grain Boundaries on Short Crack Growth Behavior in WE43 Magnesium: *Jacob Adams*[1]; Wayne Jones[1]; John Allison[1]; [1]University of Michigan

10:50 AM
Enhancing Fatigue Life through Ultrasonic Shot Peening: *Garrett Pataky*[1]; Vivic Harrinanan[1]; [1]Clemson University

11:10 AM
Effects of Alloying and Microstructure on Ultrasonic Fatigue Behavior of Binary Ti-Al Alloys: *Qianying Shi*[1]; Sinsar Hsie[1]; J. Wayne Jones[1]; John Allison[1]; [1]University of Michigan

11:30 AM
Low Cycle Fatigue Properties of a CoCrFeMnNi Equiatomic High-entropy Alloys: *Tsung-Ruei Sui*[1]; E-Wen Huang[1]; Jien-Wei Yeh[2]; [1]National Chiao Tung University; [2]National Tsing Hua University

Friction Stir Welding and Processing IX — High Temperature Applications II

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

Tuesday AM — Room: 9
February 28, 2017 — 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 Gibson*[1]; Wei Tang[1]; Zhili Feng[1]; Artie Peterson[2]; Gregory Frederick[2]; [1]Oak Ridge National Laboratory; [2]Electric Power Research Institute

8:55 AM Invited
Evaluation of Ausformed H13 Tool Steel for FSW Tools: *Murray Mahoney*[1]; John Baumann[2]; Anthony Reynolds[3]; [1]Retired from Rockwell Scientific; [2]Boeing; [3]University of South Carolina

9:15 AM Invited
Development of Friction Stir Processing for Repair of Nuclear Dry Cask Storage System Canisters: *Kenneth Ross*[1]; Ben Sutton[2]; Glenn Grant[1]; Gary Cannell[3]; Greg Frederick[2]; Robert Couch[2]; [1]Pacific Northwest National Laboratory; [2]Electric Power Research Institute; [3]FLUOR

9:35 AM Invited
Friction-Stir-Processing Microstructure Improvement Related to Fatigue-strength and Charpy-absorbed-Energy Increase of TIG-welded SS400 Steels: *Kazuhiro Ito*[1]; Tatsuya Okuda[1]; Hiroki Izumi[1]; Makoto Takahashi[1]; Kazuyuki Kohama[1]; Hajime Yamamoto[1]; Hidetoshi Fujii[1]; [1]Osaka University

9:55 AM Invited
Performance of Tungsten-based Alloy Tool Developed for Friction Stir Welding of Austenitic Stainless Steel: *Yutaka Sato*[1]; Ayuri Tsuji[2]; Tomohiro Takida[2]; Akihiko Ikegaya[2]; Akinori Shibata[3]; Hiroshi Ishizuka[3]; Hideki Moriguchi[3]; Shinichi Susukida[1]; Hiroyuki Kokawa[1]; [1]Tohoku University; [2]Allied Material; [3]Nippon ITF

10:15 AM Break

10:30 AM
Microstructure and Mechanical Behavior of Friction Stir Welded Ti-6Al-4V Joints: *L.H. Wu*[1]; Z.Y. Ma[1]; B.L. Xiao[1]; [1]Institute of Metal Research, Chinese Acadamy 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 Liu*[1]; Hidetoshi Fujii[1]; [1]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. Ma*[1]; L.H. Wu[1]; B.L. Xiao[1]; [1]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 Chougule*[1]; Digvijay Sheed[1]; Rajkumar Singh[1]; Nithyanand Prabhu[2]; Bhagwati Kashyap[2]; Kaushal Jha[3]; [1]Bharat Forge ltd.; [2]Indian Institute of Technology, Bomaby; [3]Bhabha Atomic Research Centre, Mumbai

Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin — Structure-Property-Performance Correlations: Carbon Nanotubes, Boron Nitride and Biomaterials

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
February 28, 2017 — 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 Zhang[1]; Xin Wang[1]; Qingwen Li[2]; *Yuntian Zhu*[1]; [1]North Carolina State University; [2]Suzhou Institute of Nanotechnology and Nanobionics

9:10 AM Invited
Boron-Filled Hybrid Carbon Nanotubes: *Rajen Patel*[1]; Alokik Kanwal[2]; Tseng-Ming Chou[3]; Joseph Lefebvre[4]; Frank Owens[5]; David Apigo[2]; Zafar Iqbal[2]; [1]Picatinny Arsenal, NJ; [2]NJIT; [3]SIT; [4]Hysitron; [5]Hunter 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 Haque*[1]; Anagh Bhaumik[1]; Jagdish Narayan[1]; [1]NCSU

10:00 AM Break

10:15 AM Invited
Catalyzed BNNT Growth on Metallic Substrates: Vijayesh Kumar[1]; Debrupa Lahiri[1]; *Indranil Lahiri*[1]; [1]Indian Institute of Technology Roorkee

10:45 AM
Remarkable Conversion of p to n Type Reduced Graphene Oxide (rGO) by Laser Annealing Technique at Room Temperature and Pressure: *Anagh Bhaumik*[1]; Ariful Haque[1]; Jagdish Narayan[1]; [1]North Carolina State University

11:05 AM Invited
Preparation and Characterization of Ceramic Scaffolds: *Joanna McKittrick*[1]; Steven Naleway[1]; Michael Frank[1]; Jae-Young Jung[1]; Frances Su[1]; [1]University of California, San Diego

11:35 AM Invited
Development of Biodegradable Magnesium Alloys: *Kwang Seon Shin*[1]; Ahmad Bahmani[1]; [1]Seoul 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
February 28, 2017 — 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 Graeve*[1]; James Kelly[1]; [1]University of California, San Diego

9:10 AM
A Numerical Tool to Master the SPS Densification of TiAl Complex Shapes: *Martins David*[1]; Estournes Claude[2]; Sallot Pierre[1]; Bellet Michel[3]; Mocellin Katia[3]; [1]SAFRAN; [2]CIRIMAT; [3]CEMEF

9:30 AM
Influence of Loading Modes in Spark Plasma Sintering: *Xialu Wei*[1]; Eugene Olevsky[1]; [1]San Diego State University

9:50 AM
Modeling and Optimization of Hierarchical Porous Structures during Spark Plasma Sintering: *Diletta Giuntini*[1]; Eugene Olevsky[1]; [1]San Diego State University

10:10 AM Break

10:30 AM Invited
Predicting (1) Activated Sintering of Refractory Metals and (2) Flash Sintering of Oxides: *Jian Luo*[1]; [1]UC San Diego

11:10 AM
Optimization of Temperature Regime of Spark Plasma Sintering of AlON Powder: *Yingchun Shan*[1]; Xialu Wei[2]; Xiannian Sun[1]; Geuntak Lee[2]; Jiujun Xu[1]; Eugene A Olevsky[2]; [1]Dalian Maritime University; [2]San Diego State University

11:30 AM
On the Role of Electric Current in Spark Plasma Sintering of Conductive Powders: *Geuntak Lee*[1]; Eugene Olevsky[1]; Joanna McKittrick[2]; [1]San Diego State University; [2]University of California, San Diego

Gamma (FCC)/Gamma-Prime ($L1_2$) Co-Based Superalloys II — Microstructural Evolution

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

Tuesday AM — Room: Pacific 14
February 28, 2017 — 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 Sauza[1]; Peter Bocchini[1]; James Coakley[1]; Eric Lass[2]; David Dunand[1]; *David Seidman*[3]; [1]Northwestern University; [2]National Institute of Standards and Technology (NIST); [3]Northwestern University Center for Atom Probe Tomography (NUCAPT)

9:15 AM Invited
On the Role of the Base Elements Co and Ni in \947'-hardened Superalloys: *Steffen Neumeier*[1]; Christopher Zenk[2]; Nicklas Volz[2]; Timur Halvaci[2]; Mathias Göken[2]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg ; [2]Friedrich-Alexander-Universität Erlangen-Nürnberg

9:45 AM
Properties of \947'-phase in $L1_2$-precipitation Hardened Co-base Alloys with Different W-content: Yuzhi Li[1]; Uwe Lorenz[1]; Steffen Neumeier[2]; Andreas Schreyer[3]; Andreas Stark[1]; Li Wang[1]; *Florian Pyczak*[1]; [1]Helmholtz-Zentrum-Geesthacht; [2]Friedrich-Alexander Universität Erlangen-Nürnberg; [3]European Spallation Source ERIC

10:05 AM Break

10:25 AM Invited
Structural Stability of $L1_2$ and TCP Phases in Co-based Superalloys: *Thomas Hammerschmidt*[1]; Arthur Bialon[1]; Jörg Koßmann[1]; Ralf Drautz[1]; [1]ICAMS, Ruhr-Universität Bochum

10:55 AM
Elemental Partitioning Behaviour in Ni-Co-Al-Ti-Cr Alloys: *Sioned Llewelyn*[1]; Katerina Christofidou[1]; Vicente Araullo-Peters[2]; Nick Jones[1]; Emmanuelle Marquis[2]; Mark Hardy[3]; Howard Stone[1]; [1]University of Cambridge; [2]University of Michigan; [3]Rolls-Royce plc

11:15 AM
Modeling Precipitate Coarsening in Cobalt-based Superalloys: *Andrea Jokisaari*[1]; Shahab Naghavi[1]; Peisheng Wang[2]; Wei Xiong[1]; Kil-Won Moon[2]; Christopher Wolverton[1]; Ursula Kattner[2]; Careyln Campbell[2]; Peter Voorhees[1]; Olle Heinonen[3]; [1]Northwestern University; [2]National Institute of Standards and Technology; [3]Argonne National Laboratory

11:35 AM
Gammaprime Precipitation in Model CoAlW Alloys: Ahmad Azzam[1]; *Frederic Danoix*[1]; Annie Hauet[1]; Didier Locq[2]; Pierre Caron[2]; Didier Blavette[1]; [1]Normandy Université - CNRS; [2]Onera

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 Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Tuesday 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 Sommer*[1]; [1]Del West Engineering, Inc

8:55 AM
CAE-based Analysis of Structural Integrity for an Industrial Gas Turbine Blade Made from TiAl Alloy: Omid Sedaghat[1]; *Siavash Zamani*[1]; Saeed Asadi[1]; Fatemeh Heydari[1]; Ali Bakhshi[1]; [1]MAPNA Turbine Blade Eng. & Mfg. Co. - PARTO

9:15 AM
O-phase in a Lamellar TiAlNb Alloy Produced by Powder Metallurgy: *Heike Gabrisch*[1]; Uwe Lorenz[1]; Florian Pyczak[1]; Marcus Rackel[1]; Andreas Stark[1]; [1]Helmholtz-Zentrum Geesthacht

9:35 AM
Preparation and Electron Beam Welding of Hot Packed Rolled Powder Metallurgy □-TiAl Sheets: *Zhengguan Lu*[1]; Lei Xu[1]; Jie Wu[1]; Ruipeng Guo[1]; Rui Yang[1]; [1]Institue of Metal Research, CAS

9:55 AM
Why Grinding of Gamma Titanium Aluminide Makes Sense?: *K. Philip Varghese*[1]; [1]Saint-Gobain Abrasives

10:15 AM Break

10:25 AM Invited
Development of Cost-effective Processes for Gamma-TiAl Application: *Rui Yang*[1]; [1]Institute of Metal Research CAS

10:50 AM
Deformation Behavior of Novel ß-□ TiAl Alloy Containing High Niobium: *Laiqi Zhang*[1]; Gengwu Ge[1]; Xiangling Ma[1]; Junpin Lin[1]; [1]University 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 Liss*[1]; [1]Australian Nuclear Science and Technology Organisation

11:30 AM
Hot Forming of Titanium Aluminide Alloys Studied *in situ* with Synchrotron Radiation: *Andreas Stark*[1]; Marcus Rackel[1]; Michael Oehring[1]; Norbert Schell[1]; Lars Lottermoser[1]; Florian Pyczak[1]; [1]Helmholtz-Zentrum Geesthacht

11:50 AM
Fracture Behavior during Hot Tension Testing of High Nb Containing TiAl Alloys: *Bin Zhu*[1]; Xiangyi Xue[1]; Hongchao Kou[1]; Lin Song[1]; Jinshan Li[1]; [1]Northwestern 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 Nigel Mathaudhu, University of California Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Tuesday AM — Room: 32B
February 28, 2017 — Location: San Diego Convention 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 Miracle*[1]; Oleg Senkov[2]; [1]AF Research Laboratory; [2]UES, Inc.

8:50 AM Invited
Formations, Thermodynamics and Elasticity of High-entropy Alloys: *Michael Gao*[1]; Jeffrey Hawk[1]; David Alman[1]; [1]National 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 Gludovatz*[1]; Keli Thurston[1]; Anton Hohenwarter[2]; Guillaume Laplanche[3]; Easo George[3]; Robert Ritchie[1]; [1]Lawrence Berkeley National Laboratory; [2]University of Leoben; [3]Ruhr-University Bochum

9:30 AM Invited
Phase Stability of the CrMnFeCoNi High-entropy Alloy: F. Fox[1]; G. Laplanche[1]; A. Hohenwarter[2]; A. Kostka[1]; F. Otto[1]; *E. P. George*[1]; [1]Ruhr University Bochum; [2]Montanuniversität Leoben

9:50 AM Invited
A Highly Fracture and Fatigue Resistant Al0.3CoCrFeNi High Entropy Alloy: Mohsen Seifi[1]; Yunzhu Shi[2]; Peter Liaw[2]; Mingwei Chen[3]; *John Lewandowski*[1]; [1]Case Western Reserve University; [2]The University of Tennessee; [3]Tohoku University

10:10 AM Break

10:30 AM Invited
Novel Precious Metal High Entropy Alloys – Design, Structure and Mechanical Performance: *Caitlin Healy*[1]; Jörg Löffler[2]; Michael Ferry[1]; Kevin Laws[1]; [1]University of New South Wales; [2]ETH Zürich

10:50 AM Invited
Hexagonal Close-Packed High-entropy Alloys: The Effect of Entropy: *Junwei Qiao*[1]; Michael Gao[2]; Huijun Yang[1]; [1]Taiyuan University of Technology; [2]National Energy Technology Laboratory

11:10 AM
Design of Light-weight High-Entropy Alloys: *Rui Feng*[1]; Michael C. Gao[2]; Chanho Lee[1]; Michael Mathes[1]; Tingting Zuo[3]; Shuying Chen[1]; Jeffrey A. Hawk[2]; Yong Zhang[3]; Peter K. Liaw[1]; [1]The University of Tennessee; [2]National Energy Technology Laboratory/AECOM; [3]University of Science and Technology, Beijing

11:30 AM
The Design of Creep-resistant High Entropy Alloys for Elevated-temperature Applications: *Haoyan Diao*[1]; Chuan Zhang[2]; Fan Zhang[2]; Karin Dahmen[3]; Peter Liaw[4]; [1]The University of Tennessee ; [2]CompuTherm, LLC; [3]University of Illinois at Urbana-Champaign; [4]The University of Tennessee

11:50 AM
Local Texture in a Swaged CrMnFeCoNi High-entropy Alloy: Aurimas Pukenas[1]; Guillaume Laplanche[2]; Easo George[2]; *Werner Skrotzki*[1]; [1]TU Dresden; [2]Ruhr-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 Charit, 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

8:30 AM Invited
Advanced FIM and APT Techniques at the University of Oxford: *Michael Moody*[1]; Paul Bagot[1]; [1]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*[1]; Chad Parish[1]; Randy Nanstad[1]; [1]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*[1]; Taisuke Sasaki[1]; Hossein Sepehri-Amin[1]; Tadakatsu Ohkubo[1]; [1]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*[1]; Zugang Mao Mao[1]; Chris Booth-Morrison[1]; [1]Northwestern University

10:50 AM Invited
First-principles Modeling of Anomalous Precipitation in W-Re Alloys under Neutron Irradiation: *Duc Nguyen-Manh*[1]; Jan Wrobel[2]; Michael Klimenkov[3]; Sergei Dudarev[1]; [1]Culham Cenre for Fusion Energy; [2]Warsaw University of Technology; [3]Karlsruhe Institute of Technology

11:20 AM
Design and Development of Novel High-temperature Creep Resistant 9% Cr Steels: *Dieter Isheim*[1]; Yao Du[1]; Cameron Gross[1]; Semyon Vaynman[1]; Yip-Wah Chung[1]; [1]Northwestern University

11:40 AM
Diffusivity Determination of Slow Diffusion Systems using Diffusion Couples and Multiples: *Zhangqi Chen*[1]; Ji-Cheng Zhao[1]; [1]The Ohio State University

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

8:30 AM Introductory Comments

8:40 AM Keynote
Overview of In-Situ X-ray Studies of Light Alloy Solidification in Microgravity: *David Browne*[1]; F. García-Moreno[2]; H. Nguyen-Thi[3]; G. Zimmermann[4]; F. Kargl[5]; Ragnvald Mathiesen[6]; Axel Griesche[7]; O. Minster[8]; [1]University College Dublin; [2]Institute of Applied Materials, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH; Technische Universität Berlin; [3]IM2NP & Université d'Aix-Marseille; [4]Access e.V., Intzestrasse; [5]Deutsches Zentrum fur Luft- und Raumfahrt (DLR), Institut fur Materialphysik Im Weltraum; [6]Institut for Fysikk, Norsk Teknisk-Naturvitenskapelige Universitet (NTNU); [7]Bundesanstalt für Materialforschung und –prüfung (BAM); [8]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[1]; Wajira Mirihanage[1]; Ken Falch[1]; Inga Ringdalen[2]; Jesper Friis[2]; Rainer Schmid-Fetzer[3]; Dongdong Zhao[1]; Yanjun Li[1]; Wim Sillekens[4]; *Ragnvald Mathiesen*[1]; [1]NTNU; [2]SINTEF Materials and Chemistry; [3]Clausthal University of Technology; [4]European Space Agency

9:30 AM
Real-time Observation of AZ91Solidification by Synchrotron Radiography: *Guang Zeng*[1]; Kazuhiro Nogita[2]; Sergey Belyakov[1]; Jingwei Xian[1]; Stuart McDonald[2]; Hideyuki Yasuda[3]; Christopher Gourlay[1]; [1]Imperial College London; [2]University of Queensland; [3]Kyoto University

9:50 AM
3D Microstructural Evolution on Solidifying Mg-5Nd-5Zn Alloy Observed via In Situ Synchrotron Tomography: *Tungky Subroto*[1]; Chamini Mendis[2]; Francesco D'Elia[1]; Gábor Szakács[1]; Julie Fife[3]; Norbert Hort[1]; Karl Kainer[1]; Domonkos Tolnai[1]; [1]Helmholtz-Zentrum Geesthacht; [2]Brunel Centre for Advanced Solidification Technology (BCAST), Brunel University; [3]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*[1]; Daniele Casari[2]; Wajira Mirihanage[3]; Sofiane Terzi[4]; Ragnvald Mathiesen[2]; Luc Salvo[5]; Rémi Daudin[5]; Pierre Lhuissier[5]; Enyu Guo[3]; Peter Lee[3]; [1]European Space Agency; [2]NTNU Norwegian University of Science and Technology; [3]University of Manchester; [4]European Synchrotron Radiation Facility – Institut Laue-Langevin; [5]Université Grenoble Alpes

10:55 AM
Acoustic Emission Study of Deformation Behavior of Wrought Mg Alloys: *Patrik Dobron*[1]; Daria Drozdenko[1]; Sangbong Yi[2]; Jan Bohlen[2]; [1]Charles University; [2]Helmholtz-Zentrum Geesthacht

11:15 AM
Effect of Thermo-mechanical Treatment of Extruded Z1 Mg Alloy on Resulting Mechanical Properties: *Daria Drozdenko*[1]; Jan Bohlen[2]; Sangbong Yi[2]; Patrik Dobron[1]; [1]Charles University in Prague; [2]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 Máthis*[1]; Gerardo Garces[2]; Klaudia Horváth[1]; Daria Drozdenko[1]; Patrik Dobron[1]; [1]Faculty of Mathematics and Physics, Charles University; [2]CENIM-CSIC

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

8:30 AM
Deformation Mechanisms in bcc Mg/Nb: *Youxing Chen*[1]; Satyesh Yadav[1]; Nan Li[1]; Xiang-Yang Liu[1]; Kevin Baldwin[1]; Irene Beyerlein[1]; Richard Hoagland[1]; Jian Wang[2]; Nathan Mara[1]; [1]Los Alamos National Laboratory; [2]University of Nebraska – Lincoln

8:50 AM Invited
Fracture Toughness of Al/SiC Nanolaminates: Experiments and Simulation
: Carl Mayer[1]; Ling Yang[2]; V. Carollo[2]; J. Kevin Baldwin[3]; Nathan Mara[3]; Jon Molina-Aldareguia[2]; *Nikhilesh Chawla*[1]; [1]Arizona State University; [2]IMDEA; [3]Los Alamos National Laboratory

9:20 AM Invited
The Role of Interfaces on Plasticity in Dislocation Nucleation-mediated Nanostructures: Jungho Shin[1]; Lisa Chen[1]; Gunther Richter[2]; Thomas Cornelius[3]; Olivier Thomas[3]; *Daniel Gianola*[4]; [1]University of Pennsylvania; [2]Max-Planck-Institut für Intelligente Systeme; [3]Aix-Marseille Université; [4]University of California, Santa Barbara

9:50 AM
In-situ TEM Observations of Grain Growth during High-cycle Fatigue and Notch Fatigue: *Khalid Hattar*[1]; Daniel Bufford[1]; William Mook[1]; Christopher O'Brien[1]; Fadi Abdeljawad[1]; Tim Furnish[1]; Brad Boyce[1]; Stephen Foiles[1]; [1]Sandia National Laboratories

10:10 AM Break

10:25 AM Invited
Competing Interfaces within Hierarchical Nanostructured Metallic Alloys: Daniel Foley[1]; *Garritt Tucker*[1]; [1]Drexel University

10:55 AM
Twinning Paths and Twin Boundaries in Hexagonal Close-packed Titanium
: *Hao Wang*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

11:15 AM Invited
Role of Twinning, Dynamic Recrystallization, and Shear Banding in the Microstructural Evolution of Magnesium Alloys: *Ibrahim Karaman*[1]; Ebubekir Dogan[1]; Matthew Vaughan[1]; S.J. Wang[1]; [1]Texas A&M University

11:45 AM
The Twinning Genome: A Systematic Framework for Predicting Twinning in Materials: *Dingyi Sun*[1]; Mauricio Ponga[2]; Kaushik Bhattacharya[1]; Michael Ortiz[1]; [1]California Institute of Technology; [2]University 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
February 28, 2017
Room: 5A
Location: San Diego Convention Center

Session Chairs: 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*[1]; J.J. Bhattacharyya[1]; Fulin Wang[1]; [1]Department 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[1]; Chao Xu[1]; *Taisuke Sasaki*[2]; Yasunobu Matsumoto[3]; Kazunori Shimizu[3]; Kazuhiro Hono[2]; Shigeharu Kamado[1]; [1]Nagaoka University of Technology; [2]National Institute for Materials Science; [3]Sankyo 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*[1]; Taiki Nakata[1]; Mingyi Zheng[2]; Shigeharu Kamado[1]; [1]Nagaoka University of Technology; [2]Harbin Institute of Technology

9:50 AM
Effect of Extrusion Ratio on Microstructure and Resulting Mechanical Properties of Mg Alloys with LPSO Phase: *Klaudia Horváth*[1]; Daria Drozdenko[1]; Gerardo Garcés[2]; Kristián Máthis[1]; Patrik Dobron[1]; [1]Charles University in Prague; [2]CENIM-CSIC

10:10 AM Break

10:30 AM
Mechanically Alloyed Magnesium Based Nanostructured Alloy Powders for Stent Applications: *Peter Morcos*[1]; Khalil ElKhodary[2]; Hanadi Salem[2]; [1]Nanotechnology Program, The American University in Cairo, Egypt.; [2]Mechanical 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*[1]; Jan Seitz[2]; Rainer Eifler[2]; Hans Maier[2]; Ibrahim Karaman[1]; [1]Texas A&M University; [2]Leibniz Universität Hannover

11:10 AM
Zn Segregation at Precipitate/Matrix Interface in Mg-Sn-Zn Alloys: *Chaoqiang Liu*[1]; Houwen Chen[1]; Jian-Feng Nie[1]; [1]Chongqing University

11:30 AM
Machinability Investigation in Micro-milling of Mg based MMCs with Nano-sized Particles: Xiangyu Teng[1]; Dehong Huo[1]; *Eugene Wong*[1]; Manoj Gupta[2]; [1]Newcastle University; [2]National 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
February 28, 2017
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*[1]; James Kiggans[1]; Michael Trammell[1]; Wilson Cowherd[2]; Gregory Core[3]; [1]Oak Ridge National Laboratory; [2]Idaho National Laboratory ; [3]Idaho National Laboratory

8:50 AM
Microstructural Characterization and Thermal Properties of Metallic Pu-Zr Systems: *Assel Aitkaliyeva*[1]; Cynthia Papesch[1]; [1]Idaho National Laboratory

9:10 AM
Post Irradiation Electron Microscopy Examination of UCO Fuel Kernels from TRISO Coated Particles: *Terry Holesinger*[1]; Isabella van Rooyen[2]; Weicheng Zhong[2]; [1]Los Alamos National Laboratory; [2]Idaho National Laboratory

9:30 AM
Preliminary Post Irradiation Examination SEM Analysis of AGR 2 UO2 and UCO TRISO Fuel Particles: *Tyler Gerczak*[1]; John Hunn[1]; Charles Baldwin[1]; Robert Morris[1]; Fred Montgomery[1]; [1]Oak Ridge National Laboratory

9:50 AM
Grain Boundary Complexions in SiC and Their Relevance in Silver Diffusion in TRISO Particles: Felix Cancino Trejo[1]; *Eddie Lopez*[1]; [1]CINVESTAV

10:10 AM Break

10:30 AM
On Silver Transport in 3C-SiC: *Johannes Neethling*[1]; Jacques O'Connel[1]; [1]Nelson Mandela Metropolitan University

10:50 AM
High Temperature Fuel Cladding Chemical Interactions between Unirradiated TRIGA Fuels and 304 Stainless Steel: *Emmanuel Perez*[1]; Dennis Keiser[1]; Bryan Forsmann[2]; Dawn Janney[1]; Jody Henley[1]; Eric Woolstenhulme[1]; [1]Idaho National Laboratory; [2]Boise State University

11:10 AM
Small Scale Mechanical Testing of UO_2 at Elevated Temperatures: *David Frazer*[1]; Benjamin Shaffer[2]; Kitt Roney[2]; Harn Lim[2]; Perdo Peralta[2]; Peter Hosemann[1]; [1]University of California, Berkeley; [2]Arizona State University

11:30 AM
Model of Thermal Conductivity Reduction Due to Point Defect Accumulation in Ion Irradiated UO_2: *M Faisal Riyad*[1]; Vinay Chauhan[1]; Yuzhou Wang[1]; Marat Khafizov[1]; [1]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, QuesTek Innovations

Tuesday AM
February 28, 2017
Room: 10
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, Questek Innovations, LLC

8:30 AM Introductory Comments

8:50 AM Keynote
A History of Materials by Design, and a Very Bright Future: *Charles Kuehmann*[1]; [1]Space Exploration Technologies

9:30 AM Keynote
Computational Thermodynamics and Materials Design
: *Zi-Kui Liu*[1]; [1]The Pennsylvania State University

10:10 AM Break

10:40 AM Keynote
Exploring the Dark Continent of Structure-Property Relationships: *Mark Eberhart*[1]; [1]Colorado School of Mines

11:20 AM Keynote
The Redistribution of Carbon Atoms during Tempering of Martensite: *George Smith*[1]; [1]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 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 AM
February 28, 2017
Room: Pacific 16
Location: Marriott Marquis Hotel & Marina

Session Chairs: Pierre Sallot, Safran; Don Lipkin, GE Global Research

8:30 AM Keynote
Advanced Aerospace Engine Requirements and Materials Development: *Francis Preli*[1]; [1]Pratt & Whitney

9:00 AM Invited
Ceramic Matrix Composites for Jet Engine Applications: Damage Mechanisms and Design: *Gregory Morscher*[1]; [1]University of Akron

9:30 AM Invited
Environmental Barrier Coatings: Enabling SiC/SiC CMCs in Turbines: *Don Lipkin*[1]; [1]GE Global Research

10:00 AM Break

10:20 AM Invited
Creep and Oxidation Resistance of Select MAX Phases: A Critical Review: *Michel Barsoum*[1]; Sankalp Kota[1]; [1]Drexel University

10:50 AM Invited
Oxidation of Alumina-forming MAX Phases in Turbine Environments: *James Smialek*[1]; Anita Garg[1]; Bryan Harder[1]; James Nesbitt[1]; Timothy Gabb[1]; [1]NASA Glenn Research Center

11:20 AM Invited
Toughness and High Temperature Strength of Nb-Si and MoSiBTiC Alloys: *Nobuaki Sekido*[1]; Junya Nakamura[1]; Kyosuke Yoshimi[1]; [1]Tohoku University

11:50 AM
Scalable Processing, Microstructure, and Mechanical Properties in Mo-matrix Mo-Si-B: *Peter Marshall*[1]; Oliver Strbik[2]; [1]Imaging Systems Technology; [2]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 Gutfleisch, Technische Universität Darmstadt; Hae-Woong Kwon, Pukyong National University

Tuesday AM
February 28, 2017
Room: 24C
Location: San Diego Convention Center

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Akimasa Sakuma, Tohoku Umiversity; 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*[1]; Gregor Alexander Zickler[1]; Ahmad Asali[1]; [1]TU Wien

9:00 AM Invited
Demagnetizing Fields and Magnetization Reversal in Permanent Magnets: Johann Fischbacher[1]; Lukas Exl[2]; *Thomas Schrefl*[1]; [1]Danube University Krems; [2]Vienna University

9:30 AM Invited
Analyses on Magnetization Reversal Process of Nd-Fe-B Hot-deformed Magnets: *Satoshi Okamoto*[1]; Takahiro Yomogita[1]; Luran Zhang[1]; Nobuaki Kikuchi[1]; Osamu Kitakami[1]; Hossein Sepehri-Amin[2]; Tadakatsu Ohkubo[2]; Kazuhiro Hono[2]; Takahiro Akiya[3]; Keiko Hioki[4]; Atsushi Hattori[4]; [1]Tohoku University; [2]ESICMM-NIMS; [3] Daido Steel Co., LTD; [4]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*[1]; [1]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[1]; Dimitri Benke[1]; Tim Lienig[1]; Michael Duerrschnabel[1]; Leopoldo Molina-Luna[1]; Konstantin Skokov[1]; *Oliver Gutfleisch*[1]; [1]Technische Universität Darmstadt

11:10 AM
Temperature Dependence of Threshold of Magnetic Fields for Nucleation and Domain Wall Propagation: *Seiji Miyashita*[1]; Masamichi Nishino[2]; [1]The University of Tokyo; [2]National Institue for Material Science

11:30 AM Invited
Theoretical Study on the Temperature Dependence of Magnetic Anisotropy Constants of Rare Earth Permanent Magnets: *Akimasa Sakuma*[1]; Daisuke Miura[1]; Yuta Toga[2]; [1]Tohoku University; [2]National Institute for Materials Science

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Crystal Defects: Experiments and Modeling/Simulation

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
February 28, 2017

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*[1]; Nan Li[2]; [1]University of Michigan; [2]LANL

9:00 AM Invited
On Dislocation Patterning in Deformed Crystals: *Anter El-Azab*[1]; [1]Purdue University

9:20 AM Invited
Role of Structural Defects on the Magnetostriction of a-phase of Fe-based Alloys: *Sivaraman Guruswamy*[1]; Kanagasundar Appusamy[1]; Travis Willhard[1]; Richard Laroche[1]; [1]University of Utah

9:40 AM
Non-basal Dislocations in HCP Mg: *Yizhe Tang*[1]; [1]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[1]; Srinivas Mantri[1]; Talukder Alam[1]; Rajarshi Banerjee[1]; *Srikumar Banerjee*[2]; [1]University of North Texas; [2]Bhabha Atomic Research Centre

10:30 AM Break

10:45 AM Invited
Molecular Dynamics Simulations of Dislocation – Obstacle Interactions: *Brian Wirth*[1]; [1]University of Tennessee

11:05 AM Invited
Atomistic Simulation of Radiation Effects in FeCr-based Cladding: *Ram Devanathan*[1]; [1]Pacific Northwest National Laboratory

11:25 AM Invited
On the Origin of the Sink Efficiency of Grain Boundaries under Irradiation: *Blas Uberuaga*[1]; Enrique Martinez[1]; Laurent Capolungo[1]; [1]Los Alamos National Laboratory

11:45 AM Invited
Application of Phase-field Approach in Deformation-induced Microstructure Evolution: *Yulan Li*[1]; Shenyang Hu[1]; Scott Whalen[1]; Suveen Mathaudhu[1]; [1]Pacific Northwest National Laboratory

Mechanical Behavior of Nanostructured Materials — Mechanical Behavior of Bulk Nanostructured Materials II

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

Tuesday AM
February 28, 2017

Room: 30D
Location: San Diego Convention Center

Session Chairs: Enrique Lavernia, University of California; Xiaoxu Huang, Technical University of Denmark ; Kaiyuan Yu, China University of Petroleum

8:30 AM Invited
Mechanical Behaviors of Gradient Nanostructured Materials: Xiaochun Liu[1]; *Ke Lu*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

8:55 AM
Microstructure and Mechanical Behavior of ECAP and HPT Processed Austenitic and Ferritic-martenstic Steels: *Haiming Wen*[1]; Rinat Islamgaliev[2]; Marina Nikitina[2]; [1]Idaho State University; [2]Ufa State Aviation Technical University

9:15 AM Invited
Mechanical Properties and Microstructure Stability in Fe-Cr base Alloys for Nuclear Energy Applications: *Ronald Scattergood*[1]; Carl Koch[1]; [1]NC State University

9:40 AM
Hierarchical Structure and Strengthening Mechanisms in Pearlitic Steel Wire: *Xiaodan Zhang*[1]; Niels Hansen[1]; Xiaoxu Huang[1]; Andrew Godfrey[2]; [1]Technical University of Denmark; [2]Tsinghua University

10:00 AM
Back-stress Strengthening and Strain Hardening in Heterogeneous Materials: Muxin Yang[1]; Fuping Yuan[1]; Xiaolei Wu[1]; *Yuntian Zhu*[2]; [1]Institute of Mechanics, Chinese Academy of Sciences; [2]North Carolina State University

10:20 AM Break

10:40 AM Invited
Correlation between Nanostructuring and Precipitation in Age-hardened Aluminum Alloys: Kaka Ma[1]; Tao Hu[2]; Ryan Cohn[3]; Troy Topping[4]; Enrique Lavernia[5]; *Julie Schoenung*[5]; [1]Colorado State University ; [2]University of California San Diego; [3]University of California Davis; [4]California State University Sacramento; [5]University of California Irvine

11:00 AM
In Situ Synchrotron X-ray Studies on the Deformation Mechanism of Carbon-steel/Copper Nanocomposites: *Kaiyuan Yu*[1]; Yadong Ru[1]; Yang Ren[2]; Lishan Cui[1]; [1]China University of Petroleum-Beijing; [2]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[1]; *Steven Van Petegem*[1]; Christian Brandl[2]; Maxime Dupraz[1]; Karsten Durst[3]; Wolfgang Blum[4]; [1]Paul Scherrer Institut; [2]Karlsruhe Institut of Technology; [3]Technische Universität Darmstadt; [4]University Erlangen-Nürnberg

11:40 AM
Gradient Nanostructure and Mechanical Behavior of Ultrasonic Shot Peened Ti-6Al-4V: *Fei Yin*[1]; Hannah Han[2]; Qingyou Han[1]; [1]Purdue University; [2]West Lafayette high and junior school

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; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Tuesday AM
February 28, 2017

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
Microstructures in Irradiated and Deformed FeCrAl Alloys
: *Kevin Field*[1]; Samuel Briggs[2]; Jack Haley[3]; Maxim Gussev[1]; Kenneth Littrell[1]; Philip Edmondson[1]; Yukinori Yamamoto[1]; Xunxiang Hu[1]; Richard Howard[1]; Zhijie Jiao[4]; Gary Was[4]; Kumar Sridharan[2]; Lance Snead[5]; Kurt Terrani[1]; [1]Oak Ridge National Laboratory; [2]University of Wisconsin; [3]University of Oxford; [4]University of Michigan; [5]Massachusetts Institute of Technology

9:00 AM
Mechanical and Microstructural Properties of Neutron Irradiated Fe-Cr-C Alloys: *Milan Konstantinovic*[1]; W Van Renterghem[1]; M Labrecht[1]; M Chiapetto[1]; L Malerba[1]; [1]SCK.CEN

9:20 AM
Ballistic Mixing Effect on a' Precipitation in Irradiated Fe-Cr Alloys: *Jia-Hong Ke*[1]; Mukesh Bachhav[2]; Elaina Anderson[2]; Emmanuelle A. Marquis[2]; G. Robert Odette[3]; Dane Morgan[1]; [1]University of Wisconsin-Madison; [2]University of Michigan, Ann Arbor; [3]University of California, Santa Barbara

9:40 AM
Kinetics of Cr Precipitation in Iron under Irradiation: *Frederic Soisson*[1]; Estelle Meslin[1]; Olivier Tissot[1]; Jean Henry[1]; Chu-Chun Fu[1]; Brigitte Descamps[2]; Cristelle Pareige[3]; [1]CEA Saclay; [2]CSNSM; [3]GPM

10:00 AM
Atomistic Modeling of Hardening in Thermally-aged Fe-Cr Binary Alloys: *Tomoaki Suzudo*[1]; Yasuyoshi Nagai[2]; Alfredo Caro[3]; [1]Japan Atomic Energy Agency; [2]Tohoku University; [3]Los 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*[1]; Kai Sun[1]; Gerrit Vancoevering[1]; Zhijie Jiao[1]; Gary Was[1]; [1]University of Michigan

10:55 AM
Ion Irradiation Induced Segregation and Precipitation in F/M Steel HT9: *Ce Zheng*[1]; Maria Auger[2]; Djamel Kaoumi[1]; [1]North Carolina State University; [2]University of Oxford

11:15 AM
Microstructural Studies of Irradiated and Deformed FeCr Model Alloys: *Mercedes Hernández-Mayoral*[1]; Elvira Oñorbe[1]; Marta Serrano[1]; [1]CIEMAT

11:35 AM
Emulation of Reactor-irradiated Microstructural Features with Dual Ion-irradiation in T91 Steel: *Stephen Taller*[1]; Zhijie Jiao[1]; Kevin Field[2]; Gary Was[1]; [1]University of Michigan; [2]Oak Ridge National Laboratory

11:55 AM
He Implantation of Fe-Y2Ti2O7 Bilayers: Furthering NFA Understating: *Tiberiu Stan*[1]; Yuan Wu[1]; Robert Odette[1]; Yongquiang Wang[2]; Richard Cox[3]; [1]University of California Santa Barbara; [2]Los Alamos National Laboratory; [3]Pacific Northwest National Laboratory

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

Tuesday AM
February 28, 2017

Room: 24B
Location: San Diego Convention Center

Session Chairs: Huajian Gao, Brown University; Irene Beyerlein, University of California

8:30 AM Invited
The Austenite/Martensite Interface: Francesco Maresca[1]; *W Curtin*[1]; [1]EPFL

8:55 AM
A Deformation Mechanism by Correlated Necklace Dislocations in Nanotwinned Materials: Haofei Zhou[1]; *Huajian Gao*[1]; [1]Brown University

9:15 AM Invited
Simultaneous High Strength and Ductility in Nickel Induced by Nanodomains with Size Effects: *Fuping Yuan*[1]; Xiaolei Wu[1]; Evan Ma[2]; [1]Institute of Mechanics, Chinese Academy of Science; [2]The Johns Hopkins University

9:40 AM
Interfacial Incompatibilities and Crystalline Deformation and Failure: *Matt Bond*[1]; Mohammed Zikry[1]; [1]North Carolina State University

10:00 AM
Mechanical Behavior and Deformation Mechanism of Gradient Structured Cu Alloys with Varying Stacking Fault Energy: *Xinkun Zhu*[1]; [1]Kunming 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*[1]; Yalin Dong[1]; Vijay Vasudevan[2]; [1]University of Akron; [2]University of Cincinnati

11:00 AM
High Volume Fraction Heterogeneous Mg/SiC Nanocomposite with Extreme Malleability: *Jinling Liu*[1]; Xiaoxu Hu[2]; Xu He[1]; Song Jiang[1]; Linan An[3]; [1]Southwest Jiaotong University; [2]Northwestern Polytechnical University; [3]Univeristy of Central Florida

11:20 AM Invited
Homogeneous Plastic Deformation in Heterogeneous Lamella Structures: *Caizhi Zhou*[1]; Rui Yuan[1]; Irene Beyerlein[2]; [1]Missouri University of Science and Technology; [2]University of California at Santa Barbara

11:45 AM
Gradient Nanostructured Silicon through High Power Pulsed Laser-driven Shock Compression: *Shiteng Zhao*[1]; Eric Hahn[1]; Bimal Kad[1]; Bruce Remington[2]; Christopher Wehrenberg[2]; Karren More[3]; Eduardo Bringa[4]; Marc Meyers[1]; [1]University of California, San Diego; [2]Lawrence Livermore National Laboratory; [3]Oak Ridge National Laboratory; [4]Universidad 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; Mitra Taheri , Drexel University; Haiming Wen , Idaho State University

Tuesday AM
February 28, 2017

Room: Pacific 24
Location: Marriott Marquis Hotel & Marina

Session Chairs: Cheng Sun, Los Alamos National Laboratory; Eda Aydogan, Los Alamos National Laboratory

8:30 AM Invited
Nano-particles Control for High Performance ODS Steels: *Akihiko Kimura*[1]; [1]Kyoto University

9:00 AM
Varying Responses of Nanocrystalline Structures to Assorted Irradiation Conditions: *Brittany Muntifering*[1]; Daniel Bufford[1]; Khalid Hattar[1]; [1]Sandia National Laboratories

9:20 AM
Microstructural Characterization of ATR Irradiated Cu/Nb Nanolayered Composites: *Osman Anderoglu*[1]; Peter Hosemann[2]; Amit Misra[3]; George Odette[4]; Michael Nastasi[5]; Stuart Maloy[1]; [1]Los Alamos National Laboratory; [2]University of California-Berkeley; [3]University of Michigan; [4]University of California-Santa Barbara; [5]University of Nebraska

9:40 AM
Kinetics of Initial Phase Separation and Coarsening of Nanoscale Phase in Fe–Cr Alloys: Zhilong Yan[1]; *Yongsheng Li*[1]; Xiaorong Zhou[1]; [1]Nanjing University of Science and Technology

10:00 AM Break

10:20 AM Invited
Using Atom Probe Tomography and Neutron Inventory Simulation to Investigate Neutron-Irradiation-Induced Nano-Scale Second Phase Precipitation Chemistry in Pure Tungsten Irradiated at HFIR: *Philip Edmondson*[1]; Mark Gilbert[2]; [1]Oak Ridge National Laboratory; [2]EURATOM/CCFE Fusion Association

10:50 AM
Design of Radiation-resistant Alloys: *Thomas Schuler*[1]; Dallas Trinkle[1]; Pascal Bellon[1]; Robert Averback[1]; [1]University of Illinois at Urbana-Champaign

11:10 AM
Exploring the In-plane Distribution of Helium Bubbles at Cu/V Interfaces: *Di Chen*[1]; Nan Li[1]; Kevin Baldwin[1]; Dina Yuryev[2]; Michael Demkowicz[3]; Yongqiang Wang[1]; [1]Los Alamos National Laboratory; [2]Massachusetts Institute of Technology; [3]Texas A&M University

11:30 AM
Atom Probe Tomography Study of Neutron Irradiated U-Mo Fuel: *Haiming Wen*[1]; Assel Aitkaliyeva[2]; Yaqiao Wu[3]; Bandon Miller[2]; Dennis Keiser[2]; Jian Gan[2]; [1]Idaho State University; [2]Idaho National Laboratory; [3]Boise State University

Pan American Materials Congress Plenary — Session I

Tuesday AM
February 28, 2017
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*[1]; [1]University of Waterloo

9:20 AM Plenary
Production, Properties, and Applications of Titanium Dioxide Films: *Carlos Schvezov*[1]; [1]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 Hotza, UFSC

Tuesday AM
February 28, 2017
Room: Marina D
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

10:20 AM Invited
Carbon Based Coatings Deposited on Nitrided Stainless Steel: Study of Thermal Degradation: *Sonia Brühl*[1]; Eugenia Dalibon Bähler[1]; Vladimir Trava-Airoldi[2]; Naureen Ghafoor[3]; Lina Rogström[3]; Magnus Oden[3]; [1]National University of Technology; [2]Instituto Nacional de Pesquisas Espaciáis (INPE); [3]Linköping University

10:50 AM
Conceptual-Functional Model of Drilling Electrochemical Discharge Machining: *Gerardo Hernandez*[1]; Alejandra Hernandez[1]; [1]COMIMSA

11:10 AM
Deep Drilling in Soda-lime Glass Using Air Jet Assisted Electrochemical Discharge Machining (ECDM): Rajendra Arya[1]; *Akshay Dvivedi*[1]; Pradeep Kumar[1]; [1]Indian Institute of Technology, Roorkee

11:30 AM
Mechanisms and Influence of In-situ Pre-heating during Friction Welding: *Daniel Adams*[1]; Jerry Gould[2]; Michael Skinner[1]; Tom Budd[1]; [1]Manufacturing Technology, Inc. (MTI); [2]EWI

11:50 AM Invited
Microstructure-processing-property Relationships in Nanocrystalline Ceramics Produced Using Current-activated, Pressure-assisted Densification (CAPAD): *Javier Garay*[1]; [1]University of California San Diego

12:10 PM Invited
Sintering of Anisotropic Porous Microstructures: *Eugene Olevsky*[1]; Andrey Maximenko[1]; Diletta Giuntini[1]; Rajendra Bordia[2]; [1]San Diego State University; [2]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*[1]; Alexander Dupuy[2]; Yasuhiro Kodera[2]; Javier Garay[1]; [1]University of California, San Diego; [2]University of California, Riverside

Pan American Materials Congress: Materials for Green Energy — Materials for Green Energy

Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday AM
February 28, 2017
Room: Marina G
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

10:20 AM
Defect Engineering for Strong Photocatalysis of TiO_2 Nanoparticles with Dopants: DFT Calculations and Experimental Verifications: *Heechae Choi*[1]; Sovann Khan[2]; So Hye Cho[2]; Taeseup Song[3]; [1]Virtual Lab Inc. ; [2]KIST; [3]Yeungnam University

10:40 AM
Emission and Photocatalytic Properties of Graphene:ZnO Hybrid Nanostructures: *Pandiyarajan Thangaraj*[1]; Mangalaraja Ramalinga Viswanathan[1]; Udayabhaskar Rednam[1]; Naveenraj Selvaraj[1]; Karthikeyan Balasubramanian[1]; Mansilla Héctor D.[1]; David Contreras[1]; M.A. Gracia Pinilla[1]; [1]University of Concepcion

11:00 AM
Thermal and Electrical Conductivities of Mesoporous Nanofluids and Applications for Enzyme Catalysis: *Shuang Qiao*[1]; Ekaterina Novitskaya[1]; Flor Sanchez[2]; Rafael Vazquez-Duhalt[2]; Olivia Graeve[1]; [1]University of California, San Diego; [2]Universidad Nacional Autonoma de Mexico

11:20 AM
Novel Amorphous Fe-Tb-Dy Oxide with High Conductivity, Optical Transparency and Ferromagnetism: *Humaira Taz*[1]; Tamil Sakthivel[2]; Nana Yamoah[3]; Connor Carr[1]; Dhananjay Kumar[3]; Sudipta Seal[2]; Ramki Kalyanaraman[1]; [1]University of Tennessee-Knoxville; [2]University of Central Florida; [3]North Carolina A&T State University

11:40 AM
Simulation of Bonded Magnet Performance for Renewable Energy Applications: *H. Khazdozian*[1]; H. Ucar[2]; C. Hatter[2]; M. Kramer[1]; M. Paranthaman[1]; I. Nlebedim[1]; [1]Ames Laboratory; [2]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 Autonoma de Nuevo Leon

Tuesday AM
February 28, 2017
Room: Mission Hills
Location: Marriott Marquis Hotel & Marina

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*[1]; [1]Exova

11:00 AM
Phase Transformations in Continuous Heating and Aging Heat Treatments in Ti-Nb-Fe Alloys: Fernando da Costa[1]; Mariana de Mello[1]; Camilo Salvador[1]; *Rubens Caram*[1]; [1]University of Campinas

11:20 AM
Study of Phase Transformations and Decomposition of Martensite in FV535 High Cr Martensitic Steel: *Lizangela Guerra*[1]; Patricia Zambrano[1]; Armando Salinas[2]; Edgar Garcia[1]; [1]Universidad Autonoma de Nuevo Leon, Facultad de Ingenieria Mecanica y Electrica; [2]Centro de Investigacion y de Estudios Avanzados del IPN Unidad Saltillo

11:40 AM
Fatigue Behavior of Plasma Scribed HSLA Steels: *Jeffrey Rossin*[1]; Michael Kesler[1]; Edward George[2]; Steve Duke[3]; Michele Manuel[1]; [1]University of Florida; [2]E&S Consulting, Inc.; [3]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*[1]; Alan Bolind[1]; Peter Hosemann[1]; [1]University of California, Berkeley

12:20 PM
Observations and Analyses of Tribochemical Reactions in Lightweight Boron Carbide (B4C) Impacted at High-Velocity: *Jerry LaSalvia*[1]; Scott Walck[1]; Kristopher Behler[1]; Brady Aydelotte[1]; Brian Schuster[1]; [1]U.S. Army Research Laboratory

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — SPD Processing, Mechanical Properties of Nanocrystalline Materials, BMG

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
February 28, 2017
Room: Marina F
Location: Marriott Marquis Hotel & Marina

Session Chairs: Terence Langdon, University of Southern California; Hans Roven, Norwegian University of Science and Technology

10:20 AM
A Novel Method for SPD – Continuous Metal Screw Extrusion (CMSE): *Hans Roven*[1]; Kristian Skorpen[1]; Oddvin Reiso[2]; [1]Norwegian University of Science and Technology; [2]Hydro Aluminium

10:40 AM
Rate Sensitivity and Deformation Mechanisms of Ultrafine-Grained Single Phase and Composite Metals: *Daniel Kiener*[1]; Alexander Leitner[1]; Verena Maier-Kiener[1]; [1]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*[1]; Shima Sabbaghianrad[2]; Abdulla Almazrouee[3]; Khaled Al-Fadhalah[4]; Saleh Alhajeri[3]; Nian Xian Zhang[1]; Terence Langdon[1]; [1]University of Southampton; [2]University of Southern California; [3]P.A.A.E.T.; [4]Kuwait University

11:20 AM
Micro-scale Mechanical Response of Ultrafine-grained Materials Processed by High-pressure Ttorsion: *Megumi Kawasaki*[1]; Jae-il Jang[1]; Byungmin Ahn[2]; Terence Langdon[3]; [1]Hanyang University; [2]Ajou University; [3]University of Southern California

11:40 AM
History-independent Fatigue Response of Polycrystalline Cu with Highly Oriented Nanosclae Twins: Qingsong Pan[1]; Haofei Zhou[2]; Qiuhong Lu[1]; Huajian Gao[2]; *Lei Lu*[1]; [1]Institute of Metal Research, CAS; [2]Brown University

12:00 PM
On the Strength Effects in Hydrogenated Palladium Subjected to HPT Processing: *Daria Setman*[1]; Wolfgang Ress[1]; Andreas Grill[1]; Erhard Schafler[1]; Wolfgang Sprengel[2]; Yuzeng Chen[3]; Michael Zehetbauer[1]; [1]University Vienna; [2]TU Graz; [3]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, EEIMVR - Universidade Federal Fluminense

Tuesday AM
February 28, 2017
Room: Marina E
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

10:20 AM Invited
Developing Sustainable Pipeline Steels: *Hani Henein*[1]; [1]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*[1]; R. Shakoor[1]; A.M Mohamed[2]; [1]Qatar University; [2]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*[1]; Qaiser Ihsan Gondal[1]; Xin Zhou[1]; Jiahui Li[1]; Zi Jie Ye[1]; Yue Zhu[1]; Vijay Bhatia[1]; Kevin Dolman[2]; Timothy Lucey[2]; Xinhu Tang[2]; Chang Li[1]; Gwénaëlle Proust[1]; Julie Cairney[1]; [1]The University of Sydney; [2]Weir Minerals Australia

11:30 AM
Hot-stamping Response of Laser Welds in Low-carbon Steels: *Martha Guerrero-Mata*[1]; Michael Andreassen[2]; S Liu[3]; O Garcia[4]; J. Speer[3]; [1]Universidad Autonoma de Nuevo Leon; [2]Technical University of Denmark; [3]Colorado School of Mines; [4]Ternium Mexico

11:50 AM
The Influence of Hydrogen on Tensile Properties of TRIP-aided Bainitic Ferrite Steels with Carbon/Manganese Variations: *Andrea Bollinger*[1]; John Speer[1]; Kip Findley[1]; Emmanuel De Moor[1]; Toshio Murakami[2]; [1]Colorado School of Mines; [2]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
February 28, 2017
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 Pb-free Solder Joints: *Paul Ho*[1]; Brook Huang-Lin Chao[1]; Seung-Hyun Chae[1]; Xuefeng Zhang[1]; [1]The University of Texas at Austin

9:00 AM
Investigation of the Influence of Ni Content on Electromigration Resistance of (Pd,Ni)Sn_4: *Chao-hong Wang*[1]; Kuan-ting Li[1]; [1]National Chung Cheng University

9:20 AM
Ab Initio Critical Product of Blech Distance and Current Density: *Yu-chen Liu*[1]; Shih-kang Lin[1]; [1]National Cheng Kung University

9:40 AM
Phase-field Modeling of Grain-boundary Grooving and Surface Drift under Homogeneous Electromigration: *Arnab Mukherjee*[1]; Kumar Ankit[2]; Britta Nestler[2]; [1]Karlsruhe University of Applied Sciences; [2]Karlsruhe Institute of Technology

10:00 AM Break

10:20 AM Invited
An Industry Perspective on Electromigration in Microelectronics: *Ping-Chuan Wang*[1]; [1]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*[1]; Sinn-wen Chen[1]; Yi-cheng Lin[1]; Tao-chih Chang[2]; [1]National Tsing Hua University; [2]Industrial Technology Research Institute

11:10 AM
The Investigation of Electromigration Defects due to Currents Stress Effects between the Flip-chip Solder and Copper Substrate: *Wei-Jhen Chen*[1]; Yue-Lin Lee[1]; Ti-Yuan Wu[1]; Ang-Tin Tsai[1]; Ming-Tzer Lin[1]; [1]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
February 28, 2017
Room: 16B
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*[1]; Yunzhi Wang[1]; [1]The Ohio State University

8:50 AM
In Situ X-ray Diffraction Investigation of Thermally Induced Martensitic Transformations in High Temperature Shape Memory Alloys: *Mohammed Azeem*[1]; Vassili Vorontsov[2]; Nicholas Jones[3]; Seema Raghunathan[2]; David Dye[2]; [1]Manchester University; [2]Imperial College London; [3]University of Cambridge

9:10 AM
Martensitic Transformation near Grain Boundaries and PhaseBboundaries in Dual-phase Shape Memory Alloys: *Ying Chen*[1]; Rebecca Dar[1]; [1]Rensselaer Polytechnic Institute

9:30 AM
Origin of the {332}<113> Twinning System in β Titanium Shape Memory Alloys
: *Emmanuel Bertrand*[1]; Philippe Castany[2]; Yang Yang[2]; Thierry Gloriant[2]; [1]Institut de Matériaux Jean Rouxel (IMN); [2]INSA de Rennes

9:50 AM
Modeling the Superelastic Behavior in Small-scale $ThCr_2Si_2$-type Crystals: *Ian Baksst*[1]; John Sypek[2]; Hang Yu[3]; Paul Canfield[4]; Seok-Woo Lee[2]; Christopher Weinberger[1]; [1]Colorado State University; [2]University of Connecticut; [3]Drexel University ; [4]Iowa State University

10:10 AM Break

10:30 AM
Strengthening Model to Optimize Coarsening Resistant Q and □'-Phase Precipitates in Al-Si-Mg-Cu Cast Alloys: *Andrew Bobel*[1]; Mike Walker[2]; Greg Olson[1]; [1]Northwestern University; [2]General Motors

10:50 AM
Structure, Mechanical Properties and Corrosion Behavior in a Powder-processed Icosahedral-phase-strengthened Aluminum Matrix Nano-composite : *Mark Aindow*[1]; Benjamin Bedard[1]; Iuliana Cernatescu[2]; Alexis Ernst[1]; Mauricio Gordillo[3]; Aaron Nardi[4]; Thomas Watson[2]; [1]University of Connecticut; [2]Pratt and Whitney; [3]FEI Corporation; [4]United Technologies Research Center

11:10 AM
The Effect of Aluminum Content on Recrystallization and Grain-growth of Magnesium Alloys: *Aeriel Murphy*[1]; John Allison[1]; [1]University of Michigan

11:30 AM
Mg-Sc-based Alloy and Its Functionality: *Daisuke Ando*[1]; Yukiko Ogawa; Yuta Takeuchi[1]; Yuji Sutou; Junichi Koike[1]; [1]Tohoku University

Pioneers in Additive Manufacturing — Session I

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 AM
February 28, 2017
Room: 8
Location: San Diego Convention Center

Session Chair: James Foley, Los Alamos National Laboratory

8:30 AM Invited
A History of Additive Manufacturing: *David Bourell*[1]; [1]University of Texas

9:00 AM Invited
3DP Retrospective: Do Inventors Know What They Are Doing?: *Michael Cima*[1]; [1]MIT

9:30 AM Invited
Assent and Decline of LOM Technology: *Michael Feygin*[1]; [1]Cubic Technologies, Inc.

10:00 AM Break

10:20 AM Invited
Laser Deposition of Metallic Powders: Brian Welk[1]; Peter Collins[2]; Rajarshi Banerjee[3]; *Hamish Fraser*[1]; [1]The Ohio State University; [2]Iowa State University; [3]University of North Texas

10:50 AM Invited
Directed Light Fabrication: A Near-Net Shape Process using Laser Assisted Metal Deposition: *Dan Thoma*[1]; [1]University of Wisconsin-Madison

11:20 AM Invited
Development of Laser-powder Metal Additive Manufacturing for Industry: Historical Perspective, Current and Future Applications: *James Sears*[1]; [1]GE GRC

Rare Metal Extraction & Processing — Rare Earth Elements II and Platinum Group Metals

Program Organizers: Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhof, Umicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

Tuesday AM
February 28, 2017
Room: 17B
Location: San Diego Convention Center

Session Chairs: Takanari Ouchi, MIT; Harald Oosterhof, Umicore

8:30 AM
Electrochemical Behavior of Neodymium in Molten Chloride Salts: *Laure Diaz*[1]; Jérôme Serp[1]; Pierre Chamelot[2]; Mathieu Gibilaro[2]; Laurent Massot[2]; [1]CEA Marcoule; [2]Laboratoire de Génie Chimique

8:55 AM
Novel Reactive Anode for Electrochemical Extraction of Rare Earth Metals from Rare Earth Oxides: *Aida Abbasalizadeh*[1]; Seshadri Seetharaman[2]; Prakash Venkatesan[1]; Jilt Sietsma[2]; 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[2]; Tetsuo Oishi[3]; [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[2]; [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*[1]; 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 Carradò, 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 AM
February 28, 2017
Room: Pacific 18
Location: Marriott Marquis Hotel & Marina

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 Ehrhardt[1]; Corine Ulhaq-Bouillet[2]; 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[2]; Greg Herman[2]; Scott Chambers[1]; Charles Henager[1]; Aashish Rohatgi[1]; Thevuthasan Suntharampillai[1]; [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 Laroche*[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: *Zaoli 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 Morse[1]; *Michael Gordon*[1]; [1]UCSB

10:40 AM
Nitrogen Incorporation Induced Tuning of the Optical Properties of Niobium Oxide Thin Films: *Oscar Nunez*[1]; Neil Murphy[2]; 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 Facing Steel Grades: *Bakr Rabeeh*[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[2]; Po-Yu Chen[2]; [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
February 28, 2017
Room: 3
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*[2]; [1]Grandfield Technology Pty Ltd; [2]SINTEF

9:10 AM
The Fundamentals of Forming Microbubbles in Liquid Metal Systems: *Roderick Guthrie*[1]; Mihaiela Isac[1]; [1]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

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — 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; Nitin Chopra, The University of Alabama

Tuesday PM
February 28, 2017

Room: Pacific 26
Location: Marriott Marquis Hotel & Marina

Session Chairs: Nitin Chopra, University of Alabama; JangSik Lee, Pohang Institute of Sci. & Tech.

2:00 PM Invited
Recent Advancement in Graphene-based Layer Transfer: *Jeehwan Kim*[1]; [1]Massachusetts Institute of Technology

2:30 PM Invited
Van Der Waals Epitaxy of TMDs and Topological Insulators: R. Yue[1]; L. A. Walsh[1]; A. T. Barton[1]; Y. Nie[1]; H. Zhu[1]; D. Barrera[1]; S. McDonnell[2]; R. Addou[1]; Q. Wang[1]; N. Liu[1]; M. J. Kim[1]; J. Hsu[1]; K. Cho[1]; Y. J. Chabal[1]; J. Kim[1]; R. M. Wallace[1]; L. Colombo[3]; *Christopher Hinkle*[1]; [1]University of Texas at Dallas; [2]University of Virginia; [3]Texas Instruments

3:00 PM
Design of 2-D Vertical Heterostructures for Steep-slope Devices: *Philip Campbell*[1]; Jake Smith[1]; Jud Ready[2]; Eric Vogel[1]; [1]Georgia Institute of Technology; [2]Georgia Tech Research Institute

3:20 PM Invited
Silicate Thin Films with Aligned Nanochannels by Surfactant Mediated Sol-gel Approach: Mechanism and Limitations: *Choong-un Kim*[1]; [1]University of Texas at Arlington

3:50 PM Break

4:10 PM Invited
Redefining Energy-efficient Systems via a Unified Memory Subsystem in STT-MRAMy: *Seung Kang*[1]; [1]Qualcomm Technologies, Inc.

4:40 PM
Protein-based Resistive Switching Memory with Configurable Switching Properties: *Sungjo Kim*[1]; Jang-Sik Lee[1]; [1]Postech

5:00 PM
Enhancement-mode ALD DEZ-H_2O-treated InGaAs MOSFETs with High-k Gate Dielectric: *Jae-Gil Lee*[1]; Young-Chul Byun[1]; Dushyant Narayan[1]; Jiyoung Kim[1]; [1]The University of Texas at Dallas

5:20 PM
Improvement of Interface Properties on High Mobility Substrates by Low Temperature (100 °C) Deposited-ZrO2: *Young-Chul Byun*[1]; Jae-Gil Lee[1]; Joy Lee[1]; Jiyoung Kim[1]; [1]The University of Texas at Dallas

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; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim University

Tuesday PM
February 28, 2017

Room: 18
Location: San Diego Convention Center

Session Chairs: Onuralp Yücel, ITU; James Cox, UTRS Inc.

2:00 PM Introductory Comments

2:05 PM
Development of a Novel, Low-cost Titanium Extraction Process for Bulk or Powder Applications: *James Cox*[1]; Chanaka De Alwis[1]; Benjamin Kohler[1]; Mike Lewis[1]; Matthew Call[1]; Julia Kluck[1]; Amelinda Olson[1]; Marc Snyderman[1]; [1]UTRS Inc.

2:25 PM
Evolution of Non-metallic Inclusions in Solid Fe-Al-Ti-N Alloy during Heating: *Hiroyuki Matsuura*[1]; Wonjin Chio[1]; Gen Kamimura[1]; [1]The University of Tokyo

2:45 PM
Preparation of Low-carbon Ti2O3 by Carbonthermal Reduction of the Mixture of Titanium Dioxide and Activated Carbon under Vacuum Condition: *Kejia Liu*[1]; Yaowu Wang[1]; Yuezong Di[1]; Jianping Peng[1]; Xinzhong Deng[1]; Naixiang Feng[1]; Yi Zhang[2]; [1]Northeasten University; [2]Institute of Process Engineering, Chinese Academy of Sciences

3:05 PM
Pyrometallurgical Studies for Manganese Extraction Using Turkish Ore Reserves: *Ender Keskinkilic*[1]; [1]Atilim University

3:25 PM Break

3:45 PM
A Recommendation of a New Method of Ti and Ti-Al Alloy Production by Aluminum Reduction Na2TiF6: *Feng Naixiang*[1]; Jianping Peng[1]; [1]Northeastern University

4:05 PM
Trace Elements Behavior during the Oxidation of Liquid SiMn Alloy: *Yan Ma*[1]; Ida Kero[2]; Sarel Gates[3]; Gabriella Tranell[1]; [1]Norwegian University of Science and Technology; [2]SINTEF Materials and Chemistry; [3]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*[1]; Han Yihua[1]; Zhu Liguang[1]; Zhang Qingjun[1]; Wang Shuoming[1]; Zhang Caijun[1]; [1]North China University of Science and Technology

4:45 PM
Sintering Performance of Blends Containing High Proportion of Limonite Iron Ore Fines: *Feng Zhang*[1]; Deqing Zhu[1]; Jian Pan[1]; [1]Central South University

Acta Materialia Symposium — Award Session

Program Organizer: Carolyn Hansson, University of Waterloo

Tuesday PM
February 28, 2017

Room: 22
Location: San Diego Convention Center

Session Chair: To Be Announced

To be announced.

Additive Manufacturing of Metals: Establishing Location-Specific Processing-Microstructure-Property Relationships — Advances in Methods, Characterization, and Modeling Tools

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.

Tuesday PM
February 28, 2017

Room: 7B
Location: San Diego Convention Center

Funding support provided by: TMS: Additive Manufacturing Committee

Session Chairs: Lee Semiatin, AFRL; Ayman Salem, Materials Resources LLC

2:00 PM Invited
Cloud-based Integrated Computational Microstructure-informed Response for Titanium Additive Manufacturing: *Ayman Salem*[1]; Daniel Satko[1]; Joshua Shaffer[1]; Richard Kublik[1]; Mohsen Seifi[2]; John Lewandowski[2]; S.L. Semiatin[3]; [1]Materials Resources LLC; [2]Case Western Reserve University; [3]Air Force Research Laboratory

2:30 PM Invited
Understanding Structure Property Relationships in Electron Beam Melting through Data Analytics and Visualization: *Ryan Dehoff*[1]; Vincent Paquit[1]; Michael Kirka[1]; Ralph Dinwiddie[1]; Kinga Unocic[1]; Peeyush Nandwana[1]; Sean Yoder[1]; Naren Ragav[2]; William Halsey[1]; Chad Steed[1]; Suresh Babu[1]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

3:00 PM
Three-dimensional Tomography of EBM-manufactured IN718: *Andrew Polonsky*[1]; McLean Echlin[1]; William Lenthe[1]; Ryan Dehoff[2]; Michael Kirka[2]; Tresa Pollock[1]; [1]University of California, Santa Barbara; [2]Oak Ridge National Laboratory

3:20 PM
High Strain Rate Mechanical Behavior of Stainless Steel 316L Processed by Selective Laser Melting: Travis Kneen[1]; *Christopher Barrett*[1]; Brett Conner[1]; Guha Manogharan[1]; [1]Youngstown State University

3:40 PM Break

4:00 PM Invited
Recent Progress in Low-cost Open-source Metal 3-D Printing: Joshua Pearce[1]; *Paul Sanders*[1]; [1]Michigan Tech

4:30 PM
The Effect Process Parameters have on Residual Stress and Texture of Additively Manufactured Ti-6Al-4V Components: *Nathan Levkulich*[1]; Gregory Loughnane[1]; Nathan Klingbeil[1]; [1]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 Phan*[1]; Lyle Levine[1]; Thomas Gnaeupel-Herold[1]; Yaakov Idell[1]; [1]National Institute of Standards and Technology

5:10 PM
Study on the Effects of Microsegregation, Temperature, and Stress on IN625 Microstructures by Phase Field Simulations: *Trevor Keller*[1]; Jonathan Guyer[1]; [1]National Institute of Standards and Technology

Additive Manufacturing: Building the Pathway towards Process and Material Qualification — Process Qualification Part I

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

Tuesday PM
February 28, 2017

Room: 7A
Location: San Diego Convention Center

Session Chairs: Dan Thoma, University of Wisconsin; Deepankar Pal, 3DSIM

2:00 PM Invited
Challenges and Opportunities for Metal Additive Manufacturing: *Dan Thoma*[1]; [1]University of Wisconsin-Madison

2:30 PM
Microstructure Variation and Process Model Developments For LENS
: *Josh Sugar*[1]; Lauren Beghini[1]; Michael Stender[1]; Michael Veilleux[1]; David Keicher[2]; Daryl Dagel[2]; Michael Maguire[2]; Chris San Marchi[1]; [1]Sandia National Labs, Livermore, CA; [2]Sandia National Labs, Albuquerque, NM

2:50 PM
Machine Learning Applications for Microstructure and Process Qualification in Additive Manufacturing: *Brian DeCost*[1]; Barnabas Poczos[1]; Elizabeth Holm[1]; [1]Carnegie Mellon University

3:10 PM
Development of an Integrated Laser-aided Metal Additive Manufacturing System with Real-time Process, Dimensions, and Property Monitoring, Measurements and Control: Navin Sakthivel[1]; Joseph Fiordilino[2]; Deedee Banh[3]; Subrata Sanyal[3]; *Hitesh Vora*[1]; [1]Oklahoma State University; [2]University of Pittsburgh; [3]Naval Surface Warfare Center

3:30 PM Break

3:50 PM Invited
Identifying Critical Variables for Laser Powder Bed Fusion: *Li Ma*[1]; Brandon Lane[1]; Shawn Moylan[1]; Jeffrey Fong[1]; James Filliben[1]; Carelyn Campbell[1]; Lyle Levine[1]; [1]National Institute of Standards and Technology

4:20 PM
Simulation and Experimental Validation of Thermal Cycling Motivated Distortion on Parts Produced Using Alloy IN 625 via Selective Laser Melting: *Deepankar Pal*[1]; Samuel Dilip Jangam[2]; Nachiket Patil[1]; Sally Xu[1]; Pradeep Chalavadi[1]; Kevin Briggs[1]; Brent Stucker[1]; [1]3DSIM LLC; [2]University of Louisville

4:40 PM
Modeling the Effects of Microstructure on the Strength of Additively Manufactured Ti-6Al-4V: *Jeffrey Florando*[1]; Darren Pagan[1]; Jonathan Lind[1]; Rupalee Mulay[1]; Joseph McKeown[1]; John Moore[1]; Nathan Barton[1]; Mukul Kumar[1]; [1]Lawrence Livermore National Laboratory

5:00 PM
Effect of Process Time Interval on Mechanical Behavior of Metallic Parts Fabricated via Directed Energy Deposition: *Aref Yadollahi*[1]; MJ Mahtabi[1]; Shuai Shao[1]; Nima Shamsaei[1]; Scott Thompson[1]; [1]Mississippi State University

5:20 PM
Cellular Automata based Microstructural Modeling for Additive Manufacturing Processes: Deepankar Pal[1]; *Javed Akram*[1]; Pradeep Chalavadi[1]; Brent Stucker[1]; [1]3DSIM

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
February 28, 2017

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 Fullwood*[1]; Shamoon Irfan[2]; Jeff Cramer[1]; Tyler Mathis[1]; Derrik Adams[1]; Michael Miles[1]; Eric Homer[1]; Tyson Brown[3]; Robert Kubic[3]; [1]Brigham Young University; [2]The Northcap University; [3]General Motors

2:20 PM
In-situ Experiments to Capture Rapid Microstructural Evolution and Phase Transformation of Titanium during Dynamic Loading: *Benjamin Morrow*[1]; David Jones[1]; Paulo Rigg[2]; Ellen Cerreta[1]; [1]Los Alamos National Laboratory; [2]Washington State University

2:40 PM
In-situ Structural and Mechanical Characterization of ThCr2Si2-structured Superelastic Intermetallic Compounds: Keith Dusoe[1]; Ian Bakst[2]; John Sypek[1]; Gil Drachuck[3]; Paul Canfield[3]; Christopher Weinberger[2]; *Seok-Woo Lee*[1]; [1]University of Connecticut; [2]Drexel University; [3]Iowa State University

3:00 PM
In-situ EBSD Analysis and Crystal Plasticity FE Simulations in a CP Titanium Sheet: *Joo-Hee Kang*[1]; Ji Hoon Kim[2]; Chan Hee Park[1]; Chang-Seok Oh[1]; [1]Korea Institute of Materials Science; [2]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 Stebner*[1]; Harshad Paranjape[1]; Ashley Bucsek[1]; [1]Colorado School of Mines

4:00 PM
Characterizing the Boundary Lateral to the Shear Direction of Deformation Twins in Magnesium: *Yue Liu*[1]; Jian Wang[2]; Rodney McCabe[1]; Carlos Tomé[1]; [1]Los Alamos National Lab; [2]University of Nebraska, Lincoln

4:20 PM
Explicit Modeling of Twin Lamellae in AZ31 Using a Crystal Plasticity Finite Element Approach: *Milan Ardeljan*[1]; Irene Beyerlein[2]; Marko Knezevic[1]; [1]University of New Hampshire; [2]Los Alamos National Laboratory

4:40 PM
Role of Adjoining Twin Pairs on Detwinning under Stress Reversal in HCP Metals: *M. Arul Kumar*[1]; Yue Liu[1]; Irene J Beyerlein[1]; Rodney McCabe[1]; Carlos N Tome[1]; [1]Los Alamos National Lab

5:00 PM
Twinning Kinetics and Its Sensitivity to the Strain Rate: *Kavan Hazeli*[1]; Owen Kingstedt[2]; Vignesh Kannan[3]; Guruswami Ravichandran[4]; KT Ramesh[3]; [1]University of Alabama in Huntsville; [2]University of Utah; [3]Johns Hopkins University; [4]California Institute of Technology

Advanced High-Strength Steels — Impact of Solutes

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
February 28, 2017

Room: 17A
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*[1]; Davide Di Stefano[2]; Christian Elsässer[2]; Roman Nazarov[3]; Tilmann Hickel[4]; Jörg Neugebauer[4]; [1]ICAMS, Ruhr University Bochum, Germany; [2]Fraunhofer IWM; [3]Lawrence Livermore National Laboratory; [4]Max Planck Institute for Iron Research

2:20 PM
Hydrogen Solubility near Surfaces and Interfaces: *Robert Spatschek*[1]; Giorgia Gobbi[2]; Claas Hueter[1]; Aurab Chakrabarty[3]; Ugur Aydin[4]; Steffen Brinckmann[4]; Joerg Neugebauer[4]; [1]Forschungszentrum Juelich; [2]Politecnico di Milano; [3]Texas A&M University at Qatar; [4]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*[1]; Louis Hector Jr.[2]; Dallas Trinkle[1]; [1]University of Illinois at Urbana-Champaign; [2]General Motors

3:00 PM
Tempering Reactions in Martensitic Stainless Steels Studied by Dilatometry and Correlative Magnetic Saturation Measurements: *Qiuliang Huang*[1]; Olena Volkova[1]; Horst Biermann[1]; Javad Mola[1]; [1]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*[1]; Philippe Maugis[1]; Josée Drillet[2]; Veronique Hebert[2]; Nathalie Valle[3]; Khalid Hoummada[1]; [1]Aix-Marseille Université, CNRS, IM2NP; [2]ArcelorMittal Maizières Research SA; [3] 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 Bellavoine*[1]; Myriam Dumont[1]; Josée Drillet[2]; Véronique Hebert[2]; Philippe Maugis[1]; [1]IM2NP; [2]ArcelorMittal Research SA

4:20 PM
Low Alloy High Strength Martensitic Nitrogen Steel: *John Chinella*[1]; [1]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*[1]; John Speer[2]; Xiaodong Zhu[1]; [1]Baosteel; [2]ASPPRC

5:00 PM
Effects of Aluminum Addition on Warm Ductility and Microstructure in Mn-rich Steels: *Guan-Ju Cheng*[1]; Chun-Te Wu[1]; Delphic Chen[2]; Ching-Yuan Huang[2]; Hung-Wei Yen[1]; [1]National Taiwan University; [2]China Steel Corporation

5:20 PM
The Role of Copper in Microstructures and Mechanical Properties of Laser-welded Fe-19Ni-3Mo-1.5Ti Maraging Steel Joint: *Kun Li*[1]; Jiguo Shan[1]; Peng Wen[1]; Aiping Wu[1]; Chunxu Wang[2]; Zhiling Tian[2]; [1]Tsinghua University; [2]Central Iron & Steel Research Institute

Advanced Materials for Energy Conversion and Storage — Energy Storage I

Program Organizer: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

Tuesday PM
February 28, 2017

Room: 15A
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*[1]; Hailong Ning[2]; Huigang Zhang[3]; [1]University of Illinois at Urbana-Champaign; [2]Xerion Advanced Battery Company; [3]Nanjing University

2:30 PM
A 3D Multiphysics Phase-field Model to Simulate Modified Phase Segregation in LiFePO4 Nanoparticles: *Michael Welland*[1]; Olle Heinonen[2]; [1]Canadian Nuclear Laboratory; [2]Argonne National Laboratory

2:50 PM Invited
A Multi-Scale Approach to Li-Ion Battery Analysis Using 2D, 3D, and 4D Microscopy: *Jeff Gelb*[1]; Stefanie Freitag[2]; Will Harris[1]; Arno Merkle[1]; [1]Carl Zeiss X-ray Microscopy; [2]Carl Zeiss Microscopy

3:15 PM
First Principles Simulations of Lithium Ion Transport through Graphite/Electrolyte Interfaces: *Vincenzo Lordi*[1]; Mitchell Ong[1]; Tuan Pham[1]; Kyoung Kweon[1]; John Pask[1]; [1]Lawrence Livermore National Lab

3:35 PM Break

3:55 PM Invited
Operando Structural and Chemical Characterization during Li-ion Battery Cycling: *Shen Dillon*[1]; Ching-Yen Tang[1]; [1]University of Illinois at Urbana-Champaign

4:20 PM
Nanoscale Characterization of Li-ion Battery Cathodes Using Atom Probe Tomography and Correlative Microscopy: *Arun Devaraj*[1]; Ethan Vo[1]; Pengfei Yan[1]; Chongmin Wang[1]; Vijaya Murugesan[1]; [1]Pacific Northwest National Laboratory

4:40 PM Invited
Atomistic Simulations of Ionic Liquid and Polymer Electrolytes: From Bulk Phases to Interfacial Behavior: *John Lawson*[1]; Justin Haskins[1]; [1]NASA Ames Research Center

5:05 PM Invited
Chemomechanics in Li-ion batteries: *Kejie Zhao*[1]; [1]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 Bhowmick, Hysitron; Jeffrey Wheeler, ETH Zurich; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Tuesday PM
February 28, 2017

Room: 32A
Location: San Diego Convention Center

Session Chairs: Bob Wheeler, Microtesting Solutions; Jeff Wheeler, ETH Zürich

2:00 PM Invited
Optimum Layer Thickness for High Temperature Mechanical Properties of ARB Cu/Nb Nanoscale Multilayers: *Jon Molina-Aldareguia*[1]; Jeromy Snel[1]; Miguel Monclus[1]; Nathan Mara[2]; Irene Beyerlein[2]; Javier Llorca[1]; [1]IMDEA Materials Institute; [2]Los Alamos National Laboratory

2:30 PM
Influence of Dislocation Density and Grain Boundaries on the Scaling Behaviour of Ultrafine-grained BCC Micropillars: *Reinhard Fritz*[1]; Alexander Leitner[1]; Verena Maier-Kiener[1]; Daniel Kiener[1]; [1]Montanuniversität Leoben

2:50 PM
Micro-Mechanical Characterization of Micro-Architectured Tungsten Coating at Elevated Temperatures: *Quan Jiao*[1]; Gidong Sim[1]; Jaafar El-Awady[1]; [1]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*[1]; Robert Ritchie[2]; David Marshall[3]; [1]Carl Zeiss X-ray Microscopy; [2]Department of Materials Science and Engineering, University of California, Berkeley; [3]Teledyne Scientific Co.

3:30 PM Break

3:50 PM Invited
In Situ Thermo-mechanical Characterization of Materials: *Xiaodong Li*[1]; [1]University of Virginia

4:20 PM
Probing the Dynamic Response of Ordered Lattice Materials: *J. Lind*[1]; J. Hawreliak[2]; B. Maddox[1]; M. Barham[1]; M. Messner[1]; B. Jensen[3]; N. Barton[1]; M. Kumar[1]; [1]Lawrence Livermore National Laboratory; [2]Washington State University; [3]Los Alamos National Laboratory

4:40 PM
Pushing the Envelope in Variable Temperature Nanoindentation: High and Cryogenic Temperature Measurements
: Nicholas Randall[1]; *Marcello Conte*[1]; Gaurav Mohanty[2]; Jakob Schwiedrzik[2]; Jeffrey Wheeler[3]; Bertrand Bellaton[1]; [1]Anton Paar TriTec; [2]EMPA; [3]ETH Zurich

5:00 PM
Effect of Ausforming on Isothermal Transformation Below Ms in NiCrMoV Steel Studied by In-situ Neutron Diffraction: *Wu Gong*[1]; Stefanus Harjo[2]; Akinobu Shibata[1]; Takuro Kawasaki[2]; Yo Tomota[3]; Tomoya Shinozaki[4]; Nobuhiro Tsuji[1]; [1]Kyoto University; [2]Japan Atomic Energy Agency; [3]National Institute for Materials Science; [4]Kobe Steel, Ltd.

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
February 28, 2017

Room: 21
Location: San Diego Convention Center

Session Chairs: Hsin-jay Wu, ational 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*[1]; [1]University of Houston

2:20 PM Invited
Microstructural Size and Morphology Control of Si Base Thermoelectric Composites: *Teruyuki Ikeda*[1]; [1]Ibaraki University

2:40 PM Invited
Microstructure and Performance of Mg2(Si,Sn,Ge) Materials Prepared by Different Processing Methods
: *Theodora Kyratsi*[1]; [1]University of Cyprus

3:00 PM
Synthesis, Processing and Transport Properties of Metastable Phases in the Mg-Si-Sn System: *Pathikumar Sellappan*[1]; Anthony Fong[1]; Masayuki Murata[2]; Yasuhiro Kodera[1]; Javier Garay[1]; [1]University of California San Diego; [2]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*[1]; Hsin-Jay Wu[1]; [1]Department of Materials and Optoelectronic science, National Sun Yat-sen University

3:40 PM Break

4:00 PM Invited
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*[1]; Yaw Wang Chai[1]; [1]Tokyo Institute of Technology

4:20 PM Invited
Thermoelectric Enhancement of Cu_2Se by $CuInSe_2$ Incorporation: *Pierre Ferdinand P. Poudeu*[1]; [1]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*[1]; Zong-jin Dong[2]; [1] National Sun Yat-sen University; [2]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*[1]; Donald Morelli[1]; [1]Michigan State University

5:20 PM
Transient Liquid Phase Bonding of Cu/Ga/Ni and Cu/Ga/Co and Phase Equilibria of Cu-Ga-Ni and Co-Cu-Ga Ternary Systems: *Ji-min Lin*[1]; Sinn-wen Chen[1]; Tsu-ching Yang[1]; [1]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
February 28, 2017

Room: 4
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 Chandola*[1]; Crystal Pasiliao[2]; Oana Cazacu[1]; B. Revil-Baudard[1]; [1]University of Florida/REEF; [2]Air Force Research Laboratory

2:30 PM
Quantifying As-cast and Homogenized AA7050 Mechanical Properties through Compression Testing: *Yunbo Wang*[1]; Matthew Krane[1]; Kevin Trumble[1]; [1]Purdue University

2:55 PM
Determining a Stable Texture Condition Under Complex Strain Path Deformations in Face Centered Cubic Metals: *Usman Ali*[1]; Abhijit Brahme[1]; Raja Mishra[2]; Kaan Inal[1]; [1]University of Waterloo; [2]General Motors Research and Development Center

3:20 PM
Microstructural Transition and Elevated Temperature Tensile Properties of Modified Al-Si-Cu-Mg Alloys: *Mehdi Rahimian*[1]; Shouxun Ji[1]; Paul Blake[2]; Douglas Watson[2]; Zhongyun Fan[1]; [1]BCAST, Brunel University London; [2]Jaguar Land Rover Limited

3:45 PM Break

4:00 PM
Effects of Alloying Elements on Anneal-hardening Behavior of Aluminum Alloy Foils: *Takashi Suzuki*[1]; Shigeru Kuramoto[2]; Masaya Endo[1]; Qi Cui[1]; [1]Mitsubishi Aluminum Co., Ltd.; [2]Ibaraki University

4:25 PM
Increasing Strength and Corrosion Resistance of AlMgSi Alloys by Tailor-made Thermomechanical Processing: *Alexander Wimmer*[1]; [1]Neuman Aluminium

4:50 PM
Microstructural Optimization of a High Mechanical Properties (HMP) Aluminum Alloy by Using CobaPress™ Process: *Mamadou Balde*[1]; Christophe Desrayaud[1]; Véronique Bouvier[2]; Frédéric Perrier[2]; [1]Mines Saint-Etienne; [2]Saint-Jean Industries

5:15 PM
Cyclic Stress-strain Behavior and Low Cycle Fatigue Life of AA6061 Aluminum Alloy: *Mirza Foisal Ahmed*[1]; K. Liu[1]; X. Grant Chen[1]; [1]University 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
February 28, 2017

Room: 2
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 STARprobeTM Measurements in Aluminium Electrolysis Cells: Jean-Pierre Gagné[1]; *Pascal Lavoie*[2]; Albert Mulder[2]; Rémi St-Pierre[1]; Pascal Côté[1]; [1]STAS; [2]Consultant

2:30 PM
Predicting Instability and Current Efficiency of Industrial Cells: *Patrice Côté*[1]; Olivier Martin[1]; Bertrand Allano[1]; Véronique Dassylva-Raymond[2]; [1]Rio Tinto Alcan; [2]Consultant, Reso-Lean Conseil

2:55 PM
Detecting, Identifying and Managing Systematic Potline Issues with Generation 3 Process Control: *Nursiani Tjahyono*[1]; Yashuang Gao[1]; David Wong[1]; Ron Etzion[1]; Albert Mulder[2]; [1]University of Auckland, Light Metals Research Centre; [2]IT Consultant

3:20 PM
Integrating a New Smelter Supervision HMI in Existing Control Systems at ALBRAS: Vanderlei Fernandes[1]; Geir Sandnes[2]; *Leonel Mota Ivo*[3]; Rogério Labanca[3]; [1]ALBRAS Aluminio Brasileiro S.A.; [2]Norsk Hydro ASA; [3]Accenture

3:45 PM Break

4:00 PM
Clustering Aluminium Reduction Cells: Flavia Lima[1]; Alan Souza[1]; *Fabio Soares*[1]; Diego Lisboa[1]; Roberto Oliveira[1]; [1]UFPA

4:25 PM
Study of Impact of the Anode Slots on the Voltage Fluctuations of Aluminium Electrolysis Cell Using Bubble Layer Simulator: *Sandor Poncsak*[1]; László Kiss[1]; Sébastien Guérard[2]; Jean François Bilodeau[2]; [1]Univeristy of Quebec at Chicoutimi; [2]Rio Tinto Aluminium

4:50 PM
Minimizing Cathode Voltage Drop by Optimizing Cathode Slot Design: Ralph Friedrich[1]; Frank Hiltmann[1]; Andreas Lützerath[2]; Richard Meier[2]; *Markus Pfeffer*[1]; Till Reek[2]; Oscar Vera Garcia[1]; [1]SGL CFL CE GmbH; [2]TRIMET Aluminium SE

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Pyrometallurgy I

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
February 28, 2017

Room: 15B
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 Gesing[1]; *Subodh Das*[2]; [1]Gesing Consultants Inc.; [2]Phinix,LLC

2:20 PM
Alternative Ways of Using Nonferrous Slags as Feed Material in the Ferrous Production Industry: *Mario Sanchez*[1]; Fernando Parada[2]; Jose Palacios[3]; [1]Universidad Andrés Bello; [2]Universidad de Concepcion; [3]Universidad de Playa Ancha

2:40 PM
Insulating or Conductive Refractory Lining Designs for Electric Furnace Smelting?: *Joalet Steenkamp*[1]; Glen Denton[1]; Derek Hayman[1]; [1]MINTEK

3:00 PM
The Influence of Phosphorous Additions on Phase Evolution in Molten Coal Slag: *Hani Abu El Hawa*[1]; Jinichiro Nakano[2]; Anna Nakano[2]; James Bennett[1]; [1]National Energy Technology Laboratory; [2]AECOM

3:20 PM
The Recovery of Copper from Smelting Slag by Flotation Process: Jiaqi Fan[1]; *Hongxu Li*[1]; Liangtian Wei[1]; Chao Li[1]; Shi Sun[1]; [1]University of Science and Technology Beijing

3:40 PM Break

4:00 PM
Reaction Mechanisms in the Silicothermic Production of Magnesium: Mao Chen[1]; Yuhong Chen[2]; Fenglan Han[2]; Laner Wu[2]; *Baojun Zhao*[1]; [1]The University of Queensland; [2]Beifang University of Nationalities

4:20 PM
Influences of CaO/SiO2/MgO/Al2O3 on the Formation Behavior of FeO-bearing Primary-slags in Blast Furnace
: *Dongdong Wang*[1]; Kaihui Ma[1]; Yang Xu[1]; Jian Xu[1]; Liangying Wen[1]; [1]Chongqing University

4:40 PM
Desulfurization of High Sulfur Coal Leached with H2O2 and NaOH by Microwave Irradiation: *Pengqi Zhang*[1]; Shengfu Zhang[1]; Lixiong Shao[1]; Mingcheng Bing[1]; Shuxing Qiu[1]; Qingyun Zhang[1]; [1]Chongqing University

Applications of Solidification Fundamentals — Simulation and Modeling of Solidification Behavior

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

Tuesday PM
February 28, 2017

Room: 19
Location: San Diego Convention Center

Session Chair: Andre Phillion, McMaster University

2:00 PM
Investigating Homogenous Nucleation in Solidification of Aluminum and Iron by Molecular Dynamics Simulations: Avik Mahata[1]; *Mohsen Asle Zaeem*[1]; Michael Baskes[2]; [1]Missouri University of Science and Technology; [2]University 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 Prasad*[1]; Lang Yuan[2]; Peter Lee[3]; Mark Easton[4]; David StJohn[1]; [1]University of Queensland; [2]GE; [3]University of Manchester; [4]RMIT

2:40 PM
Nucleation of Solidification in Confined High Aspect Ratio Films: *James Mastandrea*[1]; Joel Ager[1]; Daryl Chrzan[1]; [1]Lawrence Berkeley National Laboratory

3:00 PM
Thermomechanical Properties of Metals during Solidification by Molecular Dynamics Simulations: *Seyed Alireza Etesami*[1]; Ebrahim Asadi[1]; [1]University of Memphis

3:20 PM Break

3:40 PM
On the Transition from Equiaxed Sedimentation to Viscoplastic Packed Bed Dynamics: *Andreas Ludwig*[1]; Menghuai Wu[2]; Christian Rodrigues[2]; Tobias Holzmann[2]; Alexander Vakhrushev[2]; [1]Montanuniversitaet Leoben; [2]Montanuniversität Leoben

4:00 PM
Lattice Boltzmann GPU Solutions for Alloy Microstructure Development and Solute Transport: *Ivars Krastins*[1]; Andrew Kao[1]; Koulis Pericleous[1]; [1]University of Greenwich

4:20 PM
Solidification of Spray-formed Alloys: Fundamentals and Application: *Claudemiro Bolfarini*[1]; Guilherme Zepon[1]; Thiago Lopes[1]; Lucas Otani[1]; Claudio Kiminami[1]; Walter Botta[1]; [1]Federal University of São carlos (UFSCar)

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

Tuesday PM
February 28, 2017

Room: Pacific 21
Location: Marriott Marquis Hotel & Marina

Session Chairs: Po-Yu Chen, National Tsing Hua University; Mohan Edirisinghe, University College London

2:00 PM Keynote
Novel Gyratory Processes to Manufacture Bionanointerfaces: *Mohan Edirisinghe*[1]; [1]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 Chen*[1]; Ching-Yu Yang[1]; Yu-Hsiang Lo[1]; [1]National Tsing Hua University

3:00 PM
Biomimetic Lipid Bilayers in Biosensing Applications: Abdulhalim Kilic[1]; Majid Jadidi[1]; Hakan Ozgur Ozer[1]; *Fatma Nese Kok*[1]; [1]Istanbul Technical University

3:30 PM
Engineering Lactate Oxidases with Metal Binding Peptides towards Lactate Monitoring: *Erkan Mozioglu*[1]; Dwight O'Dell[1]; Thomas Brandon Richard[1]; Mark L. Richter[1]; Candan Tamerler[1]; [1]The University of Kansas

3:50 PM Break

4:10 PM Invited
Solution Plasma Materials Processing from Natural Products: *Nagahiro Saito*[1]; [1]Nagoya University

4:50 PM
Peptide Enabled Addressable Immobilization of Kinetically Matched Fusion Enzymes in Membrane Flow Bioreactors: *Deniz Yucesoy*[1]; Susrut Akkineni[1]; Bruce Hinds[1]; Candan Tamerler[1]; Mehmet Sarikaya[1]; [1]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
February 28, 2017

Room: Pacific 15
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 Meyers*[1]; [1]UCSD

2:30 PM
Biological and Bio-inspired Flexible Armor Based on Chiton's Girdle Scales: *Ling Li*[1]; Matthew Connors[2]; Ahmed Hosny[1]; Douglass Earnisse[3]; Mason Dean[4]; James Weaver[1]; Christine Ortiz[2]; [1]Harvard University; [2]Massachusetts Institute of Technology; [3]California State University; [4]Max Planck Institute of Colloids and Interfaces

2:50 PM
On the Stress Relaxation and Tear Resistance of Skin: *Wen Yang*[1]; Andrei Pissarenko[2]; Vincent Sherman[2]; Eric Schaible[3]; Katherine Brown[4]; William Proud[5]; Alun Wiliams[4]; Robert Ritchie[3]; Marc Meyers[2]; [1]Swiss Federal Institute of Technology in Zurich (ETHZ); [2]University of California, San Diego; [3]Lawrence Berkeley National Laboratory; [4]University of Cambridge; [5]Imperial College London

3:10 PM
On the Impact Resistance of Horn and Hoof in Different Loading Orientations: *Wei Huang*[1]; Alireza Zaheri[2]; Horacio Espinosa[2]; David Restrepo[3]; Pablo Zavattieri[3]; Joanna McKittrick[1]; [1]University of California, San Diego; [2]Northwestern University; [3]Purdue University

3:30 PM Break

3:40 PM Keynote
Bio-inspired Design of Hierarchical Materials: *Horacio Espinosa*[1]; [1]Northwestern University

4:20 PM
Nacre's Strategy to Enhance Its Mechanical and Fracture Properties: *Sina Askarinejad*[1]; Nima Rahbar[1]; [1]Worcester Polytechnic Institute

4:40 PM
The Hierarchical Structure of Atractosteus Spatula (Alligator Gar Fish) Boney Scales: XRM and Finite Element Modeling Characterization of Structural Porosity: *Kenneth Livi*[1]; Matt Nelms[2]; Alyssa Browning[3]; Wayne Hodo[4]; A.M. Rajendran[2]; [1]Johns Hopkins University; [2]University of Mississippi; [3]Carl Zeiss X-ray Microscopy, Inc.; [4]US Army ERDC-GSL

5:00 PM
Structure and Mechanical Behavior of Coelacanth Scales: *Haocheng Quan*[1]; Wen Yang[2]; Robert Ritchie[3]; Marc Meyers[1]; [1]UCSD; [2]ETH-Zurich; [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*[1]; Melicent Stossel[1]; Rishi Pahuja[1]; Timothy Linley[2]; Alex Ossa[3]; Junlan Wang[1]; Dwayne Arola[1]; [1]University of Washington; [2]Pacific Northwest National Laboratory; [3]Universidad EAFIT

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

2:00 PM Keynote
Rejuvenation of Metallic Glasses: *A. Greer*[1]; [1]University of Cambridge

2:30 PM Invited
Atomistic Study on Pressure-promoted Thermal Rejuvenation of Metallic Glass: *Shigenobu Ogata*[1]; Narumasa Miyazaki[1]; Masato Wakeda[1]; [1]Osaka University

2:50 PM Invited
Plasticity--toughness Connections in Ductile Metallic Glasses: *Upadrasta Ramamurty*[1]; [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*[1]; Gang Feng[2]; Le Ye[3]; Xuemei Cheng[3]; Daniel Gianola[4]; [1]University of Pennsylvania; [2]Villanova University; [3]Bryn Mawr College; [4]UC Santa Barbara

3:30 PM Break

3:50 PM Invited
Inverse Notch Effect in Bulk Metallic Glasses: *Jie Pan*[1]; Haofei Zhou[2]; Yi Li[3]; Huajian Gao[2]; [1] Institute of Metal Research, Chinese Academy of Sciences; [2]Brown University; [3]Institute of Metal Research, Chinese Academy of Sciences

4:10 PM
Dynamics of Inherent Structure Energy Evolution in Metallic Glasses: *Yue Fan*[1]; Takuya Iwashita[2]; Takeshi Egami[2]; [1]University of Michigan, Ann Arbor; [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*[1]; So Yeon Kim[1]; Hye Jung Chang[2]; Eun Soo Park[1]; Kwang Seon Shin[1]; [1]Seoul National University; [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*[1]; Wei Zhang[1]; Tianlong Qi[1]; [1]Dalian University of Technology

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
February 28, 2017
Room: 1A
Location: San Diego Convention Center

Session Chair: Elsa Olivetti, MIT

2:00 PM
Tramp Element Accumulation and Its Effects on Secondary Phase Particles: *Robert Wagstaff*[1]; Samuel Wagstaff[2]; Antoine Allanore[2]; [1]Novelis Inc.; [2]Massachusetts Institute of Technology

2:20 PM
Dross Formation Mechanisms of Thermally Pre-treated Used Beverage Can Scrap Bales with Different Density: *Jan Steglich*[1]; Regina Dittrich[2]; Georg Rombach[3]; Marcel Rosefort[1]; Bernd Friedrich[2]; Anne Pichat[4]; [1]TRIMET Aluminium SE; [2]RWTH Aachen University; [3]Hydro Aluminium Rolled Products GmbH; [4]Constellium Technology Center

2:40 PM
Influence of Coating and De-coating on the Coalescence of Aluminium Drops in Salt: Stefano Capuzzi[1]; *Anne Kvithyld*[2]; Giulio Timelli[1]; Arne Nordmark[2]; Thorvald Abel Engh[3]; [1]Univerity of Padua; [2]SINTEF; [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*[1]; Jayesh Patel[2]; Ian Stone[2]; Zhongyun Fan[2]; David Browne[3]; [1]University College Dublin; NUI Galway; [2]Brunel University London; [3]University College Dublin

3:20 PM Break

3:40 PM
Centrifugal Casting of Al-Si Scrap: *Aya Abdelrahman*[1]; Shimaa El-Hadad[2]; Iman El Mahallawi[3]; [1]British University in Egypt; [2]Centre for Metallurgical Research and Development; [3]Cairo University

4:00 PM
Improved Recyclability of Cast Al-alloys by Engineering ß-$Al_9Fe_2Si_2$ Phase: *C. B. Basak*[1]; N. Hari Babu[2]; [1]BCAST, Brunel University London ; [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 Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Tuesday PM
February 28, 2017

Room: Palomar
Location: Marriott Marquis Hotel & Marina

Session Chairs: Maria Okuniewski, Purdue University; Larry Aagesen, Idaho National Laboratory

2:00 PM Invited
Thermal-Mechanical Properties of Sintered UO2: Tiankai Yao[1]; *Jie Lian*[1]; [1]Rensselaer Polytechnic Institute

2:30 PM
Correlation Between Particle Size and Grain Size Distributions in Single/Multiphase Ceramic Oxide Surrogate Materials: *Keyur Karandikar*[1]; Austin Travis[2]; Kenta Ohtaki[2]; Martha Mecartney[2]; Olivia Graeve[1]; [1]University of California, San Diego; [2]University of California, Irvine

2:50 PM
Phase Field Modeling of Uranium Dioxide Sintering and Densification: *Ian Greenquist*[1]; Michael Tonks[1]; Yongfeng Zhang[2]; [1]Penn State University; [2]Idaho National Laboratory

3:10 PM
Study of Oxide Dispersion Strengthened 316L Austenitic Steel by Mechanical Milling
: *Supriya Koul*[1]; Joysurya Basu[1]; Kausik Chattopadhyay[1]; Krishanu Biswas[2]; Nilay Mukhopadhyay[1]; [1]Indian Institute of Technology (BHU) Varanasi; [2]Indian Institute of Technology Kanpur

3:30 PM Break

4:00 PM Invited
In Situ Synchrotron Characterization of the Field Assisted Sintering of UO_2: David Sprouster[1]; E. Dooryhee[1]; *L. Ecker*[1]; R. Pokharel[2]; A Raftery[2]; D Byler[2]; K.J. McClellan[2]; [1]Brookhaven National Laboratory; [2]Los Alamos National Laboratory

4:30 PM
Thermoelectric Properties of Doped and Pure UO2 at High Temperatures: *Ali Massih*[1]; Lars Jernkvist[1]; [1]Quantum Technologies

4:50 PM
Evaluation of Creep Behavior of UO2 at Sub-grain Length Scales: *Benjamin Shaffer*[1]; Bowen Gong[1]; Harn Chyi-Lim[1]; Robert McDonald[1]; Pedro Peralta[1]; [1]Arizona State University

5:10 PM
Irradiation Dependent Deformation and Thermal Properties of SiC and SiO2 Measured by Using Nanomechanical Raman Spectroscopy: *Debapriya Mohanty*[1]; Vignesh Vivekanandan[1]; Vikas Tomar[1]; [1]Purdue 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
February 28, 2017

Room: 25B
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM
Anisotropic Growth Patterns in Four Dimensions: *Ashwin Shahani*[1]; Xianghui Xiao[2]; Peter Voorhees[1]; [1]Northwestern University; [2]Argonne National Laboratory

2:30 PM
In-situ Phase Contrast Nano-tomography at ID16B: *Julie Villanova*[1]; Richi Kumar[1]; Rémi Daudin[2]; Pierre Lhuissier[2]; Luc Salvo[2]; David Jauffrès[2]; Christophe L. Martin[2]; Rémi Tucoulou[1]; [1]ESRF - The European synchrotron; [2]SIMAP-Univ. Grenoble Alpes

2:50 PM
High Speed Tomographic Imaging of Materials during Uniaxial Loading: *Brian Patterson*[1]; Nikhilesh Chawla[2]; Sudhanshu Singh[2]; Angel Ovejero[2]; Jason Williams[2]; Xianghui Xiao[3]; Kevin Henderson[1]; Robin Pacheco[1]; Nikolaus Cordes[1]; James Mertens[1]; [1]Los Alamos National Laboratory; [2]Arizona State University; [3]Argonne National Laboratory

3:20 PM Break

3:40 PM
In-situ Deformation and Damage Assessment in Materials under Dynamic Loading Using High Speed Synchrotron X-ray Phase Contrast Imaging: *Niranjan Parab*[1]; Zherui Guo[1]; Matthew Hudspeth[1]; Benjamin Claus[1]; Jou-Mei Chu[1]; Tao Sun[2]; Kamel Fezzaa[2]; Weinong Chen[1]; [1]Purdue University; [2]Argonne National Laboratory

4:10 PM
In-Situ and In-Operando Examination of Structure-Functional Relations in Porous Materials for Energy Conversion and Storage with Nano- and Micro- Synchrotron X-ray Computed Tomography: Andrew Shum[1]; Vincent De Andrade[2]; Xianghui Xiao[2]; Dilworth Parkinson[3]; Adam Weber[4]; *Iryna Zenyuk*[1]; [1]Tufts University; [2]Advanced Photon Source, Argonne National Laboratory; [3]Advanced Light Source, Lawrence Berkeley National Laboratory; [4]Lawrence Berkeley National Laboratory

4:40 PM
Zernike Phase Contrast for Hard X-ray Microscopy: *Ken Vidar Falch*[1]; Ragnvald Mathiesen[1]; Anatoly Snigirev[2]; Irina Snigireva[3]; Mikhail Lyubomirskiy[3]; Daniele Casari[1]; [1]NTNU; [2]Immanuel Kant Baltic Federal University; [3]ESRF

5:10 PM
Phase Contrast Tomography to Document Gypsum Dehydration in Single Crystals and Polycrystalline Materials: Florian Fusseis[1]; *Xianghui Xiao*[2]; John Bedford[3]; Henri Leclere[3]; [1]University of Edinburgh; [2]Argonne National Laboratory; [3]Liverpool University

Characterization of Minerals, Metals, and Materials — Powders 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 ; 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

Tuesday PM
February 28, 2017

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*[1]; Evan Groopman[2]; Benjamin Rock[1]; M Imam[3]; Albert Fahey[1]; [1]Naval Research Laboratory; [2]National Research Council; [3]George Washington University

2:20 PM
Residual Stress Analysis within Steel Encapsulated Metal Matrix Composites Via Neutron Diffraction: *Sean Fudger*[1]; Dimitry Sediako[2]; Prashant Karandikar[3]; Chaoying Ni[1]; [1]University of Delaware; [2]Canadian Neutron Beam Centre; [3]M Cubed Technologies, Inc.

2:40 PM
Microstructure and Phase Evolution during the Synthesis of Manganese Germanides: Vamsi Meka[1]; *Tanjore Jayaraman*[1]; [1]University of Michigan

3:00 PM
Application of AFM in Morphology Determination of Powder Material: *Jian Wu*[1]; Ping Long[1]; Yaochun Yao[1]; [1]Kunming University of Science and Technology

3:20 PM
Fracture Toughness Characterization of Spark Plasma Sintered Boron Carbide with Different Additives.: *Burcu Apak*[1]; Meral Cengiz[1]; Onuralp Yucel[1]; Gultekin Goller[1]; Filiz Sahin[1]; [1]Istanbul Technical University

3:40 PM Break

3:55 PM
Effects of Thermal Processing on Closed-Cell Aluminium Foams: *Andrew Brown*[1]; Wayne Hutchison[1]; Md Ashraful Islam[1]; Md Abdul Kader[1]; Juan Pablo Escobedo-Diaz[1]; Paul Hazell[1]; [1]UNSW Australia

4:15 PM
Experimental Investigation of Mechanical Behaviour of Closed-Cell Aluminium Foams under Drop Weight Impact: *Md Ashraful Islam*[1]; Md Abdul Kader[1]; Andrew Brown[1]; Paul Hazell[1]; Juan Pablo Escobedo - Diaz[1]; Mohammad Saadatfar[1]; [1]UNSW Canberra

4:35 PM
Deformation Mechanisms of Closed Cell-Aluminium Foams during Drop Weight Impact: *M.A. Kader*[1]; M.A. Islam[1]; M. Saadatfar[2]; Juan P. Escobedo-Diaz[1]; P.J. Hazell[1]; A.D. Brown[1]; [1]School of Engineering and Information Technology, UNSW Australia; [2]Department of Applied Mathematics, Australian National University

4:55 PM
Optical Characterization of a-Ti Grain Orientation: Insight from First-principles Calculations: *Brahim Akdim*[1]; Chris Woodward[1]; Micheal Uchic[1]; [1]Air Force Research Lab

5:15 PM
Tracking 3D Microstructure Evolution during Sintering of Copper Particles by Laboratory Diffraction Contrast Tomography (LabDCT): *Samuel McDonald*[1]; Christian Holzner[2]; Erik Lauridsen[3]; Peter Reischig[3]; Arno Merkle[2]; Michael Feser[2]; Philip Withers[1]; [1]University of Manchester; [2]Carl Zeiss X-ray Microscopy; [3]Xnovo Technology

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
February 28, 2017

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 Faghaninia[1]; Michael Sullivan[1]; Derreko Becker-Ricketts[1]; *Cynthia Lo*[1]; [1]Washington University

2:30 PM Invited
Using First Principle Approaches to Optimize Materials for Next Generation Non-volatile Memory: *Derek Stewart*[1]; [1]Western Digital

3:00 PM
Neural Networks Assisted Vector Tomography for the Reconstruction of the Magnetic Vector Potential: *KC Prabhat*[1]; Marc De Graef[1]; [1]Carnegie Mellon University

3:20 PM
First-Principles Computation Design of CoPt and FePt Nanoparticles with Desired Magnetic Properties through Tailoring Surface Segregation: *Guofeng Wang*[1]; Zhenyu Liu[1]; [1]University of Pittsburgh

3:40 PM Break

3:55 PM Invited
Magnetic-Field Tunability of Thermal Conduction in Non-Magnetic Materials: *Wolfgang Windl*[1]; Nikolas Antolin[1]; Oscar Restrepo[1]; Roberto Myers[1]; Joseph Heremans[1]; [1]Ohio State Univ.

4:25 PM
Data-driven Magnetic Materials Selection, Design, and Optimization: Shruthi Badam[1]; *Tanjore Jayaraman*[1]; [1]University of Michigan

4:45 PM
Optimization of Buffer Layer Alloy Materials for CIGS Thin-Film Solar Cells: *Vincenzo Lordi*[1]; Joel Varley[1]; Xiaoqing He[2]; Angus Rockett[2]; Jeff Bailey[3]; Geordie Zapalac[3]; Dmitry Poplavskyy[3]; Neil Mackie[3]; Atiye Bayman[3]; [1]Lawrence Livermore National Lab; [2]University of Illinois at Urbana-Champaign; [3]MiaSole Hi-Tech Corp.

5:05 PM
Restraining Electron-hole Recombination in W-N Codoped Titania: First-principles Study: *Heechae Choi*[1]; [1]Virtual Lab Inc.

Computational Thermodynamics and Kinetics — Diffusion and Kinetics 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 PM
February 28, 2017

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*[1]; Vedad Babic[1]; Itai Panas[1]; Lars-Gunnar Johansson[1]; [1]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*[1]; Kaka Ma[2]; Aparna Tripathi[3]; Kaustubh Kulkarni[3]; Anil Sachdev[4]; Enrique Lavernia[1]; [1]University of California, Irvine; [2]Colorado State University; [3]India Institute of Technology, Kanpur; [4]General Motors

2:50 PM
Evaluation of Silver and Tin Diffusion Mobility in Magnesium Alloys: *Ian Parker*[1]; Michele Manuel[1]; [1]University of Florida

3:10 PM
Modeling Alloying Effects on Hydrogen Evolution Reaction Kinetics for Decelerated Magnesium Corrosion: *Krista Limmer*[1]; Joseph Labukas[1]; Jan Andzelm[1]; [1]U.S. Army Research Laboratory

3:30 PM Break

3:45 PM Invited
Kinetic Monte Carlo Enabled Modeling of Diffusion Assisted Plastic Deformation: *James Martino*[1]; Srinath Chakravarthy[1]; [1]Northeastern University

4:15 PM
Long-time Simulations of Cation Diffusion and Material recovery in Disordered Gd2Ti2O7 Pyrochlore: *Romain Perriot*[1]; Blas Uberuaga[1]; Richard Zamora[1]; Danny Perez[1]; Arthur Voter[1]; [1]Los Alamos National Laboratory

4:35 PM
First-Principles Computational Study of Charged Vacancy Diffusion in Alpha-Al2O3 and Alpha-Cr2O3: *Guofeng Wang*[1]; Yinkai Lei[1]; Corinne Gray[1]; [1]University of Pittsburgh

4:55 PM
Automated Diffusivity Theory without Kinetic Monte Carlo: Solute Diffusivity from First Principles: *Dallas Trinkle*[1]; [1]University of Illinois, Urbana-Champaign

5:15 PM
The Effects of Quantum Dynamics of Atomic Motion on Dislocation Mobility: *Rodrigo Freitas*[1]; Mark Asta[2]; Vasily Bulatov[3]; [1]University of California Berkeley and Lawrence Livermore National Laboratory; [2]University of California Berkeley; [3]Lawrence Livermore National Laboratory

Defects and Properties of Cast Metals — Porosity

Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Tuesday PM
February 28, 2017

Room: 23A
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 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*[1]; [1]University College Dublin

2:25 PM Invited
Influence of Fe-rich Intermetallics on the Formation of Solidification Defects : *Chedtha Puncreobutr*[1]; Surada Chuaypradit[1]; André Phillion[2]; Julie Fife[3]; Peter Lee[4]; [1]Chulalongkorn University; [2]McMaster University; [3]Paul Scherrer Institut; [4]The University of Manchester

2:45 PM
Modelling of Defects in Aluminium Castings: Laurens Katgerman[1]; *Mark Jolly*[2]; [1]Delft University; [2]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*[1]; Gour Gopal Roy[1]; Prakash Srirangam[2]; [1]Indian Institute of Technology, Kharagpur, India; [2]University of Warwick

3:25 PM Break

3:45 PM
Role of Grain Refiners on Porosity Formation in Directionally Solidifed Al-Si Alloys: Muhammet Uludag[1]; *Derya Dispinar*[2]; [1]Selcuk University; [2]Istanbul University

4:05 PM
Self-Healing Micro-Porosity in Ductile Iron by Controlling Graphite Nodule Solidification Kinetics: *Simon Lekakh*[1]; [1]MST

4:25 PM
Theoretical Calculations for Pore Formation in Aluminum during Solidification: *Pedram Yousefian*[1]; Murat Tiryakioglu[1]; [1]University of North Florida

4:45 PM
3D Visualisation of Porosity in Cast Al-Si Alloys Using X-ray Tomography: *Mario De Giovanni*[1]; Jason Warnett[1]; Mark Williams[1]; Prakash Srirangam[1]; [1]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, OakRidge National Lab; Shen Dillon, Universe of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Tuesday PM
February 28, 2017

Room: 23B
Location: San Diego Convention 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*[1]; Stefan Zaefferer[1]; [1]Max-Planck-Institut für Eisenforschung GmbH

2:20 PM
Hydrogen Embrittlement and Grain Boundary Fracture in Nickel: A Perspective from Atomistic Simulations: Douglas Spearot[1]; *Remi Dingreville*[2]; Doruk Aksoy[1]; [1]University of Florida; [2]Sandia National Laboratories

2:40 PM
Segregation of Lead and Hydrogen Isotopes to Grain Boundaries in Nickel and Their Effect on Fracture: *Richard Karnesky*[1]; Samantha Lawrence[1]; Khalid Hattar[1]; Stephen Foiles[1]; Brian Somerday[2]; [1]Sandia National Laboratories; [2]Southwest Research Institute

3:00 PM
Mesoscale Modeling of the Influence of Microstructural Gradients on Fracture: *Gustavo Castelluccio*[1]; Hojun Lim[1]; John Emery[1]; Corbett Battaile[1]; [1]Sandia National Laboratories

3:20 PM Invited
Multi-probe, Multi-scale Analysis of Plasticity and Crack Blunting at Lath Martensitic Boundaries: *Cem Tasan*[1]; [1]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*[1]; Eric Hahn[1]; Saryu Fensin[2]; Tim Germann[2]; [1]UCSD; [2]LANL

4:20 PM
The Influence of Second-phase Distribution on Dynamic Damage and Spall Strength: *David Jones*[1]; Saryu Fensin[1]; Daniel Martinez[1]; Carl Trujillo[1]; George Gray[1]; Ellen Cerreta[1]; [1]Los Alamos National Laboratory

4:40 PM
The Role of Interfaces in Nucleation of Dynamic Damage in FCC and BCC Materials: *Saryu Fensin*[1]; Eric Hahn[2]; Tim Germann[1]; Ellen Cerreta[1]; George Gray[1]; [1]Los Alamos National Laboratory; [2]University of California, San Diego

5:00 PM
Void Nucleation and Growth at Grain Boundaries in Flat and Surface Perturbed Copper Bicrystals: *Elizabeth Fortin*[1]; Matthew Catlett[1]; Jenna Lynch[1]; Eric Loomis[2]; Pedro Peralta[1]; [1]Arizona State University; [2]Los Alamos National Laboratory

5:20 PM Invited
Development of Long-range Crystallographic Correlations in Microstructures: *Mukul Kumar*[1]; Jonathan Lind[1]; David Bober[1]; [1]Lawrence Livermore National Laboratory

Electrode Technology — Electrodes: Raw Materials and Anode Quality

Program Organizer: Houshang Alamdari, Laval University

Tuesday PM
February 28, 2017

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 Buzunov*[1]; John Johnson[1]; [1]JCG

2:30 PM
Pilot Anode Properties of Binder Pitches Softening between 110 and 150°C: Winfried Boenigk[1]; *Christopher Kuhnt*[1]; Jens Stiegert[1]; Joris Claes[2]; Les Edwards[3]; [1]RAIN Carbon Inc. (dba) RÜTGERS Germany GmbH; [2]RAIN Carbon Inc. (dba) RÜTGERS Belgium N.V. ; [3]RAIN Carbon Inc. (dba) RAIN CII Carbon LLC

2:55 PM
Uniform Bulk Density for Calcined Petroleum Coke: *Ravindra Narvekar*[1]; Gajanan Bandodkar[1]; Jagmohan Chhabra[1]; [1]Goa Carbon Ltd.

3:20 PM
Use of Thermally Desulfurized Shaft CPC for Anode Production: *Les Edwards*[1]; Kevin Harp[1]; Christopher Kuhnt[1]; [1]Rain Carbon Inc.

3:45 PM Break

4:00 PM
Anode Carbon Aggregate Packing Description Compared to Relevant Industrial and Engineering Practises: *Bjarte Oye*[1]; Lorentz Lossius[2]; [1]SINTEF; [2]Hydro Aluminium

4:25 PM
CPC Testing and Relationship between Coke and Anode Physical Properties: *Marvin Lubin*[1]; Kevin Harp[1]; Les Edwards[1]; Christopher Kuhnt[2]; Winfried Boenigk[2]; [1]Rain Carbon Inc. (dba) Rain CII Carbon; [2]Rain Carbon Inc. (dba) RÜTGERS Germany GmbH

4:50 PM
Effect of Coke Properties on the Bubble Formation at the Anodes during Aluminium Electrolysis in Laboratory Scale: *Wojciech Gebarowski*[1]; Arne Petter Ratvik[2]; Stein Rørvik[2]; Lorentz Petter Lossius[3]; Hogne Linga[3]; Ann Mari Svensson[1]; [1]Norwegian University of Science and Technology; [2]SINTEF Materials and Chemistry; [3]Hydro Aluminium

5:15 PM
Coke Produced from Lower-Oxygen Fast-Pyrolysis Oil, a New Approach to Produce Renewable Anode Raw Materials: Yaseen Elkasabi[1]; *Hans Darmstadt*[2]; Akwasi Boateng[1]; [1]Eastern Regional Research Center, Agricultural Research Service, U.S. Department of Agriculture; [2]Rio Tinto Alcan

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
February 28, 2017

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 Gourlay*[1]; Sergey Belyakov[1]; Zhaolong Ma[1]; [1]Imperial College London

2:20 PM
Influence of Bi on Microstructure and Properties of Sn-Cu-Ni Based BGAs on Cu Metallization: *Sergey Belyakov*[1]; Christopher Gourlay[1]; Takatoshi Nishimura[2]; Keith Sweatman[2]; [1]Imperial College London; [2]Nihon Superior Co., Ltd.

2:40 PM
The Effect of Bi on the Behaviour and Properties of Sn-0.7Cu Based Alloys: *Keith Sweatman*[1]; Selena Smith[2]; Arif Salleh[3]; Stuart McDonald[2]; Takatoshi Nishimura[1]; Kazuhiro Nogita[2]; [1]Nihon Superior Co., Ltd.; [2]University of Queensland; [3]University of Malaysia Perlis

3:00 PM
Effect of Ni on Mechanical Properties and Microstructure of Sn-0.7Cu and SAC307 Solder Alloys: *Mehran Maalekian*[1]; Karl Seelig[1]; [1]AIM Metals & Alloys

3:20 PM Break

3:40 PM
Long Term Isothermal Aging Effect on Reliability of Doped Lead-Free Solder Joint: *Cong Zhao*[1]; John Evans[1]; Jeffrey Suhling[1]; Michael Bozack[1]; [1]Auburn university

4:00 PM
Physico-mechanical Properties and Microstructure of Sn3.0Ag0.5Cu Solder Ribbons Doped with Ni and Ni-Sn Nanoparticles: *Andriy Yakymovych*[1]; Peter Svec Sr.[2]; Pavel Sebo[2]; Martin Nosko[2]; Herbert Ipser[1]; [1]University of Vienna; [2]Slovak Academy of Sciences

Energy Materials 2017: Energy and Environmental Issues in Materials Manufacturing and Processing — Opportunities in Aluminum Production, Waste Heat and Water Recovery

Program Organizers: Subodh Das, Phinix,LLC; Zhancheng Guo, University of Science and Technology Beijing; Minfang Han, China University of Mining and Technology, Beijing; Teruhisa Horita, AIST; Elsa Olivetti, Massachusetts Institute of Technology; Xingbo Liu, West Virginia University

Tuesday PM
February 28, 2017

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 Gültekin*[1]; Antje Rückert[1]; Herbert Pfeifer[1]; [1]IOB RWTH University

2:20 PM
Approach for Pyrolysis Gas Release Modelling and its Potential for Enhanced Energy Efficiency of Aluminium Remelting Furnaces: *Henning Bruns*[1]; Antje Rückert[1]; Herbert Pfeifer[1]; [1]RWTH Aachen University

2:40 PM
Nitrate and Other Anion Removal from Waste Water Using the Hydroflex Technology: *David Dreisinger*[1]; Gary Kordosky[2]; Mike Schrock[2]; Todd Beers[2]; Jianming Lu[1]; Buming Chen[1]; [1]University of British Columbia; [2]Winner Water Services

3:00 PM Invited
Sustainability and Applicability of Light Metals Producing Processes: *Subodh Das*[1]; Adam Gesing[2]; [1]Phinix,LLC; [2]Gesing Consultants Inc.

3:30 PM Break

3:50 PM
The Influence of Water Vapour on the Fuming Rate in a Ferromanganese System: *Sarel Gates*[1]; Gabriella Tranell[2]; Gerrit Kornelius[1]; Ida Kero[3]; [1]University of Pretoria; [2]Norwegian University of Science and Technology (NTNU); [3]SINTEF Materials and Chemistry

4:10 PM
Fluoropolymer Coated Condensing Heat Exchangers for Low-grade Waste Heat Recovery: *Youliang He*[1]; Afsaneh Edrisy[2]; Robert Triebe[3]; [1]Natural Resources Canada; [2]University of Windsor; [3]Thermal Energy International Inc.

4:30 PM
Study on Treatment of Chromium Slag by Metallurgical Sintering Process: *Qingcai Liu*[1]; Fei Meng[1]; Lijun Jiang[1]; Ming Kong[1]; Shan Ren[1]; Guang Hu[1]; Qi Zhao[1]; [1]Chongqing 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
February 28, 2017

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 CO_2 (sCO_2) Power Cycles: *John Shingledecker*[1]; [1]Electric Power Research Institute

2:40 PM Invited
Corrosion Issues in Advanced Supercritical and Ultra Supercritical Coal Fired Boilers: *Bruce Pint*[1]; [1]Oak Ridge National Laboratory

3:10 PM Invited
Materials for Advanced Ultra Supercritical Steam Turbines: *Philip Maziasz*[1]; [1]Oak Ridge National Laboratory

3:40 PM Break

4:00 PM Invited
Heat Resistant Alloy Design: Process Considerations for Microstructural Stability and Long-term Creep Strength in Scaled-Up, Thick Wall Nickel Castings: Paul Jablonski[1]; *Jeffrey Hawk*[1]; [1]U.S. Department of Energy, National Energy Technology Laboratory

4:30 PM Invited
Ni-Fe Based Alloy GH984G Used for 700□ Coal-fired Power Plants: Changshuai Wang[1]; Tingting Wang[1]; Jianting Guo[1]; *Lanzhang Zhou*[1]; Haiping Zhao[2]; Songqian Xu[2]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]Research Institute, Baoshan Iron&Steel Co., Ltd.

Energy Materials 2017: Materials for Gas Turbines — Microstructure and Processing

Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group

Tuesday PM
February 28, 2017

Room: 13
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Modeling the Diffusion of Minor Elements in Different MCrAlY – Superalloy Substrates at High Temperature: Krishna Jonnalagadda[1]; Kang Yuan[2]; Xin-Hai Li[3]; *Ru Peng*[1]; Yueguang Yu[2]; [1]Linkoping University; [2]Beijing General Research Institute of Mining and Metallurgy; [3]Siemens Industrial Turbomachinery

2:30 PM
On Healing Mechanism of Cast Porosities in Cast Ni-Based Superalloy by Hot Isostatic Pressing: *Yuan Chao*[1]; Li Jie[1]; Kai-Xin Dong[1]; Guo Jianting[1]; [1]Institute of Metal Research, Chinese Academy os Sciences

2:50 PM
Simulation of Precipitation Behavior of Nickel-based Superalloys: *Fan Zhang*[1]; Weisheng Cao[1]; Shuanglin Chen[1]; Chuan Zhang[1]; Jun Zhu[1]; [1]CompuTherm, LLC

3:10 PM
Microstructures and Mechanical Properties of Ultrafine Grained Ni Based Superalloy Matrix Nanocomposites Fabricated by Powder Metallurgy Route: Tian Xia[1]; *Deliang Zhang*[2]; Jiantao Liu[3]; Yiwen Zhang[3]; [1]Shanghai Jiao Tong University, China; [2]Northeastern University, China; [3]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*[1]; Giacomo Roncallo[2]; Gabriele Cacciamani[2]; Alessio Costa[2]; [1]Ansaldo Sviluppo Energia S.p.A.; [2]Chemistry Department, University of Genoa

4:10 PM
Rejuvenation Process Definition for IN792SX Gas Turbine Blades Aimed to Extend Their Expected Life: *Erica Vacchieri*[1]; Paola Guarnone[1]; Elena Bergaglio[1]; [1]Ansaldo Sviluppo Energia S.p.A.

4:30 PM
Tensile Behavior of Inconel X-750: Effect of Heat Treatment: *Christopher Marsh*[1]; Djamel Kaoumi[2]; [1]University of South Carolina; [2]North Carolina State University

4:50 PM
The Influence of Dendritic Segregation Degree to the Recrystallization Nucleation in U4720LI: *Jiayu Chen*[1]; Jianxin Dong[1]; [1]University of Science and Technology Beijing

5:10 PM
Grain Refinement of Cast FeAl-Alloys for Gas Turbine Blades: *Heiner Michels*[1]; Thomas Brenker[2]; Laura Klinkenberg[3]; Matthias Buenck[1]; [1]Access e.V.; [2]Other; [3]RWTH Aachen University

Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session IV

Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Tuesday PM
February 28, 2017

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. Tarzimoghadam[1]; *Dirk Ponge*[1]; J. Klöwer[2]; Dierk Raabe[1]; [1]Max-Planck-Institut für Eisenforschung GmbH; [2]VDM Metals GmbH

2:30 PM Invited
Failure Conditions for Individual Grain Boundaries in a Ni-base Alloy Embrittled by H: *Michael Demkowicz*[1]; [1]Texas A&M University

3:00 PM
A Combined Micromechanics/Materials Science Approach to Understanding High Temperature Hydrogen Attack: *Mohsen Dadfarnia*[1]; May Martin[1]; Petros Sofronis[1]; David Moore[2]; Steve Orwig[2]; [1]University of Illinois Urbana-Champaign; [2]BP

3:30 PM Break

3:50 PM
Hydrogen Embrittlement of High Strength Nickel-based Alloys in HP HT Applications: Ramgopal Thodla[1]; *Brandon Rollins*[1]; [1]DNV USA

4:15 PM
High Strength Nickel-based Alloys for HPHT Applications: *Ramgopal Thodla*[1]; Brandon Rollins[1]; Jeff Hawk[2]; Colum Holtam[1]; [1]DNV USA; [2]NETL

4:40 PM
High Strength Alloys for Oil and Gas Drilling Applications: *Robert Badrak*[1]; Sergey Kolesov[1]; William Howie[1]; [1]Weatherford

5:05 PM
Research on the Pinpoint Controlling of CRA N08028 OCTG Microstructure and Properties: *Pan Dong*[1]; Zhiqiang Yu[2]; Guangwei Fan[1]; Genshu Zhou[2]; Pengsheng Yao[3]; Zhifang Zhang[4]; [1]Technology Center, Shanxi Taigang Stainless Steel Co., Ltd., Taiyuan, 030003, China; [2]State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, Xi'an, 710049, China; [3]Shanxi Taigang Stainless Steel Tubes & Pipes Co., Ltd.,Taiyuan, 030008, China; [4]Shanxi Taigang Stainless Steel Co., Ltd., Taiyuan, 030003, China

Environmentally Assisted Cracking: Theory and Practice — Stress Corrosion Cracking 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 PM
February 28, 2017

Room: 31A
Location: San Diego Convention Center

Session Chairs: Sebastien Teysseyre, Idaho National Laboratory; Srujan Rokkam, Advanced Cooling Technologies

2:00 PM Invited
Challenges and Recent Progress in High Fluence Irradiation Assisted Stress Corrosion Cracking: *Sebastien Teysseyre*[1]; [1]Idaho National Laboratory

2:40 PM
3D Microstructural and Electrochemical Characterization of Galvanic Corrosion in Al7075-T651/316 Stainless Steel Couples: *Sridhar Niverty*[1]; Jason Williams[1]; Ilaksh Adlakha[1]; Scott Turnage[1]; Kiran Solanki[1]; Nikhilesh Chawla[1]; [1]Arizona State University

3:00 PM
Direct Observations of Corrosion Cracking in a TEM: *Claire Chisholm*[1]; William Mook[1]; Steven Hayden[2]; Daniel Bufford[1]; Khalid Hattar[1]; Timothy Kucharski[2]; Michele Ostraat[2]; Katherine Jungjohann[1]; [1]Sandia National Laboratories; [2]Aramco Services Company

3:20 PM
Environmentally Assisted Cracking of Commercial Carbon Steels and Corrosion Resistant Alloys: Yugo Ashida[1]; *Yuzo Daigo*[2]; Katsuo Sugahara[2]; [1]NHK International Corporation; [2]Hitachi Metals MMC Superalloy, Ltd.

3:40 PM Break

4:00 PM
Assessing the Fracture Strength of Geological and Related Materials via an Atomistically Based J-integral: *Reese Jones*[1]; Louise Criscenti[1]; Jessica Rimsza[1]; [1]Sandia National Laboratories

4:20 PM
Sensitization Effects on Environmentally Assisted Cracking of Al-Mg Alloys: *Mohsen Seifi*[1]; Henry Holroyd[1]; Timothy Burnett[2]; John Lewandowski[1]; [1]Case Western Reserve University; [2]University of Manchester

4:40 PM
Structural and Mechanical Characterization of Corroded Region in 7075 Aluminum (Al) Alloy
: *Venkata Sathya Sai Renuka Vallabhaneni*[1]; Tyler Stannard[1]; Ziguang Chen[2]; Shumin Li[2]; Florin Bobaru[2]; Nikhilesh Chawla[1]; [1]Arizona State University; [2]University of Nebraska-Lincoln

5:00 PM
Environmentally Assisted Stress Corrosion Cracking of 5xxx Al Alloys in Atmospheric Environments: *Patrick Steiner*[1]; James Burns[1]; [1]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
February 28, 2017

Room: 23C
Location: San Diego Convention Center

Session Chair: Antonios Kontsos, Drexel University

2:00 PM
Miniaturised Ultrasonic Fatigue Testing: Jicheng Gong[1]; Arutyun Arutyunyan[1]; Isaac Cabrera[1]; *Angus Wilkinson*[1]; [1]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 Lavenstein[1]; Gi-Dong Sim[1]; Bryan Crawford[1]; Paul Shade[2]; Michael Uchic[2]; Christopher Woodward[2]; *Jaafar El-Awady*[1]; [1]Johns Hopkins University; [2]AFRL

2:40 PM Invited
Investigating Very High Cycle Fatigue Behavior of Ti-6242S Using In-situ Ultrasonic Fatigue in an E-SEM: *Jason Geathers*[1]; Christopher Torbet[2]; J Wayne Jones[1]; Samantha Daly[2]; [1]University of Michigan; [2]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 Straub*[1]; Michael Buck[1]; Chris Eberl[2]; [1]University of Freiburg; [2]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 Naragani*[1]; Michael Sangid[1]; Paul Shade[2]; Peter Kenesei[3]; Hemant Sharma[3]; [1]Purdue University; [2]Air Force Research Laboratory; [3]Advanced Photon Source

3:40 PM Break

4:00 PM
CPFE Simulations and In-situ Laue Micro-diffraction to Reveal the Geometry of a Forming Vein during Fatigue: Ainara Irastorza-Landa[1]; Nicolo Grilli[1]; *Helena Van Swygenhoven*[1]; Manas Upadhyay[2]; [1]Paul Scherrer Institute & EPFL; [2]Paul Scherrer Institut

4:20 PM Invited
Fatigue Crack Growth and Fracture of Flexible Metallic Sheets: Wade Lanning[1]; Syed Javaid[1]; James Collins[1]; *Christopher Muhlstein*[1]; [1]Georgia Institute of Technology

4:40 PM
Short Crack Growth in Ni-base Superalloys during Micro-bending Fatigue: *Gi-Dong Sim*[1]; Zafir Alam[1]; Gyuseok Kim[2]; Paul Shade[3]; Chris Woodward[3]; Kevin Hemker[1]; [1]Johns Hopkins University; [2]University of Pennsylvania; [3]Air Force Research Laboratory

5:00 PM
The Role of Particle Fracture in Early Fatigue of Aluminum Alloys: *Brian Wisner*[1]; Konstantinos Baxevanakis[1]; Antonios Kontsos[1]; [1]Drexel University

5:20 PM
In Situ Microstructural Fatigue Investigation of Magnesium Alloys: *Chengyang Mo*[1]; Brian Wisner[1]; Antonios Kontsos[1]; [1]Drexel University

Friction Stir Welding and Processing IX — Derivative Technologies

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

Tuesday PM
February 28, 2017

Room: 9
Location: San Diego Convention Center

Session Chairs: Glenn Grant, Pacific Northwest National Laboratory; Jorge Dos Santos, Helmholtz-Zentrum Geesthacht GmbH

2:00 PM Invited
Solid-State Joining of Thick-Section Dissimilar Materials Using a New Friction Stir Dovetailing (FSD) Process: *Scott Whalen*[1]; Md. Reza-E-Rabby[2]; Ken Ross[2]; Yuri Hovanski[2]; Martin McDonnell[3]; [1]Pacific Northwest National Laboratory ; [2]Pacific Northwest National Laboratory; [3]U.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 Reynolds*[1]; Ilana Lu[1]; [1]University of South Carolina

2:40 PM
Joining Aerospace Aluminum 2024-T4 to Titanium by Friction Stir Extrusion: *William Evans*[1]; Alvin Strauss[1]; George Cook[1]; [1]Vanderbilt University

3:00 PM
Microscopic Evaluation of Friction Plug Welds– Correlation to a Processing Analysis: *Ellen Rabenberg*[1]; Poshou Chen[2]; Sridhar Gorti[1]; [1]National Aeronautics and Space Administration; [2]Jacobs, NASA/MSFC

3:20 PM Invited
Friction Stir Welding – A Closer Examination: *Tracy Nelson*[1]; Bryan Stringham[1]; [1]Brigham 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 Simar*[1]; Anne Mertens[2]; Laurence Brassart[3]; Jacqueline Lecomte-Beckers[2]; Francis Delannay[1]; [1]Universite Catholique de Louvain; [2]University of Liège; [3]Monash University, Australia

4:30 PM
Predicting Friction Pull Plug Welding Results: *Justin Littell*[1]; [1]NASA

4:50 PM
Microstructural Analysis and Mechanical Properties of Friction Stir Back Extruded/Aged 7075 Aluminum Alloy: *Zeren Xu*[1]; Fadi Abu-Farha[1]; [1]Clemson University

5:10 PM
Dissimilar Metal T-Joint Formed by Friction Stir Extrusion: *Adam Jarrell*[1]; Alvin Strauss[1]; George Cook[1]; [1]Vanderbilt University

Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin — Process-Property-Performance Correlations: Titanates, Transition Metal Oxides, Chalcogenides & Beyond

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

Tuesday PM
February 28, 2017

Room: 33B
Location: San Diego Convention Center

Session Chairs: Tae-Kyu Lee, Portland State University; Yuntian Zhu, North Carolina State University

2:00 PM Introductory Comments

2:10 PM Invited
What are in a Phase with Property Anomaly?: *Zi-Kui Liu*[1]; [1]The Pennsylvania State University

2:40 PM Invited
Interface Magnetism in La0.7Sr0.3MnO3/SrRuO3 Bilayers Integrated on Silicon: *Srinivasa Rao Singamaneni*[1]; John Prater[2]; Jay Narayan[2]; [1]University of Texas, El Paso; [2]North Carolina State University

3:10 PM Invited
Interfacial Reactions at the Joints in the Bi2Te3-based Thermoelectric Modules: *Sinn-wen Chen*[1]; Tz-wen Liou[1]; Hsu-shen Chu[1]; [1]National Tsing Hua University

3:40 PM Break

3:55 PM
Microstructure and Mechanism Studies of Epitaxial TiN Oxidation in Different Growth Orientations: *Adele Moatti*[1]; Jagdish Narayan[1]; [1]NCSU

4:15 PM Invited
Novel Iron-lanthanide Based High-mobility, Ferromagnetic and Transparent Amorphous Semiconducting Oxides: Humaira Taz[1]; Abhinav Malasi[1]; Tamil Sakthivel[2]; N Yamoah[3]; Connor Carr[1]; Annette Farah[1]; Benjamin Lawrie[4]; Raphael Pooser[4]; Maulik Patel[1]; Arthur Baddorf[4]; Dhananjay Kumar[3]; Sudipta Seal[2]; Hernando Garcia[5]; Gerd Duscher[1]; *Ramki Kalyanaraman*[1]; [1]University of Tennessee; [2]University of Central Florida; [3]North Carolina A&T; [4]Oak Ridge National Laboratory; [5]Southern Illinois University

4:45 PM
Tuning of Semiconductor-to-metal Transition in Epitaxial VO2 through Strain Engineering in the Heterostructures: *Adele Moatti*[1]; Jagdish Narayan[1]; [1]NCSU

5:05 PM Invited
Synchrotron X–ray Structure–resolved Study of Photovoltaic Titanium Oxide Phthalocyan: *E-wen Huang*[1]; Wei-Chieh Huang[1]; Yu-Hsiang Hsu[2]; Tsun-Hsu Chen[2]; [1]National Chiao Tung Univeristy; [2]National Taiwan University

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
February 28, 2017

Room: 16A
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 Giuntini*[1]; Elisa Torresani[2]; Chaoyi Zhu[3]; Tyler Harrington[3]; Kenneth Vecchio[3]; Alberto Molinari[2]; Eugene Olevsky[1]; [1]San Diego State University and University of California, San Diego; [2]University of Trento; [3]University of California, San Diego

2:40 PM
Dislocation Density Approach to Understanding Sintering Mechanics: *Chaoyi Zhu*[1]; Diletta Giuntini[2]; Tyler Harrington[1]; Eugene Olevsky[2]; Kenneth Vecchio[1]; [1]UC San Diego; [2]San Diego State University

3:00 PM
Effect of Additives on the Densification Kinetics and Microstructure of Hot-Pressed Boron Suboxide: *Kristopher Behler*[1]; Cooper Voigt[2]; Eugene Shanholtz[3]; Jerry LaSalvia[4]; Scott Walck[1]; [1]U.S. Army Research Laboratory (SURVICE Engineering); [2]U.S. Army Research Laboratory (SEAP); [3]U.S. Army Research Laboratory (ORISE); [4]U.S. Army Reseach Laboratory

3:20 PM
Microstructural Evolution during Early Stages of Hot Isostatic Pressing of 316L Austenitic Stainless Steel: *Sandeep Irukuvarghula*[1]; Hany Hassanin[2]; Moataz Attallah[3]; Michael Preuss[1]; [1]University of Manchester; [2]Kingston University; [3]University of Birmingham

3:40 PM Break

4:00 PM Invited
Thermodynamics versus Kinetics of Grain Growth Control to Enable Stable Nanocrystalline Materials: *Ricardo Castro*[1]; Nazia Nafsin[1]; [1]University of California, Davis

4:40 PM
Grain Growth and Densification of Tungsten Nanopowders: *Brady Butler*[1]; James Paramore[1]; Anthony Roberts[1]; Jonathan Ligda[1]; Micah Gallagher[1]; [1]U.S. Army Research Laboratory

5:00 PM
Development of Novel Multi-compaction Technique for Fabrication of Hybrid P/M Steels: *Minchul Oh*[1]; Hyunjoo Seok[1]; Byungmin Ahn[1]; [1]Ajou University

5:20 PM
Microwave vs Conventional Sintering of Ti Powders: Comparative Analysis: *Charles Maniere*[1]; Tony Zahrah[2]; Eugene Olevsky[1]; [1]San Diego State University; [2]MATSYS Inc

Gamma (FCC)/Gamma-Prime ($L1_2$) Co-Based Superalloys II — Alloy Development

Program Organizers: Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology Beijing; Alessandro Moturra, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Tuesday PM
February 28, 2017

Room: Pacific 14
Location: Marriott Marquis Hotel & Marina

Session Chairs: Alessandro Mottura, University of Birmingham; Wei Xiong, University of Pittsburgh

2:00 PM Invited
γ'-strengthened Co-Base Alloys – Development and Challenges: *Akane Suzuki*[1]; [1]GE Global Research

2:30 PM Invited
An Update on Cobalt Based Co-Mo-Al –X Alloys with □□□' microstructure: Effect of Alloying Additions, Mechanical Properties and Interaction with Different Environments: *Kamanio Chattopadhyay*[1]; Dipankar Banerjee[1]; Abhshek Singh[1]; Rajarshri Banerjee[2]; Surendra Makineni[1]; Nitin Bellari[2]; Abhishek Sharma[2]; Praful Pandey[2]; Saurabh Das[2]; [1]Indian Institute of Science; [2]University of North Texas

3:00 PM
Integrated Computational Materials Engineering of Co Bushing Alloy: *Ida Berglund*[1]; James Saal[1]; Jason Sebastian[1]; David Snyder[1]; Clay Houser[1]; Dana Frankel[1]; Nicholas Hatcher[1]; Gregory Olson[1]; [1]QuesTek Innovations

3:20 PM
The Microstructure and Hardness of Ni-Co-Al-Ti-Cr Quinary Alloys: *Katerina Christofidou*[1]; Nicholas Jones[1]; Roxana Flacau[2]; Mark Hardy[3]; Howard Stone[1]; [1]University of Cambridge; [2]Canadian Neutron Beam Center; [3]Rolls-Royce plc

3:40 PM Break

4:00 PM
Thermodynamics and Kinetics of $L1_2$-containing Co-base Superalloys from First-Principles: *Robert Rhein*[1]; Tresa Pollock[1]; Anton Van der Ven[1]; [1]University of California Santa Barbara

4:20 PM
Thermodynamic Database for the Co-Al-W-Ni-Ti-Ta-Cr Superalloy System: Peisheng Wang[1]; *Wei Xiong*[2]; Oleg Kontsevoi[1]; Ursula Kattner[3]; Carelyn Campbell[3]; Eric Lass[3]; Gregory Olson[1]; [1]Northwestern University; [2]University of Pittsburgh; [3]National Institute of Standards and Technology

4:40 PM
Calphad Design of Co-based Gamma-prime-strengthened Superalloys: *Eric Lass*[1]; [1]National Institute of Standards and Technology

5:00 PM
Phase Stability, Element Partitioning and Atomic Site Location in Co-9Al-9W-2X Alloys: *Li Wang*[1]; Michael Oehring[1]; Uwe Lorenz[1]; Andreas Stark[1]; Florian Pyczak[1]; [1]Helmholtz-Zentrum Geesthacht

GAT-2017 (Gamma Alloys Technology - 2017) — Microstructure Evolution, Simulation and Prediction

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

Tuesday PM
February 28, 2017

Room: Pacific 17
Location: Marriott Marquis Hotel & Marina

Session Chairs: Florian Pyczak, Helmholtz-Zentrum Geesthacht; Thomas Broderick, GE Aviation

2:00 PM Invited
Grain Refinement and Texture Evolution in Boron Containing TiAl Alloys: *Ulrike Hecht*[1]; Silja-Katharina Rittinghaus[2]; [1]Access e.V.; [2]Fraunhofer ILT (Institute for Laser Technique)

2:25 PM
Fine-grained FL Microstructure Evolution/Control and their Tensile Properties in a Cast Beta Gamma Alloy Material: *Joon Sik Park*[1]; Kwang Soo Choi[1]; Sang Lan Kim[2]; Young-Won Kim[2]; [1]Hanbat National University; [2]Gamteck LLC

2:45 PM Invited
Processing, Microstructure and Mechanical Properties of Beta-gamma TiAl Alloy: *Yuyong Chen*[1]; Fantao Kong[1]; Jing Tian[1]; Shulong Xiao[1]; Xiaopeng Wang[1]; Ping Sun[1]; [1]Harbin Institute of Technology

3:10 PM
Effect of Borides on the Beta/Alpha Phase Transformation Kinetics in Gamma Titanium Aluminide Alloys: *Michael Oehring*[1]; Andreas Stark[1]; Marcus Rackel[1]; Norbert Schell[1]; Florian Pyczak[1]; [1]Helmholtz-Zentrum Geesthacht

3:30 PM
Ordered Phase Transformations in High Nb-TiAl Alloys: *Lin Song*[1]; Junpin Lin[2]; Jinshan Li[1]; Hongchao Kou[1]; [1]Northwestern Polytechnical University; [2]University of Science and Technology Beijing

3:50 PM Break

4:05 PM Invited
3D Materials Science and Engineering: Emerging Capabilities for Gamma Alloys: *Dennis Dimiduk*[1]; Michael Uchic[2]; Michael Groeber[2]; [1]BlueQuartz Software, LLC ; [2]Air Force Research Laboratory

4:30 PM
Three Dimensional Reconstruction of TiAl Microstructures: *Henry Proudhon*[1]; Anouk Briane[2]; Nicolas Gueninchault[2]; Wolfgang Ludwig[3]; Jerome Crepin[2]; Lionel Marcin[4]; Jean-Charles Stinville[5]; McLean Echlin[5]; Tresa Pollock[5]; [1]MINES ParisTech / UCSB; [2]MINES ParisTech; [3]ESRF / INSA Lyon; [4]SafranTech; [5]UCSB

4:50 PM Invited
Thermodynamic Modeling of the Ti-Al-Cr-Mo-Nb-B System for Aiding Gamma-TiAl Alloy Design: *Fan Zhang*[1]; Jun Zhu[1]; Chuan Zhang[1]; John Foltz[2]; Nick Sonnentag[2]; Thomas Broderick[3]; [1]CompuTherm, LLC; [2]ATI; [3]GE Aviation

5:15 PM Invited
Phase Field Simulation of Microstructure Evolution in TiAl: *Dongsheng Xu*[1]; Chunyu Teng[1]; Jinhu Zhang[1]; Yunzhi Wang[2]; Rui Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]Ohio State University

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
February 28, 2017

Room: 32B
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*[1]; Bin Liu[1]; Qihong Fang[2]; C.T. Liu[3]; [1]Central South University; [2]Hunan University; [3]City University of Hong Kong

2:20 PM Invited
Synthesis and Characterization of Nanostructured Magnetic High Entropy Alloys: Trevor Clark[1]; Christian Roach[1]; *Suveen Mathaudhu*[1]; [1]University of California Riverside

2:40 PM
Adaption of Metal Injection Molding to Quinary High Entropy Alloys: *Arnaud Grimonprez*[1]; Julia Wagner[2]; Volker Piotter[1]; Alexander Kauffmann[1]; Yizhou Chen[1]; Martin Heilmaier[1]; [1]Karlsruhe Institute of Technology (KIT); [2]University of Stuttgart

3:00 PM
Design of Novel Precipitate Strengthened Al-Co-Cr-Fe-Nb-Ni High-entropy Alloys: *Martin Detrois*[1]; Stoichko Antonov[1]; Sammy Tin[1]; [1]Illinois Institute of Technology

3:20 PM Invited
Design of High Entropy Alloys for Turbine Applications: *Ida Berglund*[1]; James Saal[1]; Jason Sebastian[1]; Gregory Olson[1]; [1]QuesTek Innovations

3:40 PM Break

4:00 PM Invited
Combinatorial Design of High Entropy Alloys: Discovery of a Novel Single BCC Solid Solution: *Pradeep Konda Gokuldoss*[1]; [1]Max Planck Institute for Iron Research GmbH

4:20 PM
Design of "High Entropy Alloys" (HEA) with Optimal Combinations of Stability, Density, Strength and Ductility: Edern Menou[1]; Isaac Toda-Caraballo[2]; Emmanuel Bertrand[1]; Gérard Ramstein[1]; Pedro Rivera-Díaz-del-Castillo[2]; *Franck Tancret*[1]; [1]Université de Nantes; [2]University of Cambridge

4:40 PM
Fabrication of High-entropy Refractory Metal Carbides: *Tyler Harrington*[1]; Joshua Gild[2]; Jian Luo[3]; Cormac Toher[4]; Pranab Sarker[4]; Stefano Curtarolo[5]; Kenneth Vecchio[3]; [1]University of California San Diego; [2]Materials Science and Engineering Program, UC San Diego; [3]Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; [4]Department of Mechanical Engineering and Materials Science, Duke University; [5]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 (700oC): *Wu Kai*[1]; Fu-Pen Cheng[1]; Rong-Tan Huang[1]; Leu-Wen Tsay[1]; Ji-Jung Kai[1]; [1]National Taiwan Ocean University

5:20 PM
Carbides-induced Hardening of CoCrFeMnNi Family of HEAs: Adrianna LOZINKO[1]; Michal Mroz[1]; Fares HADDAD[1]; *Anna Fraczkiewicz*[1]; [1]MINES St-Etienne

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
February 28, 2017

Room: 31C
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 Militzer*[1]; Hatem Zurob[2]; [1]The University of British Columbia; [2]McMaster University

2:30 PM Invited
A New Look at Steel Martensite Tempering with Advanced Characterization Tools: *Amy Clarke*[1]; Michael Miller[2]; Daniel Coughlin[3]; Dean Pierce[2]; Jon Poplawsky[2]; Paul Gibbs[4]; Kester Clarke[1]; Virginia Judge[1]; Bjorn Clausen[3]; Jon Almer[5]; Robert Field[1]; Don Williamson[1]; David Alexander[3]; John Speer[1]; George Krauss[1]; [1]Colorado School of Mines; [2]Oak Ridge National Laboratory; [3]Los Alamos National Laboratory; [4]Sandia National Laboratories - Livermore; [5]Argonne National Laboratory

3:00 PM
Atomistic Modelling of Carbon Redistribution in Martensite Phase: *Helena Zapolsky*[1]; Mykola Lavrskyi[1]; Armen Khachaturyan[2]; Frederic Danoix[1]; Renaud Patte[2]; Sophie Cazottes[3]; Mohamed Gouné[4]; Philippe Maugis[5]; [1]University of Rouen; [2]University of California and Rutgers University; [3]INSA Lyon - MATEIS - SGM; [4]University of Bordeaux; [5]Aix-Marseille University Saint-Jerome

3:20 PM Break

3:40 PM Invited
Precipitation Kinetics: Quantitative In-situ Characterization Using Small-angle Scattering Helps Establish Models Validity: *Alexis Deschamps*[1]; Frederic De Geuser[1]; Mark Styles[2]; Christopher Hutchinson[3]; [1]Grenoble Institute of Technology; [2]CSIRO; [3]Monash University

4:10 PM
Thermally Induced Phase Transformations in Beta-titanium Alloys and Corresponding Effects on Mechanical Properties: *James Coakley*[1]; Anna Radecka[2]; Paul Bagot[3]; David Dye[4]; Howard Stone[1]; Dieter Isheim[5]; David Seidman[5]; [1]University of Cambridge; [2]Rolls-Royce plc.; [3]Oxford University; [4]Imperial College London; [5]Northwestern University

4:30 PM
Method for Correcting Atom Probe Tomography Trajectory Aberration Artifacts in Multiphase Materials: Samuel Briggs[1]; Nathan Almirall[2]; *Philip Edmondson*[3]; Peter Wells[2]; G. Robert Odette[2]; Kumar Sridharan[1]; Kevin Field[3]; [1]University of Wisconsin-Madison; [2]University of California - Santa Barbara; [3]Oak Ridge National Laboratory

4:50 PM
Solute Distribution Analysis of Early Stages of Aging in Al-Mg-Si Alloys via Atom Probe Tomography: *Phillip Dumitraschkewitz*[1]; Gunther Rank[2]; Stephanie Sackl[3]; Stephan S.A. Gerstl[4]; Stefan Pogatscher[1]; [1]Chair of Nonferrous Metallurgy, Montanuniversitaet Leoben; [2]AMGA rolling GmbH; [3]Chair of Physical Metallurgy and Metallic Materials, Montanuniversitaet Leoben; [4]Scientific Center of Optical and Electron Microscopy, ETH Zurich

In-situ Methods for Unraveling Structure-Property Relationships in Light Metals — Diffraction and Other Novel Methods

Program Organizers: Dmytro Orlov, Lund University; Wim Sillekens, European Space Agency

Tuesday PM
February 28, 2017

Room: 5B
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 Liss*[1]; [1]Australian Nuclear Science and Technology Organisation

2:20 PM
Advanced Aluminum Alloys Development and In-Situ Fitness-for-Service Testing in Automotive Lightweighting: *Dimitry Sediako*[1]; David Weiss[2]; Ahmed Nabawy[1]; [1]Canadian Nuclear Laboratories; [2]ECK Industries Inc.

2:40 PM
In-situ X-ray Synchrotron Profile Analysis during High Pressure Torsion of Ti: *Erhard Schafler*[1]; Michael Kerber[1]; Florian Spieckermann[2]; Torben Fischer[3]; Roman Schuster[4]; Cornelia von Baeckmann[5]; [1]University of Vienna, Faculty of Physics; [2]University of Leoben; [3]Deutsches Elektronen-Synchrotron DESY; [4]University of Vienna, Faculty of Earth Schiences; [5]University of Vienna, Faculty of Chemistry

3:00 PM
The Effect of Grain Refinement on Hot Tearing in AZ91D Magnesium Alloys: *Tyler Davis*[1]; Lukas Bichler[1]; Francesco D'Elia[2]; Norbert Hort[2]; [1]University of British Columbia; [2]Helmholtz-Zentrum Geesthacht

3:20 PM
Formability of Magnesium Alloy AZ31B from Room Temperature to 125C under Biaxial Tension: *Isaac Chelladurai*[1]; Andrew Orme[1]; Michael Miles[1]; David Fullwood[1]; John Carsley[2]; Raj Mishra[2]; Irene Beyerlein[3]; Marko Knezevic[4]; [1]Brigham Young University; [2]General Motors; [3]Sandia National Laboratory; [4]Univeristy of New Hampshire

3:40 PM Break

4:00 PM Keynote
Ambient Pressure X-ray Photoelectron Spectroscopy in Light Element Materials Investigations: *Joachim Schnadt*[1]; Ashley Head[2]; [1]Lund University; [2]Lawrence Berkeley National Laboratory

4:30 PM
In-situ Real-time Monitoring of Aging Processes in an Aluminum Alloy by High-precision Dilatometry: Martin Luckabauer[1]; Elisabeth Hengge[1]; Gregor Klinser[1]; *Wolfgang Sprengel*[1]; Roland Würschum[1]; [1]Graz University of Technology

4:50 PM
Analysis of Microstructure and Damage Evolution in Ultra-thin Wires of the Magnesium Alloy MgCa0.8 at Multipass Drawing: *Andrij Milenin*[1]; Piotr Kustra[1]; Dorota Byrska-Wójcik[1]; Olexandr Grydin[2]; Mirko Schaper[2]; Thorben Mentlein[3]; Gregory Gerstein[3]; Florian Nürnberger[3]; [1]AGH University of Science and Technology; [2]Paderborn University; [3]Leibniz Universität Hannover

5:10 PM
Effect of the Zn Content on the Compression Behaviour of Mg5Nd(Zn): An In Situ Synchrotron Radiation Diffraction Study: *Domonkos Tolnai*[1]; Tim Kärcher[1]; Ricardo Buzolin[1]; Tungky Subroto[1]; Francesco D'Elia[1]; Serge Gavras[1]; Andreas Stark[1]; Norbert Schell[1]; Norbert Hort[1]; Karl Kainer[1]; [1]Helmholtz Zentrum Geesthacht

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; Michael Demkowicz, Texas A&M University

Tuesday PM
February 28, 2017

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[1]; Abigail Hunter[2]; *Irene Beyerlein*[2]; Marisol Koslowski[1]; [1]Purdue University; [2]Los Alamos National Laboratory

2:30 PM Invited
Strengthening Mechanisms of Nanoporous Metallic Materials
: *Niaz Abdolrahim*[1]; Bin Ding[1]; [1]University of Rochester

3:00 PM
Deformation and Fracture in Stressed Multi-layer Thin Films: Ruth Konetschnik[1]; Darjan Kozic[2]; Ronald Schöngrundner[2]; Hans-Peter Gänser[2]; Roland Brunner[2]; *Daniel Kiener*[1]; [1]University of Leoben; [2]Materials Center Leoben

3:20 PM
Green's Function Formulation for Vacancy-assisted Dislocation Climb and Applications to Low Angle Grain Boundaries: *Yang Xiang*[1]; Yejun Gu[1]; Jian Han[2]; David J Srolovitz[2]; [1]Hong Kong University of Science and Technology; [2]University of Pennsylvania

3:40 PM Break

3:55 PM Invited
Ab Initio Determination of the Energetics of Atomically Sharp Interfaces: *Liang Qi*[1]; [1]University of Michigan

4:25 PM
Molecular Dynamics Simulations of Mg/Nb Interfaces: Shear Strength and Interaction with Lattice Glide Dislocations: *Xiang-Yang Liu*[1]; Satyesh Yadav[1]; Shuai Shao[1]; Jian Wang[2]; Youxing Chen[1]; Richard Hoagland[1]; [1]Los Alamos National Laboratory; [2]University of Nebraska-Lincoln

4:45 PM
On the Impact of Capillarity for Strength at the Nanoscale: *Nadiia Mameka*[1]; Jürgen Markmann[1]; Jörg Weissmüller[2]; [1]Helmholtz-Zentrum Geesthacht; [2]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*[1]; Farzin Rahmani[1]; Mina Mahdavi[1]; Ahmed Al-Ostaz[2]; [1]Department of Chemical Engineering, University of Mississippi; [2]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 Hausner*[1]; Bernhard Wielage[1]; Guntram Wagner[1]; [1]Technische Universitaet Chemnitz

Magnesium Technology 2017 — Solidification and Processing I

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

Tuesday PM
February 28, 2017

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*[1]; Mei Li[2]; John Allison[1]; [1]University of Michigan; [2]Ford Motor Company

2:30 PM
Numerical Simulations of TRC Equipped with a Core: *Jong-Jin Park*[1]; [1]Hongik University

2:50 PM
Growth of Al8Mn5 Intermetallic in AZ91: *Christopher Gourlay*[1]; Guang Zeng[1]; Jingwei Xian[1]; [1]Imperial College London

3:10 PM
Influence of CaO Grain Refiner Addition on the Microstructure and Mechanical Properties of As-cast Mg Alloys: *Yahia Ali*[1]; Dong Qiu[1]; Ming-Xing Zhang[1]; [1]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*[1]; Guosheng Peng[1]; Zhongyun Fan[1]; [1]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*[1]; Zhang Ting'an[1]; Zhihe Dou[1]; Lukui Guan[1]; [1]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*[1]; Ander Telleria Iparragirre[2]; Gurutze Arruebarrena[2]; Dietmar Letzig[1]; [1]Helmholtz-Zentrum Geesthacht; [2]Mondragon University

4:50 PM
Performance Evaluation of High-pressure Ddie-cast Magnesium Alloys: *Mark Easton*[1]; Suming Zhu[1]; Mark Gibson[2]; Trevor Abbott[3]; Hua Qian Ang[1]; Xiaobo Chen[4]; Nick Birbilis[4]; Gary Savage[2]; [1]RMIT University; [2]CSIRO; [3]Magontec; [4]Monash University

5:10 PM
Simulation Study on Direct Desulfurization of Molten Iron by Magnesium Vapor: *Yan Liu*[1]; Yongkun Yang[1]; Dongxing Wang[1]; Xiaolong Li[1]; Zhang Ting'an[1]; [1]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
February 28, 2017

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*[1]; B.F. Kammenzind[1]; [1]Bechtel-Bettis

2:20 PM
Characterization and Simulation of Wear-tested Zirconium Alloy Surfaces: *Gene Lucadamo*[1]; Natalia Tymiak-Carlson[1]; William Howland[1]; Richard Smith[1]; Clinique Brundidge[1]; [1]Bettis Laboratory, Bechtel Marine Propulsion Corporation

2:40 PM
Wear Results for Zirconium Alloys and Their Oxides: *William Howland*[1]; Paolo Zafred[1]; Gene Lucadamo[1]; Natalia Tymiak-Carlson[1]; Richard Smith[1]; [1]Bechtel Marine Propulsion Company

3:00 PM
Determination of Material Properties of Ion-irradiated and Corroded Zircaloy-4 by Using Nanomechanical Raman Spectroscopy: *Debapriya Mohanty*[1]; Yang Zhang[1]; Vikas Tomar[1]; [1]Purdue University

3:20 PM
Evolution of Stress and Fracture During Oxidation of Zirconium Alloys: *Natalia Tymiak Carlson*[1]; Jason Gruber[1]; John Seidensticker[1]; Ram Bajaj[1]; Douglas Rishel[1]; William Howland[1]; Richard Smith[1]; [1]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*[1]; Gary Was[1]; [1]University of Michigan

4:20 PM
Modeling Activation and Radionuclide Decay in Proton Irradiated Zirconium Alloys: *Jesse Carter*[1]; Diane Moran[1]; Richard Smith[1]; [1]Bettis Laboratory, BMPC

4:40 PM
Study on Texture Evolution of As-hydrided Zircaloy-4 Cladding under Low Temperature Biaxial Creep Test: *Kuan-Che Lan*[1]; Xiang Liu[1]; Huan Yan[1]; Hoon Lee[1]; Hsiao-Ming Tung[2]; Chih-Pin Chuang[3]; Kun Mo[3]; Yinbin Miao[3]; James Stubbins[1]; [1]University of Illinois at Urbana-Champaign; [2]Institute of Nuclear Energy Research; [3]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*[1]; T.S. Byun[2]; K.J. Leonard[3]; J.L. Hollenbeck[1]; B.F. Kammenzind[1]; [1]Bechtel-Bettis; [2]PNNL; [3]Oak Ridge National Laboratory

Materials by Design: An MPMD Symposium Honoring Greg Olson on the Occasion of His 70th Birthday — Materials Design II

Program Organizers: Carelyn Campbell, National Institute of Standards and Technology; Michele Manuel, University of Florida; Wei Xiong, University of Pittsburgh; Jason Sebastian, QuesTek Innovations

Tuesday PM — Room: 10
February 28, 2017 — Location: San Diego Convention 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: Michele Manuel, University of Florida ; Wei Xiong, University of Pittsburgh

2:00 PM Keynote
Creating Materials Databases Using X-Ray Tomography: J. Zhang[1]; S.O. Poulsen[2]; J.W. Gibbs[3]; *Peter Voorhees*[2]; H.F. Poulsen[1]; [1]Danish Technical University; [2]Northwestern University; [3]Los Alamos National Laboratory

2:40 PM Keynote
The Use of 3D Microstructural Characterization for the Validation of Models: *David Rowenhorst*[1]; [1]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*[1]; Vasisht Venkatesh[1]; Max Kaplan[1]; [1]Pratt & Whitney

4:30 PM Keynote
GBO, SRG, ICME and MGI - Towards the General Materials Design System: *John Agren*[1]; [1]Royal Institute of Technology

5:10 PM Concluding Comments

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*[1]; [1]University Siegen

2:30 PM
Design and Production of bcc Titanium-molybdenum-based Alloys Strengthened by Ordered Intermetallic Precipitates: *Alexander Knowles*[1]; Nick Jones[2]; Neil Jones[3]; Howard Stone[2]; David Dye[1]; [1]Imperial College London; [2]University of Cambridge; [3]Rolls-Royce plc

2:50 PM
The Influence of Titanium on the Phase Equilibria in Mo-Si-B Alloys: *Daniel Schliephake*[1]; Martin Heilmaier[1]; [1]Karlsruhe Institute of Technology

3:10 PM
Microstructure and Mechanical Behavior of Nb-based Nb-Al-Fe Alloys: *Frank Stein*[1]; Noah Philips[2]; [1]Max-Planck-Institut für Eisenforschung; [2]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*[1]; Alexander Kauffmann[1]; Martin Heilmaier[1]; [1]Karlsruhe Institute of Technology

4:10 PM
On the Design of Nb Silicide Based Alloys with a Balance of Properties: *Panayiotis Tsakiropoulos*[1]; [1]University of Sheffield

4:30 PM
Powder Route Processing of Nb Silicide Based Alloys: Claire Utton[1]; Panayiotis Tsakiropoulos[1]; *Edward Gallagher*[1]; [1]University of Sheffield

4:50 PM
Solidification Processing of Nb-silicide Based Alloys: *Nicola Tankov*[1]; Claire Utton[1]; Panayiotis Tsakiropoulos[1]; [1]University of Sheffield

5:10 PM
Accelerated Discovery and Development of Intermetallic-containing Refractory-based Multi-principal-component Alloys: *Michael Titus*[1]; Hauke Springer[2]; Fritz Körmann[2]; Blazej Grabowski[2]; Dierk Raabe[2]; [1]Purdue University; [2]Max-Planck-Institut für Eisenforschung

5:30 PM
Deformation Behavior and Solid Solution Hardening of Al-containing Refractory High-entropy Alloys: *Hans Chen*[1]; Alexander Kauffmann[1]; Bronislava Gorr[2]; Daniel Schliephake[3]; Christoph Seemüller; Julia Wagner[4]; Hans-Juergen Christ[2]; Martin Heilmaier[3]; [1]Karlsruhe Institute of Technology ; [2]University of Siegen; [3]Karlsruhe Institute of Technology; [4]University of Stuttgart

Materials Science for High-Performance Permanent Magnets — Magnetization Process / Microstructural Stability

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

Tuesday PM
February 28, 2017

Room: 24C
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 Billington*[1]; Kentaro Toyoki[1]; Yoshinori Kotani[1]; Hiroyuki Okazaki[1]; Akira Yasui[1]; Wakana Ueno[1]; Satoshi Hirosawa[1]; Tetsuya Nakamura[1]; [1]Japan 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 Tsukahara*[1]; Kaoru Iwano[1]; Chiharu Mitsumata[2]; Tadashi Ishikawa[1]; Kanta Ono[1]; [1]High Energy Accelerator Research Organization; [2]National Institute for Materials Science

2:40 PM
Electronic States of Rare Earth Elements in Permanent Magnet Materials Probed by X-ray Magnetic Circular Dichroism Nano-Spectroscopy: *Tetsuro Ueno*[1]; Ai Hashimoto[2]; Yasuo Takeichi[2]; Kanta Ono[2]; [1]National Institute for Materials Science; [2]High Energy Accelerator Research Organization

3:00 PM
Fabrication of Nd-Fe-B Thin Films as a Model Material: *Toshiyuki Shima*[1]; Ryosuke Nakagawa[1]; Aya Sugawara[1]; Risa Kurosu[1]; Masaaki Doi[1]; [1]Tohoku Gakuin University

3:20 PM
Data-driven Approach for Magnetic Neutron Scattering Data Analysis of Permanent Magnets Using Statistical Learning and Artificial Intelligence: *Kanta Ono*[1]; Akinori Asahara[2]; Hidekazu Morita[2]; Chiharu Mitsumata[3]; Masao Yano[4]; Tetsuya Shoji[4]; [1]High Energy Accelerator Research Organization (KEK); [2]Hitachi Ltd.; [3]National Institute for Materials Science; [4]Toyota Motor Corporation

3:40 PM Break

4:00 PM Invited
Phase Equilibria in the Nd-based Permanent Magnets: *Taichi Abe*[1]; Ikuo Ohnuma[1]; Yoshinao Kobayashi[2]; Ying Chen[3]; Osamu Takeda[3]; [1]NIMS; [2]Tokyo Institute of Technology; [3]Tohoku University

4:25 PM
Stability Origin of Binary Systems Relevant to Multi-component Phase in Nd-Fe-B: *Ying Chen*[1]; Arkapol Saengdeejing[1]; [1]Tohoku University

4:45 PM
Ab-initio Study of Transition-metal-doping Effects on the Magnetic Anisotropy in Nd-Fe- B Sintered Magnets: *Yasutomi Tatetsu*[1]; Shinji Tsuneyuki[2]; Yoshihiro Gohda[3]; [1]The University of Tokyo; [2]The University of Tokyo, ISSP; [3]The University of Tokyo, Tokyo Institute of Technology

5:05 PM Invited
Grain Boundary Diffusion of Co, Cu and Nb as Function of Temperature in NdFeB: *Gino Hrkac*[1]; Thomas Schrefl[2]; Johann Fischbacher[2]; Thomas Ostler[1]; Richard Evans[3]; Sam Westmoreland[3]; Michael Winklhofer[4]; Roy Chantrell[3]; Gergely Zimanyi[5]; [1]University of Exeter; [2]Danube University Krems; [3]University of York; [4]University of Duisburg; [5]University 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
February 28, 2017

Room: 24A
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 14YWT Nanostructured Ferritic Alloy NFA-1: *G. Robert Odette*[1]; Md Ershadul Alam[1]; Soupitak Pal[1]; Takuya Yamamoto[1]; [1]University of California Santa Barbara

2:30 PM Invited
Dynamic Behavior of a Nanocrystalline Cu-Ta Alloy: Scott Turnage[1]; *Kris Darling*[2]; Mansa Rajagopalan[1]; Chad Hornbuckle[2]; Kiran Solanki[1]; [1]ASU; [2]ARL

2:50 PM
The Creep-resistant High Entropy Alloys (HEAs): Haoyan Diao[1]; Dong Ma[2]; Wei Guo[2]; Jonathan Poplawsky[2]; Chuan Zhang[3]; Fan Zhang[3]; Karin Dahmen[4]; *Peter Liaw*[5]; [1]The University of Tennessee ; [2]Oak Ridge National Laboratory; [3]CompuTherm, LLC; [4]University of Illinois at Urbana-Champaign; [5]The University of Tennessee

3:10 PM Invited
Structure-property Correlations in Metallic Components Synthesized Using Selective Laser Melting: *Upadrasta Ramamurty*[1]; [1]Indian Institute of Science

3:30 PM Break

3:45 PM Keynote
Design of Creep-resistant Copper Alloys: *Steven Zinkle*[1]; Ying Yang[2]; Lance Snead[3]; [1]University of Tennessee; [2]Oak Ridge National Laboratory; [3]Massachusetts Institute of Technology

4:15 PM Invited
Compatibility of a Complex Concentrated Alloy with Non-aqueous Coolants: Justin Lee[1]; Timothy White[1]; Rajiv Mishra[2]; *James Earthman*[1]; [1]University of California, Irvine; [2]University of North Texas

4:35 PM Invited
Radiation Response of Nanotwinned Metals: *Xinghang Zhang*[1]; Jin Li[2]; Cuncai Fan[1]; Kaiyuan Yu[3]; Youxing Chen[4]; Haiyan Wang[1]; [1]Purdue University; [2]Texas A&M University; [3]China University of Petroleum; [4]Los 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 Mantri[1]; Deep Choudhuri[1]; *Rajarshi Banerjee*[1]; [1]University of North Texas

5:15 PM Invited
Emulating Neutron Damage in Nanocrystalline Copper via In-situ Ion Irradiation: *Walid Mohamed*[1]; Sumit Bhattacharya[2]; Laura Jamison[1]; Marquis A. Kirk[1]; Korukonda Murty[3]; Abdellatif Yacout[1]; [1]Argonne National Laboratory; [2]Northwestern University; [3]NC 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
February 28, 2017

Room: 30D
Location: San Diego Convention Center

Session Chairs: Joseph Poon, University of Virginia; Jürgen Eckert, Erich Schmid Institute of Materials Science; Peter Liaw, University of Tennessee

2:00 PM Invited
Interfaces in Colloidal Crystals: *Frans Spaepen*[1]; [1]Harvard School of Engrg & Appl Sciences

2:25 PM Invited
Comparing Amorphous Alloy Synthesis Employing Melt Spinning & Mechanical Alloying: Andrew Cheung[1]; *Gary Shiflet*[1]; [1]University of Virginia

2:50 PM Invited
Tailoring the Mechanical Behavior of Metallic Glasses: *Juergen Eckert*[1]; [1]Montanuniversität Leoben

3:15 PM Invited
Deviations from High-Entropy Configurations in the AlxCoCrCuFeNi Alloys: Louis Santodonato[1]; Yang Zhang[2]; Mikhail Feygenson[3]; Chad Parish[1]; Michael Gao[4]; Richard Weber[5]; Joerg Neuefeind[1]; Zhi Tang[6]; James Morris[1]; *Peter Liaw*[7]; [1]Oak Ridge National Laboratory; [2]The University of Illinois at Urbana-Champaign; [3]Juelich Centre for Neutron Science; [4]National Energy Technology Laboratory; [5]Materials Development, Inc.; [6]Alcoa Technical Center; [7]The University of Tennessee

3:40 PM Break

4:00 PM Invited
Universal Parameter to Quantitatively Predict Metallic Glass Properties: *Evan Ma*[1]; [1]Johns Hopkins University

4:25 PM
Brittle-to-ductile Transition in Metallic Glass Nanowires: *Daniel Sopu*[1]; Mihai Stoica[1]; Jürgen Eckert[2]; [1]IFW Dresden; [2]Erick Schmid Institute of Materials Science

4:45 PM
Strain Delocalization and "Ductile" Fracture Behaviors of Metallic Glass: *Zhe Fan*[1]; Jin Li[1]; Yingchao Yang[2]; Qiang Li[1]; Sichuang Xue[1]; Haiyan Wang[3]; Jun Lou[2]; Jian Wang[4]; Xinghang Zhang[3]; [1]Texas A&M University; [2]Rice University; [3]Purdue University; [4]University of Nebraska-Lincoln

5:05 PM Invited
Mechanical Behavior of Nanocrystalline High Entropy Alloys: *Srinivasa Murty Budaraju*[1]; [1]IIT Madras

5:30 PM
Structural Evolution and Deformation Characteristics of Nanocrystalline Equiatomic AlCrCuCoFeNi High-entropy Alloy
: Ramya Sree Ganji[1]; *Koteswararao Rajulapati*[1]; [1]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 Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Tuesday PM
February 28, 2017

Room: Del Mar
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*[1]; Thomas Schuler[2]; Luca Messina[1]; Chu Chun Fu[1]; Frédéric Soisson[1]; Pär Olsson[3]; [1]CEA; [2]University of Illinois; [3]KTH

2:30 PM
Effect of Neutron Irradiation on the Microstructure of a Series of Fe-Cr Alloys: *Dhriti Bhattacharyya*[1]; Peter Wells[2]; Mukesh Bachhav[3]; Alan Xu[1]; Emmanuelle Marquis[3]; G. Robert Odette[2]; [1]ANSTO; [2]UCSB; [3]University of Michigan

2:50 PM
Diffusion Mechanisms of Solutes in Ferritic Steels: Effects ofIrradiation: Caroline Barouh[1]; *Chu-Chun Fu*[1]; Thomas Jourdan[1]; [1]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: *Philip Edmondson*[1]; Samuel Briggs[2]; Yukinori Yamamoto[1]; Ken Littrell[1]; Richard Howard[1]; Charles Daily[1]; Kurt Terrani[1]; Kumar Sridharan[2]; Kevin Field[1]; [1]Oak Ridge National Laboratory; [2]University of Wisconsin

3:30 PM
Strain and Self-ion Irradiation Changes in Cr Atoms Distribution in Fe-Cr Alloys: *Stanislaw Dubiel*[1]; Jan Zukrowski[1]; [1]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*[1]; Yong Dai[1]; Philippe Spatig[1]; Maximo Victoria[1]; [1]Paul Scherrer Institute

4:25 PM
APT Characterization of Post-irradiation Microstructural Changes in T91 Steel: Guma Yeli[1]; Maria Auger[1]; Steve Roberts[1]; Paul Bagot[1]; *Michael Moody*[1]; [1]University of Oxford

4:45 PM
Understanding Deformation Dynamics in Neutron-irradiated Fe-based Alloys with High-Energy X-rays: *Meimei Li*[1]; Xuan Zhang[1]; Yiren Chen[1]; Jonathan Almer[1]; Jun-Sang Park[1]; Peter Kenesei[1]; Hemant Sharma[1]; Yong Yang[2]; Chi Xu[2]; Lizhen Tan[3]; [1]Argonne National Laboratory; [2]University of Florida; [3]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*[1]; Chi Xu[2]; Meimei Li[1]; Jun-Sang Park[1]; Jonathan Almer[1]; [1]Argonne National Laboratory; [2]University of Florida; Argonne National Laboratory

5:25 PM
Radiation Effects in RAFM Steels: *Ermile Gaganidze*[1]; Christian Dethloff[2]; Benjamin Kaiser[2]; Jarir Aktaa[2]; Daniel Brimbal[3]; Mickaël Payet[3]; Lucile Beck[3]; [1]Karlsruhe Institute of Technology, Institute for Applied Materials ; [2]Karlsruhe Institute of Technology, Institute for Applied Materials; [3]CEA, DEN, Service de Recherches de Metallurgie Physique, Laboratoire JANNUS

5:45 PM
A Predictive Model for Irradiation-induced Nanocluster Evolution in b.c.c. Fe-based Alloys: *Matthew Swenson*[1]; Janelle Wharry[2]; [1]Boise State University; [2]Purdue University

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

Tuesday PM
February 28, 2017

Room: 24B
Location: San Diego Convention Center

Session Chairs: Mathias Göken, Universität Erlangen-Nürnberg; Christopher Schuh, MIT

2:00 PM Invited
Multilayered and Functionally Graded Materials for Optimized Galvanic Corrosion Protection: *Christopher Schuh*[1]; Samuel Cross[1]; [1]MIT

2:25 PM
High Temperature Plasticity of Cu-Cr Nanolayered and Chemically Nanostructured Cu-Cr Films: *Gerhard Dehm*[1]; T. Harzer[1]; C. Liebscher[1]; R. Raghavan[1]; [1]Max-Planck-Institut für Eisenforschung

2:45 PM Invited
Designing High Fracture Toughness Nanocomposites via In Situ TEM Approach: *Nan Li*[1]; Satyesh Yadav[1]; Xiang-Yang Liu[1]; Jian Wang[2]; Amit Misra[3]; Nathan Mara[1]; [1]Los Alamos National Laboratory; [2]University of Nebraska-Lincoln; [3]University of Michigan, Ann Arbor

3:10 PM
Laminar Bulk Metallic Glass/Metal Composites Via Accumulative Roll Bonding: *Sina Shahrezaei*[1]; Irene Beyerlein[2]; Stephanie O'Keeffe[3]; Suveen Mathaudhu[1]; [1]University of California, Riverside; [2]University of California, Santa Barbara; [3]Liquidmetal Technologies

3:30 PM Break

3:50 PM
Effect of Initial Oxide Layer on the Growth and Morphology of Intermetallic Layer in Fe-based MIL Composites: *Yu Wang*[1]; Kenneth Vecchio[2]; [1]North University of China; [2]University of California San Diego

4:10 PM Invited
Nanolaminated Structures in Metals Induced by Plastic Deformation with High Strain Rates and Strain Gradients: *Xiaochun Liu*[1]; Wei Xu[1]; Ke Lu[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

4:30 PM
Tailoring the Mechanical Properties of Nanolaminates Processed by Accumulative Roll Bonding: *Mathias Göken*[1]; Heinz Werner Höppel[1]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

4:50 PM Invited
The Development of Deformation Heterogeneity in Cu/Nb Lamellar Composites Predicted by Nonlocal Single Crystal Plasticity: *Jason Mayeur*[1]; Irene Beyerlein[2]; [1]Los Alamos National Laboratory; [2]University of California, Santa Barbara

5:15 PM
Iron-aluminum Metallic-intermetallic Laminate (MIL) Composites: *Haoren Wang*[1]; Yu Wang[2]; Kenneth Vecchio[1]; [1]University of California, San Diego; [2]Dalian University of Technology

Nanostructured Materials for Nuclear Applications II — Session IV

Program Organizers: Cheng Sun, Idaho National Laboratory; Khalid Hattar, Sandia National Laboratories ; Celine Hin , Virginia Tech; Fei Gao , University of Michigan; Osman Anderoglu , Los Alamos National Laboratory; Mitra Taheri , Drexel University; Haiming Wen , Idaho State University

Tuesday PM
February 28, 2017

Room: Pacific 24
Location: Marriott Marquis Hotel & Marina

Session Chairs: Haiming Wen, Idaho State University ; Celine Hin, Virginia Tech

2:00 PM Invited
Stability and Self-ion Irradiation Damage in Nanocrystalline Tungsten and Solute-stabilized Tungsten Alloys: *Jason Trelewicz*[1]; [1]Stony Brook University

2:30 PM Invited
The Two-step Nucleation of G-phase in Ferrite: The Critical Size and Composition for the Structural Change of Solute Clusters: *Yoshitaka Matsukawa*[1]; Tomoaki Takeuchi[2]; Yuta Kakubo[1]; Tomoaki Suzudo[2]; Hideo Watanabe[3]; Hiroaki Abe[4]; Takeshi Toyama[1]; Yasuyoshi Nagai[1]; [1]Tohoku University; [2]Japan Atomic Energy Agency; [3]Kyushu University; [4]The University of Tokyo

3:00 PM
Period-thickness Dependent Responses of Cu/W Multilayered Nanofilms to Ions Irradiation under Different Ion Energy: *Feng Ren*[1]; [1]Wuhan University

3:20 PM
Advanced Manufacturing of Nanostructured Ferritic Steels with Enhanced Irradiation Performance for Nuclear Applications: *Somayeh Pasebani*[1]; Indrajit Charit[1]; [1]University of Idaho

3:40 PM Break

4:00 PM
Computational Simulation of Threshold Displacement Energy of GaAs
: *Nanjun Chen*[1]; Sean Gray[1]; Fei Gao[1]; Danhong Huang[2]; David A Cardimona[2]; [1]University of Michigan; [2]US Air force Research Laboratory

4:20 PM
Thermal Conductivity of Uranium: *Eric Tea*[1]; Celine Hin[1]; [1]Virginia Tech

4:40 PM
First-principles Study of Nano-layered Ceramic Coatings for U-Mo/Al Dispersion Fuel: *Zhi-Gang Mei*[1]; Sumit Bhattacharya[2]; Abdellatif Yacout[1]; [1]Argonne National Laboratory; [2]Northwestern University

Pan American Materials Congress Plenary — Session II

Tuesday PM
February 28, 2017

Room: Marina G
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM Plenary
Circular Economy- A Pathway to Resource Recovery and Recycling: *Diran Apelian*[1]; [1]Worcester Polytechnic Institute

2:40 PM Plenary
"Nano-sized Precipitation in Fe-Cr Alloy Exposed to Wet Environment at High Temperature: *Fernando Rizzo*[1]; [1]PUC-Rio

3:20 PM Break

Pan American Materials Congress: Advanced Manufacturing — Metals and Alloys

Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Hotza, UFSC

Tuesday PM
February 28, 2017

Room: Marina D
Location: Marriott Marquis Hotel & Marina

Session Chair: Sonia Brühl, UTN

3:40 PM Keynote
Overview - The Use of Plasma Nitriding for Surface Hardening Stainless Steels: *Carlos Pinedo*[1]; Andre Tschiptschin[2]; [1]TMS; [2]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*[1]; John Roehling[1]; Patrice Turchi[1]; Jean-Luc Fattebert[1]; Joseph McKeown[1]; [1]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*[1]; Suman Das[1]; [1]Georgia Tech

5:00 PM
Tailoring the Mechanical Properties of Additively Manufactured Ti-6Al-4V Alloys by Post Processing: *Guney Mert Bilgin*[1]; Ziya Esen[2]; Seniz Kushan Akin[2]; Arcan Dericioglu[1]; [1]Middle East Technical University; [2]Cankaya University

5:20 PM
Effect of Tool Rotation on Tool Wear Phenomenon in Rotary Tool micro-USM: Sandeep Kumar[1]; Akshay Dvivedi[1]; *Pradeep Kumar*[1]; [1]Indian Institute of Technology, Roorkee

5:40 PM
Green Machining Process: Near-dry Electric Discharge Machining: Krishnakant Dhakar[1]; Kuldeep Chaudhary[1]; *Akshay Dvivedi*[1]; Pradeep Kumar[1]; [1]Indian Institute of Technology Roorkee

Pan American Materials Congress: Materials for Green Energy — Environmental Assessment of Green Energy

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[1]; Rodrigo Figueiredo[1]; *Versiane Leao*[1]; [1]Universidade Federal de Ouro Preto

4:00 PM
Environmental Impact of the Synthesis of Calcium Silicates (C2S AND C3S) by Combustion Processes: *Juan Restrepo*[1]; Oscar Restrepo[1]; Jorge Tobón[1]; [1]Universidad Nacional de Colombia

4:20 PM
Environmentally Responsible Polymer Selection for Organic Photovoltaic Solar Cells: *Haoyang He*[1]; Yadira Gutierrez[2]; Thomas Young[2]; Julie Schoenung[1]; [1]University of California Irvine; [2]University of California, Davis

4:40 PM
Electromagnetic Levitation Refining Of Silicon-iron Alloys for Generation of Solar Grade Silicon: *Yindong Yang*[1]; Katherine Le[1]; Mansoor Barati[1]; Alex McLean[1]; [1]University of Toronto

5:00 PM
Novel Metrics for Assessing Criticality of Byproduct Metals: Gabrielle Gaustad[1]; Michele Bustamante[2]; Berlyn Hubler[1]; Callie Babbitt[1]; *Alexandra Leader*[1]; [1]Rochester Institute of Technology; [2]MIT

5:20 PM
Technical and Environmental Assessment of an Alternative Binder for Low Traffic Roads with LCA Methodology: Alejandra Balaguera Quintero[1]; Diana Gómez Cano[1]; Gloria Carvajal Peláez[1]; *Yhan Arias*[2]; [1]Universidad de Medellín; [2]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
February 28, 2017

Room: Mission Hills
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*[1]; Hamid Jahed[1]; [1]University of Waterloo

4:00 PM
Effect of Forging on Microstructure, Texture and Compression Behaviour of Extruded AZ31B: *Dwayne Toscano*[1]; Sugrib Shaha[1]; Hamid Jahed[1]; Mary Wells[1]; Bruce Williams[2]; Jonathan McKinley[2]; [1]University of Waterloo; [2]CanmetMATERIALS

4:20 PM
Effects of Hypoeutectic Sc Additions to Al-4.5 wt% Cu under Different Cooling Rates: *Abdoul-Aziz Bogno*[1]; Jonas Valloton[1]; Hani Henein[1]; Mark Gallerneault[2]; Dieter Herlach[3]; [1]University of Alberta; [2]ALCERECO INC.; [3]DLR,Institute of Materials Physics in Space

4:40 PM
Microstructure and Hardness of Subzero Quenched and Heat Treated Ti-6Al-4V Alloy: *Abdelrahman Abbas*[1]; Andrew Seif[1]; Iman El Mahallawi[2]; Waleed Khalefa[2]; [1]British University in Egypt; [2]Cairo University

5:00 PM
Sheared Edge Stretchabilty of Dual Phase Steels and Aluminum Alloys: *Sergey Golovashchenko*[1]; Saeid Nasheralahkami[1]; Scott Dawson[1]; Nan Wang[1]; [1]Oakland University

5:20 PM
Understanding of Twin-twin Junctions in Connection with the Local Stresses in HCP Magnesium: *M. Arul Kumar*[1]; Irene J Beyerlein[1]; Carlos Tome[1]; [1]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
February 28, 2017

Room: Marina F
Location: Marriott Marquis Hotel & Marina

Session Chairs: Megumi Kawasaki, Hanyang University; Malgorzata Lewandowska, Warsaw University of Technology

3:40 PM
Effects on Hardness and Microstructure of AISI 1020 Low Carbon Steel Subjected to High-Pressure Torsion Process: Diana Marulanda[1]; *Hernando Jimenez*[1]; Jittraporn Wonsa-Ngam[2]; Terence Langdon[3]; [1]Universidad Antonio Nariño; [2]King Mongkut's Institute of Technology Ladkrabang; [3]University of Southampton

4:00 PM
Static and Cyclic Mechanical Properties of High Strength Pearlitic Steels: *Marlene Kapp*[1]; Anton Hohenwarter[2]; Bo Yang[1]; Reinhard Pippan[1]; [1]Erich Schmid Institute of Materials Science; [2]Montanuniversität Leoben

4:20 PM
The Influence of Testing Temperature on the Fracture Behavior of SPD-processed Iron and Tantalum
: *Anton Hohenwarter*[1]; [1]Department of Materials Physics, Montanuniversität Leoben, Austria

4:40 PM
Precipitation Processes and Related Strengthening Mechanisms in a Nanostructured 6082 Aluminium Alloy: *Malgorzata Lewandowska*[1]; Witold Chrominski[1]; [1]Warsaw University of Technology

5:00 PM
Strengthening Contributions on a Commercially Al-Mg-Si Alloy Processed by ECAP: Tarek Khelfa[1]; Mohamed Ali Rekik[1]; Jairo-Alberto Muñoz-Bolaños[2]; Mohamed Khitouni[1]; *Jose-Maria Cabrera*[2]; [1]University of Sfax; [2]Universidad Politecnica de Catalunya

5:20 PM
Effect of Grain Size on Strain Rate Dependence of Mechanical Properties in CP Ti: *Ying Chun Wang*[1]; Alexander Zhilyaev[2]; Shukui Li[1]; Terence Langdon[3]; [1]School of Materials Science and Engineering,Beijing Institute of Technology;National Key Laboratory of Science and Technology on Materials under Shock and Impact; [2]Institute for Problems of Metals Superplasticity, Russian Academy of Sciences;Research Laboratory for Mechanics of New Nanomaterials, St. Petersburg State Polytechnical University; [3]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
February 28, 2017

Room: Marina E
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

3:40 PM Invited
Jansto: New Generation Niobium Bearing Structural Steels for Future Infrastructure Demands: *Steven Jansto*[1]; [1]CBMM-North America, Inc.

4:10 PM
Controlling Mold Heat Transfer by Dispersed Metallic Particles in Slag Film during Continuous Casting of Steels: *Jungwook Cho*[1]; [1]Pohang University of Science and Technology

4:30 PM
Modeling of Metal-Slag Mass and Momentum Exchanges in Gas-Stirred Ladles: Marco Ramírez-Argáez[1]; *Carlos González-Rivera*[1]; [1]UNAM

4:50 PM
Dissolution of MgO Containing Additions in Steelmaking Slag and Its Impact on the Formation of Magnesiowustite: Antonio Augusto Martins[1]; Rafaela Batista[1]; Roberto Avillez[2]; *Andre Costa E Silva*[3]; [1]CSN; [2]PUC-RIO; [3]EEIMVR

5:10 PM
Study on Adjustment and Optimization of LF Refining Slag of Spring Steel 55SiCrA: Chao Gu[1]; *Yanping Bao*[1]; Lu Lin[1]; Min Wang[1]; Lihua Zhao[1]; Zixuan Wu[1]; [1]University of Science and Technology Beijing

5:30 PM
The Effect of Deoxidation Practice on Quality Characteristics of Converter Refined AISI 1006 Steel: Antonio Augusto Martins[1]; Rafaela Batista[1]; *Andre Costa E Silva*[2]; [1]CSN; [2]EEIMVR - Universidade Federal Fluminense

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Electronic Interconnection

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 PM
February 28, 2017

Room: 25A
Location: San Diego Convention Center

Session Chairs: Hiroshi Nishikawa, Osaka University; Jenn-Ming Song, National Chung Hsing University

2:00 PM Invited
Sintering of Nanoparticle-based Interconnections through Chemical and Photonic Means: *Jenn-Ming Song*[1]; Tsung-Yun Pai[1]; Guo-Lung Huang[1]; Sin-Yong Liang[1]; [1]National Chung Hsing University

2:20 PM
Ultra Thermal Stable Cu-to-Cu Interconnection: *Shih-kang Lin*[1]; Che-yu Yeh[1]; Mei-jun Wang[1]; Hao-miao Chang[1]; [1]National Cheng Kung University

2:40 PM
Ductile and Strong Cu-to-Cu Interconnection Using Ga-based Pastes for Applications on 3D IC and WBG Devices: *Che-yu Yeh*[1]; Yi-Kai Kuo[1]; Shih-kang Lin[1]; [1]National Cheng Kung University

3:00 PM
Transient Liquid Phase Bonding of Cu/In/Ni and Cu/In/Co and Phase Equilibria of Cu-In-Ni and Co-Cu-In Ternary Systems: Sinn-Wen Chen[1]; *Tsu-Ching Yang*[1]; Ji-Min Lin[1]; [1]National Tsing Hua University

3:20 PM
Oxide Growth Mechanism of (111), (100) and Random Copper Films at Low Temperatures for the Application of Cu-to-Cu Direct Bonding: *Chih Han Tseng*[1]; Chih Chen[1]; [1]National Chiao Tung University

3:40 PM Break

4:00 PM Invited
Formation and Growth of Intermetallic Compound Layer at the Lead-free Solder/Cu Interface Using Laser Soldering Process: *Hiroshi Nishikawa*[1]; Noriya Iwata[1]; Shinya Kubota[1]; [1]Osaka University

4:20 PM
Effects of Cu Concentration on the Mechanical Reliability of the Sn-Ag-Cu/Ni Solder Joints–Solid-state Reaction: *Cheng-En Ho*[1]; Ming-Kai Lu[1]; Pei-Tzu Lee[1]; Wan-Zhen Hsieh[1]; [1]Yuan Ze University

4:40 PM
Kinetics of Isothermal Reactive Diffusion between Solid Cu and Liquid Sn-base Alloys: *Minho O*[1]; Masanori Kajihara[1]; [1]Tokyo Institute of Technology

5:00 PM
Low Temperature Cu - Cu Direct Bonding for Hermetic Sealing: *Po-Fan Lin*[1]; Chih Chen[1]; [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
February 28, 2017 — 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*[1]; John Seidensticker[1]; Tyler Tenkku[1]; Linda Rishel[1]; Richard Smith[1]; [1]Bechtel Marine Propulsion Corporation

2:20 PM
Development of Various Scale Alpha Microstructures in Titanium Alloys: *Yufeng Zheng*[1]; Robert Williams[1]; Rongpei Shi[1]; Deep Choudhuri[2]; Talukder Alam[2]; Rajarshi Banerjee[2]; Yunzhi Wang[1]; Hamish Fraser[1]; [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 Mutombo*[1]; [1]CSIR

3:00 PM
Hydrostatic Compression Behavior and High-pressure Stabilized b-phase in g-based Titanium Aluminide Intermetallics: *Klaus-Dieter Liss*[1]; Xi Li[2]; Ken-Ichi Funakoshi[3]; Rian Dippenaar[2]; Yuji Higo[4]; Ayumi Shiro[5]; Mark Reid[1]; Hiroshi Suzuki[6]; Takahisa Shobu[6]; Koichi Akita[6]; [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*[1]; Mohamed Gouné[2]; Frédéric Danoix[3]; Sophie Cazottes[4]; Sergiu Curelea[4]; Myriam Dumont[1]; [1]Aix-Marseille Univ, CNRS, IM2NP; [2]CNRS, ICMCB; [3]Université de Rouen, CNRS, GPM; [4]MATEIS, INSA 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*[1]; Christian Schankies[1]; Celso Alves[1]; Dieter Senk[1]; [1]RWTH Aachen

4:20 PM
Phase Transformation Kinetics of Pressure-vessel Steel Welds: *Gideon Obasi*[1]; Dinesh Rathod[2]; Anastasia Vasileiou[2]; Ed Pickering[2]; John Francis[2]; Mike Smith[2]; Michael Preuss[2]; [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*[1]; Robert F. Cochrane[1]; Andrew M. Mullis[1]; [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
February 28, 2017 — Location: San Diego Convention Center

Session Chair: Paul Prichard, Kennametal Inc.

2:00 PM Invited
Pioneering International Consensus: *Brent Stucker*[1]; [1]3DSIM

2:30 PM Invited
Making Things Bit-by-byte: Opportunity in a Fortuitous Convergence of Technologies: *Khershed Cooper*[1]; Ralph Wachter[1]; [1]National Science Foundation

3:00 PM Invited
Early Developments of AM within the UK: *Phill Dickens*[1]; [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*[1]; David Keicher[2]; [1]Additive Manufacturing Materials Consultants; [2]Sandia National Laboratories

4:20 PM Invited
AFRL Contributions to Additive Manufacturing of Titanium, ca 2000: *Pamela Kobryn*[1]; Lee Semiatin[1]; [1]US Air Force Research Laboratory

4:50 PM Invited
ProcessFundamentals for Selective Laser Melting: Power Ratio, Melting, Porosity, and Build Properties: *Ralph Napolitano*[1]; [1]Iowa State University

Rare Metal Extraction & Processing — Base and Rare Metals

Program Organizers: Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhof, Umicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

Tuesday PM — Room: 17B
February 28, 2017 — 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: *Gregor Kücher*[1]; Stefan Luidold[1]; Christoph Czettl[2]; Christian Storf[2]; [1]CDL-TM; [2]CERATIZIT Austria GmbH

2:25 PM
A New Two-stage Process for Preparation of Ti/Ti-Al Alloys: Kun Zhao[1]; *Naixiang Feng*[1]; [1]Northeastern University

2:50 PM
Study on Pre-reduction Mechanisms of Chromium Ore Pellets in SRC Process: *Peixiao Liu*[1]; Yanxiang Li[1]; Hanjie Guo[1]; [1]University of Science and Technology Beijing

3:15 PM Break

3:35 PM
Sulfuric Acid Leaching of Mechanically Activated Vanadium-bearing Converter Slag: *Junyi Xiang*[1]; Qingyun Huang[2]; Xuewei Lv[1]; Chenguang Bai[1]; [1]School of Materials Science and Engineering, Chongqing University; [2]School of Materials and Metallurgical Engineering, Chongqing University of Science and Technology

4:00 PM
Present Status and Development of Comprehensive Utilization of Vanadium-Titanium Magnetite: Shiju Zhang[1]; Shiju Zhang[2]; Songli Liu[2]; *Wenhui Ma*[1]; Kuisong Zhu[2]; Li Cao[3]; Yongnian Dai[1]; [1]Faculty of Metallurgical and Energy Engineering, Kunming University of Science and Technology; [2]Resources and Environmental Engineering College of Panzhihua University; [3]Materials Science and Engineering College , Xihua University

4:25 PM
Review of TiO2-rich Materials Preparation for the Chlorination Process: *Songli Liu*[1]; Songli Liu[2]; Li Cao[2]; Li Cao[1]; Kuisong Zhu[1]; Shiju Zhang[3]; Shiju Zhang[1]; Pan Huang[2]; Pan Huang[1]; [1]Resources and Environmental Engineering College , Panzhihua University; [2]Materials Science and Engineering College , Xihua University; [3]Faculty of Metallurgical and Energy Engineering, Kunming University of Science and Technology

Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Functional Surfaces and Thin Films II

Program Organizers: Adele Carradò, 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
February 28, 2017
Room: Pacific 18
Location: Marriott Marquis Hotel & Marina

Session Chairs: Nuggehalli Ravindra, New Jersey Institute of Technology; Adele Carradò, Université de Strasbourg IPCMS

2:00 PM Keynote
Conducting Polymer/Nanocarbons Composites: New Opportunities And Scientific Challenges For Material Science: *Emanuela Tamburri*[1]; [1]University of Rome "Tor Vergata"

2:40 PM Invited
Quantification of SiC Nano Particles in Mg-SiC Composites Using USAXS Technique: *Prakash Srirangam*[1]; [1]University of Warwick

3:10 PM
Electrodeposition of Conductive Polymers on Diamond-coated Titanium Substrates: *Melania Reggente*[1]; Emanuela Tamburri[2]; Sara Politi[2]; Marco Natali[1]; Daniele Passeri[1]; Marco Rossi[1]; Maria Letizia Terranova[2]; [1]Sapienza University of Rome; [2]University of Rome "Tor Vergata"

3:30 PM Break

3:50 PM Invited
Printed Nanoparticle Films for Electronic Applications: Md Taibur Rahman[1]; Sadeq Saleh[1]; Arya Rahimi[1]; Subhanshu Gupta[1]; C. V. Ramana[1]; *Rahul Panat*[1]; [1]Washington State University

4:20 PM
Effect of Processing Parameters on Microstructure and Mechanical Properties of DC Magnetron Sputtered Ni-Zr Alloy Thin Films: *Bibhu Sahu*[1]; RAHUL MITRA[1]; [1]Indian Institute of Technology, Kharagpur

4:40 PM
Epitaxial Integration of Ba0.4Sr0.6TiO3/La0.7Sr0.3MnO3 Thin Film Heterostructures on Silicon: *Srinivasa Rao Singamaneni*[1]; John Prater[2]; Jay Narayan[2]; [1]University of Texas; [2]North Carolina State University

5:00 PM
Effect of Increase in the Zr Content on the Microstructural and Corrosion Properties of Nano-crystalline Cu-Zr Thin Films: *Vignesh Nallasivam*[1]; Madhuri Varadharajan[1]; Sivakumar Bose[2]; Geetha Priyadharsini B[3]; Angelo P C[1]; [1]PSG college of Technology; [2]CSIR-NML; [3]PSG Institute of Advanced Studies

The Science of Melt Refining: An LMD Symposium in Honor of Christian Simensen and Thorvald Abel Engh — TAE/CJS II Degassing and Oxidation

Program Organizers: John Grandfield, Grandfield Technology Pty Ltd; Anne Kvithyld, SINTEF

Tuesday PM
February 28, 2017
Room: 3
Location: San Diego Convention Center

Session Chair: Geoffrey Sigworth, retired

2:00 PM Invited
Overview of Ultrasonic Degassing Development: *Dmitry Eskin*[1]; [1]Brunel University

2:35 PM
Modelling of Hydrogen Removal in Gas Fluxing of Molten Aluminium: *Dag Mortensen*[1]; Jinsong Hua[1]; Arild Håkonsen[2]; Terje Haugen[2]; John Olav Fagerlie[2]; [1]Institute for Energy Technology; [2]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*[1]; Bruno Maltais[1]; Etienne Tremblay[1]; [1]STAS Inc.

3:25 PM Break

3:40 PM
Oxide Skin Strength on Molten AA5XXX Aluminum Alloy – Effect of Beryllium and Alternatives: *Martin Syvertsen*[1]; [1]SINTEF Materials and Chemistry

4:05 PM
Understanding of Interactions between Pyrolysis Gases and Liquid Aluminum and Their Impact on Dross Formation: *Regina Dittrich*[1]; Bernd Friedrich[1]; Georg Rombach[2]; Jan Steglich[3]; Anne Pichat[4]; [1]IME Process Metallurgy and Metal Recycling, RWTH Aachen University; [2]Hydro Aluminium Rolled Products GmbH; [3]TRIMET Aluminium SE; [4]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*[1]; Gabriella Tranell[1]; Anne Kvithyld[2]; Brian Gleeson[3]; [1]NTNU; [2]SINTEF Materials and Chemistry; [3]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
March 1, 2017
Room: Pacific 24
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*[1]; [1]California Institute of Technology

8:50 AM
Antimicrobial Clay-based Ceramic with Copper Nanoparticles Embedded in 3-D Porosity: Adam Drelich[1]; *Jaroslaw Drelich*[1]; [1]Michigan Technological University

9:10 AM
Engineered Bio-functional Silver Nanoparticle Interface Offers Antimicrobial Efficacy with Reduced Cellular Cytotoxicity: *Sarah VanOosten*[1]; Esra Yuca[1]; Banu Taktak Karaca[1]; Kyle Boone[1]; Malcolm Snead[2]; Paulette Spencer[1]; Candan Tamerler[1]; [1]University of Kansas; [2]University of Southern California

9:30 AM
Potential of Magnetotactic Bacteria for the Fabrication of Iron Nanoparticles: *T. Thuy Minh Nguyen*[1]; Manish Baviskar[1]; Paul Bernazzani[1]; [1]Lamar University

9:50 AM
Facile Green Synthesis and Characterization of Water-soluble Superparamagnetic Iron Oxide Nanoparticles-gold Porphyrin Conjugate for Improved Photodynamic Therapy: *Olayemi Fakayode*[1]; Oluwafemi Oluwatobi[1]; Sandile Songca[2]; [1]University of Johannesburg; [2]Walter Sisulu University

10:10 AM Break

10:30 AM
Silver Nanowire Heaters on Glass and Textiles: Sahin Coskun[1]; Orcun Ergun[1]; Doga Doganay[1]; Sevim Polat[1]; Yusuf Yusufoglu[2]; *Husnu Unalan*[1]; [1]Middle East Technical University; [2]Material 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 Xin*[1]; Igor De Rosa[1]; Jenn-Ming Yang[1]; Larry Carlson[1]; [1]UCLA

11:10 AM
Wetting Kinetics and Self-pinning of Nanosuspension Droplets: *Baiou Shi*[1]; Edmund Webb[1]; [1]Lehigh University

11:30 AM
Acoustic Foucsing for Bulk Assembly of Colloidal Solids from Nanoscale Building Blocks: Tyler Ray[1]; Rachel Collino[1]; Leanne Friedrich[1]; *Matthew Begley*[1]; [1]University of California, Santa Barbara

11:50 AM
Synthesis and Characterization of Polycaprolactone Nanofibers by Electrospinning Method with Hormone: *Cynthia Matos*[1]; Marivalda Pereira[2]; Rodrigo Oréfice[1]; [1]Federal University of Minas Gerais; [2]
Federal University of Minas Gerais

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Nanomaterials for ET 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
March 1, 2017

Room: Pacific 26
Location: Marriott Marquis Hotel & Marina

Session Chairs: Jung-Kun Lee, Univ. of Pittsburgh; Seungbum Hong, Argonne National Lab

8:30 AM
Synthesis and Characterization of Ag/CFO@PANI Core-shell Nanocomposite for Photocatalytic Application: Venkata Sai Sriram Mosali[1]; Mohd Qasim[1]; Bhanu Mullamuri[2]; Basavaiah Chandu[3]; *Dibakar Das*[1]; [1]University of Hyderabad; [2]Acharya Nagarjuna University ; [3]Acharya Nagarjuna University

8:50 AM
Anodic Synthesis, Functionalization, and Applications of Metal Oxide Nanotube Arrays: *York Smith*[1]; [1]University of Utah

9:10 AM
Diffusion Kinetics of Gold in TiO2 Nanotube Arrays for Formation of Au@ TiO2 Nanotube Arrays: Wanggang Zhang[1]; Wei Liang[1]; *Fuqian Yang*[2]; [1]Taiyuan University of Technology; [2]University of Kentucky

9:30 AM
Graphene Oxide Added Encapsulation Coating for Highly Stable Perovskite Solar Cells: *Gill Sang Han*[1]; Jin Sun Yoo[2]; Fangda Yu[1]; Matthew Lawrence Duff[1]; Hyun Suk Jung[2]; Jung-Kun Lee[1]; [1]University of Pittsburgh; [2]Sungkyunkwan University

9:50 AM
Embedded Chip-scale Electrochemical Double Layer Capacitors with Novel Functionalized Architecture and Tailored Ionic Liquid-based Electrolyte: *Jud Ready*[1]; Tyler Colling[1]; Stephan Turano[1]; [1]Georgia Institute of Technology

10:10 AM Break

10:30 AM Invited
Visualization of Polarization and Screening Charges Using Charge Gradient Microscopy: *Seungbum Hong*[1]; Andreas Roelofs[2]; [1]Argonne National Laboratory; KAIST; [2]Argonne National Laboratory

11:00 AM
Multilayer Graphene-coated Silicon Photoanodes: Keren Freedy[1]; Yin Xu[1]; Giovanni Zangari[1]; *Stephen McDonnell*[1]; [1]University of Virginia

11:20 AM
High-performance Supercapacitors Based on Hierarchical VOx Microspheres Forming from Hyperbranched Nanoribbons: *Chuang Wei*[1]; Hong-Yi Li[1]; Zhao Yang[1]; Bing Xie[1]; [1]Chongqing University

11:40 AM
Highly Porous Interconnected Carbon Nanosheets Derived from Jute Fibres for Supercapacitors and Li-ion Batteries: *Arghya Patra*[1]; Srijan Sengupta[1]; Arijit Mitra[1]; Karabi Das[1]; Siddhartha Das[1]; [1]Indian Institute of Technology, Kharagpur

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 Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim University

Wednesday AM
March 1, 2017

Room: 18
Location: San Diego Convention Center

Session Chairs: P. Chris Pistorius, Carnegie Mellon University; Ender Keskinkilic, Atilim 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 Hui[1]; *Sheikh Abdul Rezan*[1]; Noor Izah Shoparwe[1]; Norlia Baharun[1]; Srimala Sreekantan[1]; Ahmad Fauzi Mohd Noor[1]; [1]Universiti Sains Malaysia

8:55 AM
Cohering Behavior of Scrap Powder in Kiln by a Novel Natural Stacking Method: *Xiao-liang Liu*[1]; Yong-bin Yang[1]; Yan Zhang[1]; Qian Li[1]; Bin Xu[1]; Tao Jiang[1]; [1]Central South University

9:15 AM
Direct-to-blister Copper Smelting with the ISASMELT™ Process: *Paul Voigt*[1]; Alistair Burrows[1]; Michael Somerville[2]; Chunlin Chen[2]; [1]Glencore Technology; [2]CSIRO Mineral Resources

9:35 AM
Microwave-intensified Reduction of Biochar-containing Briquettes: *Zhiwei Peng*[1]; Xiaolong Lin[1]; Tiancheng Nie[1]; Zhizhong Li[1]; Yuanbo Zhang[1]; Guanghui Li[1]; Tao Jiang[1]; [1]Central South University

9:55 AM
Improving Separation of Cu-Fe from Copper Slag by Mineral Phase Reconstruction: *Zhengqi Guo*[1]; Deqing Zhu[1]; Jian Pan[1]; Feng Zhang[1]; [1]Central South University

10:15 AM Break

10:35 AM
Evaluation of Molybdenum Concentrates: Kagan Benzesik[1]; Seref Sonmez[1]; *Onuralp Yucel*[1]; [1]Istanbul Technical University

10:55 AM
Sensitivity of Contactless Ultrasound Processing to Variations of the Free Surface of the Melt with Induction Heating: Georgi Djambazov[1]; Valdis Bojarevics[1]; Dmytro Shevchenko[2]; David Burnard[2]; William Griffiths[2]; *Koulis Pericleous*[1]; [1]University of Greenwich; [2]University of Birmingham

11:15 AM
Extraction of Zinc from Willemite by Sodium Salt Roasting and Ammonia-leaching Process: *Xu Dong Liu*[1]; Gang hua Fu[1]; Yu Feng Guo[1]; Tao Jiang[1]; Wei Chen[1]; Yu jia Tan[1]; [1]Central South University

11:35 AM
Effect of Shrouding Gas on Nozzle Exit Pressure and Temperature of Supersonic Coherent Jet: *Fei Zhao*[1]; Lingzhi Yang[2]; [1]University of Science and Technology Beijing; [2]Central 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
March 1, 2017

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 King*[1]; Andrew Anderson[2]; Robert Ferencz[2]; Neil Hodge[2]; Chandrika Kamath[2]; Saad Khairallah[2]; Manyalibo Matthews[2]; Alexander Rubenchik[2]; Otis Walton[2]; Morris Wang[2]; [1]Lawrence Livermore National Laboratories; [2]Lawrence Livermore National Laboratory

9:00 AM
Multiscale Modeling of Coupled Melt Pool Evolution and Solidification Morphology in the LENS Process: *Matthew Rolchigo*[1]; Peter Collins[1]; Micheal Mendoza[1]; Richard LeSar[1]; [1]Iowa State University

9:20 AM
Three-dimensional Modeling of Grain Structure of an Aluminum Alloy during Additive Manufacturing
: *Huiliang Wei*[1]; T. DebRoy[1]; [1]Penn State University

9:40 AM
Process Window Optimization for Powder Bed Additively Manufactured Molybdenum: *Mustafa Megahed*[1]; Wolfgang Ottow[1]; Amanda Field[2]; Luke Carter[2]; Moataz Attallah[2]; Michael Gorley[2]; Michael Porton[2]; [1]ESI Group; [2]University 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 Carpenter*[1]; Donald Brown[1]; Bjorn Clausen[1]; Jason Cooley[1]; Adrian Losko[1]; Mark Bourke[1]; [1]Los Alamos National Laboratory

10:40 AM
Real Time Composition Control of Weld-based Additive Manufacturing: *Rachel Clark*[1]; [1]Michigan Technological University

11:00 AM
Effect of Laser Scan Strategy on Microstructure-property Relations in Additively Manufactured Stainless Steel: *Brandon McWilliams*[1]; Jian Yu[1]; Andrew Gaynor[1]; Tomoko Sano[1]; Andelle Kudzal[2]; [1]US Army Research Laboratory; [2]Worchester Polytechnic Institute

11:20 AM
Microstructure Control in Additive Manufacturing of Aluminum Alloys: *Hunter Martin*[1]; Brennan Yahata[2]; Eric Clough[2]; Jacob Hundley[2]; Tobias Schaedler[2]; Tresa Pollock[3]; [1]HRL Laboratories ; [2]HRL Laboratories; [3]University 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 Shamsujjoha*[1]; Sean Agnew[1]; James Fitz-Gerald[1]; [1]University of Virginia

12:00 PM
In Situ Structure and Microstructure Investigation of Heat Treatment's Effect on AM Inconel 625: *Fan Zhang*[1]; Lyle Levine[1]; Andrew Allen[1]; Eric Lass[1]; Sudha Cheruvathur[1]; Mark Stoudt[1]; Maureen Williams[1]; Yaakov Idell[1]; Greta Lindwall[1]; Carelyn Campbell[1]; [1]National 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 Bourell, University of Texas - Austin; Allison Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Wednesday AM
March 1, 2017

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 Madison*[1]; Laura Swiler[1]; Olivia Underwood[1]; Brad Boyce[1]; Bradley Jared[1]; Jeff Rodelas[1]; Brad Salzbrenner[1]; [1]Sandia National Laboratories

9:00 AM
ALE3D's High-Order Fully-Implicit All-Speed Navier-Stokes Solver for Additive Manufacturing Applications: Brian Weston[1]; *Jean-Pierre Delplanque*[1]; Robert Nourgaliev[2]; Andy Anderson[2]; [1]University of California, Davis; [2]Lawrence 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 Raghavan*[1]; Suresh Babu[1]; Damien Lebrun-Grandie[2]; Srdjan Simunovic[2]; Michael Kirka[2]; John Turner[2]; Neil Carlson[3]; Ryan Dehoff[2]; [1]University of Tennessee Knoxville; [2]Oak Ridge National Laboratory; [3]Los Alamos National Laboratory

9:40 AM
Residual Stress Control in Additive Manufacturing through Integration of Physics-based and Data-driven Modeling: Jingran Li[1]; Ran Jin[1]; *Hang Yu*[1]; [1]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: *Jason Fox*[1]; Mark Stoudt[1]; Thien Phan[1]; Zach Reese[1]; Shawn Moylan[1]; Brandon Lane[1]; Lyle Levine[1]; [1]National Institute of Standards and Technology

10:50 AM Invited
Toward a New Generation of Thermodynamic Models for Alloy Additive Manufacturing: *Richard Otis*[1]; Lourdes Bobbio[1]; Allison Beese[1]; Zi-Kui Liu[1]; [1]Pennsylvania State University

11:20 AM
SLM Process Variables and Part Geometry Optimization Based on Numerical Prediction of Process Induced Distortions: *Maria San Sebastian*[1]; Iñaki Setien[1]; Ane Miren Mancisidor[1]; Alberto Echeverria[1]; [1]LORTEK

11:40 AM
Optimizing, Fabricating and Characterizing Additively Manufactured Process Tubing: *Paul Korinko*[1]; Haley McKee[2]; John Bobbitt[1]; Frederick List[3]; Sudarsanam Babu[4]; [1]Savannah River National Laboratory; [2]Honeywell Federal Manufacturing and Technology ; [3]Oak Ridge National Laboratory; [4]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 Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Wednesday AM
March 1, 2017

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*[1]; Nicolas Combe[1]; Frédéric Mompiou[1]; [1]CEMES-CNRS

8:50 AM
Characterization of Dislocation Pile-ups at Special Angle Tilt Boundaries in Pure Nickel by Electron Channeling Contrast Imaging (ECCI) and Molecular Dynamics Simulations: *Shanoob Balachandran*[1]; James Seal[1]; Jialin Liu[1]; Yue Qi[1]; Martin Crimp[1]; [1]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: *Shaohua Liu*[1]; Chengpeng Liu[2]; Fang Liu[3]; Ping Yan[4]; Chongyu Wang[1]; Guozhen Zhu[3]; [1]Tsinghua University; [2]Beijing University of Technology; [3]Shanghai Jiao Tong University; [4]Central Iron and Steel Research Institute

9:30 AM
Dislocation Characterization in a Scanning Electron Microscope Equipped with an Annular STEM Detector: *Patrick Callahan*[1]; Jean-Charles Stinville[1]; McLean Echlin[1]; Eric Yao[1]; Mike Titus[1]; Dan Gianola[1]; Samantha Daly[1]; Tresa Pollock[1]; [1]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*[1]; Vincent Jacques[2]; Christoph Kirchlechner[3]; [1]Pprime Institute - University of Poitiers; [2]LPS; [3]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*[1]; David Fullwood[2]; Timothy Ruggles[3]; Brian Jackson[2]; Martin Crimp[1]; [1]Michigan State University; [2]Brigham Young University; [3]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*[1]; Till Clausmeyer[2]; Florian Gutknecht[2]; A. Erman Tekkaya[2]; Florian Nürnberger[1]; [1]Leibniz Universität Hannover; [2]TU Dortmund University

11:10 AM
Modeling Dislocation Arrays in Orientation Gradient Microstructures in Ta Thin Films: *Elizabeth Ellis*[1]; Ari Kestenbaum[1]; Shefford Baker[1]; [1]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*[1]; Richard Todd[1]; Angus Wilkinson[1]; [1]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 Militzer, The University of British Columbia

Wednesday AM
March 1, 2017

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*[1]; [1]MIT

9:00 AM
Advanced High Strength Steel Based on Vanadium Carbide Precipitation: *William Rainforth*[1]; Arjan Rijkenberg[2]; David Hanlon[2]; Peng Gong[1]; Alfonce Chamisa[2]; Andrew Patterson[1]; Francis Sweeney[1]; [1]The University of Sheffield; [2]Tata Steel Europe

9:20 AM
Appication of Nano-sized Precipiation in Strengthening Low Alloy Dual Phase Steel: *Tadashi Furuhara*[1]; Elango Chandiran[1]; Naoya Kamikawa[2]; [1]Tohoku University; [2]Hirosaki University

9:40 AM
Design of a Core-Shell Structure Carbide for Enhancing Toughness of UHS Steels: *Wei Xiong*[1]; Ye Tian[2]; Oleg Kontsevoi[2]; Gregory Olson[2]; [1]University of Pittsburgh; [2]Northwestern University

10:00 AM
Influences of Thermomechanical Treatments on the Microstructure Evolution and Mechanical Properties of Nano-precipitates Strengthened Steels: *Yu Zhao*[1]; Songsong Xu[1]; Hao Guo[1]; Junpeng Li[1]; Z.W. Zhang[1]; [1]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: *Poulumi Dey*[1]; Tobias Timmerscheidt[2]; Jörg von Appen[2]; Tilmann Hickel[1]; Richard Dronskowski[2]; Jörg Neugebauer[1]; [1]Max-Planck-Institut für Eisenforschung GmbH; [2]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. Zargaran*[1]; C. Nam[1]; S.-H. Kim[1]; Nack J. Kim[1]; [1]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*[1]; Zaloa Arechabaleta[1]; Arjan Rijkenberg[2]; Ad van Well[3]; Erik Offerman[1]; [1]Delft University of Technology; [2]Tata Steel Research, Development and Technology; [3]Reactor Institute Delft

11:40 AM
Effects of Solid Solution Treatment on the Microstructure and Mechanical Properties in the Ultra-high Strength Steel Strengthened by Nanoscale Particles: *Songsong Xu*[1]; Yu Zhao[1]; Hao Guo[1]; Mingxing Qiu[1]; Jing Zhang[1]; Junpeng Li[1]; Zhongwu Zhang[1]; [1]Harbin Engineering University

Advanced Materials for Energy Conversion and Storage — Energy Storage II

Program Organizer: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

Wednesday AM
March 1, 2017

Room: 15A
Location: San Diego Convention Center

Session Chairs: Partha Mukherjee, TAMU; Leela Arava, Wayne

8:30 AM Invited
In-situ X-Ray Diffraction Analysis of Li-ion Battery Materials: *Scott Speakman*[1]; [1]PANalytical

8:55 AM Invited
Mesoscale Probing of Transport-Interface Interaction in Lithium-Ion Battery Electrodes: *Partha Mukherjee*[1]; Aashutosh Mistry[1]; [1]Texas A&M University

9:20 AM
Novel Three Dimensional Porous Sn-Sb-Ni Anode on Ni Foam: Electrodeposition Synthesis and Lithium Storage Performance: *Srijan Sengupta*[1]; Arghya Patra[1]; Arijit Mitra[1]; Mainul Akhtar[1]; Karabi Das[1]; Subhasish Basu Majumder[1]; Siddhartha Das[1]; [1]IIT Kharagpur

9:40 AM Invited
Phase Field Studies of Mechanical and Electrochemical Behavior of Li-ion Battery Electrode Materials: *Bai-Xiang Xu*[1]; Ying Zhao[1]; Peter Stein[1]; [1]TU Darmstadt

10:05 AM Break

10:25 AM
Stable Li-Sn Electrode: *Jonathan Phillips*[1]; Tongli Lim[1]; Pol Vilas[2]; [1]Naval Postgraduate School; [2]Purdue University

10:45 AM Invited
Towards The Development of Solid-State Batteries: Addressing the Challenges in Replacing Liquid with Solid Electrolytes and Enabling Li Metal Anodes: *Jeff Sakamoto*[1]; [1]University of Michigan

11:10 AM
Studying Transport Mechanisms of Li in Graphite Polycrystals via Atomistic Simulations: *Christopher Shumeyko*[1]; Ed Webb[2]; [1]Lafayette College; [2]Lehigh University

11:30 AM
Inelastic Shape Changes of Silicon Particles and Stress Evolution at Binder/Particle Interface in a Composite Electrode during Lithiation/Delithiation Cycling: *Siva Nadimpalli*[1]; Vivek Shenoy[2]; Hailong Wang[2]; [1]New Jersey Institute of Technology; [2]UPenn

11:50 AM Invited
Electrocatalysis Approach to Lithium Sulfur Batteries: *Leela Mohana Reddy Arava*[1]; [1]Wayne 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
March 1, 2017

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 Donoghue*[1]; Robert Wheeler[2]; Bartlomiej Winiarski[1]; Albert Smith[1]; Alistair Garner[1]; Ziang li Zhong[1]; M. G. Burke[1]; Timothy Burnett[1]; Philip Withers[1]; [1]University of Manchester; [2]MicroTesting Solutions LLC

8:50 AM
Understanding the Local Ligament-level Deformation Response in Unit Cell Lattices: *H. Carlton*[1]; J. Lind[1]; N. Volkoff-Shoemaker[1]; M. Messner[1]; H. Barnard[2]; N. Barton[1]; M. Kumar[1]; [1]Lawrence Livermore National Laboratory; [2]Lawrence Berkeley National Laboratory

9:10 AM
Extraction of Crystal Plasticity Parameters of IN718 Using High Temperature Microcompression: *Bin Gan*[1]; Aitor Cruzado[2]; Marcos Jiménez[2]; Koldo Ostolaza[3]; Arantza Linaza[3]; Javier Segurado[2]; Javier Lloca[2]; Jon Molina[2]; [1]Northwestern Polytechnical University; [2]IMDEA Materials Institute; [3]Industria de TurboPropulsores

9:30 AM
In-Situ Thermo-mechanical Characterization of Serrated Flow in Nanostructured Binary Mg-Al Alloys: *Marta Pozuelo*[1]; Yuan-Wei Chang[1]; Sanjit Bhowmick[2]; Jaime Marian[1]; Jenn-Ming Yang[1]; [1]UCLA; [2]Hysitron, Inc.

9:50 AM Break

10:10 AM
In-SEM Microscale Mechanical Testing of Thin Film Plastic Flow and Interfacial Integrity: *Yang Mu*[1]; Xiaoman Zhang[1]; Wen Meng[1]; [1]Louisiana State University

10:30 AM
In-situ Analysis of the Tensile Deformation Modes and Anisotropy of Extruded Mg-10Gd-3Y-0.5Zr (wt.%) at Elevated Temperatures: Huan Wang[1]; *Carl Boehlert*[2]; Qudong Wang[1]; Dongdi Yin[3]; W Ding[1]; [1]Shanghai Jiao Tong University; [2]Michigan State University; [3]Southwest Jiaotong University

10:50 AM
Dislocation Shielding as a Function of Temperature in Microscale Silicon Bending Beams: *Eric Hintsala*[1]; Sanjit Bhowmick[1]; S. A. Syed Asif[1]; William Gerberich[2]; [1]Hysitron, Inc.; [2]University of Minnesota

Alumina & Bauxite — Non-traditional Resources

Program Organizer: Zhang Ting'an, Northeastern University

Wednesday AM
March 1, 2017

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'an*[1]; Guozhi Lv[1]; Long Wang[1]; Zhihe Dou[1]; Weiguang Zhang[1]; Yukun Huang[1]; Yanxiu Wang[1]; [1]Northeastern University

9:00 AM
Opportunities of Pseudoboehmite Processing from Aluminumcontent Raw Material at Sintering Method: *Rustam Seytenov*[1]; Evgeny Vlasov[2]; Natalia Maltseva[2]; Vadim Lipin[3]; [1]Outotec CIS; [2]St. Petersburg State Technological Institute (Technical University); [3]St. Petersburg Polytechnical University

9:25 AM
Chemical Alumina Preparation by Using High Alumina Content Fly Ash: *Guozhi Lv*[1]; Zhang Ting'an[1]; Weiguang Zhang[1]; Xiaofeng Zhu[1]; Yan Liu[1]; Long Wang[1]; Zhihe Dou[1]; Qiuyue Zhao[1]; [1]Northeastern University

9:50 AM
A Novel Process of Alumina Production from Low-grade Bauxite Containing Sulfur: *Bo Wang*[1]; Kai Zhao[1]; Huilan Sun[1]; Xuezheng Zhang[1]; Zepeng Li[1]; Hongyou Ma[1]; [1]Hebei University of Science and Technology

10:15 AM Break

10:30 AM
Iron Separation from Bauxite through Smelting-reduction Process: *Hanne Sellæg*[1]; Leiv Kolbeinsen[1]; Jafar Safarian[1]; [1]NTNU

10:55 AM
Thermodynamic Behavior of Lime Desulfurization in Sodium Aluminate Solution: *Wu Xianxi*[1]; Zhu Weidong[1]; Jiang Hongshi[1]; Wu Song[1]; [1]Guizhou University

Aluminum Alloys, Processing and Characterization — Solidification and Casting

Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Wednesday AM
March 1, 2017

Room: 4
Location: San Diego Convention Center

Session Chair: Shouxun Ji, Brunel niversity

8:30 AM Introductory Comments

8:35 AM
A Model for a-Al(Mn,Fe)Si Crystals: *Christian Simensen*[1]; Are Bjørneklett[1]; [1]SINTEF

9:00 AM
Casting Characteristics of High Cerium Content Aluminum Alloys: *David Weiss*[1]; Orlando Rios[2]; Zachary Sims[2]; Scott McCall[3]; Ryan Ott[4]; [1]Eck Industries, Inc.; [2]Oak Ridge National Laboratory; [3]Lawrence Livermore National Laboratory; [4]The Ames Laboratory

9:25 AM
In-situ Observation of Fragmentation of Primary Crystals by Ultrasonic Cavitation in Water: *Feng Wang*[1]; Iakovos Tzanakis[2]; Dmitry Eskin[1]; Jiawei Mi[3]; Thomas Connolley[4]; [1]Brunel University London; [2]Oxford Brookes University; [3]University of Hull; [4]Diamond Light Source

9:50 AM
The Enhancement of Mechanical Properties of A356 Alloy Solidified at Lower Cooling Rate via Effectively Grain Refinement: *Yijie Zhang*[1]; Shouxun Ji[1]; Zhongyun Fan[1]; [1]Brunel University

10:15 AM Break

10:30 AM
Secondary Aluminum Alloys Processed by Semisolid Process for Automotive Application: Fabrizio D'Errico[1]; *Davide Mattavelli*[1]; [1]Politecnico di Milano

10:55 AM
Integrated Casting-extrusion of an AA6082 Aluminum Alloy: *Shohreh Khorsand*[1]; Yan Huang[1]; [1]Brunel University London

11:20 AM
On Porosity Formation in Al-Si-Cu Cast Alloys: Fawzy Samuel[1]; *Agnes Samuel*[1]; Herbert Doty[1]; Salvador Valtierra[2]; [1]UQAC; [2]Nemak, S.A.

11:45 AM
Influence of Trace Element Additions on Fe Bearing Intermetallic Solidification of a 6063 Al Alloy: *Sundaram Kumar*[1]; Julian Malisano[1]; Yuri Ito[2]; Keyna O'Reilly[1]; [1]University of Oxford; [2]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
March 1, 2017

Room: 2
Location: San Diego Convention Center

Session Chair: Nancy Holt, Hydro Aluminium AS

8:30 AM Introductory Comments

8:35 AM
Influence of Handling Parameter on Powder Properties: Peter Hilgraf[1]; *Jan Paepcke*[2]; Arne Hilck[2]; [1]HAW University of Applied Science; [2]Claudius Peters Projects

9:00 AM
Spreading of Alumina and Raft Formation on the Surface of Molten Cryolite: *Csilla Kaszás*[1]; Laszlo Kiss[1]; Sandor Poncsak[1]; Jean-Francois Bilodeau[2]; Sebastien Guerard[2]; [1]Univeristé du Québec à Chicoutimi; [2]ARDC Rio Tinto Aluminium

9:25 AM
Fluoride Capture Capacity of SGA: The Interplay between Particle and Pore Size Distribution: *Gordon Agbenyegah*[1]; Grant McIntosh[1]; Margaret Hyland[2]; James Metson[3]; [1]Light Metals Research Center; [2]School of Engineering, University of Auckland; [3]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 Broek*[1]; Neal Dando[2]; Stephen Lindsay[3]; [1]Hatch Ltd; [2]Alcoa Technical Center (retired); [3]Alcoa Primary Metals

10:15 AM Break

10:30 AM
Pot Gas Treatment at High Gas Temperatures: *Anders Sorhuus*[1]; Sivert Ose[1]; [1]GE Power Norway

10:55 AM
Potroom HF Emission Reduction by Anode Inert Tray Technology Performances of ALRO Industrial 1st of Class: *Vincent Verin*[1]; El Hani Bouhabila[1]; Jérémy Neveu[1]; Serge Despinasse[2]; Gheorghe Dobra[3]; Marian Cilianu[3]; Fabienne Virieux[4]; [1]Fives Solios; [2]Fives ECL; [3]VIMETCO ALRO; [4]Fives Aluminium Division

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Pyrometallurgy II

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

Wednesday AM
March 1, 2017

Room: 15B
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 Padilla*[1]; Luis Salinas[1]; Maria Ruiz[1]; [1]University of Concepcion

8:50 AM
Natural Gas Utilization in Blast Furnace Ironmaking: Tuyère Injection, Shaft Injection and Prereduction: *P. Chris Pistorius*[1]; Jorge Gibson[1]; Megha Jampani[1]; [1]Carnegie Mellon University

9:10 AM
Selective Sulfation Roasting of Rare Earths from NdFeB Magnet Scrap: *Brett Carlson*[1]; Patrick Taylor[1]; [1]Colorado School of Mines

9:30 AM
Gold Solubility in Smelting Slags for the Recycling of Industrial and Mining Wastes: Jun-Gil Yang[1]; Hyun-Sik Park[2]; *Joohyun Park*[1]; [1]Hanyang University; [2]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*[1]; Petteri Halli[2]; Pekka Taskinen[2]; Amit Bhalla[1]; [1]University of the Witwatersrand; [2]Aalto University

10:30 AM
Stibnite Chloridizing with Calcium Chloride-oxygen at Roasting Temperatures: *Rafael Padilla*[1]; Ilitch Moscoso[1]; Maria Ruiz[1]; [1]University of Concepcion

10:50 AM
Experimental Measurement of the Surface Tension of the Molten Slag Bearing Ti2O3 by Sessile Drop Method: *Pingsheng Lai*[1]; Jinsheng Wang[1]; Xuewei Lv[1]; Yanhui Liu[1]; [1]Chongqing University

11:10 AM
Investigations on Rotary Tool Near-dry Electric Discharge Machining: Vineet Yadav[1]; *Pradeep Kumar*[1]; Akshay Dvivedi[1]; [1]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
March 1, 2017
Room: 19
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 Bjerre*[1]; Mohammed Azeem[2]; Niels Tiedje[1]; Jesper Hattel[1]; Peter Lee[2]; [1]Technical University of Denmark; [2]University of Manchester

8:50 AM
Effect of Solidification Parameters and Alloying Elements on Graphite Morphology in Ni-C Alloys: *Amir Ardalan Rezaie*[1]; Haamun Kalaantari[2]; Reza Abbaschian[1]; [1]University of California, Riverside; [2]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*[1]; Hideaki Sasaki[2]; Hisao Kimura[3]; Takeshi Yoshikawa[3]; Masafumi Maeda[3]; [1]University of Tokyo ; [2]Ehime University; [3]University of Tokyo

9:30 AM
Evolution of Microstructure in Directionally Solidified Compacted Graphite Iron: *Subhojit Chaktaborty*[1]; Amber Genau[1]; Charles Monroe[1]; [1]University of Alabama at Birmingham

9:50 AM
An Electron Microscopy Study of Graphite Growth in Nodular Cast Irons: *Rawen Jday*[1]; Lydia Laffont[1]; Jacques Lacaze[1]; [1]CIRIMAT

10:10 AM Break

10:30 AM
Discovery of New Grain Refiners Utilizing Crystallographic Data: *Hunter Martin*[1]; Brennan Yahata[2]; Tresa Pollock[1]; [1]University of California, Santa Barbara; [2]HRL Laboratories

10:50 AM
Mechanisms of Surface Stability in Al-Zn Coated Steel: *Matthew Gear*[1]; Kazuhiro Nogita[1]; Stuart McDonald[1]; Dongdong Qu[1]; David StJohn[1]; [1]University of Queensland

Bio-Nano Interfaces and Engineering Applications — Session V

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

Wednesday AM
March 1, 2017
Room: Pacific 21
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?: *Ratnesh Lal*[1]; [1]University California, San Diego

9:10 AM Invited
Toughness-Enhancing Linear Metastructure in the Recluse Spider's Nanoribbon Silk: *Hannes Schniepp*[1]; [1]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[1]; Karen Moodie[1]; P. Jack Hoopes[1]; *Ulrike Wegst*[2]; [1]Dartmouth College; [2]Dartmouth College

10:50 AM
Bio-Nano-Technology toward Smart Interfaces and Functional Hybrid Materials: *Candan Tamerler*[1]; [1]University of Greenwich

11:10 AM
Characteristics of von Willebrand Factor Adhesion on Collagen Surface under Flow: *Wei Wei*[1]; Chuqiao Dong[1]; Michael Morabito[1]; Xiaohui Zhang[1]; Wei Zhang[1]; Yan Xu[1]; Wenli Ouyang[1]; xuanhong cheng[1]; Edmund Webb[1]; Alparslan Oztekin[1]; [1]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
March 1, 2017
Room: Pacific 15
Location: Marriott Marquis Hotel & Marina

Session Chairs: Francois Barthelat, McGill University; Wen Yang, ETH Zurich

8:30 AM Invited
Bioinspired Design Strategies: *Joanna McKittrick*[1]; Steven Naleway[2]; Michael Frank[1]; Jay-Young Jung[1]; Frances Su[1]; Michael Porter[3]; [1]University of California, San Diego; [2]University of Utah; [3]Clemson University

9:00 AM
Revisiting Laminated Glass Using Bio-inspired Architectures: *Zhen Yin*[1]; Francois Barthelat[1]; [1]McGill University

9:20 AM Invited
Impact and Wear Resistant Biological Composites: Insight to Next Generation Multifunctional Materials: Nicholas Yaraghi[1]; Steven Herrera[1]; Lessa Grunenfelder[1]; Nobphadon Suksangpanya[2]; David Restrepo[2]; Enrique Escobar de Obaldia[2]; C. Jeong[2]; Richard Wuhrer[3]; Pablo Zavattieri[2]; *David Kisailus*[1]; [1]University of California Riverside; [2]Purdue University; [3]University of Western Sydney

9:50 AM Break

10:10 AM
Stretch-and-release Fabrication, Testing and Optimization of a Bioinspired Flexible Ceramic Armor: *Roberto Martini*[1]; Francois Barthelat[1]; [1]McGill University

10:30 AM
The Effect Moisture Content on Mechanical Properties of Lignin and Hemicellulose: *Sina Youssefian*[1]; Nima Rahbar[2]; [1]Worcester Polytechnic Institute ; [2]Worcester Polytechnic Institute

10:50 AM Invited
Lessons Learned from the Mighty Dactyl Club of the Mantis Shrimp: Nobphadon Suksangpanya[1]; Nicolas Guarin-Zapata[1]; Nick Yaraghi[2]; David Kisailus[2]; *Pablo Zavattieri*[1]; [1]Purdue University; [2]University of California Riverside

11:20 AM
The Effect of Freezing, Thawing, and Drying on the Tensile Strength of *Galleria mellonella* Silk: *Mary Glasper*[1]; Jane Batcheller[1]; Andrew Keddie[1]; John Nychka[1]; [1]University of Alberta

Bulk Metallic Glasses XIV — Structures and Mechanical Properties III

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 AM
March 1, 2017
Room: 33A
Location: San Diego Convention Center

Session Chairs: John Lewandowski, Case Western Reserve University; Wojciech Dmowski, University of Tennessee

8:30 AM Invited
Early Plasticity in Metallic Glasses: Dominik Tönnies[1]; Cynthia Volkert[1]; *Lin Tian*[2]; [1]University of Göttingen; [2]Universität Göttingen

8:50 AM
A Comparative Analysis of Metal-Ni-P Metallic Glasses Synthesized via Electroless Plating: *Phil Meagher*[1]; Manuel Abad[1]; David Browne[1]; [1]University College Dublin

9:10 AM
Thermal Structural Evolution of Zr-based Metallic Glasses and Liquids Investigated by High Energy X-ray Diffraction and Inelastic Neutron Scattering: *Zengquan Wang*[1]; Wojciech Dmowski[1]; Yang Tong[1]; Takeshi Egami[1]; Adam Vogt[2]; Kenneth Kelton[3]; [1]University of Tennessee, Knoxville; [2]Oak Ridge National Laboratory; [3]Washington University in St. Louis

9:30 AM Invited
Pressure Dependence in Mechanical Properties of Metallic Glasses near the Glass Transition: *Zachary Aitken*[1]; Mehdi Zadeh[1]; John Lewandowski[2]; Yong Wei Zhang[1]; [1]Institute of High Performance Computing, A*STAR; [2]Case Western Reserve University

9:50 AM Invited
Pressure-induced Structural Change in Liquid Eutectic Ga85.8In14.2 Alloy: *Qing Yu*[1]; Xiaodong Wang[1]; Yu Su[1]; Azkar Saeed Ahmad[1]; Qingping Cao[1]; Dongxian Zhang[1]; Jianzhong Jiang[1]; [1]Zhejiang University

10:10 AM Break

10:30 AM
Revealing Homogeneous Plastic Deformation in Ti-based Metallic Glass Composites with Dendrites under Tension: *Fufa Wu*[1]; [1]Liaoning University of Technology, China

10:50 AM Invited
Plasticity of In-situ Ti-based Metallic Glass Matrix Composites: *Jean-Marc Pelletier*[1]; S. Cardinal[1]; Jichao Qiao[2]; [1]INSA-Lyon; [2]Northwestern Poltechnical University

11:10 AM Invited
Homogeneous Plastic Deformation of Metallic Glasses at Room Temperature: *Yi Li*[1]; [1]Institute of Metal Research

11:30 AM
Investigation of the Stability of Newtonian Viscous Flow in Various Metallic Glass Systems: *Hyun Seok Oh*[1]; Chae Woo Ryu[1]; Eun Soo Park[1]; [1]Seoul National University

11:50 AM
Production of Zirconium Based Bulk Metallic Glass Sheet: *Daniel East*[1]; Nicholas Hutchinson[2]; Jim Yurko[2]; Robert Haun[3]; [1]CSIRO; [2]Materion; [3]Retech Systems

12:10 PM
Structure-property Relationships in Nanoporous Metallic Glasses: *Daniel Sopu*[1]; Celal Soyarslan[2]; Mihai Stoica[1]; Jürgen Eckert[3]; [1]IFW Dresden; [2]Hamburg University Technology; [3]Erick Schmid Institute of Materials Science

Cast Shop Technology — DC Casting and Macrosegregation

Program Organizer: David Gildemeister, Alcoa Technical Center

Wednesday AM
March 1, 2017
Room: 1A
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 Zhang*[1]; [1]Wagstaff Inc

9:00 AM
Critical Role of Thermal Management during Cast Start-up of DC Casting Process: André Larouche[1]; *Sabrina Guy*[1]; Josée Colbert[1]; [1]Rio Tinto Aluminium

9:25 AM
Modelling and Analysis of a Horizontal Direct Chill Casting Process: *Garðar Garðarsson*[1]; Þröstur Guðmundsson[2]; Magnus Jonsson[3]; Halldor Palsson[3]; [1]Alcoa Fjarðaál; [2]Reykjavik University; [3]University of Iceland

9:50 AM
Casting of Sound, Large Diameter 7050 Billets: *Kjerstin Ellingsen*[1]; Mohammed M'Hamdi[1]; [1]SINTEF

10:15 AM Break

10:30 AM
Circulation of Grains during Ingot Casting: *Carolyn Joseph*[1]; Samuel Wagstaff[1]; Antoine Allanore[1]; [1]Massachusetts Institute of Technology

10:55 AM
Minimization of Macrosegregation through Jet Erosion of a Continuously Cast Ingot: *Samuel Wagstaff*[1]; Antoine Allanore[1]; [1]Massachusetts Institute of Technology

11:20 AM
Full Size Measurement and Simple Prediction on Macro Segregation of Aluminum Alloys Elements in Industrial DC Casting Slab: *Tatsuya Yamada*[1]; Nobuhito Ishikawa[1]; Takashi Kubo[1]; Koichi Takahashi[1]; [1]UACJ Corporation

11:45 AM
Ultrasonic Assisted Reduction of Hot-tearing during High-speed DC Casting of 6000 Series Aluminum Alloys: *Sergey Komarov*[1]; Yasuo Ishiwata[2]; Yoshihiro Takeda[2]; [1]Tohoku University; [2]Nippon Light Metal Co.ltd

Ceramic Materials for Nuclear Energy Research and Applications — Non-oxide Ceramics for Nuclear Applications I

Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Wednesday AM
March 1, 2017

Room: Palomar
Location: Marriott Marquis Hotel & Marina

Session Chairs: Xianming Bai, Virginia Tech; Yong Yang, University of Florida

8:30 AM Invited
Progress in Development of Non-Oxide Ceramic Nuclear Fuels: *Andrew Nelson*[1]; [1]LANL

9:00 AM Invited
Radiation-Stability of Zirconium Carbide and Nitride Ceramics for Advanced Fuel Cycles: *Yong Yang*[1]; [1]University of Florida

9:30 AM
Spark Plasma Sintering of Boron Carbide Ceramics for Nuclear Applications: *Meral Cengiz*[1]; Onuralp Yucel[1]; Gultekin Goller[1]; Bulent Buyuk[1]; Asiye Tugrul[1]; Filiz Sahin[1]; [1]Istanbul Technical University

9:50 AM Break

10:10 AM Invited
Ionization-Induced Damage Annihilation in Silicon Carbide: *Yanwen Zhang*[1]; Haizhou Xue[2]; Ritesh Sachan[1]; Olli Pakarinen[1]; Matthew Chisholm[1]; Peng Liu[3]; William Weber[2]; [1]Oak Ridge National Laboratory; [2]University of Tennessee; [3]Shandong University

10:40 AM
Multi-scale Modeling of Fracture Behavior in SiC with a Phase Field Fracture Model: *Shuaifang Zhang*[1]; Michael Tonks[1]; [1]Pennsylvania State University

11:00 AM
A TEM Study of Microstructure of Hi-Nicalon Type S SiC Composite beyond Ultimate Shear Strength: *Yun Yang*[1]; Mehdi Balooch[1]; Joseph Kabel[1]; Cameron Howard[1]; David Frazer[1]; Peter Hosemann[1]; [1]University of California, Berkeley

11:20 AM
Micro-Mechancial Interphase Property Evaluation for SiC-SiC Composites: *Joseph Kabel*[1]; Mehdi Balooch[1]; Yun Yang[1]; Kurt Terrani[2]; Takaaki Koyanagi[2]; Peter Hosemann[1]; [1]University of California Berkeley; [2]ORNL

Characterization of Minerals, Metals, and Materials — Minerals

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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

Wednesday AM
March 1, 2017

Room: 31B
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*[1]; Kayode Oluwabunmi[2]; [1]Obafemi Awolowo University; [2]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*[1]; Amauche Achusim[1]; Martin Ogwuegbu[1]; Christogonus Akalezi[1]; Goddy Onuoha[1]; [1]Federal University of Technology, Owerri

9:10 AM
Industrial Use of Brazilian Bentonite Modified by Mild Acid Attack: *Christiano Gianesi Bastos Andrade*[1]; Danilo Marin Fermino[1]; Marcos Gonzales Fernandes[1]; Francisco Rolando Valenzuela Diaz[1]; [1]University of São Paulo

9:30 AM
Mullitization Characteristics and Sinterability of Kyanite in Ceramic Preparation: Huaguang Wang[1]; *Bowen Li*[1]; Mengsheng He[2]; Jiann-Yang Hwang[1]; [1]Michigan Technological University; [2]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*[1]; Karla Simões[2]; Luiz Carlos Bertolino[3]; Bruna Novo[2]; Julio Afonso[1]; Adriana Felix[4]; [1]IQ/UFRJ; [2]IQ-UFRJ/CETEM; [3]CETEM; [4]CMAR-IFRJ

10:10 AM Break

10:25 AM
Temperature Dependence of the Dielectric Properties of Kaolin: *Csaki Stefan*[1]; Patrik Dobron[1]; Igor Stubna[2]; Libor Vozar[2]; Viera Trnovcova[2]; Jan Ondruska[2]; [1]Charles University in Prague; [2]Constantine the Philosopher University in Nitra

10:45 AM
Synthesis and Characterization of Sodalite and Cancrinita from Kaolin: Fernanda Silva[1]; Fabiano Passos[2]; Karoline Ferreira[2]; *Adriana Felix*[3]; Carla Barbato[4]; Karla Simões[5]; Francisco Garrido[6]; Luiz Bertolino[7]; Danielle Castro[6]; [1]IQ/UFRJ ; [2]EQ-UFRJ/CETEM; [3]IFRJ-CMAR; [4]EQ-UFRJ; [5]IQ-UFRJ/CETEM; [6]IQ/UFRJ; [7]CETEM

11:05 AM
Characterization of a Sienite Rock from Tanguá/Brazil as a Source of Potassium to the Agriculture: *Adriana Felix*[1]; Thuanny Soares[1]; Fernanda da Silva[2]; Fernanda Pontes[2]; Carla Barbato[3]; Adão da Luz[4]; [1]IFRJ; [2]IQ-UFRJ; [3]EQ-UFRJ; [4]CETEM

11:25 AM
Characterization of High Performance Toothpaste Abrasive Derived from Perlite: *Bo Wang*[1]; [1]Imerys

11:45 AM
Effect of Mechanical Activation on the Structural Properties of Vanadium Slag: *Qingyun Huang*[1]; Shengde Dong[1]; [1]Chongqing University of Science and Technology

12:05 PM
Technological Characterization of Waste from Gold Mining Dam: *Fernanda Silva*[1]; Vanessa Silva[2]; Zuleica Castilhos[3]; Fabiano Passos[4]; Roberto Faria[1]; Lillian Domingos[3]; [1]IQ/UFRJ; [2]IQ-UFRJ/CETEM; [3]CETEM; [4]EQ-UFRJ/CETEM

Computational Approaches to Materials for Energy Applications — Session I

Program Organizer: Laurent Chaput, LEMTA

Wednesday AM
March 1, 2017

Room: 8
Location: San Diego Convention Center

Session Chair: Laurent Chaput, Lorraine University

8:30 AM Invited
Visual Search Strategies for Thermoelectrics: *David Singh*[1]; [1]University of Missouri

9:00 AM Invited
First Principles Calculations of the Stability and Physical Properties of Thermoelectric Materials: *Philippe Jund*[1]; Kinga Niedziolka[1]; Alexandre Berche[1]; Patrick Hermet[1]; Jean-Claude Tédenac[1]; [1]ICGM-Montpellier University

9:30 AM Invited
Accelerated Discovery of Novel Low-thermal-conductivity Crystals by First-principles Data-driven approach
: *Isao Tanaka*[1]; [1]Kyoto University

10:00 AM Break

10:20 AM Invited
Monte Carlo Modeling of Phonon Transport in Nanostructures: *David Lacroix*[1]; [1]University of Lorraine

10:50 AM
Tuning Thermal Conductivity of Metal-Organic–Frameworks: *Luping Han*[1]; Wenxi Huang[1]; Agnieszka Truszkowska[1]; P. Greaney[2]; [1]OSU; [2]UCR

11:10 AM
Atomistic Study of the Synergistic Effects of Helium and Hydrogen Bubbles in Nickel: *Edmanuel Torres*[1]; Colin Judge[1]; Jeremy Pencer[1]; Lori Walters[1]; [1]Canadian Nuclear Laboratories

Computational Materials Discovery and Optimization – From Bulk to Materials Interfaces and 2D Materials — Mechanical 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

Wednesday AM
March 1, 2017

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 Groger*[1]; [1]Academy of Sciences of the Czech Republic

8:50 AM
Dislocation Core Structures in FCC Ni and L1$_2$ Ni$_3$Al Computed Using Density Functional Theory Based Flexible Boundary Condition Approach: *Anne Marie Tan*[1]; Christopher Woodward[2]; Dallas Trinkle[1]; [1]Univ. Illinois, Urbana-Champaign; [2]Air Force Research Laboratory

9:10 AM
Efficient Multi-step Optimization for Materials Design and Discovery: *Thien Duong*[1]; Anjana Talapatra[1]; Raymundo Arroyave[1]; [1]Texas A&M University

9:30 AM
A New Class of Hyperuniform Heterogeneous Material with Superior Mechanical Properties via Stochastic Optimization
: *Yaopengxiao Xu*[1]; [1]Arizona State University

9:50 AM
Efficient Screening for High Strength, Superelastic Alloys: *Ian Winter*[1]; Daryl Chrzan[1]; [1]University of Calfifornia, Berkeley

10:10 AM Break

10:25 AM
Modeling Deformation and Recrystallization Textures Using Viscoplastic Self-consistent Polycrystal Plasticity: *Miroslav Zecevic*[1]; Ricardo Lebensohn[2]; Rodney McCabe[2]; Marko Knezevic[1]; [1]University of New Hampshire; [2]Los Alamos National Laboratory

10:45 AM
Microstructure Evolution in Ni materials: Annealing-Detwinning due to Thermal Fluctuation of Incoherent Twin Boundary: *Hao Sun*[1]; Chandra Singh[1]; [1]University of Toronto

11:05 AM
First Principle Investigation of Electrical Conductivity and Phase Stability of Al-Zn-Ni Alloy for Precipitation Hardening: *Oladeji Fadayomi*[1]; Gregory Odegard[1]; Paul Sanders[1]; [1]Michigan Tech University

11:25 AM
Graph Spectra and Grain Boundary Network Design: *Oliver Johnson*[1]; [1]Brigham Young University

11:45 AM
Topology Optimization for Composite Wear: *Natasha Vermaak*[1]; [1]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 naional Laboratory

Wednesday AM
March 1, 2017

Room: 10
Location: San Diego Convention Center

Funding support provided by: TMS Chemistry and Physics of Materials Committee

Session Chairs: Jeff Doak, QuesTek Innovations; Fadi Abdeljawad, Sandia National Laboratories

8:30 AM Invited
Information-theoretic Tools for Uncertainty Quantification of High Dimensional Stochastic Models: *Petr Plechac*[1]; [1]University of Delaware

9:00 AM
Numerical Simulation of Electomagnetic Field, Flow Field, and Temperature Field in Secondary Cooling Zone of Round Billet under the Impact of Pulsed Magneto-oscillation: *Junli Hao*[1]; Yunhu Zhang[1]; Honggang Zhong[1]; Zhishuai Xu[1]; Renxing Li[1]; Qijie Zhai[1]; [1]Shanghai University

9:20 AM Invited
Uncertainty Quantification in Density Functional Theory: Non-intrusive vs. Intrusive Methodologies: *David Mebane*[1]; Wilfredo Ibarra-Hernandez[1]; Aldo Romero[1]; [1]West Virginia University

9:50 AM Break

10:10 AM Invited
Uncertainty Quantification, Molecular Dynamics, and the Glass-Transition Temperature of Aerospace Polymers: *Andrew Dienstfrey*[1]; Paul Patrone[1]; [1]National Institute of Standards and Technology

10:40 AM Invited
Using Information Geometry to Relate Parametric Uncertainty and Model Predictivity: *Mark Transtrum*[1]; [1]Brigham Young University

11:10 AM
Using Metropolis-Hasting Algorithm to Calibrate NiTi Precipitation Model Implemented in MatCalc© Code: *Pejman Honarmandi*[1]; Raymundo Arroyave[1]; Luke Johnson[1]; [1]Texas A&M University

Computational Thermodynamics and Kinetics — Materials Physics

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 AM
March 1, 2017

Room: 11B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
Piezoelectric Gold - Exploiting Mechano-Chemical Coupling at Interfaces for Designing Novel Functional Materials: Charlotte Stenner[1]; Anja Michl[1]; *Jörg Weissmüller*[1]; [1]Hamburg University of Technology

9:00 AM
Phonon Thermodynamics of Silicon: *Dennis Kim*[1]; Olle Hellman[1]; Hillary Smith[1]; Jiao Lin[2]; Jane Herriman[1]; Jennifer Niedziela[2]; Douglas Abernathy[2]; Brent Fultz[1]; [1]Caltech; [2]Oak Ridge National Laboratory

9:20 AM
Vibrational Entropy from Thermally-Driven Electronic Topological Transitions: *Fred (Chae-Reem) Yang*[1]; Jorge Muñoz[2]; Olle Hellman[1]; Lisa Mauger[1]; Matthew Lucas[3]; Sally Tracy[1]; Brent Fultz[1]; [1]California Institute of Technology; [2]The Datum Institute; [3]Air Force Research Laboratory

9:40 AM Invited
Anharmonic Phonon Effects in Wurtzite and Zincblende GaN: *Jane Herriman*[1]; Olle Hellman[1]; Brent Fultz[1]; [1]Caltech

10:10 AM Break

10:25 AM
Single and Poly- Crystal Elastic Constants of Nickel and Ni-H_x Alloys at Finite Temperature from Experiments and First Principles Calculations: *Guillaume Hachet*[1]; Arnaud Metsue[1]; Abdelali Oudriss[1]; Marc Huger[2]; Xavier Feaugas[1]; [1]University of La Rochelle; [2]University of Limoges

10:45 AM
Thermotransport in Binary Liquid Alloys: *Graeme Murch*[1]; Tanvir Ahmed[1]; Ujjal Sarder[1]; Elena Levchenko[1]; Alexander Evteev[1]; Irina Belova[1]; [1]The University of Newcastle

11:05 AM
A One-Mode Phase-Field Crystal Model Quantified for Solid-Liquid Coexistence of FCC and HCP Metals: *Ahmad Nourian Avval*[1]; Ebrahim Asadi[1]; [1]University of Memphis

11:25 AM
Effects of Magnetism on the Vibrational Entropy of Iron and Cementite: *Brent Fultz*[1]; Lisa Mauger[2]; Jane Herriman[1]; Olle Hellman[1]; Matthew Lucas[1]; Sally Tracy[3]; [1]California Institute of Technology; [2]Arete Associates; [3]Princeton Univ.

11:45 AM
Heat Transport at Interface in the Metal-Organic-Frameworks MOF-5: *Wenxi Huang*[1]; Peter Greaney[1]; [1]University of California-Riverside

Defects and Properties of Cast Metals — Cast Iron & Steel

Program Organizers: Mark Jolly, Cranfield University; Charles Monroe, University of Alabama; Brian Thomas, Colorado School of Mines; Peter Lee, University of Manchester

Wednesday AM
March 1, 2017

Room: 23A
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Introductory Comments

8:35 AM Invited
In-situ Observation of Spheroidal Graphite Formation and Measurement of Apparent Volume Expansion in Ductile Cast Iron: *Hideyuki Yasuda*[1]; Akira Sugiyama[2]; Kohei Morishita[1]; Tomoya Nagira[3]; Masato Yoshiya[3]; Kentaro Uesugi[4]; Akihisa Takeuch[4]; [1]Kyoto University; [2]Osaka Sangyo University; [3]Osaka University; [4]JASRI / Spring-8

8:55 AM
X-ray Synchrotron Tomographic Investigation of Graphite Evolution in Near Eutectic Cast Irons: *Mohammed Azeem*[1]; Mathias Bjerre[2]; Niels Tiedje[2]; Robert Atwood[3]; Peter Lee[1]; [1]Manchester University; [2]Technical University of Denmark; [3]Diamond Light Source

9:15 AM
Microstructural Characterization of Graphite Nodules in Fatigue-tested Ductile Cast Iron: *Søren Fæster*[1]; Yubin Zhang[1]; Niels Hansen[1]; Dorte Juul Jensen[1]; [1]Technical University of Denmark

9:35 AM
Effect of Molybdenum Content, Pouring Temperature and Cooling Rate on the Casting Defects of High Chromium White Cast Iron: *Izudin Dugic*[1]; [1]Linnaeus University

9:55 AM
Numerical Predictions of Local Residual Stresses around Individual Graphite Nodules in Ductile Iron and Experimental Validation: *Tito Andriollo*[1]; Niels Tiedje[1]; Jesper Thorborg[2]; Jesper Hattel[1]; [1]Technical University of Denmark; [2]Magma GmbH

10:15 AM Break

10:35 AM Invited
Nucleation and Growth of Graphite in Ductile Cast Iron - Coupling between Experiments and Modelling: *Niels Tiedje*[1]; Mathias Bjerre[1]; Mohammed Azeem[2]; Jesper Hattel[1]; Peter Lee[2]; [1]Technical University of Denmark; [2]The University of Manchester

10:55 AM
Effect of Various Aluminum Content on the Formation of Inclusion: Yan Luo[1]; *Lifeng Zhang*[1]; Yang Wen[1]; Ping Shen[1]; [1]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*[1]; Davood Shahriari[1]; Abdelhalim Loucif[1]; Mohammad Jahazi[1]; Louis-Philippe Lapierre-Boire[2]; Rami Tremblay[2]; [1]L`École de Technologie Supérieure de Montréal; [2]Finkl Steel - Sorel

11:35 AM
Non-metallic Inclusions and Precipitates in High Quality Steels: *Lifeng Zhang*[1]; Seetharaman Sridhar[2]; [1]University of Science and Technology Beijing; [2]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, Universe of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Wednesday AM
March 1, 2017

Room: 23B
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 Lebensohn*[1]; Alan Needleman[2]; [1]Los Alamos National Laboratory; [2]Texas A&M University

8:50 AM
Investigating Deformation at Grain Boundaries by SEM-DIC: *Zhe Chen*[1]; Samantha Daly[1]; [1]University of Michigan

9:10 AM Invited
Residual Stress and Dislocation Density Distributions near Grain Boundaries in Deformed Materials: *Angus Wilkinson*[1]; Jun Jiang[2]; T Ben Britton[2]; David Wallis[1]; Lars Hansen[1]; [1]University of Oxford; [2]Imperial College London

9:30 AM
Role of Grain Boundary Sliding in Deformation of Polycrystalline Materials

: *Ajey Venkataraman*[1]; Marissa Linne[2]; Samantha Daly[3]; Michael Sangid[1]; [1]Purdue University; [2]University of Michigan; [3]University of California, Santa Barbara

9:50 AM Invited
Crystallographic Rotation, Deformation, and Damage: *Jay Carroll*[1]; Hojun Lim[1]; Brad Boyce[1]; Corbett Battaile[1]; Blythe Clark[1]; [1]Sandia National Laboratories

10:10 AM Break

10:30 AM Invited
Statistical Analysis of Grain Boundary Structure-Property Relationships: *Srikanth Patala*[1]; [1]North Carolina State University

10:50 AM Invited
A Non-local Continuum Mechanics Treatment of the Dynamics of Interfaces: *Laurent Capolungo*[1]; [1]Los Alamos National Laboratory

11:10 AM Invited
Nanoscale Strain Mapping at Interfaces Using Scanning Nanobeam Electron Diffraction: *Andrew Minor*[1]; [1]UC Berkeley & LBL

11:30 AM
Polycrystalline Plasticity Simulations with Anisotropic Discrete Dislocation Dynamics: *John Graham*[1]; Anthony Rollett[2]; Richard LeSar[1]; [1]Iowa State University; [2]Carnegie Mellon University

11:50 AM Invited
Quantification of Dislocation Behavior and Deformation Twinning at High Strain Rates: *Mitra Taheri*[1]; Shang-Hao Huang[1]; Evan Kahl[1]; Asher Leff[1]; Christopher Barr[1]; Logan Shanahan[1]; JP Liu[2]; Yong Zhang[2]; Leslie Lamberson[1]; [1]Drexel University; [2]University of Science & Technology Beijing,

12:10 PM Invited
The Effect of Microstructure on Strain Localisation in Two-phase Ti-alloys: *Michael Preuss*[1]; David Lunt[1]; Joao Quinta da Fonseca[1]; [1]University of Manchester

Electrode Technology — Baking Furnace/Electrode Design

Program Organizer: Houshang Alamdari, Laval University

Wednesday AM
March 1, 2017

Room: 1B
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 Maiwald*[1]; Domenico Di Lisa[1]; Frank Heinke[1]; Florian Krummrich[1]; [1]Innovatherm

9:00 AM
Formation of Carbon Build-Up on the Flue Wall of Anode Baking Furnace: *Zhaohui Wang*[1]; Arne Petter Ratvik[1]; Tor Grande[2]; Stein Rørvik[1]; [1]SINTEF Materials and Chemistry; [2]Norwegian University of Science and Technology

9:25 AM
Investigation of Spent Refractory Lining in an Anode Baking Furnace: *Trond Brandvik*[1]; Zhaohui Wang[2]; Arne Petter Ratvik[2]; Tor Grande[1]; [1]Norwegian University of Science and Technology, NTNU; [2]SINTEF Materials and Chemistry

9:50 AM
25 Years of Naural Gas Purged Infrared Pyrometer Temperature Measurement For The Operation Of Open-Top Anodes Baking Furnaces: *Yvon Menard*[1]; [1]Retired Process Specialist

10:15 AM Break

10:30 AM
Impact of Cast Iron Degradation and Cathode Block Erosion on the Current Path in the Cathodic Assembly of Aluminum Production Cells: Martin Brassard[1]; Marc LeBreux[1]; Martin Desilets[1]; *Gervais Soucy*[1]; Martin Forté[2]; Jean-François Bilodeau[2]; [1]Université de Sherbrooke; [2]Rio Tinto

10:55 AM
Reducing Cathode Voltage Drop and Reducing Peak Current Density by Use of Cathode Nails across the Carbon to Cast Iron Interface: *Will Berends*[1]; Stephen Haley[1]; [1]Hatch

11:20 AM
Production of NiFe2O4 Nanocermet for Aluminium Inert Anode: *Wu Xianxi*[1]; Zhu Weidong[1]; Luo Kunlin[1]; Jia Hefeng[1]; [1]Guizhou University

11:45 AM
Gas Anodes Made of Porous Graphite for Aluminium Electrowinning: *Babak Khalaghi*[1]; Henrik Gudbrandsen[2]; Ole Kjos[2]; Karen Osen[2]; Ove Paulsen[2]; Tommy Mokkelbost[2]; Geir Martin Haarberg[1]; [1]Norwegian University of Science and Technology (NTNU); [2]SINTEF

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
March 1, 2017

Room: 30E
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_6Sn_5 in Solder Joints: *Christopher Gourlay*[1]; J.W. Xian[1]; M.A.A. Salleh[2]; Sergey Belyakov[1]; Kazuhiro Nogita[2]; [1]Imperial College London; [2]University 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): *Wonil Seo*[1]; Young-Ho Kim[2]; Sehoon Yoo[1]; [1]Korea Institute of Industrial Technology; [2]Hanyang University

9:10 AM
Study of Al-Cu Compounds as Soldering Bond Pad for High-power Device Packaging: *Yan-Hao Chen*[1]; Cheng-Yi Liu[1]; [1]National Central University

9:30 AM
Thermodynamic and Microstructural Evaluation of the Sn-Si-Ge Ternary System for Advanced Pb-Free Solder Design: *Kathlene Reeve*[1]; Carol Handwerker[1]; [1]Purdue University

9:50 AM
Microstructure Formation in Reinforced Sn-Cu Lead-free Solder Alloys: *M. A. A. Mohd Salleh*[1]; Stuart McDonald[2]; Christopher Gourlay[3]; Kazuhiro Nogita[2]; [1]Universiti Malaysia Perlis; [2]University of Queensland; [3]Imperial College London

10:10 AM Break

10:30 AM
The Grain Orientation Evolution of Mixed Solder Joints with Single-crystal Grain at the Same Position of BGA Packages during Thermal Shock: *Jing Han*[1]; Fu Guo[1]; Shihai Tan[1]; [1]Beijing University of Technology

10:50 AM
Subgrain Rotation Behavior of SnAgCu-SnPb Mixed Solder Joints in BGA Components during Thermal Shock: Fu Guo[1]; *Shihai Tan*[1]; Jing Han[1]; [1]Beijing University of Technology

11:10 AM
Advances in High Temperature Pb-Free Composite Solder Paste Research: *Stephanie Choquette*[1]; Iver Anderson[1]; [1]Ames Lab

Energy Materials 2017: Energy and Environmental Issues in Materials Manufacturing and Processing — Energy and Environmental Issues in Materials Manufacturing and Processing III

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
March 1, 2017

Room: 14B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Enhanced Thermoelectric ZT Constantan Alloy by Cryorolling: *Huijun Kang*[1]; Daquan Liu[1]; Jinling Li[1]; Tongmin Wang[1]; [1]Dalian University of Technology

8:50 AM
Thermoelectric Properties of La-doped SrTiO3 Materials Prepared by Mechanical Alloying: *Daquan Liu*[1]; Huijun Kang[1]; Jinling Li[1]; Tongmin Wang[1]; [1]Dalian University of Technology

9:10 AM
Mechanical Analysis of Raceway Formation in Bulk Bed of Blast Furnace: Qiuming Wang[1]; Yuanxiang Lu[1]; *Zeyi Jiang*[1]; [1]University of Science and Technology Beijing

9:30 AM
Energy Savings in Aluminium Sand Casting Foundries: *Hamid Ahmad Mehrabi*[1]; [1]Cranfield University

Energy Materials 2017: Materials for Coal-Based Power — Session II

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

Wednesday AM
March 1, 2017

Room: 12
Location: San Diego Convention Center

Session Chair: Omer Dogan, NETL, U.S. Department of Energy

8:30 AM Keynote
Creep Strength and Oxidation Resistance of Industrially Made G115 Steel Pipe: *Zhengdong Liu*[1]; HanSheng Bao[1]; Zhengzong Chen[1]; Songqian Xu[2]; Hanping Zhao[2]; Qijiang Wang[2]; [1]China Iron & Steel Research Institute Group; [2]BaoSteel

9:10 AM Invited
Evolution of Precipitates of 25Cr-20Ni-3Cu3WNbN Austenitic Heat Resistant Steel during 973K Aging: *Hansheng Bao*[1]; Zhengdong Liu[1]; Zhengzong Chen[1]; Zhaobo Tian[1]; [1]Central Iron & Steel Research Institute

9:40 AM Invited
Heat Resistant Advanced 9% Cr Steel for Fossil Energy Power Generation: *Jeffrey Hawk*[1]; Paul Jablonski[1]; Kyle Rozman[2]; [1]U.S. Department of Energy, National Energy Technology Laboratory; [2]ORISE

10:10 AM Break

10:30 AM
Creep of Alumina-forming Austenitic Stainless Steels: *I. Baker*[1]; Natalie Afonina[1]; Bin Hu[1]; Geneva Trotter[1]; S.J. Kernion[2]; [1]Dartmouth College; [2]Carpenter Technology

10:50 AM
Accelerated Creep Test for New Steels and Welds: *Stan Mandziej*[1]; [1]Advanced Materials Analysis

11:10 AM
The Reliability Analysis of 12Cr1MoVG and T23 Used for USC Boilers Water Wall: *Xiaoli Lu*[1]; Yu Wang[1]; Jianyong Wang[1]; Kaiying Yang[1]; Chongbin Wang[1]; Jiongxiang Wang[1]; [1]Shanghai Boiler Works.Ltd

Energy Materials 2017: Materials for Nuclear Energy — Materials for Nuclear Applications I

Program Organizers: Raul Rebak, GE Global Research; Zhengdong Liu, China Iron & Steel Research Institute Group; Peter Hosemann, University of California Berkeley; Jian Li, CanmetMATERIALS

Wednesday AM
March 1, 2017

Room: Miramar
Location: Marriott Marquis Hotel & Marina

Session Chair: Raul Rebak, GE Global Research

8:30 AM Keynote
Is There a Role for Advanced Materials in Light Water Reactors?: *Kurt Terrani*[1]; Steven Zinkle[2]; LL Snead[3]; [1]Oak Ridge National Laboratory; [2]University of Tennessee, Knoxville; [3]Massachusetts Institute of Technology

9:10 AM Keynote
Development of a Novel Structural Material (SIMP steel) for Nuclear Equipment with Balanced Resistances to High Temperature, Radiation and LBE Corrosion: *Yiyin Shan*[1]; Wei Yan[1]; Wei Wang[1]; Quanqiang Shi[1]; Ke Yang[1]; Zhiguang Wang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

9:50 AM
Enhancing the High-Cycle Fatigue Property of 316 Austenitic Stainless Steels through Introduction of Mechanical Twins by Cold-Drawing: *Xingfei Xie*[1]; [1]Shanghai Jiao Tong University

10:10 AM Break

10:25 AM Invited
Research and Development of Pressure Vessel Steels for Advanced Pressurized Water Reactors in China: *Xikou He*[1]; Zhengdong Liu[1]; Wenhui Zhang[2]; Deli Zhao[3]; Ying Luo[4]; Xiaobin Wang[5]; [1]China Iron & Steel Research Institute Group; [2]China First Heavy Industries ; [3]China First Heavy Industries; [4]Nuclear Power Institute of China ; [5]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*[1]; [1]Shanghai Institute of Applied Physics, Chinese Academy of Sciences

11:25 AM
Ductile Phase Toughening of 90-97W-NiFe Heavy Alloys: *Md Ershadul Alam*[1]; G. R. Odette[1]; [1]University of California, Santa Barbara

11:45 AM
Investigation of Oxidation/Carburisation Mechanisms of 9Cr Ferritic Steel Heat Exchanger Tubes: *Sabrina Yan*[1]; Scott Doak[1]; Aya Shin[2]; Jonathan Pearson[2]; Rebecca Higginson[1]; [1]Loughborough University; [2]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*[1]; Jiazhen Wang[1]; Jianqiu Wang[1]; [1]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
Room: 14A
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Keynote
Microstructure and Properties of High Performance Pipeline Steels: *Lei Zheng*[1]; [1]Baoshan Iron & Steel Co. Ltd.

9:00 AM
Advanced Duplex Stainless Steels for Extreme Oil-Gas Environments: *Pasi Kangas*[1]; Guocai Chai[1]; [1]Sandvik Materials Technology

9:30 AM
Development of High-strength and High Corrosion-resistant Ni-Cr-Al Alloy for Drilling Tools: *Yoshihiko Koyanagi*[1]; Hiroyuki Takabayashi[1]; Shigeki Ueta[1]; [1]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: *Xianbo Shi*[1]; Yiyin Shan[1]; Wei Yan[1]; Wei Wang[1]; Zhenguo Yang[1]; Ke Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

10:45 AM
Development of Cr-based Duplex Alloy for Corrosive Environments I: Evaluation of Mechanical Properties and Pitting Potential
: *Masafumi Nojima*[1]; Tomonori Kimura[1]; Makoto Ogata[1]; Naoya Toko[1]; Kosuke Kuwabara[1]; [1]Hitachi, Ltd. Research & Developmant Group

11:10 AM
Development of Cr-based Duplex Alloy for Corrosive Environments II: Evaluation of Corrosion Resistance in Boiling Sulfuric Acid: *Tomonori Kimura*[1]; Masahumi Nojima[1]; Makoto Ogata[1]; Naoya Tokoo[1]; Kosuke Kuwabara[1]; [1]HITACHI, Ltd

11:35 AM
Localised Corrosion of Ni-base Superalloys in Seawater: *Melissa Keogh*[1]; Robert Akid[1]; Tony Cook[1]; [1]University of Manchester

Energy Technologies — Energy Technologies

Program Organizers: Lei Zhang, University of Alaska Fairbanks ; Jaroslaw Drelich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu , Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Åbo Akademi University

Wednesday AM
March 1, 2017
Room: 13
Location: San Diego Convention Center

Session Chairs: Lei Zhang, University of Alaska Fairbanks; Jaroslaw Drelich, Michigan Technological University

8:30 AM Introductory Comments

8:35 AM
Continuous Optimization of the Energy Input – The Success Story of AOS: *Felix Wolters*[1]; Michael Schütt[1]; [1]Aluminium Oxid Stade GmbH

8:55 AM
Energy Savings through Thermally-efficient Crucible Technology: Fundamentals, Process Modeling, and Applications: *Wenwu Shi*[1]; Brian Pinto[1]; [1]Vesuvius/Foseco

9:15 AM Invited
Applications of Engineered Materials for Geothermal Resource Utilization: *Jefferson Tester*[1]; [1]Cornell University

9:35 AM Invited
National Laboratory-led Collaborations for Accelerating Hydrogen Storage Materials Development: *Ned Stetson*[1]; Zeric Hulvey[2]; Jesse Adams[1]; [1]U.S. Department of Energy; [2]Oak Ridge Affliliated Universities

10:05 AM Break

10:20 AM Invited
Interrogating Nanoscale Defects to Enable Cost-Effective Solar Energy Conversion: *David Fenning*[1]; [1]UC San Diego

10:40 AM Invited
Graphene-like Ultrathin 2D Metal Oxide Nanosheets for Sustainable Applications: *Ziqi Sun*[1]; [1]Queensland University of Technology

11:00 AM
Advanced Composite Materials for Passive Thermal Management of Electronics: *John Howarter*[1]; Yash Ganatra[1]; Alexandra Bruce[1]; Amy Marconnet[1]; [1]Purdue University

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
Room: 31A
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*[1]; [1]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*[1]; Hiroshi Suzuki[1]; Kenichi Takai[1]; Yusuke Seko[2]; [1]Sophia University; [2]Tokyo Gas

9:30 AM
Consequence of Hydrogen Desorption on Local Mechanical Properties and the Fracture Mechanisms of a Martensitic Steel: *Abdelali Oudriss*[1]; Hélène Morillot[2]; Rémy Milet[1]; Cyril Berziou[1]; Stephane Cohendoz[1]; Jean-Michel Sobrino[3]; Juan Creus[1]; Xavier Feaugas[1]; [1]University of La Rochelle; [2]CETIM-Matériaux Métalliques et Surfaces; [3]CETIM-Matériaux Métalliques et Ingénierie de Surface

9:50 AM
Design of Nickel Alloys and Superalloys with a High Resistance to Hydrogen Embrittlement: *Franck Tancret*[1]; Miles Stopher[2]; Edern Menou[1]; Gérard Ramstein[1]; Pedro Rivera-Díaz-del-Castillo[2]; [1]Université de Nantes; [2]University of Cambridge

10:10 AM Break

10:30 AM
Corrosion of Nickel-Titanium, C110, and Al6061 in Gallium-based Liquid Metal Alloys: *Jacob Mingear*[1]; Darren Hartl[1]; [1]Texas A&M University

10:50 AM
Sensitization Effects on Tensile Behavior in 5XXX Series Aluminum Alloys: Macro- and Mesoscale Observations: *Benjamin Palmer*[1]; John Lewandowski[1]; [1]Case Western Reserve University

11:10 AM
Strain Rate Effects on the Stress Corrosion Cracking Behavior of Ni and Co Based Superalloys for Marine Applications: *Allison Popernack*[1]; James Burns[1]; [1]University of Virginia Center for Electrochemical Science and Engineering

11:30 AM
Stress-corrosion Cracking in Ti-8Al-1Mo-1V: *Sheng Cao*[1]; Chao Voon Samuel Lim[1]; Su-Ming Zhu[1]; Xinhua Wu[1]; [1]Monash University

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Creep, Fatigue, and Environmental Interactions

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

Wednesday AM
March 1, 2017

Room: 23C
Location: San Diego Convention Center

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

8:30 AM
Fatigue Deformation Mode in a Polycrystalline Nickel Base Superalloy at Intermediate Temperature: Oxidation Assisted Process: *J.C. Stinville*[1]; M.P. Echlin[1]; P.G. Callahan[1]; W.C. Lenthe[1]; J. Miao[2]; T.M. Pollock[1]; [1]University of California Santa Barbara; [2]University of Michigan

8:50 AM
Fatigue Crack Initiation and Fatigue Crack Growth Behavior of AA7050-T7451 with Different Corrosion Morphologies: *Noelle Easter Co*[1]; James Burns[1]; [1]University of Virginia

9:10 AM
The Influence of Operating Slip Systems on the Dwell Sensitivity of Titanium Alloys: *Samuel Hemery*[1]; Patrick Villechaise[2]; [1]ENSMA; [2]CNRS

9:30 AM
Creep-fatigue Damage Mechanism in Cyclically-Softened Mod.9Cr-1Mo Ferritic-Martensitic Steel: *Meimei Li*[1]; Weiying Chen[1]; Ken Natesan[1]; [1]Argonne National Lab

9:50 AM
Damage Evolution in Thin Tin Sheets During Creep Fatigue Loading: *Syed Javaid*[1]; Wade Lanning[1]; James Collins[1]; Christopher Muhlstein[1]; [1]Georgia Institute of Technology

10:10 AM Break

10:30 AM Invited
Micromechanics of Biaxial Cold Dwell Fatigue Mechanisms in Ti-7Al Elucidated Using Far-field High-energy Diffraction Microscopy: *Aaron Stebner*[1]; Garrison Hommer[1]; Adam Pilchak[2]; [1]Colorado School of Mines; [2]Air Force Research Laboratory

10:50 AM
On the Effects of Multiaxial Stress on Facet Nucleation in Cold Dwell Fatigue: *Mitch Cuddihy*[1]; Adam Stapleton[2]; Steve Williams[2]; David Rugg[2]; Fionn Dunne[1]; [1]Imperial College London; [2]Rolls-Royce plc

11:10 AM
A Continuum Damage Model for Creep-Fatigue Interactions: *Jean-Briac le Graverend*[1]; [1]Texas A&M University

11:30 AM Invited
Creep, Fatigue and Environmental Interactions and Their Effect on Crack Growth in Superalloys: *Jack Telesman*[1]; Tim Gabb[1]; Louis Ghosn[1]; [1]NASA GRC

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 Balila, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Wednesday AM
March 1, 2017

Room: 21
Location: San Diego Convention Center

Session Chairs: Erik Bitzek, Friedrich-Alexander Universität Erlangen Nurnberg; Karsten Durst, Technical University Darmstadt

8:30 AM Introductory Comments

8:35 AM Invited
Atomistic Simulations of Crack Nucleation and Propagation along Grain Boundaries
: *Erik Bitzek*[1]; Johannes Möller[1]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

9:05 AM
Directional Dependency of the Fracture Behavior of High Strength Pearlitic Steel Wires: *Bernhard Völker*[1]; Marlene Kapp[2]; Reinhard Pippan[2]; Anton Hohenwarter[1]; [1]Montanuniversität Leoben; [2]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*[1]; Jeffrey Wheeler[1]; Alla Sologubenko[1]; Pawel Kuczera[1]; Walter Steurer[1]; Johann Michler[2]; Ralph Spolenak[1]; [1]ETH Zurich; [2]Empa Thun

9:45 AM
Coupling Discrete Dislocation Plasticity and Cohesive Zone Models: *Edmund Tarleton*[1]; Angus Wilkinson[1]; [1]Oxford University

10:05 AM Break

10:30 AM Invited
Constitutive Modeling of Indentation Cracking in Fused Silica: *Karsten Durst*[1]; [1]Technical University Darmstadt

11:00 AM
Critical Stresses in Intermittent Plasticity: Peter Derlet[1]; *Robert Maass*[2]; [1]Paul Scherrer Institut; [2]University of Illinois at Urbana-Champaign

11:20 AM Invited
Tensile Deformation Behaviour of Notched Nano-scale Metallic Glass Specimens: *Narasimhan Ramarathinam*[1]; Indrasen Singh[1]; [1]Indian Institute of Science

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
March 1, 2017

Room: 9
Location: San Diego Convention Center

Session Chair: Christian Widener, South Dakota School of Mines and Technology

8:30 AM Introductory Comments

8:35 AM Invited
Friction Stir Welding of Thick Section Aluminium Alloys - New Techniques: *Jonathan Martin*[1]; [1]TWI Technology Centre (Yorkshire)

8:55 AM
Effect of Friction Stir Processing on the Damage Resistance of 6xxx Series Aluminium Alloys: *Florent Hannard*[1]; Aude Simar[1]; Thomas Pardoen[1]; Eric Maire[2]; [1]UCL; [2]INSA-Lyon

9:15 AM
Effect of Process Parameters on the Residual Stress Distribution in Stationary Shoulder T-Joints: *Tianzhu Sun*[1]; Matt Roy[1]; Phil Withers[1]; Phil Prangnell[1]; [1]The University of Manchester

9:35 AM Invited
Friction Stir Weld Lap Joint Properties in Aeronautic Aluminum Alloys: *Egoitz Aldanondo*[1]; Ekaitz Arruti[1]; Alberto Echeverria[1]; [1]IK4-LORTEK

9:55 AM
Flow Features in Shoulder Zone during Scroll Tool Friction Stir Welding Thick 6061 Aluminum Plates: *David Yan*[1]; Xiaoming Wang[2]; Guy Littlefair[3]; [1]University of Wisconsin-Green Bay; [2]Purdue University; [3]Deakin University

10:15 AM Break

10:30 AM
Corrosion Fatigue Performance of Friction Stir Processed Magnesium Alloy AZ31B-H24: A Comparative Evaluation: Daniel Tapp[1]; *Joseph McDermid*[1]; Joseph Kish[1]; [1]McMaster University

10:50 AM
High-speed FSW Aluminum Alloy 7075 Microstructure and Corrosion Properties: *Jingyi Zhang*[1]; Piyush Upadhyay[2]; Yuri Hovanski[2]; David Field[1]; [1]Washington State University; [2]Pacific Northwest National Laboratory

11:10 AM
Round Material Flow in Friction Stir Welding of Aluminum Alloy: *Xiaochao Liu*[1]; Yufeng Sun[1]; Yoshiaki Morisada[1]; Hidetoshi Fujii[1]; [1]Osaka University

11:30 AM
Friction Stir Welding of Thick Aluminium Welds – Challenges and Perspectives: *Murshid Imam*[1]; Yufeng Sun[1]; Hidetoshi Fujii[1]; Yasuhiro Aoki[1]; Nishu Ma[2]; Seiichiro Tsutsumi[1]; Hidekazu Murakawa[1]; [1]Joining and Welding Research Institute, Osaka University; [2]JSOL Corporation, Engineering Technology Division

Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin — Process-Property-Performance Correlations: Ferrites, Alloys, Devices & Systems

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

Wednesday AM
March 1, 2017

Room: 33B
Location: San Diego Convention Center

Session Chairs: Fay Hua, Intel; Seong Koh, University of Texas - Arlington

8:30 AM Introductory Comments

8:40 AM Invited
Enhanced Magnetic Properties and Spin-Seebeck Effect in Epitaxial Spinel Ferrite Thin Films Grown on Lattice-Matched Substrates: *Arunava Gupta*[1]; [1]University of Alabama

9:10 AM
Domain Mechanisms for Magnetization and Deformation Behaviors of Fe-Ga Alloys: *Matt Tianen*[1]; Yongmei Jin[1]; [1]Michigan Tech

9:30 AM Invited
Spintronic Integrated Circuits:
Scalable Magnetic Nano Devices for Energy-Efficient and Secure Systems
: *Seung Kang*[1]; [1]Qualcomm Technologies, Inc.

10:00 AM Break

10:20 AM Invited
Ohmic Contacts for High-efficiency GaN-based Light-emitting Diodes: How to Enhance Current Injection Efficiency: *Tae-Yeon Seong*[1]; [1]Korea University

10:50 AM Invited
State of the Art in Materials Enabled Optical Fiber Based Sensing for Harsh Environment Applications: *Paul Ohodnicki*[1]; [1]National Energy Technology Laboratory

11:20 AM
Mobile Ions in Dielectrics and Their Impacts to Integrity of Interconnects in Microelectronic Devices: *Choong-un Kim*[1]; [1]University of Texas at Arlington

Gamma (FCC)/Gamma-Prime ($L1_2$) Co-Based Superalloys II — Processing and Environmental Resistance

Program Organizers: Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology Beijing; Alessandro Moturra, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Wednesday AM
March 1, 2017

Room: Pacific 14
Location: Marriott Marquis Hotel & Marina

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 Dye*[1]; Farah Ismail[1]; Trevor Lindley[1]; Paul Mulvey[1]; Richard Chater[1]; Ioannis Bantounas[1]; Barbara Shollock[2]; Mark Hardy[3]; [1]Imperial College; [2]The University of Warwick; [3]Rolls-Royce plc

9:10 AM Invited
Novel Cast and Wrought □/□' Cobalt Base Superalloys - Creep Properties, Deformation Mechanisms, and Oxidation: *Mathias Göken*[1]; Lisa Freund[1]; Steffen Neumeier[1]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

9:40 AM
Supersolvus Thermomechanical Processing of Cast Co–Base Superalloys: Donald Weaver[1]; *Katelun Wertz*[1]; S. Lee Semiatin[1]; Rajiv Shivpuri[2]; Stephen Niezgoda[2]; Michael Mills[2]; [1]Air Force Research Laboratory; [2]The Ohio State University

10:00 AM Break

10:20 AM Invited
Coating Systems for New Cobalt Base Single Crystals: Wesley Jackson[1]; Mike Titus[1]; *Tresa Pollock*[1]; Matt Begley[1]; [1]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 Weiser*[1]; Sannakaisa Virtanen[1]; [1]University of Erlangen-Nuernberg (FAU)

11:10 AM
Influence of Alloy Composition on Oxide Scale Formation in Novel Co-Based γ-γ' Superalloys: *Colin Stewart*[1]; Akane Suzuki[2]; Tresa Pollock[1]; Carlos Levi[1]; [1]University of California Santa Barbara; [2]GE Global Research

11:30 AM
A High-throughput Search for New Ternary Superalloys: *Chandramouli Nyshadham*[1]; Corey Oses[2]; Jocob Hansen[1]; Ichiro Takeuchi[3]; Stefano Curtarolo[2]; Gus Hart[1]; [1]Brigham Young University Provo Utah; [2]Duke University; [3]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 Sallot, Safran Tech; Paul Withey, Rolls-Royce; Al Sommer, Del West Engineering, Inc; Rui Yang, Institute of Metal Research CAS; Florian Pyczak, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Wednesday AM
March 1, 2017

Room: Pacific 17
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: *Junpin Lin*[1]; Yongfeng Liang[1]; Laiqi Zhang[1]; Guojian Hao[1]; Xiangjun Xu[2]; [1]University of Science and Technology Beijing; [2]Zhongyuan University of Technology

8:55 AM Invited
Methodological Discussion on Enhancing the Temperature Tolerance of TiAl Alloys: *Ji Zhang*[1]; Xiwen Zhang[1]; Jing Zhu[2]; [1]China Iron and Steel Research Institute Group; [2]Tsinghua University

9:20 AM Invited
Microstructure and Mechanical Properties of In-situ TiAl Matrix Composites Reinforced with Ti2AlC Particles: *Juraj Lapin*[1]; [1]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 Kim*[1]; Sang-Lan Kim[1]; [1]Gamteck LLC

10:05 AM Break

10:20 AM Invited
Research Progress on Gamma TiAl Alloy Technology in NPU: *Hongchao Kou*[1]; Bin Tang[1]; Liang Cheng[1]; Zhigang Sun[2]; Jinshan Li[1]; [1]State Key Laboratory of Solidification Processing, Northwestern Polytechnical University; [2]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 Muth*[1]; Paul Kern[1]; Aaron Tallman[1]; Thomas Payne[1]; Don Shih[2]; Ben Smith[2]; David McDowell[1]; [1]Georgia Institute of Technology; [2]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 Schloffer*[1]; Thomas Leitner[2]; Svea Mayer[3]; Helmut Clemens[3]; Jörg Esslinger[1]; Wilfried Smarsly[1]; Reinhard Pippan[2]; [1]MTU Aero Engines AG; [2]Erich Schmid Institute of Material Science, Austrian Academy of Sciences; [3]Montanuniversität Leoben

11:30 AM
Mechanical Behavior and Microstructure Evolution of Fine-grained High Nb Containing TiAl Alloy under Isothermal Compression: *Yudong Chu*[1]; Jinshan Li[1]; Bin Tang[1]; Hongchao Kou[1]; [1]Northwestern Polytechnical University

High Entropy Alloys V — Structures and Mechanical Properties 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

Wednesday AM
March 1, 2017

Room: 32B
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 Egami*[1]; [1]University of Tennessee

8:50 AM Invited
Creep Strength, Deformation, and Fracture in Single Phase High Entropy Alloy: *Jeffrey Hawk*[1]; Kyle Rozman[2]; John Sears[3]; Paul Jablonski[1]; Michael Gao[3]; [1]U.S. Department of Energy, National Energy Technology Laboratory; [2]ORISE; [3]AECOM

9:10 AM Invited
Hardening Mechanisms in High-entropy Alloys: *Z. P. Lu*[1]; [1]University of Science and Technology Beijing

9:30 AM Invited
Mechanical and Corrosion Properties of CoCrFeNiTi-based High-entropy Alloy Additive Manufactured Using Selective Electron Beam Melting: *Tadashi Fujieda*[1]; Hiroshi Shiratori[2]; Kosuke Kuwabara[3]; Mamoru Hirota[1]; Takahiko Kato[4]; Kenta Yamanaka[2]; Yuichiro Koizumi[2]; Akihiko Chiba[2]; Seiichi Watanabe[5]; [1]Hitachi, Ltd.; [2]Tohoku University; [3]Hitachi Ltd.; [4]Hitachi, Ltd.; Hokkaido University; [5]Hokkaido University

9:50 AM
Nanomechanical Behavior and Nano-indentation Size Effects in High Entropy Alloys: Sanghita Mridha[1]; Hunter Oltman[1]; *Sundeep Mukherjee*[1]; [1]University of North Texas

10:10 AM Break

10:30 AM Invited
Short Range Order in a BCC V-Nb-Mo-Ta-W High Entropy Alloy: Hongru Du[1]; Jian Han[1]; Edwin Antillon[2]; Christopher Woodward[2]; *David Srolovitz*[1]; [1]University of Pennsylvania; [2]Air Force Research Laboratory

10:50 AM
The Study of Fatigue Behavior in Refractory High Entropy Alloys: *Shuying Chen*[1]; Chien-Chang Juan[2]; Jien-Wei Yeh[2]; Karin Dahmen[3]; Peter Liaw[1]; [1]University of Tennessee, Knoxville; [2]National Tsing Hua University; [3]University of Illinois at Urbana Champaign

11:10 AM Invited
Microstructural Evolution and Mechanical Behavior of a Non-equiatomic High-entropy Alloy Reinforced by Nanoprecipitates: Zhiqiang Fu[1]; Benjamin MacDonald[1]; Baolong Zheng[1]; Weiping Chen[2]; Yaojun Lin[3]; Fei Chen[3]; Yizhang Zhou[1]; Lianmeng Zhang[3]; *Enrique Lavernia*[1]; [1]University of California, Irvine; [2]South China University of Technology; [3]Wuhan University of Technology

11:30 AM
Effect of Cr/Ni Ratio on Phase Stability of the CrMnFeCoNi System: *Guillaume Laplanche*[1]; Christian Reinhart[1]; Alex Asabre[1]; Julian Hunfeld[1]; Florian Fox[1]; Janine Pfetzing-Micklich[1]; Easo George[1]; [1]Ruhr-Universität Bochum

11:50 AM Invited
Atomic-level Disorder and Defect Dynamics in Concentrated Solid-solution Alloys: *Yanwen Zhang*[1]; Shijun Zhao[2]; Fredric Granberg[3]; Kai Nordlund[3]; Flyura Djurabekova[3]; William Weber[4]; [1]Oak Ridge National Laboratory; University of Tennessee; [2]Oak Ridge National Laboratory; [3]University of Helsinki; [4]University of Tennessee; Oak Ridge National Laboratory

High Temperature Electrochemistry III — Nuclear Materials

Program Organizers: Prabhat Tripathy, Idaho National Laboratory; Guy Fredrickson, Idaho National Lab; Boyd Davis, Kingston Process Metallurgy Inc.

Wednesday AM
March 1, 2017

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 Earths and Actinides in Molten LiCl-KCl: *Michael Simpson*[1]; Devin Rappleye[1]; Chao Zhang[1]; [1]University of Utah

9:00 AM
Zirconium Management in the Mk-IV Electrorefiner: *Guy Fredrickson*[1]; [1]Idaho National Laboratory

9:30 AM
Initial Operation of Kg-Scale Electrolytic Reduction and Salt Distillation Equipment for the Pyroprocessing of Uranium Oxide in a Hot Cell: *Steven Herrmann*[1]; [1]Idaho National Laboratory

10:00 AM Break

10:20 AM
Thorium and Uranium Electrodeposition from Molten LiCl-KCl onto Alpha Spectroscopy Semiconductor Detector Surface: *Milan Stika*[1]; Joshua Jarrell[2]; Thomas Blue[2]; Lei Cao[2]; Michael Simpson[1]; [1]University of Utah; [2]The Ohio State University

10:50 AM
Electrochemical Techniques for Nuclear Safeguards in Molten Salt: *Vickram Singh*[1]; Dev Chidambaram[1]; [1]University of Nevada, Reno

11:20 AM
Electrochemistry in Molten 2LiF-BeF2 Salt for the Fluoride Salt-Cooled High Temperature Reactor Applications: *William Doniger*[1]; Thomas Chrobak[1]; Brian Kelleher[1]; Kieran Dolan[1]; Guoping Cao[1]; Mark Anderson[1]; Kumar Sridharan[1]; [1]University 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 Danoix, Université de Rouen; Indrajit Charit, University of Idaho

Wednesday AM
March 1, 2017

Room: 31C
Location: San Diego Convention Center

Session Chairs: Frederic Danoix, CNRS - Université de Rouen; Michael Moody, University of Oxford

8:30 AM Invited
Outlooks for Atom Probe Microscopy: *Simon Ringer*[1]; [1]The 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*[1]; Rosen Ivanov[1]; Laurent Couturier[1]; Alexis Deschamps[1]; Baptiste Gault[2]; [1]SIMAP - CNRS - Univ. Grenoble Alpes; [2]Max-Planck Institut für Eisenforschung

9:30 AM Invited
Kinetic Pathways in Phase Separation Processes: Atom-Probe Tomography versus Modeling: *Didier Blavette*[1]; Isabelle Mouton[2]; Thomas Philippe[3]; Manon Bonvallet[4]; [1]Normandie University; [2]CEA; [3]CNRS; [4]KTH

10:00 AM Break

10:20 AM Invited
Atomic Scale Modeling of Phase Separation in Fe-Cr Alloys: *Frederic Soisson*[1]; [1]CEA Saclay

10:50 AM Invited
Spinodal Decomposition in FeCr Alloys: From Fundamental to Applications: *Frederic Danoix*[1]; Alexander Dahlstrom[1]; Didier Blavette[1]; Helena Zapolsky[1]; [1]CNRS - Université de Rouen

11:20 AM Invited
Phase Decomposition in Fe-Cr Alloys under Irradiation: Mukesh Bachhav[1]; Elaina Anderson[1]; G. Robert Odette[2]; *Emmanuelle Marquis*[1]; [1]University of Michigan; [2]University 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
March 1, 2017

Room: 5B
Location: San Diego Convention Center

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*[1]; [1]Deakin University

9:10 AM
Basal Dislocation Transmutation through {1012} Twin Boundaries: *Christopher Barrett*[1]; Haitham El Kadiri[1]; [1]Mississippi State University

9:30 AM
Contraction Twinning Dominated Tensile Deformation and Subsequent Fracture in Extruded Mg-1Mn (wt%) at Ambient Temperature: Ajith Chakkedath[1]; Philip Eisenlohr[1]; Tias Maiti[1]; *Carl Boehlert*[1]; Jan Bohlen[2]; Sangborg Yi[2]; Dietmar Letzig[2]; [1]Michigan State University; [2]Magnesium Innovation Centre MagIC, Helmholtz Centre

9:50 AM
Ductility Enhancement in Mg Alloys by Anisotropy Engineering: Shamik Basu[1]; Ebubekir Dogan[1]; Babak Kondori[1]; Ibrahim Karaman[1]; *Amine Benzerga*[1]; [1]Texas 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*[1]; Irene J Beyerlein[1]; Ricardo Lebensohn[1]; Carlos Tome[1]; [1]Los Alamos National Laboratory

10:50 AM
Simulating Discrete Twin Evolution in Magnesium Using a Novel Crystal Plasticity Finite Element Model: *Jiahao Cheng*[1]; Somnath Ghosh[1]; [1]Johns Hopkins University

11:10 AM
The Effect of {10-12} Twin Boundary on the Evolution of Defect Substructure: *Fulin Wang*[1]; C.D. Barrett[2]; K. Hazeli[3]; K. Molodov[4]; T. Al-Samman[4]; A. Oppedal[5]; D. Molodov[4]; A. Kontsos[6]; K.T. Ramesh[3]; H. El Kadiri[5]; S.R. Agnew[1]; [1]Department of Materials Science and Engineering, University of Virginia; [2]Center for Advanced Vehicular Systems, Mississippi State University; [3]Hopkins Extreme Materials Institute, The Johns Hopkins University; [4]Institute of Physical Metallurgy and Metal Physics, RWTH Aachen University; [5]Department of Mechanical Engineering, Mississippi State University; [6]Department 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[1]; Ryoji Sahara[1]; Hidetoshi Somekawa[1]; Julian Rosalie[2]; *Alok Singh*[1]; Koichi Tsuchiya[1]; [1]National Institute for Materials Science; [2]Erich 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
March 1, 2017

Room: 5A
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*[1]; Roland Hoppe[1]; Jonas Isakovic[1]; Gerrit Kurz[1]; [1]MagIC - Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht

8:50 AM
Effects of Mn and Zn Solutes on Grain Refinement of Commercial Pure Magnesium: Jian Gu[1]; Yuanding Huang[1]; Mingxing Zhang[2]; Karl Ulrich Kainer[1]; *Norbert Hort*[1]; [1]Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht; [2]School of Mechanical and Mining Engineering, The University of Queensland

9:10 AM
Experimental Investigation of Continuous Magnesium Production by Carbothermal Reduction: *Boris Chubukov*[1]; Scott Rowe[1]; Aaron Palumbo[1]; Illias Hischier[1]; Alan Weimer[1]; [1]CU-Boulder

9:30 AM
Grain Refinement of Mg-Gd-Y-(Zr) Alloys through Squeeze Casting: *Cunlong Wang*[1]; Kaka Ma[2]; Enrique J. Lavernia[2]; Guohua Wu[1]; Wencai Liu[1]; Wenjiang Ding[1]; [1]Shanghai Jiao Tong University; [2]University of California, Irvine

9:50 AM
Precipitation Behavior of Mg-Al-Sn-Zn(-Na) Alloys: Sumi Jo[1]; Yohan Go[1]; Kwang Seon Shin[2]; Bong Sun You[3]; *Young Min Kim*[3]; [1]Korea University of Science and Technology; [2]Seoul National University; [3]Korea 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*[1]; Zhang Ting'an[1]; Guozhi Lv[1]; Aiping Zhou[1]; [1]Northeastern University

10:50 AM
Thermal Decomposition Kinetics of Pre-prepared Pellets for the Novel Silicothermic Process: *Lukui Guan*[1]; Zhang Ting'an[1]; Zhihe Dou[1]; Daxue Fu[1]; Ming Wen[1]; [1]Northeastern University

11:10 AM
Thermal Stability of Cryomilled Mg Alloy Powder: *Dikai Guan*[1]; Mark Rainforth[1]; Joanne Sharp[1]; Junheng Gao[1]; [1]University of Sheffield

11:30 AM
Thermomechanical Processing of Thixomolded Alloys: *Raymond Decker*[1]; Stephen LeBeau[1]; Tracy Berman[2]; Tori Miller[3]; Wayne Jones[2]; Tresa Pollock[4]; Nir Moskovich[5]; Boris Bronfin[5]; [1]Thixomat, Inc/nanoMAG LLC; [2]Univ of Michigan; [3]North Carolina State University; [4]Univ of California Santa Barbara; [5]ICL 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
March 1, 2017

Room: Cardiff
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM
Irradiation-Induced Microstructure of Proton Irradiated Commercial Austenitic Alloys: *Miao Song*[1]; Gary Was[1]; [1]University of Michigan

8:50 AM
Neutron Irradiation-induced Creep of IG-110 Nuclear Graphite: *Anne Campbell*[1]; Eiji Kunimoto[2]; Yutai Katoh[1]; [1]Oak Ridge National Laboratory; [2]Toyo Tanso Co. Ltd.

9:10 AM
Investigation of Property-Property Correlations for Irradiated Steels: *Peter Wells*[1]; Takuya Yamamoto[1]; Nathan Almirall[1]; Randy Nanstad[2]; Timothy Milot[1]; G. Odette[1]; [1]UC Santa Barbara; [2]Oak Ridge National Laboratory

9:30 AM
Mitigation of IASCC Susceptibility in a BWR-irradiated 304L Stainless Steel Utilizing Post-irradiation Annealing: *Justin Hesterberg*[1]; Zhijie Jiao[1]; Gary Was[1]; [1]University of Michigan

9:50 AM
Role of Localized Deformation and Grain Boundary Plane Orientation on Crack Initiation in Irradiated Stainless Steels: *Drew Johnson*[1]; Bryan Kuhr[2]; Diana Farkas[2]; Gary Was[1]; [1]University of Michigan; [2]Virginia Tech

10:10 AM Break

10:30 AM
The effect of Low-fluence Neutron Irradiation on Cast Austenitic Stainless Steels: *Siwei Chen*[1]; Yuichi Miyahara[1]; Akiyoshi Nomoto[1]; Kenji Nishida[1]; [1]Central Research institute of Electric Power Industry

10:50 AM
Effects of Thermal Aging and Neutron Irradiation on Cast Austenitic Stainless Steels: *Wei-Ying Chen*[1]; Yiren Chen[1]; Chi Xu[2]; Zhangbo Li[2]; Yong Yang[2]; Nicholaos Demas[1]; [1]Argonne National Laboratory; [2]University of Florida

11:10 AM
Utilizing In-situ Microtensile Testing to Evaluate Mechanical Property Changes Due to Ion-beam Irradiation: *Hi Vo*[1]; Stuart Maloy[2]; Peter Hosemann[1]; [1]University of California, Berkeley; [2]Los Alamos National Laboratory

11:30 AM
In-situ High Energy X-ray Characterization of Neutron Irradiated HT-UPS Stainless Steel under Tensile Deformation: *Chi Xu*[1]; Xuan Zhang[2]; Meimei Li[2]; Jun-Sang Park[2]; Peter Kenesei[2]; Jonathan Almer[2]; Yong Yang[3]; [1]Argonne National Laboratory / University of Florida; [2]Argonne National Laboratory; [3]University 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; Francis Johnson, GE Global Research; Alex Leary, Carnegie Mellon University; Tanjore Jayaraman, University of Michigan; Lajos Varga, Wigner Research Center for Physics

Wednesday AM
March 1, 2017

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 Theisen*[1]; Jerry Allen[1]; Naoki Ito[1]; [1]Metglas Inc.

9:00 AM Invited
Magnetic Material Excited by Power Electronics in Electrical Engineering: *Keisuke Fujisaki*[1]; [1]Toyota Technological Institute

9:30 AM
Nanocomposite Soft Magnetic Materials for High Frequency and High Power Conversion Applications: *Paul Ohodnicki*[1]; Vladimir Keylin[2]; Alex Leary[2]; Michael McHenry[2]; Subhashish Bhattacharya[3]; [1]National Energy Technology Laboratory; [2]Carnegie Mellon University; [3]North Carolina State University

9:50 AM Break

10:05 AM Invited
Structure-Processing-Property Relationships in High Temperature Nanocomposite Soft Magnets: *Matthew Willard*[1]; Song Lan[1]; Bowen Dong[1]; Anthony Martone[1]; [1]Case Western Reserve University

10:35 AM Invited
Nanocrystalline Materials for Inductors and Shielding Applications: *Christian Polak*[1]; [1]Vacuumschmelze GmbH & Co. KG

11:05 AM
Crystallization Products and Strain Annealing Effects in (FexNi1-x)80Nb4Si2B14 Metal Amorphous Nanocomposites (MANCs): *Natan Aronhime*[1]; Vladimir Keylin[1]; Paul Ohodnicki[2]; Michael McHenry[1]; [1]Carnegie Mellon University; [2]National Energy Technology Laboratory

11:25 AM
Straighten the Hysteresis Loop of Finemet Type Nanocrystalline Ribbon: *Lajos Varga*[1]; [1]Wigner 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 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

Wednesday AM
March 1, 2017

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 Palm*[1]; [1]Max-Planck-Institut für Eisenforschung GmbH

9:00 AM Invited
Directionally Solidified Ni-Al-X Ternary Eutectics for High-Temperature Applications: G. Liu[1]; P. Hallensleben[1]; J. Frenzel[1]; X. Liu[1]; J. Pfetzing-Micklich[1]; *E. P. George*[1]; [1]Ruhr University Bochum

9:30 AM
Novel High Strength Eutectic Intermetallics: Chandrasekhar Tiwary[1]; Vilas Gunjal[1]; Abhishek Sharma[1]; Kamanio Chattopadhyay[1]; *Dipankar Banerjee*[1]; [1]Indian Institute of Science

9:50 AM Break

10:10 AM Invited
Plasticity of Hard and Brittle Materials at Micron-meter Size Scales: *Haruyuki Inui*[1]; Kyosuke Kishida[1]; Norihiko Okamoto[1]; [1]Kyoto University

10:40 AM Invited
Advanced γ-TiAl Based Alloys: *Helmut Clemens*[1]; Svea Mayer[1]; [1]Montanuniversität Leoben

11:10 AM
Microstructure–property Relationship in Next Generation TiAl Alloys: *Soumya Nag*[1]; Akane Suzuki[1]; Manuel Acosta[2]; Michael Weimer[2]; Bernard Bewlay[1]; [1]GE Global Research; [2]GE 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 Kirka*[1]; Ryan Dehoff[1]; [1]Oak Ridge National Laboratory

11:50 AM
Microstructure Characterization of Single-crystal René N5 Fabricated through Scanning Laser Epitaxy: *Amrita Basak*[1]; Suman Das[1]; [1]Georgia Institute of Technology

Materials Processing Fundamentals — Steelmaking

Program Organizers: Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

Wednesday AM
March 1, 2017

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 Li*[1]; Steven Mates[1]; Mark Stoudt[1]; Carelyn Campbell[1]; Greta Lindwall[1]; Sindhura Gangireddy[1]; [1]National Institute of Standards and Technology

8:50 AM
Development of Ultra High-basicity Mold Fluxes for Peritectic Steel Continuous Casting: *Xiao Long*[1]; Shengping He[1]; Qian Wang[1]; Petrus Pistorius[2]; [1]Chongqing University; [2]Carnegie Mellon University

9:10 AM
Evolution and Formation of CaS-bearing Inclusion in Low-Carbon Al-killed Steel: Yanhui Sun[1]; *Xuefeng Bai*[1]; [1]University of Science and Technology Beijing

9:30 AM
Influence of MgO Saturation on the ConSteel EAF Foaming Slag Practice: *Esmail Ahmad*[1]; Magnus Krokstad[2]; Reza Beheshti[1]; Ragnhild Aune[1]; [1]NTNU; [2]Celsa Nordic Amerinsstål

Materials Science for High-Performance Permanent Magnets — Nd-Fe-B Processing / New RE-lean Hard 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

Wednesday AM
March 1, 2017

Room: 24C
Location: San Diego Convention Center

Funding support provided by: Elements Strategy Initiative Center for Magnetic Materials

Session Chairs: Oliver Gutfleisch, Technical University Darmstadt; Konstantin Skokov, Technical University Darmstadt

8:30 AM Invited
Prospects for Advanced Manufacturing of Magnets: *Scott McCall*[1]; [1]LLNL

8:55 AM
Microstructure Formation of Strip-cast R-Fe-B Alloys for Magnets: *Kazuhiko Yamamoto*[1]; Masashi Matsuura[2]; Satoshi Sugimoto[2]; [1]Santoku Corporation; [2]Tohoku University

9:15 AM
Texture Development Mechanism in HDDR Processed Nd-Fe-B Magnet: *Tae-Hoon Kim*[1]; Jung-Goo Lee[2]; Hae-Woong Kwon[3]; Cheol-Woong Yang[1]; [1]Sungkyunkwan University; [2]Korea Institute of Materials Science; [3]Pukyong National University

9:35 AM
Magnetic Anisotropy and Crystallographic Alignment in *d*-HDDR Process of Nd-Fe-B-Ga-Nb Powders: *Takashi Horikawa*[1]; Masashi Matsuura[1]; Satoshi Sugimoto[1]; Masao Yamazaki[2]; Chisato Mishima[2]; [1]Tohoku University; [2]Aichi Steel Corporation

9:55 AM Break

10:10 AM Invited
Recent Developments in RFe_{12}-type Compounds for Permanent Magnets: A.M. Gabay[1]; *George Hadjipanayis*[1]; [1]University of Delaware

10:35 AM
Temperature Dependence of the Magnetization and Magnetic Anisotropy Measured on the Epitaxial RFe_{12} ($-N_x$) (R = Sm and Nd) Thin Films with $ThMn_{12}$ Structure: *Yusuke Hirayama*[1]; Yukiko Takahshi[1]; Satoshi Hirosawa[1]; Kazuhiro Hono[1]; [1]National Institute for Materials Science

10:55 AM
New Hard Magnetic $ThMn_{12}$-type phases with Low Rare Earth Contents for Permanent Magnet Applications: Andrés Martín-Cid[1]; *Daniel Salazar*[1]; Aleksander Gabay[2]; Ana María Schönhöbel[1]; Jose Garitaonandia[3]; Jose Manuel Barandiaran[3]; George Hadjipanayis[2]; [1]BCMaterials; [2]University of Delaware; [3]University of the Basque Country (UPV/EHU)

11:15 AM Invited
First-principles Study of $ThMn_{12}$-type Iron-based Rare-earth Intermetallics
: *Takashi Miyake*[1]; [1]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
March 1, 2017

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[1]; Mo Rigen[1]; Shuai Wang[1]; *Ian Robertson*[1]; [1]University of Wisconsin-Madison

9:00 AM Invited
Deformation and Fracture Behavior of Irradiated and Nonirradiated Austenitic Stainless Steels: *Thak Sang Byun*[1]; Maxim Gussev[2]; Timothy Lach[1]; [1]Pacific Northwest National Laboratory; [2]Oak Ridge National Laboratory

9:20 AM Invited
A Rate Theoretic Approach to Modeling Irradiation Creep: *Jacob Eapen*[1]; [1]NC State University

9:40 AM Invited
Anisotropic Biaxial Creep of Textured Nb-modified Zircaloy-4 Tubing: *Nilesh Kumar*[1]; Kaitlin Grundy[1]; Boopathy Kombaiah[2]; Baifeng Luan[3]; K Murty[1]; [1]NC State University; [2]Carnegie Mellon University; [3]Chongqing University

10:00 AM Break

10:20 AM Keynote
The Enhanced Radiation-resistance of Ultrafine-grained Metals Produced by SPD Processing: Ruslan Valiev[1]; *Nariman Enikeev*[1]; Marina Abramova[2]; Bertrand Radiguet[3]; Auriane Etienne[3]; Xavier Sauvage[3]; [1]Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; [2]Ufa State Aviation Technical University; [3]Université et INSA de Rouen

10:50 AM Keynote
High Temperature Behavior of Zirconium Alloys in Air: Patrick Price[1]; *Darryl Butt*[2]; Isabella van Rooyen[3]; Jatu Burns[1]; Jordan Vandegrift[1]; [1]Boise State University; [2]University of Utah; [3]Idaho National Laboratory

11:20 AM Invited
Synergistic Effects of Neutron Irradiation and Interstitial Nitrogen on Strain Aging in Ferritic Steels: *Nilesh Kumar*[1]; Ahmad Alsabbagh[1]; C. Seok[2]; K Murty[1]; [1]NC State University; [2]SungKyunKwan University

11:40 AM
Study of High Temperature Deformation Behavior of Graded Transition Joints (GTJs)
(Relevance to Nuclear Power Plant Components)
: *Mohan Subramanian*[1]; Sudarsanam Babu[1]; Jonathan Galler[2]; John DuPont[2]; Xinghua Yu[3]; Zhili Feng[3]; [1]University of Tennessee; [2]Lehigh University; [3]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 Lavernia, University of California, Irvine; Haiyan Wang, Texas A&M University

Wednesday AM
March 1, 2017

Room: 30D
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*[1]; Suman Dasgupta[1]; Paul Rottmann[1]; [1]Johns Hopkins University

8:55 AM
Exploring Nanoindentation Induced Stress Field Propagation in Nanoporous Thin Films: *Tyler Vanover*[1]; Nicolas Briot[1]; Thomas Balk[1]; [1]University of Kentucky

9:15 AM Invited
In-Situ Electron Microscopy of Fracture and Flow: Bahne Kapelle[1]; Andreas Kelling[1]; Florian Süß[1]; *Cynthia Volkert*[1]; [1]University of Göttingen

9:40 AM
Grain Boundaries Shear-migration Coupling and Its Impact on Plastic Deformation in Nanocrystalline Metals: *Marc Legros*[1]; Frédéric Mompiou[1]; Nicolas Combe[1]; Ehsan Hosseinian[2]; Olivier Pierron[2]; [1]CEMES-CNRS; [2]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*[1]; Rachel Liontas[1]; Adenike Giwa[1]; H. Diao[2]; Peter Liaw[1]; [1]California Institute of Technology; [2]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*[1]; Megan Cordill[1]; [1]Erich Schmid Institute

11:05 AM Invited
The Mechanical Behavior of Highly Oriented, Nano-layered HCP/BCC Composites: *Irene Beyerlein*[1]; Milan Ardeljan[2]; Marko Knezevic[2]; Nathan Mara[1]; Daniel Savage[2]; Sven Vogel[1]; Rodney McCabe[1]; John Carpenter[1]; [1]Los Alamos National Laboratory; [2]University of New Hampshire

11:30 AM
Structure Dependent Creep Behavior of CuNb Nanolaminates: *Jaclyn Avallone*[1]; Thomas Nizolek[1]; Irene Beyerlein[1]; Nathan Mara[2]; Tresa Pollock[1]; [1]University of California Santa Barbara; [2]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*[1]; Alexander Leitner[2]; Reinhard Pippan[3]; Daniel Kiener[2]; [1]Montanuniversität Leoben - Physical Metallurgy & Materials Testing; [2]Montanuniversität Leoben - Materials Physics; [3]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 Kaoumi, University of South Carolina; Dane Morgan, University of Wisconsin-Madison; Mahmood Mamivand, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

Wednesday AM
March 1, 2017

Room: Del Mar
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*[1]; Drew Johnson[1]; Ian Robertson[2]; Diana Farkas[3]; [1]University of Michigan; [2]University of Wisconsin; [3]Virginia Tech

9:00 AM
Plastic Deformation Mechanisms Accompanying Stress Corrosion Cracking in Highly Irradiated Austenitic Steels: *Maxim Gussev*[1]; Kevin Field[1]; Donovan Leonard[1]; Gary Was[2]; Keith Leonard[1]; [1]Oak Ridge National Laboratory; [2]University of Michigan

9:20 AM
Study of Microstructural Evolution of 304 Stainless Steels by Atom Probe Tomography: *Bertrand Radiguet*[1]; Bertrand Michaut[2]; Brigitte Décamps[3]; Faiza Sefta[4]; Joël Malaplate[2]; [1]GPM UMR CNRS 6634 - Université et INSA de Rouen; [2]CEA Saclay, DEN/DANS/DMN/SRMA; [3]CSNSM Orsay; [4]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*[1]; Justin Hesterberg[1]; Gary Was[1]; [1]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*[1]; Matthew Olszta[1]; Stephen Bruemmer[1]; [1]Pacific Northwest National Laboratory

10:45 AM
Mechanical Characterization of In Service Inconel X-750 Annulus Spacers: *Cameron Howard*[1]; Peter Hosemann[1]; Scott Parker[1]; Malcolm Griffiths[2]; Colin Judge[2]; David Poff[2]; [1]UC Berkeley; [2]Canadian Nuclear Laboratories

11:05 AM
Microstructural Evolution and Mechanical and Fracture Behavior of CASS under Accelerated Thermal Aging: *Timothy Lach*[1]; Thak Byun[1]; [1]Pacific Northwest National Laboratory

11:25 AM
Irradiation-induced Nanoclusters in Cu-Nb and Cu-Nb-Si: *Jae Yel Lee*[1]; Pascal Bellon[1]; Robert Averback[1]; [1]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
March 1, 2017

Room: 24B
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*[1]; Lucas Meza[1]; Alessandro Maggi[1]; Victoria Chernow[1]; Xiaoxing Xia[1]; [1]California Institute of Technology

8:55 AM
Mechanics of Single-wire Entangled Architected Materials: *David Rodney*[1]; Sabine Rolland du Roscoat[2]; Laurent Orgéas[2]; [1]Université de Lyon; [2]Université Grenoble Alpes - CNRS

9:15 AM
Designing Lightweight Composite Cellular Architectures: *Glenn Hibbard*[1]; [1]University of Toronto

9:35 AM
Development and Compressive Deformation of Polymer-metallic Microcellular Structures: *Theresa Juarez*[1]; Almut Schroer[2]; Ruth Schwaiger[2]; Andrea Hodge[1]; [1]University of Southern California; [2]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*[1]; [1]Karlsruhe Institute of Technology (KIT)

10:40 AM
Toughening of Meso-structured Materials in Additive Manufacturing: *Hang Yu*[1]; [1]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[1]; Charlotte De Formanoir[2]; Guilhem Martin[1]; *Rémy Dendievel*[1]; Stephane Godet[2]; [1]Université Grenoble Alpes; [2]Université Libre de Bruxelles

11:20 AM
Metallic Films with Precisely Tailored Multimodal Architectures: *Jagannathan Rajagopalan*[1]; Rohit Sarkar[1]; Ehsan Izadi[1]; Rohit Berlia[1]; [1]Arizona State University

11:40 AM
Surface Gradient Architectured Materials Processed by Severe Plastic Deformation via Surface Abrasion Torsion: *Ji Hyun Moon*[1]; Ho Yong Um[1]; See Am Lee[1]; Jae Ik Yoon[1]; Jaimyun Jung[1]; Hyoung Seop Kim[1]; [1]POSTECH

Nanostructured Surfaces for Improved Functional Properties — Session I

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 AM
March 1, 2017

Room: Pacific 23
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*[1]; Joseph Labukas[1]; Jim Catalano[1]; Kristopher Darling[1]; [1]Army Research Laboratory

8:50 AM
Advanced Laser Surface Processing of Thermally-Stable Nanocrystalline Alloys: *Kendrick Mensink*[1]; Guillermo Aguilar[1]; Suveen Mathaudhu[1]; [1]University of California Riverside

9:10 AM Invited
Temporary Implants for Bone Fracture Healing: Nanosurface Engineering: *Bobby Kannan Mathan*[1]; [1]James Cook University

9:30 AM
Corrosion Resistance and Chemical Stability of Super-hydrophobic Electrodeposited Nickel-cobalt Film: *Shohreh Khorsand*[1]; Keyvan Raeissi[2]; Fakhreddin Ashrafizadeh[2]; Maria Arenas[3]; [1]Brunel University London; [2]Isfahan University of Technology; [3]National Center for Metallurgical Research

9:50 AM Break

10:05 AM Invited
Nanostructured Coatings for Wear and Corrosion Resistance
: *Gary Doll*[1]; [1]The University of Akron

10:25 AM
The Effects of Mn Addition on the Tribocorrosion Behavior of Al–Mn Coatings: Hesham Mraied[1]; *Wenjun Cai*[1]; [1]University of South Florida

10:45 AM
Plasma Spray Deposition of Aluminum-Boron Nitride Nanotube Composite: *Pranjal Nautiyal*[1]; Cheng Zhang[1]; Arvind Agarwal[1]; [1]Plasma Forming Laboratory, Florida International University

11:05 AM
Corrosion Behavior of Boron Nitride Nanosheet Reinforced Copper Matrix Composite Coatings: *Shei Sia Su*[1]; Cengiz Yegin[1]; Winson Kuo[1]; Mustafa Akbulut[1]; Homero Castaneda[1]; [1]Texas A&M University

Pan American Materials Congress Plenary — Session III

Wednesday AM
March 1, 2017

Room: Marina G
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM Plenary
Recent Progress in High Entropy Alloy Research: Zhiqiang Fu[1]; Benjamin MacDonald[1]; Baolong Zheng[1]; Weiping Chen[2]; Yaojun Lin[3]; Fei Chen[3]; Lian Zhang[3]; Yulia Ivanisenko[4]; Yizhang Zhou[1]; Horst Hahn[5]; *Enrique J. Lavernia*[6]; [1]University of California, Irvine; [2]South China University of Technology; [3]Wuhan University of Technology; [4]Karlsruhe Institut of Technology; [5]Karlsruhe Institute of Technology; [6]University of California Davis

9:10 AM Plenary
High Temperature Solutions through Materials and Processes for Engines under Heavy Thermal Fatigue Conditions: *Salvador Valtierra*[1]; [1]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
March 1, 2017

Room: Mission Hills
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 Zavattieri*[1]; David Restrepo[1]; Yunlan Zhang[1]; Nilesh Mankame[2]; [1]Purdue University; [2]General Motors Research & Development

10:40 AM
An Approach to Study Materials-structure Relationships in Bio-inspired Microstructures: Alejandro Gutierrez[1]; *Lilian Davila*[1]; [1]University of California, Merced

11:00 AM
Heparin-based Self-assemblies for Controllable Drug Delivery Application: *Lin Ye*[1]; [1]Beijing Institute of Technology

11:20 AM
Synthesis and Characterization of Bioinspired Freeze-Cast Alumina With A Zr-Based Bulk Metallic Glass Matrix: *Amy Wat*[1]; Jein Lee[2]; Bernd Gludovatz[3]; Eun Soo Park[2]; Robert Ritchie[1]; [1]University of California, Berkeley; [2]Seoul National University; [3]Lawrence Berkeley National Laboratory

11:40 AM
Analysis of Biomimetic Surgical Clip Using Finite Element Modeling for Geometry Improvement and Biomaterials Selection: Thays Brito[1]; *Bianca dos Santos*[1]; Leonardo Araújo[1]; Luiz de Almeida[1]; Marysilvia da Costa[1]; [1]Universidade Federal do Rio de Janeiro

12:00 PM Invited
Multiscale Bio-inspired Design of Nanocomposites: *Horacio Espinosa*[1]; [1]Northwestern University

12:20 PM
Pangolin Armor: Overlapping, Structure, and Mechanical Properties of the Keratinous scales: *Wen Yang*[1]; Bin Wang[2]; Vincent Sherman[2]; Marc Meyers[2]; [1]Swiss Federal Institute of Technology in Zurich (ETHZ); [2]University of California, San Diego

12:40 PM
On the Strain Rate Sensitivity of Keratin Hair Fibers: *Yang Yu*[1]; Wen Yang[1]; Marc Meyers[1]; [1]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 Hotza, UFSC

Wednesday AM
March 1, 2017

Room: Marina D
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

10:10 AM
Comparative Mechanical Analysis between Epoxy Composite Reinforced with Random Short Cuarua Fibers and Aligned Long Curaua Fibers: *Natália Maciel*[1]; Carolina Ribeiro[1]; Jordana Ferreira[1]; Janaina Vieira[1]; Frederico Margem[1]; Carlos Maurício Vieira[1]; Sérgio Monteiro[1]; [1]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 Ribeiro[1]; Frederico Muylaert[2]; *Jean Igor Margem*[3]; Sergio Monteiro[4]; Ygor de Moraes[1]; João Batista Gomes[3]; [1]State University of the Northern Rio de Janeiro; [2]Faculdade Redentor; [3]ISECENSA; [4]Instituto Militar de Engenharia

10:50 AM
Damage Evaluation of Impact by Low-speed on Fiberglass Composite with Laminates Aluminum 2024-T3: *Eduardo Jose Trujillo*[1]; [1]Centro de Ingeniería y Desarrollo Industrial

11:10 AM
Numerical Modeling of High-Velocity Impact Welding: *Ali Nassiri*[1]; Shunyi Zhang[2]; Tim Abke[3]; Brad Kinsey[2]; Glenn Daehn[1]; [1]The Ohio State University; [2]University of New Hampshire; [3]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 Lavvafi*[1]; Ayush Tiwari[2]; Ahmadreza Jahadakbar[2]; Mahbod Pourriahi[2]; Mohammad Elahinia[2]; Vijaya Devabhaktuni[2]; E. Ishmael Parsai[3]; [1]University of Toledo Medical Center ; [2]University of Toledo; [3]University of Toledo Medical Center

11:50 AM Invited
Selective Laser Sintering of Polyamide/Hydroxyapatite Scaffolds: Frederic Dabbas[1]; Steferson Stares[1]; Jose Mascheroni[2]; *Dachamir Hotza*[1]; Gean Salmoria[1]; [1]UFSC; [2]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 Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Wednesday AM
March 1, 2017

Room: Marina G
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

10:10 AM
Cathode Design and Pathway Investigation of Processing TiSi2/Si Alloy by Electro-reduction of Mixed Oxide SiO2 and TiO2 in CaCl2 Melt: *Shulan Wang*[1]; Xuan Liu[2]; Li Li[3]; [1]Northeastern University; [2]Carnegie mellon university; [3]Cornell University

10:30 AM
A Novel Air Electrode Using Core-Shell Particles for Metal Hydride/Air Rechargeable Battery: *Hideyuki Sano*[1]; Masatsugu Morimitsu[1]; [1]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 Chen*[1]; Junyang Li[1]; Yanhua Zhang[1]; Dunjie Yang[1]; Qiang Shen[1]; Lianmeng Zhang[1]; [1]Wuhan University of Technology

11:10 AM
Development of Air Electrodes Using Different Types of Carbon Materials for Metal Hydride/Air Secondary Battery: *Yusuke Ujino*[1]; Masatsugu Morimitsu[1]; [1]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 Monsalve*[1]; [1]Universidad de Santander

11:50 AM
Cycle Performance of Air Electrode and Metal Hydride/Air Secondary Battery: *Tsukasa Gejo*[1]; Kenji Kawaguchi[1]; Masatsugu Morimitsu[1]; [1]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
March 1, 2017

Room: Marina F
Location: Marriott Marquis Hotel & Marina

Session Chairs: Shima Sabbaghianrad, University of Southern California; Laszlo Toth, Université de Lorraine

10:10 AM
Quantitative Modeling of Grain Fragmentation during Severe Plastic Deformation Featuring Grain Size Distribution, Texture, Strain Hardening, and Disorientation Distribution: *Laszlo Toth*[1]; [1]Université de Lorraine

10:30 AM
Continuous Dynamic Recovery in Pure Aluminum Deformed to High Strain by Accumulative Press Bonding: *Sajjad Amirkhanlou*[1]; Mostafa Ketabchi[2]; Nader Parvin[3]; Fernando Carreño[4]; [1]Brunel University London; [2]Amirkabir University of Technology ; [3]Amirkabir University of Technology; [4]CENIM-CSIC

10:50 AM
Static Recrstallization and Grain Growth of Accumulative Roll Bonded Aluminium Laminates: Laura Lienshoeft[1]; Paul Chekhonin[1]; Juliane Scharnweber[1]; Tom Marr[2]; Tina Hausöl[3]; Heinz Werner Hoeppel[3]; *Werner Skrotzki*[1]; [1]TU Dresden; [2]IFW Dresden; [3]Universität Erlangen-Nürnberg

11:10 AM
Evaluation of the Hardening and Softening Effects in Zn-21Al-2Cu with As Cast and Homogenized Microstructure Processed by Equal Channel Angular Pressing: Esperanza Elizabeth Martinez Flores[1]; Jose Luis Hernandez Rivera[1]; Jorge Garcia Rocha[1]; Jose de Jesus Cruz Rivera[1]; *Gabriel Torres Villaseñor*[2]; [1]Instituto de Metalurgia-Universidad Autonoma de San Luis Potosi; [2]Instituto 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 Cubero-Sesin*[1]; Joaquin González-Hernández[1]; Elena Ulate-Kolitsky[1]; Stephen Petretti[1]; Luis Rojas-Morales[1]; José Vega-Baudrit[2]; Zenji Horita[3]; [1]Instituto Tecnológico de Costa Rica; [2]Laboratorio Nacional de Nanotecnología (LANOTEC-CeNAT); [3]Kyushu University / I2CNER

11:50 AM
Limit of Grain Refinement after Processing by a Combination of Severe Plastic Deformation Techniques
: *Shima Sabbaghianrad*[1]; Seyed Alireza Torbati-Sarraf[1]; Terence Langdon[1]; [1]University of Southern California

12:10 PM
Influence of SPD in Phase Transformation of Duplex Steels: *Núria Llorca-Isern*[1]; Isabel Lopez[1]; Jose Maria Cabrera[2]; Mohan Chand[2]; Irene Calliari[3]; Antoni Roca[1]; [1]Universitat de Barcelona; [2]Universitat Politècnica de Catalunya; [3]Universita 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
March 1, 2017

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 Gong[1]; M. Hua[1]; J. Uusitalo[2]; *Anthony DeArdo*[1]; [1]University of Pittsburgh; [2]University of Oulu

10:40 AM
Microstructural Evolution in Microalloyed Steels during Thermomechanical Rod Rolling: *Lijia Zhao*[1]; Robert Cryderman[1]; John Speer[1]; [1]Colorado School of Mines

11:00 AM
Modeling Precipitation and Dissolution of Microalloying Carbonitrides in Steels Using Computational Thermodynamics- techniques, Possibilities and Present Challenges: *Andre Costa E Silva*[1]; [1]EEIMVR - Universidade Federal Fluminense - IBQN

11:20 AM
Evolution of Austenite Dislocation Density during Hot Deformation using a Physical Dynamic Recrystallization Model: *Peng Zhou*[1]; Qingxian Ma[1]; [1]Tsinghua University

11:40 AM
The Research on the Relationship between Gas Movement Behaviors and Circulating Flow of the Molten Steel in RH: *Jialiang Xu*[1]; Yanping Bao[1]; Lihua Zhao[1]; Min Wang[1]; Lu Lin[1]; Yadi Li[1]; Xingle Fan[1]; [1]University of Science and Technology Beijing

12:00 PM
Influence of a Rapid Heating on the Microstructure and Properties of Press-hardening Steel Sheets: *Anatolii Andreiev*[1]; Mirko Schaper[1]; Olexandr Grydin[1]; [1]Paderborn 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, Karlsruhe Institute of Technology; Yu Zhong, Florida International University; Shijo Nagao, Osaka University; Shien Ping Tony Feng, The University of Hong Kong; Yee-wen Yen, National Taiwan Univ of Science & Tech

Wednesday AM
March 1, 2017

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 Kang[1]; Jinuk Lee[2]; Hyun-Woo Kwon[2]; *Jae-Ho Lee*[1]; [1]Hongik University; [2]Samsung Electro-Mechanics

8:50 AM
Etching Behaviors of Copper and Invar in via Hole of Copper-Invar-Copper Clad Substrate: Jong-Chan Choi[1]; Jinuk Lee[2]; Hyun-Woo Kwon[2]; *Jae-Ho Lee*[1]; [1]Hongik University; [2]Samsung Electro-Mechanics

9:10 AM
Sulfurization Effect on the Ag and Ag-Pd Reflectors: *Erh-Ju Lin*[1]; Yan-Hao Chen[1]; Cheng-Yi Liu[1]; [1]National Central University

9:30 AM
Interfacial Characterizations of an Electroless Nickel Layer on a Polyimide Film: *Pei-Yu Wu*[1]; Chih-Ming Chen[1]; [1]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*[1]; Jhih-Yan Wong[1]; Jau-Shiung Fang[1]; [1]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[1]; *Chih-Ming Chen*[1]; [1]National Chung Hsing University

10:45 AM
Electrochemical Fabrication of Functional Ag Nanocrystals with Highly Electrocatalytic Activity: *Shien Ping Feng*[1]; Ya-Heui Chang[1]; Chang Liu[1]; [1]The University of Hong Kong

11:05 AM
Controlling Interfacial IMC Phase via Modifying Bi Composition in Low Temperature Bi-33In/Cu Solder Joint: *Rui-Wen Song*[1]; Jenq-Gong Duh[1]; [1]National Tsing Hua University

11:25 AM
High-speed Cu Electrodeposition and Its Solid-state Reaction with Sn-3Ag-0.5Cu: *Pei-Tzu Lee*[1]; Ying-Syuan Wu[1]; Cheng-Hsien Yang[1]; Hung-Cheng Liu[2]; Cheng-En Ho[1]; [1]Yuan Ze Univeristy; [2]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 Winseck[1]; Huai-Yu Cheng[2]; Geoffrey Campbell[3]; *Melissa Santala*[1]; [1]Oregon State Unviersity; [2]Macronix International Co., Ltd.; [3]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*[1]; Wei-Neng Hsu[2]; Steven Van Petegem[1]; Helena Van Swygenhoven[2]; [1]Paul Scherrer Institute; [2]Paul Scherrer Institute & EPFL

8:50 AM
The Effect of the Heat Treatment Temperature on the Thermodynamic Properties of the 55.89wt%Ni-Ti Shape Memory Alloy: *Ben Fraj Boutheina*[1]; Zoubeir TOURKI[1]; [1]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*[1]; Fan Yang[1]; Daniel Coughlin[2]; Glen Bigelow[3]; Darrell Gaydosh[3]; Santo Padula[3]; Othmane Benafan[3]; Ronald Noebe[3]; Peter Anderson[1]; Yunzhi Wang[1]; Michael Mills[1]; [1]The Ohio State University; [2]Los Alamos National Laboratory; [3]NASA Glenn Research Center

9:30 AM
Microstructural Effects on Stress-Induced Martensite in NCAXB Alloys: *Cheng Zhang*[1]; Kenneth Vecchio[1]; [1]Department of NanoEngineering and Materials Science and Engineering Program, University of California, San Diego

9:50 AM
Role of Granular Constraint and Surface Effects on the Phase Transformation Mechanics in Shape Memory Alloys: *Harshad Paranjape*[1]; Partha Paul[2]; Hemant Sharma[3]; Jun-sang Park[3]; Peter Kenesei[3]; Catherine Brinson[2]; Aaron Stebner[1]; [1]Colorado School of Mines; [2]Northwestern University; [3]Argonne National Laboratory

10:10 AM Break

10:30 AM Invited
Characterization of Microstructural Evolution in a High Entropy Alloy with a Complex Nanoscale Microstructure: *Jacob Jensen*[1]; John Sosa[1]; Dan Huber[1]; Gopal Viswanathan[1]; Robert Williams[1]; Hamish Fraser[1]; [1]The Ohio State University

10:50 AM
Tailoring the Microstructure of Intermetallic Films by Seed Layer Mediated Crystallization from an Amorphous Phase: *Rohit Sarkar*[1]; Jagannathan Rajagopalan[1]; [1]Arizona State University

11:10 AM
Unraveling the Growth Process of an Irregular Eutectic: *Ashwin Shahani*[1]; Xianghui Xiao[2]; Peter Voorhees[1]; [1]Northwestern University; [2]Argonne National Laboratory

11:30 AM
A Combinatorial Assessment of $Al_xCrCuFeNi_2$ (0<x<1.5) High Entropy Alloys: Microstructure, Microhardness, and Magnetic Properties
: *Tushar Borkar*[1]; Bharat Gwalani[2]; Deep Choudhuri[2]; Calvin Mikler[2]; Chris Yannetta[2]; Xi Chen[3]; Raju Ramanujan[3]; Mark Styles[4]; Mark Gibson[4]; Rajarshi Banerjee[2]; [1]Cleveland State University; [2]University of North Texas; [3]Nanyang Technological University; [4]CSIRO Manufacturing

11:50 AM
Isothermal Demagnetizing Behavior around Martensite-glass Boundary as 4D Material Candidate: *Zhijian Zhou*[1]; [1]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
**
James A. Warren, chair

8:40 AM Invited
Dislocations, Trijunctions and Grain Rotation: Kevin McReynolds[1]; Akinori Yamanaka[2]; *Peter Voorhees*[1]; [1]Northwestern University; [2]Tokyo University of Agriculture and Technology

9:10 AM Invited
A DSC Model for Grain Boundary Migration and Properties: *David Srolovitz*[1]; Jian Han[1]; Spencer Thomas[1]; Vaclav Vitek[1]; [1]University of Pennsylvania

9:40 AM Invited
Thin Film Grain Growth for Twin Related Orientations of Grains: *John Blendell*[1]; Jean Taylor[2]; John Cahn[3]; R. Edwin Garcia[1]; Daniel Lewis; [1]Purdue University; [2]Professor Emerita at Rutgers University and Visiting Faculty at Courant Institute, NYU; [3]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[1]; Suman Dasgupta[1]; *Kevin Hemker*[1]; [1]Johns Hopkins University

11:00 AM Invited
Energetic Trends for Twin Boundaries in HCP Metals: Maarten de Jong[1]; Liang Qi[2]; Axel van de Walle[3]; *Mark Asta*[1]; [1]University of California, Berkeley; [2]University of Michigan; [3]Brown University

11:30 AM Invited
Molecular Dynamics Simulations of Faceted, Incoherent Twin Boundaries: *Elizabeth Holm*[1]; Jonathan Humberson[1]; [1]Carnegie Mellon 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

Wednesday PM
March 1, 2017
Room: Pacific 26
Location: Marriott Marquis Hotel & Marina

Session Chairs: Nitin Chopra, University of Alabama; Jiyoung Kim, University of Texas at Dallas

2:00 PM Invited
Ultrathin Organic-inorganic Hybrid Dielectric Engineering on 2D MoS2 Using Molecular Atomic Layer Deposition: *Lanxia Cheng*[1]; Jaebeom Lee[1]; Hui Zhu[1]; Arul Vigneswar Ravichandran[1]; Qiaoxiao Wang[1]; Zifan Che[1]; Antonio Lucero[1]; Moon Kim[1]; Robert Wallace[1]; Luigi Colombo[2]; Jiyoung Kim[1]; [1]University of Texas Dallas; [2]Texas Instruments

2:30 PM
Effect of Substrate-film Interface in Mid-IR Photothermal Response of PLD Grown MoS<2>: *Ankur Goswami*[1]; Soupitak Pal[1]; [1]University of California Santa Barbara

2:50 PM
Scanning Photocurrent Microscopy of Epitaxial Graphene Heterostructures: Bobby Barker[1]; Venkata Surya Chava[1]; MVS Chandrashekhar[1]; *Andrew Greytak*[1]; [1]University of South Carolina

3:10 PM
Microwave Imaging of Plasma Etched CVD Graphene Using Scanning Microwave Microscope: Kathleen Brockdorf[1]; Joshua Myers[1]; Zhonghang Ji[1]; Hong Huang[1]; Nick Engel[1]; *Yan Zhuang*[1]; [1]Wright State University

3:30 PM
Carbon Nanotube Coated Conductors: *Terry Holesinger*[1]; [1]Los Alamos National Laboratory

3:50 PM Break

4:10 PM
Highly Aligned Electronic-type Purified Semiconducting Carbon Nanotube Array Field Effect Transistors with Current Density That Exceeds Silicon and Gallium Arsenide: Gerald Brady[1]; Austin Way[1]; Yongho Joo[1]; Katherine Jinkins[1]; Harold Evensen[2]; Padma Gopalan[1]; *Michael Arnold*[1]; [1]University of Wisconsin-Madison; [2]University of Wisconsin-Platteville

4:30 PM
Synthesis of Pd Nanoparticles on Graphene Oxide Supports by X-ray Irradiation: *Dustin Clifford*[1]; Jessika Rojas[1]; Carlos Castano[1]; [1]Virginia Commonwealth University

4:50 PM
Synthesis and Interface Boundary Characteristics of Gold/Cobalt Janus Nanoparticles: *Kyungah Seo*[1]; Olivia Graeve[1]; [1]University of California, San Diego

5:10 PM
On Effects of Geometric Nonlinearity and Mechanical Anisotropy in Strain-engineered Helical Nanoribbons: *Zi Chen*[1]; Shicheng Huang[1]; Ian Trase[1]; Lina Zhang[1]; Nan Hu[1]; [1]Dartmouth College

5:30 PM
Electrochemical Actuation of Dealloyed Bulk Nanoporous Nickel: *Chuan Cheng*[1]; Jörg Weissmüller[2]; [1]Technische Universität Hamburg-Harburg ; [2]Technische Universität Hamburg-Harburg

2017 Symposium on Functional Nanomaterials: Emerging Nanomaterials and Nanotechnology — Nanomaterials Generals

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

Wednesday PM
March 1, 2017
Room: Pacific 24
Location: Marriott Marquis Hotel & Marina

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

2:00 PM
In Situ Heating Experiments in the TEM on Silver Nanocrystals: *Sriram Vijayan*[1]; Sravan Thota[1]; Jing Zhao[1]; Mark Aindow[1]; [1]University of Connecticut

2:20 PM
FT-IR Investigation of H Content in SiN_x Thin Film Grown by PEALD Using HCDS as Precursor; Achieving Low WER: *Harrison Kim*[1]; Young-Chul Byun[1]; Xin Meng[1]; Jiyoung Kim[1]; B. K. Hwang[2]; [1]The University of Texas at Dallas; [2]Dow Corning Corporation

2:40 PM
Effects of Surface Treatments on the Electrical Characteristics of AlGaN/GaN MOS Capacitors Using ALD Grown Epitaxial ZnO as Interfacial Gate Dielectric: *Xin Meng*[1]; Young-chul Byun[2]; Jaegil Lee[2]; Jiyoung Kim[2]; [1]University of Texas Dallas; [2]Univeristy of Texas Dallas

3:00 PM
The Effect of H_2O vs. O_3 as the ALD Oxidant on the Ferroelectric Phase Transition of Hafnium – Zirconium Oxide: Dushyant Narayan[1]; *Si Joon Kim*[1]; Jae-Gil Lee[1]; Young-Chul Byun[1]; Joy Lee[1]; Antonio Lucero[1]; Scott Summerfelt[2]; Jiyoung Kim[1]; [1]The University of Texas at Dallas; [2]Texas Instruments

3:20 PM Break

3:40 PM
Gas Condensation of Fe65Co35-Ag/Au Core-Shell Nanoparticles for Biomedical Applications: *Mark Koten*[1]; Marlann Patterson[2]; Jeffrey Shield[1]; [1]University of Nebraska - Lincoln; [2]University of Wisconsin - Stout

4:00 PM
Thermal and Electrical Transport in Glassy Carbon Nanowires: *Laia Ferrer-Argemi*[1]; Arnoldo Salazar[1]; Marc Madou[1]; Jaeho Lee[1]; [1]University of California Irvine

4:20 PM
Synthesis and Consolidation of Nanocrystalline Bulk Aluminum Nitride: *Matthew Duarte*[1]; Yasuhiro Kodera[1]; Javier Garay[1]; [1]University of California San Diego

4:40 PM
Plasmon Induced Interfacial Engineering of Nanowires Heterojunctions for Nanoelectronics with Femtosecond Laser Radiation: *Luchan Lin*[1]; Lei Liu[1]; Guisheng Zou[1]; Walt Duley[2]; Y.Norman Zhou[1]; [1]Tsinghua University; [2]University of Waterloo

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; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim University

Wednesday PM
March 1, 2017

Room: 18
Location: San Diego Convention Center

Session Chairs: Dean Gregurek, RHI AG; Guanghui Li, Central South University

2:00 PM Introductory Comments

2:05 PM
Evolution of Oxide and Sulfide Inclusions in the Ladle Furnace during Calcium Injection: *Seyed Yousef Tabatabaei Majd*[1]; Kenneth Coley[1]; Gordon Irons[1]; Stanley Sun[2]; [1]McMaster University; [2]ArcelorMittal Dofasco

2:25 PM
Influence of Puhrstahl Heraeus Refining Process on Aluminum Consumption in Interstitial-Free Steel Smelting Process: *Siyuan Zhang*[1]; Yanping Bao[1]; Chaojie Zhang[1]; Lu Lin[1]; Wei Xiao[1]; [1]University of Science and Technology Beijing

2:45 PM
Formation Mechanisms of Inclusions in Spring Steels: Sha Lv[1]; Zongze Huang[2]; Zan Yao[2]; Xiaodong Ma[1]; Geoff Wang[1]; Zhouhua Jiang[3]; Jin Zou[1]; *Baojun Zhao*[1]; [1]The University of Queensland; [2]Baosteel; [3]Northeastern University

3:05 PM
Investigation on Coal Combustion Behaviors under the Oxygen Blast Furnace: *Zhenfeng Zhou*[1]; Yuanyuan Zhang[1]; Guang Wang[1]; Jingsong Wang[1]; Qingguo Xue[1]; [1]University of Science and Technology Beijing

3:25 PM
Inclusion Control with Ca Treatment to Improve Castability of a Low Carbon Al Killed Steel: *Stanley Sun*[1]; Steve Waterfall[1]; Norbert Strobl[1]; Dongsheng Liao[1]; Don Holdridge[1]; [1]ArcelorMittal Hamilton

3:45 PM Break

4:05 PM
High Temperature Mineralization Mechanism of Granules during Iron Ore Sintering Process: *Wei Lv*[1]; Xiaohui Fan[1]; Min Gan[1]; Xuling Chen[1]; Zhiyun Ji[1]; Yang Zhou[1]; Guojing Wang[1]; Qiang Li[1]; [1]Central South University

4:25 PM
Investigation of High Chromium Steel on the Different Salt-bath Heat Treatment Conditions: *Cheng-Yi Chen*[1]; Fei-Yi Hung[1]; Truan-Sheng Lui[1]; Li-Hui Chen[1]; [1]National Cheng Kung University

4:45 PM
Research on the Behavior of Sodium and Potassium in Iron Ore Concentrate Agglomeration Process
: *Chen Liu*[1]; Guanghui Li[1]; Yijia Dong[1]; Yuanbo Zhang[1]; Tao Jiang[1]; [1]Central South University, School of Minerals Processing and Bioengineering

5:05 PM
Reduction Behaviors of Sinter Made from Magnetite Concentrates in Reducing Process Simulated COREX Shaft Furnace: *Benjing Shi*[1]; Deqing Zhu[1]; Jian Pan[1]; Xuxiao Xue[1]; [1]Central South University

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 Poorganji, YTC America Inc.

Wednesday PM
March 1, 2017

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

2:00 PM Invited
An Integrated Platform for Predicting the Mechanical Behavior of Additive Manufactured Metal Parts: *Jian Cao*[1]; Wing Liu[1]; Sarah Wolff[1]; Steven Lin[1]; Wei Xiong[1]; Puikei Cheng[1]; Gregory Wagner[1]; Eric Faierson[2]; Federico Sciammarella[3]; Kornel Ehmann[1]; Greg Olson[1]; [1]Northwestern University; [2]Quad City Manufacturing Laboratory & Western Illinois University; [3]Northern Illinois University

2:30 PM
Microstructural Evolution and Fatigue Behavior of SLM Processed Alloy IN625: *John Samuel Dilip Jangam*[1]; Md Anam[1]; Deepankar Pal[1]; Brent Stucker[2]; [1]University of Louisville; [2]3D SIM LLC

2:50 PM
Investigating the Role of Porosity in DMLS IN718 by Crystal Plasticity Modeling with Experimental Validation: *Veerappan Prithivirajan*[1]; Todd Book[1]; Diwakar Naragani[1]; Michael Sangid[1]; [1]Purdue University

3:10 PM
Anisotropic Mechanical Behavior of AlSi10Mg Parts Produced by Selective Laser Melting: *Ming Tang*[1]; Petrus Pistorius[1]; [1]Carnegie Mellon University

3:30 PM Break

3:50 PM
Microstructure Evolution, Tensile and Dynamic Properties, and Computational Modeling in Ti-6Al-4V and Inconel 718 Alloys Manufactured by Laser Engineered Net Shaping: Yuwei Zhai[1]; Diana Lados[1]; Eric Brown[2]; Greg Vigilante[2]; *Robert Warren*[1]; [1]Worcester Polytechnic Institute; [2]Benet Labs

4:10 PM
Fracture and Fatigue Behavior of Additively Manufactured Austenitic Stainless Steel: *Chris San Marchi*[1]; Josh Sugar[1]; Michael Maguire[1]; Dorian Balch[1]; [1]Sandia National Laboratories

4:30 PM
Fatigue Behavior of Ti-6Al-4V Fabricated via Electron Beam Melting (EBM) Process: *Aref Yadollahi*[1]; Jonathan Pegues[1]; Mohsen Seifi[2]; Nima Shamsaei[1]; John Lewandowski[2]; [1]Mississippi State University; [2]Case Western Reserve University (CWRU)

4:50 PM
Investigating Strain Localization in DMLS TI-6Al-4V Using CPFE Modeling and DIC: *Kartik Kapoor*[1]; Todd Book[1]; Michael Sangid[1]; [1]Purdue University

5:10 PM
Mechanical Properties of SS316L Manufactured by Laser Powder Bed Additive Manufacturing: *Håkan Brodin*[1]; [1]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
March 1, 2017

Room: 7A
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 Shapiro*[1]; John Paul Borgonia[1]; Nataly Chen[1]; R. Peter Dillon[1]; Bryan McEnerney[1]; Raul Polit-Casillas[1]; Lewis Soloway[1]; [1]Jet Propulsion Laboratory, California Institute of Technology

2:20 PM
Additive Friction Stir: A New Additive Manufacturing Technology for Metallic Structural Materials Including Ti64: Jianqing Su[1]; *Nanci Hardwick*[1]; [1]Aeroprobe Corporation

2:40 PM
Nanomechanical and EBSD Characterization of Additive Manufactured Mg Alloys: *Paul Allison*[1]; Oscar Rivera[1]; Wilburn Whittington[2]; Brian Jordon[1]; Jianqing Su[3]; Nanci Hardwick[3]; [1]University of Alabama; [2]Mississippi State University - Center for Advanced Vehicular Systems; [3]Aeroprobe Corporation

3:00 PM
Scaling Relationships for Direct Ink Writing with Acoustic Focusing: *Leanne Friedrich*[1]; Rachel Collino[1]; Tyler Ray[1]; Matthew Begley[1]; [1]University of California Santa Barbara

3:20 PM Break

3:40 PM Invited
Statistical Design Guidelines for Powder Bed Fusion: *Carolyn Seepersad*[1]; Jared Allison[1]; Conner Sharpe[1]; Steven Kubiak[2]; [1]University of Texas at Austin; [2]Stratasys Direct Manufacturing

4:10 PM
Characterization of Additive Manufactured IN718 Using Ultrasonic Measurements: *Paul Panetta*[1]; Hualong Du[1]; Waled Hassan[2]; [1]Applied Research Associates, Inc.; [2]Rolls-Royce Corporation

4:30 PM
Control of Deposition Interface Quality in Additive Manufacturing: *Cameron Knapp*[1]; John Carpenter[1]; Desiderio Kovar[2]; [1]Los Alamos National Laboratory; [2]University of Texas at Austin

4:50 PM
Matrix Grain Refinement in Functionally Graded Ti-6Al-4V/TiB Composite Fabricated by LENS Additive Manufacture: *Denver Seely*[1]; Hongjoo Rhee[1]; Mark Horstemeyer[1]; [1]Mississippi State University/Center for Advanced Vehicular Systems

5:10 PM
A Highly Fracture and Fatigue Resistant Optimized As-deposited EBM Ti-6Al-4V: *Mohsen Seifi*[1]; Jesse Boyer[2]; William Brindley[2]; John Lewandowski[1]; [1]Case Western Reserve University; [2]Pratt & 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
March 1, 2017

Room: 33C
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 Xie*[1]; Paul Rottmann[2]; Luoning Ma[2]; Kevin Hemker[2]; [1] Johns Hopkins University; [2]Johns Hopkins University

2:20 PM
Characterization of the Mechanistic Responses of Three Silicon Carbide Variants to Knoop Indentation by TEM: *Scott Walck*[1]; Samuel Hirsch[1]; Kristopher Behler[1]; Jerry LaSalvia[1]; [1]U.S. Army Research Laboratory

2:40 PM
Measuring Residual Stresses in Boron Carbide in TEM: *Luoning Ma*[1]; Paul Rottmann[1]; Kelvin Xie[1]; Kevin Hemker[1]; [1]Johns Hopkins University

3:00 PM
Investigating the On-set of Amorphization in Single Crystal Boron Carbide: *Jonathan Ligda*[1]; Jeffrey Lloyd[1]; Brian Schuster[1]; [1]Army Research Laboratory

3:20 PM Break

3:40 PM
3D Dislocation Structure Evolution Underneath Indentations in Single Crystalline: *Karsten Durst*[1]; [1]Technical University Darmstadt

4:00 PM
Effect of Indentation Load on Deformation Mechanisms in Boron Carbide: *Jerry LaSalvia*[1]; Scott Walck[1]; Kristopher Behler[1]; [1]U.S. Army Research Laboratory

4:20 PM
From Micro-Cantilever Testing to Deformation Patterning in Hexagonal Polycrystals: *Jicheng Gong*[1]; Rajesh Korla[2]; Mitchell Cuddihy[3]; T Ben Britton[3]; Fionn Dunne[3]; Angus Wilkinson[1]; [1]University of Oxford; [2]Indian Institute of Technology - Hyderabad; [3]Imperial College London

4:40 PM
Influence of Elastic Anisotropy and Local Texture on the Onset of Plastic Slip in Ti-6Al-4V: *Samuel Hemery*[1]; Patrick Villechaise[2]; Loïc Signor[1]; [1]ENSMA; [2]CNRS

5:00 PM
Modeling the Evolution of Slip System Strength in a–Phase Ti-7Al Using High-Energy Diffraction Microscopy Data: *Darren Pagan*[1]; Nathan Barton[1]; Paul Shade[2]; Joel Bernier[1]; [1]Lawrence Livermore National Laboratory; [2]Air 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
March 1, 2017

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 Kim[1]; Joo Hyun Ryu[2]; Sea Woong Lee[2]; Kyooyoung Lee[2]; *Dong Woo Suh*[1]; [1]Pohang University of Science and Technology; [2]POSCO

2:30 PM
Micromechanical Modeling of the Tensile Behavior of Nanostructured Carbide-Free Bainitic Steels
: *Sébastien Allain*[1]; Jean-Christophe Hell[2]; Jean-Philippe Chateau-Cornu[3]; Moukrane Dehmas[1]; [1]Institut Jean Lamour; [2]Arcelormittal Maizières Research SA; [3]Laboratoire 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 An*[1]; Stefan Zaefferer[1]; [1]Max-Planck-Institut für Eisenforshung GMBH

3:10 PM
The Mechanical Heterogeneity of Quenched and Tempered Lath Martensite as Evaluated by Bauschinger Tests: *Chad Sinclair*[1]; Guillaume Badinier[2]; Sebastien Allain[3]; Olivier Bouaziz[4]; Xavier Sauvage[5]; [1]University of British Columbia; [2]APERAM Stainless Steel Research; [3]Institut Jean Lamour, Universite de Lorraine; [4]Universite de Lorraine; [5]Universite de Rouen

3:30 PM
Microstructural Evolution and Mechanical Behavior of Medium Mn Steels Intercritical Annealed from Different Starting Structure: *Binhan Sun*[1]; Fateh Fazeli[2]; Colin Scott[2]; Stephen Yue[1]; [1]McGill University; [2]CanmetMATERIALS, 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 Ma*[1]; Wenwen Song[1]; Wolfgang Bleck[1]; [1]RWTH Aachen University

4:30 PM
Effect of Microstructure on Formability and Micro Fracture Mechanism in DP Steel for Automotive Outer Panel: *Yeon-sang Ahn*[1]; Sang-Ho Han[1]; In-Shik Suh[1]; John Speer[2]; [1]POSCO Technical Research Laboratories; [2]Colorado School of Mines

4:50 PM
High Speed Tensile Test with Infrared Thermography and Microstructure Analysis on a High Mn TWIP Steel: *Sebastian Wesselmecking*[1]; Harald Hofmann[2]; Thorsten Beier[2]; Thorsten Rösler[3]; Maximillian Nagel[3]; Klaus Unruh[4]; Wolfgang Bleck[1]; [1]RWTH Aachen; [2]ThyssenKrupp Steel Europe; [3]Hoesch Hohenlimburg GmbH; [4]Faurecia Autositze GmbH

5:10 PM
Microstructure and Mechanical Properties of a 0.2C-5Mn TRIP Steel after Continuous Intercritical Annealing: *Wei Ding*[1]; Yan Li[1]; [1]Inner Mongolia University of Science and Technology

Advanced Materials for Energy Conversion and Storage — Functional Materials I

Program Organizer: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

Wednesday PM
March 1, 2017

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 Packard*[1]; [1]Colorado School of Mines

2:25 PM
Starch Mediated Syntheses of Zinc Oxide and Hydrogenated Zinc Oxide (ZnO:H) Phases: *Joshua Konne*[1]; Bright Christopher[1]; [1]Rivers State University of Sci. & Tech.

2:45 PM
Synthesis and Characterization of Spinel Copper Cobalt Oxide Catalyst for Oxygen Evolution Reaction(OER) in Anion Exchange Membrane Electrolyzer: *Kyu Hwan Lee*[1]; Sung Mook Choi[1]; Myung Je Jang[1]; Andreas Bund[2]; [1]Korea Institute of Matarials Science; [2]Technische Universität Ilmenau

3:05 PM
Synthesis and Processing of NaSICON/Polymer Membranes: *Shan-Ju Chiang*[1]; Caihong Liu[1]; Leon Shaw[1]; [1]Wanger 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 Sachan*[1]; Yanwen Zhang[1]; Matthew Chisholm[1]; William Weber[2]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

4:10 PM
Utilization of Silver Nanowires in Supercapacitors: Recep Yuksel[1]; Sahin Coskun[1]; *Husnu Unalan*[1]; [1]Middle East Technical University

4:30 PM Invited
Mapping the Kinetic Modes of Phase Transformation in Intercalation Compounds: *Ming Tang*[1]; Liang Hong[1]; Linsen Li[2]; Song Jin[3]; [1]Rice University; [2]MIT; [3]University of Wisconsin-Madison

Aluminum Alloys, Processing and Characterization — Characterization

Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Wednesday PM
March 1, 2017

Room: 4
Location: San Diego Convention Center

Session Chair: Tongguang Zhai, University of Kentuky

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: *Varužan Kevorkijan*[1]; Branko Hmelak[2]; Peter Cvahte[3]; Sara Hmelak[2]; Vukašin Dragojevic[4]; Uroš Kovacec[5]; Marina Jelen[5]; Darja Volšak[6]; [1]Impol R in R d.o.o.; [2]Alcad d.o.o.; [3]Impol 2000 d.d.; [4]Impol PCP d.o.o.; [5]Impol LLT d.o.o.; [6]Impol FT d.o.o.

2:30 PM
Analysis of an Aluminium Alloy Containing Trace Elements: *Christian Simensen*[1]; Stephan Kubowicz[1]; Børge Holme[1]; Joachim Greff[1]; [1]SINTEF

2:55 PM
Determination of Aluminum Oxide Thickness on the Annealed Surface of 8000 Series Aluminum Foil by Fourier Transform Infrared Spectroscopy: *Onur Birbasar*[1]; Özlem Uçar[1]; Ayten MESE[2]; Durmus ÖZDEMIR[2]; Murat DÜNDAR[1]; [1]Assan Alüminyum; [2]Izmir 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 Weritz[1]; Denis Choquette[2]; Thomas Belliveau[3]; Rebecca Wyss[4]; *Michael Ruschak*[4]; Albert Wills[5]; Olivier Gabis[6]; John Sieber[7]; [1]The Aluminum Association; [2]Rio Tinto; [3]Novelis; [4]Alcoa, Inc.; [5]Sapa Industrial Extrusions; [6]Wagstaff Inc.; [7]National Institute of Standards and Technology

3:45 PM Break

4:00 PM
Laser Marking and 3D Imaging of Aluminum Products: *Alex Fraser*[1]; Michaël Dallaire[1]; Martin Hartlieb[2]; [1]Laserax Inc.; [2]Viami International Inc.

4:25 PM
Production and Certification of Arconic Certified Reference Materials: *Jenee Jacobs*[1]; Michael Ruschak[1]; John Genna[2]; Keith Trichan[2]; Louis Bono[1]; Samantha Stephens[1]; [1]Arconic Spectrochemical Reference Materials; [2]Alcoa Spectrochemical Standards

4:50 PM
Characterization of Large Strain Extrusion Machining (LSEM) of AA7050: *Daniel Klenosky*[1]; David Johnson[1]; Srinivasan Chandrasekar[1]; Kevin Trumble[1]; [1]Purdue University

Aluminum Reduction Technology — Modelling and Cell Design, Potroom Operations

Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Wednesday PM
March 1, 2017

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 Arkhipov*[1]; Abdalla Zarouni[1]; Amal Al Jasmi[1]; Vinko Potocnik[1]; [1]Emirates Global Aluminium (EGA)

2:30 PM
MHD of Large Scale Liquid Metal Batteries: *Valdis Bojarevics*[1]; Andrejs Tucs[1]; [1]University of Greenwich

2:55 PM
Low Energy Consumption Cell Designs Involving Copper Inserts and an Innovative Busbar Network Layout: *Marc Dupuis*[1]; [1]GéniSim Inc

3:20 PM
LES Turbulence Modeling Approach for Molten Aluminium and Electrolyte Flow in Aluminum Electrolysis Cell: *Mounir Baiteche*[1]; Seyed Mohammad Taghavi[1]; Donald Ziegler[2]; Mario Fafard[1]; [1]Aluminium Research Center REGAL, University Laval; [2]Alcoa 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 Reek*[1]; Roman Düssel[1]; [1]TRIMET Aluminium SE

4:25 PM
Theory and Practice of High Temperature Gas Baking Technology for Alumninium Electrolysis Cells: *Xudong Wang*[1]; Chengbo Wu[1]; Yingwu Li[1]; [1]Zhengzhou Jingwei Technology Industry Co., Ltd

4:50 PM
Retrofit of Damaged Corner Risers by Means of Bolted Connections: *Andre Felipe Schneider*[1]; Donald Ziegler[2]; Maxime Pouliot[2]; Daniel Richard[1]; Jason Robillard[1]; Jeremie Blais[1]; Olivier Charette[1]; Pouya Zangeneh[1]; [1]HATCH Ltd.; [2]Alcoa Primary Metals

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Materials Processing and Plasma Processing

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

Wednesday PM
March 1, 2017

Room: 15B
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 Gupta*[1]; [1]University of Alabama

2:20 PM
Electro Plasma Technology- A Green Technology for Cleaning and Coating Metals: *Pratheesh George*[1]; [1]CAP Technologies LLC

2:40 PM
PTA Cladding for Wear Application: *Jack Zheng*[1]; Robert Vasinko[1]; [1]Kennametal

3:00 PM
Plasma Processing of Neodymium Oxide: *Hunter Sceats*[1]; Patrick Taylor[1]; [1]Colorado School of Mines

3:20 PM Break

3:40 PM
Characterization and Feasibility Study of Thermoelectric $CoSi_2$: *Jacob Young*[1]; Ramana Reddy[1]; [1]University of Alabama

4:00 PM
Production of SiMn-alloys by Natural Gas and Carbon Black: *Xiang Li*[1]; Merete Tangstad[1]; [1]Norwegian 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 Niyomwas*[1]; Tawat Chanadee[1]; [1]Prince of Songkla University

4:40 PM
Effects of Mg on the Microstructure and Mechanical Properties of EH36 Shipbuilding Steel: Xiaodong Zou[1]; Dapeng Zhao[1]; *Cong Wang*[1]; [1]Northeastern University

5:00 PM
Synthesis of Chrysin Based Cationic Lipids: Plasmid Delivery and Transgene Expression: *Bhavani Kedika*[1]; Venkatagiri Noole[2]; Krishna Thotla[2]; Krishna Reddy Chepyala[2]; [1]University of Concepcion; [2]Osmania University

5:20 PM
Enhanced Reducing Sugar Yield by Combining Alkaline Solution and Ionic Liquid Pretreatment of Biomass: Samuel Kassaye[1]; Kamal Pant[1]; *Sapna Jain*[2]; [1]Indian Institute of Technology Delhi; [2]Alabama 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
March 1, 2017

Room: Pacific 15
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 Arzt*[1]; René Hensel[1]; [1]INM - Leibniz Institute for New Materials; New Materials at Saarland University

2:40 PM
Exploring the Structural Diversity of Seahorse Tails: *Nakul Ravikumar*[1]; Jack Harrison[1]; Celine Neutens[2]; Dominique Adriaens[2]; Michael Porter[1]; [1]Clemson University; [2]Ghent University

3:00 PM
Capturing the Geometry, Microstructure and Mechanical Properties of Marine Diatom Frustules Using Nanoscale Silica Structures: *Shi Luo*[1]; Julia Greer[1]; [1]California Institute of Technology

3:20 PM
A Functional Natural Adhesive: The Feather Vane and Inspired Designs: *Tarah Sullivan*[1]; Marc Meyers[1]; [1]UC San Diego

3:40 PM Break

4:00 PM Invited
Smart Biocoatings for Tunable Bioactivity at the Bio-Material Site: *Candan Tamerler*[1]; [1]University of Kansas

4:30 PM
Biological Martensitic Phase Transformations in Bacterial Flagella and other Helical Protein Crystals: *Ricardo Komai*[1]; Greg Olson[1]; [1]Northwestern University

4:50 PM
Mechanical Property and Humidity-triggered Reaction of the Cones of Liquidambar Formasana: *Hsin-Juei Wang*[1]; Cheng-Che Tung[1]; Chun-Lin Lin[1]; Po-Yu Chen[1]; [1]National Tsing Hua University

5:10 PM
Empirically Testing Vaterite Structural Models Using Neutron Diffraction and Thermal Analysis: *Bryan Chakoumakos*[1]; Brenda Pracheil[1]; Ryan Koenigs[2]; Ronald Bruch[2]; Mikhail Feygenson[3]; [1]Oak Ridge National Lab; [2]Wisconsin Department of Natural Resources; [3]Forschungszentrum 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
March 1, 2017

Room: 33A
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*[1]; [1]ETH Zurich

2:20 PM Invited
In-situ Synchrotron High-energy X-ray Diffraction Study of an Amorphous/Nanocrystalline NiTi Alloy during Recrystallization Process: Cun Yu[1]; Bachir Aoun[2]; Lishan Cui[1]; Yinong Liu[3]; *Yang Ren*[2]; [1]China University of Petroleum; [2]Argonne National Laboratory; [3]The University of Western Australia

2:40 PM Invited
Medium-range Structure and Glass-forming Ability of Metallic Glasses: Jason Maldonis[1]; Pei Zhang[1]; *Paul Voyles*[1]; [1]University of Wisconsin, Madison

3:00 PM Invited
The Early Stages of Shear Band Development: *Gerhard Wilde*[1]; [1]University of Muenster

3:20 PM
Combinatorial Assessment of Metallic Glasses Using High-throughput Characterization: *Ryan Ott*[1]; Fanqiang Meng[2]; Jie Geng[2]; Matthew Besser[2]; Matthew Kramer[2]; [1]Ames Laboratory (USDOE); [2]Ames Laboratory (USDOE)

3:40 PM Break

4:00 PM Invited
Nanoscale Crystallization in Bulk Metallic Glasses and Its Implications on Glass-forming Ability: *Dong Ma*[1]; Alexandru Stoica[1]; [1]ORNL

4:20 PM Invited
Entropy Contributions in Strong and Fragile Metallic Glasses: *Hillary Smith*[1]; Andrew Hoff[1]; Chen Li[2]; Tabitha Swan-Wood[3]; Fred Yang[1]; Dennis Kim[1]; Marios Demetriou[1]; Brent Fultz[1]; [1]California Institute of Technology; [2]University of California, Riverside; [3]California State University, Channel Islands

4:40 PM
Atomic Dynamics in La-based Metallic Glasses by X-ray Photo Correlation Spectroscopy: *Xiaodong Wang*[1]; Jin Zhang[1]; Qing Yu[1]; Qingping Cao[1]; Jianzhong Jiang[1]; [1]Zhejiang University

5:00 PM Invited
Real-time Studies of the Evolution of Atomic Structures of Bulk Metallic Glasses: *Wei Zhang*[1]; Jiawei Mi[1]; [1]University of Hull

5:20 PM Invited
Tracing the Pathway of Metallic Liquids to Vitrification: *Kostas Georgarakis*[1]; [1]Cranfield University

Cast Shop Technology — Grain Refining and Solidification

Program Organizer: David Gildemeister, Alcoa Technical Center

Wednesday PM
March 1, 2017

Room: 1A
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 Salloum-Abou-Jaoude*[1]; Dmitry Eskin[1]; Carla Barbatti[2]; Philippe Jarry[2]; Martin Jarrett[2]; Zhongyun Fan[1]; [1]Brunel University London; [2]Constellium

2:30 PM
Microstructure Control in A356 Al-Si Alloy via Ultrasonic Melt Treatment: Waleed Khalifa[1]; *Mahmoud Abdu*[1]; Maiada Abdelrahman[1]; Yoshiki Tsunekawa[2]; [1]Cairo University; [2]Toyota Technological Institute

2:55 PM
Shear Induced Grain Refinement of a Continuously Cast Ingot: *Samuel Wagstaff*[1]; Antoine Allanore[1]; [1]Massachusetts Institute of Technology

3:20 PM
Grain Refiner Settlement in the Launder System of Twin Roll Casting and Application of Electromagnetic Stirring: *Onur Birbasar*[1]; Vedat Topaloglu[1]; Murat Can Erdemir[1]; Cemil Isiksaçan[1]; Onur Meydanoglu[1]; Mert Günyüz[1]; Hatice Mollaoglu Altuner[1]; Murat Dündar[1]; [1]Assan Alüminyum

3:45 PM Break

4:00 PM
Thermal Analysis of Grain Refining in A319 Alloys: *Waleed Khalifa*[1]; [1]Cairo University

4:25 PM
Peritectic Coupled Growth Solidification - A Review: *Peiman Shahbeigi Roodposhti*[1]; Harold Brody[1]; [1]University of Connecticut

Ceramic Materials for Nuclear Energy Research and Applications — Non-oxide Ceramics for Nuclear Applications II

Program Organizers: Xian-Ming Bai, Virginia Tech; Yongfeng Zhang, Idaho National Laboratory; Maria Okuniewski, Purdue University; Donna Guillen, Idaho National Laboratory; Marat Khafizov, Ohio State University; Thierry Wiss, European Commission- JRC -Institute of Transuranium Elements – Germany

Wednesday PM
March 1, 2017

Room: Palomar
Location: Marriott Marquis Hotel & Marina

Session Chair: Andrew Nelson, Los Alamos National Laboratory

2:00 PM Invited
Multi-scale Coupled Radiation Damage and Heat Transport Modeling for Dispersed Nuclear Fuels: *Daniel Schwen*[1]; Sebastian Schunert[1]; [1]Idaho National Laboratory

2:30 PM Invited
Neutron Irradiated SiC Advanced Analysis to Understand Fission Product Transport: Safety Tested TRISO Coated Particles: *Isabella van Rooyen*[1]; Tom Lillo[1]; Karen Wright[1]; Jeffery Aguiar[1]; Terry Holesinger[1]; [1]Idaho National Laboratory

3:00 PM
Processing Routes for Improving Purity and Theoretical Density of UN Microspheres: *Jacob McMurray*[1]; Terry Lindemer[1]; Rodney Hunt[1]; Jack Collins[1]; Chinthaka Silva[1]; Jim Kiggans[1]; Kurt Terrani[1]; [1]Oak Ridge National Laboratory

3:20 PM
Evolution of Irradiation Defects in Ti2AlC Ceramics During Heavy Ion Irradiation: *Bai Cui*[1]; Fei Wang[1]; Qing Su[1]; Michael Nastasi[1]; [1]University of Nebraska–Lincoln

Characterization of Minerals, Metals, and Materials — Ferrous Metals

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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

Wednesday PM
March 1, 2017

Room: 31A
Location: San Diego Convention Center

Session Chairs: Firrao Donato , Politecnico di Torino - DISAT; Mingming Zhang, ArcelorMittal Global R&D

2:00 PM
Effects of Alumina and Magnesia on Microstructure and Mineralogy of Iron Ore Sinter: *Mingming Zhang*[1]; Marcelo Andrade[1]; [1]ArcelorMittal Global R&D

2:20 PM
Isothermal Reduction Kinetics of CaO·2Fe2O3 by Thermogravimetric Analysis: *Cheng Yi Ding*[1]; Xuewei Lv[1]; Senwei Xuan[1]; Kai Tang[1]; Yun Chen[1]; Jie Qiu[1]; [1]Chongqing University

2:40 PM
Phase Transformation of MnO2 and Fe2O3 Briquettes Roasted under CO-CO2 Atmospheres: *Bingbing Liu*[1]; Yuanbo Zhang[1]; Zijian Su[1]; Guanghui Li[1]; Tao Jiang[1]; [1]Central South University

3:00 PM
Application of X-ray Computed Tomography for the Characterization of Graphite Morphology in Compact-graphite Iron: *Dileep Singh*[1]; Chih-pin Chuang[1]; John Hryn[1]; Jonathan Almer[1]; Peter Kenesei[1]; Richard Huff[2]; [1]Argonne National Laboratory; [2]Caterpillar, Inc.

3:20 PM
Nitrogen Quantification in Steels by Atom Probe Tomography: *Raphaele Danoix*[1]; Mohamed Gouné[2]; Andrius Martinavicius[1]; Hugo Van Landeghem[3]; Frederic Danoix[1]; [1]CNRS - Université de Rouen; [2]ICMC Bordeaux ; [3]SIMAP Grenoble

3:40 PM Break

3:55 PM
Effect of Grain Boundary Plane on the Sensitization of Austenitic Stainless Steel: *Matthew Hartshorne*[1]; Christopher Barr[1]; Mitra Taheri[1]; [1]Drexel University

4:15 PM
Effect of Binder Phase on Reduction Swelling Property of Iron Ore Pellet: *Xiaozhe Wang*[1]; Jian Liang Zhang[2]; Zhengjian Liu[2]; Xingle Liu[2]; [1]University of Science and Technology Beijing; [2]University of Science and Technology Beijing

4:35 PM
Important Factors to Consider in FIB Milling of Crystalline Materials: *Jian Li*[1]; Pei Liu[1]; [1]CanmetMATERIALS

4:55 PM
Estimation of Dislocation Density in Metals from Microhardness Test: *Ali Ameri*[1]; Nancy Elewa[1]; Juan Escobedo-Diaz[1]; Mahmud Ashraf[1]; Paul Hazell[1]; [1]University of New South Wales-Canberra

5:15 PM
Contact Angle of Iron Ore Particles with Water: Measurements and Influencing Factors: *Kai Tang*[1]; Senwei Xuan[1]; Wei Lv[1]; Xuewei Lv[1]; Chenguang Bai[1]; [1]Chongqing University

Characterization of Minerals, Metals, and Materials — Material Processing and Corrosion

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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

Wednesday PM
March 1, 2017

Room: 31B
Location: San Diego Convention Center

Session Chairs: Jian Li, CanmetMATERIALS; Brett Sanborn, Sandia National Laboratories

2:00 PM
Optimizing Polishing Parameters of Chemical Mechanical Planarization for C-plane (0001) GaN Using Taguchi-based Grey Relational Analysis: Khushnuma Asghar[1]; *Tanjore Jayaraman*[2]; Dibakar Das[1]; [1]University of Hyderabad, India; [2]University of Michigan - Dearborn

2:20 PM
Corrosion Behavior of Super-Ferritic Stainless Steels in NaCl Media: Natalia Zadorozne[1]; Alicia Ares[2]; *Raúl Rebak*[3]; [1]IMAM (CONICET-UNaM); [2]CONICET/FCEQyN-UNaM; [3]GE Global Research

2:40 PM
Influence of Corrosion on Dynamic Tensile Properties of 304 and 304L Stainless Steel: *Brett Sanborn*[1]; Eric Hicks[1]; Bo Song[1]; Miguel Atencio[1]; [1]Sandia National Laboratories

3:00 PM
Characterization of Recrystallization and Twin Evolution Mechanisms Using In Situ TEM: *Asher Leff*[1]; Austin Nye[1]; Ryan Demott[1]; Mitra Taheri[1]; [1]Drexel University

3:20 PM
Effect of Bromide Ions on the Pitting Corrosion of Hafnium in Anhydrous T-butanol and Acetonitrile: *Chang Hong Wang*[1]; Shenghai Yang[1]; Yongming Chen[1]; Xiyun Yang[1]; Yanzeng Wu[1]; Jing He[1]; Chaobo Tang[1]; [1]Central South University

3:40 PM Break

3:55 PM
Compression Behavior of Semi-Closed Die Forged AZ80 Extrusion: *Andrew Gryguc*[1]; Sugrib Shaha[1]; Hamid Jahed[1]; Mary Wells[1]; Bruce Williams[2]; Jonathan McKinley[2]; [1]University of Waterloo; [2]CanmetMATERIALS

4:15 PM
Dislocation Densities Evolution and Similitude Behavior from Severe Plastic Deformation in Machining: *Sepideh Abolghasem*[1]; Saurabh Basu[2]; M. Ravi Shankar[3]; [1]Universidad de los Andes; [2]Georgia Institute of Technology; [3]University of Pittsburgh

4:35 PM
Fatigue Fracture Surface Morphologies in Controlled Crack Growth Rail Steel Specimens: *Donato Firrao*[1]; Roberto Doglione[1]; Paolo Matteis[1]; Stefano Rossi[2]; Raffaella Sesana[3]; [1]Politecnico di Torino - DISAT; [2]Rete Ferroviaria Italiana SpA; [3]Politecnico di Torino - DMEAS

4:55 PM
Nondestructive Characterization of Microstructures of Heat-Treated Steels by Magnetic Barkhausen Noise Technique: *C. Hakan Gur*[1]; [1]Ankara

5:15 PM
Nanostructure Characterisation of Flow-formed Cr-Mo-V Steel Using Transmission Kikuchi Diffraction Technique: *Soran Birosca*[1]; R. Ding[2]; K. Dicks[3]; [1]Swansea University; [2]University of Birmingham; [3]Oxford Instruments NanoAnalysis

5:35 PM
Automated Optical Characterization of Inconel 100 Using Computational Microstructural Toolsets: *Sundar Veeraraghavan*[1]; Satya Ganti[1]; Bryan Turner[1]; Brian Hayes[1]; John Porter[1]; Dennis Dimiduk[2]; Michael Jackson[2]; Michael Uchic[3]; [1]UES, Inc; [2]BlueQuartz Software, LLC; [3]Air Force Research Laboratory

Computational Approaches to Materials for Energy Applications — Session II

Program Organizer: Laurent Chaput, LEMTA

Wednesday PM
March 1, 2017

Room: 8
Location: San Diego Convention Center

Session Chair: Laurent Chaput, Lorraine University

2:00 PM Invited
Optimizing Materials for Solar Energy Conversion: In Search for Descriptors: *Giulia Galli*[1]; [1]The University of Chicago

2:30 PM Invited
Different Aspects of Disorder in Materials for Energy Conversion Studied by the KKR-CPA Calculation: *Janusz Tobola*[1]; Bartlomiej Wiendlocha[1]; Janina Molenda[1]; Jakub Cieslak[1]; Stanislaw Kaprzyk[1]; [1]AGH University of Science and Technology

3:00 PM
Ab Initio Calculations of Carrier Radiative Lifetimes: *Marco Bernardi*[1]; [1]Caltech

3:20 PM
Design of Heteroepitaxialy Grown Quantum Dots Under External Force Fields : *Nur Seda Aydin*[1]; Ersin Emre Oren[1]; [1]Bionanodesign Laboratory, Department of Biomedical Engineering, TOBB University of Economics and Technology, Ankara, Turkey

3:40 PM Break

4:00 PM Invited
Structure Prediction in Novel Energy Materials Design: *Maximilian Amsler*[1]; Chris Wolverton[1]; [1]Northwestern University

4:30 PM
Energy Landscape of Point Defects in Body-centered-cubic Metals: *Mihai-Cosmin Marinica*[1]; [1]DEN-Service de Recherches de Métallurgie Physique, CEA, Université Paris-Saclay

4:50 PM
Systematic Search for Lithium Ion Conducting Compounds by Screening of Compositions Combined with
Atomistic Simulation: Daniel Mutter[1]; Daniel Urban[2]; *Christian Elsaesser*[3]; [1]FMF, University of Freiburg; [2]Fraunhofer IWM Freiburg; [3]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 Hennig, University of Florida; Arunima Singh, National Institute of Standards and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign; Eric Homer, Brigham Young University

Wednesday PM
March 1, 2017

Room: 11A
Location: San Diego Convention Center

Session Chair: Elif Ertekin, University of Illinois

2:00 PM
Cluster Expansion Statistical Models to Resolve the Thermochemistry of Ti Alloys: *Naga Sri Harsha Gunda*[1]; Anton Van der Ven[1]; [1]University of California Santa Barbara

2:20 PM
Predicting Novel Spinels Using Density Functional Theory Assisted Machine Learning: *Joshua Schiller*[1]; Elif Ertekin[1]; [1]University of Illinois at Urbana-Champaign

2:40 PM
Efficient Ab initio Modeling of Random Multicomponent Alloys: *Chao Jiang*[1]; Blas Uberuaga[2]; [1]Idaho National Laboratory; [2]Los Alamos National Laboratory

3:00 PM
Predicting Raman Spectrum of Boron Carbide Polymorphs Using Density Functional Theory: *Ghatu Subhash*[1]; Cody Kunka[1]; Amnaya Awasti[1]; [1]University of Florida

3:20 PM
First-principles Statistical Mechanics as Applied to High Temperature Ni-superalloys: *John Goiri*[1]; Anton Van der Ven[1]; [1]UCSB

3:40 PM Break

3:55 PM
Free Energy Calculation of Austenite Phase in PtTi and NiTi: *Sara Kadkhodaei*[1]; Axel van de Walle[1]; [1]Brown University

4:15 PM
Automation and Database of First Principles Phonon Calculations: *Atsushi Togo*[1]; Isao Tanaka[1]; [1]Kyoto University

4:35 PM
Study of Aluminum-Silicon in the Liquid State: *Tara Power*[1]; Sumanth Shankar[1]; Jeffrey Hoyt[1]; [1]McMaster University

4:55 PM
ICME-tailored Sensitivity Analysis of a Prescriptive Precipitation Framework: *Luke Johnson*[1]; Raymundo Arroyave[1]; [1]Department of Materials Science and Engineering, Texas A&M University

5:15 PM
Development of Numerical Methods for the Thermal Characterization of Materials: *Jonathan Séverin*[1]; Philippe Jund[1]; [1]ICGM-Montpellier University

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 naional Laboratory

Wednesday PM
March 1, 2017

Room: 10
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]; [1]University of Iowa

2:35 PM
Automatized Convergence and Error Analyses for High Precision Density Functional Theory Calculations: *Jan Janßen*[1]; Tilmann Hickel[1]; Joerg Neugebauer[1]; [1]Max-Planck-Institut für Eisenforschung GmbH

2:55 PM Invited
Peierls Barrier in Ta-W Alloys: Estimating Aleatory Variability
: *Stephen Foiles*[1]; [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]; [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 Synowczynski-Dunn[1]; [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[2]; Vaclav Vitek[2]; Ralf Drautz[1]; [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
March 1, 2017

Room: 11B
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]; [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[2]; Britta Nestler[2]; [1]Karlsruhe University of Applied Sciences; [2]Karlsruhe Institute of Technology

2:50 PM
Joint Formation and Microstructural Evolution in the Microbumps of Three Dimensional Integrated Circuits (3DICs): *Vahid Attari*[1]; Raymundo Arroyave[1]; [1]Texas A&M University

3:10 PM Invited
First-Principles Evaluation of Ti2AlC-Cr2AlC Psuedo-binary Phase Diagram: *Thien Duong*[1]; Anjana Talapatra[1]; Woongrak Son[1]; Huili Gao[1]; Miladin Radovic[1]; Raymundo Arroyave[1]; [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]; [1]Université Lille 1

4:20 PM
Microstructure Evolution and Deformation Behavior of Powder Materials during Sintering: *Sudipta Biswas*[1]; Vikas Tomar[1]; [1]Purdue University

4:40 PM
Kinetics of Phase Transformations using Quasi-Coarse-Grained Dynamics Simulations: Sumit Suresh[1]; Terrance O'Ragan[2]; *Avinash Dongare*[1]; [1]University of Connecticut; [2]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]; [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
March 1, 2017

Room: 23A
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]; [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]; [1]Swerea MEFOS AB

2:45 PM
Thermal-Mechanical Model of Depression Formation in Steel Continuous Casting: *Matthew Zappulla*[1]; Brian Thomas[1]; [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]; [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 Prahl[1]; Wolfgang Bleck[1]; [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]; [1]North China University of Science and Technology

4:25 PM
The Influence of SEN and Upper Nozzle Design on the Flow Character for the Slab Quality
: *Yu Yanwen*[1]; [1]Baoshan Iron & Steel Co. Ltd.

4:45 PM Concluding Comments

Deformation and Transitions at Interfaces — Interfaces in Materials

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

Wednesday PM
March 1, 2017
Room: 23B
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Plastic Recovery Driven by Interfaces: Ben Eftink[1]; Owen Kingstedt[2]; Ao Li[3]; Izabela Szlufarska[3]; John Lambros[1]; *Ian Robertson*[3]; [1]University of Illinois; [2]University of Utah ; [3]University of Wisconsin-Madison

2:20 PM Invited
Microstructure and Mechanical Behavior of HCP/BCC Bulk Nanolaminate Composites produced by Accumulative Roll Bonding: *Nathan Mara*[1]; Daniel Savage[2]; John Carpenter[1]; Rodney McCabe[1]; Thomas Nizolek[3]; Nan Li[1]; Sven Vogel[1]; Marko Knezevic[2]; Irene Beyerlein[1]; [1]Los Alamos National Laboratory; [2]University of New Hampshire; [3]University of California, Santa Barbara

2:40 PM Invited
A Computational Study of the Deformation Response of Cu/Nb Multilayer Composites: *Jason Mayeur*[1]; Irene Beyerlein[2]; [1]Los Alamos National Lab; [2]University of California, Santa Barbara

3:00 PM Invited
Atomic-Scale Studies of Defect Interactions with Homo- and Heterophase Interfaces: *Enrique Martinez Saez*[1]; Blas Uberuaga[1]; Irene Beyerlein[1]; [1]LANL

3:20 PM Invited
Structure and Dynamics at the Cathode/Electrolyte Interfaces in Li-S Batteries: *Ying Ma*[1]; [1]University of Wisconsin-Eau Claire

3:40 PM Break

4:00 PM Invited
Structure of Semicoherent U-Zr Interfaces.: Elton Chen[1]; *Remi Dingreville*[2]; Chaitanya Deo[1]; [1]Georgia Institute of Technology; [2]Sandia National Laboratories

4:20 PM Invited
The Atomic Level Structure and Chemistry of Interfaces Between Iron and Cementite: *Christopher Weinberger*[1]; Matthew Guziewski[1]; Shawn Coleman[2]; [1]Drexel University; [2]Army Research Laboratory

4:40 PM
Influence of Grain Boundary Transport on Transient Oxidation: Pralav Shetty[1]; *Jessica Krogstad*[1]; [1]University of Illinois, Urbana-Champaign

5:00 PM
Strong Nonlinear Increase in the Yield Strength Due to Solute Segregation at Grain Boundaries in FCC Nano-crystalline Metals: *Valery Borovikov*[1]; Mikhail Mendelev[1]; [1]The Ames Laboratory

5:20 PM Invited
Atomistic Study of Fundamental Character and Motion of Dislocations in Intermetallic Al2Cu: *Jian Wang*[1]; Amit Misra[1]; [1]University of Nebraska-Lincoln

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
March 1, 2017
Room: 14B
Location: San Diego Convention Center

Session Chairs: Elsa Olivetti, MIT; Mingming Zhang, Arcelor Mittal Global R&D

2:00 PM
Maximizing the Values of Steelmaking Slags: *Naiyang Ma*[1]; [1]ArcelorMittal

2:20 PM
Direct Preparation of Metal Doping Ni-Zn Ferrite from Zn-containing Electric Arc Furnace Dust by Calcination Method: *Hui-gang Wang*[1]; Min Guo[1]; Mei Zhang[1]; [1]University 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*[1]; [1]Wuhan University of Science and Technology

3:00 PM Invited
Recycling in the Real World -- Challenges and Functional Approaches for the Recycling of Complex Products and Hazardous Materials: *Mark Kennedy*[1]; C. Landaas[2]; P. Hellinckx[2]; [1]Proval Partners, NTNU; [2]Proval Partners

3:30 PM Break

3:50 PM
Recovery of Iron From Red Mud By Magnetic Roasting and Direct Reduction: *Zhenhong Liao*[1]; [1]Changsha Research Institute of Mining and Metallurgy Co.,Ltd

4:10 PM
Recycling of Spent Pot Lining by Vacuum Distillation Process: *Wang Yaowu*[1]; [1] Northeastern University of China

Electrode Technology — Operation/Practice

Program Organizer: Houshang Alamdari, Laval University

Wednesday PM
March 1, 2017
Room: 1B
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 Philippaux*[1]; Bastien Aymard[1]; [1]Fives Solios

2:30 PM
Hexapod Fleet Migration in Order to Upgrade to AP40LE Technology: *Jonathan Reichelson*[1]; Marc Gagnon[2]; [1]Hatch Ltd; [2]Aluminerie Alouette inc.

2:55 PM
The Impact of Increased Anode Size and Amperage Creep on Anode Management: *James Anson*[1]; René Trudel[2]; Bertrand Vincent[2]; [1]Hatch; [2]Alcoa, Deschambault Smelter

3:20 PM
Anode Quality Improvement at INALUM Smelter: Edi Mugiono[1]; Firman Ashad[1]; Ade Buandra[1]; *Sahala Sijabat*[1]; [1]PT 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
March 1, 2017

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 Park*[1]; Gwancheol Seo[1]; Young-Ho Kim[1]; [1]Hanyang University

2:20 PM
Role of Indium Doping on Whisker Mitigation in Electroplated Sn: Bhaskar Majumdar[1]; *Sherin Bhassyvasantha*[1]; [1]New Mexico Tech

2:40 PM
Impact of In Addition to Electroplated Sn in Mitigating Whisker Growth: *Susmriti Das Mahapatra*[1]; Bhaskar Majumdar[2]; Indranath Dutta[1]; [1]Washington State University; [2]New Mexico Tech

3:00 PM
Quantifying the Role of Stress in Whisker Nucleation and Growth: *Eric Chason*[1]; Fei Pei[1]; Justin Vasquez[1]; Andrew Hitt[1]; [1]Brown University

3:20 PM Break

3:40 PM
Sn Whisker Growth in Air HAST: *Chulmin Oh*[1]; Wonsik Hong[1]; [1]KETI

4:00 PM
Sn Film Microstructure on the Kinetics of Spontaneous Whisker Growth: *Albert T. Wu*[1]; Hao Chen[1]; Wen-Chih Lin[1]; [1]National 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
March 1, 2017

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 Kruzic*[1]; Agnieszka Truszkowska[2]; Qin Yu[2]; Alex Greaney[3]; Matthew Evans[2]; [1]UNSW Australia; [2]Oregon State University; [3]University of California, Riverside

2:30 PM Invited
Predicting Microstructure-Creep Resistance Correlation in High Temperature Alloys Over Multiple Time Scales: *Vikas Tomar*[1]; [1]Purdue University

3:00 PM Invited
The SMARTER Project – Science of Multicomponent Alloys: Roadmap for Theoretical and Experimental Research: *M. Kramer*[1]; Pratik Ray[1]; Duane Johnson[1]; [1]Iowa 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 Shen*[1]; Monica Soare[1]; Pengyang Zhao[1]; Vipul Gupta[1]; Shenyan Huang[1]; Suzuki Akane[1]; Yunzhi Wang[1]; [1]GE Global Research

4:20 PM Invited
Solid Sate Joining of Creep Strength Enhanced Ferritic Steels: *Glenn Grant*[1]; Jens Darsell[1]; Arun Devaraj[1]; [1]Pacific Northwest National Laboratory

Energy Materials 2017: Materials for Nuclear Energy — Materials for Nuclear Applications II

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
March 1, 2017

Room: Miramar
Location: Marriott Marquis Hotel & Marina

Session Chair: Jian Li, CanmetMATERIALS

2:00 PM Invited
Fuel Cladding Materials for Supercritical Water Cooled Reactor: *Wenyue Zheng*[1]; [1]Canmet Materials

2:40 PM
Development of the 12Cr2Mo1R Steel Plate for Metal Internal Equipment for Demonstration Project of High Temperature Gas—cooled Reactor: *Hanqian Zhang*[1]; Huibin Liu[1]; [1]Baoshan Iron & Steel Company

3:00 PM
EBSD and TEM Assessment of Deformation Localization in 718 Alloy: *Aida Amroussia*[1]; Keith Leonard[2]; Maxim Gussev[2]; Jacqueline Stevens[3]; [1]Michigan State University; [2]Oak Ridge National Laboratory; [3]AREVA Inc.

3:20 PM
Microstructure Evolution of a Reactor Pressure Vessel Steel during High-temperature Tempering: *Chuanwei Li*[1]; Jianfeng Gu[1]; Lizhan Han[1]; Qingdong Liu[1]; [1]Shanghai Jiao Tong University

3:40 PM Break

3:55 PM
Thermal Conductivity Reduction of Tungsten Plasma Facing Material Due to Helium Plasma and Cu2+ Ion Irradiation: *Shuang Cui*[1]; Michael Simmonds[1]; Joseph Barton[1]; Yongqiang Wang[2]; Russ Doerner[1]; George Tynan[1]; Renkun Chen[1]; [1]UCSD; [2]LANL

4:15 PM
Effects of Fe Concentration on Ion-irradiation Induced Defect Evolution and Hardening in Ni-Fe Binary Alloys: *Ke Jin*[1]; Wei Guo[2]; Mohammad Ullah[1]; Yanwen Zhang[1]; William Weber[3]; Jonathan Poplawsky[2]; Hongbin Bei[1]; [1]Materials Science & Technology Division, Oak Ridge National Laboratory; [2]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory; [3]University of Tennessee

4:35 PM
Impact of Neutron Irradiation on Helium Desorption Behavior in Iron: *Xunxiang Hu*[1]; Kevin Field[1]; David Woodley[2]; Yutai Katoh[1]; [1]ORNL; [2]University of Michigan

4:55 PM
Size Effects in Ion-irradiated 800H Steel at High Temperatures Utilizing Nanoindentation and Microcompression Testing: *Anya Prasitthipayong*[1]; Shraddha Vachhani[2]; Scott Tumey[3]; Peter Hosemann[4]; Andrew Minor[5]; [1]Department of Materials Science and Engineering, University of California, Berkeley; [2]Hysitron, Inc.; [3]Center of Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory; [4]Department of Nuclear Engineering, University of California, Berkeley; [5]Department of Materials Science and Engineering, University of California, Berkeley; National Center for Electron Microscopy, The Molecular Foundry, Lawrence Berkeley National Laboratory

5:15 PM
Understanding Transuranic Binding Mechanisms and Speciation on Stainless Steel: *Tim Kerry*[1]; Clint Sharrad[1]; Andreas Geist[2]; Dieter Schild[2]; [1]University of Manchester; [2]Institute for Nuclear Waste Disposal

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

Wednesday PM
March 1, 2017

Room: 14A
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Development of Polymer-based Composite Coatings for the Gas Exploration Industry: *Brajendra Mishra*[1]; Ali Chaudhry[1]; [1]Worcester Polytechnic Institute

2:30 PM
Where the Polymer Meets the Oilfield: *Huilin Tu*[1]; [1]Schlumberger

2:55 PM
Mineral Scale Fouling Under Boiling: Fundamentals to Mitigation: *Susmita Dash*[1]; Leonid Rapoport[1]; Navdeep Dhillon[1]; Kripa Varanasi[1]; [1]Massachusetts Institute of Technology

3:20 PM
Interfacial Engineering for Suppressing Mineral Scale Fouling: *Samantha McBride*[1]; Susmita Dash[1]; Sami Khan[1]; Kripa Varanasi[1]; [1]Massachusetts Institute of Technology

3:45 PM Break

4:10 PM
Co-relation of Microstructural Features with Tensile and Toughness Characteristics of X70 Grade Steel: Tushal Kyada[1]; Raghu Shant Jonnalagadda[1]; Rajesh K Goyal[1]; *Tribhuwan Singh Kathayat*[1]; [1]Welspun Corp. Ltd

4:35 PM Invited
Development and Applications of New Generation Ni-containing Cryogenic Steels in China: *Zhen-yu Liu*[1]; Meng Wang[1]; Jun Chen[1]; Guo-dong Wang[1]; [1]Northeastern University

5:00 PM
Anisotropic Behaviors for X100 High Grade Pipeline Steel under Stress Constraints: *Kun Yang*[1]; Ting Sha[2]; Ming Yang[3]; Chen Shang[3]; Qiang Chi[1]; [1]Tube Goods Research Institute; [2]The No.771 Institute of Ninth Academy of China Aerospace Science and Technology Corporation; [3]Petrochina West Pipeline Company

5:25 PM
Material Selection-Evaluation Testing and Challenge of the Aluminum Alloy Drill Pipe in China: *Chun Feng*[1]; Caihong Lu[1]; [1]China National Petroleum Corporation

Energy Technologies — Novel Technologies

Program Organizers: Lei Zhang, University of Alaska Fairbanks ; Jaroslaw Drelich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu , Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Åbo Akademi University

Wednesday PM
March 1, 2017

Room: 13
Location: San Diego Convention Center

Session Chairs: Neale Neelameggham, Ind LLC; Jingxi Zhu, Sun Yat-Sen University; Tao Wang, Nucor Steel

2:00 PM Invited
Modeling Anthropogenic Heat Flux in Climate Models: *Ganesan Subramanian*[1]; Neale Neelameggham[2]; [1]Independent Consultant; [2]Ind LLC

2:30 PM Invited
Development of a Fluidized-Bed Ash Agglomeration Modeling Methodology to Include Particle-Level Heterogeneities in Ash Chemistry And Granular Physics: Aditi Khadilkar[1]; Peter Rozelle[2]; *Sarma Pisupati*[1]; [1]Penn State University; [2]US Department of Energy

2:50 PM Invited
In-situ Microscopic Study of Morphology Changes in Natural Hematite and Cu-spinel Particles during Cyclic Redox Gas Exposures for Chemical Looping Applications: *Anna Nakano*[1]; Jinichiro Nakano[1]; James Bennett[2]; [1]US Department of Energy National Energy Technology Laboratory/ AECOM; [2]US Department of Energy National Energy Technology Laboratory

3:10 PM
Thermodynamic Stability of Condensed Phases in the Ternary System CaO-Cu-O by the EMF Method: *Joseph Hamuyuni*[1]; Pekka Taskinen[1]; Dmitry Sukhomlinov[1]; Mari Lundström[1]; [1]Aalto University School of Chemical Technology

3:30 PM Break

3:45 PM
{Ti,Zr}NiSn - based High ZT Spinodal Thermoelectrics: *Peter Rogl*[1]; Andrij Grytsiv[1]; Matthias Gürth[1]; Philip Sauerschnig[1]; Jan Vrestal[2]; Vitalij Romaka[3]; Gerda Rogl[1]; Kunio Yubuta[4]; Ernst Bauer[5]; [1]University of Vienna; [2]Masaryk University; [3]Lviv Polytechnic National University; [4]Tohoku University; [5]Vienna University of Technology

4:05 PM
Experimental Study on Electro-spraying of Ethanol Based on PDA Measurement: Haige Li[1]; *Yunhua Gan*[1]; Xiaowen Chen[1]; Yang Tong[1]; Meilong Hu[2]; [1]South China University of Technology; [2]Chongqing University

Environmentally Assisted Cracking: Theory and Practice — Environmentally Assisted Embrittlement and Cracking 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

Wednesday PM
March 1, 2017

Room: 31C
Location: San Diego Convention Center

Session Chairs: James Burns, University of Virginia; Ilaksh Adlakha, Arizona State University

2:00 PM Invited
The Effect of Composition, Temper, and Crack Orientation on the Stress Corrosion Cracking Behavior of Al-Mg Alloys: *James Burns*[1]; Amber Lass[1]; Michael McMurtrey[1]; Matthew McMahon[1]; Patrick Steiner[1]; Sarah Fakler[1]; [1]University of Virginia

2:40 PM
Effect of Mechanical Stresses on the Pitting Corrosion Behavior of an Al7075 Alloy: *Scott Turnage*[1]; Ilaksh Adlakha[1]; Amm Hasib[1]; Sridhar Niverty[1]; Nikhilesh Chawla[1]; Kiran Solanki[1]; [1]Arizona State University

3:00 PM
Relationships between the Galvanic Driving Force and Strain Energy Density Accumulation: *Andrea Nicolas*[1]; Alberto Da Silva Mello Junior[1]; Michael Sangid[1]; [1]Purdue University

3:20 PM
The Effects of Alloy Chemistry on Localized Corrosion of Austenitic Stainless Steels: *David Sapiro*[1]; Bryan Webler[1]; [1]Carnegie Mellon University

3:40 PM Break

4:00 PM
Intergranular Hydrogen Embrittlement: Hydrogen Diffusion in Nickel Singles Crystals and Bi-crystals: *Jiaqi Li*[1]; [1]University of La Rochelle

4:20 PM
Diffusion, Trapping Mechanisms and Some Implications on Local Approach of Fracture in Martensitic Steel: Stéphane Cohendoz[1]; Cyril Berziou[1]; Christelle Rebere[1]; Remy Milet[1]; Catherine Savall[1]; Abdelali Oudriss[1]; Jamaa Bouhattate[1]; Juan Creus[1]; *Xavier Feaugas*[1]; [1]Université de La Rochelle

4:40 PM
Effect of Chemical Composition on Embrittlement of High Manganese TWIP Steel: *Young-Ha Kim*[1]; Tae Jin Song[1]; Sung Kyu Kim[1]; Il Jeong Park[1]; Yon-Kyun Song[1]; [1]POSCO

5:00 PM Concluding Comments Speaker: Prof. Ian Robertson / Bai Cui

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Fatigue Behaviors of Engineering Alloys

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

Wednesday PM
March 1, 2017

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*[1]; David Wilson[1]; [1]Imperial College

2:20 PM Invited
A Physically Based Law for S-N Fatigue Behavior of Metals: *K. S. Ravi Chandran*[1]; [1]University of Utah

2:40 PM
Fatigue Mediated Lattice Rotation in Al Alloys at Room Temperature: *Ramasis Goswami*[1]; Syed Qadri[1]; Chandra Pande[1]; [1]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*[1]; Qingqing Jiang[1]; Chengqi Sun[1]; [1]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*[1]; Wade Lanning[1]; Yoon Joo Na[1]; Syed Javaid[1]; Christopher Muhlstein[1]; [1]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*[1]; Anthony Spangenberger[1]; Diana Lados[1]; [1]Worcester Polytechnic Institute

4:20 PM
Identifying Failure Locations in Nickel Based Superalloy R88DT under Cyclic Loadings, via Crystal Plasticity Simulations: *Monica Soare*[1]; Shenyan Huang[1]; Shakhrukh Ismonov[1]; [1]GE Global Research

4:40 PM
Grain Size Effects on Fatigue Crack Growth in Nanocrystalline NiTi: *William LePage*[1]; Aslan Ahadi[2]; Q.P. Sun[3]; John Shaw[1]; Samantha Daly[4]; [1]University of Michigan; [2]National Institute for Materials Science; [3]The Hong Kong University of Science and Technology; [4]University of California, Santa Barbara

5:00 PM
Slip Transmission between Primary Alpha Grains during the Low Cycle Fatigue of Ti 6242Si
: *Sudha Joseph*[1]; Ioannis Bantounas[1]; Trevor Lindley[1]; Hamidreza Abdolvand[2]; Angus Wilkinson[3]; David Dye[1]; [1]Imperial College London; [2]University of Oxford ; [3]University of Oxford

5:20 PM
Fatigue Assessment of a Railway Wheel Steel in the VHCF-regime: *Dietmar Eifler*[1]; Michael Koster[2]; [1]University of Kaiserslautern; [2]European Patent Office

Fracture Properties and Residual Stresses in Small Dimensions — In Situ 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

Wednesday PM
March 1, 2017

Room: 21
Location: San Diego Convention Center

Session Chairs: Andrew Minor, UC Berkeley; Jeffrey Wheeler, ETH Zurich

2:00 PM Introductory Comments

2:05 PM Invited
Nanoscale Strain Mapping of Individual Defects during In Situ Deformation: Thomas Pekin[1]; Colin Ophus[2]; Christoph Gammer[3]; Jim Ciston[2]; *Andrew Minor*[1]; [1]UC Berkeley & LBNL; [2]LBNL; [3]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 Ast*[1]; Juri Wehrs[1]; Johann Michler[1]; Xavier Maeder[1]; [1]EMPA

2:55 PM
In Situ Stable Crack Growth at the Micron Scale: Giorgio Sernicola[1]; Tommaso Giovannini[2]; Punit Patel[3]; James Kermode[3]; Daniel Balint[2]; T Ben Britton[1]; *Finn Giuliani*[1]; [1]Department of Materials, Imperial College; [2]Department of Mechanical Engineering, Imperial College London; [3]Warwick Centre for Predictive Modelling, University of Warwick

3:15 PM Invited
In Situ Micron Scale Fracture Toughness Testing and Modeling of a Chevron Notched Bowtie-shaped Beam: *Fiona Yuwei Cui*[1]; Richard Vinci[1]; [1]Lehigh University

3:45 PM Break

4:05 PM Invited
Liquid Metal Embrittlement at the Micro-scale: Gallium FIB vs. Xenon FIB: Yuan Xiao[1]; *Jeffrey Wheeler*[1]; [1]ETH Zurich

4:35 PM
In Situ SEM Observation and Shear Lag Analysis of Progressive Cracking in W-Cu Multilayer Coatings: *León Romano Brandt*[1]; Tan Sui[1]; Enrico Salvati[1]; Eric Le Bourhis[2]; Alexander Korsunsky[1]; [1]University of Oxford; [2]Université de Poitiers

4:55 PM
Micro-Compression Testing of Mg-Nb Multilayered Nano-Composites for Ultra-High Strength, Formability and Ductility: *Manish Jain*[1]; Marko Knezevic[2]; Nathan Mara[3]; Irene Beyerlein[3]; Siddhartha Pathak[1]; [1]University of Nevada Reno; [2]University of New Hampshire; [3]Los Alamos National Laboratory

5:15 PM
High Temperature Mechanical Properties of Materials Synthesized from Graphene and Carbon Nanotubes: *Sanjit Bhowmick*[1]; Chandra Tiwarya[2]; Syed Asif[1]; Pulickel Ajayan[2]; [1]Hysitron Inc.; [2]Rice University

Friction Stir Welding and Processing IX — Dissimilar 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 PM
March 1, 2017

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 Suhuddin[1]; Vanessa Fischer[2]; *Jorge dos Santos*[1]; [1]Helmholtz-Zentrum Geesthacht; [2]Federal University Rio Grande do Sul

2:20 PM Invited
Joining Dissimilar Material Using Friction Stir Scribe Technique: *Piyush Upadhyay*[1]; Yuri Hovanski[1]; Leo Fifield[1]; Blair Carlson[2]; Eric Boettcher[3]; Robert Ruokolainen[4]; Peter Busuttil[5]; [1]Pacific Northwest National Laboratory; [2]General Motors; [3]Honda R & D Americas; [4]FCA; [5] Kuka Systems North America, LLC.

2:40 PM
Influence of Stir Flow on Joint Quality during Friction Stir Lap Al-to-Cu Welding: *Doddy Parningotan*[1]; M. Tarrant[2]; Z.W. Chen[1]; A. Hilton[1]; T. Pasang[1]; [1]Auckland University of Technology; [2]National Aluminium Ltd

3:00 PM
Process Force Reduction during Robotic Friction Stir Welding of Aluminium Alloys with Reduced Tool Aspect Ratios: *Anna Regensburg*[1]; René Schürer[1]; Michael Grätzel[1]; Michael Hasieber[1]; Jean Pierre Bergmann[1]; [1]Technische Universität Ilmenau

3:20 PM
Intermetallic Phase Formation at Al-steel Solid-state Joints – A Comparison between FSW and VFAW Processes: *Genevieve Lee*[1]; Kaleb Ponder[1]; Ali Nassiri[1]; Bert Liu[1]; Glenn Daehn[1]; Antonio Ramirez[1]; [1]The Ohio State University

3:40 PM Break

4:00 PM Invited
Avoiding Melting in Friction Stir Welds of Highly Dissimilar Melting Temperature Materials: *Christian Widener*[1]; Bharat Jasthi[1]; Todd Curtis[1]; MD. Shamsujjoha[2]; [1]South Dakota School of Mines and Technology; [2]University of Massachusetts, Amherst

4:20 PM
Automated Optical Visualization of Materials Flow in Dissimilar Metal Friction Stir Welds: *John Sosa*[1]; Hamish Fraser[1]; Rajiv Mishra[2]; Satya Ganti[3]; Bryan Turner[3]; Brian Hayes[3]; Veeraraghavan Sundar[3]; [1]The Ohio State University; [2]University of North Texas; [3]UES Inc.

4:40 PM
Realization of Ultrasound Enhanced Friction Stir Welded (USE-FSW) Al/Mg- and Al/Steel-Joints: Process and Robustness, Mechanical and Corrosive Properties
: *Marco Thomae*[1]; Guntram Wagner[1]; Benjamin Strass[2]; Bernd Wolter[2]; Sigrid Benfer[3]; Wolfram Fuerbeth[3]; [1]University of Chemnitz; [2]Fraunhofer Institute for Nondestructive Testing IZFP Saarbrücken; [3]DECHEMA-Forschungsinstitut

5:00 PM
A Numerical Simulation for Dissimilar Aluminum Alloys Joined by Friction Stir Welding: *Carter Hamilton*[1]; Mateusz Kopyscianski[2]; Aleksandra Weglowska[3]; Stanislaw Dymek[2]; Adam Pietras[3]; [1]Miami University; [2]AGH University of Science and Technology; [3]Institute of Welding

Frontiers in Materials Science, Engineering, and Technology: An FMD Symposium in Honor of Sungho Jin — Process-Property-Performance Correlations: Devices, Circuits, Lead Free Solder & Packaging

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

Wednesday PM
March 1, 2017

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 Abedrabbo*[1]; Anthony Fiory[2]; Nuggehalli Ravindra[2]; [1]The Petroleum Institute; [2]New Jersey Institute of Technology

2:40 PM Invited
Cold-Electron Transport at Room Temperature for Beyond CMOS Electronics: *Seong Jin Koh*[1]; [1]University of Texas at Arlington

3:10 PM Invited
Reliability Issues of Lead (Pb)-free Solder Technology in Microelectronic Applications: *Sung Kang*[1]; [1]IBM Corporation

3:40 PM Break

3:55 PM Invited
An Integrated Computational Materials Engineering Approach to Electronic Packaging in Pb-free Interconnects: *Raymundo Arroyave*[1]; [1]Texas A & M University

4:25 PM Invited
Synthesis of Nanocomposites Consisting of High Density Nanoparticles in the Polyimide Films and Their Applications: *Young-Ho Kim*[1]; [1]Hanyang University

Gamma (FCC)/Gamma-Prime (L1₂) Co-Based Superalloys II — Mechanical Behavior I

Program Organizers: Eric Lass, National Institute of Standards and Technology; Qiang Feng, University of Science and Technology Beijing; Alessandro Moturra, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Wednesday PM
March 1, 2017

Room: Pacific 14
Location: Marriott Marquis Hotel & Marina

Session Chairs: Michael Titus, Purdue University; David Dunand, Northwestern University

2:00 PM Invited
Mechanical Properties of Co-based Superalloys with FCC+$L1_2$ Two-phase Microstructures: *Haruyuki Inui*[1]; Norihiko Okamoto[1]; [1]Kyoto University

2:30 PM Invited
Mechanical Behavior of Polycrystalline (L12)gamma-prime-strengthened Co-base Superalloys: Peter Bocchini[1]; Daniel Sauza[1]; James Coakley[1]; Qinyuan Liu[1]; David Seidman[2]; *David Dunand*[1]; [1]Northwestern University; [2]Northwestern University Center for Atom Probe Tomography (NUCAPT)

3:00 PM
Planar Defect Formation in the γ' Phase during High Temperature Creep in Single Crystal CoNi-base Superalloys: Yolita Eggeler[1]; Julian Müller[1]; Mike Titus[2]; Akane Suzuki[3]; Tresa Pollock[4]; *Erdmann Spiecker*[1]; [1]Friedrich Alexander Universität Erlangen-Nürnberg; [2]Purdue Universtity; [3]GE Global Research Center; [4]University of California Santa Barbara

3:20 PM
Load Transfer between Phases during Deformation of Superalloys: *James Coakley*[1]; Eric Lass[2]; David Seidman[3]; Howard Stone[1]; David Dunand[3]; [1]University of Cambridge; [2]National Institute of Standards and Technology; [3]Northwestern University

3:40 PM Break

4:00 PM Invited
Deformation Microstructures of L12 Ordered Intermetallic Phases in Ni-, Co- and Co-Ni-base Superalloys: Duchao Lv[1]; Robert Rhein[2]; Michael Titus[2]; Tresa Pollock[2]; *Yunzhi Wang*[1]; [1]The Ohio State University; [2]University of California, Santa Barbara

4:30 PM
Superlattice Intrinsic Stacking Fault Energies and Solute Segregation to Planar Defects in Co-based Superalloys: *Michael Titus*[1]; Robert Rhein[2]; Alessandro Mottura[3]; Min-Hua Chen[2]; Anton Van der Ven[2]; Tresa Pollock[2]; [1]Purdue University; [2]University of California Santa Barbara; [3]University of Birmingham

4:50 PM
Solid Solution Strengthening of Co3(Al, TM) L12 Phase: An Integrated First-principles Calculations and Experimental Study: *William Yi Wang*[1]; Bin Gan[1]; Fei Xue[2]; Shun-Li Shang[3]; Yi Wang[3]; HongChao Kou[1]; JinShan Li[1]; Xi-Dong Hui[2]; Qiang Feng[2]; Zi-Kui Liu[3]; [1]Northwestern Polytechnical University; [2]University of Science and Technology Beijing; [3]The Pennsylvania State University

5:10 PM
Multi-scale Modelling of High-temperature Deformation Mechanisms in Co-Al-W-based Superalloys: *Hikmatyar Hasan*[1]; David Dye[1]; Peter Haynes[1]; Vassili Vorontsov[1]; [1]Imperial College London

GAT-2017 (Gamma Alloys Technology - 2017) — Microstructure Types, Boundary Effects, and Directional Solidification

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

Wednesday PM
March 1, 2017

Room: Pacific 17
Location: Marriott Marquis Hotel & Marina

Session Chairs: Pierre Sallot, Safran Tech; Ulrike Hecht, ACCESS

2:00 PM Invited
Gamma Alloy Materials-Process-Microstructure Combinations for Greater Service Temperatures: *Young-Won Kim*[1]; Sang-Lan Kim[2]; [1]Gamteck LLC; [2]Gamtech LLC

2:25 PM
Solidification of TiAl Alloys with Low Contents of Si: Antoine Paris[1]; *Mikael Perrut*[1]; Dominique Daloz[2]; Anne Denquin[1]; [1]Onera; [2]Université de Lorraine

2:45 PM Invited
The Role of Internal Boundaries for the Mechanical Performance of Multiphase Titanium Aluminide Alloys: *Fritz Appel*[1]; [1]Helmholtz Zentrum Geesthacht

3:10 PM
Microstructure Evolution of Ti-45Al-8.5Nb-(W, B, Y) Alloy during Continuous Cooling and Thermal Aging: *Jieren Yang*[1]; Bei Cao[1]; Xuyang Wang[1]; Rui Hu[1]; Lin Song[1]; Jinshan Li[1]; [1]Northwestern Polytechnical University

3:30 PM
Study on the Lamellar Boundary Orientation of Ti-46Al-8Nb Alloy with Various Growth Rate: *Jongmoon Park*[1]; Ho Seung Jang[1]; Seongwoong Kim[2]; Seungeon Kim[2]; Younghwan Hong[3]; Myunghoon Oh[1]; [1]Kumoh National Institute of Technology; [2]Korea Institute of Materials Science; [3]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*[1]; [1]Northwestern Polytechnical University

4:30 PM Invited
High Temperature Mechanical Properties of Polysynthetic Twinned TiAl-Nb Alloys: *Zhixiang Qi*[1]; Guang Chen[1]; Yingbo Peng[1]; Gong Zheng[1]; [1]Nanjing University of Science and Technology

4:55 PM Invited
Microstructure and Mechanical Properties of TiAl Alloys Prepared by Cold Crucible Directional Solidification: *Ruirun Chen*[1]; Jingjie Guo[1]; Hongsheng Ding[1]; Hengzhi Fu[1]; [1]Harbin Institute of Technology

5:20 PM
Seeded Growth of Ti-46Al-(3~10)Nb PST Crystals: *Hao Jin*[1]; Ronghua Liu[1]; Yuyou Cui[1]; Quangang Xian[1]; Dongsheng Xu[1]; Rui Yang[1]; [1]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
March 1, 2017

Room: 32A
Location: San Diego Convention Center

Session Chairs: Sundeep Mukherjee, University of North Texas; Qingfeng Xing, Ames Laboratory

2:00 PM Invited
Weldability and Welding Solidification of an HEA Alloy: Joshua Burgess[1]; *Carl Lundin*[2]; Zhi Tang[3]; Peter Liaw[2]; [1]GE Power; [2]The University of Tennessee; [3]Alcoa

2:20 PM Invited
Bringing High-entropy Alloys Close to High-temperature Applications: Single Crystal Growth, Microstructure Characterization, and Mechanical Tests: *Qingfeng Xing*[1]; Haoyan Diao[2]; Deborah Schlagel[1]; Trevor Riedemann[1]; Peter Liaw[2]; Thomas Lograsso[1]; [1]Ames Laboratory; [2]University of Tennessee - Knoxville

2:40 PM
Degradation Behavior of High Entropy Alloys – Corrosion, Erosion, and Wear: Ayyagari Aditya[1]; *Sundeep Mukherjee*[1]; [1]University of North Texas

3:00 PM
Investigation of Equiatomic AlNbTiMoV and AlNbTaTiV Alloys for High Temperature Applications: *Anne Denquin*[1]; Arnaud Grimonprez[1]; Agnès Bachelier-Locq[1]; [1]Onera

3:20 PM
Irradiation Resistance of Low Activation High Entropy Alloys: *David Armstrong*[1]; John Waite[1]; Angus Wilkinson[1]; [1]University of Oxford

3:40 PM Break

4:00 PM
Weldability of Single-phase and Multi-phase High Entropy Alloys: *Zhenggang Wu*[1]; Stan David[1]; Zhili Feng[1]; Hongbin Bei[1]; [1]Oak Ridge National Laboratory

4:20 PM
Radiation-induced Segregation in Ni-based Concentrated Solid Solution Alloys: *Mo-Rigen He*[1]; Shuai Wang[1]; Shi Shi[1]; Ke Jin[2]; Hongbin Bei[2]; Kazuhiro Yasuda[3]; Syo Matsumura[3]; Kenji Higashida[3]; Ian Robertson[1]; [1]University of Wisconsin-Madison; [2]Oak Ridge National Laboratory; [3]Kyushu University

4:40 PM
Development of High Entropy Alloy Foam with Ultra-low Thermal Conductivity and High Strength: *Kook Noh Yoon*[1]; Je In Lee[1]; Eun Soo Park[1]; [1]Research Institute of Advanced Materials, Department of Materials Science and Engineering, Seoul National University

5:00 PM
On the Influence of Crystal Orientation and Testing Temperature on the Local Mechanical Properties of High Entropy Alloys: *Verena Maier-Kiener*[1]; Benjamin Schuh[2]; Helmut Clemens[1]; Anton Hohenwarter[2]; [1]Montanuniversität Leoben - Physical Metallurgy & Materials Testing; [2]Montanuniversität Leoben - Materials Physics

5:20 PM Invited
Pre-osteoblastic Cell Responses to High-entropy Alloys: Jinbo Dou[1]; Haoyan Diao[1]; Yunzhu Shi[1]; Peter K. Liaw[1]; *Shanfeng Wang*[1]; [1]University of Tennessee

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; Gongyao 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. Oh[1]; J.Y. Kim[1]; *E.S. Park*[1]; H.J. Chang[2]; C.C. Tasan[3]; D. Raabe[4]; [1]Seoul National University; [2]Korea Institute of Science and Technology; [3]Massachussetts Institute of Technology; [4]Max-Planck Institut für Eisenforschung GmbH

2:20 PM Invited
Effect of Process Changes in the Manufacture and Mechanical Properties of High Entropy Alloys: *Paul Jablonski*[1]; Michael Gao[2]; Jeffrey Hawk[1]; [1]U.S. Department of Energy, National Energy Technology Laboratory; [2]AECOM

2:40 PM
Mechanisms Underlying the Remarkable Strength and Toughness of CrCoNi-based Medium- and High-Entropy Alloys at Ambient to Cryogenic Temperatures: Bernd Gludovatz[1]; Qian Yu[2]; Easo George[3]; *Robert Ritchie*[4]; [1]Lawrence Berkeley National Laboratory; [2]Zhejiang University; [3]Ruhr University; [4]University of California Berkeley

3:00 PM Invited
Effects of Preparation Methods on the Microstructures and Properties of High Entropy Alloys: *Zhongwu Zhang*[1]; Mingxing Qiu[1]; [1]Harbin 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 Wu[1]; Yanfei Gao[1]; *Hongbin Bei*[1]; [1]Oak Ridge National Laboratory

4:00 PM Invited
Characterization and Mechanical Properties of Spray-formed High Entropy Alloys: *Guilherme Zepon*[1]; Michael Kaufman[2]; Claudio Kiminami[1]; Walter Botta[1]; Claudemiro Bolfarini[1]; [1]Federal University of São carlos (UFSCar); [2]Colorado School of Mines

4:20 PM Invited
Size Effects and Thermal Stability of High-entropy Alloys: Single Crystalline vs. Nanocrystalline: *Yu Zou*[1]; Jeffrey Wheeler[1]; Huan Ma[1]; Roksolana Kozak[1]; Soumyadipta Maiti[1]; Walter Steurer[1]; Ralph Spolenak[1]; [1]ETH Zurich

4:40 PM
Irradiation Responses of High-entropy Alloys at Elevated Temperatures: *Songqin Xia*[1]; Michael Gao[2]; Tengfei Yang[3]; Peter Liaw[4]; Yong Zhang[1]; [1]University of Science and Technology Beijing; [2]National Energy Technology Laboratory; [3]Peking University; [4]The University of Tennessee

5:00 PM Invited
Strong Grain-size Effect on Deformation Twinning of an Al0.1CoCrFeNi High-entropy Alloy: *Shiwei Wu*[1]; G. Wang[1]; J. Yi[1]; Q. J. Zhai[1]; P. K. Liaw[2]; [1]Shanghai University; [2]The University of Tennessee

5:20 PM Invited
Interatomic Potential Function Development for the FeNiCoCr High Entropy Alloy: J. Wei[1]; Y. Zhuang[1]; PJ Yu[1]; *Alice Hu*[1]; [1]City University of Hong Kong

High Temperature Electrochemistry III — Materials Electrochemistry I

Program Organizers: Prabhat Tripathy, Idaho National Laboratory; Guy Fredrickson, Idaho National Lab; Boyd Davis, Kingston Process Metallurgy Inc.

Wednesday PM — Room: 16A
March 1, 2017 — Location: San Diego Convention Center

Session Chairs: Uday Pal, Boston University; Steven Herrmann, Idaho National Laboratory

2:00 PM
Molten Flux Design for Solid Oxide Membrane Based Electrolysis of Si from Silica: Thomas Villalon[1]; *Uday Pal*[1]; Soumendra Basu[1]; [1]Boston University

2:30 PM
Electrochemical Deposition of Barium into Liquid Bismuth from $BaCl_2$-LiCl-$CaCl_2$-NaCl Electrolyte: *Hojong Kim*[1]; Nathan Smith[1]; Timothy Lichtenstein[1]; Kuldeep Kumar[1]; [1]The Pennsylvania State University

3:00 PM
Electrochemical Behavior of Sn/SnCl2 Cathode in Na | NaCl-AlCl3-SnCl2 | Sn Cell: *Takanari Ouchi*[1]; Raku Watari[2]; Donald Sadoway[2]; [1]Massachusetts Institute of Technology ; [2]Massachusetts Institute of Technology

3:30 PM Break

3:50 PM
Impurity Removal from Titanium Oxycarbide: *Farzin Fatollahi-Fard*[1]; Petrus Pistorius[1]; [1]Carnegie Mellon University

4:20 PM
Thermal Imaging Furnace Technique for Ultra-high Temperature Electrochemical Measurements: *Bradley Nakanishi*[1]; Erick Hernandez[1]; Antoine Allanore[1]; [1]Massachusetts 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 Kale*[1]; Mansa Rajagopalan[1]; Scott Turnage[1]; Billy Hornbuckle[2]; Kris Darling[2]; Suveen Mathaudhu[3]; Kiran Solanki[2]; [1]Arizona State University; [2]Army Research Laboratory; [3]University of California, Riverside

2:20 PM
Enhancing the Tensile Response of Magnesium through Simultaneous Addition of Aluminium and Alumina Nanoparticulates: *Eugene Wong*[1]; Manoj Gupta[2]; [1]Newcastle University International Singapore; [2]National University of Singapore

2:40 PM
Effect of Solutes Additions on the Microstructure and Mechanical Properties of Cast Mg-Al Based Alloys: *Yahia Ali*[1]; Ming-Xing Zhang[1]; [1]University of Queensland

3:00 PM
Enhanced Mechanical Properties of Extruded Mg-9mass%Al-1mass%Zn-2mass%Ca Alloy: Xinsheng Huang[1]; *Yasumasa Chino*[1]; Hironori Ueda[2]; Masashi Inoue[2]; Futoshi Kido[3]; Toshiharu Matsumoto[3]; [1]National Institute of Advanced Industrial Science and Technology; [2]Fuji Light Metal Co. Ltd.; [3]Tobata 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: *Yun Zou*[1]; Yang Li[2]; Hao Guo[1]; Songsong Xu[1]; Yu Zhao[1]; Milin Zhang[1]; Zhongwu Zhang[1]; [1]Harbin Engineering University; [2]Zhengzhou University

4:00 PM
Mechanical Properties and Deformation Mechanism of Mg-Y Alloy with Various Grain Sizes: *Ichiro Kawarada*[1]; Ruixiao Zheng[1]; Akinobu Shibata[1]; Hidetoshi Somekawa[2]; Shigenobu Ogata[3]; Nobuhiro Tsuji[1]; [1]Kyoto University; [2]National Institute for Material Science; [3]Osaka University

4:20 PM
Microstructure and Mechanical Properties of High Pressure Die Cast Mg-Al-Sn-Si Alloys: *Andrew Klarner*[1]; Weihua Sun[1]; Jiashi Miao[1]; Alan Luo[1]; [1]The Ohio State University

4:40 PM
Microstructure and Mechanical Properties of an Extruded Mg-1.58Zn-0.52Gd Alloy: *M.G. Jiang*[1]; J.C. Chen[2]; H. Yan[1]; C. Xu[3]; T. Nakata[3]; S. Kamado[3]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]Xi'an Jiaotong University; [3]Nagaoka University of Technology

5:00 PM
Modelling Magnesium Alloys for Improved Isotropic and Symmetric Yield Behaviour: *Alec Davis*[1]; Joseph Robson[1]; [1]University 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
March 1, 2017

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*[1]; Vineet Joshi[2]; David Catalini[2]; Curt Lavender[2]; David Field[3]; [1]Pacific Northwest National Laboratory ; [2]Pacific Northwest National Laboratory; [3]Washington State University

2:20 PM
Biocompatible Magnesium Alloy ZNdK100 – Adaptation of Extrusion Parameters to Tailor the Mechanical Properties to Different Implant Applications: Rainer Eifler[1]; Florian Schäfke[1]; Hans Jürgen Maier[1]; *Christian Klose*[1]; [1]Leibniz Universität Hannover

2:40 PM
Characterization of Semi-closed Die-forged ZK60 Mg Alloy Extrusion: *Seyyedmohamadhasan Karparvarfard*[1]; Sugrib Shaha[1]; Amir Hadadzadeh[1]; Hamid Jahed[1]; Mary Wells[1]; Bruce Williams[2]; [1]University of Waterloo; [2]CanmetMATERIALS, Natural Resources Canada

3:00 PM
Optimization of Nitrogen Bubbling Conditions for Extruded Mg Alloy with Balanced Mechanical Properties: *Wonseok Yang*[1]; Youngkyun Kim[1]; Taeyang Kwak[1]; Shae K. Kim[1]; Hyunkyu Lim[1]; Do Hyang Kim[2]; [1]KITECH; [2]Yonsei University

3:20 PM
Effects of Gadolinium and Neodymium Addition on Young's Modulus of Magnesium-based Binary Alloys: *Yuling Xu*[1]; Jie Li[2]; Zhengye Zhong[1]; Karl Kainer[1]; Norbert Hort[1]; [1]Helmholtz Zentrum Geesthacht; [2]Shanghai University

3:40 PM Break

4:00 PM
Aging Behavior of Mg Alloys Containing Nd and Y: *Ellen Solomon*[1]; Timothy Chan[1]; Andrew Chen[1]; Benjamin Uttal-Veroff[1]; Emmanuelle Marquis[1]; [1]University of Michigan

4:20 PM
Variation of Rare Earth Elements in the Magnesium Alloy ME21 for the Sheet Production: *Gerrit Kurz*[1]; Tom Petersen[1]; Dietmar Letzig[1]; [1]Helmholtz-Zentrum Geesthacht

4:40 PM
Phase Stability and Formation in Mg–Gd–Zn Alloys – Key Data for ICME of Mg Alloys: *Rainer Schmid-Fetzer*[1]; Joachim Gröbner[1]; Suming Zhu[2]; Jian-Feng Nie[3]; Mark Gibson[4]; [1]Clausthal University of Technology; [2]RMIT University; [3]Monash University; [4]CSIRO

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

Wednesday PM
March 1, 2017

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*[1]; Sun Zhiqian[1]; Maxim Gussev[1]; Kevin Field[1]; Bruce Pint[1]; Lance Snead[2]; Stuart Maloy[3]; Kurt Terrani[1]; [1]Oak Ridge National Laboratory; [2]Massachusetts Institute of Technology; [3]Los Alamos National Laboratory

2:20 PM
Charged Particle Irradiation Studies of High Dose Precipitation in Reactor Pressure Vessel Steels
: *Nathan Almirall*[1]; Takuya Yamamoto[1]; Peter Wells[1]; G. R. Odette[1]; Nicholas Cunningham[1]; Soupitak Pal[1]; Scott Tumey[2]; Keith Williams[3]; Tim Williams[3]; [1]University of California Santa Barbara; [2]Lawrence Livermore National Laboratory; [3]Rolls Royce

2:40 PM
Effect of Different Processing Routes on the Microstructure and Texture of 14YWT Alloy: *Soupitak Pal*[1]; Ershadul Alam[1]; G Odette[1]; Stuart Maloy[1]; David Hoelzar[1]; John Lewandowski[1]; [1]University 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*[1]; Kurt Terrani[1]; Chad Parish[1]; Aaron Selby[1]; Niyanth Sridharan[1]; Dana McClurg[1]; Zachary Thompson[1]; Mark Norfolk[2]; Sudarsanam Babu[3]; [1]Oak Ridge National Laboratory; [2]Fabrisonic LLC; [3]University of Tennessee

3:20 PM
Creep Fatigue Crack Growth of T91: Test Design and Data Analysis: *Marta Serrano*[1]; Rebeca Hernandez Pascual[1]; [1]CIEMAT

3:40 PM Break

4:00 PM
Property Evolution Due to Thermal Aging of Cast Duplex Stainless Steels As Measured by Multi-Scale Mechanical Methods: *Samuel Schwarm*[1]; Sarah Mburu[1]; R. Prakash Kolli[1]; Carl Cady[2]; Stuart Maloy[2]; Sreeramamurthy Ankem[1]; [1]University of Maryland, College Park; [2]Los Alamos National Laboratory

4:20 PM
Microstructural Heterogeneity of Deformed and Annealed FeCrAl Alloys with Nb Addition: *Zhiqian Sun*[1]; Philip Edmondson[1]; Yukinori Yamamoto[1]; [1]Oak Ridge National Laboratory

4:40 PM
Complex SiC-SiC Composite Structures for Nuclear Applications: *Ekaterina Novitskaya*[1]; Hesham Khalifa[2]; Alexander Kritsuk[1]; Olivia Graeve[1]; [1]University of California, San Diego; [2]General Atomics, Corp.

5:00 PM
Effects of Ion-irradiation Damage on Mechanical Behavior in Silicon Carbide: *David Armstrong*[1]; Helen Pratt[1]; Steve Roberts[1]; Yevhen Zayachuk[1]; [1]University of Oxford

5:20 PM
Study on the Microstructure and Mechanical Behavior of the New Type SA508-IV Reactor Pressure Vessel (RPV) Steel by Different Methods: *Xue Bai*[1]; Sujun Wu[1]; Peter K. Liaw[2]; Lin Shao[3]; [1]Beihang University; [2]The University of Tennessee, Knoxville; [3]Texas A&M University

Materials Engineering of Soft Magnets for Power and Energy Applications — Ferrites, Soft Magnetic Composites, and Bulk Soft Magnet Materials

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
March 1, 2017

Room: 25B
Location: San Diego Convention Center

Session Chair: Francis Johnson, General Electric

2:00 PM Invited
Advanced Magnetic Polymer Nanocomposites for High Frequency Device Applications: *Hariharan Srikanth*[1]; [1]University of South Florida

2:30 PM
Development of Mold Inductor for Power Conversion System: *Hyungsuk Kim*[1]; [1]Hyundai Motors

2:50 PM
Development of Fe-based Bulk Metallic Glasses with Both High Saturation Flux Density and High Glass Forming Ability: *Shuangqin Chen*[1]; Kefu Yao[1]; [1]Tsinghua University

3:10 PM
Ferrite-coated Fe Soft Magnetic Composites: Balance of Magnetic Permeability and Electrical Resistivity: *Katie Jo Sunday*[1]; Mitra Taheri[1]; [1]Drexel University

3:30 PM Break

3:45 PM Invited
Candidate Coatings for Soft Magnet Composites: Insights Gained from Multiscale Electron Microscopy: *Mitra Taheri*[1]; Katie Sunday[1]; [1]Drexel University

4:15 PM
Study of Temperature Dependent Magnetic Properties of Zr+4 and Ti+4 Substituted Cobalt Ferrites: Monaji Vinitha Reddy[1]; Sudhindra Rayaprol[2]; Shara Sowmya[3]; A. Srinivas[3]; *Dibakar Das*[1]; [1]University of Hyderabad; [2]UGC-DAE-Consortium for Scientific Research ; [3]Defence Metallurgical Research Laboratory

4:35 PM
Consolidation and Behavior of Bulk Iron Nitride Soft Magnets via Spark Plasma Sintering: *Baolong Zheng*[1]; Todd Monson[2]; Yizhang Zhou[1]; Jean-Pierre Delplanque[3]; Stanley Atcitty[2]; Enrique Lavernia[1]; [1]University of California at Irvine; [2]Sandia National Laboratories; [3]University of California at Davis

4:55 PM
Consolidation of Bulk Ferrimagnetic Rare Earth Iron Garnets: *Chad Warren*[1]; Pathikumar Sellappan[1]; Yasuhiro Kodera[2]; Javier Garay[1]; [1]University of California, San Diego; [2]University 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 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

Wednesday PM
March 1, 2017

Room: Pacific 16
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[1]; Wesley Jackson[1]; Akane Suzuki[2]; *Tresa Pollock*[1]; [1]University of California, Santa Barbara; [2]General 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*[1]; Pauline Audigié[2]; Clara Desgranges[3]; Aurélie Rouaix Vande-Put[2]; [1]CNRS, CIRIMAT Laboratory; [2]CIRIMAT Laboratory; [3]CEA

3:00 PM
The Influence of Bond Coats on Crack Progression during Sustained Peak Low-Cycle Fatigue: *Marissa Lafata*[1]; Tresa Pollock[1]; [1]University of California, Santa Barbara

3:20 PM
Design of Nickel-base Superalloys with High Creep and Oxidation Resistance: *Franck Tancret*[1]; Edern Menou[1]; Daniel Monceau[2]; Gérard Ramstein[1]; Pedro Rivera-Díaz-del-Castillo[3]; [1]Université de Nantes; [2]CNRS; [3]University of Cambridge

3:40 PM Break

4:00 PM
Kinetic and Structural Processes Affecting Alumina-scale Establishment during Early-stage Oxidation of Ni-base Alloys: Yihong Kang[1]; Juan Alvarado-Orozco[2]; Judth Yang[1]; *Brian Gleeson*[1]; [1]University of Pittsburgh; [2]CiDESi

4:20 PM Invited
A Perspective on the Challenges to Thermal Barrier Coatings: *Carlos Levi*[1]; [1]University of California, Santa Barbara

4:50 PM Invited
The Effect of Borosilica Pack-Cementation Coatings on the Oxidation Resistance of Mo-Si-B Based Alloys: *John Perepezko*[1]; Daniel Schliephake[2]; Camelia Gombola[2]; Martin Heilmaier[2]; [1]University of Wisconsin-Madison; [2]Karlsruhe 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*[1]; Vishwanadh B[1]; S. K. Ghosh[1]; Raghvendra Tewari[1]; [1]Bhabha Atomic Research Centre

5:40 PM
Functionally Graded Tungsten/EUROFER Coating for Plasma Facing Components of Fusion Power Plants: *Jarir Aktaa*[1]; Dandan Qu[1]; Robert Vaßen[2]; Marius Wirtz[2]; Jochen Linke[2]; [1]Karlsruhe Institute of Technology (KIT); [2]Forschungszentrum 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
March 1, 2017

Room: 17B
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM
Applied Statistical Analysis on the Calcination Process in the Ferronickel Production: *Fabio Soares*[1]; Denis Shevchenko[1]; Alexey Levchenko[1]; Alexey Avdeev[1]; Alexander Vodin[1]; Vitaly Rudik[1]; Stanislav Kovalchuk[1]; [1]Pronico

2:20 PM
The Chemical Stability and Electrochemical Behavior of Dy2O3 in Molten CaCl2: *Jianxun Song*[1]; [1]K. U. Leuven

2:40 PM
Kinetics of Manganese Reductive Alloying with Carbon and Silicon: *Brian Jamieson*[1]; Kenneth Coley[1]; [1]McMaster University

3:00 PM
Synthesis of TiO2 by Hydrolysis of Titanyl Sulphate Solution under an Alternating Electric Field: LI Fu[1]; *Dongmei Luo*[1]; Bin Liang[1]; Zhao Zhang[1]; [1]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 Shin*[1]; Sung Ho Joo[1]; Chang Hyun Oh[1]; Shun Myung Shin[1]; [1]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. Huang*[1]; Courtney Young[1]; [1]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. Huang*[1]; Courtney Young[1]; [1]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 Charit, University of Idaho; Yuntian Zhu, North Carolina State University; Stuart Maloy, Los Alamos National Laboratory; Peter Liaw, University of Tennessee - Knoxville

Wednesday PM
March 1, 2017

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 Kawasaki[1]; *Terence Langdon*[2]; [1]Hanyang University; [2]University of Southern California

2:30 PM Invited
Multiaxial Creep and Creep-fatigue: *James Stubbins*[1]; Kuan-Che Lan[1]; John Sanders[1]; Mohsen Dadfarnia[1]; Petros Sofronis[1]; Hsiao-Ming Tung[1]; Xiang Liu[1]; Calogero Sollima[1]; Kun Mo[1]; Guiseppe Brunetti[1]; [1]University of Illinois

2:50 PM Invited
Creep and Creep Fatigue of Alloy 709 Using In situ Heating during SEM and EBSD Observation: *Afsaneh Rabiei*[1]; Hangyue Li[2]; Paul Bowen[2]; [1]North Carolina State University; [2]Birmingham University

3:10 PM Invited
Cyclic Deformation Behavior of Modified 9Cr–1Mo Steel at Elevated Temperatures: *Vakil Singh*[1]; Preeti Verma[1]; [1]Indian Institute of Technology (Banaras Hindu University)

3:30 PM Break

3:45 PM Keynote
Environmentally-benign Pb-free Solder Alloys: Complex Load Bearing Materials in Electronic Packaging
: *Nikhilesh Chawla*[1]; [1]Arizona State University

4:15 PM Invited
Effect of Thermo-mechanical History on the Creep Behavior of Sn-Ag-Cu Solders: Babak Talebanpour[1]; *Indranath Dutta*[1]; [1]Washington State University

4:35 PM
Modelling of the Fracture of Precipitate and Austenitic Matrix Interfaces During Creep: *Liang Huang*[1]; Maxime Sauzay[1]; [1]French Alternative Energies and Atomic Energy Commission

4:55 PM Invited
Chracterisation of Mechanical Properties Using Ball Indentation, Small Punch Creep and Impression Creep Methods: *MD Mathew*[1]; [1]Saintgits College of Engineering (formerly at Indira Gandhi Center for Atomic Research)

Mechanical Behavior of Nanostructured Materials — Modeling and Thermal Stability, Radiation, Corrosion of Nanocrystals

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

Wednesday PM
March 1, 2017

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 Brenner*[1]; [1]North Carolina State University

2:25 PM Invited
Toward Quantitative 3D Microstructure-property Relations in Nano- and Poly-crystalline Materials: *Mo Li*[1]; [1]Georgia Institute of Technology

2:50 PM
Understanding, Controlling, and Creating Martensitic Phase Transformations in Nanostructured Polycrystals and Metamaterials: Sam Reeve[1]; Yang Wang[1]; Karthik Guda Vishnu[1]; *Alejandro Strachan*[1]; [1]Purdue University

3:10 PM
Electromechanical Coupling Enhanced by Polar Nanoregion Vibrations: *Michael Manley*[1]; Douglas Abernathy[1]; Raffi Sahul[2]; Jeff Lynn[3]; Andy Christianson[1]; Paul Stonaha[1]; John Budai[1]; [1]Oak Ridge National Laboratory; [2]Meggitt Sensing Systems; [3]National Institute of Standards and Technology

3:30 PM Break

3:50 PM Invited
Development of Age-hardenable Nanolamiate Thin Films: *David Bahr*[1]; Chang-Eun Kim[1]; Nicolas Briot[2]; T. Balk[2]; [1]Purdue University; [2]University of Kentucky

4:15 PM Invited
Mechanical Properties and Thermal Stabilization of Nanocrystalline Aluminum and Aluminum Alloys: *Khaled Youssef*[1]; Ronald Scattergood[2]; Carl Koch[2]; [1]Qatar University; [2]North Carolina State University

4:40 PM
Thermal Stability and Grain-boundary Segregation in Al-Alloy Thin Films: *Aashish Rohatgi*[1]; Arun Devaraj[1]; Rama Vemuri[1]; Libor Kovarik[1]; Xiujuan Jiang[1]; Giridhar Nandipati[1]; Suveen Mathaudhu[1]; Wenbo Wang[2]; Jason Trelewicz[2]; [1]Pacific Northwest National Laboratory; [2]Stony Brook University

5:00 PM
Enhanced Thermal Stability of Ultrafine-grained Aluminum Fabricated by Applying a Fast Cooling Rate after Hot Rolling: *Pei-Ling Sun*[1]; [1]National Sun Yat-Sen University

5:20 PM
Effects of Ultrafine Grain Structure on Al Alloy Response to Corrosive Environments: *Troy Topping*[1]; [1]California State University, Sacramento

5:40 PM
Evidence that Abnormal Grain Growth Precedes Fatigue-crack Initiation in Nanocrystalline Metals: *Timothy Furnish*[1]; Daniel Bufford[1]; Khalid Hattar[1]; Christopher O'Brien[1]; Stephen Foiles[1]; Apurva Mehta[2]; Douglas Van Campen[2]; Brad Boyce[1]; [1]Sandia National Laboratories; [2]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, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University

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*[1]; [1]University of Tennessee; Oak Ridge National Laboratory

2:50 PM
Microstructural Processes in Neutron-irradiated Tungsten: *Chad Parish*[1]; Xunxiang Hu[1]; Lauren Garrison[1]; Philip Edmondson[1]; Kun Wang[1]; Lance Snead[2]; Yutai Katoh[1]; [1]Oak Ridge National Laboratory; [2]Massachusetts Institute of Technology

3:10 PM
Evolution of Microstructure of Tungsten under Irradiation with Tungsten Ions: Emmanuel Autissier[1]; *Marie-France Barthe*[1]; Pierre Desagrdin[1]; Cécile Genevois[1]; Brigitte Decamps[1]; Robin Schaüblin[2]; Yves Serruys[3]; [1]CNRS; [2]ETH Zurich; [3]CEA

3:30 PM
Understanding the Effects of Helium Implantation Damage in Tungsten: Combining Multi-technique Experiments and Atomistic Modeling: *Felix Hofmann*[1]; Duc Nguyen-Manh[2]; Daniel Mason[2]; Mark Gilbert[2]; Sergei Dudarev[2]; Isaure deBroglie[3]; Jeffrey Eliason[4]; Ryan Duncan[5]; Alexei Maznev[5]; Keith Nelson[5]; Christian Beck[1]; Wenjun Liu[6]; [1]University of Oxford; [2]Culham Centre for Fusion Energy; [3]École Polytechnique; [4]University of Minnesota; [5]Massachusetts Institute of Technology; [6]Argonne National Laboratory

3:50 PM Break

4:05 PM
Microstructure and Mechanical Properties of Neutron-irradiated Tungsten Foil for Laminate Composites: *Lauren Garrison*[1]; Chad Parish[1]; Xunxiang Hu[1]; Taehyun Hwang[1]; Takaaki Koyanagi[1]; Jens Reiser[2]; Lance Snead[3]; Yutai Katoh[1]; [1]Oak Ridge National Laboratory; [2]Karlsruhe Institute of Technology; [3]Massachusetts Institute of Technology

4:25 PM Invited
Mechanism of Reduced Radiation Damage Identified in Equiatomic Multicomponent Single Phase Alloys: *Flyura Djurabekova*[1]; Fredric Granberg[1]; Kai Nordlund[1]; William J. Weber[2]; Yanwen Zhang[2]; [1]University of Helsinki; [2]Oak Ridge National Laboratory

4:55 PM
Comparison of Neutron and Ion Irradiation Effects on Microstructure of MA957: *Jing Wang*[1]; Nathan Bailey[2]; Mychailo Toloczko[1]; Daniel Schreiber[1]; Frank Garner[3]; Y. Kupriianova[4]; A. Kalchenko[4]; V. Voyevodin[4]; Lin Shao[5]; [1]Pacific Northwest National Laboratory; [2]University of California at Berkeley; [3]Radiation Effects Consulting; [4]Kharkov Institute of Physics and Technology; [5]Texas A&M University

5:15 PM
Neutron Irradiation Damage in Ferritic ODS Steel MA957: *Xiang Liu*[1]; Yinbin Miao[2]; Wei-Ying Chen[2]; Yaqiao Wu[3]; James Stubbins[1]; [1]University of Illinois at Urbana Champaign; [2]Argonne National Laboratory; [3]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*[1]; Matheus Tunes[1]; Graeme Greaves[1]; Jonathan Hinks[1]; Stephen Donnelly[1]; [1]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: *Ankit Srivastava*[1]; Shmuel Osovski[2]; Alan Needleman[1]; [1]Texas A&M University; [2]Technion-Israel Institute of Technology

2:20 PM
Improved Balance of Mechanical Properties in Cryomilled Al-Mg Alloy Through Thermomechanical Processing: *Holden Hyer*[1]; Clara Hofmeister[2]; Yongho Sohn[2]; Bhaskar Majumdar[1]; [1]New Mexico Tech; [2]University of Central Florida

2:40 PM
Stabilization of Nanocrystalline Fe-Zr Alloys by Nanoscale Zr-rich Clusters: *Yuzeng Chen*[1]; [1]Northwestern Polytechnical University

3:00 PM
Improving Composite Ductility through Corrugated Reinforcement Architecture: *Mark Fraser*[1]; Hatem Zurob[1]; Peidong Wu[1]; [1]McMaster University

3:20 PM Break

3:35 PM Invited
Ultra-strong and Ductile Nanotwinned Steel: Peng Zhou[1]; Rendong Liu[2]; Xu Wang[2]; *Mingxin Huang*[1]; [1]The University of Hong Kong; [2]Ansteel Group

4:00 PM
Multi Scale Modeling of Mechanical Behavior of Covalently Cross-linked SWCNT Aerogels: *Ankit Gupta*[1]; Andy Jiang[1]; Elizabeth Holm[1]; [1]Carnegie Mellon University

4:20 PM Invited
Multiscale and Multiphase Structures Obtained by Large Deformation Processes to Achieve Unique Properties Combinations: *Xavier Sauvage*[1]; [1]Normandy University

4:45 PM
Designing Optimal Bimodality in Harmonic Architectured Materials Using Statistical Synthetic Model: *Hyung Keun Park*[1]; Jaimyun Jung[1]; Hyoung Seop Kim[1]; [1]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
March 1, 2017

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 Choi*[1]; Rafael Vazquez-Duhalt[2]; Olivia Graeve[1]; [1]University of California, San Diego; [2]Universidad Nacional Autonoma de Mexico

2:20 PM
Directional Wetting at the Nano Scale: *Mohammad Khalkhali*[1]; Hao Zhang[1]; Qingxia (Chad) Liu[1]; [1]University of Alberta

2:40 PM
High Surface Area Novel Copper and Copper Oxide Nanostructures for Clean Energy Generation: *Gökhan Demirci*[1]; Cagla Ozgit-Akgun[1]; Esin Camci-Akca[1]; [1]Aselsan Inc.

3:00 PM
Fabrication of Au-coated Ag Nanowires for OLED Applications: *Sunho Kim*[1]; Hoo-Jeong Lee[1]; [1]Sungkyunkwan 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 Kumar[1]; R. Manoj Kumar[1]; Debrupa Lahiri[1]; *Indranil Lahiri*[1]; [1]Indian Institute of Technology Roorkee

3:55 PM
Mechanical Properties and Electrochemical Behaviour of Electroless Ni-P-BN(H) Coating on 1050 Aluminium Substrate with Nanostructured Anodic Oxide Interlayer: *Mustafa Kocabas*[1]; Michele Curioni[2]; Nurhan Cansever[1]; [1]Yildiz Technical University; [2]University 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 Parthiban*[1]; Dibakar Das[1]; [1]University of Hyderabad

4:35 PM
Development of Nano-sized Intra-precipitates in Nanostructured Materials Using the Pre-existing Embryo and Desired Texture: Hongyun Luo[1]; *Pingwei Xu*[1]; [1]Beihang University

4:55 PM
Effect of Surface Nanostructuring on the Liquid Aluminizing Behavior of Ti6Al4V
: *Qingsong Mei*[1]; Ye Ma[1]; Juying Li[2]; Feng Chen[1]; [1]Wuhan University; [2]Wuhan Polytechnic University

Pan American Materials Congress Plenary — Session IV

Wednesday PM
March 1, 2017

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 Toro*[1]; [1]National University of Colombia

2:40 PM Plenary
Toward a Federation of American Materials Societies: The European Experience: *Pedro D. Portella*[1]; [1]Federal 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
March 1, 2017

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 Liu[1]; Bor-Shuang Liaw[1]; Haw-Kai Chang[1]; *Po-Yu Chen*[1]; [1]National Tsing Hua University

4:10 PM
Chemical Composition Effect of Sol-gel Derived Bioactive Glass Over Bioactivity Behavior: *Lindsey Quintero*[1]; Diana Escobar[1]; [1]Universidad de Antioquia

4:30 PM
Injectability Evaluation of Bone-graft Substitutes Based on Carrageenan and Hydroxyapatite Nanorods: *Jazmín González Ocampo*[1]; Claudia Ossa Orozco[1]; [1]University of Antioquia

4:50 PM
Comparative Analysis of Neural Cell Behaviour on Carbon Nanofiller Reinforced Polymeric Substrates: *Pallavi Gupta*[1]; Murali Kumaraswamy[1]; Partha Roy[1]; Debrupa Lahiri[1]; [1]IIT Roorkee

5:10 PM
Comparative Spectroscopic Studies on the Interaction of Nickel Selenide Quantum Dots with Serum Albumins: *Selvaraj Naveenraj*[1]; Ramalinga Mangalaraja[1]; Thangaraj Pandiyarajan[1]; Sambandam Anandan[2]; [1]University of Concepcion; [2]National 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 química aplicada

Wednesday PM
March 1, 2017

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 Skaf*[1]; Vanesa Ortega-López[1]; Angel Aragón[1]; José San-José[2]; Javier González[2]; [1]University of Burgos; [2]UPV/EHU

4:10 PM
Physical and Mechanical Properties of Bricks with Added Industrial Waste: *Alejandro Martinez*[1]; [1]Universidad de Santander

4:30 PM
Portland Cement Paste Blended With Pulverized Coconut Fibers: *Yailuth Loaiza Lopera*[1]; Henry Colorado Lopera[1]; [1]Universidad de Antioquia

4:50 PM
Fiber Reinforced Concrete Manufactured with Electric Arc Furnace Slag: *Vanesa Ortega-López*[1]; José Fuente-Alonso[1]; Amaia Santamaría[2]; Marta Skaf[1]; Juan Manso[1]; [1]University of Burgos; [2]UPV/EHU

5:10 PM
Performance of Hydraulic Mixes Manufactured with Electric Arc Furnace Slag Aggregates: *Amaia Santamaría*[1]; Vanesa Ortega-Lopez[2]; Marta Skaf[2]; Ignacio Marcos[1]; José-Tomás San José[1]; Javier González[1]; [1]University of Basque Country; [2]University of Burgos

Pan American Materials Congress: Materials for Oil and Gas Industry — Next Generation of Metallic and Non-metallic Materials Design, Manufacture and Processing

Program Organizers: Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

Wednesday PM
March 1, 2017

Room: Marina G
Location: Marriott Marquis Hotel & Marina

Session Chairs: Lorenzo Martinez Gomez, UNAM; Adriana Rocha, UFRJ

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 Berlanga*[1]; [1]Ternium

4:05 PM
Materials for Facilities Liquefied Petroleum Gas as NFPA: *Diego Venegas*[1]; [1]Universidad de Concepción

4:25 PM
Dynamic Transformation and Retransformation during the Simulated Plate Rolling of an X70 Pipeline Steel: *Samuel Rodrigues*[1]; Clodualdo Aranas Jr.[2]; Fulvio Siciliano[3]; John Jonas[2]; [1]McGill University and Federal Institute of Education, Science and Technology of Maranhão-IFMA; [2]McGill University; [3]Dynamic Systems Inc.

4:45 PM
High Temperature In-Situ X-ray Analysis of a Lean Duplex Stainless Steel: *Adriana Rocha*[1]; Andrea Pedroza[1]; Gabriela Pereira[1]; [1]LNDC/COPPE/UFRJ

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 Autonoma de Nuevo Leon

Wednesday PM
March 1, 2017

Room: Marina D
Location: Marriott Marquis Hotel & Marina

Session Chair: Mary Wells, University of Waterloo

3:40 PM Introductory Comments

3:45 PM
The Role of Light Weight Materials in Energy Efficiency in the Transportation Industry

: *Fernand Marquis*[1]; [1]San Diego State University

4:05 PM
Current Lightweight Design Trends in Mobile IT Products: *Mesut Varlioglu*[1]; Chalam Kashyap[1]; Jack Hui He[1]; [1]HP Inc.

4:25 PM
Effect of the Thermal Processing History on the Age Hardening Behaviour of 7000 Series Aluminum Alloys: *Atekeh Abolhasani*[1]; Tirdad Niknejad[1]; Kaab Omer[1]; Shahrzad Esmaeili[1]; Mary Wells[1]; Michael Worswick[1]; [1]University of Waterloo

4:45 PM
Microstructures, Precipitation Sequence, and Hardening of Al-Mg-Zn Alloys with High Mg:Zn Ratio: *Yangyang Fan*[1]; Diran Apelian[1]; [1]Worcester Polytechnic Institute

5:05 PM
Metallurgical Bond Formation During Multimaterial Metal Casting: *Carl Soderhjelm*[1]; Diran Apelian[1]; [1]Worcester Polytechnic Institute

Pan American Materials Congress: Minerals Extraction and Processing — Waste Treatment and Processing

Program Organizers: Mery Gómez Marroquín, 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
March 1, 2017

Room: Marina E
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-Marroquín*[1]; Jose Carlos D´Abreu[2]; [1]Universidad Nacional de Ingenieria; [2]Pontificia Universidade Catolica do Rio de Janeiro

4:00 PM
Biotechnological Recycling of Precious Metals Sourced from Post-consumer Products: Norizo Saito[1]; Toshiyuki Nomura[1]; *Yasuhiro Konishi*[1]; [1]Osaka Prefecture University

4:20 PM
Extraction of Gold from Sands and Slimes Tailings Dump from Mazowe Mine, Zimbabwe: *Alain Bantshi*[1]; [1]Baldmin Projects

4:40 PM
Reduction Kinetics and Characterization Study of Synthetic Magnetite Micro Fines: Saikat Kuila[1]; *Ritayan Chatterjee*[1]; Dinabandhu Ghosh[1]; [1]Jadavpur University

5:00 PM
Novel Adsorbent from Iron Ore Concentration Tailings for Toxic Cationic Dye Removal from Water: Yongmei Wang[1]; *Alejandro Lopez-Valdivieso*[2]; Teng Zhang[3]; Teza Mwamulima[3]; Changsheng Peng[3]; [1]College of Environmental Science and Engineering, Ocean University of China; Instituto de Metalurgia, Universidad Autónoma de San Luis Potosí; [2]Instituto de Metalurgia, Universidad Autonoma de San Luis Potosi; [3]College 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 Jia[1]; *Shaoxian Song*[1]; [1]Wuhan 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
March 1, 2017

Room: Marina F
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 Naghdi[1]; Roberto Figueiredo[2]; *Terence Langdon*[3]; [1]University of Southampton; [2]Universidade Federal de Minas Gerais; [3]University of Southern California

4:00 PM
Formation of Ultrafine-Grained Structure in NiTi alloys by ECAP-"Conform": *Egor Prokofiev*[1]; Ivan Lomakin[1]; Dmitry Gunderov[2]; Ruslan Valiev[1]; [1]Saint Petersburg State University; [2]Ufa 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[1]; Ana Celeste Oliveira[1]; Cíntia Costa[1]; *Roberto Figueiredo*[1]; Maria de Fátima Leite[1]; Marivalda Magalhães[1]; Vanessa Lins[1]; Terence Langdon[2]; [1]Federal University of Minas Gerais; [2]University of Southampton

4:40 PM
Wear Resistance of an Ultrafine-grained Cu-Zr Alloy Processed by High-pressure Torsion: *Jittraporn Wongsa-Ngam*[1]; Jianwei Li[2]; Jie Xu[2]; Terence Langdon[3]; [1]King Mongkut's Institute of Technology Ladkrabang; [2]Harbin Institute of Technology; [3]University of Southern California

5:00 PM
Wear Resistance and Electroconductivity of Copper and CuCrZr Alloy Subjected to Severe Plastic Deformation: *Alexander Zhilyaev*[1]; Anna Morozova[2]; Jose Maria Cabrera[3]; Rustam Kaibyshev[2]; [1]Fundació CTM Centre Tecnològic; [2]Belgorod State University; [3]Universitat Politècnica de Catalunya

5:20 PM
High-Pressure Torsion of Ceramics with Functional Properties: *Kaveh Edalati*[1]; Hadi Razavi-Khosroshahi[2]; Masayoshi Fuji[2]; Zenji Horita[1]; [1]Kyushu University; [2]Nagoya Institute of Technology

5:40 PM
Nanostructured Al-Mg-Si Alloys for Electrical Conductors: *Ilchat Sabirov*[1]; Ruslan Valiev[2]; Georgiy Raab[2]; Alexandr Arutyunyan[3]; Maxim Murashkin[2]; [1]IMDEA Materials Institute; [2]Ufa State Aviation Technical University; [3]Saint Petersburg State University

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVI — Pb-free Soldering & UBM

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

Wednesday PM
March 1, 2017

Room: 25A
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*[1]; Shien Ping Feng[1]; [1]The University of Hong Kong

2:20 PM
Development of Sn-free and Sn-containing Low Melting Solder Alloys: *Chih-Hao Chen*[1]; Albert T. Wu[1]; BoonHo Lee[2]; HsiangChuan Chen[2]; ChangMeng Wang[2]; [1]National Central University; [2]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*[1]; Chih-Ming Chen[1]; [1]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-Syuan Wu*[1]; Pei-Tzu Lee[1]; Ming-Kai Lu[1]; Tsai-Tung Kuo[2]; Cheng-En Ho[1]; [1]Yuan Ze University; [2]Uyemura Limited Company

3:20 PM
Niobium Pentoxide Hole-blocking Layer for Perovskite Solar Cell: *Rui Cheng*[1]; Yu Ting Huang[1]; Shien Ping Feng[1]; [1]The University of Hong Kong

3:40 PM Break

3:55 PM
Thermal Capacitive Electrochemical Cycle on Supercapacitor: *Xun Wang*[1]; Shien Ping Feng[1]; [1]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*[1]; Chih-Ming Chen[1]; [1]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 Wong*[1]; Jai-Lin Wu[1]; Jau-Shiung Fang[1]; [1]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*[1]; [1]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*[1]; Chengyi Liu[1]; [1]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
March 1, 2017

Room: 16B
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: *Yufeng Zheng*[1]; Robert Williams[1]; William Clark[1]; Hamish Fraser[1]; [1]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 Qiu*[1]; Rongpei Shi[2]; Pengyang Zhao[2]; Weijie Lyu[1]; Yunzhi Wang[2]; [1]Shanghai Jiao Tong University; [2]The Ohio State University

2:40 PM
Microstructure Evolution and Recrystallization in Linear Friction Welded Titanium Alloys: *Riddhiman Bhattacharya*[1]; Thomas Broderick[2]; John Allison[1]; [1]University of Michigan, Ann Arbor; [2]GE Aviation

3:00 PM
Coupling Phase-field Models with Equilibrium Thermodynamics to Simulate Porosity Evolution in Nuclear Fuel: *Michael Welland*[1]; Eric Tenuta[1]; Markus Piro[1]; [1]Canadian Nuclear Laboratory

3:20 PM Break

3:40 PM
Primary Alpha Plate Growth in Ti6246: *Abigail Ackerman*[1]; David Rugg[2]; David Dye[1]; [1]Imperial College, London; [2]Rolls-Royce plc.

4:00 PM
Study on Phase Stability, Correlated Deformation Microstructure and Mechanical Properties in a Metastable ß-type Ti-Nb-Zr-Ta-O Alloy: *Sumin Shin*[1]; Kenneth Vecchio[1]; [1]University of California, San Diego

4:20 PM
Phase Formation in Cu - Zn Powder Mixtures Subjected to Ultrasonic Powder Consolidation: *Azin Houshmand*[1]; Teiichi Ando[1]; [1]Northeastern University

Solar Cell Silicon — Silicon Production, Crystallization, and Properties

Program Organizers: Shadia Ikhmayies, Al Isra University; Neale Neelameggham, Ind LLC

Wednesday PM
March 1, 2017

Room: 19
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

2:00 PM
Electrodeposition of Solar Grade Silicon on Graphite in Molten CaCl2
: *Huayi Yin*[1]; Allen Bard[2]; Donald Sadoway[1]; [1]MIT; [2]University of Texas at Austin

2:20 PM
Solar Silicon by Direct Carbothermic Reduction - Review and Outlook: *Jan-Philipp Mai*[1]; [1]JPM Silicon GmbH

2:40 PM
Study on Producing Solar Grade Silicon by Carbothermal Reduction of Andalusite Ore: Shilai Yuan[1]; *Huimin Lu*[1]; Panpan Wang[1]; [1]Beihang University

3:00 PM
Phase Analysis of the Si-O2 System: *Shadia Ikhmayies*[1]; [1]Al Isra University

3:20 PM
Characterization of Composition, Morphology, and Structure of Disi Raw Sandstones in Jordan: *Shadia Ikhmayies*[1]; Bothina Hamad[2]; Abulkader Abed[2]; Belal Amireh[2]; Yulia Meteleva[2]; [1]Al Isra University; [2]University of Jordan

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
March 1, 2017

Room: 24C
Location: San Diego Convention Center

Session Chair: Seth Imhoff, Los Alamos National Laboratory

2:00 PM Invited
Understanding the Precipitation and Orientation Relationships in Transition Metal Carbides and Nitrides: *Christopher Weinberger*[1]; Hang Yu[1]; Bradford Schulz[2]; Robert Morris[2]; Xiao-Xiang Yu[2]; Gregory Thompson[2]; [1]Drexel University; [2]University of Alabama

2:30 PM
An Experimental and Modelling Study on Precipitation during Tempering of Martensitic Alloys: *Tao Zhou*[1]; Joakim Odqvist[1]; Peter Hedström[1]; [1]KTH Royal Institute of Technology

2:50 PM
Carbide Precipitation during Heating in Martensitic Steels: Xiaoqing Cai[1]; *Richard Sisson*[1]; [1]Worcester Polytechnic Institute, Center for Heat Treating Excellence

3:10 PM
Precipitation Behavior in Ni-Ti-Zr Shape Memory Alloys: Suzanne Kornegay[1]; Monica Kapoor[2]; B. Chad Hornbuckle[3]; Othmane Benafan[4]; Ronald Noebe[4]; Mark Weaver[1]; *Gregory Thompson*[1]; [1]University of Alabama; [2]National Energy Technology Laboratory; [3]Army Research Laboratory; [4]NASA Glenn Research Center

3:30 PM Break

3:50 PM
Kinetics of Discontinues Precipitation upon Age-hardening of Deformed and Recrystallized Invar-Sn Alloys: *Maryam Akhlaghi*[1]; Olena Volkova[1]; [1]Institute of Iron and Steel Technology, Technische Universität Bergakademie Freiberg

4:10 PM Invited
Prediction of Size, Temperature and Composition-dependent Precipitate/ Matrix Interfacial Energies: *Ernst Kozeschnik*[1]; Bernhard Sonderegger[2]; [1]TU Wien; [2]TU Graz

4:40 PM
Predicting Orientation Relationships: A Simple Algorithm for Generating Near-coincidence Site Lattices in General Bravais Lattice Systems: *Srikanth Patala*[1]; Arash Banadaki[1]; [1]North Carolina State University

5:00 PM
Morphology and Phase Stability of Pt Nanostructures in Dense Transition Alumina Formed by Solid-state Precipitation: Arielle Clauser[1]; Zachary McClure[1]; Raquel Giulian[2]; Andreas Glaeser[3]; *Melissa Santala*[1]; [1]Oregon State Unviersity; [2] Universidade Federal do Rio Grande do Sul; [3]University of California, Berkeley

5:20 PM
Investigating the Formation Path of Delta Hydrides in Zirconium Fuel Rod Claddings by Multi-Phase Field Modeling: Jacob Bair[1]; *Mohsen Asle Zaeem*[1]; [1]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
March 1, 2017

Room: 22
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[1]; *Jörg Weissmüller*[2]; [1]Helmholtz-Zentrum Geesthacht; [2]Hamburg University of Technology

2:30 PM Invited
Phase Transition and Anomalous Diffusion in Metastable ß Ti-Mo: *Srinivasan Srivilliputhur*[1]; Niraj Gupta[1]; Srikumar Banerjee[1]; [1]University of North Texas

3:00 PM Invited
How Some Quasicrystals Might Grow: *Jean Taylor*[1]; [1]Rutgers University and Courant Institute, NYU

3:30 PM Break

3:50 PM Invited
John Cahn and Aesthetics of Materials: *Leonid Bendersky*[1]; [1]NIST

4:20 PM Invited
Quasi-history of Quasi-crystallinity: *Olivier Hardouin Duparc*[1]; [1]Ecole Polytechnique

4:50 PM Invited
John Cahn's Boss, Really?: *Lyle Schwartz*[1]; [1]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; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim University

Thursday AM
March 2, 2017

Room: 18
Location: San Diego Convention Center

Session Chairs: Baojun Zhao, The University of Queensland; Matthew Andriese, Michigan Technological University

8:30 AM Introductory Comments

8:35 AM
Introduction of Matte Droplets in Copper Smelting Slag: Xiangfeng Cheng[1]; Zhixiang Cui[2]; Leonel Leonel Contreras[3]; Mao Chen[1]; Anh Nguyen[1]; *Baojun Zhao*[1]; [1]The University of Queensland; [2]Dongying Fangyuan Nonferrous Metals; [3]Codelco

8:55 AM
Dissolution Behavior of Fe from Glassy Oxide Phase in Steelmaking Slag: *Shohei Koizumi*[1]; Xu Gao[2]; Shigeru Ueda[2]; Shin-ya Kitamura[2]; [1]Tohoku University; [2]Institute of Multidisciplinary Research for Advanced Materials, Tohoku University

9:15 AM
Penetration Depth of Microwave in Tire Rubber: *Yuzhe Zhang*[1]; Jiann-Yang Hwang[1]; Zhiwei Peng[2]; Matthew Andriese[1]; Bowen Li[3]; Xiaodi Huang[3]; Xinli Wang[1]; Xin Yan[1]; [1]Michigan Technological University; [2]Michigan Technological University; Central South University; [3]Michigan Technological University; Advanced 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 Kim*[1]; Il Sohn[1]; [1]Yonsei University

9:55 AM
Effect of TiO2 on Thermophysical Properties and Structure of P-bearing Steelmaking Slags: *Zhanjun Wang*[1]; Zuotai Zhang[2]; Mei Zhang[1]; Min Guo[1]; [1]University of Science and Technology Beijing; [2]South 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 Shuva[1]; M Akbar Rhamdhani[1]; Geoffrey A Brooks[1]; Syed Masood[1]; Markus A Reuter[2]; *Muhamad Firdaus*[1]; [1]Swinburne University of Technology; [2]Helmholtz Institute Freiberg for Resource Technology

10:55 AM
The Reduction of Chromite or Chromium Slag with Silicon Wafer Kerfloss: *Jong Ho Kim*[1]; [1]Research Institute of Industrial Science and Technology

11:15 AM
Precipitation Behavior of MxTi3-xO5 in the Titanium-Bearing Electric Furnace Slag: *Fuqiang Zheng*[1]; Xiaoming Qu[1]; Guanzhou Qiu[1]; Yufeng Guo[1]; Tao Jiang[1]; [1]Central South University

11:35 AM
Research on the Slag Type of Laterite Ores Smelting Reduction: *Liu Chang*[1]; [1]Shanghai 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
March 2, 2017

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 Barnes*[1]; Chris Aldridge[1]; [1]Alcoa

9:00 AM
Evolution of Aluminum Alloys Structure at Production Phases of 3D Products by Methods of Additive Technologies: *Ivan Redkin*[1]; Victor Mann[1]; Aleksandr Krokhin[1]; Aleksandr Alabin[1]; Sergey Zmanovskiy[1]; Valentin Konkevich[1]; [1]RUSAL Global Management B. V.

9:20 AM
Characterization of Multiperforated Plates Manufactured by SLM and EBM for Aeroengine Applications: *Marc Thomas*[1]; Océane Lambert[1]; Cécile Davoine[1]; Fabienne Popoff[1]; Corinne Dupuy[2]; Patrice Peyre[2]; Rémy Dendievel[3]; [1]ONERA; [2]ENSAM ParisTech; [3]SIMaP

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 Li*[1]; Guofeng Chen[1]; Zhiqi Yao[1]; Zhongjiao Zhou[2]; [1]Corporate Technology, Siemens; [2]Tsinghua University

10:00 AM Break

10:20 AM
Emerging High-strength Aluminum Alloys for Selective Laser Melting: *Todd Mower*[1]; [1]MIT 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 Delroisse*[1]; Olivier Rigo[2]; Pascal Jacques[1]; Aude Simar[1]; [1]Université Catholique de Louvain; [2]Sirris

11:00 AM
Porosity Determination in Powder Bed Aluminum Alloy: *Lisa Deibler*[1]; Jay Carroll[1]; Jeff Rodelas[1]; [1]Sandia National Laboratories

11:20 AM
Understanding the Columnar-to-Equiaxed Transition in Additive Manufacturing: *Mark Easton*[1]; Dong Qiu[1]; Mitesh Patel[1]; Gui Wang[2]; Milan Brandt[1]; David StJohn[2]; [1]Royal Melbourne Institute of Technology University; [2]University of Queensland

11:40 AM
Direct Laser Metal Deposition of Eutectic Al-Si Alloy for Automotive Applications: *Amrinder Singh*[1]; Abhishek Ramakrishnan[1]; Guru Dinda[1]; [1]Wayne 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; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Thursday AM
March 2, 2017

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*[1]; David Ellis[1]; [1]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*[1]; [1]Technische Universität Ilmenau

9:20 AM
Tomography and 3D Grain Mapping for Additive Manufacturing Qualification: *Leah Lavery*[1]; Hrishikesh Bale[1]; Jeff Gelb[1]; Arno Merkle[1]; [1]Carl Zeiss X-ray Microscopy, Inc.

9:40 AM Invited
Qualification Development for AlSi10Mg for Robotic Spaceflight: *Bryan McEnerney*[1]; R. Dillon[1]; John Paul Borgonia[1]; Daniel Weinstock[1]; Andrew Shapiro-Scharlotta[1]; [1]Jet Propulsion Laboratory

10:10 AM Break

10:30 AM
Numerical Investigations of the Coating Process during Powder Bed Additive Manufacturing: *Mustafa Megahed*[1]; Wolfgang Ottow[1]; [1]ESI Group

10:50 AM
In-process Monitoring of Cross Contamination in Laser Powder Bed Fusion Additive Manufacturing: *Mahdi Jamshidinia*[1]; Paul Boulware[1]; Jacob Marchal[1]; Heimdall Mendoza[1]; Lance Cronley[1]; Scott Newhouse[1]; [1]EWI

11:10 AM
Microstructure and Mechanical Properties of Laser Deposited Ni/WC Metal Matrix Composite Coatings: *Abhishek Ramakrishnan*[1]; Amrinder Singh[1]; Guru Dinda[1]; [1]Wayne State University

11:30 AM Invited
Phase-field Modeling of Microstructure Evolution during Additive Manufacturing of Ti-6Al-4V Alloys: Yanzhou Ji[1]; Lei Chen[2]; *Long Qing Chen*[1]; [1]Penn State University; [2]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 Pantleon, DTU; Irene Beyerlein, Los Alamos National Laboratory

Thursday AM
March 2, 2017

Room: 33C
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Representation of Materials Microstructure for Modeling: *Veronica Livescu*[1]; Curt Bronkhorst[1]; George Gray[1]; Carl Trujillo[1]; Daniel Martinez[1]; James Valdez[1]; Bineh Ndefru[1]; Olivia Dippo[1]; Roberta Beal[1]; [1]Los Alamos National Laboratory

8:50 AM
Determination for Dynamic Fracture Toughness of Linear Elastic Materials Using the Large Dimensional Hopkinson Tube: *Chunhuan Guo*[1]; Ding Yuan[1]; Peijun Zhou[1]; Kennth. S. Vecchio[2]; Fengchun Jiang[1]; [1]Harbin Engineering University; [2]University of California, San Diego La Jolla

9:10 AM
Determination of Geometrically Necessary Dislocations in Large Shear Strain Localization in Metals: *Chaoyi Zhu*[1]; Veronica Livescu[2]; Tyler Harrington[1]; Olivia Dippo[2]; George T. Gray III[2]; Kenneth Vecchio[1]; [1]UC San Diego; [2]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*[1]; Steven Mates[1]; [1]NIST

9:50 AM Break

10:10 AM
Dissecting Dislocation Dynamics Simulations : The Search for the Origins of Dislocation Microstructure Evolution: *Ahmed Hussein*[1]; Brahim Akdim[2]; Edwin Antillon[2]; Christopher Woodward[1]; Satish Rao[3]; Triplicane Parthasarathy[2]; [1]Air Force Research Laboratory; [2]UES Inc.; [3]EPFL

10:30 AM
Toward a Description of Disinclination Densities Using Orientation Imaging Data: *Asher Leff*[1]; Christopher Weinberger[1]; Mitra Taheri[1]; [1]Drexel University

10:50 AM
Effects of Crystal Orientation on Shock Induced Dislocation Dynamics of Single Crystalline Copper: *Anupam Neogi*[1]; Nilanjan Mitra[1]; [1]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*[1]; Jorge Rafael Velayarce[1]; [1]Saarland University

11:30 AM
On the Optimization of a Biaxial Tensile Test Specimen Design: *Dilip Banerjee*[1]; Mark Iadicola[1]; Adam Creuziger[1]; [1]NIST

11:50 AM
Microstructure Characterisation of Drilled Chips of 316L Stainless Steel: Guocai Chai[1]; *Raveendra Siriki*[1]; Fritz Yah[2]; [1]Sandvik Materials Technology; [2]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, Yonsei University; Matthias Militzer, The University of British Columbia

Thursday AM
March 2, 2017

Room: 17A
Location: San Diego Convention Center

Session Chairs: Dirk Ponge, Max-Planck-Institut für 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*[1]; Maximilian Nagel[1]; Johan Driessen[1]; Andreas Tomitz[1]; Jens Overrath[1]; Harald Hofmann[2]; Helmut Richter[2]; Hans Ferkel[2]; [1]Thyssenkrupp Hohenlimburg; [2]Thyssenkrupp Steel Europe

8:50 AM
Hot Stamping Process for Steel Parts with Higher Ductility: Ersoy Erisir[1]; *Oguz Bilir*[1]; [1]Kocaeli University

9:10 AM
Process Window for Heavy Plastic Deformation of a Ferritic-austenitic Steel: *Katharina Schwarz*[1]; Timo Müller[1]; Anton Hohenwarter[2]; Reinhard Pippan[1]; [1]Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; [2]Department of Materials Physics, University of Leoben, Austria

9:30 AM
Microstructure and Mechanical Properties of Nano/ultra-fine Structured High Strength Steels for High Temperature Structural Applications: *Hasan Kotan*[1]; Kris Darling[2]; [1]Konya NEU; [2]U.S. Army Research Laboratory

9:50 AM
Quantitative Analysis of the Precipitate Coarsening in HSLA Steels: *Yiqiang Wang*[1]; Clark Samuel[2]; Janik Vit[2]; Richard Heenan[3]; Kun Yan[1]; Sridhar Seetharaman[2]; Peter Lee[1]; [1]University of Manchester; [2]University of Warwick; [3]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*[1]; Annika Borgenstam[1]; Peter Hedström[1]; [1]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*[1]; Marco Wendler[1]; Olena Volkova[1]; Javad Mola[1]; [1]TU Bergakademie Freiberg

11:10 AM
Computational Design of Metastable Retained Austenite in Advanced High Strength Steels: *Hao Chen*[1]; Zhigang Yang[1]; Chi Zhang[1]; Zongbiao Dai[1]; [1]Tsinghua University

11:30 AM
Modelling Microstructural Alterations in Bearing Steels undergoing Cyclic Loading: *Hanwei Fu*[1]; Enrique Galindo-Nava[1]; Pedro Rivera-Díaz-del-Castillo[1]; [1]University of Cambridge

11:50 AM Concluding Comments

Advanced Materials for Energy Conversion and Storage — Functional Materials II

Program Organizer: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

Thursday AM
March 2, 2017

Room: 15A
Location: San Diego Convention Center

Session Chairs: Reza Shahbazian-Yassar, University of Illinois at Chicago; Paul Ohodnicki, NETL

8:30 AM Invited
Free the Electron: Mitigating Polaronic Bottlenecks in Cathode Materials: *Sarbajit Banerjee*[1]; [1]Texas A&M University

8:55 AM
Increasing Ionic Conductivity with Highly Ionizing Radiation: *Jacob Shamblin*[1]; Cameron Tracy[2]; Rodney Ewing[2]; Joshua Sangoro[1]; Caitlin Taylor[1]; Maulik Patel[1]; William Weber[1]; Raul Palomares[1]; Eric O'Quinn[1]; Maik Lang[1]; [1]The University of Tennessee; [2]Stanford University

9:15 AM
Mechanical Degradation and Optimization of Solid Electrolyte Interphases in Li Ion Batteries: *Brian Sheldon*[1]; Ravi Kumar[1]; Anton Tokranov[1]; Xingcheng Xiao[2]; [1]Brown University; [2]General Motors

9:35 AM
Multifunctional Graphene-based Hybrid Nanomaterials for Renewable Energy: *Sanju Gupta*[1]; [1]Western Kentucky University

9:55 AM Break

10:15 AM Invited
Nanoscale Electrochemistry with In Situ Transmission Electron Microscopy: *Reza Shahbazian-Yassar*[1]; [1]University of Illinois at Chicago

10:40 AM
Preparation and Characterization of Eupatorium Adenophorum-derived Activated Carbon by Microwave-heating KOH and K2CO3 Activation: *Li Chunyang*[1]; Zhang Libo[1]; Xia Hongying[1]; Cheng Song[1]; Shu Jianhua[1]; [1]Kunming University of Technology and Science

11:00 AM Invited
High Energy Density Lithium Ion Battery Based on Li2O Activation: *Ali Abouimrane*[1]; Yanjie Cui[2]; Zonghai Chen[2]; Ilias Belharouak[1]; Hamdi Yahia[1]; Huiming Wu[2]; Rajeev Assary[2]; Larry Curtiss[2]; Khalil Amine[2]; [1]Hamad Bin Khalifa University; [2]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
March 2, 2017

Room: 22
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*[1]; [1]Michigan State University

8:50 AM Invited
Intrinsic Thermoelectric Properties of SnSe Single Crystals and Its Associates: *Yang-Yuan Chen*[1]; P.C. Wei[1]; [1]Institute of Physics, Academia Sinica

9:10 AM
Engineering High-zT In-doped GeTe: The Phase Equilibria and Thermoelectric Properties: *Jie-Ru Deng*[1]; Hsin-jay Wu[1]; [1]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: *Preeyakarn Eaksuwanchai*[1]; Ken Kurosaki[1]; Michihiro Ohta[2]; Priyanka Jood[2]; Yuji Ohishi[1]; Hiroaki Muta[1]; Shinsuke Yamanaka[1]; [1]Osaka University; [2]AIST

9:50 AM
Thermoelectric Properties of Amorphous Half-Heusler Thin Films Synthesized by Magnetron Sputtering: *Liangliang Li*[1]; [1]Tsinghua University

10:10 AM Break

10:30 AM Invited
Exploratory Research of New Polar Chalcogenides: Robin Lefèvre[1]; Stefan Maier[1]; David Berthebaud[1]; *Franck Gascoin*[1]; [1]CRISMAT Laboratory

10:50 AM Invited
Theoretical and Experimental Investigation of the Electronic Structure and Thermoelectric Properties of the Fe_2VAl Heusler Compound: *Subrahmanyam Bandaru*[1]; Florence Rouessac[1]; Philippe Jund[1]; [1]ICGM-Montpellier University

11:10 AM
Thermoelectric Properties of MnTe- and MnTe2- based Materials: *Quansheng Guo*[1]; Takao Mori[1]; [1]NIMS

11:30 AM
Thermoelectric Performance of Undoped and Ag Doped Mg_2Sn Alloys: *Rameshkumar Varma*[1]; Sitarama Kada[1]; Matthew Barnett[1]; [1]Deakin University

11:50 AM
The Impact of Various Wafer Cleans on Surface Recombination in Crystalline Silicon: *Haider Ali*[1]; Kristopher Davis[1]; Winston Schoenfeld[1]; [1]University of Central Florida

12:10 PM Concluding Comments

Aluminum Reduction Technology — Technology Development

Program Organizer: Mark Dorreen, Light Metals Research Centre, The University of Auckland

Thursday AM
March 2, 2017

Room: 2
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[1]; *Sergey Akhmetov*[1]; Jose Blasques[1]; Harishchandra Devadiga[1]; [1]Emirates Global Aluminium (EGA)

9:00 AM
Enabling Efficient Heat Recovery from Aluminium Pot Gas: *Daniel Clos*[1]; Trond Andresen[1]; Petter Nekså[1]; Sverre Johnsen[2]; Ragnhild Aune[3]; [1]SINTEF Energy research; [2]SINTEF Materials and Chemistry; [3]Norwegian University of Science and Technology

9:25 AM
DX+ Ultra – EGA High Productivity, Low Energy Cell Technology: *Nadia Ahli*[1]; Abdalla Zarouni[1]; Michel Reverdy[1]; [1]Emirates Global Aluminium (EGA)

9:50 AM
Crane Electrical Isulation Monitoring in Potlines: New CANDI 4.0 Development: *Serge Despinasse*[1]; Eric Norel[1]; Fabienne Virieux[2]; [1]Fives ECL; [2]Fives Solios

10:15 AM
The Successful Implementation of AP40 Technology at Kitimat: *Patrice Desrosiers*[1]; Martin Robitaille[1]; Pierre Luc Voyer[1]; Silvino Caetano[1]; René Gariépy[1]; Olivier Martin[2]; Pascal Robert[1]; [1]Rio Tinto; [2]Rio Tinto Alcan

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Energy Storage and Engineering Issues

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

Thursday AM
March 2, 2017

Room: 15B
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*[1]; [1]National Renewable E

8:50 AM
High-Temperature High-Efficiency Latent Heat Based Thermal Energy Storage System: Development and Performance Testing : *Dileep Singh*[1]; [1]Argonne National Laboratory

9:10 AM
Thermal Energy Storage in Orientationally Disordered "Plastic Crystals": *Dhanesh Chandra*[1]; Renhai Shi[1]; Murli Tirumala[1]; Daryl Nelson[1]; [1]Uni. of Nevada, Reno

9:30 AM
Corrosion Mechanism of Haynes 230 with Ni Crucible in MgCl2-KCl: *Yuxiang Peng*[1]; Ramana Reddy[1]; [1]The University of Alabama

9:50 AM Break

10:10 AM
Functional Syntactic Foams: Titania Coated Glass Microballoons for Environmental Cleanup: *Krishan Chawla*[1]; [1]University of Alabama at Birmingham

10:30 AM
Conceptualization of Doped Black P Thin Films for Potential Use in Photovoltaics with Validation from First Principle Calculations: Sayan Sarkar[1]; Weizhi Zeng[1]; *Michael Free*[1]; [1]University of Utah

10:50 AM
Energy Efficiency and Sustainability in Steel Production: *Lauri Holappa*[1]; [1]Aalto University

11:10 AM
Application of Surface Effect on Metallurgical Processes: *Kuo-Chih Chou*[1]; [1]University 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
March 2, 2017

Room: 33B
Location: San Diego Convention Center

Session Chairs: Koichi Tsuchiya, NIMS; Upadrasta Ramamurty, Indian Institute of Science

8:30 AM Invited
Thermal and Mechanical Properties of Deformation-Induced Amorphous Phase in Zr-Cu-Al Alloys: *Koichi Tsuchiya*[1]; Jian Qiang[2]; Fanqiang Meng[3]; [1]NIMS; [2]NIMS; University of Tsukuba; [3]Ames Laboratory, University of Iowa

8:50 AM Invited
Crystallization Behavior and Soft Magnetic Properties of $(Fe_{36}Co_{36}B_{19.2}Si_{4.8}Nb_4)_{99.5}Cu_{0.5}$ Bulk Metallic Glass: *Mihai Stoica*[1]; Parthiban R.[1]; Ivan Kaban[1]; Sergio Scudino[1]; Jürgen Eckert[2]; [1]IFW Dresden, Germany; [2]ESI Leoben, Austria

9:10 AM
Structural Rejuvenation in Bulk Metallic Glasses with Varying Fictive Temperature: *Hui Wang*[1]; Wojciech Dmowski[1]; Jittisa Ketkaew[2]; Jan Schroer[2]; Zengquan Wang[1]; Takeshi Egami[1]; [1]University of Tennessee, Knoxville; [2]Yale University

9:30 AM
Controllable Thermal Stress and Micro-cracking in Processing Metallic Glasses by Selective Laser Melting: *Ning Li*[1]; Di Ouyang[1]; Jianji Zhang[1]; Lin Liu; [1]Huazhong University of Science and Technology

9:50 AM Invited
On the Fracture Toughness and Fatigue Strength of Ni-based Glasses: *Bernd Gludovatz*[1]; Edwin Chang[1]; Mingxi Zheng[1]; Jong Na[2]; Maximilien Launey[2]; Marios Demetriou[3]; William Johnson[3]; Robert Ritchie[1]; [1]Lawrence Berkeley National Laboratory; [2]Glassimetal Technology Inc; [3]Caltech

10:10 AM Break

10:30 AM
Bulk Metallic Glasses Composites Produced via Severe Plastic Deformation – Microstructure and Mechanical Properties: *Lisa Kraemer*[1]; Verena Maier-Kiener[2]; Karoline Kormout[1]; Yannick Champion[3]; Reinhard Pippan[1]; [1]Erich Schmid-Institute of Materials Sciences, Austrian Academy of Sciences; [2]Department Physicial Metallurgy and Materials Testing; [3]Grenoble INP

10:50 AM
The Origins of Excellent Soft Magnetism in Fe65.5Cr4Mo4Ga4P12B5.5C5 Bulk Metallic Glasses: *T. D. Shen*[1]; B. R. Sun[1]; S. W. Xin[1]; [1]Yanshan University

11:10 AM
Rapid Degradation of Azo Dye by Co-Si-B Metallic Glass Powder: *XinDong Qin*[1]; ZhengKun Li[1]; ZhengWang Zhu[1]; HuaMeng Fu[1]; Hong Li[1]; AiMin Wang[1]; HongWei Zhang[1]; HaiFeng Zhang[1]; [1]Insitute of Metal Research, Chinese Academy of Sciences

11:30 AM Invited
Crack Propagation of Metallic Glasses: *Gang Wang*[1]; J. Li[1]; J. Yi[1]; I. Hussain[1]; W. Y. Wang[1]; [1]Shanghai 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
March 2, 2017
Room: 33A
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 Dahmen*[1]; Michael LeBlanc[2]; Peter Liaw[3]; Robert Maass[2]; Jonathan Uhl[4]; Wendelin Wright[5]; Xie Xie[3]; [1] University of Illinois at Urbana Champaign; [2]University of Illinois at Urbana Champaign; [3]The University of Tennessee, Knoxville; [4]Retired; [5]Bucknell University

8:50 AM Invited
On the Proper Determination of Power Law Exponents for Slip Statistics Using Experimental Data from Bulk Metallic Glasses: *Wendelin Wright*[1]; Michael LeBlanc[2]; Aya Nawano[2]; Xiaojun Gu[1]; J.T. Uhl[3]; Karin Dahmen[2]; [1]Bucknell University; [2]University of Illinois at Urbana-Champaign; [3]Retired

9:10 AM Invited
The Statistics of Thermally Activated Structural Excitations in a Model Amorphous Solid: Peter Derlet[1]; *Robert Maass*[2]; [1]Paul Scherrer Institut; [2]University of Illinois at Urbana-Champaign

9:30 AM Invited
'Crystal Genes' in Metallic Liquids and Glasses: *M. Kramer*[1]; Y. Sun[1]; F. Zhang[1]; Z Ye[1]; Y. Zhang[1]; X. Fang[1]; Z. Ding[2]; C. Z. Wang[1]; M.I. Mendelev[1]; R.T. Ott[1]; K.M. Ho[1]; R.E. Napolitano[1]; [1]Iowa State University; [2]University 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 Kim*[1]; Jinwoo Kim[1]; Koji Nakayama[2]; Karin Dahmen[3]; Eun Soo Park[1]; [1]Seoul National University; [2]Tohoku University; [3]University of Illinois at Urbana-Champaign

10:10 AM Break

10:30 AM Invited
A Comprehensive Study of the Deformation Mechanism of Amorphous CuZr/Nanocrystalline Cu Nanolaminates via Integrated Experiments and Computations: *Bin Gan*[1]; William Yi Wang[1]; Bin Tang[1]; Jun Wang[1]; Hongchao Kou[1]; Maosen Fu[1]; Jinshan Li[1]; [1]Northwestern Polytechnical University

10:50 AM Invited
Quasi-Elastic Neutron Scattering and Machine Learning Studies of the Arrhenius Crossover Phenomenon and Its Correlation with the Kinetic Fragility in Glass-Forming Metallic Liquids: Abshishek Jaiswal[1]; *Yang Zhang*[1]; [1]University of Illinois at Urbana-Champaign

11:10 AM
A Modified Model for Determining Pressure Effect on the Critical Cooling Rate of Zr-based Bulk Metallic Glass: *LeHua Liu*[1]; ZhiYuan Liu[2]; LiangJu He[1]; PeiJie Li[1]; [1]Tsinghua University; [2]Key Laboratory of Advanced Manufacturing Technology for Mold & Die, College of Mechatronics and Control Engineering

11:30 AM Invited
Modelling and Experimental Assessment of Residual Stress Distribution in Zr-based Bulk Metallic Glass: *Marco Sebastiani*[1]; Alexander Korsunksy[2]; Enrico Salvati[2]; Tan Sui[2]; Easo George[3]; [1]Roma TRE university; [2]University of Oxford; [3]Ruhr-Universität Bochum

11:50 AM Invited
Universality of Slip Avalanches in a Ductile Bulk Metallic Glass: *Junwei Qiao*[1]; Jiaojiao Li[1]; Huijun Yang[1]; [1]Taiyuan University of Technology

Cast Shop Technology — Casthouse Management and Automation

Program Organizer: David Gildemeister, Alcoa Technical Center

Thursday AM
March 2, 2017
Room: 1A
Location: San Diego Convention Center

Session Chair: Jean Francois Desmeules, Dynamic Concept

8:30 AM Introductory Comments

8:40 AM
Overpressure Due to a Molten Aluminum and Water Explosion in a Casthouse: Jennifer Woloshyn[1]; Andrew Gerber[2]; *Tom Plikas*[1]; Duane Baker[1]; Adam Blackmore[1]; [1]Hatch Ltd.; [2]Envenio Inc.

9:05 AM
Automation and Optimization of Sow Casting in Alouette: Jean-Francois Desmeules[1]; *Jean-Benoit Néron*[1]; Jean-Pierre Bérubé[2]; [1]Dynamic Concept; [2]Aluminerie Alouette Inc.

9:30 AM
Radio Frequency Identification (RFID) Technology for the Aluminum Industry: *Valerie Langelier*[1]; [1]Hatch

9:55 AM Break

10:10 AM
Semi Finished Products Traceability Improvement with Laser Marking: *Jean-Francois Desmeules*[1]; Benoît Côté[1]; Jean-Daniel Dufour[1]; [1]Dynamic Concept

10:35 AM
Structural Integrity Assessment of Pressurized Ladles for Aluminum Smelting: *Maher Al-Dojayli*[1]; Pouya Zangeneh[1]; Alexandre Lamoureux[1]; Daniel Richard[1]; Pierre-Louis Allaire[1]; Hamid Ghorbani[1]; [1]Hatch

11:00 AM
Have Recent Advances in Direct Chill Casting Made Us Less Safe?: *Alex Lowery*[1]; [1]WISE CHEM LLC

11:25 AM Concluding Comments

Characterization of Minerals, Metals, and Materials — Composites

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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
March 2, 2017
Room: 31A
Location: San Diego Convention Center

Session Chairs: Jiann-Yang Hwang, Michigan Technological University; Marcos Fernandes, USP

8:30 AM
Effect of Vulcanization Characteristics on Mechanical Properties of Natural Rubber-Organoclay Nanocomposites: *Marcos Fernandes*[1]; Christiano Bastos Andrade[1]; Fabio Esper[1]; Francisco Valenzuela Diaz[1]; Helio Wiebeck[1]; [1]USP

8:50 AM
Study on Mechanical Property of Porous Titanium by Adding Powder TiB2: *Lu TengFei*[1]; [1]College of Materials Science and Engineering,Chongqing University

9:10 AM
Portland Cement-Fique Fibers Composites: *Henry Colorado*[1]; Frederico Muylaert Margem[2]; Sergio Monteiro[3]; [1]Universidad de Antioquia; [2]Universidade Estadual do Norte Fluminense Darcy Ribeiro; [3]Military Institute of Engineering, IME

9:30 AM
High Thermal Conducting Composites Using Percolation Theory: *Kenji Monden*[1]; [1]Denka Co., Ltd.

9:50 AM
Sorption Characteristics of Low Density Polyethylene/Kola Nut Composite: *Genevive Onuegbu*[1]; Gerald Onyedika[1]; Martin Obidiegwu[1]; [1]Federal University of Technology, Owerri

10:10 AM Break

10:25 AM
Tensile Behavior of Epoxy Matrix Composites Reinforced with Pure Ramie Fabric: *Caroline Gomes de Oliveira*[1]; Janine Feitosa de Deus[1]; Ygor Macabu de Moraes[1]; Marcos Vinícius Fonseca Ferreira[1]; Frederico Margem Muylaert[2]; Sérgio Neves Monteiro[3]; Luiz Gustavo Xavier Borges[2]; [1]UENF - Universidade Estadual do Norte Fluminense; [2]Faculdade Redentor; [3]IME - Instituto Militar de Engenharia

10:45 AM
Hemp Fiber Density Using the Pycnometry Technique: Lázaro Rohen[1]; *Frederico Margem*[1]; Sérgio Monteiro[2]; Anna Neves[1]; Carlos Vieira[1]; Janaina Vieira[1]; Dhyemila Mantovani[1]; Jean Margem[3]; [1]State University of Northern of Rio de Janeiro; [2]Military Institute of Engineering; [3]ISECENSA

11:05 AM
Bending Tests in Polyester Composites Reinforced with Palf Fibers: Maria Carolina Teles[1]; *Frederico Margem*[2]; Sergio Neves[3]; [1]State University of the Northern Rio de Janeiro; [2]Faculdade Redentor; [3]Instituto Militar de Engenharia

11:25 AM
Influence of EB Radiation on the Mechanical Properties of Organic Bentonites-HIPS Nanocomposites: Francisco Mondelo Garcia[1]; Amanda Roban[1]; Giselle Colls[1]; Jesus Eduardo Ruiz[2]; Esperidiana Moura[3]; Maria das Graças Valenzuela[4]; Tania Moliner[1]; Jose Luis Valin Rivera[5]; *Francisco Valenzuela-Diaz*[5]; [1]Instituto Superior Politecnico Jose Antonio Echeverria; [2]Centro de Biomateriales Universidad de la Habana; [3]Instituto de Pesquisas Energeticas e Nucleares; [4]Universidade Federal do ABC; [5]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 Achusim-Udenko*[1]; Coida Renata[2]; Francisco Valenzuela-Diaz[2]; Gerald Onyedika[1]; Moura Esperidiana[3]; Martin Ogwuegbu[1]; Graca Valenzuela[3]; [1]Federal University of Technology, Owerri; [2]Universidade de São Paulo Escola Politenica; [3]Instituto de Pesquisas Energetics e Nucleares _IPEN-CNEN/SP

Characterization of Minerals, Metals, and Materials — Method Development

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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
March 2, 2017

Room: 30D
Location: San Diego Convention Center

Session Chairs: Jeongguk Kim, Korea Railroad Research Institute; Tomoko Sano, US Army Research Laboratory

8:30 AM
Characterizing Ballistic Resistance: Legacy Methods Versus Novel Statistical Tools: *Frederik Coghe*[1]; [1]Royal Military Academy (BE MoD)

8:50 AM
A Forward Modeling Approach to Defect Characterization in a Scanning Electron Microscope: *Saransh Singh*[1]; Marc De Graef[1]; [1]Carnegie Mellon University

9:10 AM
In-Situ Femtosecond Laser Milling Technique for Microstructural Characterization: *Tomoko Sano*[1]; Jonathan Ligda[1]; [1]US Army Research Laboratory

9:30 AM
Development of A New Recycling Process of PGM from Metal-supported Catalyst Using Complex Oxide: *Takashi Nagai*[1]; Hiroki Kumakura[1]; Kenji Abe[1]; Rentaro Seki[1]; Daiki Noguchi[1]; [1]Chiba Institute of Technology

9:50 AM
In Situ Mechanical and Thermal Damage Mechanisms Investigation in Asteoridal Rocks: Jefferson Cuadra[1]; *Kavan Hazeli*[2]; Harry Martz[1]; KT Ramesh[3]; [1]Lawrence Livermore Nation Laboratory; [2]University of Alabama in Huntsville; [3]Johns Hopkins University

10:10 AM Break

10:25 AM
Nondestructive Characterization of Railway Materials and Components with Infrared Thermography Technique: *Jeongguk Kim*[1]; [1]Korea Railroad Research Institute

10:45 AM
Nondestructive Materials Characterization in 3D by Laboratory Diffraction Contrast Tomography: *Erik Lauridsen*[1]; Christian Holzner[2]; Florian Bachmann[1]; Allan Lyckegaard[1]; Hrishikesh Bale[2]; Leah Lavery[2]; [1]Xnovo Technology ApS; [2]Carl Zeiss X-ray Microscopy Inc.

11:05 AM
Five Dimensional Microanalysis of In-situ Reactions in Solution: *Tyler Ley*[1]; Qinang Hu[1]; Mohammed Aboustait[1]; Masoud Moradian[1]; Taehwan Kim; Taehwan Kim[2]; Jay Hanan[1]; Jeff Bullard[3]; George Scherer[4]; Robert Winarski[5]; Volker Rose[5]; Jeff Gelb[6]; [1]Oklahoma State University; [2]University of New South Wales; [3]NIST; [4]Princeton; [5]Argonne National Laboratory; [6]Zeiss Xradia Inc

11:25 AM
Improvements in High Speed Simultaneous EDS-EBSD Mapping: *Matt Nowell*[1]; [1]EDAX-TSL

11:45 AM
Measuring Bauschinger Effects in Rolled Sheet Metal: *Christopher Calhoun*[1]; Evan Rust[1]; Dilip Banerjee[1]; Tim Foecke[1]; [1]NIST

12:05 PM
Micromanipulation Techniques for Site Specific Materials Characterization : *Lucille Giannuzzi*[1]; [1]EXpressLO LLC

Characterization of Minerals, Metals, and Materials — Welding and Solidification

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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
March 2, 2017

Room: 31B
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*[1]; Jonathan Madison[1]; Lisa Deibler[1]; Jeffrey Rodelas[1]; [1]Sandia National Laboratories

8:50 AM
Investigation on the Local Mechanical Behavior of Laser Weldments in AHSS TWBs: *Pasquale Russo Spena*[1]; Luca Cortese[2]; Filippo Nalli[1]; Daniel Reiterer[3]; [1]Free University of Bozen-Bolzano; [2]Sapienza - Università di Roma; [3]IDM Südtirol-Alto Adige

9:10 AM
Microstructural Evolution of Porous Materials by Magnetic Freeze Casting: *Pooya Niksiar*[1]; Michael Frank[2]; Joanna McKittrick[2]; Michael Porter[1]; [1]Department of Mechanical Engineering, Clemson University, Clemson; [2]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*[1]; [1]University of Lagos

9:50 AM
Influence of Cooling Rate on Solidification of the Ti-37.8Cu-18.7Ni Alloy: *Walman Castro*[1]; [1]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*[1]; Trevor Watt[2]; Eric Taleff[1]; [1]University of Texas at Austin; [2]Stratasys

10:45 AM
The Effects of Refractory Element Addition on the Long Term Stability and Microstructural Characteristics of Nickel-Based Superalloys: *Rasim Eris*[1]; M. Vedat Akdeniz[1]; Amdulla O. Mekhrabov[1]; [1]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-TiB$_2$ Composite: *Yizhuang Li*[1]; Mingxin Huang[1]; [1]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
March 2, 2017

Room: 11A
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Solute Transport in Mg: Beyond the 8-frequency Model: *Ravi Agarwal*[1]; Dallas Trinkle[1]; [1]University of Illinois, Urbana-Champaign

8:50 AM
Elucidating Ordering and Decomposition Processes in Alloys from First-principles: *Anirudh Raju Natarajan*[1]; John Thomas[1]; Brian Puchala[2]; Anton Van der Ven[1]; [1]University of California; [2]University of Michigan

9:10 AM
Exploration of Amorphous Silica Glass Using Molecular Dynamics and Density Functional Theory: *William Schill*[1]; Michael Ortiz[1]; [1]California Institute of Technology

9:30 AM
The Evolution of □' Precipitates in an Al-Cu Alloy Investigated with Phase Field Theory: *Patrick Shower*[1]; Balasubramaniam Radhakrishnan[1]; James Morris[1]; Amit Shyam[1]; [1]Oak Ridge National Laboratory

9:50 AM
Phase Field Crystal Modeling of Grain Boundaries in Two-dimensional Binary Materials: *Doaa Taha*[1]; Simiso Mkhonta[2]; Ken Elder[3]; Zhi-Feng Huang[1]; [1]Wayne State University; [2]University of Swaziland; [3]Oakland University

10:10 AM Break

10:25 AM
Compliant Substrate Epitaxy: Au on MoS$_2$: Yuzhi Zhou[1]; Daisuke Kiriya[1]; Eugene Haller[1]; Joel Ager[1]; Ali Javey[1]; *Daryl Chrzan*[1]; [1]University of California, Berkeley and Lawrence Berkeley National Laboratory

10:45 AM
Effects of Rarefied Atmospheres on Freezing and Sublimation: *Rahul Basu*[1]; [1] VTU

11:05 AM
Modelling of Ni Nanohoneycomb Actuation in Water: *Yuqi Zhang*[1]; Alfonso Hing Wan Ngan[1]; [1]The University of Hong Kong

11:25 AM
Modeling the Hydroforming of Large Grain Niobium Tube: *Aboozar Mapar*[1]; Thomas Bieler[1]; Farhang Pourboghrat[2]; [1]Michigan State University; [2]The Ohio State University

11:45 AM
Band Gap Opening in 2D Bi-layered Silicon Film: Zhonghang Ji[1]; *Yan Zhuang*[1]; [1]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 naional Laboratory

Thursday AM
March 2, 2017

Room: 10
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; Lucas Hale, National Institute of Standards and Technology

8:30 AM Invited
Advancements in Parameterization and Validation of Empirical Potentials: *Tao Liang*[1]; Kamal Choudhary[2]; Susan Sinnott[1]; [1]Pennsylvania State University; [2]NIST

9:00 AM
Development of Semi-Empirical Potentials Suitable for Simulation of Phase Transformations in Titanium
: *Mikhail Mendelev*[1]; Tom Underwood[2]; Graeme Ackland[3]; [1]Ames Laboratory; [2]University of Bath; [3]University of Edinburgh

9:20 AM
Evaluation and Comparison of Classical Interatomic Potentials through a User-friendly Interactive Web-interface: *Kamal Choudhary*[1]; Faical Congo[1]; Francesca Tavazza[1]; [1]National Institute of Standards and Technology

9:40 AM Invited
Evaluation of Atomistic Potentials for Silicon: Ganga P. Purja Pun[1]; *Y. Mishin*[1]; [1]George Mason University

10:10 AM Break

10:30 AM Invited
Uncertainty Quantification of Classical Interatomic Potentials: Eugene Ragasa[1]; Christopher O'Brien[2]; Richard Hennig[1]; Stephen Foiles[2]; *Simon Phillpot*[1]; [1]University of Florida; [2]Sandia National Laboratories

11:00 AM Invited
Molecular Dynamics, Dislocation Interactions and Uncertainty: *Lucas Hale*[1]; Zachary Trautt[1]; Chandler Becker[1]; [1]National Institute of Standards and Technology

Computational Thermodynamics and Kinetics — Grain Boundaries and Defects 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 AM
March 2, 2017

Room: 11B
Location: San Diego Convention Center

Session Chair: Timofey Frolov, Lawrence Livermore National Laboratory

8:30 AM Invited
Defect Equilibria in Semiconducting Oxides under Thermodynamic Forces: Bulk and Interfaces: Mostafa Youssef[1]; Jing Yang[1]; Krystyn Van Vliet[1]; *Bilge Yildiz*[1]; [1]Massachusetts Institute of Technology

9:00 AM
Design of Interfaces between Transition Metal Carbide and Nitride Precipitates and Matrix in Austenitic Steels: *Oleg Kontsevoi*[1]; Gregory Olson[1]; [1]Northwestern University

9:20 AM
Thermodynamic Stabilization of High Concentrations of Planar Faults in Near-stoichiometric NiTi Shape Memory Alloys
: *Sascha Maisel*[1]; Blazej Grabowski[1]; Jörg Neugebauer[1]; [1]MPIE

9:40 AM
3D Monte Carlo Investigations of Pinning Conditions That Lead to Abnormal, Pinned, and Normal Grain Growth: *Catherine Sahi*[1]; Robert DeHoff[1]; Burton Patterson[1]; [1]University of Florida

10:00 AM Break

10:20 AM Invited
Predicting Phase Behavior of Interfaces with Evolutionary Algorithms: Qiang Zhu[1]; Robert Rudd[2]; *Timofey Frolov*[2]; [1]University of Nevada Las Vegas; [2]Lawrence Livermore National Laboratory

10:50 AM Invited
Effect of Bicrystallography on Thermal Resistance of Grain Boundaries: J. Hickman[1]; *Y. Mishin*[1]; [1]George Mason University

11:20 AM
Ab Initio Study of Point Defects in Heusler Alloys: Consequences for Magnetocaloric Properties
: *Biswanath Dutta*[1]; Vijaya Begum[2]; Tilmann Hickel[2]; Jörg Neugebauer[2]; [1]Max-Planck-Institut für Eisenforschung GmbH ; [2]Max-Planck-Institut für Eisenforschung GmbH

11:40 AM
A Non-Schmid Crystal Plasticity Finite Element Approach to Multi-scale Modeling of Nickel-based Superalloys: *Shahriyar Keshavarz*[1]; Andrew Reid[1]; Stephan Langer[1]; Somnath Ghosh[2]; [1]NIST; [2]JHU

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, Universe of Illinois; Jian Luo, University of California, San Diego; Doug Spearot, University of Florida

Thursday AM
March 2, 2017

Room: 23B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM Invited
Influence of Twin-grain Boundary Interactions on Further Twin Growth and Twin Transmission in HCP Metals: *Carlos Tome*[1]; M. Arul Kumar[1]; Irene J Beyerlein[1]; [1]Los Alamos National Lab

8:50 AM
Investigation of Dislocation Activities during Slip Transmission across Alpha/Beta Interface in Ti-alloy Using Microscopic Phase-Field: *Pengyang Zhao*[1]; Chen Shen[2]; Ju Li[3]; Michael Mills[1]; Yunzhi Wang[1]; [1]The Ohio State University; [2]GE Global Research, US; [3]Massachusetts Institute of Technology

9:10 AM Invited
Slip-induced Twinning in Ti: *Maryam Ghazisaeidi*[1]; [1]Ohio State University

9:30 AM
{1012} Twin Faceting on Non-tilt Interfaces: *Christopher Barrett*[1]; Haitham El Kadiri[1]; [1]Mississippi State University

9:50 AM Invited
Intergranular and Transgranular Fracture Modes in H.C.P. Alloys: *Ismail Mohamed*[1]; S. Ziaei[1]; Mohammed Zikry[1]; [1]North Carolina State University

10:10 AM Break

10:30 AM Invited
Dislocation/Boundary Interaction in Titanium: Molecular Dynamics Study: *Mohammad Shahriar Hooshmand*[1]; Maryam Ghazisaeidi[1]; [1]The Ohio State University

10:50 AM Invited
Imaging and Analyzing Slip in Three Dimensions: Rulin Chen[1]; Jonathan Lind[2]; Reeju Pokharel[3]; David Menasche[1]; Anthony Rollett[1]; *Robert Suter*[1]; [1]Carnegie Mellon University; [2]Lawrence Livermore National Laboratory; [3]Los Alamos National Laboratory

11:10 AM Invited
Early Stages of Microstructure and Texture Evolution during Beta Annealing of Ti-6Al-4V: *Adam Pilchak*[1]; Gordon Sargent[2]; Lee Semiatin[1]; [1]Air Force Research Laboratory; [2]UES, Inc.

11:30 AM
In-situ Probe of Twinning Dynamics at a Tensile Twin Tip in Mg: *Lin Jiang*[1]; M. Arul Kumar[2]; Irene Beyerlein[2]; Dalong Zhang[1]; Xin Wang[1]; Subhash Mahajan[3]; Enrique Lavernia[1]; Julie Schoenung[1]; [1]University of California Irvine; [2]Los Alamos National Laboratory; [3]University of California-Davis

11:50 AM Invited
Mesoscale Response of Titanium Alloy Tensile Samples Measured through High Energy X-ray Experiments: *Joel Bernier*[1]; Paul Shade[2]; Todd Turner[2]; Darren Pagan[1]; David Menasche[3]; Robert Suter[3]; Peter Kenesei[4]; Jun-Sang Park[4]; Jonathan Almer[4]; [1]Lawrence Livermore National Laboratory; [2]Air Force Research Laboratory; [3]Carnegie Mellon University; [4]Argonne National Laboratory

12:10 PM Invited
Heterogeneous Deformation in Polycrystalline Mg-Y by In Situ 3D-XRD: *Leyun Wang*[1]; Zhonghe Huang[1]; Xiaoqin Zeng[1]; Sangbong Yi[2]; Erica Lilleodden[2]; Peter Kenesei[3]; Jun-Sang Park[3]; [1]Shanghai Jiao Tong University; [2]Helmholtz-Zentrum Geesthacht; [3]Argonne National Laboratory

Deriving Value from Challenging Waste Materials: Recycling and Sustainability Joint Session — Deriving Value from Challenging Waste II

Program Organizers: John Howarter, Purdue University; Elsa Olivetti, Massachusetts Institute of Technology; Mingming Zhang, ArcelorMittal Global R&D; Randolph Kirchain, Massachusetts Institute of Technology; Henry Colorado, Universidad de Antioquia

Thursday AM
March 2, 2017
Room: 14B
Location: San Diego Convention Center

Session Chairs: Randolph Kirchain, MIT; Henry Colorado, Universidad de Antioquia

8:30 AM
Evaluation Of Battery Waste As Pigment: *Henry Colorado*[1]; German Ricaurte[1]; [1]Universidad de Antioquia

8:50 AM
Understanding Variability in Industrial Boiler Ash Waste for Use in Alkali Aluminosilicate Systems: *Hugo Uvegi*[1]; Piyush Chaunsali[1]; Rachel Osmundsen[1]; John Ochsendorf[1]; Elsa Olivetti[1]; [1]Massachusetts Institute of Technology

9:10 AM
Value-Added Processing of Tannic Acid and Related Waste Materials for Halogen-Free Flame Retardants: John Howarter[1]; *Matthew Korey*[1]; Gamini Mendis[1]; [1]Purdue University

9:30 AM
Synthesis of New Arsenic Adsorbents from Waste Water of Steel Processing Plant: H Sheng[1]; *J. Shang*[1]; [1]University of Illinois

9:50 AM Break

10:10 AM
Recycling of Glass Polishing Sludge into Heavy Clay Ceramic: *Carlos Maurício Vieira*[1]; Pâmela Busch[1]; Juliana Licurgo[1]; Sergio Monteiro[1]; [1]State University of the North Fluminense

10:30 AM
Synthesis and Characterization of Ferrochromium Slag Based Glass-ceramics: *Zhitao Bai*[1]; Mei Zhang[1]; Min Guo[1]; [1]University of Science and Technology Beijing

10:50 AM
Reducing the Silica Content of Copper Slag by Flocculation and Reverse Flotation: *Zhenya Xu*[1]; [1]Shanghai University

11:10 AM
Hydrometallurgical Processing of Copper Smelter Dust for Copper Recovery as Nanoparticles: A Review: *Daniel Okanigbe*[1]; [1]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; Fay Hua, Intel Corporation; Yan Li, Intel Corporation; Babak Arfaei, Binghamton University; Kazuhiro Nogita, The University of Queensland

Thursday AM
March 2, 2017
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*[1]; Syeda Mehreen[1]; Flora Somidin[1]; Arif Mohd Salleh[1]; Kazuhiro Nogita[1]; [1]Nihon Superior Centre for the Manufacture of Electronic Materials

8:50 AM
Low Thickness Au-In TLP Hermetic Encapsulation: *Eyup Can Demir*[1]; Oguzhan Temel[2]; Tayfun Akin[2]; Eren Kalay[1]; [1]METU; [2]METU MEMS

9:10 AM
Microstructural Evolution and Mechanical Performance of High-Bi, Sn-Bi Transient Liquid Phase Bonds: *John Holaday*[1]; Carol Handwerker[1]; [1]Purdue University

9:30 AM
Microstructure and Thermomechanical Properties of Nanoparticle-added Sn-Ag-Cu Solder Paste: *Kyoung-Ho Kim*[1]; Jung-Hwan Bang[1]; Junichi Koike[2]; Jonghyuk Yoon[3]; Songhee Yim[3]; Bum-Gyu Baek[3]; Jae-Pil Jung[4]; Sehoon Yoo[1]; [1]Korea Institute of Industrial Technology; [2]Tohoku University; [3]KD One; [4]University of Seoul

9:50 AM Break

10:10 AM
Effect of Lead-free Nanosolder Additions on the IMC Formation and Growth of Solder Paste on Cu Substrate: *Evan Wernicki*[1]; Zhiyong Gu[1]; [1]University of Massachusetts Lowell

10:30 AM
Nano Solder Interconnections by Low Temperature Soldering of Cu6Sn5: *Ying Zhong*[1]; [1]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
March 2, 2017
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*[1]; [1]University of Science and Technology Beijing

9:10 AM
Development of Wrought Ni-Cr-Al Alloy with High Temperature Corrosion Resistance: *Yoshihiko Koyanagi*[1]; Hiroyuki Takabayashi[1]; Shigeki Ueta[1]; [1]Daido Steel Co., Ltd.

9:30 AM Invited
Materials Performance in Supercritical CO2 in Comparison with Atmospheric Pressure CO2 and Supercritical Steam: *Gordon Holcomb*[1]; Joseph Tylczak[1]; Casey Carney[2]; Ömer Dogan[1]; [1]National Energy Technology Laboratory; [2]National Energy Technology Laboratory, AECOM

10:10 AM Break

10:30 AM
Study of Localized Under-coal Ash Deposit Corrosion of Inconel 740 Alloy Using High Temperature Electrochemical Sensor: Naing Naing Aung[1]; *Xingbo Liu*[1]; [1]West Virginia University

10:50 AM Invited
Towards Predicting Reactive-element Tolerances in the Compositional Design of Al2O3-scale Forming Alloys and Coatings: B. C. Zhou[1]; A Ross[1]; T. Gheno[2]; X. L. Liu[1]; G. Lindwall[1]; B. Gleeson[2]; *Zi-Kui Liu*[1]; [1]The Pennsylvania State University; [2]University of Pittsburgh

Energy Materials 2017: Materials for Nuclear Energy — Environmental Effects

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
March 2, 2017
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 Lou*[1]; Paul Emigh[1]; Michelle Othon[1]; [1]GE Global Research

9:10 AM Invited
Effect of Steam Pressure on the Oxidation Behaviour of Alloy 625: *Shengli Jiang*[1]; Xiao Huang[2]; Wenjing Li[3]; Pei Liu[4]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]Carleton University; [3]Canadian Nuclear Laboratories; [4]CANMET

9:50 AM
Calculation of Phase Equilibria and Properties in Multi-Component Molten Salt Systems: *Shuanglin Chen*[1]; Weisheng Cao[1]; Fan Zhang[1]; Chuan Zhang[1]; Jun Zhu[1]; [1]CompuTherm LLC

10:10 AM Break

10:25 AM
IASCC Behavior of Nickel-based Alloys in Light Water Reactors (LWRs): *Mi Wang*[1]; Miao Song[1]; Gary Was[1]; [1]University of Michigan

10:45 AM
Neutron Irradiation Effect on 0.4t-CT Specimen of Alloy 690 Tested at Elevated Temperature: *Joo-Hag Kim*[1]; Jong-Wook Kim[1]; [1]KAERI

11:05 AM
Oxidation of Alloy 690 in Simulated Pressurized Water Reactor Primary Environment: *Wenjun Kuang*[1]; Miao Song[1]; Peng Wang[1]; Gary Was[1]; [1]University of Michigan

11:25 AM
Compatibility Research of Fission Product Tellurium and Alloy N in Molten Salt Reactor
: *Z.J. Li*[1]; [1]Shanghai Insitute of Applied Physics CAS

11:45 AM
Friction Stir Processing of Degraded Austenitic Stainless Steel Nuclear Fuel Dry Cask Storage System Canisters: *Ben Sutton*[1]; Kenneth Ross[2]; Glenn Grant[2]; Gary Cannell[3]; Greg Frederick[1]; Robert Couch[1]; [1]Electric Power Research Institute; [2]Pacific Northwest National Laboratory; [3]Fluor Enterprises, Inc.

Energy Materials 2017: Materials for Oil and Gas and AMREE Oil & Gas III — Session VII

Program Organizers: Indranil Roy, Schlumberger; Chengjia Shang, University of Science and Technology Beijing

Thursday AM
March 2, 2017
Room: 14A
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Effect of Residual Stress on Aging Precipitation Behavior of Oil-grade Alloy 718: *Zhongnan Bi*[1]; Hailong Qin[1]; Jinhui Du[1]; Ji Zhang[1]; [1]Central Iron and Steel Research Institute, China

8:55 AM Invited
Investigation on the Weldability of High-strength Steels Used for Low Temperature Environment: *Chengjia Shang*[1]; Xuelin Wang[1]; [1]University of Science and Technology Beijing

9:20 AM Invited
The Research and Development of Low Cost 21.4mm/22mm X80 Hot Rolled Strip Based on Austenite Grain Condition Optimizating: *Chengliang Miao*[1]; Chengjia Shang[2]; Zheng Chen[3]; Fei Li[4]; Yang Cui[4]; Xiaohe Yang[3]; [1]Shougang Research Insititute of Technology ; [2]University of Science and Technology; [3]Shougang Jingtang United Iron & Steel Co. Ltd.; [4]Shougang Research Insititute of Technology

9:45 AM
Microstructure Analysis and Weldability Investigation of Stainless Steel Clad Plate: *CuiXin Chen*[1]; BaoXi Liu[1]; FuXing Yin[1]; MingYang Liu[1]; [1]Hebut University of Technology

10:10 AM Break

10:30 AM
Microstructure and Property Investigation of X65MO-316L Clad Coil: *Tao Niu*[1]; Chenggang An[1]; Xinlang Wu[2]; Yongwen Jiang[1]; Chen Yu[2]; Xiaoli Dai[1]; [1]Research Institute of Technology, Shougang; [2]Shougang Co. Ltd. Qian'an Steel Corp

10:55 AM
Development of X70 Linepipe Steel for Arctic Application: *Min Sung Joo*[1]; Seung-Hwan Chon[1]; Chang-Sun Lee[1]; [1]POSCO

Energy Technologies — CO2 Management and Sustainable Metallurgical Processes

Program Organizers: Lei Zhang, University of Alaska Fairbanks ; Jaroslaw Drelich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu , Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Åbo Akademi University

Thursday AM
March 2, 2017
Room: 13
Location: San Diego Convention Center

Session Chairs: Donna Guillen, Idaho National Laboratory; Cong Wang, Northeastern University; Fiseha Tesfaye, Åbo Akademi University

8:30 AM Invited
Large Scale Energy Storage through Heat Balance Shifts at Aluminium Smelters: *Mark Taylor*[1]; [1]University of Auckland

9:00 AM Invited
Transforming the Way Electricity is Consumed during the Aluminium Smelting Process: *Mark Dorreen*[1]; Linda Wright[2]; Geoff Matthews[3]; Pretesh Patel[4]; David Wong[1]; [1]Light Metals Research Centre, The University of Auckland; [2]One World Consulting Limited; [3]Energia Potior Limited; [4]Auckland Uniservices Limited

9:20 AM Invited
Disordered 3D Multi-layer Graphene Anode Material from CO2 for Sodium-Ion Batteries: *Hui (Claire) Xiong*[1]; Kassiopeia Smith[1]; Wei Wei[2]; Yun Hang Hu[2]; [1]Boise State University; [2]Michigan Technological University

9:40 AM
Power Generation Using Combined In-situ Combustion with CO2 Separation and Sequestration: *Subodh Das*[1]; Jeff Saey[2]; [1]Phinix,LLC; [2]University of Kentucky

10:00 AM Break

10:15 AM Invited
The Thermodynamics of Slag Forming Inorganic Phases in Biomass Combustion Processes: *Daniel Lindberg*[1]; Fiseha Tesfaye[1]; [1]Åbo Akademi University

10:35 AM
Leaching of Sb from TROF Furnace Doré Slag: *Petteri Halli*[1]; Simon Jolivet[2]; Andreas Klöfverskjöld[1]; Petri Latostenmaa[3]; Benjamin Wilson[1]; Mari Lundström[1]; [1]Aalto University; [2]Polytech Grenoble; [3]Boliden Harjavalta

10:55 AM Invited
Potential CO2 Emission Reduction and H2 Production Using Industrial Slag Wastes Originating from Different Industrial Sectors: *Jinichiro Nakano*[1]; James Bennett[1]; Anna Nakano[1]; [1]US Department of Energy National Energy Technology Laboratory

11:15 AM
The Effect of Pitch on the Metallurgical Properties of Iron Coke: *Qiu Shuxing*[1]; [1]Chongqing University

11:35 AM
Absorption of Atmospheric CO2 Using Banana Peel Waste: Ajit Gaikwad[1]; Krishna Vootla[1]; Likhith Nalluri[1]; A.K.M. Monayem Mazumder[1]; *Ramesh Guduru*[1]; [1]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
March 2, 2017

Room: 21
Location: San Diego Convention Center

Session Chairs: Nathan Mara, Los Alamos National Laboratory; Richard Vinci, Lehigh University

8:30 AM Invited
SEM-based In-situ Fracture Measurements of Ceramics and Metals: *Richard Vinci*[1]; [1]Lehigh University

9:00 AM
In Situ Stable Fracture of Sapphire-Niobium Interfaces: Rui Hao[1]; Giorgio Sernicola[2]; Eduardo Saiz[2]; *Finn Giuliani*[2]; [1]University of Illinois at Urbana-Champaign; [2]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*[1]; Marco Sebastiani[1]; [1]University of Roma Tre

9:40 AM Invited
Enhancing Ductility of Metal-Metal (BCC-HCP) and Metal-Ceramic Multilayered Nanocomposites: *Nathan Mara*[1]; Siddhartha Pathak[2]; William Mook[3]; Youxing Chen[1]; Nan Li[1]; Jon Baldwin[1]; Jian Wang[4]; Irene Beyerlein[1]; [1]Los Alamos National Laboratory; [2]University of Nevada, Reno; [3]Sandia National Laboratories; [4]University of Nebraska, Lincoln

10:10 AM Break

10:30 AM
Indentation Fracture Experiments on Single Crystal Olivine from 300K to 1100K: *David Armstrong*[1]; Katie Kumamoto[2]; David Wallis[1]; Steve Roberts[1]; Angus Wilkinson[1]; Jessica Warren[3]; Lars Hansen[1]; [1]University of Oxford; [2]Stanford University; [3]University of Delaware

10:50 AM
Small-scale Testing Methodology to Study Fracture Toughness of Interfaces in Multilayered Systems: *Adnan Ozekcin*[1]; Richard Vinci[2]; Srinivasan Rajagopalan[1]; [1]ExxonMobil Research and Engineering Company; [2]Lehigh University

11:10 AM
Orientation Dependent Fracture Behaviour of LiTaO3 and LiNbO3 Single Crystals: *Manuel Gruber*[1]; Raul Bermejo[1]; Jeroen Bielen[2]; Peter Supancic[1]; Robert Danzer[1]; Daniel Kiener[1]; [1]Montanuniversität Leoben; [2]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*[1]; Vikram Jayaram[2]; [1]MPIE GmbH; [2]Indian Institute of Science, Bangalore

Friction Stir Welding and Processing IX — Industrial 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

Thursday AM
March 2, 2017

Room: 9
Location: San Diego Convention Center

Session Chairs: Anthony Reynolds, University of South Carolina; Lars Cederqvist, SKB

8:30 AM Keynote
Growth of Friction Stir Welding and Processing: Contributions of Murray W. Mahoney: *Rajiv Mishra*[1]; [1]University of North Texas

9:10 AM Invited
Industrial Application of FSW at HFW: *Bryan Tweedy*[1]; [1]HFW

9:30 AM Invited
Friction Stir Welding Parameter Development of AA7075 for Hot Stamping Applications: *Francois Nadeau*[1]; Nia Harrison[2]; [1]National Research Council of Canada (NRC); [2]Ford Motor Company

9:50 AM Invited
Friction Stir Welding, Development Approach and Feedback for Aerospace Applications: *Amarilys Ben Attar*[1]; Jean-Pierre Bonnafé[2]; [1]Institut de Soudure; [2]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[1]; René Schürer[1]; Jean Pierre Bergmann[1]; Helmut Steinberg[2]; *Jan Ansgar Gerken*[1]; [1]Technische Universität Ilmenau; [2]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*[1]; Victor Kenneth Champagne, III[2]; Michael West[1]; Christian Widener[1]; [1]South Dakota School of Mines and Technology; [2]University of Massachusetts

11:10 AM Invited
Refill Friction Stir Spot Welding Aerospace Aluminum Alloys: *Enkhsaikhan Boldsaikhan*[1]; Shintaro Fukada[2]; Mitsuo Fujimoto[2]; Kenichi Kamimuki[2]; Hideki Okada[2]; Brent Duncan[1]; Brian Brown[1]; [1]Wichita State University; [2]Kawasaki Heavy Industries

11:30 AM
Effect of Tool Runout in Friction Stir Welding of Aluminum Alloy for Structural Applications: *Luqman Hakim Ahmad Shah*[1]; Shi Hui Guo[1]; Scott Walbridge[1]; Adrian Gerlich[1]; [1]University of Waterloo

Gamma (FCC)/Gamma-Prime ($L1_2$) 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 Moturra, University of Birmingham; Chantal Sudbrack, NASA Glenn Research Center; Michael Titus, Purdue University; Wei Xiong, Northwestern University

Thursday AM
March 2, 2017

Room: Palomar
Location: Marriott Marquis Hotel & Marina

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 Lu[1]; Haijing Zhou[1]; Fei Xue[1]; Wendao Li[1]; William Yi Wang[2]; Zi-Kui Liu[3]; *Qiang Feng*[1]; [1]University of Science & Technology Beijing; [2]Northwestern Polytechnical University; [3]The Pennsylvania State University

9:00 AM
Dislocation Interactions during High-temperature Creep and Yield of Polycrystalline Co-Ni-Al-W-based Superalloys and $L1_2$ γ' Phases: *Vassili Vorontsov*[1]; Caroline Taylor[1]; Henry Chan[1]; Paul Mulvey[1]; Mark Hardy[2]; David Dye[1]; [1]Imperial College London; [2]Rolls-Royce plc

9:20 AM
Double Minimum Creep of a Ta-containing Single Crystal Co-base Superalloy: *Fei Xue*[1]; Christopher Zenk[1]; Steffen Neumeier[1]; Mathias Göken[1]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg

9:40 AM
The Influence of Cr in \947\8242 Strengthened Co-base Superalloys: *Christopher Zenk*[1]; Ivan Povstugar[2]; Steffen Neumeier[1]; Mathias Göken[1]; [1]FAU Erlangen-Nürnberg; [2]MPIE Düsseldorf

10:00 AM Break

10:20 AM
Analyzing the Tension/Compression Asymmetry in Creep Deformed Single Crystal Co-base Superalloys: *Malte Lenz*[1]; Yolita Eggeler[1]; Christopher Zenk[1]; Steffen Neumeier[1]; Mathias Göken[1]; Philip Wollgramm[1]; Gunther Eggeler[2]; Erdmann Spiecker[1]; [1]FAU Erlangen-Nürnberg; [2]Ruhr-Uni Bochum

10:40 AM
The Grain Boundary Pinning Effect of the μ-phase in Polycrystalline $L1_2$ Hardened Co-base Superalloys: *Lisa Freund*[1]; Steffen Neumeier[1]; Mathias Göken[1]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg

11:00 AM
Solute-vacancy Binding Energies and Diffusion Rates in fcc Cobalt: A First-principles Database: *Shahab Naghavi*[1]; Vinay Hegde[1]; Chris Wolverton[1]; [1]Northwestern University

11:20 AM
Influence of Replacement of Ta by Nb in a □/□'- structure Co Base Superalloys: *Alex Costa*[1]; Marcus Salgado[2]; Eder Lopes[3]; Carlos Nunes[2]; Andre Tschiptschin[4]; [1]LNNano-CNPEM; [2]The Engineering School of Lorena (EEL-USP); [3]Faculty of Mechanical Engineering of University of Campinas; [4]Metallurgical and Materials Department of University of Sao Paulo

11:40 AM Concluding Comments

GAT-2017 (Gamma Alloys Technology - 2017) — Novel Processing - Additive Manufacturing, SPS and Ductility

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

Thursday AM
March 2, 2017

Room: Solana
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 Wojcieszynski*[1]; Joseph Muha[1]; [1]ATI Powder Metals

8:55 AM Invited
Fatigue Thresholds in \947-TiAl Alloys Produced by Additive Manufacturing: *Mauro Filippini*[1]; Stefano Beretta[1]; Luca Patriarca[1]; [1]Politecnico di Milano

9:20 AM
Effect of Homogenization on Microstructure and Mechanical Properties of EBM Ti-48Al-2Cr-2Nb: *Mohsen Seifi*[1]; Ayman Salem[2]; Daniel Satko[2]; John Lewandowski[1]; [1]Case Western Reserve University; [2]Materials Resources LLC

9:40 AM
Characterization of a High Nb-TiAl Alloy Components Fabricated by Additive Manufacturing Using Electron Beam Melting: *Wenbin Kan*[1]; Junpin Lin[1]; Yongfeng Liang[1]; Hui Peng[2]; Hongbo Guy[2]; [1]University of Science and Technology Beijing; [2]Beihang University of Aeronautics and Astronautics

10:00 AM
Repair of □-TiAl Turbine Blades by Use of Laser Additive Manufacturing: *Silja-Katharina Rittinghaus*[1]; Andreas Weisheit[1]; Michael Mathes[2]; [1]Fraunhofer ILT (Institute for Laser Technique); [2]Access e.V.

10:20 AM Break

10:35 AM Invited
Spark Plasma Sintering of a TiAl Alloy and of Near-net Shape Blades: *Alain Couret*[1]; Jean-Philippe Monchoux[1]; Thomas Voisin[1]; Marc Thomas[2]; [1]CEMES/CNRS; [2]DMMP/ONERA

11:00 AM
In-situ Experiments to Determine the Creep Law Describing the SPS Densification of a TiAl Powder: *Martins David*[1]; Grumbach Fanny[2]; Maniere Charles[2]; Sallot Pierre[1]; Bellet Michel[3]; Mocellin Katia[3]; Estournes Claude[4]; [1]SAFRAN; [2]CIRIMAT; [3]CEMEF; [4]CNRS CIRIMAT

11:20 AM Invited
Manufacturing Issues in Rapid Thermal Processing of γ-TiAl Alloys: *Marc Thomas*[1]; Alain Couret[2]; Jean-Philippe Monchoux[2]; [1]ONERA; [2]CEMES

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
March 2, 2017

Room: 32A
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 Taheri*[1]; Elaf Anber[1]; Daniel Scotto-D'Antuono[1]; Wayne Harlow[1]; Haoyan Diao[2]; Peter Liaw[2]; [1]Drexel University; [2]University of Tennessee

8:50 AM Invited
Uncovering the Dislocation Dynamics Leading to Planar Slips in High-entropy Alloy Nanopillars: Yang Hu[1]; Li Shu; Peter Liaw[2]; Karin Dahmen[3]; *Jian Min Zuo*[4]; [1]University of Illinois at Urbana-Champaign; [2]University of Tennessee; [3] University of Illinois at Urbana Champaign; [4]University of Illinois

9:10 AM Invited
Nanoscale Phase Separation in Al0.5CoCrFeNiCu High Entropy Alloys, as Studied by Atom Probe Tomography: *Keith Knipling*[1]; Joshue Tharpe[2]; Peter Liaw[2]; [1]U.S. Naval Research Laboratory; [2]University of Tennessee

9:30 AM
Plastic Deformation Mechanisms in A3S and Cantor's HEA Alloys Investigated by In Situ TEM Straining Experiments: *Marc Legros*[1]; Michal Mroz[2]; Anna FRACZKIEWICZ[2]; [1]CEMES-CNRS; [2]Ecole 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 Santodonato*[1]; Lisa DeBeer-Schmitt[1]; Kenneth Littrell[1]; Peter Liaw[2]; [1]Oak Ridge National Laboratory; [2]The University of Tennessee

10:10 AM Break

10:30 AM Invited
Structural Transition in High Entropy Alloy CoCrFeMnNi under High Pressure: *E-Wen Huang*[1]; Yi-Hung Chen[1]; Chin-Ming Lin[2]; Chia-En Hsu[2]; Jien-Wei Yeh[3]; Ke An[4]; [1]National Chiao Tung University; [2]National Hsinchu University of Education; [3]National Tsing Hua University; [4]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 Oh*[1]; Eun Soo Park[1]; Fritz Körmann[2]; Gerard Leyson[3]; Duancheng Ma[3]; Sang Jun Kim[1]; Blazej Grabowski[3]; Cemal Cem Tasan[4]; Dierk Raabe[3]; [1]Seoul National University; [2]Delft University of Technology; [3]Max-Planck Institut für Eisenforschung GmbH; [4]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 Sim[1]; Quan Jiao[1]; Peter K. Liaw[2]; Rajiv Mishra[3]; *Jaafar El-Awady*[1]; [1]Johns Hopkins University; [2]University of Tennessee; [3]University of North Texes

11:30 AM
An In Situ TEM Observation on Thermal Stability of High Entropy Alloys: *Elaf Anber*[1]; Dan Scotto D'Antuono[1]; Andrew Lang[1]; Haoyan Diao[2]; Peter Liaw[2]; Mitra Taheri[1]; [1]Drexel University; [2]The University of Tennessee Knoxville,

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
March 2, 2017

Room: 32B
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 Widom*[1]; [1]Carnegie Mellon University

8:50 AM
Theoretical Investigation of Structural and Electronic Properties of Entropy-stabilized Oxides: *Zsolt Rak*[1]; C. M. Rost[1]; J. P. Maria[1]; D. W. Brenner[1]; [1]NCSU

9:10 AM Invited
Unusually Low and Spatially Varying Stacking Fault Energy in Equimolar Multicomponent Alloys: *Qingjie Li*[1]; Evan Ma[1]; [1]Johns Hopkins University

9:30 AM Invited
Elastic Properties of High-entropy Alloys from First-principles
: *Wei Chen*[1]; Haoyan Diao[2]; Peter Liaw[2]; [1]Illinois Institute of Technology; [2]University of Tennessee

9:50 AM Invited
Predicting Structural and Chemical Properties of Mo-based Refractory High-entropy Alloys: *Aayush Sharma*[1]; Prashant Singh[2]; D. D. Johnson[1]; Peter Liaw[3]; Ganesh Balasubramanian[1]; [1]Iowa State University; [2]Ames Laboratory; [3]University of Tennessee

10:10 AM Break

10:30 AM
Constitutive Modeling of CrMnFeCoNi High Entropy Alloys: *Hyoung Seop Kim*[1]; [1]POSTECH

10:50 AM
Atomistic Simulations in a Model FCC High Entropy Alloy: Effects of Annealing: *Edwin Antillon*[1]; Christopher Woodward[2]; Satish Rao[3]; Ahmed Hussein[2]; Triplicane Parthasarathy[1]; [1]UES; [2]AFRL; [3]EPFL

11:10 AM
Phase Prediction via Ab-initio Monte Carlo Simulation for High-entropy Alloys: *Changning Niu*[1]; Wolfgang Windl[1]; Maryam Ghazisaeidi[1]; [1]Ohio State University

11:30 AM
Investigation of High Entropy Alloys based on Continuum Dislocation Dynamics
: Navid Kermanshahimonfared[1]; *Hesam Askari*[2]; Ioannis Mastorakos[1]; [1]Clarkson University; [2]University of Rochester

11:50 AM
Ordering Effects and Dislocation Structures in High Entropy Alloys: A Computational Approach: Leonie Koch[1]; Alexander Stukowski[1]; *Karsten Albe*[1]; [1]TU Darmstadt

High Temperature Electrochemistry III — Materials Electrochemistry II

Program Organizers: Prabhat Tripathy, Idaho National Laboratory; Guy Fredrickson, Idaho National Lab; Boyd Davis, Kingston Process Metallurgy Inc.

Thursday AM
March 2, 2017

Room: 16A
Location: San Diego Convention Center

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 Bagri*[1]; Michael Simpson[1]; [1]University of Utah

9:00 AM
Electrochemical Synthesis of TaC in Molten Salt: *Xin Li*[1]; Xingli Zou[1]; Shangshu Li[1]; Kai Zheng[1]; Yinshuai Wang[1]; Qian Xu[1]; Xionggang Lu[1]; [1]Shanghai University

9:30 AM
Thermochemical Properties of Barium-Bismuth Alloys Determined by Emf Measurements: *Timothy Lichtenstein*[1]; Nathan Smith[1]; Hojong Kim[1]; [1]Penn State University

10:00 AM Break

10:20 AM
Next-generation Molten Oxide Energy Materials R&D: *Valery Belousov*[1]; [1]Baikov IMET RAS

10:50 AM
Effects of Oxide Precursor Preparation Parameters on the Electrochemical Reduction of Tantalum Pentoxide in Calcium Chloride Melt: *Maureen Chorney*[1]; Bridger Hurley[2]; Prabhat Tripathy[3]; Jerome Downey[2]; [1]Montana Tech of the University of Montana ; [2]Montana Tech of the University of Montana; [3]Idaho National Laboratory

11:20 AM
The Effect of Temperature on Electrochemical Codeposition of Mg-Ni Hydrogen Storage Alloys from Molten Salt System: Gökçe Hapçi Agaoglu[1]; *Gökhan Orhan*[1]; [1]Istanbul 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
March 2, 2017

Room: 5B
Location: San Diego Convention Center

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 Adlakha*[1]; Benyamin Gholami[1]; Nitin Muthegowda[2]; Kiran Solanki[1]; [1]Arizona State University; [2]COMSOL

8:50 AM
An Electrochemical Investigation of Mg-Ni Hydrogen Storage Alloys by Mechanical Alloying: *Gökçe Hapçi Agaoglu*[1]; Gökhan Orhan[1]; [1]Istanbul University

9:10 AM
Corrosion and Creep Resistance of Thixomolded® Magnesium Alloys: *Ricardo Buzolin*[1]; Hajo Dieringa[1]; Carsten Blawert[1]; Hagen Frank[1]; Chamini Mendis[1]; Andreas Lohmüller[2]; Karl Kainer[1]; Norbert Hort[1]; [1]Helmholtz-Zentrum Geesthacht; [2]Neue Materialien Fürth Gmbh (NMF)

9:30 AM
Corrosion Properties of Mg-6Al-0.3Mn-aSn-bZn Alloys: *Chang Dong Yim*[1]; Sang Kyu Woo[2]; Nam Ryong Kim[2]; Ha Sik Kim[1]; Bong Sun You[1]; [1]Korea Institute of Materials Science; [2]University of Science and Technology

9:50 AM
Corrosion of Magnesium-aluminum (Mg-Al) Alloys – An Interplay between Al Content and CO2: *Mohsen Esmaily*[1]; Jan-Erik Svensson[1]; Lars-Gunnar Johansson[1]; [1]Chalmers University of Technology

10:10 AM Break

10:30 AM
Excimer Laser Processing of Al Containing Mg Alloys for Improved Corrosion Resistance: *Michael Melia*[1]; John Scully[1]; James Fitz-Gerald[1]; [1]University of Virginia

10:50 AM
Effect of Al and Sn on Discharge Behavior of Mg Alloy as Anode for Mg-Air Battery: *Kim Sang-hyun*[1]; Park Jun-ho[1]; Kim Hee-san[2]; Kim Jae-joong[1]; Kwon Oh-duck[1]; [1]POSCO; [2]Hongik 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 Bland*[1]; Rebecca Schaller[2]; John Scully[1]; [1]University of Virginia; [2]Sandia National Laboratory

11:30 AM
Voltammetric Studies of Extruded Pure Magnesium in Different Electrolytes and Its Corrosion Morphology: *Petra Maier*[1]; Leon Gentzsch[1]; Norbert Hort[2]; [1]University of Applied Sciences Stralsund; [2]Helmholtz-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
March 2, 2017

Room: 5A
Location: San Diego Convention Center

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 Chen*[1]; M.G. Jiang[1]; J. Luo[1]; H. Yan[1]; C. Xu[2]; S. Kamado[2]; [1]Institute of Metal Research Chinese Academy of Sciences; [2]Nagaoka 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. Rao*[1]; K. Suresh[2]; Hajo Dieringa[3]; Norbert Hort[3]; [1]City University of Hong Kong; [2]Bharathiar University; [3]Helmholtz-Zentrum Geesthacht

9:10 AM
Addition of Holmium & Erbium and Hot-rolling effects on the Microstructure and Mechanical Properties of Mg-Li based Alloys: *Charles Muga*[1]; Zhang Zhongwu (Z.W.)[1]; Zhao Yu[1]; Hao Guo[1]; Songsong Xu[1]; [1]Harbin Engineering University

9:30 AM
Bonding Environments in a Creep–resistant Mg-RE-Zn Alloy: *Deep Choudhuri*[1]; S. Srinivasan[1]; Mark Gibson[2]; Rajarshi Banerjee[1]; [1]University of North Texas; [2]CSIRO

9:50 AM
Microstructural and Numerical Investigation on the Shear Response of a Rare-earth Magnesium Alloy Sheet: *Michael Nemcko*[1]; Armin Abedini[1]; Clifford Butcher[1]; Peidong Wu[2]; Michael Worswick[1]; [1]University of Waterloo; [2]McMaster University

10:10 AM Break

10:30 AM
Solute Effect on Strength and Formability of Mg: A First-principle Study: *Pulkit Garg*[1]; Mehul Bhatia[1]; Suveen Mathaudhu[2]; Kiran Solanki[1]; [1]SEMTE; [2]University of California - Riverside

10:50 AM
Understanding on the Role of Rare earth Elements in Activation of <c+a> Slip in Magnesium: An Atomistic Approach: Hyo-Sun Jang[1]; Ki-Hyun Kim[1]; Nack Joon Kim[1]; *Byeong-Joo Lee*[1]; [1]Pohang University of Science and Technology

11:10 AM
Stabilisation of Disordered BCC Phases in Magnesium-rare Earth Alloys: *Patrick Conway*[1]; Adam Shaw[2]; Kevin Laws[1]; Michael Ferry[1]; [1]The University of New South Wales; [2]Harvey Mudd College

11:30 AM
The Effects of Ca Addition on Microstructures and Mechanical Properties of Gravity Cast Mg-Zn-Y Alloy: *Young-Gil Jung*[1]; Youngkyun Kim[1]; Shae K. Kim[1]; Hyunkyu Lim[1]; Do Hyang Kim[1]; [1]KITECH

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Structural Materials IV

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

Thursday AM
March 2, 2017

Room: Point Loma
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM
Grain Boundary Damage Precursors Leading to Intergranular SCC Initiation of Cold-Worked Alloy 600 and Alloy 690 in PWR Primary Water: *Ziqing Zhai*[1]; Mychailo Toloczko[1]; Stephen Bruemmer[1]; [1]Pacific Northwest National Laboratory

8:50 AM
Mechanical Property Measurements of a New Metal Matrix Material for Nuclear Reactor Applications: *Donna Guillen*[1]; Mychailo Toloczko[2]; Anthony Guzman[2]; Ramprashad Prabhakaran[2]; Jesse Willett[2]; [1]Idaho National Laboratory; [2]Pacific Northwest National Laboratory

9:10 AM
Microstructural Evolution of Thermal Recovery in Ti3AlC2-Ti5Al2C3 and Ti3SiC2: *Caen Ang*[1]; Chad Parish[1]; Chunghao Shih[2]; Steven Zinkle[3]; Yutai Katoh[1]; [1]Oak Ridge National Laboratory; [2]Oak Ridge National Laboratory; General Atomics; [3]University of Tennessee

9:30 AM
Microstructural Characterization of AA6061-AA6061 HIP Bonded Cladding Interface: *Abhishek Mehta*[1]; Le Zhou[1]; Dennis Keiser[2]; James Cole[2]; Yongho Sohn[1]; [1]University of Central Florida; [2]Idaho National Laboratory

9:50 AM
Stress Corrosion Cracking Behaviour of the Dissimilar Welded Joint of Hastelloy X and 304L Stainless Steel: *Fu-Pen Cheng*[1]; Kai Wu[1]; Wei-Sheng Chen[1]; Leu-Wen Tsay[1]; Rong-Tan Huang[1]; Ji-Jung Kai[1]; [1]National Taiwan Ocean University

10:10 AM Break

10:30 AM
Creep-Fatigue Deformation of 9Cr-1MoV Steel and Weldments: *Harrison Whitt*[1]; Tyler Payton[1]; Wei Zhang[1]; Michael Mills[1]; [1]The Ohio State University

10:50 AM
Atomic Scale Behavior of Beryllium in Zirconium: *Abhinav Jain*[1]; Dallas Trinkle[1]; [1]University of Illinois

11:10 AM
The Role of Stoichiometry on Ordering Phase Transformations in Ni-Cr Alloys for Nuclear Applications: *Fei Teng*[1]; Julie Tucker[2]; Benjamin Spencer[3]; Larry Aagesen[3]; Yongfeng Zhang[3]; Pritam Chakraborty[3]; Octav Ciuca[4]; Grace Bruke[4]; Emmanuelle Marquis[5]; Mukesh Bachhav[5]; [1]Oregon State University ; [2]Oregon State University; [3]Idaho National Laboratory; [4]University of Manchester; [5]University of Michigan – Ann Arbor

11:30 AM
Peuget: How Ion Beam Irradiations Simulate the Radiation Aging of Nuclear Glass: *Sylvain Peuget*[1]; [1]CEA

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
March 2, 2017

Room: 25B
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 Schaefer*[1]; [1]Leibniz 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 Sun*[1]; [1]Bs&T Frankfurt am Main GmbH

9:30 AM
Multi-parameter Magnetic Material Characterization for High Power Medium Frequency Converters: *Richard Beddingfield*[1]; Subhashish Bhattacharya[1]; [1]North Carolina State University

9:50 AM Break

10:05 AM Invited
Unique Magnetostriction of Fe68.8Pd31.2 Attributable to de-twinning Mechanism: *Jake Steiner*[1]; Abdellah Lisfi[2]; Tomoyoki Kakeshita[3]; Takashi Fukuda[3]; Manfred Wuttig[1]; [1]University of Maryland; [2]Morgan State University; [3]Osaka University

10:35 AM
Large Magnetocaloric Effect in Ga Substituted NiMnIn Metamagnetic Shape Memory Alloys: Jasone Estalayo[1]; Christian Aguilar[2]; *Daniel Salazar*[3]; Pablo Alvarez-Alonso[1]; Patricia Lazpita[1]; Juan Camarillo[2]; Horacio Flores-Zúñiga[2]; Volodymyr Chernenko[3]; [1]Dept. Electricity & Electronics, University of the Basque Country; [2]IPICYT; [3]BCMaterials

10:55 AM
Direct Measurement of the Magnetocaloric Effect in NiMnIn Ribbons: *Christian Aguilar*[1]; Pablo Alvarez-Alonso[2]; Daniel Salazar[3]; Horacio Flores-Zúñiga[1]; Volodymyr Chernenko[3]; [1]IPICYT; [2]Dept. Electricity & Electronics, University of the Basque Country; [3]BCMaterials

11:15 AM
Combinatorial High-throughput Discovery of Magnetic Materials in Thin Films: *Abraham Anapolsky*[1]; [1]Intermolecular 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 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

Thursday AM
March 2, 2017

Room: Balboa
Location: Marriott Marquis Hotel & Marina

Session Chairs: Govindarajan Muralidharan, Oak Ridge National Lab; Stephen Coryell, Special Metals Corporation

8:30 AM Invited
Weldability and Weld Properties in Iridium Alloys: *Roger Miller*[1]; George Ulrich[1]; Govindarajan Muralidharan[1]; [1]Oak Ridge National Laboratory

9:00 AM Invited
Oxidation Resistance of Aluminized Ir-based Refractory Alloys: *Hideyuki Murakami*[1]; Masahide Yamashina[1]; Kazuya Shimoda[1]; [1]National Institute for Materials Science

9:30 AM Invited
Dynamic High-temperature Kolsky Tension Bar Techniques for DOP-26 Iridium Alloy Characterization: *Bo Song*[1]; Kevin Nelson[1]; Ronald Lipinski[1]; John Bignell[1]; George Ulrich[2]; Easo George[3]; [1]Sandia National Laboratories; [2]Oak Ridge National Laboratory; [3]Ruhr University Bochum

10:00 AM Break

10:20 AM
Effect of Trace Levels of Si on Grain Boundary Segregation in an Ir Alloy: *Dean Pierce*[1]; Govindarajan Muralidharan[1]; Lee Heatherly[1]; Cecil Carmichael[1]; George Ulrich[1]; [1]Oak Ridge National Laboratory

10:40 AM
Long Term Grain Growth Behavior of Ir-Alloy DOP-26*: *Govindarajan Muralidharan*[1]; Dean Pierce[1]; Ethan Fox[1]; Seth Lawson[1]; Cecil Carmichael[1]; Easo George[2]; George Ulrich[1]; [1]Oak Ridge National Laboratory; [2]Ruhr University Bochum

11:00 AM
Atom Probe Tomography Study of Sigma Phase in Long Term-thermally Exposed High Refractory Ni-based Superalloy: *Stoichko Antonov*[1]; Jiajie Huo[2]; Qiang Feng[2]; Dieter Isheim[3]; David Seidman[3]; Sammy Tin[1]; [1]Illinois Institute of Technology; [2]State Key Laboratory for Advanced Metals and Materials; [3]Northwestern University Center for Atom Probe Tomography (NUCAPT)

11:20 AM
The Effect of Molybdenum on the Microstructure and Properties of Model Quinary Nickel-based Superalloys
: *Amy Goodfellow*[1]; Enrique Galindo-Nava[1]; Nick Jones[1]; Mark Hardy[2]; Howard Stone[1]; [1]University of Cambridge; [2]Rolls Royce plc

11:40 AM
Stacking Fault Energies in Ni-based $L1_2$ Alloys from First-principles: *Abed Al Hasan (Abed) Breidi*[1]; Joshua Allen[1]; Alessandro Mottura[1]; [1]University of Birmingham

12:00 PM
Portevin-Le Chatelier Effect in a Ni-Co Based Superalloys with Different Gamma Prime Content
: *Chuanyong Cui*[1]; [1]Institute of Metal Research

12:20 PM
Nanosized TaC Precipitates for Strengthening High-Temperature Co-Re Based Alloys: *Ralph Gilles*[1]; Debashis Mukherji[2]; Pavel Strunz[3]; Lukas Karge[1]; Premysl Beran[4]; Armin Kriele[5]; Michael Hofmann[1]; Joachim Roesler[2]; [1]TU Muenchen; [2]TU Braunschweig; [3]Nuclear Physics Institute of the CAS, ; [4]Nuclear Physics Institute of the CAS,; [5]Helmholtz Zentrum Geesthacht

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
March 2, 2017

Room: 17B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Microstructural and Mechanical Behavior Evolution of Uranium During Thermal-Mechanical Deformation Processing: *Daniel Coughlin*[1]; Rodney McCabe[1]; Kester Clarke[2]; Jeffrey Scott[1]; Robert Forsyth[1]; Donald Brown[1]; Bjorn Clausen[1]; David Alexander[1]; [1]Los Alamos National Laboratory; [2]Colorado School of Mines

8:50 AM
Gleeble Sintering Simulations of Cryomilled Aluminum AA5083: *Frank Kellogg*[1]; Jennifer Sietins[2]; Brandon McWilliams[2]; Anit Giri[3]; Steven Kilczewski[4]; Kyu Cho[2]; [1]Bowhead Science and Technology; [2]US Army Research Laboratory; [3]SURVICE Engineering Company; [4]Bennett Aerospace

9:10 AM
Phase Transformation and Precipitation Modeling of Hypereutectic Al-Mn Alloy during Solidification: *Jiwon Park*[1]; Jae-Gil Jung[1]; Chang-Seok Oh[1]; [1]Korea Institute of Materials Science

9:30 AM
Experimental Study and Modeling of the Stress Field in Macroscopic Creep Feed Grinding Process: *Zhenguo Nie*[1]; Gang Wang[1]; Yiming (Kevin) Rong[1]; [1]Tsinghua University

9:50 AM Break

10:10 AM
Mathematical Modelling of Residual Stresses in End Milling: *Sunday Ojolo*[1]; [1]University of Lagos

10:30 AM
Study on Microstructure of Ferritic Stainless Steel Joints Using Electrically Assisted Brazing: *Viet Tien Luu*[1]; Yong-Ha Jeong[1]; Ju-Ri Kim[1]; Gi Dong Park[1]; Sung-Tae Hong[1]; Hyun-Min Sung[2]; Heung Nam Han[2]; Kwang-Sun Yu[3]; Seok-Hyun Kim[3]; [1]University of Ulsan; [2]Seoul National University; [3]Se Jong Industrial Co. Ltd.

10:50 AM
Preliminary Investigations into the Nano/Microstructural Design of Nanocomposites for Combustion Synthesis Processing: *Mehul Chauhan*[1]; Prathmesh Modi[1]; Vanessa Bundy[1]; K. Morsi[1]; [1]San Diego State University

11:10 AM
Machining Behaviour of Biodegradable Polymer: Force, Damage and Temperature Analysis: Mridusmita Roy Choudhury[1]; *Kishore Debnath*[1]; [1]National Institute of Technology Meghalaya

11:30 AM
Evaluation Feature of Nano Grain Growth of TiO2 Thin Film via Sol- gel Route: *Habibollah Aminirastabi*[1]; Z.Z Weng[1]; Z.X Xiong[1]; G Ji[1]; H Xue[1]; [1]Xiamen University

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
March 2, 2017

Room: 24C
Location: San Diego Convention Center

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 Elsaesser*[1]; Wolfgang Körner[1]; Georg Krugel[1]; Daniel Urban[1]; [1]Fraunhofer IWM Freiburg

8:55 AM Invited
Towards High-performance Permanent Magnets without Rare Earths: *Konstantin Skokov*[1]; [1]Technische Universität Darmstadt

9:20 AM Invited
Bulk High-throughput Experimentation to Discover New Hard Magnets: *Dagmar Goll*[1]; Gerhard Schneider[1]; [1]Aalen University

9:45 AM
Search for New Rare-earth-free Hard Magnetic Materials Using Solution Growth: *Valentin Taufour*[1]; Tej Lamichhane[2]; Michael Onysczcak[2]; Olena Palasyuk[2]; David Parker[3]; Sergey Bud'ko[2]; Paul Canfield[2]; [1]University of California-Davis, Critical Material Institute; [2]Ames Laboratory, Critical Material Institute; [3]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*[1]; Andreas Kaidatzis[1]; Gaspare Varvaro[2]; Ruslan Salikhov[3]; Vasilis Psycharis[1]; Sara Laureti[2]; Alberto Maria Testa[2]; Michael Farle[3]; Dimitris Niarchos[1]; [1]NCSR Demokritos; [2]ISM-CNR; [3]Faculty of Physics and Center for Nanointegration (CENIDE)

10:40 AM
Structure and Magnetic Properties of Fe3Sn1-xMx (M=Sb, P): *Margarit Gjoka*[1]; Vasilis Psycharis[1]; Charalambos Sarafidis[2]; Eamonn Devlin[1]; Dimitris Niarchos[1]; [1]NCSR Demokritos; [2]Department of Physiscs, Aristotle University of Thessaloniki

11:00 AM
Magnetic Anisotropy of Epitaxially Grown $L1_0$ Mn-(Ga,Al) Alloy Thin Films: *Takao Suzuki*[1]; Siqian Zhao[1]; [1]University of Alabama

11:20 AM
Microstructural Characterization of Magnetic MnAl Alloys: *Merve Genc*[1]; Ozgun Acar[1]; Ilkay Kalay[2]; Eren Kalay[1]; [1]METU; [2]Cankaya University

11:40 AM
Magnetic Anistropy and Microstructure Interplay in Fe16N2 Based Permanent Magnets: *Md Mehedi*[1]; Yanfeng Jiang[1]; Jian-Ping Wang[1]; [1]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
March 2, 2017

Room: 24A
Location: San Diego Convention Center

Session Chairs: Koteswararao Rajulapati, University of Hyderabad; Walid Mohamed, Argonne National Laboratory

8:30 AM Keynote
Structure-property Relationships in Steel Fibers: *Krishan Chawla*[1]; [1]University of Alabama at Birmingham

9:00 AM Invited
Indentation Probes for Measurements of Localized Materials Properties: *David Bahr*[1]; Michael Maughan[2]; Raheleh Mohammad Rahimi[1]; [1]Purdue University; [2]University of Idaho

9:20 AM Invited
Spherical Nanoindentation Stress-strain Curves: *Surya Kalidindi*[1]; [1]Georgia Institute of Technology

9:40 AM Invited
Surface Finish Effects on Fracture Behavior of Sn-4Ag-0.5Cu Solder Joints: *Jamie Kruzic*[1]; Dick Casali[2]; [1]UNSW Australia; [2]Intel Corporation

10:00 AM Break

10:15 AM Invited
The Wigner Energy Spectral Fingerprints of Radiation Damage: Penghui Cao[1]; Sean Lowder[1]; Ki-Jana Carter[1]; *Michael Short*[1]; [1]Massachusetts Institute of Technology

10:35 AM Invited
Mechanical and Microstructural Effects of Thermal Aging on Cast Duplex Stainless Steels by Experiment and Finite Element Method: *Samuel Schwarm*[1]; Sarah Mburu[1]; R. Prakash Kolli[1]; Daniel Perea[2]; Jia Liu[2]; Sreeramamurthy Ankem[1]; [1]University of Maryland, College Park; [2]Pacific Northwest National Laboratory

10:55 AM Invited
Digital Stress Imaging in Mesoscale Microstructure Dependent Deformation Visualized Using Nano-mechanical Raman Spectroscopy: Role of Initial Manufacturing Originated Residual Stresses: *Vikas Tomar*[1]; [1]Purdue University

11:15 AM
Fracture Behavior and Grain Boundary Sliding during High-temperature Low-stress Deformation of AZ31 Magnesium Alloy: *Peiman Shahbeigi Roodposhti*[1]; Korukonda Murty[2]; [1]University of Connecticut; [2]North Carolina State University

11:35 AM Invited
On the Strain Rate Sensitive Characteristics of Nanocrystalline Aluminum Alloys: *Koteswararao Rajulapati*[1]; [1]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
March 2, 2017

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 Onimus*[1]; L. Dupuy[1]; Frederic Mompiou[2]; M. Bono[1]; [1]CEA; [2]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 Hulse*[1]; Christopher Race[1]; Michael Preuss[1]; [1]University of Manchester

9:20 AM
Effects of Heavy-ion (Zr^+) Irradiation on Zr-2.5Nb Alloy Studied by X-ray Diffraction, Nanoindentation, and TEM: *Qiang Wang*[1]; Levente Balogh[1]; Mark Daymond[1]; Zhongwen Yao[1]; [1]Queen's University

9:40 AM
In-Situ TEM Triple Beam Irradiation of Zirconium Alloys at Elevated Temperature: *Brittany Muntifering*[1]; Khalid Hattar[1]; David Senor[2]; Clark Snow[1]; [1]Sandia National Laboratories; [2]Pacific Northwest National Laboratory

10:00 AM Break

10:15 AM Invited
Thermal Activation of Dislocations in Large Scale
Obstacle Bypass: *Enrique Martinez Saez*[1]; Cameron Sobie[2]; David MacDowell[2]; Laurent Capolungo[1]; [1]Los Alamos National Laboratory; [2]Georgia Institute of Technology

10:45 AM
Fast, Vacancy-free Climb of Dislocation Loops in bcc Metals: *Thomas Swinburne*[1]; Sergei Dudarev[1]; [1]Culham Centre For Fusion Energy

11:05 AM
Dynamics of Interaction between Point Defects and Dislocations in bcc Iron Using SEAKMC Simulations: *Haixuan Xu*[1]; [1]University of Tennessee

11:25 AM
Multi-scale Modeling of Vacancy-mediated Solute Diffusion Near an Edge Dislocation under Irradiation: *Zebo Li*[1]; Trinkle Dallas[2]; Thomas Garnier[2]; Venkateswara Manga[3]; Maylise Nastar[4]; Pascal Bellon[5]; Robert Averback[2]; [1]Department of Nuclear, Plasma, Radiological Engineering, University of Illinois, Urbana-Champaign; [2]Department of Materials Science and Engineering, University of Illinois, Urbana-Champaign; [3]Materials Science and Engineering, University of Arizona; [4]CEA, DEN, Service de Recherches de Metallurgie Physique; [5]Department of Materials Science and Engineering, University of Illinois, Urbana-Champaign,

11:45 AM
Multiscale Simulation of Fast Neutron Damage in Beryllium: *Pavel Vladimirov*[1]; Vladimir Borodin[2]; [1]Karlsruhe Institute of Technology; [2]National Research Center "Kurchatov Institute"

Multiscale Architectured Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties — Novel and Complex Materials II

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

Thursday AM
March 2, 2017

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 Martin[1]; Oleg Liashenko[1]; Damien Fabrègue[2]; Didier Bouvard[1]; Rémy Dendievel[1]; *Jean-Jacques Blandin*[1]; [1]Univ. Grenoble Alpes; [2]Univ. Lyon

8:55 AM
Multiscale Architectured Materials with Composition and Grain Size Gradients Manufactured Using High-pressure Torsion: *Hyoung Seop Kim*[1]; [1]POSTECH

9:15 AM
A Design Concept for Tough, Strong and Damage-tolerant Composites by Utilizing the Yield Stress Inhomogeneity Effect: *Masoud Sistaninia*[1]; Otmar Kolednik[2]; [1]Materials Center Leoben Forschung GmbH; [2]Erich Schmid Institute of Materials Science, Austrian Academy of Sciences

9:35 AM
Self-assembled Nanoparticle Superlattices with High Elastic Modulus: *X. Wendy Gu*[1]; David Koshy[1]; Xingchen Ye[1]; Paul Alivisatos[1]; [1]UC Berkeley

9:55 AM
Multi-scale Modelling of Mechanical Behavior and Deformation in Materials with Gradient Microstructures: *Hao Lyu*[1]; Mehdi Hamid[1]; Hussein Zbib[1]; [1]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 Thilly*[1]; Florence Lecouturier[2]; Jean Rony Medy[1]; Patrick Villechaise[1]; Pierre-Olivier Renault[1]; [1]Pprime Institute - University of Poitiers; [2]LNCMI

10:55 AM
Characterization and Modeling of Deformation Mechanisms in Polymer Matrix Composites: A Digital Image Correlation and Finite Element Study: *Jay Patel*[1]; Pedro Peralta[1]; [1]Arizona State University

11:15 AM Invited
The Thermal-mechanical Compromise for Insulation Materials: *Bernard Yrieix*[1]; [1]EDF R&D

11:40 AM
Impact Behavior of Lattice Structures Produced by Selective Laser and Electron Beam Melting: *Pauline Delroisse*[1]; Nicolas Bruzy[2]; Olivier Rigo[3]; Sébastien Michotte[3]; Eric Maire[4]; Jérôme Adrien[4]; Pascal Jacques[1]; Thierry Massart[5]; Aude Simar[1]; [1]Université Catholique de Louvain; [2]Ecole Centrale de Nantes; [3]Sirris; [4]Institut national des sciences appliquées de Lyon; [5]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
March 2, 2017

Room: Mission Hills
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-Ramón[1]; *Mayra Alvarez-Lemus*[1]; Erick De la Cruz Hernández[1]; Rosendo López-González[1]; Gilberto Torres-Torres[1]; Socorro Oros-Ruíz[2]; Patricia Quintana-Owen[3]; [1]Juarez Autonomous University of Tabasco; [2]Autonomous Metropolitan University-Iztapalapa; [3]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 Zhao[1]; Da-Ke Xu[1]; Xin-Rui Zhang[1]; *Chunguang Yang*[1]; Ke Yang[1]; [1]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 Shahzad*[1]; Tong Xi[1]; Chunguang Yang[1]; Ke Yang[1]; [1]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 Okeniyi*[1]; Gbadebo John[1]; Taiwo Owoeye[1]; Elizabeth Okeniyi[1]; Deborah Akinlabu[1]; Olugbenga Taiwo[1]; Olufisayo Awotoye[1]; Ojo Ige[1]; Yemisi Obafemi[1]; [1]Covenant University, Ota, Nigeria

10:00 AM
Evaluation of Doped SiO2-TiO2 Nanoparticles as Possible Agents in Photodynamic Therapy: *Rosendo López González*[1]; Mayra Alvarez Lemus[1]; Jose de la Rosa Vázquez[2]; Erick De la Cruz Hernández[1]; Dora Frías Marquez[1]; [1]Juarez Autonomous University of Tabasco; [2]ESIME

10:20 AM Break

10:35 AM Invited
Laser Based 3d Printing of Biomaterials: *Roger Narayan*[1]; [1]UNC/NCSU Joint Department of Biomedical Engineering

11:00 AM Invited
Nature's Multiscale Design and Additive Manufacturing: *Xiaodong Li*[1]; [1]University of Virginia

11:25 AM
Miniaturization of Medical Implants Made from Nanostructured Metals: *Alexander Polyakov*[1]; Irina Semenova[2]; Georgy Raab[2]; Evgeny Parfenov[2]; Ruslan Valiev[1]; [1]Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; [2]Ufa State Aviation Technical University

11:50 AM
Mechanical Properties and Biocompatibility of Nanostructured Titanium: *Carlos Elias*[1]; Daniel Fernandes[1]; Jochen Roestel[2]; [1]Instituto Militar de Engenharia; [2]Conexao Sistemas e Protese

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
March 2, 2017

Room: Marina G
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 Pipelines: *Fernando Guzmán*[1]; Moisés Hinojosa[1]; Eduardo Frías[2]; Elisa Schaeffer[1]; [1]UANL, FIME; [2]Tubacero

8:50 AM
The Corrosion Behavior of Newly Developed API X120 Pipeline Steel in H2S and Moderate Temperature Environments: *Paul Okonkwo*[1]; R. Shakoor[1]; A Mohamed[2]; [1]Qatar University; [2]Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering

9:10 AM
Adsorption of Organosulfur Compounds on Doped Boron Nitride Nanostructures: *Francisco Villanueva*[1]; Jose Rivera[1]; Pedro Navarro Santos[1]; [1]Universidad Michoacana de San Nicolas de Hidalgo

9:30 AM
Evaluation of Non-Destructive Techniques (Thermography, Ultrasound and Eddy Current) for Detection of Failures in Metallic Substrates with Composite Anticorrosive Coatings: Marcella Grosso[1]; Priscila de Almeida[1]; Clara Johanna Pacheco[1]; Iane Soares[1]; João Marcos Rebello[1]; Sergio Soares[2]; Isabel Cristina Margarit-Mattos[1]; *Gabriela Pereira*[1]; [1]UFRJ; [2]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 Rezende*[1]; Sinara Gabriel[1]; Leonardo Araújo[1]; Jean Dille[1]; Luiz Henrique de Almeida[1]; [1]UFRJ

10:25 AM
Structural Integrity of Pipelines: *Anibal Di Luch*[1]; Nicolas Oyarzabal[2]; [1]Comision Nacional de Energia Atomica; [2]Instituto Tecnologico de Buenos Aires

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
March 2, 2017

Room: Marina D
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 Pereira[1]; *Foluke Salgado de Assis*[1]; Sergio Neves Monteiro[1]; Henry Colorado[2]; [1]Instituto Militar de Engenharia; [2]Universidad de Antioquia

8:50 AM
Nanodiamond: A Potential Reinforcement for Epoxy Composites: *Ankita Bisht*[1]; Pallavi Gupta[1]; Debrupa Lahiri[1]; [1]Indian Institute of Technology Roorkee

9:10 AM
Tailored Carbide Powder Morphologies: Synthesis, Sintering, and Mechanisms of Formation: *Tianqi Ren*[1]; Olivia Graeve[1]; [1]University of California, San Diego

9:30 AM
Nano-Additive Reinforcement of Thermoplastic Microballoon Epoxy Syntactic Foams: *Kerrick Dando*[1]; David Salem[1]; [1]CAPE Lab, SDSM&T

9:50 AM
Advantages of Hot Compression in the Manufacture of AlB4C Composites: *Lucio Vazquez*[1]; Dulce Velázquez[1]; Ángel Muñoz[1]; David Luna[1]; Gilberto Torres[1]; Elizabeth Garfias[1]; Manuel Vite[1]; [1]Universidad Autonoma Metropolitana

Pan American Materials Congress: Minerals Extraction and Processing — Hydrometallurgical Processing

Program Organizers: Mery Gómez Marroquín, 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

Thursday AM
March 2, 2017

Room: Marina E
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

8:30 AM
Investigating the Dissolution Characteristics of Strontium Sulfide: *Ibrahim Göksel Hizli*[1]; Aysegül Bilen[2]; Rasit Sezer[3]; Emre Yilmaz[2]; Selim Ertürk[2]; Cüneyt Arslan[2]; [1]Istanbul University; [2]Istanbul Technical University; [3]Karadeniz Technical University

8:50 AM
Dissolution Thermodynamics of Smithsonite in Alkaline Iminodiacetate Aqueous Solution: Dou Aichun[1]; *YU Lei*[1]; [1]Jiangsu University, China

9:10 AM
Preparation of High Grade Industrial Copper Compound from a Nigerian Malachite Mineral by Hydrometallurgical Process: *Alafara Baba*[1]; Ruth Sanni[1]; Abdulrahman Abubakar[1]; Rafiu Bale[1]; Folahan Adekola[1]; Abdulganiyu Alabi[1]; [1]University of Ilorin, Nigeria.

9:30 AM
Pressure Leaching of Hemimorphite in Ammonium Chloride Solution: *Duoqiang Zhao*[1]; Shenghai Yang[1]; Hao Li[1]; Yongming Chen[1]; Jing He[1]; Chaobo Tang[1]; [1]Central South University

9:50 AM
Gold Recovery from Waste Solutions of PCB Gold Plating Process using Hydro Cyclone Reactor for Demonstration Study: *Mooki Bae*[1]; Soo-kyung Kim[2]; Jae-chun Lee[2]; [1]Korea University of Science and Technology; [2]Korea 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 Ilhan*[1]; [1]Istanbul University

10:40 AM
Working Experience with the New WOX Plant to Treat Zinc Waelzoxide at ZGH Boleslaw SA, Poland: *Angel Selke*[1]; Leszek Stencel[2]; Miroslaw Fatyga[2]; Bogdan Pieczonka[2]; Lukasz Zieba[2]; [1]ingenium GmbH; [2]ZGH Boleslaw SA

11:00 AM
Synthesis of AgCN Nanowire Membranes in Aqueous Solutions from Silver Dicyanide Ions: Armando López-Miranda[1]; Gonzalo Viramontes-Gamboa[1]; *Alejandro López Valdivieso*[2]; [1]Universidad Michoacana de San Nicolás de Hidalgo; [2]Universidad Autónoma de San Luis Potosí

11:20 AM
Study on Leaching Valuable Elements from Bayan Obo Tailings: *Bo Zhang*[1]; Xiangxin Xue[1]; He Yang[1]; Xiaowei Huang[1]; Jianxin Han[1]; [1]Notheastern 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
March 2, 2017

Room: Marina F
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 Torbati Sarraf*[1]; Shima Sabbaghianrad[1]; Terence G. Langdon[1]; [1]University of Southern California

8:50 AM
Severe Plastic Deformation as a Tool to Tune Magnetic Properties: Carmen M. Cepeda-Jimenez[1]; Juan Ignacio Beltrán[1]; Antonio Hernando[2]; Miguel Angel García[3]; Félix Ynduráin[4]; Alexander Zhilyaev[5]; *María Teresa Pérez Prado*[1]; [1]IMDEA Materials Institute; [2]IInstituto de Magnetismo "Salvador Velayos", UCM, ADIF, CSIC; [3]Instituto de Cerámica y Vidrio, CSIC; [4]Universidad Autónoma de Madrid; [5]Fundació CTM Centre Tecnològic

9:10 AM
Investigation of Crystallographic Texture and Stored Energy after Cross Accumulative Roll-bonding of Fe-36Ni (Invar) Alloy: *Hiba Azzeddine*[1]; Kamel Tirsatine[2]; Thierry Baudin[3]; Marie-Hélène Mathon[4]; Anne-Laure Helbert[3]; François Brisset[3]; Djamel Bradai[2]; [1]University of M'sila; [2]USTHB; [3]Université Paris-Saclay; [4]Laboratoire Léon Brillouin

9:30 AM
Microstructure and Mechanical Behavior of UFG Mg-2Zn-2Gd
: *Sunkulp Goel*[1]; Y Wang[1]; A Srinivasan[2]; R Jayaganthan[3]; Jing Tao Wang[1]; [1]Nanjing University of Science and Technology; [2]CSIR – National Institute for Interdisciplinary Science and Technology (NIIST); [3]Indian Institute of Technology, Madras

9:50 AM Break

10:10 AM
Microstructural Evolution of TWIP Steels during ECAP: *Jessica Calvo*[1]; Wang Lei[1]; José Antonio Benito[1]; José María Cabera[1]; [1]Universitat Politècnica de Catalunya (UPC)

10:30 AM
Current-assisted-extrusion of Structural Amorphous Metals: Insight into Microstructure Formation and Mechanical Properties: *Ekaterina Novitskaya*[1]; Sebastian Diaz de la Torre[2]; Tzipatly Esquivel-Castro[2]; Guillermo Dieguez-Trejo[2]; Olivia Graeve[1]; [1]University of California, San Diego; [2]Instituto Politecnico Nacional

10:50 AM
Effect of Annealing on Microstructure and Magnetic Properties of Nanocrystalline Metastable Cu-Co Solid Solutions: *Andrea Bachmaier*[1]; Stefan Hartl[1]; Jörg Schmauch[2]; Hisham Aboulfadl[3]; Andreas Verch[4]; Heinz Krenn[5]; Reinhard Pippan[1]; [1]Erich Schmid Institute, Austrian Academy of Sciences; [2]Experimentalphysik, Saarland University; [3]Chair of Functional Materials, Saarland University; [4]INM-Leibniz Institute for New Materials; [5]Institute of Physics, Karl-Franzens University Graz

11:10 AM
Mechanical Behavior and Adiabatic Shear Localization of Ultrafine-grained Titanium: *Zezhou Li*[1]; Bingfeng Wang[2]; Shiteng Zhao[1]; Ruslan Z. Valiev[3]; Kenneth S. Vecchio[1]; Marc A. Meyers[1]; [1]University of California,San Diego; [2]Central South University; [3]Institute of Physics of Advanced Materials

11:30 AM
Dynamic Tensile Failure of Nanocrystalline Tantalum: *Eric Hahn*[1]; [1]University of California, San Diego

Phase Transformations and Microstructural Evolution — Steels and Shape Memory, 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

Thursday AM
March 2, 2017

Room: 16B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Thermal Stabilization of Bainite: *Sk Hasan*[1]; Shiv Singh[1]; [1]IIT Kharagpur

8:50 AM
A Preliminary In-situ TEM Study of Migration Properties of Interfaces between Austenite and Ferrite in a Duplex Stainless Steel: *Juan Du*[1]; Frederic Mompiou[2]; Wen-Zheng Zhang[1]; [1]Tsinghua University; [2]CEMES-CNRS and University of Toulouse

9:10 AM
Characterizing Ni-Ti-Ga Shape Memory Alloys: *Oscar Figueroa*[1]; Michele Manuel[1]; [1]University of Florida

9:30 AM
Development of a Shell Model of Phase Interfaces and Application to Grain Boundary Porosity in Nuclear Fuel: Andrew Prudil[1]; *Michael Welland*[1]; [1]Canadian Nuclear Laboratory

9:50 AM Break

10:10 AM
The Kinetics of Ferromagnetic Tau Phase Formation in Mn-Al Alloys: *Ozgun Acar*[1]; Merve Genc[1]; Ilkay Kalay[2]; Eren Kalay[1]; [1]METU; [2]Cankaya University

10:30 AM
Orientational Dependence of Shock Induced Phase Transition of Single Crystal Copper: Anupam Neogi[1]; *Nilanjan Mitra*[1]; [1]IIT Kharagpur

10:50 AM
The Microstructure Evolution of HAVAR Co-Base Alloy during Cold Rolling: *Daniel Moreno*[1]; Shlomo Haroush[1]; Louisa Meshi[2]; S Remmenick[2]; Vladimir Ezersky[2]; Ido Silverman[1]; Yaniv Gelbstein[2]; Roni Shneck[2]; [1]Soreq - nrc; [2]Ben-Gurion University

Solar Cell Silicon — Silicon Impurity Removal and Refining

Program Organizers: Shadia Ikhmayies, Al Isra University; Neale Neelameggham, Ind LLC

Thursday AM
March 2, 2017

Room: 19
Location: San Diego Convention Center

Funding support provided by: Cosponsored 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 Espelien[1]; Gabriella Tranell[1]; *Jafar Safarian*[1]; [1]NTNU

8:50 AM
Evaporation Removal of Boron in Molten Silicon Using Reactive Fluxes: *Ye Wang*[1]; Kazuki Morita[2]; [1]SIchuan University; [2]The University of Tokyo

9:10 AM
Study on the Segregation Behavior of Impurities during Solvent Refining Process: *Li Jiayan*[1]; Tan Yi[1]; [1]Dalian University of Technology

9:30 AM
Topological Impurity Segregation at Faceted Silicon Grain Boundaries: *Christian Liebscher*[1]; Andreas Stoffers[2]; Oana Cojocaru-Mirédin[2]; Baptiste Gault[1]; Christina Scheu[1]; Gerhard Dehm[1]; Dierk Raabe[1]; [1]Max-Planck-Institut für Eisenforschung GmbH; [2]RWTH Aachen University

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
March 2, 2017

Room: 25A
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 Furuhara*[1]; Xinfu Gu[1]; [1]Tohoku University

9:00 AM
Effects of Clustering and Trace Elements on Precipitation Hardening of Al-Mg-Si Alloys: *Stefan Pogatscher*[1]; Marion Werinos[1]; Peter Uggowitzer[2]; [1]Montanuniversitaet Leoben; [2]ETH Zürich

9:20 AM Invited
Clustering and Precipitation in Al-Cu-Li Alloys: Influence of Minor Solute Additions on the Competition between Kinetic Paths: *Alexis Deschamps*[1]; Frederic De Geuser[1]; Eva Gumbmann[1]; Rosen Ivanov[1]; Christophe Sigli[2]; [1]Grenoble Institute of Technology; [2]Constellium Technology Centre

9:50 AM
Effect of Ca Additions on the Ageing Behavior of Mg-15Gd-0.5Zr Alloy: *Houwen Chen*[1]; Chenglong Liu[1]; Jian-Feng Nie[2]; [1]Chongqing University; [2]Monash University

10:10 AM Break

10:30 AM Invited
The Role of Electron Microscopy in the Understanding of Precipitation in Light Alloys: *Jian-Feng Nie*[1]; [1]Monash University

11:00 AM
The Effects of ECAP on the Precipitation Behavior of Al 2024: *Guher Tan*[1]; Eren Kalay[2]; Hakan Gur[2]; [1]Mersin University; [2]METU

11:20 AM
Analysis of Crystal Structures with Icosahedral Local Order in Al-Fe-V-Si Alloys After Solidification at Intermediate Cooling Rates: *Joseph Jankowski*[1]; Michael Kaufman; Amy Clarke; Stephen Midson; Krish Krishnamurthy[2]; [1]Colorado School of Mines; [2]Honeywell

11:40 AM
Precipitate Structures in Mg Alloys Containing Nd and Y: *Ellen Solomon*[1]; Emmanuelle Marquis[1]; [1]University of Michigan

8th International Symposium on High Temperature Metallurgical Processing — Utilization of Complex Ores

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

Thursday PM
March 2, 2017

Room: 18
Location: San Diego Convention Center

Session Chairs: Tao Jiang, Central South University; Hongxu Li, University of Science and Technology Beijing

2:00 PM Introductory Comments

2:05 PM
Intensification of Gold Leaching from a Multi-refractory Gold Concentrate by the Two-stage Roasting-alkaline Sulfide Washing-cyanidation Process: *Li Qian*[1]; Zhang Yan[1]; Li Xishan[1]; Xu Bin[1]; Yang Yong-bin[1]; Jiang Tao[1]; Li Hong-wei[1]; [1]Central South University

2:25 PM
Evolution of Cr and Fe Species during Carbothermic Reduction of Chromite Ores: *Dogan Paktunc*[1]; Dawei Yu[1]; Samira Sokhanvaran[1]; Yves Thibault[1]; [1]CANMET

2:45 PM
Phase Transformation of High Calcium Type Tin, Iron-bearing Tailings during Magnetizing Roasting Process: *Zijian Su*[1]; Yuanbo Zhang[1]; Yingming Chen[1]; Bingbing Liu[1]; Guanghui Li[1]; Tao Jiang[1]; [1]Central South University

3:05 PM
The Recovery of Cobalt from Copper Converter Slag by Reduction-sulfurization Smelting at High Temperature: Shi Sun[1]; *Hongxu Li*[1]; Jiaqi Fan[1]; Chao Li[1]; Qi Liu[1]; [1]University of Science and Technology Beijing

3:25 PM
Roasting of Celestite in Laboratory Scale Rotary Furnace: *Selim Ertürk*[1]; Rasit Sezer[2]; Goksel Hizli[1]; Aysegul Bilen[1]; Cuneyt Arslan[1]; [1]Istanbul Technical University; [2]Karadeniz Technical University

3:45 PM Break

4:05 PM
The Experimental Study of CaCO3 in the Vanadium Extraction Process: *Shu-Chao Wang*[1]; Yu Wang[1]; Wei-tong Du[1]; Peng-cheng Li[1]; [1]Chongqing University

4:25 PM
Effect of Reduced Flux Iron Ore Pellets on Removal of Sulfur and Phosphorous in Single Step by Plasma and Induction Melting: Raj Dishwar[1]; Arup Kumar Mandal[1]; Shavi Agrawal[1]; *Om Prakash Sinha*[1]; Girija Shankar Mahobia[1]; [1]Indian Institute of Technology, BHU

4:45 PM
Lower Temperature Ferronickel Smelting by Using Red Mud as a Flux: *Hyunsik Park*[1]; Minchul Ha[1]; Min-seok Kim[1]; Jeong-soo Sohn[1]; [1]Korea Institute of Geoscience and Mineral Resources

5:05 PM
The Extraction of Zinc from Zinc Ferrite by Calcified Roasting and Ammonia Leaching Process: *Zeqiang Xie*[1]; Yufeng Guo[1]; Tao Jiang[1]; Feng Chen[1]; Lingzhi Yang[1]; [1]Central South University, School of Minerals Processing and Bioengineering

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 Poorganji, YTC America Inc.

Thursday PM
March 2, 2017

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 Chiba*[1]; [1]Tohoku University

2:30 PM
Additively Manufactured 17-4 PH Stainless Steel: Toward Conventional Wrought Behavior: *Eric Lass*[1]; Mark Stoudt[1]; Sudha Cheruvathur[1]; Lyle Levine[1]; Yaakov Idell[1]; [1]National Institute of Standards and Technology

2:50 PM
Grain Structure Engineering for Metal Additive Manufacturing: *Fuyao Yan*[1]; Wei Xiong[1]; Gregory Olson[1]; [1]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 Cazerie[1]; Alice Brulard[1]; Guilhem Martin[2]; Frédéric Prima[3]; Sébastien Michotte[4]; Edouard Rivière[5]; Adrien Dolimont[5]; *Stéphane Godet*[1]; [1]Université Libre de Bruxelles; [2]Université Grenoble Alpes; [3]PSL Research University, Chimie ParisTech – CNRS; [4]Sirris; [5]Université de Mons

3:30 PM Break

3:50 PM
Size Dependence of Deformation Response of 316 Steel Made by Additive Manufacturing: *Minh-Son (Son) Pham*[1]; [1]Imperial College London

4:10 PM
Microstructure and Mechanical Behavior of Additively Manufactured Austenitic Stainless Steel: *Thale Smith*[1]; Kaka Ma[2]; Baolong Zheng[3]; Joshua Sugar[4]; Chris San Marchi[4]; Julie Schoenung[3]; [1]University of California, Davis; [2]Colorado State University; [3]University of California, Irvine; [4]Sandia National Laboratories

4:30 PM
Massive Transformation in Ti-6Al-4V Additively Manufactured by Selective Electron Beam Melting: *Ma Qian*[1]; Shenglu Lu[2]; Huiping Tang[2]; David StJohn[3]; [1]Royal Melbourne Institute of Technology University; [2]State Key Laboratory of Porous Metal Materials, Northwest Institute for Nonferrous Metal Research; [3]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

Room: 7A
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*[1]; Brad Salzbrenner[1]; Bradley Jared[1]; Jeffrey Rodelas[1]; Jonathan Madison[1]; Jay Carroll[1]; [1]Sandia National Laboratories

2:30 PM
Characterization of the Elastic Properties and Microstructure of SLM Al-10Si-Mg: *David Witkin*[1]; Scott Sitzman[1]; Yong Kim[1]; Paul Adams[1]; Robert Castaneda[1]; [1]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*[1]; Z. Chen[1]; T. Pasang[1]; [1]Auckland University of Technology

3:10 PM
Stress State, Strain Rate and Temperature Dependence of an Electron Beam Additive Manufactured Ti6Al4V: *Omar Rodriguez*[1]; Paul Allison[1]; Wilburn Whittington[2]; David Francis[2]; Oscar Rivera[1]; Y. Kevin Chao[1]; Bo Cheng[1]; [1]The University of Alabama; [2]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*[1]; Joe Elambasseril[1]; Huiping Tang[2]; Shenglu Lu[2]; Wei Xu[3]; Milan Brandt[1]; [1]RMIT University (Royal Melbourne Institute of Technology); [2]State Key Laboratory of Porous Metal Materials, Xi'an, China; [3]Macquarie University

4:20 PM
Effect of the Isotropic and Anisotropic Work Hardening on the Micromechanics Behavior in Textured Inconel 718 by Electron Beam Additive Manufacturing: *Qingge Xie*[1]; Alexandru Dan Stoica[1]; Sarma B. Gorti[1]; Radhakrishnan Balasubramaniam[1]; Gian Song[1]; Hassina Z. Bilheux[1]; Michael M. Kirka[1]; Ryan R. Dehoff[1]; Jean-Christophe Bilheux[1]; Ke An[1]; [1]Oak Ridge National Laboratory

4:40 PM
Multiscale Mechanical Property Measurement and Microstructural Characterization of Additively Manufactured Ti-6Al-4V Components: *Tugce Ozturk*[1]; Xinyi Gong[2]; Soumya Mohan[2]; Surya Kalidindi[2]; Anthony Rollett[1]; [1]Carnegie Mellon University; [2]Georgia Institute of Technology

5:00 PM
Microstructure Evolution, Fatigue Crack Growth Mechanisms, and Effects of Heat Treatment and HIP in Ti-6Al-4V Alloys Fabricated by Electron Beam Melting: *Robert Warren*[1]; Haize Galarraga[1]; Diana Lados[1]; Ryan Dehoff[2]; Michael Kirka[2]; [1]Worcester Polytechnic Institute; [2]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

Room: 33C
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. Mates*[1]; Sindhura Gangireddy[1]; Mark Stoudt[1]; [1]National Institute of Standards and Technology

2:20 PM
Parameter Estimation in Crystal Plasticity Based Material Models
: *Aritra Chakraborty*[1]; Philip Eisenlohr[1]; [1]Michigan State University

2:40 PM
High Resolution Strain Mapping around Hydrides in Zirconium Alloy: *Rhys Thomas*[1]; David Lunt[1]; Philipp Frankel[1]; Michael Preuss[1]; Aidan Cole-Baker[2]; [1]School of Materials, University of Manchester; [2]Rolls-Royce Plc

3:00 PM
Modeling of Matrix-precipitate Interactions in NiTi Using FFT-based Constitutive Modeling: *Shivram Kashyap Sridhar*[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

3:20 PM Break

3:40 PM
Microstructural Characterization of Inconel 600 Tubes after Tensile Tests at Various Temperatures and Strain Rates: *Cécile Davoine*[1]; Vincent Marcadon[1]; David Leveque[1]; Fabienne Popoff[1]; Nicolas Horezan[1]; Denis Boivin[1]; Gerald Portemont[1]; [1]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*[1]; Jesus Galan Lopez[2]; Denis Jorge Badiola[3]; Frank Hisker[4]; Stefan Van Bohemen[5]; Kangying Zhu[6]; Viktoria Savran[2]; Leo Kestens[7]; [1]TU Delft; [2]M2i; [3]CEIT; [4]Thyssenkrupp Steel Europe AG; [5]TATA steel; [6]AMMR; [7]UGent

4:20 PM
Multi-scale Modeling of Microstructural Spin in Crystal Plasticity for Phenomenological Models
: *Christopher Kohar*[1]; John Bassani[2]; Raja Mishra[3]; Kaan Inal[1]; [1]University of Waterloo; [2]University of Pennsylvania; [3]General Motors Research & Development Center

4:40 PM
Physics Based-crystal Plasticity Modeling of Single Crystal Niobium: *Tias Maiti*[1]; Philip Eisenlohr[1]; Di Kang[1]; Thomas Bieler[1]; [1]Michigan State University

5:00 PM
Effect of 3D Crystallographic Orientation on Evolution of Corrosion in Aluminum Alloys: *Hrishikesh Bale*[1]; Tyler Stannard[2]; Jeff Gelb[1]; Erik Lauridsen[3]; Leah Lavery[1]; Arno Merkle[1]; Nikhilesh Chawla[2]; [1]Carl Zeiss X-ray Microscopy, Inc.; [2]Arizona State University; [3]Xnovo Technology ApS

Advanced Materials for Energy Conversion and Storage — Energy Storage III

Program Organizer: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

Thursday PM
March 2, 2017

Room: 15A
Location: San Diego Convention Center

Session Chairs: Partha Mukherjee, TAMU; Leela Arava, Wayne

2:00 PM Invited
Computational Design of the Nanostructure of CNT-encapsulated-S Cathodes: *Yuxiao Lin*[1]; Jeremy Ticey[2]; Vladimir Oleshko[2]; Chunsheng Wang[2]; John Cumings[2]; Yue Qi[1]; [1]Michigan State University; [2]University of Maryland

2:25 PM Invited
Cotton-textile-enabled Flexible Energy Storage Devices: *Xiaodong Li*[1]; [1]University of Virginia

2:50 PM
Monodisperse Titanium-based Perovskite Colloidal Nanocrystals for Application in Flexible Electronics: *Kavey Benard*[1]; Gabriel Caruntu[1]; Salemizadeh Saman[1]; Axel Mellinger[1]; [1]Central Michigan University

3:10 PM
Defect Engineering of Li4Ti5O12 Anode with Enhanced Electrochemical Properties for Li Ion Batteries by Thermal Reduction: *Ralph Nicolai Nasara*[1]; Shih-kang Lin[1]; Ping-chun Tsai[1]; [1]National Cheng Kung University

3:30 PM Break

3:50 PM Invited
Challenges and Opportunities for Rechargeable Magnesium Batteries: *Donald Siegel*[1]; [1]University of Michigan

4:15 PM Invited
Suppressing Dendrite Growth in High Energy Density Batteries through Anisotropic Transport: *Emily Ryan*[1]; Jinwang Tan[1]; [1]Boston University

4:40 PM
Electrospun Separators for Structural Battery Applications: *Wisawat Keaswejjareansuk*[1]; Jianyu Liang[1]; [1]Worcester Polytechnic Institute

5:00 PM Invited
Stabilization of Layered Battery Electrodes through Chemical Pre-intercalation of Inorganic Ions: *Ekaterina Pomerantseva*[1]; [1]Drexel University

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Modeling and Simulation

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

Thursday PM
March 2, 2017

Room: 15B
Location: San Diego Convention Center

Session Chair: Mingming Zhang, ArcelorMittal Global R&D

2:00 PM
Phase-Field Modeling of Internal Oxidation: *Youhai Wen*[1]; [1]National Energy Technology Laboratory

2:25 PM
HPC4Manufacturing Program: A National Laboratory - Industry Partnership in High Performance Computational Simulations for Energy EfficiencyUntitled: *Robin Miles*[1]; Peg Folta[1]; Jeff Roberts[1]; [1]Lawrence Livermore National Laboratory

2:50 PM
Metal Silicides for High-Temperature Thermoelectric Application: *Mallikharjuna Bogala*[1]; Ramana Reddy[1]; [1]The University of Alabama

3:15 PM
Computational Fluid Dynamic Based Process Modeling of Reverberatory Furnaces Used for Lead Recycling: *Alexandra Anderson*[1]; Patrick Taylor[1]; Gregory Bogin[1]; [1]Colorado School of Mines

3:40 PM Break

4:00 PM
CFD Modeling of Slag-Metal Reactions and Sulfur Refining Evolution in an Argon Gas-Stirred Ladle Furnace: *Qing Cao*[1]; April Pitts[1]; Laurentiu Nastac[1]; [1]University of Alabama

4:25 PM
Numerical Study of the Fluid Flow and Temperature Distribution in DC non-transferred Arc Thermal Plasma Reactor: *Yudong Li*[1]; Ramana Reddy[1]; [1]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*[1]; Saikat Chatterjee[2]; Amjad Asad[1]; Donghui Li[2]; Kinnor Chattopadhyay[2]; Rüdiger Schwarze[1]; [1]TU Bergakademie Freiberg; [2]University of Toronto

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Thermodynamics and Kinetics

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

Thursday PM
March 2, 2017

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 Knudsen Torsion Effusion Thermogravimetry Method: L.-N. N. Nforbi[1]; Anjali Talekar[1]; *Dhanesh Chandra*[1]; Wen-Ming Chien[1]; Kai Lau[2]; Hans Hagemann[3]; Yaroslav Filinchuk[4]; J-C Zhao[5]; [1]Uni. of Nevada, Reno; [2]SRI International (Retired); [3]Uni. of Geneva; [4]Uni. of Louvain (Belgium); [5]Other

2:20 PM
Thermodynamic Studies on the *Mg-B* System using Solid State Electrochemical Cells: *Muhammad Imam*[1]; Ramana Reddy[1]; [1]The University of Alabama

2:40 PM
Reduction Behavior and Kinetics of Comilog-based SiMn Slags: *Trine Larssen*[1]; Merete Tangstad[1]; [1]Norwegian University of Science and Technology

3:00 PM
Empirical Activation Energies of MnO and SiO2 Reduction In SiMn Slags between 1500 and 1650°C: *Pyunghwa Kim*[1]; Ryosuke Kawamoto[2]; Trine Larssen[1]; Merete Tangstad[1]; [1]Norwegian University of Science and Technology; [2]The University of Tokyo

3:20 PM Break

3:40 PM
Experimental Evaluation of Thermodynamic Interactions between Tellurium and Various Elements in Molten Iron: *Shun Ueda*[1]; Yuichi Matsuki[1]; Kazuki Morita[1]; [1]The University of Tokyo

4:00 PM
Thermodynamics of Simultaneous Desulfurization and Dephosphorizaion of SiMn Alloy: *Jong-Min Jeong*[1]; Jaehong Shin[1]; Chul-Woo Nam[2]; Kyung-Ho Park[2]; Joohyun Park[1]; [1]Hanyang University; [2]Korea Institute of Geoscience and Mineral Resources (KIGAM)

4:20 PM
Isothermal Reduction Behavior of CaO-Fe2O3-8wt%SiO2 System at 1123K, 1173K and 1223K with CO–N2 Gas Mixtures: *Cheng Yi Ding*[1]; Xuewei Lv[1]; Kai Tang[1]; Senwei Xuan[1]; Yun Chen[1]; Jie Qiu[1]; [1]Chongqing University

4:40 PM
A Review of Some Studies on Impurity Capacity Predictions in Molten Melts: *Bora Derin*[1]; [1]Istanbul Technical University

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
March 2, 2017
Room: 33B
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 VIT106a in the Liquid Phase on the Ground and on ISS: *Rainer Wunderlich*[1]; Anup Gangopadhyay[2]; Christopher Pueblo[2]; Kenneth Kelton[2]; Hans Fecht[1]; [1]Ulm University; [2]Washington University

2:20 PM Invited
Degradation Behavior of Bulk Metallic Glasses – Corrosion, Erosion, and Wear: Ayyagari Aditya[1]; *Sundeep Mukherjee*[1]; [1]University of North Texas

2:40 PM Invited
Effects of Ion Irradiation on the Mechanical and Microstructural Properties of Two Different Bulk Metallic Glass Alloys: *Jamieson Brechtl*[1]; Hongbin Bei[2]; Steven Zinkle[1]; [1]University of Tennessee; [2]Oak Ridge National Laboratory

3:00 PM Invited
Electronic Mechanism of Ductile-to-Brittle Transformation in Amorphous Calcium-based Alloys: Andrew Cheung[1]; *Gary Shiflet*[1]; [1]University of Virginia

3:20 PM
A High-Throughput Approach to Identifying Metallic Glasses and Characterizing Their Mechanical Properties: *Juan Wang*[1]; Peter Tsai[2]; Katharine Flores[2]; [1]Department of Mechanical Engineering and Materials Science, Washington University in Saint Louis; [2]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 Xie[1]; Maroju Kumar[1]; David Yan[2]; *Xiaoliang Jin*[1]; [1]Oklahoma State University; [2]University of Wisconsin-Green Bay

4:20 PM
The Corrosion and Wear Behaviors of a ZrCuNiAl Bulk Metallic Glass in Simulated Groundwater: *Yongjiang Huang*[1]; Hongbo Fan[1]; Jing Liu[1]; Zhiliang Ning[1]; Jianfei Sun[1]; [1]Harbin Institute of Technology

4:40 PM
The Effect of Phase Transformation on the Magnetocaloric Effect in Co-based Heusler Alloys: *A-Young Lee*[1]; SongYi Kim[1]; Hye Ryeong Oh[1]; Hyun-ah Kim[1]; Young Do Kim[2]; MinHa Lee[1]; [1]Korea Institute of Industrial Technology; [2]Hanyang University

5:00 PM
Effect of Sm Micro-alloying on the Mechanical Behavior and Crystallization Kinetics of Cu-Zr-Al BMGs: *Fatih Sikan*[1]; Ilkay Kalay[2]; Sezer Ozerinc[1]; Eren Kalay[1]; [1]METU; [2]Cankaya University

Bulk Metallic Glasses XIV — Structures and Modeling 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
March 2, 2017
Room: 33A
Location: San Diego Convention Center

Session Chairs: Alan Needleman, Texas A&M University; Jianzhong Jiang, Zhejiang University

2:00 PM Invited
Accurate Peak Prediction of Pair Correlation Functions in Metallic Glasses : *Jun Ding*[1]; Mark Asta[1]; Robert Ritchie[1]; [1]Lawrence Berkeley National Laboratory

2:20 PM Invited
Modeling Deformation in Amorphous Materials via Evolution of Discrete Shear Transformation Zones: *Babak Kondori*[1]; Ahmed Benzerga[1]; Alan Needleman[1]; [1]Texas A&M University

2:40 PM
Modeling the Mechanics Responsible for Strain Delocalization in Metallic Glass Matrix Composites: *Casey Messick*[1]; Eric Homer[1]; [1]Brigham Young University

3:00 PM
Shear Banding of Metallic Glass under Multi-axial Stress States by Shear Transformation Zone Dynamics Simulationszone Dynamics Simulations: *Neng Wang*[1]; Lin Li[1]; [1]University of Alabama

3:20 PM Invited
The Origin of Alloy Compositions: *Chuang Dong*[1]; Qing Wang[1]; [1]Dalian University of Technology

3:40 PM Break

4:00 PM Invited
Deformation Behavior of Metallic Glasses with Shear Band Like Atomic Structure: A Molecular Dynamics Study: Cheng Zhong[1]; Qingping Cao[1]; Xiaodong Wang[1]; Dongxian Zhang[1]; *Jianzhong Jiang*[1]; [1]Zhejiang University

4:20 PM Invited
Subtle Influence of the Factors on Mechanical Properties of Nanoscale Metallic Glasses: *Qi Zhang*[1]; Mo Li[2]; [1]Qian Xuesen laboratory of Space Technology, China Academy of Space Technology; [2]Georgia Institute of Technology

4:40 PM
Orientation Dependent Energy and Strength of Metallic Crystalline-amorphous Interface: *Ehsan Alishahi*[1]; Chuang Deng[2]; [1]University of Manitoba ; [2]University of Manitoba

5:00 PM
The Multiple Shear Bands and Plasticity in Metallic Glasses: An Origin from Stress Inhomogeneity: *Guannan Yang*[1]; Yang Shao[1]; Kefu Yao[1]; [1]Tsinghua University

Characterization of Minerals, Metals, and Materials — Materials Extraction

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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 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

2:00 PM
Leaching of Copper-Cobalt Tailings from the Democratic Republic of Congo: *Yotamu Hara*[1]; Shadreck Chama[2]; Douglas Mazwi Musowoya[2]; Golden Kaluba[1]; Jimmy Machona[2]; Stephen Parirenyatwa[1]; Tina Chanda[2]; Paul Chishimba[2]; [1]Leeds University; [2]Copperbelt University

2:20 PM
Optimum Operating Conditions for Extraction of Lignin Precursors from Palm Fruit Bunch: *Emmanuel Akpan*[1]; Samson Adeosun[2]; M. Usman[2]; [1]Ambrose Alli University; [2]University of Lagos

2:40 PM
Experimental Determination of Macro-texture in hcp and Cubic Materials Using Ultrasound: *Bo Lan*[1]; Fionn Dunne[1]; Michael Lowe[1]; [1]Imperial College London

3:00 PM
Selection on the Process for Enriching Gold from Refractory Gold Ores by Smelting: *Weifeng Liu*[1]; [1]Central South University

3:20 PM
Selection on the Process for Removing and Recovering Antimony from Antimonial Refractory Gold Ores: *Weifeng Liu*[1]; Shuai Rao[1]; [1]Central South University

3:40 PM Break

3:55 PM
Characterization of Spent Printed Circuit Boards from Computers: *Zhiwei Peng*[1]; Jiaxing Yan[1]; Hongjin Zhang[1]; Xiaolong Lin[1]; Jiann-Yang Hwang[1]; Guanghui Li[1]; Yuanbo Zhang[1]; Tao Jiang[1]; [1]Central South University

4:15 PM
Study of the Effect of the Initial Nucleation Mechanism of Lead Anode Oxidation Film on Internal Stress in Chromic Acid Electrolyte: *Yunkai Wang*[1]; Jiangzhong Li[1]; [1]Northeastern University

4:35 PM
In Situ Observation of the Precipitation of Copper Sulfate Hydrate on the Copper Based Anode Surface: *Yuma Ninomiya*[1]; Hideaki Sasaki[2]; Takeshi Yoshikawa[1]; Masafumi Maeda[1]; [1]The University of Tokyo; [2]Ehime University

4:55 PM
Upgrading of Copper and Cobalt from the Democratic Republic of Congo Tailings: *Yotamu Hara*[1]; Shadreck Chama[1]; Mazwi Doglas Musowoya[1]; Golden Kaluba[1]; Jimmy Machona[1]; Kawunga Nyirenda[1]; Paul Chishimba[1]; Stephen Parirenyatwa[2]; [1]Copperbelt University; [2]Leeds University

Characterization of Minerals, Metals, and Materials — Non-Ferrous Metals

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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 PM
March 2, 2017

Room: 31A
Location: San Diego Convention Center

Session Chairs: Ramasis Goswami, Naval Research Laboratory; Farzad Foadian, Clausthal University of Technology

2:00 PM
Defect Structures in the Intermetallic Compounds Ag_3Sn and Cu_3Sn: *Haibo Yu*[1]; Yu Sun[1]; Seok-Woo Lee[1]; Paul Canfield[2]; S. Pamir Alpay[1]; Mark Aindow[1]; [1]University of Connecticut; [2]Ames 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 Skripnyak*[1]; Vladimir V. Skripnyak[1]; Evgenia Skripnyak[1]; Irina Vaganova[1]; Natalia Skripnyak[1]; [1]National Research Tomsk State University

2:40 PM
Microstructure Evolution during Thermo-mechanical Processing of Low-symmetry Metals: *Rodney McCabe*[1]; Miroslav Zecevic[1]; Daniel Coughlin[1]; Sven Vogel[1]; Bjorn Clausen[1]; Donanld Brown[1]; [1]Los 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 Ernst*[1]; Mei Wei[1]; Mark Aindow[1]; [1]University of Connecticut

3:20 PM
Effect of Alloying Elements on Diffusing Bonding Parameters in Al6063 Alloy: *Sila Atabay*[1]; Arcan Dericioglu[1]; [1]Middle East Technical University

3:40 PM Break

3:55 PM
Composition Dependent Martensitic Transformation and Softening of Elastic Constants: *Le Zhou*[1]; Abhishek Mehta[1]; Anit Giri[2]; Kyu Cho[3]; Yongho Sohn[1]; [1]University of Central Florida; [2]SURVICE Engineering Company; [3]US Army Research Laboratory

4:15 PM
Study of Texture Evolution in Copper Tubes Due to the Tilting of the Die during Drawing: *Farzad Foadian*[1]; Mohammad Masafi[1]; Adele Carradó[2]; Heinz-Günter Brokmeier[1]; Heinz Palkowski[1]; [1]Clausthal University of Technology; [2]Institut de Physique et Chimie des Matériaux de Strasbourg

4:35 PM
Recrystallization Behavior of Al Added Low Density Medium Mn Steel

: *Arnab Sarkar*[1]; Tapas Bandhyopadhay[1]; [1]Indian Institute of Technology,Kharagpur

4:55 PM
Texture Patterns in Orientation Gradient Ta Thin Films: *Elizabeth Ellis*[1]; Markus Chmielus[2]; Marissa Linne[3]; Shefford Baker[1]; [1]Cornell University; [2]University of Pittsburgh; [3]University of Michigan

5:15 PM
Characterization of Surface Microstructure and Passive Film Formed on Nanostructured Ti-6Al-4V Alloy Produced by Cryogenic Burnishing: *Jun Tang*[1]; Hongyun Luo[1]; [1]Beijing University of Aeronautics and Astronautics

5:35 PM
Stochastic Character of Plastic Deformation in FIB-milled Copper Micropillars Investigated by the Acoustic Emission Technique
: Ádám Hegyi[1]; Péter Ispánovity[1]; *Michal Knapek*[2]; Kristián Máthis[2]; František Chmelík[2]; István Groma[1]; [1]Eötvös Loránd University; [2]Charles University in Prague

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 naional Laboratory

Thursday PM
March 2, 2017
Room: 10
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 Mandal*[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

2:20 PM
A Statistical FEA Method for Predicting Glass Fracture in Consumer Electronic Products: *Marc Zampino*[1]; Shankar Ganapathysubramanian[1]; Ben Tan[1]; Guru Ramanathan[1]; [1]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 Rabbi*[1]; Kenneth Reifsnider[2]; [1]University of South Carolina; [2]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 Pinz*[1]; George Weber[1]; Somnath Ghosh[1]; [1]Johns Hopkins University

3:20 PM Break

3:40 PM Invited
Uncertainty Quantification in the Multiscale Simulation of Materials
: *Richard LeSar*[1]; [1]Iowa State University

4:10 PM
Hierarchical Multiscale Modeling and Parametric Analysis of Polyvinyl Alcohol/Montmorillonite Nanocomposites: *William Lawrimore*[1]; Justin Hughes[2]; Bhasker Paliwal[2]; Mei Chandler[1]; Kyle Johnson[2]; David Francis[2]; Mark Horstemeyer[2]; [1]Engineer Research and Development Center; [2]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 Bishop*[1]; Judith Brown[1]; [1]Sandia National Laboratories

4:50 PM
Community-driven Benchmark Problems for Phase Field Modeling: *Andrea Jokisaari*[1]; Peter Voorhees[1]; Jonathan Guyer[2]; James Warren[2]; Olle Heinonen[3]; [1]Northwestern University; [2]National Institute of Standards and Technology; [3]Argonne National Laboratory

5:10 PM
Functional Uncertainty Quantification in Materials Modeling: *Sam Reeve*[1]; Alejandro Strachan[1]; [1]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
March 2, 2017
Room: 11A
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 Yi*[1]; Michael Falk[1]; Timothy Weihs[1]; [1]Johns Hopkins University

2:30 PM
Defect Migration Using Atomistic-continuum Coupling: *Liam Huber*[1]; Raheleh Hadian[1]; Blazej Grabowski[1]; Jörg Neugebauer[1]; [1]Max-Planck-Institut für Eisenforschung GmbH

2:50 PM
Diffusion Mechanisms of 'Fast Diffusers' in Ti Alloys: *Alessandro Mottura*[1]; Lucia Scotti[1]; [1]University of Birmingham

3:10 PM
Measurement of Diffusion Coefficients and Investigation on Precipitation in Mg-based Systems Using Diffusion Experiments: *Wei Zhong*[1]; Ji-Cheng Zhao[1]; [1]The Ohio State University

3:30 PM Break

3:50 PM
Quasiparticle Approach to Diffusional Atomic-scale Kinetics in Complex Structures: *Helena Zapolsky*[1]; Mykola Lavrskyi[1]; Gilles Demange[1]; Armen Khachaturyan[2]; Renaud Patte[1]; [1]University of Normandy, Rouen; [2]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 Etesami[1]; *Ebrahim Asadi*[1]; [1]University of Memphis

4:30 PM
Kinetic Monte Carlo Simulations of the Growth of Gold Thin Films: *Michele Fullarton*[1]; Darnel Allen[2]; Aleksandr Chernatynskiy[3]; Simon Phillpot[1]; [1]University of Florida; [2]University of Wyoming; [3]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 Hüter*[1]; Martin Friak[2]; Marc Weikamp[1]; Jörg Neugebauer[3]; Nigel Goldenfeld[4]; Bob Svendsen[5]; Robert Spatschek[1]; [1]Forschungszentrum Jülich; [2]Institute of Physics of Materials, Academy of Sciences of the Czech Republic; [3]MPIE; [4]University of Illinois at Urbana-Champaign; [5]RWTH Aachen University

5:10 PM
Theory and Simulation of Quantum Dot Formation in Heteroepitaxialy Grown Thin Films under External Forces: Nur Seda Aydin[1]; *Ersin Emre Oren*[1]; [1]Bionanodesign Laboratory, Department of Biomedical Engineering, TOBB University of Economics and Technology, Ankara, Turkey

Deformation and Transitions at Interfaces — Deformation and Grain Growth in Polycrystalline Materials

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

Thursday PM
March 2, 2017

Room: 23B
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 Castro*[1]; Nazia Nafsin[1]; [1]University of California, Davis

2:20 PM Invited
Exploring the Role of Texture, Grain Boundary Character, and Grooving on Grain Growth in Metallic Thin Films: *Khalid Hattar*[1]; Daniel Bufford[1]; Stephen Foiles[1]; Fadi Abdeljawad[1]; [1]Sandia National Laboratories

2:40 PM Invited
Electric Field Effects on Grain Boundary Formation and Grain Growth: *Klaus van Benthem*[1]; [1]University of California, Davis

3:00 PM Invited
Blocky Alpha Grain Growth in Zircalloy4: Vivian Tong[1]; *T Ben Britton*[1]; [1]Department of Materials, Imperial College

3:20 PM Invited
EBSD Observations of Deformation at Grain Boundaries: *David Field*[1]; [1]Washington State University

3:40 PM Break

4:00 PM
Transformation, Deformation and Special Grain Boundary Generation – Theoretical Analysis and Phase Field Simulations: *Yipeng Gao*[1]; Yunzhi Wang[1]; [1]The Ohio State University

4:20 PM
Deformation at Grain Boundaries and Triple Junctions in Oligocrystalline Nickel: *Ying Chen*[1]; Mingjie Li[1]; [1]Rensselaer Polytechnic Institute

4:40 PM
Correlating Dislocation Configurations to Deformation Behavior in Cyclically Deformed Additive Manufactured IN718: Yung Suk Yoo[1]; Todd Book[2]; Michael Sangid[2]; *Josh Kacher*[1]; [1]Georgia Tech; [2]Purdue University

5:00 PM Invited
Effects of Materials and Processing Parameters on the Roughness of Recrystallization Boundaries: *Dorte Jensen*[1]; YuBin Zhang[1]; Jun Sun[1]; [1]DTU Risø

Deriving Value from Challenging Waste Materials: Recycling and Sustainability Joint Session — Deriving Value from Challenging Waste III

Program Organizers: John Howarter, Purdue University; Elsa Olivetti, Massachusetts Institute of Technology; Mingming Zhang, ArcelorMittal Global R&D; Randolph Kirchain, Massachusetts Institute of Technology; Henry Colorado, Universidad de Antioquia

Thursday PM
March 2, 2017

Room: 14B
Location: San Diego Convention Center

Session Chairs: Henry Colorado, Universidad de Antioquia; Elsa Olivetti, MIT; John Howarter, Purdue University

2:00 PM
Kinetic Studies on the Recovery of Chromium from Stainless Steel Slags: *Manuel Leuchtenmueller*[1]; [1]University of Leoben

2:20 PM
Chromium Removal from Iron-rich Waste Generated during Processing Lateritic Nickel Ores: *Hong Vu*[1]; Petr Dvorak[1]; Tomas Frydl[2]; Jana Selucka[1]; Petra Starkova[1]; [1]University of Chemistry and Technology Prague; [2]Aero Vodochody Aerospace a.s.

2:40 PM
Synthesis of Magnesium Oxide from Ferronickel Smelting Slag through Hydrochloric Acid Leaching-Precipitation and Calcination: *Mohammad Mubarok*[1]; Andik Yudiarto[2]; [1]Institut Teknologi Bandung; [2]PT. Antam, Tbk.

3:00 PM
Investigating the Use of Recycled Machining Waste as an Alternative Feedstock for Metal Additive Manufacturing: *Parnian Kiani*[1]; Haoyang He[1]; Jessica Bui[1]; Kaka Ma[2]; Julie Schoenung[1]; [1]University of California, Irvine; [2]Colorado State University

3:20 PM Break

3:40 PM
Thermodynamic Analysis of the Recycling of Aircraft Al Alloys: *Senlin Cui*[1]; In-Ho Jung[1]; [1]McGill University

4:00 PM
Lithium-ion Battery Recycling Through Secondary Aluminum Production: *Reza Beheshti*[1]; Ali Tabeshian[1]; Ragnhild Aune[1]; [1]NTNU

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
March 2, 2017

Room: 12
Location: San Diego Convention Center

Session Chair: Jeffrey Hawkl, NETL, U.S. Department of Energy

2:00 PM Invited
Alloy Design of Creep-resistant High Entropy Alloys for Elevated-Temperature Applications: *Peter Liaw*[1]; Haoyan Diao[2]; Chuan Zhang[3]; Fan Zhang[3]; Karin Dahmen[4]; [1]The University of Tennessee; [2]The University of Tennessee ; [3]CompuTherm, LLC,; [4]University of Illinois at Urbana–Champaign

2:40 PM
Continued Development of a Cast Superalloy, IN740 for Advanced Power Generation Applications: *Kyle Rozman*[1]; Jeff Hawk[1]; Paul Jablonski[1]; [1]National Energy Technology Laboratory

3:00 PM Invited
Creep Behavior and Microstructural Stability in Cast □' Strengthened Nickel Superalloys: *Jeffrey Hawk*[1]; John Sears[2]; Paul Jablonski[1]; [1]U.S. Department of Energy, National Energy Technology Laboratory; [2]AECOM

3:35 PM Break

3:55 PM
Design and Performance of Nickel-Base Alloys Strengthened by Eta Phase Precipitates: *Walter Milligan*[1]; Calvin White[1]; Paul Sanders[1]; John Shingledecker[2]; Daniel Purdy[2]; [1]Michigan Technological University; [2]Electric Power Research Institute

4:15 PM Invited
Materials and Manufacturing Challenges for Components of Supercritical CO_2 Power Systems: *Omer Dogan*[1]; [1]DOE National Energy Technology Laboratory

4:50 PM Invited
Micro Creep and Fatigue Behaviors in an Advanced Austenitic Stainless Steel: *Guocai Chai*[1]; [1]Sandvik Materials Technology

Energy Materials 2017: Materials for Nuclear Energy — Accident Tolerant Fuels & Irradiation Effects

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
March 2, 2017

Room: Miramar
Location: Marriott Marquis Hotel & Marina

Session Chair: Peter Hosemann, University of California Berkeley

2:00 PM
Advanced ODS FeCrAl Alloys for Accident-tolerant Fuel Cladding: *Sebastien Dryepondt*[1]; Caleb Massey[1]; Philip Edmondson[1]; Kurt Terrani[1]; [1]Oak Ridge National Laboratory

2:20 PM
Minimizing Hydrogen Diffusion through FeCrAl Alloy Accident Tolerant Fuel Cladding: *Raul Rebak*[1]; Young Kim[1]; [1]GE Global Research

2:40 PM
The Mechanical Response of Advanced Claddings during Proposed Reactivity Initiated Accident Conditions: *Mahmut Cinbiz*[1]; Nicholas Brown[1]; Kurt Terrani[1]; Rick Lowden[1]; Donald ERDMAN III[1]; [1]Oak Ridge National Laboratory

3:00 PM
Systematic Studies on Dispersoid Stability and Swelling Resistance in ODS Alloys under Ion Irradiation Conditions: Hyosim Kim[1]; Jonathan Gigax[1]; Tianyi Chen[1]; Frank Garner[1]; *Lin Shao*[1]; [1]Texas A&M University

3:20 PM
In-situ Observation on the Oxides Stability under Laser and/or Electron Beams Irradiations in 9Cr-ODS Steel: *Wang Hui*[1]; Yang Zhanbing[2]; Yang Subing[1]; Watanabe Seiichi[3]; Shibayama Tamaki[3]; [1]University of Science & Technology Beijing; [2]School of Metallurgical and Ecological Engineering, State Key Laboratory of Advanced Metallurgy,University of Science and Technology Beijing; [3]Centre for Advanced Research of Energy and Materials, Faculty of Engineering, Hokkaido University

3:40 PM Break

3:55 PM
A Preliminary Investigation on the Phase Transformation Kinetics Behavior of an U-10wt%Mo Cast and Homogenized Alloy: *Saumyadeep Jana*[1]; Arun Devaraj[1]; Vineet Joshi[1]; Curt Lavender[1]; [1]PNNL

4:15 PM
First Principles Study of Electronic Structure and Thermo-mechanical Properties of the Components of Accident Tolerant Nuclear Fuel: UO_2 and UB_2: *Ericmoore Jossou*[1]; Linu Malakkal[1]; Dotun Oladimeji[1]; Barbara Szpunar[1]; Jerzy Szpunar[1]; [1]University of Saskatchewan

4:35 PM
First Principles Investigations of Alternative Nuclear Fuels: *Barbara Szpunar*[1]; linu Malakkal[1]; Ericmoore Jossou[1]; J.A. Szpunar[1]; [1]University of Saskatchewan

4:55 PM
Irradiation Defects in UO2, CeO2 and (U, Ce)O2 Leached in Oxidizing Water: An In-situ Raman Study: *Ritesh Mohun*[1]; Lionel Desgranges[1]; Christophe Jégou[1]; Sandrine Miro[1]; Patrick Simon[2]; Aurélien Canizarès[2]; Nicole Raimboux[2]; [1]CEA (French Alternative Energies and Atomic Energy Commission), France; [2]CNRS(French National Centre for Scientific Research), France

5:15 PM
Comparative Study of Thermal Conductivity of SiC and BeO from Ab Initio Calculations: *Linu Malakkal*[1]; Barbara Szpunar[1]; Jerzy Szpunar[1]; [1]University of Saskatchewan

5:35 PM
Morphology of Y-Ti Nano-oxides in ODS Alloys Irradiated with High Energy Heavy Ions: *Vladimir Skuratov*[1]; Alexander Sohatsky[1]; Jacques O'Connell[2]; Kateryna K. Kornieieva1[1]; Jan Neethling[2]; Alexey Volkov[3]; Maxim Zdorovets[4]; [1]FLNR JINR; [2]CHRTEM, Nelson Mandela Metropolitan University; [3]Nazarbaev University; [4]Institute of Nuclear Physics, Astana, Kazakhstan

Energy Technologies — Heat Recovery

Program Organizers: Lei Zhang, University of Alaska Fairbanks ; Jaroslaw Drelich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu , Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Åbo Akademi University

Thursday PM
March 2, 2017

Room: 13
Location: San Diego Convention Center

Session Chairs: Ziqi Sun, Queensland University of Technology; Nawshad Haque, CSIRO

2:00 PM Invited
Integrated Utilization of Sewage Sludge and Coal Gangue in Clinker Manufacture: *Zhenzhou Yang*[1]; Zuotai Zhang[1]; [1]Peking University

2:30 PM
High Efficiency Thermoelectric Materials (skutterudites, half Heusler alloys and clathrates) and Their Mechanical Properties: *Gerda Rogl*[1]; Andriy Grytsiv[1]; Ernst Bauer[2]; Michael Zehetbauer[3]; Peter Rogl[4]; [1]Christian Doppler Laboratory for Thermoelectricity, Univ. Vienna and Vienna Univ. of Technology; [2]Institute of Solid State Physics, University of Technology; [3]Faculty of Physics, University of Vienna; [4]Institute of Materials Chemistry and Research, University of Vienna

2:50 PM
Valuable Metals and Energy Recovery from Electronic Waste Streams: *Fiseha Tesfaye*[1]; Daniel Lindberg[1]; Joseph Hamuyuni[2]; [1]Åbo Akademi University; [2]Aalto University School of Chemical Technology

3:10 PM
Energy Recovery of Livestock Waste in Taiwan: *Esher Hsu*[1]; Chen-Ming Kuo[2]; [1]National Taipei University; [2]I-Shou University

3:30 PM Break

3:45 PM
Thermal Transport in High ZT Bulk Silicon Thermoelectric Materials: *Seyed Aria Hosseini*[1]; Jackson Harter[2]; Todd Palmer[2]; Lorenzo Mangolini[1]; P. Alex Greaney[1]; [1]University of California, Riverside; [2]Oregon State University

4:05 PM
High-efficiency Natural-gas Generators for Residential Combined Heat and Power: *Ji-Cheng Zhao*[1]; [1]The Ohio State University

4:25 PM
Life Cycle Assessments of Incineration Treatment for Sharp Medical Waste: *Maryam Ghodrat*[1]; Bijan Samali[1]; Maria Rashidi[1]; [1]Western Sydney University

Fracture Properties and Residual Stresses in Small Dimensions — Interface Dominated Fracture

Program Organizers: Daniel Kiener, University of Leoben; Marco Sebastiani, Roma TRE university; Nagamani Jaya Balila, Max Planck Institut fuer Eisenforschung GmbH; William Gerberich, University of Minnesota; Siddhartha (Sid) Pathak, University of Nevada, Reno

Thursday PM
March 2, 2017

Room: 21
Location: San Diego Convention Center

Session Chairs: Rafael Soler, MPIE; Nan Li, Los Alamos National Laboratory

2:00 PM Invited
Temperature-Dependent Delamination Failure of Metal-Ceramic Interfaces: *Rafael Soler*[1]; Sriram Venkatesan[1]; Johannes Zechner[2]; Michael Nelhiebel[2]; Roman Roth[3]; Josef Fugger[2]; Gerhard Dehm[1]; [1]Max-Planck-Institut für Eisenforschung GmbH; [2]KAI - Kompetenzzentrum Automobil- und Industrieelektronik; [3]Infineon Technologies AG

2:30 PM
Oxide-induced Substrate Cracking in Ti and Stainless Steels Driven by Pulsed Laser Irradiation: *Jesus Morales Espejo*[1]; David Bahr[1]; [1]Purdue University

2:50 PM
Fracture Toughness of Beryllium Using Insitu X-ray and Digital Image Correlation Techniques: *Carl Cady*[1]; Cheng Liu[1]; George Gray[1]; Neil Bourne[2]; [1]Los Alamos National Laboratory; [2]University of Manchester

3:10 PM
Improved Fracture Resistance of Brittle Molybdenum Thin Films on Polyimide with Stress Tailoring: *Megan Cordill*[1]; Tanja Jörg[2]; Oleksandr Glushko[1]; Robert Franz[2]; Jörg Winkler[3]; Christian Mitterer[2]; [1]Erich Schmid Institute of Materials Science; [2]Department of Physical Metallurgy and Materials Testing, Montanuniversität Leoben; [3]Business Unit Coating, PLANSEE SE

3:30 PM Break

3:50 PM Invited
Enhanced Fracture Toughness of Mg/Nb Laminated Composites: *Nan Li*[1]; Youxing Chen[1]; Siddhartha Pathak[2]; Jian Wang[3]; Jon Baldwin[1]; Amit Misra[4]; Nathan Mara[1]; [1]Los Alamos National Laboratory; [2]University of Nevada, Reno; [3]University of Nebraska-Lincoln; [4]University of Michigan, Ann Arbor

4:20 PM
The Surface Residual Stress of High-frequency Induction Brazing of Cemented Carbide to Alloy Steel: *Jia Ju*[1]; Zhuang Liu[1]; Shuting Lou[1]; Ting Ruan[1]; [1]Nanjing Institute of Technology

4:40 PM Concluding Comments

Friction Stir Welding and Processing IX — Control and Simulation

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

Thursday PM
March 2, 2017

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*[1]; Olof Garpinger[2]; [1]Swedish Nuclear Fuel and Waste Management Company; [2]Alten

2:30 PM
Direct Pin Tool Temperature Measurements in Friction Stir Welding: *Xiaoqian Ma*[1]; Stanley Howard[1]; [1]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*[1]; Miguel Cervera[1]; Michele Chiumenti[1]; Carlos Agelet de Saracibar[1]; [1]CIMNE

3:10 PM Invited
Measuring the Advancing Side Separation Forces during Self-reacting FSW of Al: *Scott Rose*[1]; John Baumann[1]; Sean Thuston[1]; Eric Thomas[1]; Brian Martinek[1]; [1]The Boeing Company

3:30 PM Break

3:50 PM
Predicting Lap Shear Strength for Friction Stir Scribe Joining of Dissimilar Materials: *Erin Barker*[1]; Piyush Upadhyay[1]; Yuri Hovanski[1]; Xin Sun[1]; [1]Pacific Northwest National Lab

4:10 PM Invited
Simultaneous Independent Control of Tool Axial Force and Temperature in Friction Stir Processing: *Kenneth Ross*[1]; Glenn Grant[1]; Jens Darsell[1]; David Catalini[1]; [1]Pacific Northwest National Laboratory

4:30 PM
Model Based Process Window for FSW of AA7075-T6 Plates: *Elizabeth Hoyos*[1]; [1]Escuela de Ingeniería de Antioquia

4:50 PM
Prediction of Mechanical Properties of Friction Stir Welds through Microstructural Data: Akbar Heidarzadeh[1]; *Hesam Askari*[2]; [1]Azarbaijan Shahid Madani University; [2]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, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

Thursday PM
March 2, 2017

Room: Solana
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), Mohsen Selfi (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 (NWPU), 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).

3:35 PM Break Introduction

3:50 PM Panel Discussion Topic 5 (Industrial Turbine Blade Gammalloys and Processes) - Discussion Lead Team: Siavash Zamani (MAPNA), Fritz Appel (HZG), Jun Zhang (Siemens), Florian Pyczak (HZG), Thomas Broderick (GE), Young-Won Kim (Gamteck).

4:15 PM Panel Discussion Topic 6 (Aero and Automotive Engines Components Gammalloys) - Discussion Lead Team: Mikael Perrut (ONERA), Martin Schloffer (MTU), Wilfried Smarsly (MTU), Mark Dixon (RR), Pierre Sallot (SAFRAN), Rui Yang (IMR), Tom Broderick (GE), Matthias Buenck (ACCESS), Jan Schievenbusch (ACCESS), Langping Zhu (BIAM), Todor Stoyanov (ACCESS), Juraj Lapin (IMMM), Dennis Dimiduk (Blue Quartz), Ulrike Hecht (ACCESS), Fritz Appel (HZG), Guido Keijzers (Del West), Al Sommer (Del West), Young-Won Kim (Gamteck).

5:15 PM Panel Discussion Topic 7 (Application-specific R&D Processes) - Young-Won Kim (Gamteck).

5:45 PM Concluding Comments : Young-Won Kim, Gamteck

High Entropy Alloys V — Structures and Modeling II

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 PM
March 2, 2017

Room: 32B
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 Zhang*[1]; Fan Zhang[1]; Shuanglin Chen[1]; Weisheng Cao[1]; Jun Zhu[1]; Haoyan Diao[2]; Peter Liaw[2]; [1]CompuTherm LLC; [2]University of Tennessee

2:20 PM Invited
Modeling Slips in Slowly Deformed High Entropy Alloys and Comparison to Experiments: *Karin Dahmen*[1]; XJ Gu[2]; Li Shu[3]; Aya Nawano[3]; Shuying Chen[4]; Peter Liaw[4]; Jonathan Uhl[5]; Wendelin Wright[2]; Jien-Wei Yeh[6]; [1] University of Illinois at Urbana Champaign; [2]Bucknell University; [3]University of Illinois at Urbana Champaign; [4]The University of Tennessee, Knoxville; [5]Retired; [6]National Tsing Hua University

2:40 PM Invited
Modeling Fundamental Properties of High Entropy Alloys: *James Morris*[1]; [1]Oak Ridge National Laboratory

3:00 PM
Using a Large Scale Modelling Technique for Selection of HEAs Containing Atypical Elements
: *Rob Snell*[1]; Iain Todd[1]; Russell Goodall[1]; [1]University of Sheffield

3:20 PM Invited
Atomistic Modeling of Solid-solution Structures of High Entropy Alloys: *Guofeng Wang*[1]; Zhenyu Liu[1]; Yinkai Lei[1]; [1]University of Pittsburgh

3:40 PM Break

4:00 PM Invited
Predicted Properties of NiFeCrCo Based HEAs from First Principles: *Douglas Irving*[1]; Changning Niu[1]; Alex Zaddach[1]; Adedapo Oni[1]; James LeBeau[1]; Carl Koch[1]; [1]North Carolina State University

4:20 PM Invited
The Serrations of TiZrTM1TM2 (TM=Hf, Mo, Ta, V and W) High Entropy Alloys: An Integrated First-principles Calculation and Finite-elements Method Study: *William Yi Wang*[1]; FengBo Han[1]; Yi Dong Wu[2]; Deye Lin[3]; Bin Tang[1]; Jun Wang[1]; Shun-Li Shang[4]; Yi Wang[4]; HongChao Kou[1]; Xi-Dong Hui[2]; Karin Dahmen[5]; Peter Liaw[6]; JinShan Li[1]; Zi-Kui Liu[4]; [1]Northwestern Polytechnical University; [2]University of Science and Technology Beijing; [3]Institute of Applied Physics and Computational Mathematics; [4]The Pennsylvania State University; [5]University of Illinois at Urbana Champaign; [6]The University of Tennessee

4:40 PM Invited
Understanding and Designing High-entropy Alloys using a Cluster-plus-Glue-Atom Model: *Qing Wang*[1]; Xiaona Li[1]; Chuang Dong[1]; Peter K. Liaw[2]; [1]Dalian University of Technology; [2]The University of Tennessee

5:00 PM Invited
A Multifaceted Approach to Analyze the Serration Behavior in High Entropy Alloys and Other Material Systems: *Jamieson Brechtl*[1]; Xie Xie[1]; Shuying Chen[1]; Haoyan Diao[1]; Yunzhu Shi[1]; Tengfei Yang[1]; Bilin Chen[1]; Karin Dahmen[2]; Peter Liaw[1]; Steven Zinkle[1]; [1]University of Tennessee; [2]University of Illinois at Urbana-Champaign

5:20 PM
New Deformation Twinning Mechanism in Equimolar Multi-component Alloys with Low Stacking Fault Energy: *Qingjie Li*[1]; Evan Ma[1]; [1]Johns Hopkins University

5:40 PM
Fatigue Behavior of High-entropy Alloys: Peiyong Chen[1]; Bilin Chen[1]; Michael Hemphill[1]; Zhi Tang[1]; Tao Yuan[2]; Gongyao Wang[1]; Che-Wei Tsai[3]; Andrew Chuang[1]; Carl D Lundin[1]; Jien-Wei Yeh[3]; Mohsen Seifi[4]; Dongyue Li[5]; John J Lewandowski[4]; Karin A Dahmen[6]; *Peter K Liaw*[1]; [1]University of Tennessee Knoxville; [2]Ohio University; [3]National Tsing Hua University; [4]Case Western Reserve University; [5]State Key Laboratory for Advanced Metals and Materials; [6]University 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 Riverside; Xie Xie, The University of Tennessee, Knoxville; Gongyao Wang, Alcoa Technical Center; E-Wen Huang, National Chiao Tung University

Thursday PM
March 2, 2017

Room: 32A
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: Nokeun Park[1]; Tilak Bhattacharjee[2]; Yoshihiko Nakamura[2]; Xian Li[2]; Rajeshwar Eleti[2]; Yu Bai[2]; Akinobu Shibata[2]; *Nobuhiro Tsuji*[2]; [1]Yeungnam University; [2]Kyoto University

2:20 PM Invited
Aluminum Diffusion in High Entropy Alloys: K. Michael Mathes[1]; *Thanh Tran*[2]; Peter Liaw[1]; [1]University of Tennessee; [2]Naval Surface Warfare Center - Carderock Division

2:40 PM Invited
Deformation Characteristics and Thermomechanical Processing of Complex Concentrated Alloys: *Mageshwari Komarasamy*[1]; Rajiv Mishra[1]; [1]University of North Texas

3:00 PM Invited
Structural and Thermodynamic Properties of a Lightweight AlTiVCr High Entropy Alloy: Yong-Jie Hu[1]; Yong-Jie Qiu[2]; N Birbilis[2]; *Zi-Kui Liu*[1]; [1]The Pennsylvania State University; [2]Monash University

3:20 PM Invited
High-entropy Alloys Properties and Short- and Long-range Ordering Predicted via Electronic-Structure-based Thermodynamics: *Duane Johnson*[1]; Prashant Singh[1]; Andrei Smirnov[1]; [1]Ames Laboratory/Iowa State University

3:40 PM Break

4:00 PM Invited
Dynamic Behavior and Grain Refinement of AlxCoCrFeNi High-entropy Alloy: *Zezhou Li*[1]; Shiteng Zhao[1]; Haoyan Diao[2]; Shima Sabbaghianrad[3]; Terence G. Langdon[3]; Peter K. Liaw[2]; Marc A. Meyers[1]; [1]University of California,San Diego; [2]The University of Tennessee, Knoxville; [3]University of Southern California

4:20 PM Invited
Stress State, Strain Rate and Temperature Sensitivity of Alx(CrCoFeNi)1-x High Entropy Alloys (HEAs): Omar Rodriguez[1]; *Paul Allison*[1]; Haoyan Diao[2]; Peter Liaw[2]; Neng Wang[1]; Lin Li[1]; [1]University of Alabama; [2]University of Tennessee

4:40 PM
Experimental Demonstration of Isotope-free Simultaneous Measurement of Self- and Inter-diffusion Coefficients: *Esin Schulz*[1]; Irina Belova[2]; Graeme Murch[2]; Yongho Sohn[1]; [1]University of Central Florida; [2]The University of Newcastle

5:00 PM
Application of a High Accuracy Diffusion Kinetics Formalism to High Entropy Alloys: Alan Allnatt[1]; *Irina Belova*[2]; Tumpa Paul[2]; Graeme Murch[2]; [1]University of Western Ontario; [2]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*[1]; Bin Liu[2]; Yiqiang Wang[1]; Kun Yan[1]; Saurabh Kabra[3]; Peter Lee[1]; Yong Liu[2]; [1]University of Manchester; [2]Central South University; [3]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
March 2, 2017
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*[1]; Sugrib Shaha[1]; Mary Wells[1]; Hamid Jahed[1]; Bruce Williams[2]; [1]University of Waterloo; [2]CanmetMATERIALS, Natural Resources Canada

2:20 PM
Development of <10-10> Texture during Tensile Test at Room Temperature: *Zhuoran Zeng*[1]; Mingzhe Bian[1]; Shiwei Xu[2]; Chris Davies[1]; Nick Birbilis[2]; Jian-Feng Nie[1]; [1]Monash University; [2]Baosteel Group Corporation

2:40 PM
Effect of Ca on the Microstructure, Texture and Mechanical Properties in Mg-Zn-Mn Based Alloy: *Byeong-Chan Suh*[1]; Taisuke Sasaki[1]; Taiki Nakata[2]; Shigeharu Kamado[2]; Kazuhiro Hono[1]; [1]National Institute for Materials Science; [2]Nagaoka University of Technology

3:00 PM
Evaluation of In Vitro Fatigue Properties of Biodegradable Mg-0.3at.%Ca Alloy: *Naoko Ikeo*[1]; Akihito Taguma[1]; Taichi Uemura[1]; Toshiji Mukai[1]; [1]Kobe University

3:20 PM
Mechanical Properties and Fatigue Strength of Extruded Cobalt-containing Magnetic Magnesium Alloys: *Christian Demminger*[1]; Christian Klose[1]; [1]Leibniz Universitaet Hannover

3:40 PM Break

4:00 PM
Neutron Diffraction and Acoustic Emission Measurement during Loading and Unloading of Magnesium Aluminium Binary Alloys: *Jan Capek*[1]; Kristian Mathis[1]; [1]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*[1]; Stephen Yue[1]; [1]McGill University

4:40 PM
The Relative Contributions of Deformation Modes to AZ31 Rolling Textures in Different Temperature Regimes: *Matthew Steiner*[1]; Jishnu Bhattacharyya[1]; Sean Agnew[1]; [1]University of Virginia

5:00 PM
Effects of Texture and Triaxiality on the Plasticity of Magnesium Alloys: Balaji Selvarajou[1]; *Shailendra Joshi*[1]; Amine Benzerga[2]; [1]National University of Singapore; [2]Texas A & M University

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

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

Thursday PM
March 2, 2017
Room: Point Loma
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM
Density Functional Theory Investigation of Defect and Fission Gas Diffusion in U_3Si_2: *David Andersson*[1]; [1]Los Alamos National Laboratory

2:20 PM
A Grand-Potential Phase Field Model for Bubble Formation and Growth in U-Si Fuel: *Karim Ahmed*[1]; Larry Aagesen[1]; Daniel Schwen[1]; Yongfeng Zhang[1]; [1]Idaho National Laboratory

2:40 PM
A Modified Embedded-Atom Method Interatomic Potential for U-Si: *Benjamin Beeler*[1]; Michael Baskes[2]; David Andersson[3]; Yongfeng Zhang[1]; [1]Idaho National Laboratory; [2]University of California, San Diego; [3]Los Alamos National Laboratory

3:00 PM
Cluster Dynamics Modeling of Cu Precipitation Hardening in Reactor Pressure Vessel Steels: *Xian-Ming Bai*[1]; Huibin Ke[2]; Pritam Chakraborty[3]; Yongfeng Zhang[3]; [1]Virginia Tech; [2]University of Wisconsin - Madison; [3]Idaho National Laboratory

3:20 PM
Monte Carlo Modeling of Recrystallization Processes in a-Uranium: *Matthew Steiner*[1]; Rod McCabe[2]; Elena Garlea[3]; Sean Agnew[1]; [1]University of Virginia; [2]Los Alamos National Laboratory; [3]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*[1]; Jared Tannenbaum[1]; Richard Smith[1]; [1]Bettis Laboratory, BMPC

4:20 PM
Mesoscale Modeling of δ-Hydride Nucleation and Growth in α-Zirconium: *Andrea Jokisaari*[1]; Katsuyo Thornton[2]; Olle Heinonen[3]; [1]Northwestern University; [2]University of Michigan; [3]Argonne National Laboratory

4:40 PM
Phase Field Modeling of PWR Cladding Corrosion with the HOGNOSE Code: *Andrew Dykhuis*[1]; Michael Short[1]; [1]Massachusetts Institute of Technology

5:00 PM
Thermodynamic Modeling and Continuum Scale Fuel Performance Simulations: *Jacob McMurray*[1]; Srdjan Simunovic[1]; Theodore Besmann[2]; Benjamin Gaston[2]; Markus Piro[3]; [1]Oak Ridge National Laboratory; [2]University of South Carolina; [3]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
March 2, 2017

Room: 25B
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-Burian*[1]; Roman Kolano[1]; Marcin Polak[1]; Marek Hreczka[1]; [1]Institute of Non-Ferrous Metals

2:30 PM Invited
Advanced Soft Magnetic Materials for Highly-efficient Electric Motors: Josefina Silveyra[1]; Vladimir Keylin[2]; *Michael McHenry*[2]; [1]INTECIN, Facultad de Ingeniería, Universidad de Buenos Aires - CONICET; [2]Carnegie 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 Garibaldi*[1]; Ian Ashcroft[1]; Richard Hague[1]; [1]The University of Nottingham

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 Mehdi*[1]; Youaliang He[2]; Erik Hilinski[3]; Afsaneh Edrisy[4]; [1]University of Windsor/Canmet Materials; [2]Canmet Materials; [3]Tempel Steel; [4]University of Windsor

4:15 PM Invited
Effects of Cooling Rate on 6.5% Silicon Steel Ordering: Brandt Jensen[1]; Chad Macziewski[1]; Kevin Dennis[1]; Lin Zhou[1]; Wei Tang[1]; Olena Palasyuk[1]; Levitas Valery[2]; Matthew Kramer[1]; *Jun Cui*[2]; [1]Ames Laboratory; [2]Iowa State University

4:45 PM
Novel Silicon Steel Nanocomposites via Severe Shear Deformation Approaches: *Trevor Clark*[1]; Hellen Jiang[2]; Nicole Overman[2]; Suveen Mathaudhu[1]; [1]University of California, Riverside; [2]Pacific Northwest National Laboratory

5:05 PM
Magnetic Properties of Shear-textured Fe-Si Sheet Produced by Simple Shear Deformation: *Andrew Kustas*[1]; Srinivasan Chandrasekar[1]; Kevin Trumble[1]; [1]Purdue University

Materials Processing Fundamentals — Molten & Gas State Processing

Program Organizers: Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

Thursday PM
March 2, 2017

Room: 17B
Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM
Thermal Analyses of Silver-based Sulfosalts in Air: *Fiseha Tesfaye*[1]; Daniel Lindberg[1]; [1]Åbo Akademi University

2:20 PM
Influence of Oxygen on Surface Tension of Zr: *Jonghyun Lee*[1]; Jie Zhao[1]; Michael SanSoucie[2]; Rainer Wunderlich[3]; Jan Rogers[2]; Hans Fecht[3]; Robert Hyers[1]; [1]University of Massachusetts; [2]NASA Marshall Space Flight Center; [3]Ulm University

2:40 PM
Oscillation of a Zirconium Droplet – Experiments and Numerical Simulations: *Jonghyun Lee*[1]; Kaushal Sumaria[1]; Robert Hyers[1]; [1]University of Massachusetts

3:00 PM
Gallium Evaporation Behavior for Purification in Molecular Beam Epitaxy (MBE): *Kyungjean Min*[1]; David Johnson[1]; Kevin Trumble[1]; [1]Purdue University

3:20 PM Break

3:40 PM
Investigation of Mixing Process in a Steel Ladle with Top Stirring Lance Using CFD: Guangwu Tang[1]; Armin Silaen[1]; Hoyong Hwang[2]; Megan Pratt[3]; Russell Mulligan[2]; *Chenn Zhou*[1]; [1]Purdue University Northwest; [2]ArcelorMittal; [3]Toyota Motor Manufacturing Indiana

4:00 PM
Mass Transfer of Al and Ca between Silicon and Synthetic SiO2-CaO-Al2O3 Slags: *Erlend Bjørnstad*[1]; Gabriella Tranell[1]; [1]NTNU

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
March 2, 2017

Room: 24C
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 $Sm_2Fe_{17}N_3$ Hard Magnetic Particles: *Toshiharu Teranishi*[1]; Hsin-Lun Wu[1]; Ryota Sato[1]; [1]Kyoto University

2:30 PM
Coercivity and Strength Enhancement of a Binder Jetted NdFeB Bonded Magnet by (Pr,Nd)-Cu-Co Alloy Infiltration: *Ling Li*[1]; Angelica Tirado[1]; Benjamin Conner[1]; Amy Elliott[1]; Orlando Rios[1]; Haidong Zhou[2]; M. Parans Paranthaman[1]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

2:50 PM
Recent Developments in High Coercivity Nd-lean Nd-Fe-B Infiltrated Magnets: *Daniel Salazar*[1]; Andrés Martín-Cid[1]; Jose Garitaonandia[2]; Rajasekhar Madugundo[1]; Jose Manuel Barandiaran[2]; George Hadjipanayis[3]; [1]BCMaterials; [2]University of the Basque Country (UPV/EHU); [3]University of Delaware

3:10 PM
High Magnetic Field Processing of Melt-spun Permanent Magnet Alloys: *Michael McGuire*[1]; Orlando Rios[1]; Ben Conner[1]; William Carter[1]; Lin Zhou[2]; Brandt Jensen[2]; Kewei Sun[2]; Mianliang Huang[2]; Olena Palasyuk[2]; Kevin Dennis[2]; Ikenna Nlebedim[2]; [1]Oak Ridge National Laboratory; [2]The Ames Laboratory

3:30 PM Break

3:50 PM
Structural Evolution in Alnico -- A Transmission Electron Microscopy and Atom Probe Tomography Study: *Lin Zhou*[1]; Wei Guo[2]; Jon Poplawsky[2]; Wei Tang[1]; Iver Anderson[1]; Matt Kramer[1]; [1]Ames Lab; [2]Oak Ridge National Laboratory, Center for Nanophase Materials Sciences

4:10 PM
Powder-processed High-performance Alnico Magnets by Thermal Gradient Control: *Emma White*[1]; Aaron Kassen[1]; Wei Tang[1]; Matthew Kramer[1]; Iver Anderson[1]; [1]Ames Laboratory

4:30 PM
Reduced Cobalt Energy Efficient "Green" Alnico: *Andriy Palasyuk*[1]; Brandon Kiel[2]; Kevin Dennis[1]; Wei Tang[1]; Lin Zhou[1]; Aaron Kassen[2]; Emma White[2]; Mathew Kramer[1]; Iver Anderson[1]; [1]Ames Laboratory; [2]Iowa State University, DMSE

4:50 PM
Reconsidering Substitutions in Sr-Ferrite Magnets: *Waleed Khalifa*[1]; Omayma El-Kady[2]; [1]Cairo University; [2]CMRDI

5:10 PM
Synthesis and Processing of Hard Iron Oxide Nanocomposites for Rare Earth Free Permanent Magnets: *Kyle Chan*[1]; Yasuhiro Kodera[1]; Javier Garay[1]; [1]University of California, San Diego

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Mechanical Behavior of Titanium and Zirconium Containing Alloys

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 PM
March 2, 2017
Room: 24A
Location: San Diego Convention Center

Session Chairs: Raj Vaidyanathan, University of Central Florida; Indrajit Charit, University of Idaho

2:00 PM Keynote
Microstructure-property Interrelationships in Metastable Beta Titanium Alloys with Refined Distributions of the Alpha Phase: Yufeng Zheng[1]; Gopal Viswanathan[1]; Rajarshi Banerjee[2]; *Hamish Fraser*[1]; [1]The Ohio State University; [2]University of North Texas

2:30 PM Invited
Increasing the Elevated-temperature Strength of a Beta Titanium Alloy through Thermomechanically-induced Phase Transformation: Vahid Khademi[1]; *Carl Boehlert*[1]; Masahiko Ikeda[2]; [1]Michigan State University; [2]Kansai University

2:50 PM Invited
In Situ Neutron Diffraction Studies of Crystallographic Texture at Stress and Temperature with Implications for Training Shape Memory Alloys: *Raj Vaidyanathan*[1]; [1]University of Central Florida

3:10 PM Invited
Effect of Dynamic Strain Aging on Creep in Titanium Alloys: Priyanka Agrawal[1]; S. Karthikeyan[1]; *Dipankar Banerjee*[1]; [1]Indian Institute of Science

3:30 PM Break

3:40 PM
Correlating Variability in Fatigue Life with Fracture Mechanisms in a Near-α Titanium Alloy: *Vikas Sinha*[1]; Sushant Jha[2]; Adam Pilchak[3]; Reji John[3]; James Larsen[3]; [1]Air Force Research Laboratory/UES, Inc.; [2]Air Force Research Laboratory/Universal Technology Corporation; [3]Air Force Research Laboratory

4:00 PM Invited
Creep of Zirconium and Zirconium Alloys: *Troy Hayes*[1]; Michael Kassner[2]; [1]Exponent; [2]University of Southern California

4:20 PM Invited
Effect of Mo and Bi Additions on the Microstructure of Zr-Cr-Fe alloy after ß-quenching: Jianmin Wang[1]; *Baifeng Luan*[1]; Korukonda Murty[2]; Qing Liu[1]; [1]Chongqing University; [2]North Carolina State University

4:40 PM
Study of Accelerated Creep Behaviour of Zr-2.5Nb Pressure Tubes: *Avinash Gopalan*[1]; Harshit Khandelwal[1]; Sandeep Chandanshive[1]; Ram Singh[1]; [1]Bhabha Atomic Research Center

5:00 PM Concluding Comments

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 Mamivand, 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*[1]; Eva Zarkadoula[2]; Ritesh Sachan[2]; Haizhou Xue[1]; Yanwen Zhang[2]; [1]University of Tennessee; [2]Oak Ridge National Laboratory

2:30 PM
Insights on Dramatic Radial Fluctuations in Track Formation by Energetic Ions: *Ritesh Sachan*[1]; Yanwen Zhang[1]; Eva Zarkadoula[1]; Matthew Chisholm[1]; William Weber[2]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

2:50 PM
Characterization of Radiation Effects in Complex Oxides: New Application of Neutron Total Scattering Techniques: Jacob Shamblin[1]; Eric O'Quinn[1]; Raul Palomares[1]; *Maik Lang*[1]; [1]University of Tennessee

3:10 PM Invited
Energetics of Trivalent Substitutional Elements in Uranium Dioxide: Combined Computational and Experimental Investigations
: Jonathan Solomon[1]; Lei Zhang[2]; Alexandra Navrotsky[2]; *Mark Asta*[1]; [1]University of California, Berkeley; [2]University of California, Davis

3:40 PM Break

3:55 PM
Raman Characterization of Electron Irradiated UO2 to Determine U Displacement Threshold: *lionel Desgranges*[1]; ritesh mohun[1]; patrick Simon[2]; aurélien canizares[2]; florian duval[2]; pierre desgardin[2]; marie-France Barthe[2]; christophe jegou[1]; sandrine miro[1]; [1]CEA; [2]CNRS

4:15 PM
Quantification of Irradiation Defects in Silicon Carbide Using Raman Spectroscopy: *Takaaki Koyanagi*[1]; Michael Lance[1]; Yutai Katoh[1]; [1]Oak Ridge National Laboratory

4:35 PM
Mesoscale Modelling of Radiation-induced Recrystallization and Fission Gas Bubble Formation in Metallic U-Mo Fuel: Linyun Liang[1]; *Zhi-Gang Mei*[1]; Abdellatif Yacout[1]; [1]Argonne National Laboratory

4:55 PM Concluding 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[1]; Shanshan Chen[1]; Hui Yang[1]; Bingchun Zhang[1]; *Ke Yang*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

2:20 PM
Effect of Rapid Solidification on the Microstructure of a Biomaterial Co-Cr-Mo-C Alloy
Hamid-Reza Erfanian-Naziftoosi, Hugo Lopez
: Hugo Lopez[1]; *Hamid-Reza Erfanian-Naziftoosi*[1]; [1]University of Wisconsin-Milwaukee

2:40 PM
Influence of Time and Temperature of Acid Treatment in the Morphology and Roughness of Osseointegrable Implants: *Ariel do Lago*[1]; Beatriz Torres[1]; Carlos Elias[1]; [1]Instituto Militar de Engenharia

3:00 PM
Optical Properties of CeO2@ZnO Core@shell Nanostructures Synthesized by Solvothermal Method: *Saeed Farhang*[1]; Felipe Sanhueza[1]; Pandiyarajan Thangaraj[1]; Mangalaraja Ramalinga Viswanathan[1]; [1]Concepcion University

3:20 PM Break

3:40 PM
Investigation of Properties in Glass-ceramics Based on Li_2O-SiO_2 System during Li_2SiO_3-$Li_2Si_2O_5$ Transformation: *Bruno Simba*[1]; Marcos Ribeiro[1]; Claudinei Santos[2]; Paulo Suzuki[3]; Luís Hein[1]; Manuel Alves[2]; [1]Unesp-FEG - Universidade Paulista-Faculdade de Engenharia de Guaratinguetá; [2]UERJ-FAT - Universidade do Estado do Rio de Janeiro-Faculdade de Tecnologia; [3]USP-EEL - Universidade de São Paulo-Escola de Engenharia de Lorena

4:00 PM
Structure and Toughening Mechanism of Carp Fish Scales: *Haocheng Quan*[1]; Wen Yang[2]; Robert Ritchie[3]; Marc Meyers[1]; [1]UCSD; [2]ETH-Zurich; [3] Lawrence Berkeley National Laboratory

4:20 PM
Synthesis and Characterization of Ni0.5Zn0.5Fe2O4@mSiO2 Core Shell Nanocarrier for Drug Delivery Applications: Mohd Qasim[1]; Khushnuma Asghar[1]; *Dibakar Das*[1]; [1]University of Hyderabad

4:40 PM
Zirconium Alloys for Orthopaedic & Dental Implants: A Review: *Afrin Mehjabeen*[1]; Ma Qian[1]; [1]RMIT

Pan American Materials Congress: Materials for Infrastructure — Session II

Program Organizers: Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en química aplicada

Thursday PM
March 2, 2017
Room: Palomar
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

2:00 PM Invited
New Generation Niobium Bearing Structural Steels for Future Infrastructure Demands: *Steven Jansto*[1]; [1]CBMM-North America, Inc.

2:30 PM
Effect of C5H11NO2S on Reinforcing-steel Corrosion in Concrete Immersed in Industrial/Microbial Simulating-environment: *Joshua Okeniyi*[1]; Abiodun Abioye[1]; Zechariah Adikpewun[1]; Adeola Otesanya[1]; Michael Eleshin[1]; Olugbenga Omotosho[1]; Olanrewaju GAbriel[1]; Oluyori Adeoye[1]; [1]Covenant University

2:50 PM
Development of Co-B-SiC Coatings for Use on Aeronautical and Automobile Industries: *Alma Martínez*[1]; Gabriel Trejo[1]; [1]CIDETEQ

3:10 PM Invited
Jigs, Hydro-cyclones and Sensor-based Sorting to Value Recycled Aggregates: *Régis Paranhos*[1]; Carlos Sampaio[2]; Bogdan Cazacliu[3]; Raul Neto[1]; Maria Liendo[1]; [1]Unipampa; [2]UFRGS; [3]IFSTTAR

3:40 PM Break

4:00 PM Invited
Colombian Natural Fibers for Structural Materials: Henry Colorado[1]; *Juan M Velez*[2]; [1]Universidad de Antioquia; [2]Universidad Nacional de Colombia

4:30 PM
Anticorrosion and Adsorption Mechanism of Rhizophora Mangle L Leaf-extract on Steel-reinforcement in 3.5% NaCl-immersed Concrete: *Joshua Okeniyi*[1]; Olugbenga Omotosho[1]; Cleophas Loto[1]; Abimbola Popoola[2]; [1]Covenant University, Ota, Nigeria; [2]Tshwane University of Technology, Pretoria

4:50 PM
Cassia Fistula Leaf-extract Effect on Corrosion-inhibition of Stainless-steel in 0.5 M HCl: *Olugbenga Omotosho*[1]; Joshua Okeniyi[1]; Cleophas Loto[1]; Abimbola Popoola[2]; Omokolade Ajibola[1]; Adebanji Ogbiye[1]; [1]Covenant University, Ota; [2]Tshwane University of Technology, Pretoria, South Africa

Pan American Materials Congress: Materials for Transportation and Lightweighting — 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 Autonoma de Nuevo Leon

Thursday PM
March 2, 2017
Room: Marina D
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 Rix*[1]; [1]TISICS

2:20 PM
Effect of Al2O3 Volume Percentage on the Mechanical Properties and Strengthening Effect in Al Alloy Nano Composites Fabricated by Ultrasound Assisted Solidification Technique: *Neeraj Srivastava*[1]; G.P. Chaudhari[1]; [1]Indian Institute of Technology Roorkee

2:40 PM
Effect of Annealing on the Electrical Properties of PA6/MWNT/CU Composites: *Saeed Doagou Rad*[1]; A Islam[1]; J. Jensen[1]; [1]Technical University of Denmark

3:00 PM
Experimental and Density Functional Theory Studies of $SmMn_2O_5$ Mullite-type Oxide as NO Oxidation Catalyst: *Sampreetha Thampy*[1]; Yongping Zheng[1]; Sean Dillon[1]; Kui Tan[1]; Ka Xiong[2]; Yun-Ju Lee[1]; Yves Chabal[1]; Kyeongjae Cho[3]; Julia Hsu[1]; [1]University of Texas at Dallas; [2]Dongguan Innovative New Materials Co. Ltd.; [3]University of Texas at Dallas and Dongguan Innovative New Materials Co. Ltd

3:20 PM Break

3:40 PM
Investigation on Mechanical Properties of Sic, Al2O3 and B4C Micro Particulates Reinforced in Aluminium Matrix Composite: *Gopal Kumaresan*[1]; K Kalaichelvan[1]; A Rajadurai[1]; [1]Production Technology, MIT Campus, Anna University.

4:00 PM
Synthesis of Energetic Composites in Ti-Al-B-C System by Adiabatic Explosive Compaction: *Mikheil Chikhradze*[1]; Fernand Marquis[2]; [1]G.Tsulukidze Mining Institute/ F.Tavadze Institute of Metallurgy and Materials Science/Georgian Technical University; [2]San Diego State University

4:20 PM
Nanocomposites Mechanical and Tribological Properties using Graphene Coated Ceramic Nanoparticles for Light Weight Applications: Ahmed Ghazaly[1]; Mohamed Shokeir[1]; Sandy El-Moghazi[1]; Ahmed Fathy[1]; Mohamed Emara[2]; *Hanadi Salem*[1]; [1]American University in Cairo; [2]Canadian 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 Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Thursday PM
March 2, 2017

Room: Marina G
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 Scholz*[1]; Sebastian Wagner[2]; Gundolf Kopp[1]; Horst Friedrich[1]; [1]German Aerospace Center; [2]NMI Natural and Medical Sciences Institute at the University of Tübingen

2:20 PM
Influence of Robotic GMAW Welding Parameters on the Mechanical Properties of Thick Structural Steel Plates: *Manuel Vazquez Esteban*[1]; Argelia Miranda Pérez[1]; Rolando Praga Alejo[2]; Gladys Pérez Medina[1]; [1]Corporación Mexicana de Investigación en Materiales; [2]Universidad Autonoma de Coahuila

2:40 PM
Joining Dissimilar Materials across Varying Length Scales by Impact Welding: *Anupam Vivek*[1]; Taeseon Lee[1]; Glenn Daehn[1]; [1]Ohio State University

3:00 PM
Evaluation of Distortion in Pulse Spray Welding Joints of Hsla A572 Steel for Heavy Agricultural Equipment: *Estuardo Raymundo Rivera Sanchez*[1]; Gladys Yerania Perez Medina[1]; Eduardo Hurtado Delgado[1]; Leonardo Carrasco Gonzalez[1]; Argelia Fabiola Miranda Perez[1]; [1]COMIMSA

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 Pamanes*[1]; Sergio Rodríguez[2]; Victor Hugo Hernandez[2]; Simitrio Ignacio RUIZ[2]; [1]IPN - UPIIZ; [2]UAZ

4:00 PM
Vaporizing Foil Actuator Welding as a Solution for Joining Automotive Steel and Aluminum Alloys: *Anupam Vivek*[1]; Bert Liu[1]; Glenn Daehn[1]; [1]Ohio State University

4:20 PM
Study of the discontinuities generated by GMAW process applied in AISI 1018 steel using NDT phased array and their microstructural correlation.: *Luis Aguilar-Pérez*[1]; Gladys Pérez-Medina[1]; Argelia Miranda-Pérez[1]; Rolando Praga-Alejo[2]; [1]Corporación Mexicana de Investigación en Materiales; [2]Universidad Autónoma de Coahuila

Pan American Materials Congress: Minerals Extraction and Processing — Ore Processing

Program Organizers: Mery Gómez Marroquín, 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

Thursday PM
March 2, 2017

Room: Marina E
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 Yasuno*[1]; Masatsugu Morimitsu[1]; [1]Doshisha University

2:20 PM
Improving Quality of Coke Made from Chinese Xinjiang Gas Coal with High Strength Modifier: *Qiang Wu*[1]; Zizong Zhu[1]; Guojing Shi[1]; Feng Wang[1]; Zilong Wang[1]; Yangyang Xie[1]; [1]Chongqing University

2:40 PM
Process of Improving the Flotation Using Ultrasonic Bombardment: *Erivelto Souza*[1]; Orimar Reis[2]; Denise Pereira[3]; Luís Borges[2]; Jeísa Rodrigues[4]; [1]UFSJ; [2]IFMG-OP; [3]QTEC; [4]UFOP/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 Paranhos[1]; *Evandro Santos*[2]; Carlos Petter[3]; Aaron Young[3]; Moacir Veras[3]; [1]Unipampa; [2]Dagoberto Barcelos SA; [3]UFRGS

3:20 PM Break

3:40 PM
The Compact Flowsheet for Ore Comminution and Processing: *George Mover*[1]; Volodymyr Golovan[1]; [1]Black Iron Inc.

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Phase, Interface and Crystalline Defects Evolution during SPD

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Thursday PM
March 2, 2017

Room: Marina F
Location: Marriott Marquis Hotel & 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 Duchaussoy[1]; *Xavier Sauvage*[1]; Kaveh Edalati[2]; Zenji Horita[3]; Gilles Renou[4]; Alexis Deschamps[4]; Frédéric De Geuser[4]; [1]Normandy University; [2]WPI, International Institute for Carbon-Neutral Energy Research ; [3]WPI, International Institute for Carbon-Neutral Energy Research; [4]Univ. Grenoble Alpes, SIMAP

2:20 PM
Grain Boundary Structure and Diffusivity of Severely Strained Metals and Alloys
: *Gerhard Wilde*[1]; [1]University of Muenster

2:40 PM
Insights into Deformation Induced Grain Boundary Migration in Ultrafine-grained Metals: *Oliver Renk*[1]; Pradipta Ghosh[1]; Reinhard Pippan[1]; [1]Erich Schmid Institute of Materials Science

3:00 PM
Non-destructive Evolution of Defects in Ultrafine-grain Magnesium during Tensile Tests: *Augusta Cerceau Isaac Neta*[1]; Lorena Aarão[1]; Roberto Figueiredo[1]; Ângelo Malachias[1]; [1]Universidade 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 Azzeddine[1]; Yousf Islem Bourezg[2]; Zdeneck Matej[3]; Yi Huang[4]; *Djamel Bradai*[2]; Terence G. Langdon[4]; [1]University of M'sila; [2]USTHB; [3]Max IV Laboratory; [4]University of Southampton

3:40 PM Break

4:00 PM
Interface Phenomena in SPD-processed Nanomaterials: *Ruslan Valiev*[1]; Maxim Murashkin[2]; Dmitry Gunderov[2]; [1]Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; [2]Ufa 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: *Hyoung Seop Kim*[1]; [1]POSTECH

4:40 PM
Bulk Nano Lamellar Materials by Severe Plastic Deformation: Fan Liu[1]; Sunkulp Goel[1]; Yue Wang[1]; Ya Ming Zhu[1]; Hao Yuan[1]; *Jing Tao Wang*[1]; [1]Nanjing University of Science and Technology

5:00 PM
Thermal Stability of Defect Structure and Phase Composition in Ultrafine-grained 316L Stainless Steel Processed by High-pressure Torsion: *Moustafa El-Tahawy*[1]; Jeno Gubicza[1]; Yi Huang[2]; Hyelim Choi[3]; Heeman Choe[3]; János Lábár[4]; Terence Langdon[2]; [1]Eötvös Loránd University; [2]University of Southampton; [3]Kookmin University; [4]Centre for Energy Research, Hungarian Academy of Sciences

5:20 PM
Mechanical Properties of Laminated Titanium-Aluminum-Composites Processed by Accumulative Roll Bonding: *Christopher Schunk*[1]; Heinz Werner Höppel[1]; Mathias Göken[1]; [1]Friedrich-Alexander Universität Erlangen-Nürnberg

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Student 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

Thursday PM
March 2, 2017

Room: Balboa
Location: Marriott Marquis Hotel & Marina

Session Chairs: Jose-Maria Cabrera, Universidad Politecnica de Catalunya; Yi Huang, University of Southampton

2:00 PM
Microstructural Changes and Mechanical Behavior of AA6061 Al Alloy Severely Deformed at Cryogenic Temperatures: *Danielle Magalhães*[1]; Andrea Kliauga[1]; Vitor Sordi[1]; Maurizio Ferrante[1]; [1]Federal University of São Carlos

2:20 PM
Examining the Microhardness Evolution and Thermal Stability of an Al-Mg-Sc Alloy Processed by High-pressure Torsion at a High Temperature: *Pedro Henrique Pereira*[1]; Yi Huang[1]; Terence Langdon[1]; [1]Materials Research Group, Faculty of Engineering and the Environment, University of Southampton

2:40 PM
Deformation-induced Formation of Supersaturated Solid Solutions in the Cu-Ag System: *Karoline Kormout*[1]; Pradipta Ghosh[1]; Verena Maier-Kiener[2]; Reinhard Pippan[1]; [1]Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; [2]Department Physical Metallurgy and Materials Testing

3:00 PM
Nanomechanical Behavior of Precipitation-hardened Nanocrystalline High-entropy Alloy: *Dong-Hyun Lee*[1]; Moo-Young Seok[1]; Zhaoping Lu[2]; Jin-Yoo Suh[3]; Upadrasta Ramamurty[4]; Megumi Kawasaki[1]; Terence Langdon[5]; Jae-il Jang[1]; [1]Hanyang University; [2]University of Science and Technology Beijing; [3]Korea Institute of Science and Technology; [4]Indian Institute of Science; [5]University of Southern California

3:20 PM
Defect Structure and Hardness in Ultrafine-grained Ni-Mo Alloys Processed by High Pressure Torsion: *Garima Kapoor*[1]; Yi Huang[2]; Terence Langdon[2]; V. Sarma[3]; Jeno Gubicza[1]; [1]Eotvos Lorand University; [2]University of Southampton, Southampton; [3]Indian Institute of Technology Madras

3:40 PM Break

4:00 PM
Wear Properties of Various Bulk Hybrid Materials Processed by High-pressure Torsion: *Jae-Kyung Han*[1]; Han-Joo Lee[1]; Daekuen Han[1]; Byungmin Ahn[2]; Megumi Kawasaki[1]; Terence Langdon[3]; [1]Hanyang University; [2]Ajou University; [3]University of Southern California

4:40 PM
Fatigue Behavior of Friction Stir Processed Ultrafine Grained 5024 Al Alloy: *Shivakant Shukla*[1]; Mageshwari Komarasamy[1]; Rajiv Mishra[1]; [1]University of North Texas

4:20 PM
Creep Deformation in Bulk Metallic Glasses: A Review
: *Kamia Smith*[1]; Michael Kassner[1]; [1]University of Southern California

5:00 PM
Shock Compression Behavior of Ti-Based Monolithic Bulk Metallic Glass and its Composite: Rene Diaz[1]; Manny Gonzales[1]; Greg Kennedy[1]; David Scripka[1]; Ali Khosravani[1]; Surya Kalidindi[1]; Douglas Hofmann[2]; *Naresh Thadhani*[1]; [1]Georgia Institute of Technology; [2]NASA Jet Propulsion Laboratory

Solar Cell Silicon — Silicon Photovoltaics

Program Organizers: Shadia Ikhmayies, Al Isra University; Neale Neelameggham, Ind LLC

Thursday PM
March 2, 2017

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 Zbib*[1]; [1]Phoenicia University

2:20 PM
Electrodynamic Eddy Current Separation of End-of-Life PV Materials: *York Smith*[1]; James Nagel[1]; Raj Rajamani[1]; [1]University of Utah

2:40 PM
Investigation on Quartz Crucibles for Monocrystalline Silicon Ingots for Solar Cells: *Marisa Di Sabatino*[1]; [1]NTNU

3:00 PM
Influence of Oxygen Content on the Wettability of Silicon on Graphite: Zineb Benouahmane[1]; *Lifeng Zhang*[1]; Yaqiong Li[1]; [1]University of Science and Technology Beijing

3:20 PM
Particle Separation in Silicon Ingot Casting Using AC Magnetic Field: *Valdis Bojarevics*[1]; Georgi Djambazov[1]; Koulis Pericleous[1]; [1]University 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
March 2, 2017

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 Nastar*[1]; [1]CEA

2:30 PM
Spinodal Decomposition and Ordering Transformation in U6Nb Alloy: *Luke Hsiung*[1]; [1]Lawrence Livermore National Laboratory

2:50 PM
Atom Probe Characterization of Phase Separation during Age Hardening of a U-6wt.%Nb Alloy: *Clarissa Yablinsky*[1]; Seth Imhoff[1]; Yaqiao Wu[2]; Amy Clarke[3]; Robert Hackenberg[1]; [1]Los Alamos National Laboratory; [2]Center for Advanced Energy Studies / Boise State; [3]Colorado School of Mines

3:10 PM
Understanding the Decomposition Process of Immiscible Fe-Cu-Ag Alloy: *B. Hornbuckle*[1]; Anthony Roberts[1]; Tom Luckenbaugh[1]; Kris Darling[1]; [1]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 Conforto*[1]; Stephane Cohendoz[1]; Patrick Girault[1]; Cyril Berziou[1]; Xavier Feaugas[1]; [1]University of La Rochelle

4:20 PM
Effect of Metalloid Addition on Anomalous Primary Crystallization of Al-RE Metallic Glasses: *Mustafacan Kutsal*[1]; Burcu Cam[1]; Eren Kalay[1]; [1]METU

2017 Technical Division Student Poster Competition — Extraction and Processing Division (EPD) Graduate Students

Monday PM
February 27, 2017
Room: Hall B1
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 Ordoñez*[1]; Henry Colorado[1]; [1]Universidad de Antioquia

SPG-2: Application of Zr And Ti as Anode Material in Metal-Air Batteries at Elevated Temperatures: *Seyed Amirhossein Saeidi*[1]; Emilio Ramirez[1]; Daniel Mumm[1]; [1]University of California at Irvine

SPG-3: Beneficiation of Ancylite: *Hao Cui*[1]; Corby Anderson[1]; [1]Colorado School of Mines

SPG-4: Investigation Phase Transformation Route in Mn-Al Alloys: *Ozgun Acar*[1]; Ayse Genc[1]; Yunus Kalay[1]; Ilkay Kalay[2]; [1]Middle East Technical University; [2]Cankaya University

SPG-5: On the Microstructure of Magnesium Alloy AZ91/SiC Metal Matrix Composites: *Seyedeh Nooshin Mortazavi*[1]; [1]Chalmers University of Technology

SPG-6: SiMn Reduction with Comilog Ore: *Trine Larssen*[1]; [1]Norwegian University of Science and Technology

SPG-7: Single Phase Cementite Synthesizes by Mechanical Alloying
: *Ahmed Al-Joubori*[1]; C. Suryanarayana[1]; [1]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 Agarwal*[1]; Mohammad Sadegh Safarzadeh[1]; [1]South Dakota School of Mines and Technology

SPG-9: Trace Elements Analysis of Ultrahigh-purity Gallium by Direct and Indirect Method: *Kyungjean Min*[1]; David Johnson[1]; Kevin Trumble[1]; [1]Purdue University

2017 Technical Division Student Poster Competition — Extraction and Processing Division (EPD) Undergraduate Students

Monday PM
February 27, 2017
Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

SPU-1: Silicon Carbide (SiC) Adsorption and Carburization onto an Activated Carbon Matrix: *Alaina Mallard*[1]; [1]Montana Tech of the University of Montana

SPU-2: Synthesis of Silicates on the Micro-scale: *Alec Affolter*[1]; [1]University of Tennessee

2017 Technical Division Student Poster Competition — Functional Materials Division (FMD) Graduate Students

Monday PM
February 27, 2017
Room: Hall B1
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: *Flávia Gallo*[1]; Hunter Henderson; Michael Kesler; Brittani Maskley; Brandon Saraydar; Michele Manuel; [1]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 Nasara*[1]; Shih-kang Lin[1]; [1]National Cheng Kung University

SPG-12: Evaluation on Reliability of Ag-alloy Wire under Cl- environment: *Yan Wen Tsau*[1]; Jui-Nung Wang[1]; Fan Yi Ouyang[1]; [1]National Tsing Hua University

SPG-13: Interfacial Reactions in Co/In/Cu Joints by Transient Liquid Phase Bonding in Thermoelectric Modules: *Tsu-Ching Yang*[1]; Sinn-Wen Chen[1]; [1]National Tsing Hua University

SPG-14: Interfacial Reactions in Transient Liquid Phase Bonding of Cu/Ga/Ni and Cu/Ga/Co: *Ji-min Lin*[1]; Sinn-wen Chen[1]; [1]National Tsing Hua University

SPG-15: The Role of Morphology in the Supercapacitance of Rare Earth Oxides: *Aadithya Jeyaranjan*[1]; Tamil Selvan Sakthivel[1]; Sudipta Seal[1]; [1]University of Central Florida

SPG-16: The Thermal Stability of Copper Nanotwinned Thin Film with Different Interlayers: *Leh-Ping Chang*[1]; Hsin-Yuan Chen[1]; Fan-Yi Ouyang[1]; [1]National Tsing Hua University

SPG-17: Wettability-based Mitigation of Scale Formation
: *Leonid Rapoport*[1]; Susmita Dash[1]; Kripa Varanasi[1]; [1]MIT

SPG-18: Why and How the Electromigration Effect Occurs?: *Yu-chen Liu*[1]; Shih-kang Lin[1]; Shang-Jui Chiu[2]; Yen-Ting Liu[2]; Hsin-Yi Lee[2]; [1]National Cheng Kung University; [2]National Synchrotron Radiation Research Center

2017 Technical Division Student Poster Competition — Functional Materials Division (FMD) Undergraduate Students

Monday PM
February 27, 2017
Room: Hall B1
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: *Brittani Maskley*[1]; Hunter Henderson; Harry Shaw[2]; Michele Manuel; [1]University of Florida; [2]NASA

SPU-4: Discovery of New Ternary Compounds and Scintillators of the A4BX6 Family: *Jesse Johnson*[1]; Luis Stand[1]; Bryan Chakoumakos[2]; Mariya Zhuravleva[1]; Mary Koschan[1]; Chuck Melcher[1]; [1]University of Tennessee-Knoxville; [2]Department of Energy-Oak Ridge National Lab

SPU-5: Single Crystal Synthesis of Multiferroic Metal-organic Frameworks: Nicholas Combs[1]; Quentin Eustace[1]; [1]University of Tennessee - Knoxville

2017 Technical Division Student Poster Competition — Light Metals Division (LMD) Graduate Students

Monday PM
February 27, 2017

Room: Hall B1
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*[1]; Danielle Cote[1]; Diran Apelian[1]; [1]Worcester Polytechnic Institute

SPG-20: Effect of Strontium and Calcium Concentration on Microstructure and in vitro Degradation Rate: *David Christianson*[1]; Hunter Henderson; Alex Wilson-Heid[1]; Michele Manuel; [1]University of Florida

SPG-21: Feedstock Powder Analysis for Additive Manufacturing Applications: *Caitlin Walde*[1]; Danielle Cote[1]; Richard Sisson[1]; Victor Champagne[2]; [1]WPI; [2]US Army Research Laboratory

SPG-22: Numerical Investigation on Gas Bubble Behaviors in Aluminum Reduction Cell with Slotted Anode: *Meijia Sun*[1]; Baokuan LI[1]; Jian-ping Peng[1]; [1]Northeastern University

SPG-23: Orientation and Length Scale Effect in Deformation Mechanism in Pure Magnesium: *Ali Khosravani*[1]; Surya Kalidindi[1]; [1]Georgia Institute of Technology

SPG-24: Thermodynamic & Kinetic Model Application to Strengthening Mechanisms of Aluminum Alloys for Additive Manufacturing: *Derek Tsaknopoulos*[1]; Danielle Cote[1]; Richard Sisson[1]; Victor Champagne[1]; [1]Worcester Polytechnic Institute

2017 Technical Division Student Poster Competition — Light Metals Division (LMD) Undergraduate Students

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

SPU-6: Fabrication of Novel Aluminum Welding Fillers Reinforced with NbB2 Nanoparticles: *Lourdes Cruz*[1]; Andres Calle[1]; Victoria Nadal[1]; [1]University of Puerto Rico at Mayaguez

SPU-7: Influence of Mn on Mechanical Properties in Aluminum Alloy 6082: *Aedan Callaghan*[1]; Jasmine Majdpour[1]; Lucas Alexander[1]; Amir Farkoosh[1]; Mihriban Pekguleryuz[1]; [1]Department of Materials Engineering, McGill University

SPU-8: Phase Stability of bcc MgSc Alloys via Cluster Expansion and Monte Carlo Methods: *Adam Shaw*[1]; Gregory Pomrehn[2]; Aurora Pribram-Jones[3]; Patrick Conway[4]; Michael Ferry[4]; Kevin Laws[4]; Lori Bassman[1]; [1]Harvey Mudd College; [2]The Boeing Company; [3]Lawrence Livermore National Lab; [4]University of New South Wales

SPU-9: Thermodynamic Assessment and Microstructural Analysis of AA 6082 with Increased Addition of Manganese: *Lucas Alexander*[1]; Jasmine Majdpour[1]; Aedan Callaghan[1]; Amir Farkoosh[1]; Mihriban Pekguleryuz[1]; [1]McGill University

2017 Technical Division Student Poster Competition — Materials Processing and Manufacturing Division (MPMD) Graduate Students

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

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*[1]; Chang Yong Choi[2]; [1]PNU; [2]Ohsung Tech

SPG-26: Bulk Metallic Glass Casting: Insights into Critical Cooling Using High-speed IR Monitoring and Fast DSC: *Fabian Haag*[1]; Güven Kurtuldu[1]; Jörg Löffler[1]; [1]ETH Zurich

SPG-27: Design of New Ni-Based Superalloys for Electron Beam Additive Manufacturing Process: *Curtis Frederick*[1]; Ryan Dehoff[2]; Michael Kirka[2]; Edwin Schwalbach[3]; Michael Haines[1]; Austin Staub[3]; Suresh Babu[1]; [1]University of Tennessee, Knoxville; [2]Oak Ridge National Laboratory; [3]Air Force Research Laboratory

SPG-28: Dynamic Transformation of Austenite to Ferrite during Rolling above the Ae3 Temperature: *Samuel Rodrigues*[1]; Clodualdo Aranas Jr.[1]; John Jonas[1]; [1]McGill University

SPG-29: Effect of Beam Oscillation on Electron Beam Welding of Ti-6Al-4V Alloy: *Jyotirmaya Kar*[1]; Sanat Kumar Roy[1]; Gour Gopal Roy[1]; [1]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*[1]; Jagannathan Rajagopalan[1]; [1]Arizona State University

SPG-31: Grain Size Effect on the Deformation of Nanograined Metallic Multilayers: *Sixie Huang*[1]; Caizhi Zhou[1]; [1]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*[1]; Fenfen Yang[2]; Huijun Kang[2]; Zongning Chen[2]; Tiqiao Xiao[3]; Tongmin Wang[2]; [1]Dalian University of Technology ; [2]Dalian University of Technology; [3]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*[1]; Sumanth Shankar[1]; Jeffrey Hoyt[1]; [1]McMaster University

SPG-34: Mechanical and Microstructural Evaluation of Ultra High Speed FSW of Aluminum Alloys: *Jingyi Zhang*[1]; Piyush Upadhyay[2]; Yuri Hovanski[3]; David Field[1]; [1]Washington State University; [2]Pacific Northwest National Laboratory; [3]Brigham Young University

SPG-35: Non Equilibrium Thermodynamics of Quench and Partition Steels: *Amit Behera*[1]; [1]Northwestern university

SPG-36: Preparation of TiB2 by Mechanochemical Reaction between Al, B2O3 and TiO2: *Petra Hanusova*[1]; [1]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*[1]; Jagannathan Rajagopalan[1]; [1]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*[1]; [1]Middle East Technical University

2017 Technical Division Student Poster Competition — Materials Processing and Manufacturing Division (MPMD) Undergraduate Students

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

SPU-10: A Cellular Bioactivity of Sol-Gel Derived Borate Glass-Polycaprolactone Electrospun Scaffolds: William Lepry[1]; *Sophia Smith*[1]; Liliana Liverani[2]; Aldo Boccaccini[2]; Showan Nazhat[1]; [1]McGill University; [2]University of Erlangen-Nuremberg

SPU-11: Development of Bimodal Ferrite Grain Distribution to Enhance the Ductility of Dual Phase 600 (DP 600) Steel: *Jisha Krishnan*[1]; Monideepa Mukherjee[2]; Anish Karmakar[1]; Shiv Brat Singh[1]; [1]Indian Institute of Technology Kharagpur; [2]Tata Steel

SPU-12: Use of Carbon Fiber Laminates for the Manufacture of Leg Prosthetics: *Javier Pascasio Chávez*[1]; Benjamín González Vizcarra[1]; Miriam Siqueiros Hernández[1]; [1]Universidad Autónoma de Baja California

2017 Technical Division Student Poster Competition — Structural Materials Division (SMD) Graduate Students

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

SPG-39: A Novel Approach for Forming Ductile and Strong Cu-to-Cu Interconnection Using Ga-based Pastes: *Che-yu Yeh*[1]; Shih-kang Lin[1]; [1]National Cheng Kung University

SPG-40: A Preliminary Study on the High Energy Ball Milling and Spark Plasma Sintering of Fe-9Cr Alloy: *Arnab Kundu*[1]; [1]University of Idaho

SPG-41: Corrosion Behavior of Alloy 800H in Supercritical CO2: *Lucas Teeter*[1]; Benjamin Adam[1]; Jacob Mahaffey[2]; Mark Anderson[2]; Julie Tucker[1]; [1]Oregon State University; [2]University of Wisconsin Madison

SPG-42: Evaluation of Interfacial Layer of Friction Stir Welded Joint of AA6022-T4 and DP600 Sheets: *Tianhao Wang*[1]; Harpreet Sidhar[1]; Rajiv Mishra[1]; Piyush Upadhyay[2]; Yuri Hovanski[2]; Glenn Grant[2]; Blair Carlson[3]; [1]University of North Texas; [2]Pacific Northwest National Lab; [3]General Motors

SPG-43: Evaluation on Oxidation Behavior of Nanocrystalline CrN Deposited Zr-4 Alloys at High Temperature: *Cheng-Wei Shen*[1]; Fan-Yi Ouyang[1]; Kai-Ping Chang[1]; [1]National Tsing Hua University

SPG-44: Formation of Large-sized and Ductile CuZr-based Bulk Metallic Glass Composite: Wenli Song[1]; Yuan Wu[1]; Jie zhou[1]; Di Cao[1]; Fei Zhang[1]; Qing Du[1]; Hui Wang[1]; Xiongjun Liu[1]; Zhaoping Lu[1]; [1]University of Science and Technology Beijing

SPG-45: Frequency, Hold Time and Overload Effects on Crack Growth Rates in Alloy 617 at 800°C in Air
: *Dylan Addison*[1]; Jamie Kruzic[2]; [1]Oregon State University; [2]University of New South Wales

SPG-46: High Strain Rate Deformation and Work Hardening in Ti-1Al-4V Alloy
: *Zachary Kloenne*[1]; Gopal Viswanathan[1]; Matthew Thomas[2]; Michael Lorreto[3]; Hamish Fraser[1]; [1]Center for Accelerated Maturation of Materials; [2]TIMET; [3]University of Birmingham

SPG-47: Medium-Range Correlations and Its Impact on Properties in Al-RE Marginal Glass Forming Alloys: *Mustafacan Kutsal*[1]; Eren Kalay[1]; [1]Middle East Technical University

SPG-48: Non-destructive 3D Characterization of the Microstructural Evolution of Additively Manufactured Materials: *Tugce Ozturk*[1]; David Menasche[2]; Robert Suter[1]; Anthony Rollett[1]; [1]Carnegie Mellon University; [2]Hamiltonian Group LLC

SPG-49: Optimization of the Diffusion Bonding Process for Al 6063 Alloy: *Sila Atabay*[1]; Arcan Dericioglu[1]; [1]Middle East Technical University

SPG-50: Nanocrystallization in Cu-Zr-Al-Sm Metallic Glasses: *Fatih Sikan*[1]; Ilkay Kalay[2]; Yunus Eren Kalay[1]; [1]Middle East Technical University; [2]Cankaya University

SPG-51: The Activity of Pyramidal Slip Systems in a Mg-3Al-1Zn Alloy during High Cycle Fatigue: *Li Tan*[1]; Xiyan Zhang[1]; Guangjie Huang[1]; Qing Liu[1]; [1]Chongqing University

SPG-52: The Effect of Plasma Mark on Steel Structural Integrity: *Sujeily Soto*[1]; Jeffrey Rossin[1]; Michael Kesler; Edward George[2]; Steve Duke[3]; Michele Manuel; [1]University of Florida; [2]E&S Consulting, Inc; [3]Florida Department of Transportation

SPG-53: TRIP Titanium Alloy Design: *Fan Meng*[1]; Jia-Yi Yan[2]; Wei Xiong[3]; Gregory Olson[1]; [1]Northwestern University; [2]KTH Royal Institute of Technology; [3]University of Pittsburgh

2017 Technical Division Student Poster Competition — Structural Materials Division (SMD) Undergraduate Students

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

SPU-13: Austenite Stability Dependence of the Mechanical Properties in medium-Mn Steels: *Neil Krichi*[1]; Binhan Sun[1]; Stephen Yue[1]; [1]McGill University

SPU-14: Chloride Transport Properties in Nanoparticle Modified Concrete: *Evan Hess*[1]; [1]University of Akron

SPU-15: Lifetime Prediction of FeCrAl Alloys through Statistical Modeling and High-Temperature Cycling Testing: *Christina Cox*[1]; Sebastien Dryepondt[1]; Josh Turan[1]; [1]Oak Ridge National Laboratory

SPU-16: Optimizing Electron Tomography of Bone and Bone-implant Specimens
: *Madeline Perrin*[1]; Xiaoyue Wang[1]; Kathryn Grandfield[1]; [1]McMaster University

SPU-17: Stacking Fault Energies of Complex Alloys Calculated from Special Quasirandom Structures: *Jonas Kaufman*[1]; Greg Pomrehn[2]; Aurora Pribram-Jones[3]; Michael Ferry[4]; Kevin Laws[4]; Lori Bassman[1]; [1]Harvey Mudd College; [2]The Boeing Company; [3]Lawrence Livermore National Laboratory; [4]School of Materials Science and Engineering, UNSW Australia

2017 Technical Division Young Professional Poster Competition — Functional Materials Division (FMD)

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

YP-1: Influence of Dissolved Oxygen Content on the Oxidation Behavior of Ni-based Alloys in High Temperature Water Vapor: *Yang Zhen*[1]; [1]Xi an Thermal Power Research Institute

YP-2: Isothermal and Non-isothermal Studies of Pt-Rh Thermocouple Failure Caused by Two Phosphorus Diffusion Mechanisms: *Anna Nakano*[1]; Jinichiro Nakano[1]; James Bennett[2]; [1]U.S. Department of Energy. National Energy Technology Laboratory/ AECOM; [2]U.S. Department of Energy. National Energy Technology Laboratory

2017 Technical Division Young Professional Poster Competition — Light Metals Division (LMD)

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

YP-3: Effect of Hot Extrusion on Mechanical and Corrosion Properties of a MgCaSr Alloy: *Hunter Henderson*[1]; Alex Wilson-Heid[1]; Michele Manuel; [1]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 Milner*[1]; Fadi Abu-Farha[2]; [1]NIST; [2]Clemson University

2017 Technical Division Young Professional Poster Competition — Materials Processing and Manufacturing Division (MPMD)

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

YP-5 A Study of Brittle Ffracture Mechanism of Non-quenched and Tempered N80 Tubing Used in Gas and Oil Well: *Caihong Lu*[1]; Chun Feng[1]; [1]Tubular Goods Research Institute of China National Petroleum Corporation

YP-6: Commercial-ready Large Scale Manufacturing of Light-weight Aluminum Metal Matrix Composite: *Yuzheng Zhang*[1]; Mark Sommer[1]; Marco Curreli[1]; Andrew Parker[1]; Miguel Verduzco[1]; William Harrigan[1]; Alfred Sommer[1]; [1]Gamma Alloys

YP-7: Octo-Strain: A Novel Multiaxial Loading Device for In-situ Stress Measurements through Neutron Diffraction: *Justin Milner*[1]; Thomas Gnäupel-Herold[1]; [1]NIST

YP-8: The Materials Science behind Ice Cream Making: *Dana Zöllner*[1]; [1]TU Dresden

2017 Technical Division Young Professional Poster Competition — Structural Materials Division (SMD)

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

YP-9: Body-centered Phase of Shock Loaded Single Crystal Copper: *Anupam Neogi*[1]; Nilanjan Mitra[1]; [1]IIT Kharagpur

YP-10: Effect of Neutron Irradiation on Friction Stir Processed ODS Alloys (MA956 and MA754): *Ramprashad Prabhakaran*[1]; Yaqiao Wu[2]; Jatu Burns[2]; James Cole[3]; Indrajit Charit[4]; Rajiv Mishra[5]; KL Murty[6]; TS Byun[1]; [1]Pacific Northwest National Laboratory; [2]Boise State University; [3]Idaho National Laboratory; [4]University of Idaho; [5]University of North Texas; [6]North Carolina State University

YP-11: In Situ Ion Irradiation of Multilayer (TiN, TiAlN) Ceramic Coating for Accident Tolerant Zr-alloy Fuel Claddings: *Jing Hu*[1]; Douglas Wolfe[2]; Arthur Motta[2]; Meimei Li[1]; Mark Kirk[1]; [1]Argonne National Laboratory; [2]Pennsylvania State University

YP-12: Study of Magneto-optical Characteristics of Cerium Substituted Yttrium Iron Garnet Thin Films on Quartz Substrates: *Mohammad Gharibshahi*[1]; [1]Satrap Pars.Co & Islamic Azad University of Ahvaz

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; Onuralp Yücel, ITU; P. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim University

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: Weifeng Liu, Central South University

E-1: A Mini-pilot Plant for a Novel Flash Ironmaking Process: *Amr Abdelghany*[1]; Yousef Mohassab[1]; De Qiu Fan[1]; Mohamed Elzohiery[1]; H.Y. Sohn[1]; [1]University of Utah

E-2: A New Method to Detect the High Temperature Distribution in the Ironmaking and Steelmaking Industry: *Dongdong Zhou*[1]; Shusen Cheng[1]; [1]University of Science and Technology Beijing

E-3: Effect of Inner Shape on Blast Furnace Performance for Iron Making: *Xun Zhang*[1]; [1]University of Science and Technology Beijing

E-4: Effect of Lance Configurations on Coal Flow and Combustion Characteristics: *Hailong Huo*[1]; Zhenfeng Zhou[1]; Jingsong Wang[1]; Qingguo Xue[1]; Yuanyuan Zhang[1]; Yinli Liu[1]; [1]University of Science and Technology Beijng

E-5: Feasibility of Replacing the Internal Refractory (Iranian Production) and Implementation of Pilot in Almahdi Aluminium Line Production: *Mohsen Amerisiahooei*[1]; Borzu Baharvand[2]; [1]Islamic Azad University; [2]Almahdi-hormozal Aluminum Company

E-6: Inclusion Evolution during Ladle Furnace Refining and Deformation during Rolling Process for MRT-2.5: *Yanan Jia*[1]; Liguang Zhu[2]; Zengxun Liu[2]; Caijun Zhang[2]; [1]University of Science and Technology Beijing; [2]North China University of Science and Technology

E-7: Kinetics and Reduction Behavior of Self-reducing Briquettes Containing Blast Furnace Dust: *Shengli Wu*[1]; Feng Chang[1]; Jianliang Zhang[1]; Hua Lu[1]; [1]University of Science and Technology Beijing

E-8: Melting Separation Slag and Metal Phases of High Grade of Vanadium-bearing Titanomagnetite Metallized Pellets: Chao Lv[1]; Kun Yang[2]; Shaojun Bai[2]; *Shuming Wen*[2]; [1] Kunming University of Science and Technology; [2]Kunming University of Science and Technology

E-9: Model Analysis of the Phenomena of Pulverized Coal Injection in Blast Furnace: *Tian Chen*[1]; Shusen Cheng[1]; Wenxuan Xu[1]; [1]University of Science and Technology Beijing

E-10: Possible Method for the Controlling of Carburization Content of Pig Iron: A New Finding: *Guang Wang*[1]; Jingsong Wang[1]; Qingguo Xue[1]; [1]University of Science and Technology Beijing

E-11: Research on Injection of COG in Middle-upper Part of COREX Melter Gasifier: *Shengli Wu*[1]; Jiacong Zhang[1]; Zhekai Zhang[1]; Mingyin Kou[1]; Tianjie Wen[1]; [1]University of Science and Technology Beijing

E-12: Study on Vanadium-titanium Gas-based Direct Reduction-grinding and Separation Process: *Jingkun Tang*[1]; [1]Beijing Shenwu Environment & Energy Technology CO., Ltd.

E-13: Effect of Silicon on Removal of Phosphorus from High Phosphorus Si-Mn Alloy by CaO-Based Slag: Zhiqiang Zhou[1]; *Zizong Zhu*[1]; Yuchuan Ding[1]; Shengnan Zhou[1]; [1]ChongQing University

E-14: A Study for Reconstructing the Three-dimensional Temperature Field of a Blast Furnace Raceway Based on Monte Carlo Method: *Yan Li*[1]; Shusen Cheng[1]; Ruixuan Zhang[1]; [1]University of Science and Technology Beijing

E-15: High Temperature Distribution Measurement of the Blast Furnace Raceway through Imaging Techniques and Optimization Algorithms: *Ruixuan Zhang*[1]; Shusen Cheng[1]; Yan Li[1]; [1]University of Science and Technology Beijing

E-16: Cleanliness Control Technology of Cold Rolled Steel Sheets: *Haibo Li*[1]; Peng Yuan[1]; Bin Chen[1]; Xinhua Wang[2]; Guosen Zhu[3]; [1]Shougang Research Institute of Technology; [2]University of Science and Technology Beijing; [3]Shougang Jingtang Iron and Steel Co., Ltd.

E-17: Behaviour of Silicon in Nickel Laterite by Carbothermic Reduction in Vacuum: *Lei Shi*[1]; Tao Qu[1]; Dachun Liu[1]; Yang Tian[1]; Bin Yang[1]; Yongnian Dai[1]; [1]Kunming University of Science and Technology

E-18: Thermodynamics Study on Phosphorus Distribution between 2CaO•SiO2-3CaO•P2O5 Solid Solution and Liquid Slag: *Chao Jiang*[1]; Ming-Mei Zhu[1]; Rui-Rui Zhao[1]; Zhang-Guang Gao[1]; [1]Chongqing University

E-19: Effect of Super Gravity on the Solidification Structure and C Segregation of High Carbon Steel: *Yuhou Yang*[1]; Bo Song[1]; Gaoyang Song[1]; Zeyun Cai[1]; [1]University of Science and Technology Beijing

E-20: Burden Composition and Structure Optimization in Blast Furnace Operation Based on Multi-objective Programming: *Baoxiang Wang*[1]; [1]North China University of Science and Technology

E-21: The Research and Engineering Practice of the Lead Oxygen-enriched Flash Smelting: Baozhong Ma[1]; *Chengyan Wang*[1]; Yongqiang Chen[2]; [1]Institute of Metallurgical and Ecological Engineering, Beijing University of Science and Technology; [2] Institute of Metallurgical and Ecological Engineering, Beijing University of Science and Technology

E-22: Inclusions Characterization of Hot Work Die Steel H13 in the Process of EAF-LF-VD-CC: *Huishu Zhang*[1]; Guoxi Wu[1]; Lina Sun[1]; Ren Chen[1]; Dongping Zhan[2]; [1]Liaoning Institute of Science and Technology; [2]Northeastern University

E-23: Two-step Copper Smelting Process at Dongying Fangyuan: *Zhi Wang*[1]; Zhixiang Cui[1]; Chuanbing Wei[1]; Haibin Wang[1]; [1]Dongying Fangyuan Nonferrous Metals. Co., Ltd.

E-24: Extraction of Metals from Industrial Wastes by Using Transferred Arc Plasma: *Arup Kumar Mandal*[1]; Om Prakash Sinha[1]; [1]Indian Institute of Technology, (BHU)

E-25: Rate and Mechanism for Reduction of MnO and SiO2 from SiMn Slags: *Pyunghwa Kim*[1]; Merete Tangstad[1]; [1]Norwegian 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[1]; *Zhou Wang*[2]; Li Dong-Wei[1]; Diao Jiang[2]; [1]Chongqing University of Education; [2]Chongqing 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. Chris Pistorius, Carnegie Mellon University; Varadarajan Seshadri, Universidade Federal de Minas Gerais; Baojun Zhao, The University of Queensland; Dean Gregurek, RHI AG; Ender Keskinkilic, Atilim University

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: Yuanbo Zhang, Central South University

E-27: Investigation on the Phase Transformation of Vanadium Slag during the Direct Reduction Process: *Wen-Feng Tan*[1]; Bing Xie[1]; Pan Gu[1]; Hong-Yi Li[1]; Jiang Diao[1]; Wang Zhou[1]; [1]Chongqing University

E-28: Effect of Al2O3 Content on the Crystallization Behavior of Blast Furnace Slag Using Single Hot Thermocouple Technique: *Qin Yuelin*[1]; Yang Yanhua[1]; Zhang Qianying[1]; Deng Nengyun[1]; [1]Chongqing University Of Science and Technology

E-29: Investigation of the Carbothermic Reduction of Chromium-containing Vanadium Extraction Residue: *Pan Gu*[1]; Jiang Diao[1]; Wen-Feng Tan[1]; Bing Xie[1]; Wang Zhou[1]; Zhen Zhang[1]; [1]Chongqing University

E-30: Effect of TiO2 on the Viscosity of High Alumina BF Slag: *Zhiming Yan*[1]; Zhengde Pang[1]; Wei Lv[1]; Xuewei Lv[1]; Jian Xu[1]; Guibao Qiu[1]; Chenguang Bai[1]; [1]Chongqing University, Chongqing China

E-31: Experimental Study on the Electrical Conductivity of CaO-SiO2-Al2O3-CaF2-Na2O-MgO Slag System: *Li Zhao*[1]; Yu Wang[1]; Shu-chao Wang[1]; [1]Chongqing University

E-32: Decarburization of Spent Petrochemical Catalysts via Microwave Oxidation Roasting: *Bingguo Liu*[1]; Peng Liu[1]; Libo Zhang[1]; Haigang Dong[2]; Jinhui Peng[1]; [1]Kunming University of Science and Technology; [2]State 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 Chunyang*[1]; Zhang Libo[1]; Xia Hongying[1]; Cheng Song[1]; Shu Jianhua[1]; [1]Kunming University of Technology and Science

E-34: Effects of Blowing Conditions on the Dispersion States of Materials Charged into Bottom Blown Oxygen Smelting Furnace: *Dongxing Wang*[1]; Yan Liu[1]; Zhang Ting'an[1]; Xiaolong Li[1]; [1]Northeastern University

E-35: Characteristic of Subsurface Hooks in Slabs And Behavior of Inclusions Entrapment at High Speed Continuous Casting: *Peng Yuan*[1]; Haibo Li[1]; Chenxi Ji[1]; Bin Chen[1]; [1]Shougang Research Institute of Technology

E-36: Assessment of Crystallization Kinetic Study of Phosphate–enriched Phase in CaO–SiO2–FeO–P2O5–Fe2O3 Steelmaking Slags: *Jin-yan Li*[1]; Zhang Mei[1]; Guo Min[1]; [1]University of Science and Technology Beijing

E-37: Research on the Flow Behavior of Molten Slag through Pore: *Yingli Liu*[1]; Qingguo Xue[1]; Jingsong Wang[1]; Guang Wang[1]; [1]University 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*[1]; Wentang Xia[1]; Juan An[1]; Xiaoyan Xiang[1]; Xuejiao Zhou[1]; Jianguo Yin[1]; Wenqiang Yang[1]; [1]Chongqing 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*[1]; Yongming Chen[1]; Chaobo Tang[1]; Shenghai Yang[1]; Lulu Guo[1]; Jing He[1]; Motang Tang[1]; [1]Central South University

E-40: Influence of Hot Charge on Blast Furnace Performance for Iron Making: *Huiqing Tang*[1]; [1]University of Science and Technology Beijing

E-41: Effect of FeO Content in Laterite Nickel Slag on the Corrosioin Behaviour of Refractory Materials: *Shuming Huang*[1]; Jilai Xue[1]; Zengjie Wang[2]; [1]University of Science and Technology Bejing; [2]Bejiing University of Technology

E-42: Investigation and Application of Evolution System of Stock Surface Gas Flow Distribution in Blast Furnace: *Wenxuan Xu*[1]; Shusen Cheng[1]; Guolei Zhao[1]; [1]University of Science and Technology Beijing

E-43: Molecular Dynamics Study of the Structural Properties with Varying B_2O_3/SiO_2 Ratios in the System $CaO–SiO_2–B_2O_3$: *Xiao-Ping Liang*[1]; Wei-Tong Du[2]; Yu Wang[1]; [1]Chongqing University; [2]Chongqing University

E-44: Influence of Converter Slag on Decomposition Behavior of Limestone during BOF Steelmaking Process: *Hua Lu*[1]; Wen-Wen Mao[1]; Chen-Xiao Li[1]; Hong Li[1]; [1]University 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*[1]; Guang-liang Wu[1]; Jian-hua Ren[1]; [1]Central South University

E-46: Comparison of the Ringing Characteristics between Acid and Alkaline Iron Ore Pellets Powder in Kiln: *Yong-Bin Yang*[1]; Xin Min[1]; Qian Li[1]; Bin Xu[1]; Tao Jiang[1]; Xiao-liang Liu[1]; Yan Zhang[1]; [1]Central South University

E-47: Ab-initio Molecular Dynamics Simulation of High Temperature Sulfur Evaporating Behavior in Vacuum: Fansong Liu[1]; Yuezhen Zhou[1]; *Dachun Liu*[1]; Xiumin Chen[1]; Chongfang Yang[1]; Wei Li[1]; [1]Kunming University of Science and Technology

E-48: Precipitation of Arsenic as Scorodite both at Atmospheric and Hydrothermal Conditions: *Zhonglin Ye*[1]; [1]Yunnan Copper Smelting & Processing Complex

E-49: An Energy Consumption Theory for Coke Degradation in Blast Furnace: *Qihang Liu*[1]; [1]Xi'an University of Architecture and Technology

E-50: Study on the Influence of Materials on Heat Transfer Characteristics of Blast Furnace Cooling Staves: *Fengguang Li*[1]; [1]Hubei University of Automotive Technology

E-51: Microwave Assisted Regeneration of Spent Activated Carbon from Paracetamol Wastewater Plant Using Steam: *Song Cheng*[1]; [1]Kunming University of Science 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
February 27, 2017

Room: Hall B1
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: *Baolong Zheng*[1]; Nancy Yang[2]; Joshua Yee[2]; Thale Smith[3]; James Haley[1]; Yizhang Zhou[1]; Enrique Lavernia[1]; Julie Schoenung[1]; [1]University of California at Irvine; [2]Sandia National Laboratories; [3]University of California at Davis

A-2: Additive Manufacturing of Ti6Al4V with GMAW: Correlation between Processing and Homogeneous Microstructural Properties: *Philipp Henckell*[1]; [1]Technische Universität Ilmenau

A-3: Additive Manufacturing to Produce Standard and Custom Alloy Titanium: *James Withers*[1]; Sion Pickard[1]; [1]MER Corporation

A-4: Aiming for Modeling-assisted Tailored Designs for Additive Manufacturing: *Dayalan Gunasegaram*[1]; Anthony Murphy[1]; Sharen Cummins[1]; Vincent Lemiale[1]; Gary Delaney[1]; Vu Nguyen[1]; Yuqing Feng[1]; [1]CSIRO

A-5: Alloy Design for Additive Manufacturing: Preliminary Results for Al-Ce Alloys: *Alex Plotkowski*[1]; Niyanth Sridharan[1]; Zachary Sims[2]; Ryan Ott[3]; Ryan Dehoff[2]; Sudarsanam Babu[1]; Orlando Rios[2]; [1]University of Tennessee - Knoxville; [2]Oak Ridge National Laboratory; [3]Ames National Laboratory

A-6: Bonding Features and Microstructural Evolution in Cold Sprayed Metallic Coatings and Bulks: A New Materials Perspective: *Yu Zou*[1]; Eric Irissou[2]; Jean-Gabriel Legoux[2]; Stephen Yue[3]; [1]Massachusetts Institute of Technology; [2]National Research Council Canada (NRC); [3]McGill University

A-7: Build Theme Modifications to Investigate Microstructural Development in Additively Manufactured 17-4PH Stainless Steel Parts: *Yu Sun*[1]; Mark Aindow[1]; Rainer Hebert[1]; [1]University of Connecticut

A-8: Characterization of Carbide Precipitates in Nickel-Base Superalloy MAR-M247 Fabricated through Scanning Laser Epitaxy: *Amrita Basak*[1]; Suman Das[1]; [1]Georgia Institute of Technology

A-9: Characterization of Dissimilar Joint between Inconel 718 and Alloy Steel by Laser Engineered Net Shaping: *Hoyeol Kim*[1]; Zhichao Liu[1]; Yingge Zhou[1]; Weilong Cong[1]; Hong-Chao Zhang[1]; [1]Texas Tech University

A-10: Classification, Effects, and Prevention of Build Defects in Powder-bed Fusion Printed Inconel 718: *Arthur Brown*[1]; Zachary Jones[1]; William Tilson[2]; [1]NASA-Marshall Space Flight Center; [2] Jacobs-ESSSA Group

A-11: Cold Gas Dynamic Spray Deposition for Additive Repair of AA7075 and AA2024 Structures: *Luke Brewer*[1]; William Story[1]; Sieglind Ngai[1]; Florian Vogel[1]; Benjamin White[1]; James Jordon[1]; Gregory Thompson[1]; [1]University of Alabama

A-12: Additive Manufacturing of High Performance NdFeB Bonded Permanent Magnets: *M. Parans Paranthaman*[1]; Ling Li[1]; Orlando Rios[1]; Brian Post[1]; Vlastimil Kunc[1]; Cajetan Nlebedim[2]; [1]Oak Ridge National Laboratory; [2]Ames Laboratory

A-13: Design of Biodegradable/Biocompatible Magnesium Alloy and Its Additive Manufacturing Process: *Ebrahim Asadi*[1]; Warren Haggard[1]; [1]University of Memphis

A-14: Development of Diffusion Mobility Descriptions for Additive Manufactured Ti-6Al-4V: *Greta Lindwall*[1]; Kil-Won Moon[1]; Yaakov Idell[1]; Maureen Williams[1]; Fan Zhang[1]; Andrew Allen[1]; Nikolas Hrabe[1]; Lyle Levine[1]; Carelyn Campbell[1]; [1]National Institute of Standards and Technology

A-15: Direct Metal Writing: Controlling the Rheology through Microstructure: *Wen Chen*[1]; Luke Thornley[1]; Hannah Coe[1]; Eric Duoss[1]; Andrew Pascall[1]; Joshua Kuntz[1]; Christopher Spadaccini[1]; [1]Lawrence Livermore National Lab

A-16: Effect of Build Orientation on the Microstructure and Mechanical Properties of Selective Laser Melted Ti-6Al-4V Alloys: *Patrick Hartunian*[1]; Mohsen Eshraghi[1]; [1]California State University, Los Angeles

A-17: Effect of Material Phase Transformation in Residual Stress and Deformation Simulation of Selective Laser Melting Process: *Nachiket Patil*[1]; Deepankar Pal[1]; Javed Akaram[1]; Pradeep Chalavadi[1]; Chong Teng[1]; Kai Zeng[1]; Brent Stucker[1]; [1]3DSIM,LLC

A-18: Effect of Microstructure on the High-temperature Oxidation Behavior of Inconel 718 Manufactured via Electron Beam Melting: *Alfred Okello*[1]; Michael Kirka[1]; Ryan Dehoff[1]; [1]Oak Ridge National Laboratory

A-19: Effect of Print Parameters on Microstructure of EBM Printed Ti-6Al-4V: *Colleen Hilla*[1]; Sean Yoder[2]; Peeyush Nandwana[2]; Ryan Dehoff[2]; Kinga Unocic[2]; [1]University of Pittsburgh ; [2]Oak Ridge National Laboratory

A-20: Effects of Recycled Powder on Build Integrity in Metal Based Additive Manufacturing: *Katherine Wellmon*[1]; Nancy Yang[2]; Julie Schoenung[1]; [1]University of California, Irvine; [2]Sandia National Laboratories

A-21: Electron Microscopy Study of Non-metallic Inclusions in Additively Manufactured 17-4PH Stainless Steel Parts: *Yu Sun*[1]; Mark Aindow[1]; Rainer Hebert[1]; [1]University of Connecticut

A-22: Fatigue and Fracture in Additive Manufacturing Metals: Findings from a Recent NIST/ASTM Workshop: *Nikolas Hrabe*[1]; Steve Daniewicz[2]; Nima Shamsaei[2]; Nicholas Barbosa[1]; [1]National Institute of Standards and Technology; [2]Mississippi State University

A-23: Finite Element Analysis of Hybrid Additive Manufacturing to Print Location Specific Mechanical Properties by Sequential Laser Shock Peening: *Michael Sealy*[1]; Guru Madireddy[1]; Chao Li[2]; Yuebin Guo[2]; [1]University of Nebraska-Lincoln; [2]The University of Alabama

A-24: Grain Growth and Heat Flux Direction during Selective Laser Melting of CoCrMo Alloy: *Zhan Chen*[1]; M.A.L. Phan[1]; K. Darvish[1]; [1]Auckland University of Technology

A-25: High-strength, Corrosion-resistant, Weldable Aluminum Powders for Additive Manufacturing: *Nhon Vo*[1]; Amirreza Sanaty-Zadeh[1]; Davaadorj Bayansan[1]; Evander Rumos[1]; David Seidman[1]; David Dunand[1]; [1]NanoAl LLC

A-26: In Situ Characterization of Defects Formation and Microstructure Evolution in Selective Laser Melting of Metals: *Lianyi Chen*[1]; [1]Missouri University of Science and Technology

A-27: In Operando Synchrotron X-ray Imaging of Selective Laser Melting: *Chu Lun Alex Leung*[1]; Robert Atwood[2]; Michael Towrie[3]; Philip Withers[1]; Peter Lee[1]; [1]University of Manchester; [2]Diamond Light Source Ltd; [3]Science Technology Facilities Council

A-28: Incorporating Complex Thermal Histories in Grain Microstructure Simulations of Additively Manufactured 316L SS: *Kyle Johnson*[1]; Theron Rodgers[1]; Joseph Bishop[1]; [1]Sandia National Laboratories

A-29: Laser Additive Manufacturing of Nanoparticles Reinforced Aluminum: *Ting Chiang Lin*[1]; Jingzhou Zhao[1]; Chezheng Cao[1]; Xiaochun Li[1]; [1]University of California Los Angeles

A-30: Machine Learning Approaches to Optimize Additive Manufacturing Parameters for SLM of Inconel 718: *Branden Kappes*[1]; Henry Geerlings[1]; Senthamilaruvi Moorthy[1]; Andrew Petersen[1]; Douglas Van Bossuyt[1]; Aaron Stebner[1]; [1]Colorado School of Mines

A-31: Microstructure vs. Mechanical Properties for Different Al Alloys Deposited by Cold Spray Process: *Reza Rokni*[1]; Steve Nutt[1]; [1]University of Southern California

A-32: Modeling the Effects of Texture on Process-structure-property Evolution in Additively Manufactured Metals
: *Judith Brown*[1]; Joseph Bishop[1]; Theron Rodgers[1]; [1]Sandia National Laboratories

A-33: Phase Field Modeling of Solidification Microstructure during Laser Sintering of Inconel 625: *Supriyo Ghosh*[1]; Jonathan Guyer[1]; [1]National Institute of Standards and Technology

A-34: Physics Based Modeling of Laser Powder Bed Fusion Process Applied to Inconel 718: *Ranadip Acharya*[1]; John Sharon[1]; Alexander Staroselsky[1]; Tahany El-Wardany[1]; Vijay Jagdale[1]; Gajawalli Srinivasan[1]; William Tredway[1]; [1]United Technologies Research Center

A-35: Prediction of the Balling Defect by a Mesoscale Transient Model Combining Heat Transfer and Fluid Flow: *Yi Li*[1]; Yousub Lee[1]; Ji-Cheng Zhao[1]; Wei Zhang[1]; [1]The Ohio State University

A-36: Progress toward Predicting Rapidly Solidified Microstructures of Metallic Alloys: *John Roehling*[1]; Aurelien Perron[1]; Jean-Luc Fattebert[1]; Gabe Guss[1]; Manyalibo Matthews[1]; Patrice Turchi[1]; Joseph McKeown[1]; [1]Lawrence Livermore National Laboratory

A-37: Role of Grain Orientation and Prior Beta Grain Structures on the Anisotropic Behavior of Additively Manufactured Ti-6Al-4V Components: Jay Keist[1]; Daudi Waryoba[2]; *Todd Palmer*[1]; [1]Applied Research Laboratory Penn State; [2]Penn State DuBois

A-38: Strengthening of 316L Stainless Steel by the Addition of Nanoparticles: *Bandar AlMangour*[1]; Dariusz Grzesiak[2]; Jenn-Ming Yang[1]; [1]University of California Los Angeles; [2]West Pomeranian University of Technology

A-39: Sub-surface Material Interactions in Laser Polishing Electron Beam Additive Manufactured Ti6Al4V Components: *Yingtao Tian*[1]; Wojciech Gora[2]; Aldara Pan Cabo[2]; Lakshmi Parimi[3]; Duncan Hand[2]; Philip Prangnell[1]; [1]The University of Manchester; [2]Heriot-Watt University; [3]GKN Aerospace

A-40: Sulfuric Acid Corrosion to Simulate Microbial Influenced Corrosion on Stainless Steel 420: *Jacob Miller*[1]; Holly Martin[1]; [1]Youngstown State University

A-41: Synchrotron X-ray Characterization of Powder-bed Fusion Laser Melt Traces on Solid Nickel-based Super Alloy Plates: *Thien Phan*[1]; Lyle Levine[1]; Mark Stoudt[1]; Jarred Heigel[1]; [1]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 Thompson*[1]; Maxim Gussev[1]; Niyanth Sridharan[2]; Mark Norfolk[3]; Kurt Terrani[1]; S. S. Babu[2]; [1]Oak Ridge National Laboratory; [2]The University of Tennessee, Knoxville; [3]Fabrisonic

A-43: Utilization of In Situ Process Monitoring for Determining Consistency in Additive Manufacturing and Flaw Detection: *Jake Raplee*[1]; Suresh Babu[1]; Michael Kirka[2]; Ralph Dinwiddie[2]; Ryan Dehoff[2]; [1]University of Tennessee Knoxville; [2]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 Bourell, University of Texas - Austin; Allison Beese, Pennsylvania State University; James Sears, GE Global Research Center; Reginald Hamilton, Pennsylvania State University; Rajiv Mishra, University of North Texas; Edward Herderick, GE Corporate

Monday PM
February 27, 2017

Room: Hall B1
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 Fischer*[1]; Keenan Jewkes[1]; Scott Kessler[1]; [1]Colorado Mesa University

A-45: A Simulation Framework for Quantifying Uncertainty in the Mechanical Performance of Additively Manufactured Parts: *Kai Wing Kelvin Leung*[1]; Azadeh Keshtgar[1]; Nagaraja Iyyer[1]; [1]Technical Data Analysis Inc.

A-46: Composite Powder Consolidation Using Selective Laser Melting: Input Energy/Porosity Morphology/Balling Effect Relation: Hala Salem[1]; *Hanadi Salem*[1]; Moataz Attallah[2]; [1]The American University in Cairo; [2]University of Birmingham

A-47: Current Process Limitations of Synthetic Rock Fabrication Using Additive Manufacturing: *Kevin Hodder*[1]; John Nychka[1]; Rick Chalaturnyk[1]; [1]University of Alberta

A-48: Design and Additive Manufacturing of a Scale Model Heat Exchanger for Geothermal Applications: *Adrian Sabau*[1]; James Klett[1]; Derek Byrd[1]; Keith Carver[1]; Frederick List III[1]; Yarom Polsky[1]; [1]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 Bonini*[1]; Kaitlyn Mazza[1]; Joan Morra[1]; Ernesto Rios[2]; Kevin Knight[3]; Ho Mei Leung[1]; [1]Lucideon M + P; [2]Renovis Surgical Technologies, Inc.; [3]Knight Mechanical Testing

A-50: Evaluation of Graphene Reinforced Aluminum Prepared by Ball Milling and Selective Laser Melting: Yachao Wang[1]; *Jing Shi*[1]; Shiqiang Lu[2]; [1]University of Cincinnati; [2]Nanchang Hangkong University

A-51: Experimental Technique for Extracting Local Mechanical Behavior from AM Components with Spatially Varying Mechanical Properties for Correlation with FEA Modeling: *Denver Seely*[1]; David Francis[1]; [1]Mississippi State University/Center for Advanced Vehicular Systems

A-52: Exploring the Possibilities of Using Quenching Dilatometry and Dynamic Mechanical Analysis Techniques to Measure Additive Manufactured Materials: *Alexander Makitka*[1]; [1]Linseis

A-53: Feasibility Study of Making ã-TiAl Parts with Electron Beam Melting: Pathway towards Additively Manufacturing Complex Engine Components: *Ercan Cakmak*[1]; Indrani Sen[2]; Peeyush Nandwana[1]; Thomas Watkins[1]; Ryan Dehoff[1]; Roger England[3]; Allen Haynes[1]; [1]Oak Ridge National Laboratory; [2]India Institute of Technology Kharagpur; [3]Cummins Inc.

A-54: In Situ Neutron Diffraction Measurements on Additively Manufactured Stainless Steel: *Bjørn Clausen*[1]; Donald Brown[1]; John Carpenter[1]; Kester Clarke[2]; Amy Clarke[2]; John Bernardin[1]; Dusan Spernjak[1]; James Thompson[1]; [1]Los Alamos National Laboratory; [2]Colorado School of Mines

A-55: In Situ Nondestructive Evaluation for Achieving Closed Loop Feedback Control of Ultrasonic Additive Manufacturing: *Venkata Karthik Nadimpalli*[1]; Li Yang[1]; Peter Nagy[2]; [1]University of Louisville; [2]University of Cincinnati

A-56: Microstructure-property Relations of Additively Manufactured 17-4 PH and 316L Steels: *John Smugeresky*[1]; Josh Sugar[2]; David Keicher[2]; [1]Additive Manufacturing Materials Consultants; [2]Sandia National Laboratories

A-57: Microstructure and Mechanical Properties of Ti-6Al-4V Additively Manufactured by Selective Electron Beam Melting: *H. P. Tang*[1]; Shenglu Lu[1]; Jian Wang[2]; [1]Northwest Institute for Nonferrous Metal Research ; [2]Northwest Institute for Nonferrous Metal Research

A-58: Microstructure Evolution in Additively Manufactured Ti-6Al-4V Alloys: *Joseph McKeown*[1]; Rupalee Mulay[1]; Jeffrey Florando[1]; Mukul Kumar[1]; [1]Lawrence Livermore National Laboratory

A-59: Microstructure, Mechanical and Electrical Properties of Pure Metallic Microstructures Fabricated Using 3D Localized Electrodeposition: *Majid Minary*[1]; [1]University of Texas at Dallas

A-60: Modeling and Testing of 'Fundamental Primitives' in Metal Lattices Fabricated via Electron Beam Melting (EBM): *Rachel Collino*[1]; Tyler Ray[1]; Steven Wehmeyer[1]; Matthew Begley[1]; [1]University of California, Santa Barbara

A-61: Nanomechanical Characterization of Functionally Graded Al-Fe MMC Processed by Additive Friction Stir Processing: *Paul Allison*[1]; Oscar Rivera[1]; Zack McClelland[2]; Jianqing Su[3]; Nanci Hardwick[3]; [1]University of Alabama; [2]US Army ERDC; [3]Aeroprobe Corporation

A-62: Numerical Investigation of Surface Morphology with Different Laser Scanning in Selective Laser Melting: *Yu Che Wu*[1]; Weng Sing Hwang[1]; Cheng Hung San[2]; Yang Shan Lin[2]; Chih Hsiang Chang[2]; [1]National Cheng Kung University (NCKU); [2]Industrial Technology Research Institute (ITRI)

A-63: Particle Charging during Electron-beam Additive Manufacturing: *Zachary Cordero*[1]; Harry Meyer[1]; Peeyush Nandwana[1]; Ryan Dehoff[1]; [1]Oak Ridge National Laboratory

A-64: Physics-based Surrogate Model for Uncertainty Quantification of Single Track Geometry in Selective Laser Melting: *Alexander Wolfer*[1]; Umberto Scipioni Bertoli[2]; Kevin Wheeler[3]; Dogan Timucin[3]; Manyalibo Matthews[4]; Saad Khairallah[4]; Andrew Anderson[4]; Rose McCallen[4]; Julie Schoenung[2]; Jean-Pierre Delplanque[1]; [1]University of California, Davis; [2]University of California, Irvine; [3]NASA Ames Research Center; [4]Lawrence Livermore National Laboratory

A-65: Plasticity and Damage Modeling Capturing Strain-rate and Stress-state Effects of Solid State AFS Additive Manufactured Aluminum Alloys: *Oscar Rivera*[1]; Omar Rodriguez[1]; J. Brian Jordon[1]; Zackery McClelland[2]; Jianqing Su[3]; Nanci Hardwick[3]; Paul Allison[1]; [1]The University of Alabama; [2]US Army ERDC; [3]Aeroprobe Corporation

A-66: Post-processing Effects on AM Pore Geometry: *Richard Fonda*[1]; Amanda Levinson[1]; David Rowenhorst[1]; [1]Naval Research Laboratory

A-67: Powder Bed Monitoring in a Laser Additive Manufacturing System Using a Trained Computer Vision Algorithm: *Luke Scime*[1]; Jack Beuth[1]; [1]Carnegie Mellon University

A-68: Process Parameter Optimization Strategy for Ni-based Superalloy in Electron Beam Melting
Additive Manufacturing: As-built Part Quality and Microstructure: *Yousub Lee*[1]; Mike Kirka[1]; Alfredo Okello[1]; Jake Bultman[1]; Naren Raghavan[2]; John Turner[1]; Ryan Dehoff[1]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

A-69: Processing-structure-property Correlation for Fused Deposition Modeling of Graphene-polylactic Acid Composites: *Pranjal Nautiyal*[1]; Daniela Montero Zambrano[1]; Benjamin Boesl[1]; Arvind Agarwal[1]; [1]Florida International University

A-70: Production and Additive Manufacturing of TiNi Powders by PREP: *Gang Chen*[1]; Jingou Yin[1]; Nan Liu[1]; Huiping Tang[1]; Muhammad Dilawer Hayat[2]; Peng Cao[2]; [1]Northwest Institute for Nonferrous Metal Research; [2]The University of Auckland

A-71: Recylability Study on a Gamma-TiAl Alloy for use in Electron Beam Melting Additive Manufacturing: *Peeyush Nandwana*[1]; Ryan Dehoff[1]; William Peter[1]; [1]Oak Ridge National Laboratory

A-72: Relating Crack Formation to Process Parameters in MarM-247 Fabricated by Electron Beam Melting: Christopher Romanoski[1]; *Michael Kirka*[2]; [1]Vanderbilt University; [2]Oak Ridge National Laboratory

A-73: Report on a Large Collaborative Project Focused on Capturing all AM Process and Build Data for Combination with an ICME Ready Software Environment Driving towards Certification: Will Marsden[1]; *Deborah Mies*[1]; [1]Granta

A-74: Stainless 316L Powder Recyclability and Oxygen Pickup as Applicable to Selective Laser Melting (SLM): *Daniel Galicki*[1]; Fred List[2]; [1]University of Tennessee/Oak Ridge National Laboratory; [2]Oak Ridge National Laboratory

A-75: Systematic Approach to Quantifying the Anisotropic Elastic Modulus of FDM Materials: *Sven Voigt*[1]; James McGuffin-Cawley[1]; Jennifer Carter[1]; [1]Case Western Reserve University

A-76: The Effect of Laser Energy Density on the Microstructure and Mechanical Properties of Ti-6Al-4V alloys by Selective Laser Melting: *Dang Khoa Do*[1]; Peifeng Li[1]; [1]Nanyang Technological University

A-77: The Effect of Surface Finish on Performance in Additive Manufacturing : *Joy Gockel*[1]; [1]Wright State University

A-78: The Interaction between Material and Process Parameters in Additive Manufacturing: *Sneha Narra*[1]; Colt Montgomery[1]; Jack Beuth[1]; [1]Carnegie Mellon University

A-79: Understanding the Role of Process Variables on Mechanical Properties: *Wes Everhart*[1]; Paul Korinko[2]; John Bobbitt[2]; Marissa Reigel[2]; Michael Morgan[2]; [1]Honeywell National Security Campus; [2]Savannah River National Laboratory

A-80: Vapor Bath Treatment of Fused Filament ABS for Fatigue Life Improvement: *Taylor Tosaya*[1]; Michael Maughan[1]; [1]University of Idaho

A-81: Weldability of Direct Metal Laser Sintering (DMLS) Produced Parts: *Bishal Silwal*[1]; [1]Georgia Southern University

A-82: In-Process Layer-by-layer Surface Characterization of Metals Fabricated using Laser Engineered Net Shaping (LENS): *Andrew Kustas*[1]; David Keicher[1]; Michael Brumbach[1]; Brendan Nation[1]; Nicolas Argibay[1]; [1]Sandia National Laboratories

Advanced High-Strength Steels — Poster Session

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

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention 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 Belgasam*[1]; Hussein Zbib[1]; [1]Washington State University

F-2: Atom Probe Tomography Studies of Complex Oxide Formations in Oxide Dispersion Strengthened Steels: *Dallin Barton*[1]; Monica Kapoor[2]; Florian Vogel[1]; B. Chad Hornbuckle[3]; Kris Darling[4]; Gregory Thompson[1]; [1]University of Alabama; [2]National Energy Technology Laboratory; [3]Army Research Laboratory ; [4]Army Research Laboratory

F-3: Carbide Banding Formation and Prevention in 52100 Bearing Steels: Ersoy Erisir[1]; Oguz Bilir[1]; *Ahmet Gezmisoglu*[1]; [1]Kocaeli University

F-4: Cold Deformation Behaviour of Ultrafine-grained Dual Phase Steel Manufactured with Use of a Dynamic Austenite-ferrite Transformation: *Dominik Dziedzic*[1]; Krzysztof Muszka[2]; Janusz Majta[2]; Peter Hodgson[3]; [1]University of Cambridge; [2]AGH University of Science and Technology; [3]Deakin University

F-5: Controlling Springback in Dual-Phase Steels: Milan Agnani[1]; Peter van Liempt[2]; Jilt Sietsma[1]; *Zaloa Arechabaleta*[1]; [1]Delft University of Technology; [2]Tata Steel Research, Development and Technology

F-6: Design of Ultra-high-strength Fe-Cr-Mn-Ni-N-C Stainless Steels with Enhanced Ductilities: *Marco Wendler*[1]; Michael Hauser[1]; Olena Volkova[1]; Javad Mola[1]; [1]TU Freiberg

F-7: Effect of Austenite Grain Size on Deformed Microstructures and Tensile Properties of Austenitic Fe-24.5Mn-4Cr-0.45C Alloy: *Sang-In Lee*[1]; Hyeon-Seok Lim[1]; Byoungchul Hwang[1]; [1]Seoul 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 Tin*[1]; [1]Illinois Institute of Technology

F-9: Effect of Plastic Deformation at Elevated Temperatures on the Hardenebility of Boron Steels: *Mehmet Özyigit*[1]; [1]Eregli Iron & Steel Works, Co

F-10: Effects of Deformation on Hydrogen Solubility and Diffusion in Al-alloyed Fe-Mn Alloys: *Claas Hüter*[1]; Siaufung Dang[1]; Xie Zhang[2]; Albert Glensk[2]; Robert Spatschek[1]; [1]Forschungszentrum Jülich; [2]MPIE

F-11: Effects of Microstructure on the Strain Rate Sensitivity of Advanced Steels: *Rakan Alturk*[1]; Steven Mates[2]; Fadi Abu-Farha[1]; Zeren Xu[1]; [1]Clemson University; [2]National Institute of Standards and Technology

F-12: Excellent Mechanical Properties Balance of Fine 0.1C-2Si-5Mn Fresh Martensite and Ferrite+Austenite Steels: *Shiro Torizuka*[1]; [1]University 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 Zhang*[1]; Yandong Wang[1]; Longfei Li[1]; Qingbao Wu[1]; Fangmin Guo[2]; Yang Ren[2]; [1]University of Science and Technology Beijing; [2]Argonne National Laboratory

F-14: Influence of Asymmetrical Cold Rolling on Crystallographic Texture of σ-TRIP Steels: *Ramón Botelho*[1]; Eustáquio Baêta[1]; Leonardo Araujo[2]; Luiz Paulo Brandao[1]; [1]IME; [2]Coppe, UFRJ

F-15: Investigating Deformation Mechanisms in TWIP by Marciniak Multiaxial Testing: *Brian Lin*[1]; Adam Creuziger[1]; Timothy Foecke[1]; [1]National Institute of Standards and Technology

F-16: Mechanical Evaluation of Hypo and Hypereutectic Chromium Carbide Hard Facing Steel: *Yasser Fouad*[1]; Bakr Rabeeh[2]; Hamad Alharbi[1]; [1]King Saud University; [2]German University in Cairo

F-17: Microstructure-based Modeling of Tensile Properties in High-strength Pipeline Steels: *Byoungchul Hwang*[1]; Sang-In Lee[1]; Seung-Yong Lee[1]; Hwan Gyo Jung[2]; [1]Seoul National University of Science and Technology; [2]POSCO

F-18: Microstructure and Mechanical Properties of GMAW Welds in TWIP Steels: *Alexander Zaddach*[1]; Yen-Chih Liao[1]; Zhaoqian Liu[1]; Carlos Cardenas[2]; Diego Lozano[2]; [1]Lincoln Electric; [2]Metalsa

F-19: Modeling the Interplay between Transformation and Plasticity in Low-carbon Steels. A Micro-level Constitutive Model / RVE Approach: *Manuel Petersmann*[1]; Georges Cailletaud[2]; Thomas Antretter[1]; [1]Montanuniversitaet Leoben; [2]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*[1]; Davood Shariari[1]; Mohammad Jahazi[1]; [1]ETS

F-21: Multi-stage Martensitic Phase Transformation in Steel/Copper Nanolaminates: An In Situ X-ray Study: *Kaiyuan Yu*[1]; Yadong Ru[1]; Yang Ren[2]; Lishan Cui[1]; [1]China University of Petroleum-Beijing; [2]APS, Argonne National Laboratory

F-22: Orientation Dependence of Microstructure and Texture Evolution during Tensile Testing of a TWIP Stainless Steel: *Reza Rahimi*[1]; Olena Volkova[1]; Horst Biermann[2]; Javad Mola[1]; [1]Technical University of Freiberg-Institute of Iron and Steel Technology; [2]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*[1]; Vishnu Sharma[1]; Malay Banerjee[1]; [1]MNIT Jaipur

F-24: Role of Initial Microstructure in Micro Constituents of Dual Phase Steels: *Ersoy Erisir*[1]; Oguz Bilir[1]; [1]Kocaeli University

F-25: Roles of Soft/Hard Phases and Their Grain Size on Mechanical Properties of Ferrite + Martensite Dual Phase Steels: Myeong-heom Park[1]; Akinobu Shibata[1]; Wu Gong[2]; Stefanus Harjo[3]; Takuro Kawasaki[3]; Yu Bai[1]; *Nobuhiro Tsuji*[1]; [1]Kyoto Univ; [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University; [3]JAEA J-PARC Center

F-26: Tension-Compression Asymmetry and Relationships to the Microstructure in Advanced High Strength Steels: *Jun Hu*[1]; Fadi Abu-Farha[1]; [1]Clemson University

F-27: Nano-sized Intermetallic Kappa Phase Strengthening in Al-alloyed Steels for Automotive Applications: *Wenwen Song*[1]; Wolfgang Bleck[1]; [1]RWTH Aachen University

Advanced Materials for Energy Conversion and Storage — Poster Session

Program Organizer: Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc.

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

D-1: Perylene Polyimides-based Cathode Materials for High-capacity and Long-cycle Secondary Lithium-ion Batteries: *Michael Rubyraj*[1]; Ramalinga Viswanathan Mangalaraja[1]; Sambandam Anandan[2]; [1]University of Concepcion; [2]National Institute of Technology

D-2: Tunable Oxygen-deficient Li4Ti5O12 Structure for High-performance Rechargeable Li-ion Batteries: *Ralph Nicolai Nasara*[1]; Shih-kang Lin[1]; [1]National Cheng Kung University

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
February 27, 2017

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[1]; *Jorge Tenório*[1]; Denise Espinosa[1]; [1]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*[1]; Mónica Correa[1]; Flávia Silvas[1]; Jorge Tenório[1]; Denise Espinosa[1]; [1]University of São Paulo

D-6: Evaluation of the Silver Recovery from Solid Industrial Wastes in an Electrochemical Reactor: *Pedro Ramirez Ortega*[1]; Victor Reyes Cruz[2]; Maria Veloz Rodriguez[2]; Laura Garcia Hernandez[1]; [1]Universidad Tecnológica de Tulancingo; [2]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[1]; Shuming Wen[1]; Kun Yang[1]; *Shaojun Bai*[1]; [1]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*[1]; Juan Betancur Pulgarin[1]; Juan Sanchez Echeverri[1]; [1]Universidad Nacional de Colombia

D-9: Chemical Reduction of Fe(III) in Nickel Lateritic Wastewater to Recover Metals by Ion Exchange: Amilton Botelho Junior[1]; Monica Jimenez[1]; Denise Espinosa[1]; *Jorge Tenório*[1]; [1]University of São Paulo

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 naional Laboratory

Monday PM
February 27, 2017

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*[1]; [1]FEI

B-2: Fidelity in Gas Dynamics Simulations: *James Kahelin*[1]; [1]San Diego State University

B-3: Numerical Simulation of Ultrasonic Propagation in Calcium Ferrite Melt: *Ruirui Wei*[1]; [1]Chongqing University

B-4: Ab Initio Scaling Laws for the Formation Energy of Interstitial Defect Clusters in Body-centered-cubic Metals: *Mihai-Cosmin Marinica*[1]; [1]DEN-Service 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*[1]; Marko Knezevic[1]; [1]University of New Hampshire

B-6: Finite Element Prediction of Single Particle Cold Spray Impact: *Jeremy Schreiber*[1]; Ivi Smid[1]; Timothy Eden[1]; Victor Champagne[2]; [1]Penn State University; [2]U.S. Army Research Laboratory

B-7: Numerical Simulation of the Mechanical Behavior of Zr-Nb Alloys over a Wide Range of Strain Rates: *Evgeniya Skripnyak*[1]; Natalia Skripnyak[1]; Vladimir Skripnyak[1]; [1]National Research Tomsk State University

B-8: Probabilistic Homogenization of Microstructure-Sensitive Crystal Plasticity and Fatigue Crack Nucleation Models for Ti Alloys: *Deniz Ozturk*[1]; Shravan Kotha[1]; Somnath Ghosh[1]; [1]Johns 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
February 27, 2017

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 Liu*[1]; [1]Xi'an University of Architecture and Technology

B-10: Comprehensive Investigation of Solute Diffusion and Flux Coupling with Point Defects in bcc Iron Alloys: *Luca Messina*[1]; Maylise Nastar[1]; Pär Olsson[2]; Nils Sandberg[3]; [1]CEA Saclay; [2]KTH Royal Institute of Technology; [3]SSM Strålsäkerhetsmyndigheten

B-11: Control Technique Study of Non-metallic Inclusions in Low Carbon Steel by Rare Earth Final Deoxidization: *Peng Bowen*[1]; [1]Shanghai University

B-12: Developing Iridium-based Alloys as Effective Catalysts for Direct Ethanol Fuel Cells: *Lida Mehdizadegan Namin*[1]; Nathaniel Deskins[1]; Koretaka Yuge[2]; [1]Worcester Polytechnic Institute; [2]Kyoto University

B-13: Effect of Cooling Rate on Phase Transformation and Microstructure Evolution in a Large Size Forged Ingot of Medium Carbon Low Alloy Steel: *Emna Ben Fredj*[1]; Hadi Ghasemi Nanesa[1]; Davood Shahriari[1]; Jean-Benoit Morin[2]; Mohammad Jahazi[1]; [1]ÉTS; [2]FINKL STEEL - SOREL

B-14: First-principles Study on Interface Segregation for MoSi2-Mo5Si3 Pseudobinary Alloys
: *Koretaka Yuge*[1]; Toshihiro Yamazaki[2]; Yuichiro Koizumi[2]; Kyosuke Kishida[1]; Haruyuki Inui[1]; [1]Department of Materials Science and Engineering, Kyoto Univ.; [2]Tohoku University

B-15: Formation and Control of CaS Inclusion in Gear Steel 20MnCr5: *Xu Jie*[1]; Fu Jianxun[1]; Wu Yanxin[1]; Li Xu[1]; [1]Shanghai University

B-16: Kinetics of the a/□ Interface Migration in Fe-Mn and Fe-Ni Alloys: *Jianing Zhu*[1]; Hao Chen[1]; Chi Zhang[1]; Zhigang Yang[1]; Haiwen Luo[2]; [1]Tsinghua University; [2]University of Science&Technology Beijing

B-17: Investigations on the Mechanical Deformation of Amorphous Alloy Nanowires Using Phase-field Modeling and Thermodynamics Avalanche Models: *G.P. Zheng*[1]; [1]Hong Kong Polytechnic University

B-18: Modeling of the Molar Volume of the Al-Co-Ni-W System: *Ursula Kattner*[1]; Eric Lass[1]; Peisheng Wang[1]; [1]National Institute of Standards and Technology

B-19: Morphological Stability of Rods: *Fei Wang*[1]; Oleg Tschukin[1]; Michael Selzer[1]; Britta Nestler[1]; [1]Karlsruhe Institute of Technology

B-20: Role of the Particle Morphology on the Zener Pinning Effect: A Phase-field Approach: *Kunok Chang*[1]; Junhyun Kwon[1]; Chgan-Kyu Rhee[1]; [1]Korea Atomic Energy Research Institute

B-21: Strain Functionals for Characterizing Atomistic Simulations and Potential Functions: *Edward Kober*[1]; Sven Rudin[1]; [1]Los Alamos National Laboratory

B-22: Studies on the Effect of Solution Heat Treatment on Surface and Subsurface Microstructure in Single Crystal Superalloys: *Dimitra Spathara*[1]; Duncan Putman[2]; Nils Warnken[1]; [1]University of Birmingham; [2]Rolls-Royce Plc.

B-23: The Environment Dependent Dynamic Charge Potential for III-V Materials: *Abduljabar Alsayoud*[1]; Abu Asaduzzaman[1]; Keith Runge[1]; Pierre Deymier[1]; Krishna Muralidharan[1]; [1]University of Arizona

B-24: Thermodynamic Modeling of Al-Fe-Cr Ternary System: *Shusen Wang*[1]; Zhu Li[1]; Zhiwei Qin[1]; Shihua Wang[1]; Xionggang Lu[1]; Chonghe Li[1]; [1]Shanghai University

B-25: Thermodynamically Based Comparisons of GMCE Refrigerant Performance: *Timothy Brown*[1]; Patrick Shamberger[1]; [1]Texas 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
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

D-10: Indium Extraction of Obsolete LCD Screen: Gabrielle Jimenez[1]; Viviane Moraes[1]; *Jorge Tenório*[1]; Denise Espinosa[1]; [1]USP

D-11: Alternative Method for Materials Separation from Crystalline Silicon Photovoltaic Modules: Pedro Forastieri de Almeida Prado[1]; *Jorge Alberto Soares Tenório*[1]; Denise Crocce Romano Espinosa[1]; [1]University of São Paulo

D-12: Calcium Aluminate Cement Paste Blended with Steel Slag: *John Zapata*[1]; Alexandra Loaiza[1]; Henry Colorado[1]; [1]Universidad de Antioquia

D-13: Structure-Property Relation Of Asphalt Blended With Electric Arc Furnace Dust (EAFD): *Yailuth Loaiza Lopera*[1]; Henry Colorado Lopera[1]; [1]Universidad de Antioquia

D-14: Preparation Study of Ceramic Materials with Red Mud and Flying Ash as Raw Materials: *Chen Shichao*[1]; [1]Beijing Shenwu Environment & Energy Technology Co.,Ltd.

D-15: Research on Optimization of Sintering Mixture with Low-grade Complex Ore: *Yutsuan Ding*[1]; Zizong Zhu[1]; Zhiqiang Zhou[1]; Hao Xiong[1]; [1]College of Material Science and Engineering, Chongqing University

D-16: Bioleaching Process for Metal Recovery from Waste Materials: *Solange Utimura*[1]; Carlos Rosario[1]; Jorge Tenório[1]; Denise Espinosa[1]; [1]University of São Paulo

D-17: The Characterization of Hydrotalcite-like Compounds Derived from Blast Furnace Slag : Synthesis, Flame Retardancy: *Jian Peng*[1]; Hongwei Guo[1]; Kang Wan[1]; Peng Li[1]; Bingji Yan[1]; Jinyue Wang[1]; [1]Soochow University

D-18: Study on Adsorption Performance of Ammonia by Zeolite Synthesized from Blast Furnace Slag: *Lizheng Tang*[1]; Hongwei Guo[2]; Kang Wan[2]; Peng Li[3]; Bingji Yan[2]; Jinyue Wang[2]; [1]University of Science and Technology of Beijing; [2]Soochow University; [3]Soochow university

D-19: Preparing Ferrosilicon Alloy with Copper Slag: *Ruirui Wei*[1]; [1]Chongqing University

D-20: Chemical Analysis of Sludge Originating from Industrial Painting Performed in Brazil: *Rita Alvarenga*[1]; Henrique Santos[1]; Beatryz Mendes[1]; [1]Universidade Federal de Viçosa

D-21: Removal of Magnesium from Liquor Produced by Nickel Mining by Crystallization: *Kristine Wanderley*[1]; Jorge Tenório[1]; [1]University of São Paulo (USP)

Energy Materials 2017: Energy and Environmental Issues in Materials Manufacturing and Processing — Poster Session

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

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

C-1: Preparation of Battery-grade Ferrous Oxalate by Screening of Reaction Conditions: Keyu Zhang[1]; Xiaoyan Yang[1]; Jian Wu[1]; *Yaochun Yao*[1]; [1]Kunming University of Science and Technology

C-2: Synthesis and Characterization of Electrodes Made from Banana Peel for Multivalent Batteries: Tazmin Mumu[1]; *Ramesh K. Guduru*[1]; [1]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; Zhengdong Liu, China Iron & Steel Research Institute Group; Sebastien Dryepondt, Oak Ridge National Laboratory

Monday PM
February 27, 2017

Room: Hall B1
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 Urban[1]; *Christian Elsaesser*[1]; [1]Fraunhofer IWM Freiburg

C-4: Effect of High-frequency Induction Hardening on Stress Corrosion of a 12% Cr Martensitic Stainless Steel: *Tong Kang*[1]; [1]Dongfang Steam Turbine Works

C-5: Fireside Corrosion Behaviors of Inconel 740 H Superalloy in Various SO2 Contents: *Jintao Lu*[1]; [1]Xi' an Thermal Power Research Institute Co., Ltd.

C-6: High Cycle Fatigue Behavior of HAYNES282 Superalloy: *Ming Yang*[1]; [1]Dongfang Electric Corporation. Don gfang Turbine Co.LTD

C-7: Recent Development in the Characteristics of Alloy 625 for A-USC Steam Turbine Castings: *Wenlong Yu*[1]; Songfeng Liu[1]; Yu Wang[1]; Lingen Sun[1]; [1]Shanghai Turbine Company, Ltd.

C-8: The Effect of W and Mo Addition on the Microstructure and Mechanical Properties of GY200 Ni-based Alloy: *Zhihua Gong*[1]; Gang Yang[2]; [1]Inner Mongolia University of Science & Technology; [2]Central Iron and Steel Research Institute

Energy Materials 2017: Materials for Energy Conversion with Emphasis on SOFC — Poster Session

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
February 27, 2017

Room: Hall B1
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 Chair: To Be Announced

C-9: Composition Effects on the Characteristics of Glass Sealants for Intermediate Temperature Solid Oxide Fuel Cell Applications: *Sea-Fue Wang*[1]; Yung-Fu Hsu[1]; Zu-You Liu[1]; [1]National Taipei University of Technology

C-10: Effect of Sn on the Microstructure and Mechanical Properties of AM90 Extruded Alloy: *K Song*[1]; FS Pan[2]; LB Wang[1]; CH Duan[1]; Hua Du[1]; Ying Luo[1]; J She[1]; L Wu[1]; [1]Nuclear Power Institute of China; [2]Chongqing University

Energy Materials 2017: Materials for Gas Turbines — Poster Session

Program Organizers: Jeffrey Fergus, Auburn University; Ji Zhang, China Iron and Steel Research Institute Group

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

C-11: Effect of Thermal Debinding and Sintering Conditions on Mechanical Properties of Silica-based Ceramic Cores: *Jeong-gu Yeo*[1]; JeongSoo Park[1]; Young-Hwan Kim[1]; [1]Korea Institute of Energy Research

C-12: Microstructures and Deposition Mechanisms of Thermal Barrier Coatings Produced by PS-PVD: *Xiaohu Yuan*[1]; [1]DongFang Turbine co., LTD., DongFang Electric Corporation

C-13: Mullitization of Fused Silica on Silica-based Ceramic Cores by Colloidal Alumina Infiltration: *Jeong-gu Yeo*[1]; JeongSoo Park[1]; Young-Hwan Kim[1]; [1]Korea Institute of Energy Research

C-14: Solidification Behavior and Microstructure of Inconel 625 Superalloy under Electromagnetic Field: Tao Wang[1]; Fei Wang[1]; *Engang Wang*[1]; [1]Northeastern University, China

C-15: Study on the Undercoolability and Single Crystal Castability of Nickel-Based Superalloys: *Wang Haiwei*[1]; Ma De-Xin[1]; Yang Gong-xian[1]; Gong Xiu-fang[1]; Zhang Qiong-yuan[1]; [1]Dongfang Turbine Co.,LTD

C-16: Temperature Dependence of the Fracture Behavior of X-750 alloy and Effect of Heat Treatment: *Christopher Marsh*[1]; Djamel Kaoumi[2]; [1]University of South Carolina; [2]North Carolina State Univeristy

Energy Materials 2017: Materials for Nuclear Energy — Poster Session

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
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: Raul Rebak, GE Global Research

C-17: Effect of Heat Treatments on the Microstructure and Mechanical Properties of Zr-1NB-1SN-0,1Fe Alloy used in the Nuclear Industry: Dielle Costa[1]; Daniele Baeta[1]; Monica Rezende[1]; *Neil Medeiros*[1]; [1]UFF

C-18: Effects of Irradiation on Thermal Conductivity of Nickel Alloys: Mandeep Singh[1]; *Linu Malakkal*[2]; Aseem Chauhan[2]; Jerzy Szpunar[2]; Michael P Bradely[2]; M Chicoine[3]; [1] PEC University of Technology; [2]University of Saskatchewan; [3]University of Montreal

C-19: Reduced Deuterium Retention in Simultaneously Damaged and Annealed Tungsten: *Michael Simmonds*[1]; Yongqiang Wang[2]; Russell Doerner[1]; Joseph Barton[1]; Matthew Baldwin[1]; George Tynan[1]; [1]Center for Energy Research at UCSD; [2]Los Alamos National Laboratory

C-20: Studies of the Differential Thermal Analysis and Microstructural Characterization of Gd-containing Stainless Steel: *Wu Zhaoyu*[1]; Xiao Xueshan[2]; [1]Panzhihua University; [2]Shanghai University

Energy Materials 2017: Materials in Clean Power — Poster Session

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
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

C-21: Novel Hydrogen Storage Reaction Pathway of LiBH4+MgH2 Mixtures Enabled by Ball Milling and Aerosol Spraying: *Zhao Ding*[1]; Leon L. Shaw[1]; Jie Li[1]; [1]Illinois Institute of Technology

C-22: Pyrolysis of Different Wood Species Investigated by TGA-GC-MS: *Ekkehard Post*[1]; [1]NETZSCH Geraetebau GmbH

Energy Technologies — Poster Session

Program Organizers: Lei Zhang, University of Alaska Fairbanks ; Jaroslaw Drelich, Michigan Technological University; Neale Neelameggham, Ind LLC; Donna Guillen, Idaho National Laboratory; Nawshad Haque, CSIRO; Jingxi Zhu , Carnegie Mellon University; Ziqi Sun, Queensland University of Technology; Tao Wang, Nucor Steel; John Howarter, Purdue University; Fiseha Tesfaye, Åbo Akademi University

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

D-22: AC Analysis of Impedancemetric, Electrochemical NOx Sensors for Emission Control: *Andrew Marshall*[1]; Ling Cui[2]; Joe Fitzpatrick[2]; Brett Henderson[2]; Robert Novak[3]; Jaco Visser[3]; Victor Wang[2]; Leta Woo[2]; Jud Ready[1]; [1]Georgia Institute of Technology; [2]CoorsTek Sensors; [3]Ford Motor Company

D-23: Effect of Granularity on Pretreatment of Coke with Microwave Irradiation: *Qing-hai Pang*[1]; Zhi-jun He[1]; [1]University of Science and Technology Liaoning

D-24: Effect of Microwave and Ultrasonic Coupling Treatment on Granularity and Microstructure of Pulverized Coal: Zhi-jun He[1]; *Qing-hai Pang*[1]; [1]University of Science and Technology Liaoning

D-25: Influence of Sodium on Coke Microstructure in Different Reaction Atmosphere: Zhijun He[1]; *Wenlong Zhan*[1]; Junhong Zhang[1]; Qinghai Pang[1]; Sen Zhang[1]; Chen Tian[1]; [1]University of Science and Technology Liaoning

D-26: The Energy Efficiency Studies Of Aluminium Electrolysis Cells: *Eda Ergun Songul*[1]; Ismail Duman[2]; [1]Istanbul University; [2]Istanbul Technical University

Friction Stir Welding and Processing IX — Poster Session

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

Monday PM
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Room: Hall B1
Location: San Diego Convention Center

Session Chair: Yuri Hovanski, Brigham Young University

A-83: Effect of Friction Stir Welding on the Microstructure of Hypereutectic Al-Si Alloy: *Peng Hua*[1]; Lichao Cao[1]; Xianfen Li[1]; [1]Hefei University of Technology

A-84: Effect of Morphological Characteristics of Intermetallic Compounds on Mechanical and Metallurgical Properties of Aluminium A6061- 304 Steel Joint: *Jhonathan Alfonso Salazar*[1]; Edward A Torres Lopez[1]; Henry A Colorado[1]; [1]University of Antioquia

A-85: Effect of Multi-pass Friction Stir Processing on Metal Matrix Composite: *Vipin Sharma*[1]; Raghvendra Singh[1]; Yashpal Gupta[1]; Suresh Kumar[2]; B. V. Manoj Kumar[1]; Ujjwal Prakash[1]; [1]Indian Institute of Technology Roorkee; [2]Thapar University

A-86: Effect of Tool Shoulder Feature on Heat Generation and Material Flow of Friction Stir Welded Al-Mg-Si Alloy: *Krishna Mugada*[1]; Adepu Kumar[1]; [1]NIT Warangal

A-87: Fabrication and Characterization of Al/Al2O3-SiC Hybrid Surface Nano Composite by Friction Stir Process: *Parumandla Naresh*[1]; Adepu Kumar[1]; [1]National Institute of Technology

A-88: Fatigue-Strength Increase by Friction Stir Processing between Different Strength Grades of Butt-Welded High-Tensile Steels: *Hajime Yamamoto*[1]; Kazuhiro Ito[1]; Makoto Takahashi[1]; Kazuyuki Kohama[1]; Hidetoshi Fujii[1]; [1]Joining and Welding Research Institute, Osaka University

A-89: Friction Stir Welding of Dissimilar Metals: *Xiangbin Wang*[1]; Yi Pan[1]; Diana Lados[1]; [1]Worcester Polytechnic Institute, Integrative Materials Design Center

A-90: Effect of Heat Treatment on Friction-stir-processed Nanodispersed AA7075 and 2024 Al Alloys: Iman El-Mahallawi[1]; Mohamed Ahmed[2]; Amir Mahdy[3]; Abdelrahman Abdelmotagaly[4]; Wael Hoziefa[5]; *Mohamed Refat*[6]; [1]Cairo University; [2]Suez and Sinai Metallurgical and Materials Research Center of Scientific Excellence (SSMMR-CSE); [3]Al-Azhar University; [4]Centre for Advanced Materials; [5]Al-Azhar University ; [6]The British University in Egypt

A-91: Circumferential Tool Path Control for Friction Stir Spot Welding of Thin Al/Fe Dissimilar Metal Joint: *JinYoung Yoon*[1]; Cheolhee Kim[2]; Sehun Rhee[1]; [1]Hanyang University; [2]KITECH

A-92: Numerical Analysis of FSW Employing Discrete Element Method: *Kenta Mitsufuji*[1]; Masahito Nambu[1]; Fumikazu Miyasaka[1]; [1]Osaka University

A-93: Multipass-friction Stir Processing (MFSP) of Ti-6Al-4V Alloy and Investigation of Flow Properties: *Sandip Chougule*[1]; Digvijay Sheed[1]; Rajkumar Singh[1]; Nithyanand Prabhu[2]; Bhagwati Kashyap[2]; Kaushal Jha[3]; [1]Bharat Forge ltd.; [2]Indian Institute of technology, Bombay; [3]Bhabha Atomic Research Centre, Mumbai

GAT-2017 (Gamma Alloys Technology - 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-Geesthacht; Dennis Dimiduk, BlueQuartz Software, LLC

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Room: Hall B1
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 Machanical Behavior of TC4/TiAl Welded Joints: *Chengli Dong*[1]; [1]AECC/BIAM

F-30: Flow Stress Behavior of Ti-45Al-12Nb Alloy with Ultrafine Grains during Hot Compression Deformation: *Hua Chen*[1]; Xue Bo Gong[1]; [1]Changchun University of Technology

F-31: Influence of Hot Processing Parameters on Dynamic Recrystallization Behavior of Ti-47Al-2Nb-2Cr Alloy: *Lianxi Hu*[1]; Zhipeng Wan[1]; Yu Sun[1]; [1]Harbin Institute of Technology

F-32: Phase Equilibria of β/β_0 in Ti-Al and Ti-Al-(5, 8)Nb Systems: *Yong Xu*[1]; Meijie Yu[2]; Rongfu Xu[1]; Xianzhong Wang[1]; Zhigang Wang[1]; Yongfeng Liang[3]; Junpin Lin[3]; [1]Shandong Jianzhu University; [2]Shandong University; [3]University of Science and Technology Beijing

F-33: Vacuum Brazing of Ti-48Al-2Cr-2Nb: *Yusheng Cai*[1]; Renci Liu[1]; Dong Liu[1]; Yuyou Cui[1]; Rui Yang[1]; [1]Institute 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*[1]; Jongmoon Park[1]; Kiyoung Kim[2]; Kyoungkyun Kim[2]; Ho Seung Jang[1]; Younghwan Hong[3]; [1]Kumoh National Institute of Technology; [2]Asan Friction Welding Co., Ltd; [3]Suwon Science College

F-35: Microstructure and Mechanical Properties of Powder Metallurgy Ti-22Al-25Nb Alloy Fabricated by Hot-pressing Sintering: *Yu Sun*[1]; Heng Zhang[1]; Siqiu Wang[1]; Lianxi Hu[1]; [1]Harbin Institute of Technology

F-36: Study on Milling of a TiAl Alloy under Minimum Quantity of Lubrication Condition: Sajjad Kolahdouz[1]; *Siavash Zamani*[1]; Fatemeh Heydari[1]; Ali Bakhshi[1]; [1]MAPNA 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: *Kwang Soo Choi*[1]; Joon Sik Park[1]; S. Yi[2]; Fan Zhang[3]; Y. B. Song[4]; [1]Hanbat National University; [2]Kyungpook National University; [3]CompuTerm, LCC; [4]Agency for Defense System

F-38: Observation of Modulated Structure in High Nb-containing TiAl Alloy by Synchrotron Radiation and Electron Microscopy: *J. Sun*[1]; [1]Shanghai 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*[1]; Seung-Hwa Ryu[2]; Jaemin Kim[2]; Young-Sang Na[1]; Seung-Eon Kim[1]; Jong-Taek Yeom[1]; Andrew Minor[3]; [1]Korea Institute of Materials Science (KIMS); [2]KAIST; [3]Lawrence Berkeley National Laboratory

F-40: TiAl-based Intermetallic Alloy with Addition of Zirconium: *Sangwoo Kim*[1]; Hyouk-Chon Kwon[1]; Hyo-soo Lee[1]; [1]Korea Institute of Industrial Technology

F-41: Plastic Deformation Behaviour and Crack Initiation Mechanisms of γ-TiAl in High Temperature, High Cycle Fatigue: *Thomas Edwards*[1]; Fabio Di Gioacchino[1]; Nigel Martin[2]; Mark Dixon[2]; William Clegg[1]; [1]Department of Materials Science and Metallurgy, University of Cambridge; [2]Rolls-Royce plc

F-42: Interficial Reaction between TiAl Alloy and Ca(Y)-doped BaZrO3 Crucible: *Hao Zhang*[1]; Mingyang Li[1]; Baotong Li[1]; Guangyao Chen[1]; Ziwei Qin[1]; Xionggang Lu[1]; Chonghe Li[1]; [1]Shanghai University

F-43: Atom Probe Investigation of the Partitioning of Impurities in TiAl Alloy: *Gong Zheng*[1]; Zhixiang Qi[1]; Yingbo Peng[1]; Guang Chen[1]; [1]Nanjing 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 Dahar*[1]; Thomas Podbesek[2]; Sesh Tamirisakandala[2]; John Lewandowski[1]; [1]Case Western Reserve University; [2]Alcoa Titanium & Engineered Products

F-45: Fine Structure of Ordinary Dislocation Dipoles and their Evolution in Deformed Gamma-TiAl via Atomistic Simulations: Yan He[1]; Zhao Liu[1]; *Hao Wang*[1]; Dongsheng Xu[1]; Rui Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

F-46: Hot Working Behavior and Microstructural Evolution of As-cast Ti-42Al-5.5Mn Alloy: *Hao Xu*[1]; Bo Chen[1]; Yingche Ma[1]; Lei Shu[1]; Kui Liu[1]; [1]Institute of Metal Research

F-47: Hot Deformation Behavior of Powder Metallurgical TiAl Alloy: *Na Liu*[1]; [1]Beijing Institute of Aeronautical Materials

F-48: Gamma Phase Nucleation from Stacking Fault in TiAl Alloys: *Chunyu Teng*[1]; Yonghong Li[1]; Zhanyong Ren[1]; Dongsheng Xu[2]; Rui Yang[2]; [1]China Aero-Polytechnology Establishment; [2]Institute 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*[1]; Yong Xu[2]; Xiangjun Xu[3]; Jianping He[1]; Yongfeng Liang[1]; Junpin Lin[1]; [1]University of Science and Technology Beijing; [2]Shandong Jianzhu University; [3]Zhongyuan University of Technology

F-50: High-energy Synchrotron Radiation Investigation of the Massive Transformation in a Ti-Al-Nb-Ta Alloy: *Marcus Willi Rackel*[1]; Andreas Stark[1]; Gleb Dovzhenko[1]; Florian Pyczak[1]; [1]Helmholtz-Zentrum Geesthacht

F-51: Characterization of Thermal Deformation Behavior of a Novel Ti-47Al-Cr-2Mn-0.5Fe- 0.05Y Alloy: *Xiaopeng Wang*[1]; Fantao Kong[1]; Qin Sun[1]; Yu Zhang[1]; Shouzhen Cao[1]; Yuyong Chen[1]; [1]Harbin Institute of Technology

F-52: Microstructure and Mechanical Properties of High Nb Containing TiAl Alloy Sheets: *Fantao Kong*[1]; [1]Harbin Institute of Technology

F-53: Multi-direction Forging and Superplastic Deformation Characteristic of High Nb Containing TiAl Alloys: *Bin Tang*[1]; [1]Northwestern Polytechnical University

F-54: Properties at High Temperatures of the IRIS Alloy Densified by Spark Plasma Sintering: *Soumaya Naanani*[1]; Jean-Philippe Monchoux[1]; Catherine Mabru[2]; Alain Couret[1]; [1]Cemes; [2]ICA (Institut Clément Ader), ISAE, Université de Toulouse

F-55: Effect of Al Content on the Microstructure and Tensile Properties of Cast Ti-xAl-15Nb-1Mo Alloy: *Liangliang Liu*[1]; Dong Liu[1]; Yuyou Cui[1]; Rui Yang[1]; [1]The 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
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

JOB-1: About Me, Yi-Hung Chen: E-Wen Huang[1]; *Yi-Hung Chen*[1]; [1]National Chiao Tung University

JOB-2: Computational Researcher Specialized in Phase Formation Theory and Characterization of Multi-component Alloys: *Changning Niu*[1]; [1]Ohio State University

JOB-3: Experimental Material Scientist with Microscopy and Diffraction Tools: *Raghavendra K G*[1]; [1]Indira Gandhi Centre for Atomic Research, Homi Bhabha National Institute

JOB-4: Exploration of Structure Property Relationships as Seen by a Beyond Her Years Millennial: *Christina Cox*[1]; [1]Oak Ridge National Laboratory

JOB-5: Future Reliability Engineer of Lead-Free System: *Cong Zhao*[1]; [1]Auburn university

JOB-6: Looking for a Faculty Position in Material Modeling: *Shengfeng Yang*[1]; [1]University of California, San Diego

JOB-7: Looking for a Post-doctoral Position in Computational Shock-physics: *Anupam Neogi*[1]; [1]IIT Kharagpur

JOB-9: Microstructural Evolution and Mechanical Response of Materials by Design and Modeling: *Aniket Dutt*[1]; [1]University of North Texas

JOB-10: My Aspirations, My Background, My World: *Alec Affolter*[1]; [1]University of Tennessee

JOB-11: My Background and Ability: *Tsung-Ruei Sui*[1]; [1]National Chiao Tung University

JOB-12: Silicon Purification and Growth from Si-based Alloy: Lifeng Zhang[1]; *Yaqiong Li*[1]; [1]University of Science and Technology Beijing

JOB-13: Solidification Microstructures in Nickel Alloy 718 and Other Materials Research: *Thomas Ivanoff*[1]; [1]University of Texas at Austin

Materials and Fuels for the Current and Advanced Nuclear Reactors VI — Poster Session

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
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

G-1: Effects of Added Molybdenum on Corrosion of 3l6L Stainless Steel: *Tahsin Rahman*[1]; J. E. Indacochea[1]; W. L. Ebert[2]; [1]University of Illinois at Chicago; [2]Argonne National Laboratory

G-2: Fabrication and Microstructures of Burnable Absorber-cored Oxide Pellets for Advanced Nuclear Fuel: *Qusai Mistarihi*[1]; Yong Kim[1]; Ho Ryu[1]; [1]Korea Advanced Institute of Science and Technology

G-3: Diffusion Studies in the Development of an FCCI Barrier for High-Burnup Metallic Nuclear Fuel: *Daniel Eichel*[1]; James Vollmer[1]; [1]TerraPower, LLC

G-4: Irradiated Materials Characterization Laboratory at Idaho National Laboratory: *Lingfeng He*[1]; Brandon Miller[1]; Dean Blanton[1]; Karen Wright[1]; Assel Aitkaliyeva[1]; Jian Gan[1]; [1]Idaho National Laboratory

G-5: Quantification of the Stress-Stabilization of Tetragonal ZrO2: Mitra Taheri[1]; *Wayne Harlow*[1]; [1]Drexel University

G-6: Steam Oxidation Resistance of Silicide and Aluminide-coated Refractory Metals: Woojin Lim[1]; Hyun Gil Kim[2]; *Hojin Ryu*[1]; [1]Korea Advanced Institute of Science and Technology; [2]Korea Atomic Energy Research Institute

G-7: Advanced Electron Microscopy of Fission Products in Irradiated TRISO Fuel: *Rachel Seibert*[1]; Chad Parish[2]; Kurt Terrani[2]; Jeff Terry[1]; [1]Illinois Institute of Technology; [2]Oak Ridge National Laboratory

G-8: Phase Field Modeling of Fission Gas Behavior in Metallic Nuclear Fuel: *San-Qiang Shi*[1]; Pengchuang Liu[1]; Xin Wang[2]; Pengcheng Zhang[2]; [1]The Hong Kong Polytechnic University; [2]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*[1]; Donna Guillen[2]; [1]North Carolina State University; [2]Idaho National Laboratory

G-10: Wear Study Comparison of Accident Tolerant FeCrAl Cladding, Zircaloy-2 and SS304 against X750: *Raghunath Kanakala*[1]; Christian Williams[1]; Sobhan Patnaik[1]; Raul Rebak[2]; [1]University of Idaho; [2]GE Global Research

G-11: A Composite Waste Form for Electrochemical Processing Wastes: *Xin Chen*[1]; J. Ernesto Indacochea[1]; William Ebert[2]; [1]University of Illinois at Chicago; [2]Argonne National Laboratory

G-12: A Proposed Mechanism of Corrosion of Nickel by Tellurium in Molten Salt: *Natasha Skowronski*[1]; Sam McAlpine[1]; [1]MIT

G-13: Exposing the Mechanisms of Pellet-Cladding Interaction Using Atomistic Simulation: *Adam Plowman*[1]; C.T. Gillen[1]; Alistair Garner[1]; P. Wiringgalih[1]; Michael Preuss[1]; Philipp Frankel[1]; Christopher Race[1]; [1]University of Manchester

G-14: Fission Gas Release and Swelling Model of Uranium Nitride Based on the Rate Ttheory: *Jing Liu*[1]; Yedong Gao[1]; Yang Du[1]; Bo Zhang[1]; Di Yun[1]; [1]Xi'an Jiaotong University

G-15: Production and Characterization of Thick Plasma Sprayed Tungsten Coatings for Nuclear Fusion Applications: *Edward Rowe*[1]; Patrick Grant[1]; David Armstrong[1]; Elizabeth Surrey[2]; [1]University of Oxford; [2]UKAEA

G-16: Simulation of Constituent Redistribution and Fuel Restructuring in MOX Fuel: *Yang Du*[1]; [1]Xi'an Jiaotong University

G-17: Thermodynamic Properties of Strontium-Bismuth Alloys for Electrochemical Separation of Strontium: *Nathan Smith*[1]; Timothy Lichtenstein[1]; Jarrod Gesualdi[1]; Hojong Kim[1]; [1]Pennsylvania State University

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

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

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

F-56: An In-situ Synchrotron X-ray Scattering Study of Microstructural Evolution in a Model Ni-based Alloy: *Govindarajan Muralidharan*[1]; Dean Pierce[1]; Ross Andrews[2]; Jan Ilavsky[2]; Saul Lapidus[2]; [1]Oak Ridge National Laboratory; [2]Argonne National Laboratory

F-57: Long-term Thermal Stability of Nickel-base Superalloys: *Alison Wilson*[1]; Mark Hardy[2]; Howard Stone[1]; [1]University of Cambridge; [2]Rolls-Royce plc

F-58: Microstructure Analysis and Creep Behaviour Modelling of a Ni-based Superalloy: *Wenyong Xu*[1]; Zichao Peng[1]; Muzi Li[2]; Fionn Dunne[2]; Minh-Son Pham[2]; [1]Beijing Institute of Aeronautical Materials; [2]Imperial College London

F-59: Physics-based Creep Model of Ni-based Alloy Welds in High Temperature and Pressure Applications using Crystal Plasticity: *Wen Jiang*[1]; Pritam Chakraborty[1]; Thomas Lillo[1]; [1]Idaho National Laboratory

F-60: Reliability Assessment of a Critical Thin-walled Deep Space Mission Component Using a Microstructure-based Life Prediction Framework: *Saikumar Reddy Yeratapally*[1]; Jacob Hochhalter[2]; [1]National Institute of Aerospace; [2]NASA Langley Research Center

F-61: Physical Simulation of Skin Formation during Investment Casting of Nozzle Guide Vanes Made of Ni-based Superalloys: *Mehdi Rahimian*[1]; Srdjan Milenkovic[2]; Laura Maestro[3]; Aitor Eguidazu Ruiz De Azua[3]; Ilchat Sabirov[2]; [1]BCAST, Brunel University London; [2]IMDEA Materials Institute; [3]Precicast Bilbao Co.

F-62: Surface Tension and Viscosity of the Ni-based Superalloys LEK94 and CMSX-10 Measured by the Oscillating Drop Method on Board a Parabolic Flight: *Rainer Wunderlich*[1]; Georg Lohöfer[2]; Hans Fecht[1]; [1]Ulm University; [2]Deutsches Zentrum Luft- und Raumfahrt (DLR)

F-63: Mechanism of Eutectic Growth in Directional Solidification of an Al2O3/Y3Al5O12 Crystal: Xu Wang[1]; *Dong Wang*[1]; Jingyang Wang[1]; Langhong Lou[1]; Jian Zhang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

Materials Processing Fundamentals — Poster Session

Program Organizers: Antoine Allanore, Massachusetts Institute of Technology; Jonghyun Lee, University of Massachusetts; Guillaume Lambotte, Boston Electromet

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

E-52: Bulging of Cylindrical Blanks during Forging: *Ahmed Elkholy*[1]; [1]Kuwait University

E-53: Control of Low Melting Point MnO-SiO2-Al2O3 Inclusions in Low Carbon Thin-strip Continuous Casting Steel: *Jing Chen*[1]; [1]Shanghai University

E-54: Effect of Modeling Flows on Mixing Time in 40t Ladle with Bottom Gas Blowing Process: *Le Wang*[1]; Liu Liu[1]; Bingji Yan[2]; [1]Central Iron and Steel Research; [2]Soochow 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: J. Eliecer Méndez Reyes[1]; Francisco Patiño Cardona[2]; Julio Cesar Juárez Tapia[1]; *Mizraim Uriel Flores Guerrero*[3]; Iván A. Reyes Dominguez[4]; Martín Reyes Pérez[1]; Aislinn Teja Ruiz[1]; [1]Universidad Autónoma del Estado de Hidalgo; [2]Universidad Politécnica Metropolitana de Hidalgo; [3]Universidad Tecnológica de Tulancingo; [4]Universidad Autónoma de San Luis Potosí

E-56: Effects of Zr on the Microstructure and Mechanical Properties of EH36 Shipbuilding Steel
: *Dapeng Zhao*[1]; Xiaodong Zou[1]; Cong Wang[1]; [1]Northeastern University (China)

E-57: Genetic Influence of Mold Corner Structure on the Strand Corner Temperature in Secondary Cooling Zone during Slab Continuous Casting: *Sheng Yu*[1]; Dengfu Chen[1]; Pei Xu[1]; Mujun Long[1]; Kui Lv[1]; Huamei Duan[1]; [1]Chongqing University

E-58: Growth Kinetics on Boriding Process and Mechanical Behaviour of AISI P20 Steel: *Martín Ortiz*[1]; Miguel Flores[1]; Milton Espinosa[2]; Oscar Gómez[3]; Daniel Sánchez[1]; [1]Universidad Autónoma del Estado de Hidalgo; [2]Instituto Tecnológico y de Estudios Superiores de Monterrey-ITESM Campus Santa Fe; [3]Instituto Tecnológico de Tlanepantla-ITTLA

E-59: Manufacturing of Diaphragm Bellows by a Combined Process of Hydroforming and Axial-crushing: *Yong-Shin Lee*[1]; Eung Zu Kim[2]; Duck Jae Yoon[2]; [1]Kookmin University; [2]KITECH

E-60: Numerical Simulation and Experimental Study on Electromagnetic Field and Heat Flow in Electromagnetic Cold Crucible (EMCC): *Hyun-Jae Lee*[1]; Hyun-Do Jung[1]; Byung-Moon Moon[1]; [1]Korea Institute of Industrial Technology

E-61: Recent Progress of Blast Furnace Cooling Stave in China: *Yong Deng*[1]; Jian Liang Zhang[1]; Ke Xin Jiao[1]; Bing Ji Yan[1]; [1]University of Science and Technology Beijing

E-62: Separately Copper Recovery from Iron by Using Solvent Extraction Process: *Shun Myung Shin*[1]; Dong Ju Shin[1]; Sung Ho Joo[1]; Chang Hyun Oh[1]; [1]Korea Institute of Geoscience & Mineral Resources (KIGAM)

E-63: Solutions for the Polar Orthotropic Functionally Graded Annular Disks Having Variable Profile
: *Saad Essa*[1]; [1]Erbil Technical Engineering College

E-64: Study of Electrochemical Reactor Filter-Press Used In the Treatment of Industrial Waste by COMSOL: *Pedro Ramirez Ortega*[1]; Jose Martinez Vazquez[2]; Marissa Vargas Ramirez[2]; [1]Universidad Tecnológica de Tulancingo; [2]Universidad Autónoma del Estado de Hidalgo

E-65: The Effect of Ti Addition and Aging Treat on Microstructure and Mechanical Properties of a Nb-microalloyed Crack Arrest Steel: *Dan Chen*[1]; [1]Harbin Engineering University

E-66: The Interface Characteristics of High-temperature Melt of CaO-Al2O3-MgO-SiO2 System: *Chen Tian*[1]; *Qing-hai Pang*[1]; [1]University of Science and Technology Liaoning

Microstructural Processes in Irradiated Materials — Poster Session

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

Monday PM
February 27, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chairs: Mahmood Mamivand, University of Wisconsin-Madison; Ryuta Kasada, Kyoto University

G-18: Atom Probe Tomography Investigations of Archival Surveillance Steels from the UCSB ATR-2 Irradiation
: *Nathan Almirall*[1]; Peter Wells[1]; Takuya Yamamoto[1]; David Gragg[1]; Kirk Fields[1]; G. R. Odette[1]; Randy Nanstad[2]; Philip Edmondson[2]; [1]University of California Santa Barbara; [2]Oak Ridge National Laboratory

G-19: Alloying and Elastic Effects on the Formation of C15 Interstitial Clusters in Iron: *Luca Messina*[1]; Maylise Nastar[1]; Mihai-Cosmin Marinica[1]; [1]CEA Saclay

G-20: Characterization of Nanoscale Intermetallic Precipitates in Highly Neutron Irradiated Reactor Pressure Vessel Steels: *David Sprouster*[1]; E Dooryhee[1]; S Ghose[1]; P Wells[2]; T Stan[2]; N Almirall[2]; G. R. Odette[2]; L Ecker[1]; [1]Brookhaven National Laboratory; [2]University of California Santa Barbara

G-21: Development of Standard Protocols for the Analysis of Atom Probe Data of Radiation Damage in Light Water Reactors: *Bertrand Radiguet*[1]; Gérald Da Costa[1]; John Hyde[2]; Constantinos Hatzoglou[1]; Hannah Weekes[2]; Paul Styman[2]; François Vurpillot[1]; Cristelle Pareige[1]; Auriane Etienne[1]; Giovanni Bonny[3]; Nicolas Castin[3]; Lorenzo Malerba[3]; Philippe Pareige[1]; [1]GPM UMR CNRS 6634 - Université et INSA de Rouen; [2]National Nuclear Laboratory; [3]SCK-CEN

G-22: Effect of Helium/dpa Ratio on Microstructure Evolution in Dual Ion Irradiated HT9 Steel: *David Woodley*[1]; Elizabeth Getto[1]; Zhijie Jiao[1]; Kai Sun[1]; Gary Was[1]; [1]University of Michigan

G-23: Energetic Study of Helium – Nanoparticle Interaction within Nanostructured Ferritic Alloy: *Yingye Gan*[1]; Huijuan Zhao[1]; David Hoelzer[2]; Di Yun[3]; [1]Clemson University; [2]Oak Ridge National Laboratory; [3]Xi'an Jiao Tong University

G-24: Evolution of Irradiation-induced Precipitates in Reactor Pressure Vessel Steels under High-Dose Irradiation: *Mikhail Sokolov*[1]; Michael Miller[1]; Randy Nanstad[1]; Ken Littrell[1]; Lynne Ecker[2]; David Sprouster[2]; Enrico Lucon[3]; [1]ORNL; [2]BNL; [3]NIST

G-25: On the Effects of Helium-dpa Interactions on Microstructural Evolution in Tempered Martensitic Steels: Analyses of Dual Ion Beam Irradiation Databases: *Takuya Yamamoto*[1]; G. Robert Odette[1]; Yuan Wu[1]; Kiyohiro Yabuuchi[2]; Sosuke Kondo[2]; Akihiko Kimura[2]; [1]University of California Santa Barbara; [2]Kyoto University

G-26: In-situ Ion Irradiation Induced Microstructure Evolution in Ferritic/Martensitic Steel T91: *Djamel Kaoumi*[1]; Ce Zheng[1]; [1]North Carolina State University

G-27: In Situ TEM Cantilever Testing of Irradiated ODS to Determine Grain Boundary Embrittlement and Cohesion: *Kayla Yano*[1]; Janelle Wharry[2]; Xianming Bai[3]; [1]Boise State University; [2]Purdue University; [3]Virginia Tech

G-28: Microstructural Evaluation of Ion Irradiated Model Binary Alloys: *Ling Wang*[1]; [1]University of Tennessee

G-29: Neutron Irradiation and Post Irradiation Annealing Effects on the Microstructure of HT-UPS Austenitic Stainless Steel: *Chi Xu*[1]; Xuan Zhang[2]; Wei-Ying Chen[2]; Meimei Li[2]; Jun-Sang Park[2]; Jonathan Almer[2]; Yaqiao Wu[3]; Yong Yang[4]; [1]Argonne National Laboratory / University of Florida; [2]Argonne National Laboratory; [3]Idaho National Laboratory / Boise State University; [4]University of Florida

G-30: Numerical Estimation of Phosphorus Transport for Different Migration Modes in Alpha-iron: *Ken-ichi Ebihara*[1]; Tomoaki Suzudo[1]; Masatake Yamaguchi[1]; [1]Japan Atomic Energy Agency

G-31: Synthesis of Pyrochlore Y2Ti2O7 by High Energy Ball Milling of Y2O3 and TiO2 Powders: *Esther Simondon*[1]; Pierre-François Giroux[1]; Laurent Chaffron[1]; Philippe Castany[2]; Thierry Gloriant[2]; [1]CEA Saclay; [2]INSA Rennes

G-32: The Effect of Pre-implanted Helium on Cavity Nucleation and Swelling Rate in Ion-irradiated T91: *Anthony Monterrosa*[1]; Zhijie Jiao[1]; Gary Was[1]; [1]University of Michigan

G-33: The Evolution of Laves Phase in Ferritic-Martensitic Steel Grade 92 under Thermal Aging and Sodium Exposure: *Wei-Ying Chen*[1]; Meimei Li[1]; Krishnamurti Natesan[1]; [1]Argonne National Laboratory

G-34: TEM Observations on He Bubble Nano Oxide Associations in As-Processed and Annealed Nanostructured Ferritic Alloys: Yuan Wu[1]; *Tiberiu Stan*[1]; Takuya Yamamoto[1]; Jim Ciston[2]; G. Odette[1]; [1]UCSB; [2]NCEM at LBNL

G-35: In Situ Studies of Nanopore Shrinkage during Heavy Ion Irradiation of Nanoporous Au: *Jin Li*[1]; Cuncai Fan[1]; Jie Ding[1]; Sichuang Xue[1]; Youxing Chen[2]; Qiang Li[1]; Haiyan Wang[1]; Xinghang Zhang[3]; [1]Texas A&M University; [2]Los Alamos National Laboratory; [3]Purdue University

G-36: Irradiation Effects on Diffusivity of Copper in Ferromagnetic Iron Studied by Atom Probe Tomography: *Takeshi Toyama*[1]; Masaki Shimodaira[1]; Keiko Tomura[1]; Naoki Ebisawa[1]; Kazuaki Nagumo[1]; Yasuo Shimizu[1]; Koji Inoue[1]; Yasuyoshi Nagai[1]; [1]Tohoku University

G-37: Multiscale Modelling of Patterned Microstructures in IrradiatedMmaterials: Application to AgCu Alloy: *Gilles Demange*[1]; David Simeone[2]; Laurence Luneville[3]; Vassilis Pontikis[4]; [1]GPM/ERAFEN, Université de Rouen; [2]DEN/DMN/SRMA/LA2M, CEA Saclay; [3]DEN/SERMA/LLPR, CEA Saclay; [4]DEN/DMN/LSI, CEA Saclay

G-38: Nickel Ion Irradiation Damage In GH3535 Alloy Weld Metal and the Temperature Effect: *Hefei Huang*[1]; Xiaoling Zhou[1]; Zhiyong Zhu[1]; [1]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*[1]; Chad Parish[2]; Gary Was[1]; [1]University of Michigan; [2]Oak ridge national laboratory

G-40: Study of Neutron and Ion Irradiation Damage in Aluminum Alloys: *Ziv Ungarish*[1]; Benedicte Kapusta[2]; Pierre Gavoille[2]; [1]NRCN; [2]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 Changizian*[1]; Zhongwen Yao[1]; [1]Queen's University

G-42: Ion Irradiation-induced Structural Damage in Different Multi-component Alloys at Elevated Temperatures: *Tengfei Yang*[1]; Songqin Xia[2]; Yuan Fang[3]; Yong Zhang[2]; Congyi Li[1]; Yugang Wang[3]; Steven Zinkle[1]; [1]Department of Nuclear Engineering, The University of Tennessee; [2]State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing; [3]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: *Tianyi Chen*[1]; Lizhen Tan[1]; Kumar Sridharan[2]; Haixuan Xu[3]; [1]Oak Ridge National Laboratory; [2]University of Wisconsin–Madison; [3]The University of Tennessee

G-44: Deformation of He Bubble Superlattice in FCC Cu: *Ian Winter*[1]; Daryl Chrzan[1]; [1]University of Calfifornia, Berkeley

G-45: Simulations of Irradiated-enhanced Segregation and Phase Separation in Fe-Cu-Mn Alloys: *Boyan Li*[1]; Ben Xu[2]; Wei Liu[2]; Chuck Henager[3]; Shenyang Hu[3]; [1]Tsinghua University, Pacific Northwest National Laboratory; [2]Tsinghua University; [3]Pacific Northwest National Laboratory

G-46: A Study on Irradiation Induced Microstructure Dependent Thermal Conductivity Change of Zircaloy using Nanomechanical Raman Spectroscopy: *Hao Wang*[1]; Vikas Tomar[1]; [1]Purdue University

G-47: Oxide Texture as Cause and Effect in the Corrosion of Zirconium Fuel Cladding - An Atomistic Simulation Study: *Maria Yankova*[1]; Christopher Race[1]; [1]Materials Performance Centre, University of Manchester

G-48: The Effect of Niobium on the Irradiation Induced Growth Properties of Zr-Nb Binary Alloys Used forNnuclear Applications: *Rebecca Jones*[1]; Elisabeth Francis[1]; Philipp Frankel[1]; Aidan Cole-Baker[2]; [1]University of Manchester; [2]Rolls Royce Plc.

G-49: Ex-situ and In-situ Investigation of Heavy Ion Irradiation Damage in Ti-6Al-4V: *Aida Amroussia*[1]; Carl Boehlert[1]; Florent Durantel[2]; Clara Grygiel[2]; Wolfgang Mittig[3]; Isabelle Monnet[2]; Frederique Pellemoine[4]; [1]Michigan State University; [2]CIMAP CEA/CNRS/ENSICAEN/UCN; [3]National Superconducting Cyclotron Laboratory- Michigan State University; [4]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[1]; Javier Santisteban[1]; Pablo Vizcaino[2]; Gábor Ribárik[3]; *Tamás Ungár*[3]; [1]Centro Atómico Bariloche; [2]Centro Atómico Ezeiza, Argentina; [3]Eötvös University Budapest

G-51: Microstructural Effects on Helium Plasma-materials Interaction in Tungsten: *Kun Wang*[1]; Chad Parish[1]; Mark Bannister[1]; [1]Oak Ridge National Laboratory, UT-Battelle

G-52: Enhanced Radiation Tolerance and Thermal Fatigue Properties of Nanochannel W Films: *Feng Ren*[1]; Wenjing Qin[1]; [1]Wuhan University

G-53: Impact of Low Dose ion Irradiation on Raman Spectra and Thermal Conductivity in Beta-SiC: *Vinay Chauhan*[1]; M Faisal Riyad[1]; Xinpeng Du[1]; Changdong Wei[1]; Beata Tyburska-Püschel[2]; Ji-Cheng Zhao[1]; Marat Khafizov[1]; [1]The Ohio State University; [2]University of Wisconsin

G-54: Microstructural Response of Si_3N_4 and AlN to Swift Heavy Ion Irradiation: *Arno Janse van Vuuren*[1]; Vladimir Skuratov[2]; Alexey Volkov[3]; Maxim Zdorovets[4]; [1]Nelson Mandela Metropolitan University; [2]Joint Institute for Nuclear Research; [3]Nazarbayev University; [4]National Nuclear Centre

G-55: In-situ Luminescence Study of LiAlO2 Irradiated with 20KeV Negative H Ion Beam: Menglin Qiu[1]; *Guangfu Wang*[2]; Yingjie Chu[1]; Mi Xu[1]; Li Zheng[1]; [1]College of Nuclear and Technology,Beijing Normal University; [2]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*[1]; Vladimir Skuratov[2]; [1]CHRTEM; [2]JINR

G-57: Investigation of Microstructural Processes of Glass Irradiated by Ions and Electron Beams: *Tieshan Wang*[1]; Wei Yuan[1]; Liang Chen[1]; Haibo Peng[1]; Xin Du[1]; Duofei Zhang[1]; Peng Lv[1]; Mengli Sun[1]; [1]Lanzhou University,School of Nuclear Science and Technology

G-58: Ion Beam Induced Nanocrystal Formation with High Volume Fraction: *Daryush Ila*[1]; [1]FSU

G-59: Comparison of Microstructures in Neutron and Ion Irradiated Zr-1.0Nb-0.1Fe Cladding Alloys: *Jing Hu*[1]; [1]Argonne National Laboratory

Phase Transformations and Microstructural Evolution — Poster Session

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
February 27, 2017

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*[1]; Nilanjan Mitra[1]; [1]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 Gyu Lee*[1]; Dong Ho Lee[1]; Seok Su Sohn[1]; Woo Gyeom Kim[2]; Kyung-Keun Um[2]; Sunghak Lee[1]; [1]POSTECH; [2]POSCO

F-66: Relationship between Reverse Ferrite Transformation and Recrystallization in Low-carbon Al-containing Steels: *Shih-Che Chen*[1]; Yuan-Tsung Wang[2]; Chun-Te Wu[1]; Hung-Wei Yen[1]; [1]National Taiwan University; [2]China Steel Corporation

F-67: Solidification Microstructures in Ag_3Sn-Cu_3Sn Pseudo-Binary Alloys: *Haibo Yu*[1]; Yu Sun[1]; S. Pamir Alpay[1]; Mark Aindow[1]; [1]University of Connecticut

F-68: Morphology of Order-disorder Structures in Rapidly Solidified $L1_2$ Intermetallics: *Nafisul Haque*[1]; [1]University of Leeds

F-69: Phase Transformation Kinetics of Fe16N2 Based Rare-earth-free Permanent Magnets: *Md Mehedi*[1]; Yanfeng Jiang[1]; Jian-Ping Wang[1]; [1]University of Minnesota

F-70: The Role of Grain Size Distribution in Nanocrystalline Shape Memory Alloys: *Jakub Mikula*[1]; Jerry Quek Siu Sin[1]; Shailendra P. Joshi[2]; David T. Wu[1]; Rajeev Ahluwalia[1]; [1]A*Star; [2]NUS

F-71: W, Nb, and Cr Effects on High-temperature Tensile Properties in Heat-resistant Austenitic Cast Steels
: *Yong Hee Jo*[1]; SeungMun Jung[1]; Seok Su Sohn[1]; Won-Mi Choi[1]; Byeong-Joo Lee[1]; Yong-Jun Oh[2]; Gi-Yong Kim[3]; Seongsik Jang[3]; Sunghak Lee[1]; [1]Pohang University of Science and Technology; [2]Hanbat National University; [3]Key Yang Precision

F-72: Controlling of Mechanical Properties on SUS310S Substrate Used at Superconducting Wire: *Seung-gyu Kim*[1]; Najung Kim[1]; Sung-gi Choi[1]; Oh-min Kwon[1]; dongilk Kwon[1]; [1]Seoul National University

F-73: Study on the High Temperature Phase Equilibrium Relationship in CaO-SiO2-10%La2O3-Nb2O5 System: *Jiyu Qiu*[1]; Chengjun Liu[1]; Zhaoyun Wang[1]; Junjie Shi[1]; Lifeng Sun[1]; [1]School of Metallurgy, Northeastern University

F-74: Improved Electrochemical Discharge Kinetics of V-based BCC Metal Hydrides via Microstructure Reduction: *Nicholas Weadock*[1]; Heng Yang[1]; Hongjin Tan[2]; Brent Fultz[1]; [1]California Institute of Technology; [2]Liox

F-75: Structure-Property Relations in Doped Ni-Mn-Ga Heusler Alloys for Magnetocaloric Applications: *Michael McLeod*[1]; Zafer Turgut[2]; Bhaskar Majumdar[1]; [1]New Mexico Tech; [2]Wright Patterson AFB

F-76: In-situ High Energy XRD Study of Optimal Annealing for a Novel Nb/NiTi Nanocomposite: *Fangmin Guo*[1]; Shijie Hao[1]; Lishan Cui[1]; Yang Ren[1]; [1]China University of Petroleum (Beijing)

F-77: Relationship of Microstructural Evolution to Magnetic Properties of Alnico Magnets: *Wei Tang*[1]; Lin Zhou[1]; Andriy Palasyuk[1]; Kevin Dennis[1]; Jun Cui[1]; Matthew Kramer[1]; Iver Anderson[1]; [1]Ames Lab of DOE

F-78: Microstructure Evolution in Martensitic NiTi Using High Energy Diffraction Microscopy: *Ashley Bucsek*[1]; Harshad Paranjape[1]; Branden Kappes[1]; Darren Dale[2]; Peter Ko[2]; Margaret Koker[2]; Aaron Stebner[1]; [1]Colorado School of Mines; [2]Cornell High Energy Synchrotron Source

F-79: Phase Equilibria in the Al-Co-Ni Alloy System: *Yang Zhou*[1]; Philip Nash[1]; [1]Illinois Institute of Technology

F-80: The Effect of Aluminum Content on Recrystallization and Grain Growth in Binary Alpha Titanium Alloys: *Anna Trump*[1]; John Allison[1]; [1]University of Michigan

F-81: Effect of Composition and Thermal Processing on Transformation Characteristics and Equilibrium Phase Stability in NiTiHf High Temperature Shape Memory Alloys: *Tejas Umale*[1]; Bradley Tomes[1]; Ibrahim Karaman[1]; Anjana Talapatra[1]; Raymundo Arroyave[1]; Ruben Santamarta[2]; [1]Texas A&M University; [2]Universitat 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*[1]; Peyman Samimi[1]; Gregory Rohrer[1]; Peter Collins[1]; [1]Iowa 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

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February 27, 2017

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*[1]; [1]University of Texas at Dallas

A-95: Direct Metal Write Additive Manufacturing of Rare-earth Modified Aluminum Alloys Using Electromagnetic Heating Systems: *William Carter*[1]; Zachary Sims[1]; Orlando Rios[1]; Lonnie Love[1]; Brian Post[1]; Randall Lind[1]; Max Neveau[1]; [1]Oak Ridge National Laboratory

A-96: FEM Modeling of Steel Additive Manufacturing Using Laser Hot-Wire Process: *Zhenguo Nie*[1]; Gang Wang[1]; James McGuffin-Cawley[2]; Badri Narayanan[3]; Yiming (Kevin) Rong[1]; [1]Tsinghua University; [2]Case Western Reserve University; [3]The Lincoln Electric Company

A-97: Microstructure Evolution and Galling Properties of Hard Facing Coatings Deposited Using Laser Directed Energy Deposition: *Niyanth Sridharan*[1]; Brian Jordan[2]; Ryan Dehoff[2]; Sudarsanam Babu[1]; [1]University of Tennessee Knoxville; [2]Oak Ridge National laboratory

A-98: Novel High Temperature Drop on Demand Liquid Metal-jetting for the Production of Complex 2D and 3D objects: *Marco Simonelli*[1]; Mark East[1]; Nesma Aboulkhair[1]; Richard Hague[1]; [1]University of Nottingham

Rare Metal Extraction & Processing — Poster Session

Program Organizers: Hojong Kim, The Pennsylvania State University; Shafiq Alam, University of Saskatchewan; Harald Oosterhof, Umicore; Neale Neelameggham, Ind LLC; Takanari Ouchi, Massachusetts Institute of Technology

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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*[1]; Hirokazu Narita[1]; Mikiya Tanaka[1]; [1]National 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[1]; *Alessandro Blasi*[1]; Assunta Romanelli[1]; Giacobbe Braccio[1]; Massimo Morgana[1]; [1]ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development

F-85: The Recovery of Bismuth from Bismuthinite Concentrate through Membrane Electrolysis: Lei Jie[1]; *Yang Jian-guang*[1]; [1]Central South University

F-86: Preparation of Molybdenum Powder from Molybdenite Concentrate through Vacuum Decomposition-acid Leaching Combination Process: *Chongfang Yang*[1]; Yuezhen Zhou[1]; Wenlong Jiang[1]; Dachun Liu[1]; Fansong Liu[1]; Zewei Liu[1]; [1]Kunming University of Science and Technology

F-87: Pressure Leaching Behavior of Molybdenum-nickel Sulfide from Black Shale: *Zhigan Deng*[1]; [1]Kunming University of Science and Technology

F-88: Study for Preparation of Industrial Ammonium Molybdate from Low Grade Molybdenum Concentrate: Zhenwei Liu[1]; Qingwei Qin[1]; *Tiejun Chen*[1]; Jianhong Yang[1]; [1]Wuhan University of Science and Technology

F-89: Selective Recovery of Scandium from Sulfating Roasting Red Mud by Water Leaching: Zhaobo Liu[1]; *Hongxu Li*[1]; Zihan Zhao[1]; [1]University of Science and Technology Beijing

F-90: Study of a Synergistic Solvent Extracting System to Separate Yttrium and Heavy Rare Earths: A Deep Investigations on System Behavior: *Alessandro Blasi*[1]; Corradino Sposato[1]; Assunta Romanelli[1]; Giacobbe Braccio[1]; Massimo Morgana[1]; [1]ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development

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
February 28, 2017

Room: Hall B1
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 Amerisiahooei*[1]; Khirollah Mehrani[1]; Mohammad Yousefi[1]; Kamibiz Bordbar[2]; [1]Islamic Azad University; [2]Shahid Bahonar University of Kerman

J-2: 12-tungstophosphoric Acid Load on SBA-15 Mesoporous Materials by Ultrasound-assisted Impregnation Method: *Li Dong Wei*[1]; Zhang Tao[1]; Yang Qiu Ju[2]; [1]Chongqing University of Education; [2]Chongqing Institute Of Engineering

J-3: Applying Nano Technology to Separation Fluorides Emissions with Oxygen for Aluminum Smelter: *Mohsen Amerisiahooei*[1]; Khirollah Mehrani[1]; Mohammad Yousefi[1]; Kamibiz Bordbar[2]; [1]Islamic Azad University; [2]Shahid Bahonar University of Kerman

J-4: Directed Self-assembly of Nanoparticles from Immiscible Au-Ni Alloy Thin Films via Laser-induced Thermal Annealing: Sun-Kyu Lee[1]; Hye-Jung Lee[1]; *Yong-Jun Oh*[1]; [1]Hanbat University

J-5: Electrochemical Corrosion Study in Organic Films Containing Processed Vermiculite and Zinc Oxide Nanometric: *Gonçalo Siqueira*[1]; Hélio Wiebeck[2]; Paulo Kanayama[2]; Jose Mauro Oliveira[2]; Fábio Esper[2]; [1]University of Sao Paulo; [2]University of São Paulo

J-6: Fabrication and Properties Evaluation of LLZO Compacts for Solid Electrolyte by a Spark Plasma Sintering Process: Ik-Hyun Oh[1]; *Hyun-Kuk Park*[1]; Jun-Ho Jang[1]; [1]KITECH / Automotive Components Center

J-7: Green Synthesis Gold Nanoparticles by the Silybum Marianum Extract: *Laura Garcia-Hernandez*[1]; Pedro Ramirez[1]; Mizraim Flores[1]; Diana Arenas[1]; J.Marlen Lemus[1]; Mireya Escorcia[1]; [1]Universidad Tecnológica De Tulancingo

J-8: Investigation of Microstructure Evolution in 3-D Memory Devices: *Chloe Director*[1]; [1]Purdue University

J-9: Mechanical Properties of Bio-inspired Nanocomposites: Anthony Shank[1]; Scott Muller[1]; *Arun Nair*[1]; [1]University 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*[1]; Ik-Hyun Oh[1]; Jun-Ho Jang[1]; [1]KITECH / Automotive Components Center

J-11: Novel Synthesis of Variable Size $BaTiO_3$ Colloidal Nanocrystals Doped with Transition Metals as Multiferroic Material: Tommso Costanzo[1]; *Gabriel Caruntu*[1]; [1]Central Michigan University

J-12: Prospects of Semimetal Microwires for Thermoelectric Applications: Leonid Konopko[1]; *Albina Nikolaeva*[1]; Tito Huber[2]; Anna Kobylianskaya[1]; [1]IEEN D.Ghitu; [2]Howard University

J-13: Study of Ferric Phosphate Cathode Material for Lithium-ion Battery: *Jinhua Lu*[1]; Yaochun Yao[1]; [1]Kunming University of Science and Technology

J-14: Study on the Bonding Strength of the Copper Circuit Layer(Metal) and Anodic Aluminum Oxide Layers(Ceramic): *Shin Hyeong-won*[1]; Hyo-Soo Lee[1]; Seung-Boo Jung[2]; [1]KITECH/Rare metal group/Emotional Materials & Components Research Center; [2]Sungkyunkwan University

J-15: Synthesis of AgNP's from Industrial Wastes: *Pedro Ramirez Ortega*[1]; Jose Elizalde Mata[1]; Jose Navarro Jimenez[1]; Rodrigo Islas Hernandez[1]; Laura Garcia Hernandez[1]; Mizraim Flores Guerrero[1]; [1]Universidad Tecnológica de Tulancingo

J-16: Synthesis of Vertical Si Nanowire Arrays Fabricated by Nanoimprinting Lithography and Magnetically Guided Metal-assisted Chemical Etching: *Dong Won Chun*[1]; Tae Kyoung Kim[2]; [1]Korea Institute Science and Technology; [2]University of California at San Diego

J-17: The Effect of In Situ Magnetic Field and Film Thickness on Magnetic Properties and Residual Stress for Fe-based Amorphous Films: *Sibo Wang*[1]; Hoe Joon Kim[1]; David Laughlin[1]; Gianluca Piazza[1]; Jingxi Zhu[2]; [1]Carnegie Mellon University; [2]Sun Yat-sen University

J-18: Theoretical Study of Sulfur Gases Adsorption in Aluminum Smelter with Carbon Nano Tube by Monte Carlo Simulation: *Mohsen Amerisiahooei*[1]; Khirollah Mehrani[1]; Mohammad Yousefi[1]; Kamibiz Bordbar[2]; [1]Islamic Azad University; [2]Shahid Bahonar University of Kerman

J-19: Nano Molecular Pump Methodology for Preparation of a Binder for Ceramic Shell Molding Process: *Bijoy Chakrabarti*[1]; [1]National Institute of Foundry & Forge Technology

J-20: Production of Nano Calcium Silicates by Alternative Methods of Synthesis: *Juan Restrepo*[1]; Oscar Restrepo[1]; Jorge Tobón[1]; [1]Universidad 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 Ncapayi[1]; Sandile Songca[1]; *Oluwafemi Oluwatobi*[2]; [1]Walter Sisulu University; [2]University of Johannesburg

J-22: Synthesis of Mn_2O_3 Nanopowders with Urea and Citric Acid by Solution Combustion Route: *Esma Yilmaz*[1]; M. Seref Sonmez[1]; Bora Derin[1]; Filiz Cinar Sahin[1]; Onuralp Yucel[1]; [1]Istanbul Technical University

J-23: Effect of Additives on the Microstructures of Highly-oriented (111) Nanotwinned Cu: *Kuan-Ju Chen*[1]; [1]National Chiao Tung University

J-24: Effect of High Temperature Annealing in Hydrogen and Air on the Catalytic Property of Nanoceria: *Yuan-Pei Lan*[1]; Hong Yong Sohn[2]; Yousef Mohassab[2]; Qingcai Liu[1]; Baoqiang Xu[3]; [1]Chongqing University; [2]University of Utah; [3]Kunming University of Science and Technology

J-25: Effect of Nanocomposite Formulation Containing Chitosan, Aloe Vera Gel and Moringal Oil as Edible Coating on Oranges: *Adetunji Oluwaseun*[1]; Aboyeji Oluseun[2]; Ishaik[2]; Ajayi Sunday[3]; Adejumo Oluseun[1]; [1]Landmark University; [2]Kwara State College of Education; [3]Federal University Oye Ekiti

J-26: Functionalization-induced Changes in the Structural and Physical Properties of Carbon Nanofiber via Ionizing Radiation Using Vinyl Monomers: *Maria Cecilia Evora*[1]; Xinyi Lu[2]; Nam-Goo Kang[2]; Kunlun Hong[3]; Roberto Uribe[4]; Leonardo G. A. Silva[5]; Carla Lake[5]; Jimmy Mays[5]; [1]Instituto de Estudos Avançados; [2]University of Tennessee; [3]Oak Ridge National Laboratory; [4]Kent State University; [5]Institute for Nuclear and Energy Research- IPEN

J-27: Mechanical Properties of Highly (111)-oriented Nanotwinned Cu Lines: *Wei-Ling Lai*[1]; Chih Chen[1]; [1]National Chiao Tung University

J-28: Phosphorus Gasification from High-phosphorsiron Ore during Carbothermic Reduction: *Yuanyuan Zhang*[1]; Qingguo Xue[1]; Jingsong Wang[1]; Zhenfeng Zhou[1]; [1]University of Science and Technology Beijing

J-29: Study of Nano-twinned Cu Prepared by Low-temperature Electrodeposition and ItsThermal Stability
: *Yen-Chieh Chen*[1]; Chih Chen[1]; [1]National Chiao Tung University

J-30: Tailoring the Shear Band Width in Metallic Glasses: *KC Chan*[1]; S.H. Chen[1]; S.D. Feng[1]; [1]The Hong Kong Polytechnic University

J-31: Two-step Annealing of Bilayer Cu and the Mechanism of Grain Growth on (100)-oriented Cu Film: *Hsin Yong Liu*[1]; Chih Chen[1]; [1]National Chiao Tung University

J-32: Electrical Property Improvement in Cu@Graphitic-carbon Nanocables: *Danmin Liu*[1]; Tian Tian[1]; Bo Zhang[1]; Yongzhe Zhang[1]; [1]Beijing University of Technology

J-33: The Size-dependent Melting Behaviour of Al-12Si/AlN Nanomultilayered System: *Joanna Lipecka*[1]; Jolanta Janczak-Rusch[2]; Malgorzata Lewandowska[1]; Mariusz Andrzejczuk[1]; Gunther Richter[3]; Lars Jeurgens[2]; [1]Warsaw University of Technology; [2]Empa, Swiss Federal Laboratories for Materials Science and Technology; [3]Max Planck Institute for Intelligent Systems

J-34: Thin Hybrid Dielectric Film Engineering on MoS2 Using Molecular Atomic Layer Deposition (MALD): *Jaebeom Lee*[1]; Lanxia Cheng[1]; Antonio T. Lucero[1]; Jiyoung Kim[1]; [1]University of Texas Dallas

J-35: Holey Silicon Thermoelectric Cooling in Nanoelectronics
: *Zongqing Ren*[1]; [1]University of California, Irvine

J-36: Preparation of Rare Earth Stabilized Nanocrystalline Zirconia with Tunable Optical/Mechanical Properties: *Gottlieb Uahengo*[1]; [1]University of California, San-Diego

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
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Room: Hall B1
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*[1]; [1]Los Alamos National Laboratory

L-2: Characterization of a Biocompatible Co-Cr-W Alloy by means of Correlative Microscopy and Nanoindentation Experiments: *Irmgard Weissensteiner*[1]; Patrick Voigt[2]; Helmut Clemens[1]; Verena Maier-Kiener[1]; [1]Montanuniversität Leoben; [2]Titanium Solutions GmbH

L-3: Displacement Rate and Temperature Equivalence in Stochastic Cluster Dynamics Simulations of Irradiated Pure alpha-Fe: Aaron Dunn[1]; Brittany Muntifering[2]; *Remi Dingreville*[2]; Khalid Hattar[2]; Laurent Capolungo[3]; [1]TMS; [2]Sandia National Laboratories; [3]Los Alamos National Laboratory

L-4: Error Analysis of the Dictionary Approach to Electron Backscatter Diffraction Indexing: *Farangis Ram*[1]; Saransh Singh[1]; Marc De Graef[1]; [1]Carnegie Mellon University

L-5: Microstructural Development During Particle/Substrate Impacts in Cold Spray of Gas Atomized Aluminum Alloy Powders
: *Benjamin Bedard*[1]; Tyler Flanagan[1]; Sumit Suresh[1]; Avinash Dongare[1]; Seok-Woo Lee[1]; Harold Brody[1]; Xuemei Wang[2]; Victor Champagne[3]; Mark Aindow[1]; [1]University of Connecticut; [2]United Technologies Research Center; [3]U.S. Army Research Laboratory

L-6: NiAl Oxidation Reaction Processes Studied In Situ Using MEMS-Based Closed-Cell Gas Reaction Transmission Electron Microscopy: *Kinga Unocic*[1]; Dongwon Shin[1]; Raymond Unocic[1]; Lawrence Allard[1]; [1]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*[1]; Leonardo Campanelli[1]; Murilo Santos[1]; Pierre-Louis Personnaz[1]; Claudemiro Bolfarini[1]; Paulo Sergio da Silva[1]; [1]Federal University of São Carlos

L-8: The Thermal Stability of Cr-Cu Nanostructured Materials Revealed at the Atomic Resolution: *Zaoli Zhang*[1]; Jinming Guo[1]; Julian Rosalie[1]; [1]Erich Schmid Institute of Materials Science, Austrian Academy of Sciences

L-9: Unidirectional Fibre Composite Characterisation from X-ray Tomography: *Monica Emerson*[1]; Ying Wang[2]; Kristine Jespersen[1]; Lars Mikkelsen[1]; Philip Withers[2]; Knut Conradsen[1]; Vedrana Dahl[1]; Anders Dahl[1]; [1]Technical University of Denmark; [2]The University of Manchester

Advanced Materials in Dental and Orthopedic Applications — Poster Session

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

Tuesday PM
February 28, 2017

Room: Hall B1
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Session Chair: To Be Announced

H-1: Changing in the Elastic Modulus of Ti-10Mo-Zr System Alloys by Specific Heat Treatments: *Raul Araújo*[1]; Gabriela Suárez[1]; Carlos Grandini[1]; [1]UNESP/ Bauru

H-2: Correlation between the Presence of Martensitic Phase and Mechanical Properties of Ti-15Mo-xZr Alloys with Potential Orthopedic Application. Alloys with Potential Orthopedic Application: *Fábio Vicente*[1]; Marília Buzalaf[2]; Carlos Grandini[3]; [1]UNIP; [2]USP - Universidade de São Paulo; [3]UNESP- Univ. Estadual Paulista

H-3: In Vitro Perfomace Study to Long Periods of Ti-15Nb Alloy: Karolyne Sousa[1]; Pedro Kuroda[1]; Luciano da Silva[1]; Carlos Grandini[1]; *Tatiani Donato*[1]; [1]Universidade Estadual Paulista

H-4: Structure and Microstructure of Ti-25Ta-Zr Alloys: *Pedro Kuroda*[1]; Fernanda Quadros[1]; Carlos Grandini[1]; [1]Univ. Estadual Paulista

H-5: Titanium-magnesium Composite for Dental Implants (BIACOM): *Martin Balog*[1]; Mateja Snajdar[2]; Peter Krizik[1]; Zdravko Schauperl[2]; Zlatko Stanec[3]; Amir Catic[3]; [1]The Slovak Academy of Sciences; [2]Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb; [3]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; María Teresa Pérez Prado, IMDEA Materials Institute; Robert Wheeler, MicroTesting Solutions LLC; Josh Kacher, Georgia Tech

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

L-10: Deformation Characteristics of NiTi Alloys: *Sujith S*[1]; Indrani Sen[1]; [1]IIT Kharagpur

L-11: High Temperature Dynamic Mechanical Response of Titanium Alloys: *Sindhura Gangireddy*[1]; Steven Mates[1]; [1]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-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
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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 Symeou*[1]; Christiana Nicolaou[1]; Ioannis Giapintzakis[1]; [1]University of Cyprus

L-13: Contribution Percentages of Electromigration and Diffusion on Interfacial Reactions at Joints in Thermoelectric Modules: *Jing-wei Chen*[1]; Sinn-wen Chen[1]; Yi-cheng Lin[1]; Tao-chih Chang[2]; [1]National Tsing Hua University; [2]Industrial Technology Research Institute

L-14: Effect of Microstructure of the Thermoelectric Properties of Al-based Intermetallic Compounds Prepared by a Melt-spinning Method: *Akira Umeda*[1]; Ken Kurosaki[1]; Masaya Kumagai[1]; Yuji Ohishi[1]; Hiroaki Muta[1]; Shinsuke Yamanaka[1]; [1]Osaka University

L-15: Electronic Structure and Thermoelectric Properties of Pseudogap Intermetallic Compound Al_5Co_2: *Masaya Kumagai*[1]; Ken Kurosaki[1]; Yuji Ohishi[1]; Hiroaki Muta[1]; Shinsuke Yamanaka[1]; [1]Osaka University

L-16: Interfacial Reactions between Indium and Bi_2Te_3-based Thermoelectric Materials: *Ji-min Lin*[1]; Yohanes Hutabalian[1]; Shi-Ting Lu[1]; Sinn-wen Chen[1]; [1]National Tsing Hua University

L-17: Micro Energy Harvesting Characteristics of Thermoelectric Thin-film Devices Fabricated Using Flip-chip Process: Jae Hwan Kim[1]; Tae-Yeol Lee[1]; Dong-Hwan Kim[2]; Jae-Ho Lee[1]; *Tae-Sung Oh*[1]; [1]Hongik University; [2]DGIST

L-18: Rapid Synthesis of Zinc and Nickel Co-Doped Tetrahedrite Thermoelectrics by Mechanical Alloying and Reactive Spark Plasma Sintering: *Daniel Weller*[1]; Donald Morelli[1]; [1]Michigan State University

L-19: Synthesis and Thermoelectric Properties of $ZnSnSb_2$ with Chalcopyrite Structure: *Ami Nomura*[1]; Ken Kurosaki[1]; Seongho Choi[1]; Yuji Ohishi[1]; Hiroaki Muta[1]; Shinsuke Yamanaka[1]; [1]Osaka University

L-20: Synthesis of Ge-germanide Nanocomposites by Melt-spinning Technique: *Takayuki Sasaki*[1]; Ken Kurosaki[1]; Yuji Ohishi[1]; Hiroaki Muta[1]; Shinsuke Yamanaka[1]; [1]Osaka University

L-21: Thermoelectric Properties of Amorphous Ti50Cu28Ni15Sn7-dispersed Bi0.4Sb1.6Te3 Nanocomposite Prepared by Mechanical Alloying and Vacuum Hot Pressing: *Pee-Yew Lee*[1]; [1]National Taiwan Ocean University

L-22: Thermoelectric Properties of Bulk $Al_2(FeSi)_3$: *Yasutaka Shiota*[1]; Kunio Yamamoto[1]; Hiroaki Muta[1]; Yuji Ohishi[1]; Ken Kurosaki[1]; Shinsuke Yamanaka[1]; [1]Osaka University

L-23: Thermoelectric Properties of Nanostructured HMSs/Si Eutectic Alloy Prepared by a Melt Spinning Method: *Saori Wadagaki*[1]; Yuji Ohishi[1]; Hiroaki Muta[1]; Ken Kurosaki[1]; Shinsuke Yamanaka[1]; [1]Osaka University

Alumina & Bauxite — Poster Session

Program Organizer: Zhang Ting'an, Northeastern University

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

I-1: A Study on Optimization of Processing Parameters for Synthesis of Calcium Hydroaluminosulfate Using Response Surface Methodology: *Wu Xianxi*[1]; Zhu Weidong[1]; Lan Jun[1]; Wu Song[1]; [1]Guizhou University

Aluminum Alloys, Processing and Characterization — Poster Session

Program Organizer: Yanjun Li, Norwegian University of Science and Technology

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

I-2: Corrosion of Al-Mg Alloys in Ethanol: Gustavo Kramer[1]; Estefanía Gauto[1]; Roberto Rozicki[1]; Claudia Méndez[1]; *Alicia Ares*[1]; [1]IMAM (CONICET-UNaM)

I-3: Effect of Ni Addition on Microstructure and Tensile Properties of Squeeze Cast Aluminum Alloy A380: *Li Fang*[1]; Xuezhi Zhang[1]; Junxiang Zhou[1]; Henry Hu[1]; Xueyuan Nie[1]; Jimi Tjong[2]; [1]University of Windsor; [2]Ford Powertrain Engineering Research & Development Centre

I-4: Creep Behavior of Cast Aluminum-Copper Alloys at 300° C: *Brian Milligan*[1]; Shibayan Roy[2]; Shane Hawkins[2]; Patrick Shower[3]; Amit Shyam[2]; [1]Oak Ridge National Laboratory, Colorado School of Mines; [2]Oak Ridge National Laboratory; [3]Oak Ridge National Laboratory, Bresden Center for Interdisciplinary Research and Graduate Education

I-5: Warm Pressing of Al Powders: An Alternative Consolidation Approach: *Peter Krizik*[1]; Martin Balog[1]; Oto Bajana[1]; Maria Victoria Riglos[2]; Peter Švec Sr.[1]; [1]Institute of Materials & Machine Mechanics SAS; [2]Centro Atómico Bariloche

I-6: Influence of Reinforcement Particle Size and Spatial Distribution on Microstructure and Mechanical Behavior of Precipitation Strengthened Al Matrix Composites: *Chuandong Wu*[1]; Kaka Ma[1]; Enrique Lavernia[1]; Guoqiang Luo[2]; Fei Chen[2]; Qiang Shen[2]; lianmeng Zhang[2]; [1]UC Irvine; [2]Wuhan University of Technology

I-7: Hot Deformation Characteristics of Modified AA5052: *Kwangtae Son*[1]; Jiwoon Lee[1]; Shaekwang Kim[2]; Youngok Yoon[2]; Soongkeun Hyun[1]; [1]Inha University; [2]Korea Institute of Industrial Technology

I-8: Study on the Anodic Oxide Film Formation on Die Casting Aluminum Alloy: *Juseok Kim*[1]; Jongmoon Park[1]; Sungmo Moon[2]; Minsu Park[3]; Nojin Park[1]; Myunghoon Oh[1]; [1]Kumoh Institute of Technology; [2]Korea Institute of Material Science; [3]Jangwontech. CO.LTD

I-9: Mechanical Properties of Miniature Samples of Additive Manufactured Aluminum: An Experimental and Computational Study: *Matan Tubul*[1]; Tsahi Safar[1]; Shai Amar[1]; Ziv Ungarish[1]; Eitan Tiferet[1]; Itzhak Orion[2]; Eytan Kochavi[2]; [1]NRCN; [2]Ben-Gurion University of the Negev

I-10: Modification of Intermetallic Compounds in Aluminum Alloys by Using Ultrasonic Vibrations: *Tomohiro Ishii*[1]; Sergey Komarov[1]; [1]Tohoku University

I-11: Structure and Microhardness Analysis in Samples Directionally Solidified: Alex Kociubczyk[1]; Roberto Rozicki[1]; Gustavo Kramer[1]; *Alicia Ares*[2]; [1]IMAM (CONICET-UNaM); [2]CONICET/FCEQyN-UNaM

I-12: Fatigue and Tensile Properties of Hypoeutectic Al-Si-Mg Alloys with Excess Mg Contents: *Young-Ok Yoon*[1]; Su-Yeon Lee[1]; Seong-Ho Ha[1]; Bong-Hwan Kim[1]; Hyun-Kyu Lim[1]; Shae K. Kim[1]; [1]Korea Institute of Industrial Technology

I-13: Microstructure and Mechanical Properties of Al Alloys with Mn and AlTiB Addition: *Hyo-Sang Yoo*[1]; Yong-Ho Kim[1]; Chang-Gi Jung[1]; Seong-Hee Lee[2]; Hyeon-Taek Son[1]; [1]Korea Institute of Industrial Technology; [2]Mokpo National University

I-14: Mechanical Properties of Near Surface Microstructures (NSM) of Hot Rolled and Cold Rolled 5xxx Aluminum Alloys: *Sepideh Parvinian*[1]; [1]Georgia Institute of Technology

I-16: Friction Welding Process Between 6351-T6 Aluminum Alloy And 1020 Steel: *Sheron Tavares*[1]; Alexandre Bracarense[1]; [1]Federal University of Minas Gerais

I-15: Friction Stir Welding of Wrought and Cast Aluminum Alloys: Heat Transfer Modeling and Process Optimization: Yi Pan[1]; Diana Lados[1]; *Xiangbin Wang*[1]; [1]Worcester Polytechnic Institute, Integrative Materials Design Center

I-17: Quantifying Beta Phase Precipitation Rate in Marine Grade 5xxx Alloys: *William Golumbfskie*[1]; Jennifer Gaies[1]; Emily Holcombe[1]; Dan Scotto D'Antuono[2]; Mitra Taheri[2]; [1]Naval Surface Warfare Center, Carderock Division; [2]Drexel University

I-18: Effect of Different Temperature Sintered SiC Particles on Microstructure and Mechanical Properties of SiC Reinforced Aluminum Matrix Composites: *Bo Zhang*[1]; Menghan Ao[1]; Long Wang[1]; Kailin Long[1]; Jienan Liu[2]; Guangxin Wu[3]; [1]Guiyang Industrial Technology Institute; [2]Guiyang Vocational and Technical College; [3]Shanghai University

Investigation of Structure and Properties of New Aluminum Alloys with Scandium: *Mikhail Motkov*[1]; Viktor Mann[2]; Alexander Krokhin[2]; Alexander Alabin[2]; Viktor Frolov[2]; Igor Kostin[2]; [1]LLC "RUSAL ITC" ; [2]LLC "RUSAL ITC"

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies: An EPD Symposium in Honor of Professor Ramana G. Reddy — Poster Session

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
February 28, 2017

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 Zou*[1]; Cheng Ma[1]; Junxue Zhao[1]; [1]Xi'an University of Architecture and Technology

N-2: Influence of Diluents Dosage on the Performance of High Solid Anti-corrosion Coating by Converter Dust: *Jinglong Liang*[1]; Hui Li[1]; Ramana Reddy[2]; Yungang Li[1]; [1]North China University of Science and Technology; [2]The University of Alabama

N-3: Treatment of Blast Furnace Gas Washing Water by Utilization of Coagulation Associated with Microwave: *Jun-hong Zhang*[1]; Qing-hai Pang[1]; [1]University of Science and Technology Liaoning

N-4: Permselectivity Study of Ion-exchange Membranes in the Presence of Cu-HEDP Complexes from a Copper Plating Wastewater Treatment: Juliana Jesus[1]; Tatiana Scarazzato[1]; *Jorge Tenório*[1]; Denise Espinosa[1]; [1]University of São Paulo

N-5: High Temperature Properties of Molten Nitrate Salt for Solar Thermal Energy Storage Application: Mehedi Mohammad[1]; Geoffrey Alan Brooks[1]; Muhammad Akbar Rhamdhani[1]; *Muhamad Firdaus*[1]; [1]Swinburne University of Technology

Bio-Nano Interfaces and Engineering Applications — Poster Session

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 PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

H-6: Development of Functional Peptides with □-sheet Structures for the Self-assembly on Two-dimensional Materials: *Kohei Sakuma*[1]; [1]Tokyo Institute of Technology

H-7: Regeneration Sands Foundry for Deterioration Bacterial in Industrial Scale: Viviane Rodrigues[1]; Bruno Karolski[1]; *Jorge Tenório*[1]; [1]University of São Paulo

H-8: Effect of Doped Magnesium in Titanium Nitride Coatings on Behavior of Mesenchymal Stem Cells: Sakip Onder[1]; Ayse Calikoglu-Koyuncu[2]; Kursat Kazmanli[3]; Mustafa Urgen[3]; *Fatma Nese Kok*[3]; Gamze Torun-Kose[2]; [1]Isik University; [2]Yeditepe University; [3]Istanbul Technical University

H-9: Determination of Cell Adhesion on Supported Lipid Bilayers by Quarz Crystal Microbalance Sensor: Abdulhalim Kilic[1]; Majid Jadidi[1]; Hakan Ozgur Ozer[1]; *Fatma Nese Kok*[1]; [1]Istanbul Technical University

Biological Materials Science — Biological Materials Science Poster Session

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

Tuesday PM
February 28, 2017

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 Walkowicz*[1]; Piotr Osuch[1]; Beata Smyrak[1]; Andrzej Mamala[1]; Tadeusz Knych[2]; Anna Rozanska[1]; Agnieszka Chmielarczyk[2]; Dorota Romaniszyn[2]; Malgorzata Bulanda[2]; [1]AGH University of Science and Technology; [2]Jagiellonian University Medical College

H-11: Effect of the Oxidation of Copper and its Alloys on the Antimicrobial Efficacy of Touch Surfaces: Monika Walkowicz[1]; *Piotr Osuch*[1]; Beata Smyrak[1]; Andrzej Mamala[1]; Tadeusz Knych[1]; Anna Rózanska[2]; Agnieszka Chmielarczyk[2]; Dorota Romaniszyn[2]; Malgorzata Bulanda[2]; [1]AGH University of Science and Technology; [2]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 Okeniyi[1]; *Elizabeth Okeniyi*[1]; Olubanke Ogunlana[1]; Taiwo Owoeye[1]; Oluseyi Ogunlana[2]; [1]Covenant University, Ota, Nigeria; [2]Crawford University, Igbesa, Nigeria

H-13: Irregularities of Crystallographic Orientation of a Crossed-Lamellar Structure in Cymbiola Nobilis Shell: Hongmei Ji[1]; Xiaowu Li[1]; *Daolun Chen*[2]; [1]Northeastern University; [2]Ryerson University

H-14: Structure-Property Relations of the Ironclad Beetle (*Zopherus nodulus haldemani*) Exoskeleton: *Vina Nguyen*[1]; Parker Berthelsen[1]; Hongjoo Rhee[1]; Melanae Garrett[1]; Mark Horstemeyer[1]; Lakiesha Williams[1]; Jun Liao[1]; Robert Moser[2]; Rajkumar Prabhu[1]; [1]Mississippi State University; [2]U.S. Army Engineer Research and Development Center

H-15: Synthesis and Characterization of Mesoporous Forsterite/Magnesium Oxide Composite Powder: Seyed Mehdi Mirhadi[1]; *Fariborz Tavangarian*[2]; [1]Shahreza Branch, Islamic Azad University; [2]Penn State Harrisburg

H-16: The Protective Scales of Atractosteus Spatula and the Production of a Bioinspired Armor: *Vincent Sherman*[1]; Nicholas Yaraghi[2]; Marc Meyers[1]; David Kisailus[2]; [1]University of California, San Diego; [2]University of California, Riverside

H-17: Microstructural Characterization of Freeze-casted Al2O3 Scaffold: *Guan-Lin Liu*[1]; Yi-Ting Liao[1]; Joe-Ming Chang[1]; Hsiao-Ming Tung[1]; [1]Institute of Nuclear Energy Research

H-18: Two-step Sintering Effects on the Microstructure and Mechanical Properties of Forsterite Scaffolds: *Fariborz Tavangarian*[1]; Lindsay Childs[2]; Guoqiang Li[3]; Dakota Wooten[2]; Bryant Cornwell[2]; [1]Penn State Harrisburg; [2]Morehead State University; [3]Louisiana State University

Biological Materials Science — Biological Materials Science Student Poster Contest

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

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

H-19: Aligned Carbon Nanotubes Reinforced Electrospun Polymeric Scaffold for Peripheral Nerve Repair: *Pallavi Gupta*[1]; Murali Kumaraswamy[1]; Partha Roy[1]; Debrupa Lahiri[1]; [1]IIT

H-20: Bioinspired by Porcupine Quills: Freeze Cast Porous Scaffolds Strengthened by Shrink Wrap and Infiltration with Biodegradable Materials: *Michael Frank*[1]; Ali Ismail[1]; Louis Guibert[2]; Jerry Ng[1]; Joyce Mok[1]; Cindy Ayala[1]; Sze Hei Siu[1]; Joanna McKittrick[1]; [1]UC San Diego; [2]École Polytechnique de l'Université de Nantes

H-21: Bone Remodeling under Tooth Loading: *Kangning Su*[1]; Jing Du[1]; Li Yuan[2]; [1]Pennsylvania State University; [2]Shenzhen People's Hospital, 2nd Clinical Medical College of Jinan University

H-22: Design and Analysis of Beetle Wings Inspired Foldable Materials by the Origami Approach: *Chi-Huan Tung*[1]; Cheng-Chun Shih[1]; Po-Yu Chen[1]; [1]National Tsing Hua University

H-23: Development of 3D Template Freeze Casted Hydroxyapatite/Magnesium Alloy Biodegradable Implants: *Yajur Maker*[1]; Jae-Young Jung[1]; Kathryn Kang[1]; Michael Frank[1]; Joanna McKittrick[1]; [1]UC San Diego

H-24: Image Processing Techniques for Testing of Soft Materials: an Example with Tensile Deformation of Pig Skin: *Andrei Pissarenko*[1]; [1]UC San Diego

H-25: Mammal Horns as Natural Weapons: *Yuchen Zhang*[1]; [1]UCSD

H-26: Microstructural Origins of the Dynamic Behavior of Wood and Bioinspired Designs: *Albert Matsushita*[1]; Damian Gonzalez[1]; Michael Frank[1]; Jae-Young Jung[1]; Joanna McKittrick[1]; [1]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*[1]; Terence Turney[1]; Passakorn Tesavibul[2]; Kriskrai Sitthiiseripratip[2]; Nattapon Chatarapanich[3]; Bryce Frltis[4]; [1]Monash University; [2]National Metal and Materials Technology Center; [3]Kasetsart University; [4]RMIT University

H-28: Production of Zinc-Magnesium Alloy Wires by Thermal Drawing for Pediatric Bioabsorbable Stent Applications: *Injoo Hwang*[1]; Daniel S. Levi[2]; Xiaochun Li[1]; [1]Department of Mechanical and Aerospace Engineering, University of California, Los Angeles; [2]Division of Pediatric Cardiology, Mattel Children's Hospital, University of California Los Angeles

H-29: Structure-Property Quantificaiton for the Bio-Inspiration of the Great White (Carcharodon carcharias) and the Tiger (Galeocerdo cuvier) Shark's Teeth: *John Wood*[1]; Hongjoo Rhee[2]; A. C. McIntosh[1]; R. D. Moser[3]; M. Horstemeyer[1]; R. Prabhu[1]; [1]Mississippi State University; [2]Center for Advanced Vehicular Systems; [3]U.S. Army Engineer Research and Development Center

H-30: Structure and Mechanical Behavior of Human Hair: *Yang Yu*[1]; Wen Yang[1]; Bin Wang[1]; Marc Meyers[1]; [1]University of California, San Diego

H-31: Structure and Mechanical Implications of the Pectoral Fin Skeleton in Longnose Skates: *Wei Huang*[1]; Vlado Lubarda[1]; Watcharapong Hongjamrassilp[1]; Jae-Young Jung[1]; Phil Hastings[1]; Joanna McKittrick[1]; [1]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*[1]; Pedro Nascente[1]; Patricia Sato[1]; [1]Universidade Federal de Sao Carlos

H-33: Surface Magnetized Hydroxyapatite for Multi-Axis Strengthened Bone Implants with Magnetic Freeze Casting: *Michael Frank*[1]; Cindy Ayala[1]; Louis Guibert[2]; Keyur Karandikar[1]; Chin-Hung Liu[1]; Sze Hei Siu[1]; Olivia Graeve[1]; Joanna McKittrick[1]; [1]UC San Diego; [2]École Polytechnique de l'Université de Nantes

H-34: Comparison of Deproteinization Methods for Porcine Femoral Cortical Bone: *Frances Su*[1]; Peter Shyu[2]; Yik Tung Tracy Ling[2]; Ekaterina Novitskaya[1]; Kyungah Seo[1]; Sofia Lambert[3]; Kimberlin Zarate[4]; Olivia Graeve[1]; Iwona Jasiuk[2]; Joanna McKittrick[1]; [1]University of California, San Diego; [2]University of Illinois at Urbana-Champaign; [3]Centro de Enseñanza Técnica y Superior - Campus Mexicali; [4]Hilltop High School

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
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

L-24: Deformation Behavior of a Ti-Zr-based Bulk Metallic Glass Matrix Composite: *Kevin Kaufmann*[1]; Laura Andersen[1]; Kenneth Vecchio[1]; [1]University of California, San Diego

L-25: Effect of Annealing on the Magnetic Properties of Fe-based Amorphous Alloys: *Song Yi Kim*[1]; HyeRyeong On[1]; A Young Lee[1]; Hyun Ah Kim[1]; Min Ha Lee[1]; [1]Kitech

L-26: Micro-imprinting of High Strength Hf-based Bulk Metallic Glass Using by Athermal Method: Song Yi Kim[1]; *Min Ha Lee*[1]; [1]Korea Institute of Industrial Technology

L-27: Phase Separation in Cu47.5Zr48Al4Co0.5 Bulk Metallic Glass: William Rainforth[1]; *Haiyun Wang*[1]; [1]The University of Sheffield

L-28: Solid-state Amorphization of W-containing Alloy Powders: *Young Jun Kwon*[1]; Christopher A Schuh[2]; Hoon Kwon[1]; Ki Sub Cho[1]; [1]Kookmin University; [2]MIT

L-29: Structural Stabilities and Mechanical Responses of Ni-transition Metal Binary Glass-forming Alloys: *Hehsang Ahn*[1]; Jinwoo Kim[1]; Soyeon Kim[1]; Eun Soo Park[1]; [1]Seoul National University

L-30: The Effects of Nitrogen Addition on the Magnetic Properties of Fe-based Amorphous Alloy: *HyeRyeong Oh*[1]; Minha Lee[1]; SONGYI Kim[1]; A-Young Lee[1]; Gyu Hyeon Park[1]; Hyun-ah Kim[1]; Jongryoul Kim[2]; [1]KITECH; [2]Hanyang University

L-31: Thermal Induced Reversible Devitrification in Zr-Pt Binary Alloy: *Hyun Ah Kim*[1]; A Young Lee[1]; Hye Ryeong Oh[1]; Gyu Hyeon Park[1]; Song Yi Kim[1]; Ryan T. Ott[2]; Do Hyang Kim[3]; Min Ha Lee[1]; [1]Korea Institute of Industrial Technology; [2]Ames Laboratory (USDOE); [3]Yonsei University

L-32: Dissolution Equilibrium between TiZr-based Metallic Glass Melt and Titanium Alloy: *Zhengkun Li*[1]; Zhengwang Zhu[1]; Huameng Fu[1]; Aimin Wang[1]; Hong Li[1]; Hongwei Zhang[1]; Haifeng Zhang[1]; [1]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*[1]; Jinwoo Kim[1]; Soyeon Kim[1]; Eun Soo Park[1]; [1]Seoul National University

L-34: Viscous Flow Densification during Spark Plasma Sintering of Fe Based Amorphous Alloy Powder: *Tanaji Paul*[1]; Sandip Harimkar[1]; [1]Oklahoma State University

L-35: Comparative Analysis of the Tribological Behavior of Hf-BMGs and Hf-crystalline Alloys
: Manuel Abad[1]; Luke Mortimer[1]; *Phil Meagher*[1]; David Browne[1]; [1]University College Dublin

Characterization of Minerals, Metals, and Materials — Poster Session

Program Organizers: Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; John Carpenter, Los Alamos National Laboratory; Jian Li, CanmetMATERIALS; Jiann-Yang Hwang, Michigan Technological University; Sergio Monteiro, Military Institute of Engineering ; Firrao Donato, 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
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chairs: Eren Kalay, METU; Jian Li, CanmetMATERIALS

K-1: Characteristics of Stamp Charging Coke and Top Charging Coke: *Bing Gao*[1]; [1]University of Science and Technology Beijing

K-2: Contribution to the ß Relaxation Study of the HDPE, LDPE and LLDPE: *Washington Oliani*[1]; Luis Filipe Lima[1]; Harumi Otaguro[2]; Hélio Ferreto[1]; Ademar Lugao[1]; Duclerc Parra[1]; [1]Nuclear Energy Research Institute – IPEN/USP; [2]Universidade Federal de Uberlandia

K-3: Synthesis and Structural Characterization of BaTiO3 Doped with Gd3+: *Juan Pablo Hernández Lara*[1]; Miguel Perez Labra[1]; Francisco Raúl Barrientos Hernández[1]; Alberto Arenas Flores[1]; José Antonio Romero Serrano[2]; Aurelio Hernández Ramírez[2]; Pandiyan Thangarasu[3]; [1]Autonomous University of Hidalgo State; [2]ESIQIE-IPN; [3]National Autonomous University of México.

K-4: The Influence of Titanium Content on the Sinter Ore Phase Structure and the Crack: *Dongdong Zhou*[1]; Shusen Cheng[1]; Yongqiang Bai[2]; [1]University of Science and Technology Beijing; [2]China Metallurgical Industry Planning and Research Institute

K-5: Accelerated Degradation of the Polypropylene Inducing Thermal Aging: *Rebeca Romano*[1]; Washington Oliani[1]; Duclerc Parra[1]; Ademar Lugao[1]; [1]Nuclear Energy Research Institute – IPEN/USP

K-6: Stress and Deformation Analysis of Top Combustion Hot Blast Stove Shell: *Kun Yan*[1]; Shusen Cheng[1]; [1]University of Science and Technology Beijing

K-7: Automated Optical Microstructural Characterization of Thermal Spray Coatings: Satya Ganti[1]; Elizabeth Jenkins[1]; Rabi Bhattacharya[1]; *Veeraraghavan Sundar*[1]; [1]UES Inc.

K-8: Effect of Exposure to Salt Spray in Multiple-use Mortars with Addition and Waste from Paper Production: *Afonso Azevedo*[1]; Jonas Alexandre[2]; Niander Aguiar[2]; Gustavo Xavier[2]; Sergio Monteiro[3]; Victor Souza[4]; Markssuel Marvila[2]; [1]IFF; [2]UENF; [3]IME; [4]UFF

K-9: Effects of Wet Grinding on the Structure and Granularity of Biological Origin Aragonite and Its Polymorphic Transformation into Calcite: *Tang Yunhui*[1]; He Mingsheng[2]; [1]Beijing University of Technology; [2]R&D Center of WISCO, Wuhan 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*[1]; Martín Ortiz[1]; Oscar Gómez[2]; Milton Espinosa[3]; Joaquín Oseguera[2]; [1]Escuela Superior de Ciudad Sahagún-Universidad Autónoma del Estado de Hidalgo; [2]Instituto Tecnológico y de Superiores de Monterrey campus Estado de México; [3]Instituto Tecnológico y de Estudios Superiores de Monterrey-ITESM Campus Santa Fe

K-11: Addition of Cellulose Nanofibers in Reactive Powder Concrete: Felipe Machado[1]; *Leonardo Pedroti*[1]; Joao Vitor Lemes[1]; Gustavo Lima[1]; Lucas Fioresi[1]; Wellington Fernandes[1]; Rita Alvarenga[1]; Jonas Alexandre[2]; [1]Universidade Federal de Vicosa; [2]Universidade Estadual Norte Fluminense

K-12: Alkaline Decomposition of Synthetic Thallium Jarosite in NaOH and CaO Medium: Hernán Islas[1]; Francisco Patiño[2]; Iván Reyes[3]; *Mizraim Flores*[4]; Sayra Ordoñez[1]; Martín Reyes[1]; Elia Palacios[5]; Víctor Flores[6]; [1]Universidad Áutonoma del Estado de Hidalgo; [2]Universidad Politécnica Metropolitana de Hidalgo; [3]Universidad Autónoma de San Luis Potosí; [4]Universidad Tecnológica de Tulancingo; [5]Instituto Politécnico Nacional; [6]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: *Lei Zhang*[1]; [1]Wuhan Iron and Steel Company

K-14: Boiler Ashes Incorporation in Mixed Mortar Using Experimental Planning in Simplex Network: Marina Caetano[1]; Leonardo Pedroti[1]; *Gustavo de Lima*[1]; Igor Andrade[1]; Wellington Fernandes[1]; Rita Alvarenga[1]; Gustavo Xavier[2]; Afonso Azevedo[2]; Caio Torres[1]; Ricardo Almeida[1]; [1]UFV; [2]UENF

K-15: Brillouin Scattering Study on Elastic Properties of Bulk hcp ZnO Single Crystal: *Pingping Fan*[1]; YongQuan Wu[1]; [1]Shanghai University

K-16: Characterization and Leaching Proposal of Ag (I) from a Zn Concentrate in a $S_2O_3^{2-}$ - O_2 Medium: Aislinn Teja Ruiz[1]; Julio Juárez Tapia[1]; Leticia Hernández Cruz[1]; Martín Reyez Pérez[1]; *Uriel Flores Guerrero*[1]; Ivan Reyes Dominguez[1]; Eliecer Mendez[1]; [1]Universidad Autónoma del Estado de Hidalgo

K-17: Characterization of Mercury Jarosite: Sayra Ordoñez[1]; Francisco Patiño[2]; *Mizraim Flores*[3]; Iván Reyes[4]; Elia Palacios[5]; Víctor Flores[6]; Martín Reyes[1]; Ister Mireles[3]; Hernán Islas[1]; [1]Universidad Áutonoma del Estado de Hidalgo; [2]Universidad Politécnica Metropolitana de Hidalgo; [3]Universidad Tecnológica de Tulancingo; [4]Universidad Autónoma de San Luis Potosí; [5]Instituto Politécnico Nacional; [6]Escuela Superior de Zimapán Universidad Autónoma del Estado de Hidalgo

K-18: Chemical and Mineralogical Characterization of a Mixed Sulphide Ore at Zimapan, Hidalgo: Laura Angeles[1]; Martín Reyes[1]; Miguel Pérez[1]; Elia Palacios[2]; Francisco Patiño[3]; Ivan Reyes[4]; *Mizraim Flores*[5]; [1]Universidad Autónoma del Estado de Hidalgo; [2]Instituto Politécnico Nacional.; [3]Universidad Politécnica Metropolitana de Hidalgo.; [4]Universidad Autónoma de San Luis Potosí.; [5]Universidad Tecnológica de Tulancingo

K-19: Brazilian Bentonite Characterization Aiming Their Use in Clay/Polymer Nanocomposites: *Francisco Valenzuela-Diaz*[1]; Dijalma Dias[2]; Rogerio Sakahara[1]; Guilherme Cardoso[1]; Kilça Botelho[3]; Gabriel Machado[1]; Maria das Graças Silva-Valenzuela[4]; Julio Harada[4]; [1]Universidade de Sao Paulo; [2]IPEN; [3]UNIGRAN/USP; [4]UFABC

K-20: Characterization of a Bentonitic Clay amd Its Use in Bleaching Brazilian Nut Oil: *Alexandre Machado*[1]; Jivaldo Matos[1]; Flavio Carvalho[1]; Adriano Araujo[1]; Christiano Andrade[1]; Maria das Graças Silva-Valenzuela[2]; Francisco Valenzuela-Diaz[1]; [1]Universidade de Sao Paulo; [2]Universidade Federal do ABC

K-21: Characterization of Biodegradable Mulch Black Films Incorporated with Organics Fertilizers and Rice Husk Ash: Julio Harada[1]; Camila Amorim[1]; Paula Braga[1]; Abner Cabral Neto[2]; José Ricardo Macedo[3]; Luci Diva Machado[1]; *Leonardo Silva*[1]; Derval Rosa[3]; [1]IPEN-CNEN/SP; [2]Universidade Presbiteriana Mackenzie; [3]Universidade Federal do ABC

K-22: Characterization of Polyamide 6 with Coloidal Silicon Dioxide (Aerosil®) Irradiated and Non Irradiated: Camila Amorim[1]; Julio Harada[1]; Jessica Moura[2]; Waldir Ferro[3]; *Leonardo Silva*[1]; [1]IPEN-CNEN/SP; [2]Rhodia Poliamida e Especialidades Ltda; [3]Radici Plastics Ltda

K-23: Characterization of Steel Production Dust and Their Use in Structural Ceramics: *Alexandre Machado*[1]; Jivaldo Matos[2]; Flavio Carvalho[2]; Adriano Araujo[3]; Maria das Graças Silva-Valenzuela[4]; Francisco Valenzuela-Diaz[2]; [1]INOVAT/USP; [2]Universidade de Sao Paulo; [3]Universidade Federal de Sergipe; [4]Universidade Federal do ABC

K-24: Charpy Toughness Behavior of Jute Fabric Reinforced Polyester Matrix Composites: Foluke de Assis[1]; Sergio Monteiro[1]; Artur Pereira[1]; *Fabio Braga*[1]; [1]Military Institute of Engineering

K-25: Clay: Characterization and Evaluation of the Application Potential: *Gustavo Lima*[1]; Leonardo Pedroti[1]; Wellington Fernandes[1]; Jonas Alexandre[2]; Afonso Azevedo[2]; Carlos Maurício Vieira[2]; [1]Universidade Federal de Viçosa - UFV; [2]Universidade Estadual do Norte Fluminense Darcy Ribeiro

K-26: Determination of Ten Impurity Elements in Tin Concentrate and Smelting Products by ICP-AES: *Yunke Wang*[1]; Ping Long[1]; Jian Wu[1]; Wenli Zhang[1]; Peipei Liu[1]; Xinlin Ren[1]; Bin Yang[1]; [1]Kunming University of Science and Technology

K-27: Effects of Magnetic Field Curing on Microactuation of Magnetorheological Elastomers Based on Iron–natural Rubber Nanocomposites: *Imaddin Al-Omari*[1]; M P Vasudevan[2]; P M Sudeep[3]; Philip Kurian[3]; P M Ajayan[4]; T N Narayanan[5]; M R Anantharaman[3]; [1]Sultan Qaboos University; [2]Sree Sankara Vidya Peetom College; [3]Cochin University of Science and Technology; [4]Rice University; [5]TIFR Centre for Interdisciplinary Sciences

K-28: Electron Beam Effect on Mechanical and Thermical Properties of DGEBA/EPDM Composite: Anderson Mesquita[1]; Ian Cavalcante[1]; Traian Zaharescu[2]; *Leonardo Silva*[1]; [1]Instituto de Pesquisas Energéticas e Nucleares - IPEN/USP; [2]INCDIE, ICPE-CA

K-29: Efficient High-Resolution Study of Dissimilar Metal Interfaces: *Genevieve Lee*[1]; Jonathan Orsborn[1]; Antonio Ramirez[1]; [1]The Ohio State University

K-30: Evaluation of Ballistic Armor Behavior with Epoxy Composite Reinforced with Malva Fibers: Lucio Nascimento[1]; Luane Ferreira Holanda[1]; Luis Henrique Leme Louro[1]; Sérgio Neves Monteiro[1]; Alaelson Vieira Gomes[1]; Édio Pereira Lima Júnior[1]; *Fábio Braga*[1]; [1]Instituto Militar de Engenharia

K-31: The Non-Isothermal Crystallization Behavior of Polyethylene/ calcium phosphate Composite: Andre Colonese[1]; Mônica Andrade[2]; Ana Silva[3]; *Fernanda Silva*[4]; [1]INCQS-Fiocruz; [2]IPRJ_UERJ; [3]IMA-UFRJ; [4]IQ-UFRJ

K-32: Evaluation of Durability of Red Ceramic Incorporated with Ornamental Stone Waste: Gustavo Xavier[1]; Jonas Alexandre[1]; *Afonso Azevedo*[1]; Sergio Monteiro[1]; Leonardo Pedroti[1]; Helloa Ferreira[1]; [1]UENF

K-33: Evaluation of Elastic Properties by Impulse Excitation Technique in Epoxy Composites Reinforced with Coir Fiber: Fernanda da Luz[1]; *Sérgio Monteiro*[1]; [1]Military Institute of Engineering, IME

K-34: Wood-to-concrete Joints Using Steel Connectors: Experimental Evaluation: Juliano Correa[1]; Rita de Cássia Alvarenga[1]; *Beatryz Mendes*[1]; Márcio Moreira[1]; [1]Universidade Federal de Viçosa

K-35: Evaluation of the Pozzolanic Activity of Residue from the Paper Industry: *Afonso Azevedo*[1]; Jonas Alexandre[2]; Lucio Petrucci[1]; Euzébio Zanelato[2]; Thainá Oliveira[2]; [1]IFF; [2]UENF

K-36: Evaluation of the Properties of the Adhesive Mortar in the Fresh State with Addition of Glass Waste: Diogo Santos[1]; *Afonso Azevedo*[2]; Jonas Alexandre[1]; Sergio Monteiro[1]; Gustavo Xavier[1]; Beatryz Mendes[3]; Leonardo Pedroti[3]; Lucio Petrucci[4]; Marta Prellwitz[4]; [1]UENF; [2]IFF; [3]UFV; [4]UCAM

K-37: Experimental Evaluation of the Influence of Mortar's Mechanical Properties on the Behavior of Clay Masonry: *Rita Alvarenga*[1]; Gustavo Nalon[1]; Lucas Fioresi[1]; Mônica Pinto[1]; Leonardo Pedroti[1]; José Carlos Ribeiro[1]; [1]Universidade Federal de Viçosa

K-38: Experimental Study on Limestone Gypsum Desulfurization Agent with SDA Desulphurization Ash: *Lu Lj*[1]; [1]Wisco

K-39: Influence of Operation Conditions on Normal Stress and Flow Pattern of Burden Materials in Blast Furnace Based on Discrete Element Method: *Wenxuan Xu*[1]; Shusen Cheng[1]; Guolei Zhao[1]; [1]University of Science and Technology Beijing

K-40: X-ray and Microstructural Study of a Set of Cast Aluminum Alloys: *Thomas Watkins*[1]; Shibayan Roy[2]; Lawrence Allard Jr.[1]; Amit Shyam[1]; Dongwon Shin[1]; J. Allen Haynes[1]; [1]ORNL; [2]Indian Institute of Technology

K-41: Porosity of Soil Pigments Based Paints: Reinaldo Santos[1]; *Beatryz Mendes*[1]; Rita de Cássia Alvarenga[1]; Fernando Cardoso[1]; Anôr Carvalho[1]; [1]Universidade Federal de Viçosa

K-42: Use of Gamma-alumina Nanoparticles for Drug Delivery System: *Antonio Munhoz Jr*[1]; Leila Miranda[1]; Leonardo Silva[1]; Mariana Oliveira[1]; Raphael Andrades[1]; Renato Peres[1]; [1]U.P.Mackenzie

K-43: The Mineralogical and Gemmological Characteristics of Turqoise from Luo Nan,Shan Xi, China: *Luo Yuanfei*[1]; [1]China University of Geoscience

K-44: Mechanical Properties of Nanocomposites High Melt Strength Polypropylene (HMSPP) Obtained by Gamma Radiation in Comparison to Conventional Polypropylene Nanocomposites with Smectite Nanoclay: *Danilo Fermino*[1]; Washington Oliani[2]; Christiano Bastos Andrade[1]; Duclerc Parra[2]; Maria Silva Valenzuela[1]; Francisco Valenzuela Diaz[1]; [1]USP; [2]IPEN

K-45: Polymer Blend Based on Recycled Polyethylene and Ethylene Vinyl Acetate Copolymers Reinforced with Natural Fibers from Agricultural Wastes: *Renata Coiado*[1]; Gisele Lazo[1]; Rene Oliveira[1]; Rita Rodrigues[2]; Esperidiana Moura[1]; [1]Instituto de Pesquisas Energéticas e Nucleares; [2]Escola de Engenharia de Lorena, Departamento de Biotecnologia. Universidade de Sao Paulo

K-46: Mechanical, Thermal and Electrical Properties of Polymer (Ethylene Terephthalate - PET) Filled with Carbon Black: Anderson Mesquita[1]; *Leonardo Silva*[1]; Leila Miranda[2]; [1]Instituto de Pesquisas Energéticas e Nucleares - IPEN/USP; [2]Universidade Presbiteriana Mackenzie

K-47: The Use of Network Simplex Method for Planning the Incorporation of Recycled Paper Mill Sludge in Manufacturing of Ceramic Bodies: Andreiva Carmo[1]; Nirlane Silva[1]; Anna Sartori[1]; *Ana Rezende*[1]; Leonardo Pedroti[1]; Wellington Fernandes[1]; Benício Ribeiro[1]; [1]Universidade Federal de Viçosa

K-48: Nd3+ Doping Effect on the Structure, Microstructure, Lattice Distortion and Electronic Properties of TiO2 Nanoparticles: *Balter Trujillo-Navarrete*[1]; Edgar Alonso Reynoso-Soto[1]; María del Pilar Haro-Vázquez[2]; Henry Alvarez-Huerta[1]; Rosa María Félix-Navarro[1]; Sergio Pérez-Sicairos[1]; [1]Instituto Tecnologico de Tijuana; [2]Universidad Autónoma de Baja California

K-49: Microstructural Evolution of Ni-Superalloys during Hot Rolling and Thermal Aging: *Matjaz Godec*[1]; Simon Malej[1]; Jaka Burja[1]; Franc Tehovnik[1]; Bojan Podgornik[1]; [1]Institute of Metals and Technology

K-50: Optical Marker Synthesis for Use in Polymer Processing Based on the Doping with Europium Complex: *Luiz Komatsu*[1]; Washington Oliani[1]; Ademar Lugao[1]; Duclerc Parra[1]; [1]Nuclear and Energy Research Institute

K-51: Plasmonic Behavior of Nonstoichiometric Alumina on Al: *Hansoo Kim*[1]; [1]Texas A&M University

K-52: Preliminary Study of the Effect of Stirring Rate, Temperature and Oxygen Pressure on the Leach Rate of Copper Powder, Generated by Grinding of Printed Circuit Boards of Computer: *M. A. Mesinas Romero*[1]; I. Rivera Landero[1]; M. I. Reyes Valderrama[1]; E. Salinas Rodríguez[1]; E. Cerecedo Sáenz[1]; J. Hernández Ávila[1]; E. G. Palacios Beas[2]; [1]Universidad Autónoma del Estado de Hidalgo; [2]Instituto Politécnico Nacional, ESIQIE

K-53: Use of Alkaline Solid Wastes from Kraft Pulp and Paper Mills, Dregs and Grits in Cement Production: *Caio Torres*[1]; Leonardo Pedroti[1]; Claudio Silva[1]; Wellington Fernandes[1]; Natália Viana[1]; Gustavo Lima[1]; Roseli Martins; Roseli Martins[1]; Lorena Sathler[1]; Marina Caetano[1]; Igor Andrade[1]; [1]UFV / DEC

K-54: Research on the Reason of the Different Type of Chloride Forming in the Process of Blast Furnace Ironmaking: *Chuanhui Li*[1]; Jianliang Zhang[1]; Cui Wang[1]; Bingji Yan[2]; Yapeng Zhang[1]; Hongwei Guo[2]; [1]University of Science and Technology Beijing; [2]Soochow University

K-55: Synthesis and Characterization of PVA/Bio-hydroxyapatite Nanoparticle for Sunscreen Application: *Karine Sousa*[1]; Pedro Reis[1]; Rene Oliveira[1]; Esperidiana Moura[1]; [1]Instituto de Pesquisas Energéticas e Nucleares

K-56: Research on the Advanced Treatment of Coking Wastewater with Semi-coke Modified with Water Vapor
: *Lina Wang*[1]; [1]Wuhan Iron and Steel Co.

K-57: Preparation and Characterization of Polyethylene Nanocomposites with Clay and Silver Nanoparticles: *Washington Oliani*[1]; Danilo Fermino[2]; Luiz Komatsu[1]; Ademar Lugao[1]; Vijaya Rangari[3]; Nilton Lincopan[4]; Duclerc Parra[1]; [1]Nuclear Energy Research Institute – IPEN/USP; [2]2Department of Metallurgical and Materials Engineering; [3]Center for Advanced Materials Science and Engineering Tuskegee University; [4]Department of Microbiology-Institute of Biomedical Sciences, University of São Paulo

K-58: Radiation Effects in the Crystal Polystyrene Composite with Clays
: *Djalma Dias*[1]; Elaine Silva[1]; Francisco Valenzuela-Diaz[2]; Mariana Sartori[1]; Leonardo Silva[1]; [1]IPEN/CNEN-SP; [2]Universidade de São Paulo

K-59: Production of Concrete Interlocking Blocks with Partial Replacement of Sand in Bulk by Waste Glass Machined: *Niander Cerqueira*[1]; Victor Souza[2]; Igor Pereira[3]; Rondinelli Ribeiro[3]; Afonso Azevedo[1]; Victor Bartolazzi[3]; Mairyanne Souza[1]; [1]Universidade Estadual do Norte Fluminense Darcy Ribeiro - UENF; [2]UFF; [3]Faculdade Redentor

K-60: Steel Slag: Analysis of Application in Cementitious Materials: *Gustavo Lima*[1]; Leonardo Pedroti[1]; José Carlos Junior[2]; Wellington Fernandes[1]; Sergio Monteiro[3]; [1]Universidade Federal de Viçosa - UFV; [2]Universidade Federal de São João del Rei; [3]Instituto Militar de Engenharia

K-61: Reactive Powder Concrete Production with the Addition of Granite Processing Waste: Joao Vitor Lemes[1]; *Gustavo Lima*[1]; Felipe Gabriel Machado[1]; Leonardo Pedroti[1]; Lucas Fioresi[1]; Wellington Fernandes[1]; Rita Alvarenga[1]; Sergio Monteiro[2]; [1]Universidade Federal de Vicosa; [2]Instituto Militar de Engenharia

K-62: Study of Synergistic Effect of Light Stabilizer Additive, Conventional and Nanoparticles, Applied to Polyethylene Films Submitted to Ultraviolet Radiation: *Patricia Poveda*[1]; Leonardo Silva[1]; [1]Instituto de Pesquisas Energéticas e Nucleares - IPEN/CNEN-SP

K-63: Stress and Deformation Analysis of Hot Blast Stove Piping System: *Kun Yan*[1]; Shusen Cheng[1]; [1]University of Science and Technology Beijing

K-64: Saw Dust of Waste as Partial Substitute Fine Aggregate in Structural Concrete: Niander Cerqueira[1]; Victor Souza[2]; *Victor Bartolazzi*[3]; Henri Gazal[3]; João Victor Silveira[3]; Mairyanne Souza[1]; Olivia Campinho[3]; André Gomes[3]; [1]Universidade Estadual Do Norte Fluminense Darcy Ribeiro - UENF; [2]UFF; [3]Faculdade Redentor

K-65: Study of Calcined Mixtures from Industrial Residues for Production of Agglomerates: Letícia Fernandez[1]; Leonardo Pedroti[1]; Elisson Ferreira[1]; Rita Alvarenga[1]; Larice Justino[1]; *Wellington Fernandes*[1]; [1]Universidade Federal de Viçosa

K-66: Study of the Effect of Surface Liquid Flow during Column Flotation of Mining Tailing of the Dos Carlos Dam: *Javier Flores Badillo*[1]; Juan Hernández Ávila[1]; Eleazar Salinas Rodríguez[1]; Isauro Rivera Landero[1]; María Reyes Valderrama[1]; Eduardo Cerecedo Sáenz[1]; Martín Reyes Pérez[1]; Mauricio Guerrero Rodríguez[1]; [1]Universidad Autónoma del Estado de Hidalgo

K-67: Study on Advanced Treatment of Coking Wastewater Using Catalytic Ozonation Process: *Liu Pu*[1]; [1]Research and Development Center of Wuhan Iron and Steel Company Limited

K-69: Study on Bending Test on Concrete Structural Use Crumb Rubber as Substitute in Fine Aggregate: *Niander Cerqueira*[1]; Victor Souza[2]; BRUNO PADILHA[3]; Pâmela Berçot[3]; Afonso Azevedo[1]; Victor Bartolazzi[3]; [1]Universidade Estadual do Norte Fluminense Darcy Ribeiro - UENF; [2]UFF; [3]Faculdade Redentor

K-70: Thermical and Mechanical Properties of Films by Poly(Butylene Succinate-Co-L-Lactate)/Brazilian Clay: *Maria das Graças Silva-Valenzuela*[1]; Rafaela Sadka[2]; Bianca Michel[2]; Antonio Munhoz[3]; Francisco Valenzuela-Diaz[2]; Shu Hui Wang[2]; [1]Federal University of ABC; [2]University of Sao Paulo; [3]Mackenzie Presbiterian University

K-71: Surface Characterization of FeS_2 and Pulp during Grinding in an Inert Mill: Martín Reyes[1]; Elia Palacios[2]; Francisco Patiño[3]; Miguel Pérez[1]; *Mizraim Flores*[4]; Iván Reyes[5]; Laura Angeles[1]; Aislinn Teja[1]; [1]Universidad Autónoma del Estado de Hidalgo; [2]Instituto Politécnico Nacional; [3]Universidad Politécnica Metropolitana de Hidalgo; [4]Universidad Tecnológica de Tulancingo.; [5]Universidad Autónoma de San Luis Potosí

K-72: Synthesis of ZnO and TiO2 Nanocomposites for Antibacterial Activity: *Luiz Komatsu*[1]; Washington Oliani[1]; Ademar Lugao[1]; Duclerc Parra[1]; [1]Nuclear and Energy Research Institute

K-73: Texture Analysis and Anisotropic Properties of a Rolled CuZn36 Brass Alloy: *Athanasios Vazdirvanidis*[1]; George Pantazopoulos[2]; Anagnostis Toulfatzis[2]; Andreas Rikos[2]; [1]ELKEME ; [2]ELKEME

K-74: Characteristic of Emeralds from Malipo,Yunnan Province: *Xiaoyan Yu*[1]; Xue Jiang[1]; Bijun Guo[1]; Chun Xu[1]; [1]China 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: *Alline Morais*[1]; Carlos Maurício Vieira[2]; Sergio Monteiro[3]; [1]Instituto Federal Fluminense - IFF; [2]State University of the North Fluminense Darcy Ribeiro; [3]Military Institute of Engineering - IME, Materials Science Department

K-76: Advanced Ion Column Solution for Low Ion Damage Characterization and Ultra-fine Process: *Sang Hoon Lee*[1]; Mostafa Maazouz[1]; Liang Zhang[1]; Mauricio Gordillo[1]; Micah Ledoux[1]; Jeff Blackwood[1]; [1]FEI

K-77: Characterization and Mechanical Properties of Additively Manufactured Stainless Steel 316L: M.A. Bevan[1]; A.A.H. Ameri[1]; D. East[2]; *Juan P. Escobedo-Diaz*[1]; A.D. Brown[1]; M.Z. Quadir[3]; P.J. Hazell[1]; [1]School of Engineering and Information Technology, UNSW Australia; [2]Manufacturing Flagship, CSIRO Clayton; [3] Microscopy 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
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

L-36: Effect of the Addition of Ce and Si on the Hot Cracking Behavior of SiMn Alloy during the Solidification Process: *Zizong Zhu*[1]; Zhiqiang Zhou[1]; Shengnan Zhou[1]; Yuchuan Ding[1]; [1]Chongqing University

L-37: Improved Wear Resistance of Hadfield Steel Through the Addition of Nb Containing Carbides: *Vijay Bhatia*[1]; Gwenaelle Proust[1]; Julie Cairney[1]; [1]The University 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: *Yongsoo Park*[1]; Thomas McKrell[1]; Michael Driscoll[1]; [1]Massachusetts Institute of Technology

L-39: Influence of Different Cooling Microstructure on Surface Cracks of HSLA Steel Plate by DHCR: *Banglun Wang*[1]; [1]Anhui Polytechnic University

L-40: Modeling and Predication of Shrinkage Porosity Formation in Steel Ingot: *Chaojie Zhang*[1]; Yanping Bao[1]; Min Wang[1]; Lechen Zhang[1]; [1]University 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*[1]; Yanping Bao[1]; Min Wang[1]; Lihua Zhao[1]; [1]University 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*[1]; Anton Gorny[1]; Sumanth Shankar[1]; [1]McMaster University

Deformation and Transitions at Interfaces — Poster Session

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

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

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L-43: A Hybrid Fast Fourier Transform Based Elasto-Viscoplastic Formulation: *Jaspreet Nagra*[1]; Abhijit Brahme[1]; Ricardo Lebensohn[2]; Raja Mishra[3]; Kaan Inal[1]; [1]University of Waterloo; [2]Los Alamos National Laboratory; [3]General Motors Research and Development Center

L-44: Dislocation and Twin Interactions with Specific Ag/Cu Interfaces: *Ben Eftink*[1]; [1]University of Illinois

L-45: Controlling the Deviation of Twins in Inconel 600 Alloy by Hot Rolling: *Sandeep Sahu*[1]; Shashank Shekhar[1]; [1]Indian Institute of Technology Kanpur

L-46: Correlation of Bendability of CuAg Conductors with Their Tensile Properties: *Rongmei Niu*[1]; Ke Han[1]; Jun Lu[1]; Doan Nguyen[1]; [1]National High Magnetic Lab

L-47: Deformation Mechanisms in Ti/TiN Multi-layered Thin Films: *Tarang Mungole*[1]; Bilal Mansoor[2]; Georges Ayoub[3]; David Field[1]; [1]Washington State University; [2]Texas A and M University, Doha, Qatar; [3]American University of Beirut

L-48: Development of Synthetic Driving Force Methods in HCP Crystals and Comparison to Existing Techniques: *Matthew Guziewski*[1]; Shawn Coleman[2]; Ian Bakst[1]; Mark Tschopp[2]; Christopher Weinberger[1]; [1]Colorado State University; [2]Army Research Lab

L-49: Different Hardening Effect between Twin Boundary and Grain Boundary in Mg Alloys: *Huihui Yu*[1]; Yunchang Xin[1]; Qing Liu[1]; [1]Chongqing University

L-50: Dual Effects of Point Defects on Shear-coupled Grain Boundary Migration in BCC Tungsten: *Liangliang Niu*[1]; Ying Zhang[2]; Xiaolin Shu[2]; Guang-Hong Lu[2]; Fei Gao[1]; [1]University of Michigan; [2]Beihang University

L-51: Effect of Deformation Heterogeneity of TWIP Steels on Near Boundary Twinning Behavior Using Crystal Plasticity Simulation: *Jaimyun Jung*[1]; Jae Ik Yoon[1]; Jung Gi Kim[1]; Marat Latypov[2]; Jin You Kim[3]; Hyoung Seop Kim[1]; [1]POSTECH; [2]Georgia Tech; [3]POSCO

L-52: Effect of Electric Fields on Grain Boundary Characteristics in Ceramics: *Wei Qin*[1]; [1]University of California, Davis

L-53: Grain Boundary Mechanisms in Nickel-based Superalloys: *John Rotella*[1]; Martin Detrois[2]; Sammy Tin[2]; Michael Sangid[1]; [1]Purdue University; [2]Illinois Institute of Technology

L-54: Heterogeneous Residual Stress in Nanocrystalline Cu: *Lei Cao*[1]; Arkaprabha Sengupta[2]; Daniel Pantuso[2]; Marisol Koslowski[3]; [1]University of Nevada, Reno; [2]Intel Corporation; [3]Purdue University

L-55: In-situ EBSD Study on Recrystallization Nucleation in Deformed Al: *Guilin Wu*[1]; [1]Chongqing University

L-56: Influence of Deformation Processing on the Superelastic Behavior of NCAXB Alloys: *Cheng Zhang*[1]; Kenneth Vecchio[1]; [1]Department of NanoEngineering and Materials Science and Engineering Program, University of California, San Diego

L-57: Interaction of Grain Boundaries with Nano-clusters in Immiscible Alloys: *R. K. Koju*[1]; M. Rajagopalan[2]; K. A. Darling[3]; L. J. Kecskes[3]; K. N. Solanki[2]; Y. Mishin[1]; [1]George Mason University; [2]Arizona State University; [3]US Army Research Laboratory

L-58: Interface Controlled Work Hardening Ability in Ultrafine-grained Ti-6Al-4V Alloy with Bimodal Microstructure: *Yan Chong*[1]; Tilak Bhattacharjee[1]; Ruixiao Zheng[1]; Tsuji Nobuhiro[1]; [1]Kyoto University

L-59: Mechanical Characterization of Ti-6Al-4V Titanium Alloy at Multiple Length Scales Using Spherical Indentation Stress-strain Measurements: *Jordan Weaver*[1]; Surya Kalidindi[2]; [1]Los Alamos National Laboratory; [2]Georgia Institute of Technology

L-60: Non-uniform Magnetostress in Magnetic Shape-memory Alloys: *Anthony Hobza*[1]; Peter Müllner[1]; [1]Boise State University

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Poster Session

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
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

L-61: Effect of Component Surface Finish on the Thermo-mechanical Reliability of Lead-free High Temperature Solder Alloys: *Faramarz Hadian*[1]; Harry Schoeller[2]; Eric Cotts[1]; [1]Binghamton University; [2]Universal Instrument Corporation

L-62: Investigation of Melting Behavior and Morphology Change of Sn Nanowires based on Infra-red (IR) Heating Method: *Jirui Wang*[1]; Fan Gao[1]; Zhiyong Gu[1]; [1]University of Massachusetts Lowell

L-63: Study on Thermomechanical Properties of Graphene-added Solder Paste for Automotive Electronics
: *Sang Jun Park*[1]; Dong-Yurl Yu[1]; Kyoung-Ho Kim[1]; Junghwan Bang[1]; Soong-Keun Hyun[2]; Yong-Ho Ko[1]; [1]Korea Institute of Industrial Technology; [2]Dept. of Materials Science and Engineering, Inha University

L-64: Synchrotron X-ray Study of Sn Whisker Growth Induced by Electromigration: Cheng-En Ho[1]; *Wan-Zhen Hsieh*[1]; Pei-Tzu Lee[1]; Cheng-Hsien Yang[1]; [1]Yuan Ze Uneversity

Environmentally 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
February 28, 2017

Room: Hall B1
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-Yong Lee*[1]; Han-Jin Kim[2]; Jin-Yoo Seo[3]; Jae-Hyeok Shim[3]; Joonho Lee[2]; Byoungchul Hwang[1]; [1]Seoul National University of Science&Technology; [2]Korea University; [3]Korea Instiutute of Science and Technology

L-66: The Characterization of Grain Boundary Precipitates in Aluminum-Magnesium Alloys at Mildly Elevated Temperatures: *Sarah Fakler*[1]; [1]University of Virginia

L-67: The Influence of Global Slip Behavior on Hydrogen Environment-Assisted Cracking in Monel K-500: *Zachary Harris*[1]; James Burns[1]; [1]University of Virginia

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Poster Session

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

Tuesday PM
February 28, 2017

Room: Hall B1
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 Huffman*[1]; [1]John Deere

L-69: Acoustic Induced Vibration and Failure Assessment in Piping; Fluid-Structural-Interface: *Bakr Rabeeh*[1]; Mariz Mattar[1]; [1]German University in Cairo, GUC

L-70: Crack Initiation and Propagation Modeling Using Extended Finite Element Method (XFEM): A Review: *Mashhour Alazwari*[1]; Singiresu Rao[1]; [1]University of Miami

L-71: Crack Initiation in a Ni-based Superalloy Studied by Miniaturised Ultrasonic Fatigue Testing: *Jicheng Gong*[1]; Isaac Cabrera[1]; Angus Wilkinson[1]; [1]University of Oxford

L-72: Creep, Damage and Fatigue Failure of Sn3.0Ag0.5Cu Solder Joints: *Travis Dale*[1]; Dennis Chan[1]; Chaitra Chavali[1]; Carol Handwerker[1]; Ganesh Subbarayan[1]; [1]Purdue University

L-73: Development of Advanced Nickel-Titanium-Hafnium Alloys for Tribology Applications: *Sean Mills*[1]; Ronald Noebe[2]; Christopher DellaCorte[2]; Aaron Stebner[1]; [1]Colorado School of Mines; [2]NASA Glenn Research Center

L-74: Effect of Laser Ablation Coating Removal (LACR) on the Fatigue Behavior of a Steel Substrate: *Md Shamsujjoha*[1]; Sean Agnew[1]; James Brooks[2]; James Fitz-Gerald[1]; [1]University of Virginia; [2]Newport News Shipbuilding

L-75: Effects of Deformation Behaviors on S-N fatigue Properties of High-Mn Steels at Ambient and Cryogenic Temperatures: *Hyokyung Sung*[1]; Daeho Jung[1]; Wongyu Seo[1]; Jehyun Lee[2]; Sangshik Kim[1]; [1]Gyeongsang National University; [2]Changwon National University

L-76: Fatigue Crack Behaviour in the Investment Cast Ti6Al4V Part: *Kalenda Mutombo*[1]; Levy Chauke[1]; [1]CSIR

L-77: Fatigue Crack Initiation and Fatigue Crack Growth Behavior of Pre-Corroded AA7050-T7451: *Noelle Easter Co*[1]; James Burns[1]; [1]University of Virginia

L-78: Fatigue Prediction Life of a Surface Modified Femoral Stem: Paulo Sergio da Silva[1]; Leonardo Campanelli[1]; Ana Paula Guerra[1]; *Claudemiro Bolfarini*[1]; [1]Federal University of São Carlos

L-79: Finite Element Analyses of Pure Ni Cold Spray Particles Impact Related to Coating Crack Behavior: *Pasquale Cavaliere*[1]; [1]University of Salento

L-80: Impact of Rivet Head Piercing on Tensile and Fatigue Properties in CFRP to Aluminum Self-Piercing Rivets: *Harish Rao*[1]; Jidong Kang[1]; Katherine Avery[2]; Joao Moraes[2]; Xuming Su[2]; [1]CanmetMATERIALS; [2]Ford Motor Company

L-81: Micromechanical Analysis of Acoustically Induced Vibration; Piping Bulging and Thinning: *Bakr Rabeeh*[1]; Alaa Mazroua[1]; Marwa Abdelbaqy[1]; [1]German University in Cairo, GUC

L-82: Strain Energy Density Based Fatigue Life Prediction of Notched Panels Using a Control Volume Approach: *Casey Holycross*[1]; M.-.H Herman Shen[2]; Onome Scott-Emuakpor[1]; Tommy George[1]; [1]AFRL; [2]The Ohio State University

L-83: The Effect of Rare-earth Additions on Low-cycle Fatigue Behavior in Mg Alloys: *Aeriel Murphy*[1]; John Allison[1]; [1]University of Michigan

L-84: The Effects of Microstructure on Fatigue in a Polycrystalline Nickel Base Superalloy at Intermediate Temperature: *J.C. Stinville*[1]; M.P. Echlin[1]; P.G. Callahan[1]; W.C. Lenthe[1]; E. Marin[2]; J. Miao[3]; T.M. Pollock[1]; [1]University of California Santa Barbara; [2]GE Global Research; [3]University of Michigan

L-85: VHCF Strength of Spring Steel with Small Scratches: *Yoshiro Nishimura*[1]; Masahiro Endo[2]; Keiji Yanase[2]; Yuichi Ikeda[2]; Yuya Tanaka[2]; Susumu Miyakawa[1]; Nobuyuki Miyamoto[1]; [1]Denso Corporation; [2]Fukuoka 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
February 28, 2017

Room: Hall B1
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 Huffman*[1]; [1]John Deere

L-69: Acoustic Induced Vibration and Failure Assessment in Piping; Fluid-Structural-Interface: *Bakr Rabeeh*[1]; Mariz Mattar[1]; [1]German University in Cairo, GUC

L-70: Crack Initiation and Propagation Modeling Using Extended Finite Element Method (XFEM): A Review: *Mashhour Alazwari*[1]; Singiresu Rao[1]; [1]University of Miami

L-71: Crack Initiation in a Ni-based Superalloy Studied by Miniaturised Ultrasonic Fatigue Testing: *Jicheng Gong*[1]; Isaac Cabrera[1]; Angus Wilkinson[1]; [1]University of Oxford

L-72: Creep, Damage and Fatigue Failure of Sn3.0Ag0.5Cu Solder Joints: *Travis Dale*[1]; Dennis Chan[1]; Chaitra Chavali[1]; Carol Handwerker[1]; Ganesh Subbarayan[1]; [1]Purdue University

L-73: Development of Advanced Nickel-Titanium-Hafnium Alloys for Tribology Applications: *Sean Mills*[1]; Ronald Noebe[2]; Christopher DellaCorte[2]; Aaron Stebner[1]; [1]Colorado School of Mines; [2]NASA Glenn Research Center

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L-75: Effects of Deformation Behaviors on S-N fatigue Properties of High-Mn Steels at Ambient and Cryogenic Temperatures: *Hyokyung Sung*[1]; Daeho Jung[1]; Wongyu Seo[1]; Jehyun Lee[2]; Sangshik Kim[1]; [1]Gyeongsang National University; [2]Changwon National University

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L-81: Micromechanical Analysis of Acoustically Induced Vibration; Piping Bulging and Thinning: *Bakr Rabeeh*[1]; Alaa Mazroua[1]; Marwa Abdelbaqy[1]; [1]German University in Cairo, GUC

L-82: Strain Energy Density Based Fatigue Life Prediction of Notched Panels Using a Control Volume Approach: *Casey Holycross*[1]; M.-.H Herman Shen[2]; Onome Scott-Emuakpor[1]; Tommy George[1]; [1]AFRL; [2]The Ohio State University

L-83: The Effect of Rare-earth Additions on Low-cycle Fatigue Behavior in Mg Alloys: *Aeriel Murphy*[1]; John Allison[1]; [1]University of Michigan

L-84: The Effects of Microstructure on Fatigue in a Polycrystalline Nickel Base Superalloy at Intermediate Temperature: *J.C. Stinville*[1]; M.P. Echlin[1]; P.G. Callahan[1]; W.C. Lenthe[1]; E. Marin[2]; J. Miao[3]; T.M. Pollock[1]; [1]University of California Santa Barbara; [2]GE Global Research; [3]University of Michigan

L-85: VHCF Strength of Spring Steel with Small Scratches: *Yoshiro Nishimura*[1]; Masahiro Endo[2]; Keiji Yanase[2]; Yuichi Ikeda[2]; Yuya Tanaka[2]; Susumu Miyakawa[1]; Nobuyuki Miyamoto[1]; [1]Denso Corporation; [2]Fukuoka University

General Poster Session — General Poster Session

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

M-1: A Comparison between Quenching and Furnace Cooling after Sintering of Al-4Cu-1.5Mg Alloy: *Byungmin Ahn*[1]; SeHwan Lee[2]; [1]Ajou University; [2]Ehwa Diamond Industrial Co., Ltd.

M-2: Advances in Automated Optical 3D Materials Characterization: Satya Ganti[1]; Brian Hayes[1]; *Veeraraghavan Sundar*[1]; [1]UES Inc.

M-3: Analyzing Polycrystalline Grain Microstructures in Thin Films: *Ahu Öncü*[1]; Thomas Hempel[1]; Bodo Kalkofen[1]; Thorsten Halle[1]; Dana Zöllner[1]; [1]Otto von Guericke University Magdeburg

M-4: Correlation between Corrosion Resistance and Microstructure of Al-12Si Eutectic Alloy: *Cemre Bas*[1]; Yurdanur Temel[1]; Eda Ergun Songul[1]; Derya Dispinar[1]; Gokhan Orhan[1]; [1]Istanbul University

M-5: Corrosion Characteristics of Ti-free B Grain Refined A360: *Eda Ergun Songul*[1]; Cemre Bas[1]; Derya Dispinar[1]; Gokhan Orhan[1]; [1]Istanbul University

M-6: Densification Mechanism of Fe based Amorphous Alloy Powder during Spark Plasma Sintering: *Tanaji Paul*[1]; Sandip Harimkar[1]; [1]Oklahoma State University

M-7: Determination of Retained Stress by Jominy Method in Al-Cu Alloys: *Ibrahim Hizli*[1]; Burak Tasli[1]; Eray Erzi[1]; Derya Dispinar[1]; [1]Istanbul University

M-8: Development of Cu-Alloy Films for Energy-saving LED Applications: *Chon-Hsin Lin*[1]; [1]Asia-Pacific Institute of Creativity/Biotechnology

M-9: Direct Conversion of Celestite to $SrCO_3$ by Wet Milling: *Rasit Sezer*[1]; Aysegül BILEN[2]; Ibrahim Göksel HIZLI[3]; Selim ERTÜRK[2]; Cüneyt ARSLAN[2]; [1]Karadeniz Technical University; [2]Istanbul Technical University; [3]Istanbul University

M-10: Effect of Strontium on Surface Oxide Structure of Liquid Al-12Si Alloy: *Ugur Alev*[1]; Gurer Zeren[1]; Derya Dispinar[1]; Cem Kahruman[1]; [1]Istanbul University

M-11: Enhancement of Strength and Formability for Super-light Mg-Li Alloys: *Hyeon-Taek Son*[1]; Yong-Ho Kim[1]; Hyo-Sang Yoo[1]; [1]Korea Institute of Industrial Technology

M-12: Evaluation of Anodized Aluminum for Potential Use as an Interposer for the Test Socket Industry: *Boon-Chai Ng*[1]; Will Allen[1]; Dominique Tan-Ng[2]; [1]Andrews University; [2]Andrews Academy

M-13: Fabrication of Cu-Be Alloy Matrix CNT Composite and Enhancement of Materials Properties: *Kwang-jin Lee*[1]; Yeong-seok Kim[2]; Sang-don Mun[2]; [1]Korea Institute of Industrial Technology; [2]Chonbuk National University

M-14: Global Solar Radiation as an Alternative to Energy Production for Earth Climate System Using Common Meterological Data: Bukola Dawodu[1]; *Hammed Ogundiran*[2]; Isa Elegbede[3]; [1]University Of Lagos; [2]Fountain University; [3]Brandenburg University of Technology

M-15: Graphite Supported Template Synthezed Intermetallic Co-Ni Nanoparticles for Biomedical Applications: *Mehmet Burcin Piskin*[1]; Ivania Markova[2]; Emre Karaduman[3]; Ivan Zahariev[2]; [1]Yildiz Technical University ; [2]University of Chemical Technology and Metallurgy-Sofia, Bulgaria; [3]Yildiz Technical University

M-16: Hot Deformation Properties of 5xxx Aluminum Alloys for Automotive Applications: *Paul Ebenberger*[1]; Bodo Gerold[2]; Ramona Prillhofer[2]; Anna-Catharina Kaiß[2]; Peter Uggowitzer[3]; Stefan Pogatscher[1]; [1]Montanuniversitaet Leoben; [2]AMAG rolling GmbH; [3]ETH Zürich

M-17: Improvement of Corrosion Resistance of Low Carbon Steel by Ni-electrodeposition with Reduced Graphene Oxide: *Jung-Woo Choi*[1]; Gye-Won Kim[1]; Bongyoung Yoo[1]; Dong-Hyuk Shin[1]; [1]Hanyang University

M-18: In□uence of Addition of Alumina Nanoparticles on Thermoelectric Properties of Bi0.4Sb1.6Te3 Fabricated by Mechanical Alloying and Vacuum Hot Pressing: *Pee-Yew Lee*[1]; [1]National Taiwan Ocean University

M-19: Influence of Microstructure and Strain Hardening on Rheological and Fatigue Resistance of Cu-Ag Alloys Wires: Artur Kawecki[1]; *Kinga Korzen*[1]; Eliza Sieja-Smaga[1]; Andrzej Nowak[1]; Tadeusz Knych[1]; Andrzej Mamala[1]; Beata Smyrak[1]; Malgorzata Zasadzinska[1]; [1]AGH University of Science and Technology

M-20: Role of ZnO Nanoparticle Reinforcing the Ductility of Al-Si Alloys: *Sangjun Lee*[1]; Donghyun Bae[1]; [1]Yonsei University

M-21: Sigma-phase Formation in the Reaction Zone between Mo-41Re Alloy and SiC during Diffusion Bonding: Seung-Sik Jang[1]; Sun-Kyu Lee[1]; Godwin Kwame Ahiale[1]; *Yong-Jun Oh*[1]; [1]Hanbat 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 TiAlCrN PVD Process: *Min Seok Moon*[1]; Myeong Han Yoo[1]; Joon Hyuk Song[1]; Je Ha Oh[1]; Jong Il Rho[1]; Shin Jae Kang[2]; Kee Do Woo[2]; Sung Mo Yang[2]; Young Choi[3]; [1]Korea Institute of Carbon Convergence Technology; [2]Chonbuk National University; [3]KITECH

M-23: Study on the Behavior of Ultrafine-grained, Precipitation Strengthened Steels at High Strain Rates: *Janusz Majta*[1]; Remigiusz Bloniarz[1]; [1]AGH University of Science and Technology

M-24: Study of the Effects of High Temperature Processing on Microstructure and Texture Evolution in Ti Alloys based on Reconstruction of Beta Phase Using EBSD Data: Maciej Szymula[1]; Mateusz Sternalski[1]; Lukasz Madej[1]; Brad Wynne[2]; *Krzysztof Muszka*[1]; [1]AGH Univeristy of Science and Technology; [2]The University of Sheffield

M-25: Structural Characterization of $NaF–AlF_3$ Melts Used in Aluminum Refining by High- temperature Raman Spectroscopy: *Xianwei Hu*[1]; Jingjing Liu[1]; Gaowei Li[1]; Zhongning Shi[1]; Bingliang Gao[1]; Wenju Tao[1]; Jiangyu Yu[1]; Zhaowen Wang[1]; [1]Northeastern University

M-26: Synthesis and Characterization of Al–B4C Powders by Mechanical Alloying: *Hao Guo*[1]; ZhongWu Zhang[1]; Yu Zhao[1]; Songsong Xu[1]; Junpeng Li[1]; Jing Zhang[1]; [1]College 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 Thurston*[1]; Bernd Gludovatz[2]; Guillame Laplanche[3]; Anton Hohenwarter[4]; Robert Ritchie[2]; [1]UC Berkeley; [2]Lawrence Berkeley National Laboratory; [3]Ruhr University; [4]Montanuniversität Leoben

M-28: Thermomechanical Fatigue Behavior of Heat-resistant Cast Austenitic Stainless Steel for Automobile Turbocharger Housing: *Godwin Kwame Ahiale*[1]; Seungmun Jung[2]; Sunghak Lee[2]; Yong-Jun Oh[1]; [1]Hanbat National University; [2]Pohang University of Science and Technology

M-29: Transitioning Ideas to Reality: Melding Casting and Additive Manufacturing to Advance Engineering Education: *Matthew Willard*[1]; James McGuffin-Cawley[1]; [1]Case Western Reserve University

M-30: Ultrasonic Vibration Assisted Laser Surface Engineering of Aluminum Alloys: *Sourabh Biswas*[1]; Seyyed Habib Alavi[1]; Sandip Harimkar[1]; [1]Oklahoma State University

M-31: Variation of Thermal Diffusivity of Cu-RGO Composites by SPS Process: *Hyo-Soo Lee*[1]; Yeo-Reum Lee[1]; Sangwoo Kim[1]; [1]KITECH

M-32: Correlation between Microstructure Evolution and Mechanical Properties of Al 6061 Alloy Fabricated by Differential Speed Rolling after Cryogenic Treatment: *Haewoong Yang*[1]; Yong Hwan Lee[1]; Danasesha Paradinda Putra[1]; Young Gun Ko[1]; [1]Yeungnam university

High Entropy Alloys V — Poster Session

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
February 28, 2017

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 Barr*[1]; Elaf Anber[1]; J. Liu[2]; Yong Zhang[2]; Mitra Taheri[1]; [1]Drexel University; [2]University of Science and Technology Beijing

L-87: Atomic-scale Homogenization in an fcc-based High-entropy Alloy via Severe Plastic Deformation: *Hao Yuan*[1]; Ming-Hung Tsai[2]; Gang Sha[1]; Fan Liu[1]; Zenji Horita[3]; Yuntian Zhu[4]; Jing Tao Wang[1]; [1]Nanjing University of Science and Technology; [2]Nantional Chung Hsing University; [3]Kyushu University; [4]North Carolina State University

L-88: Construction of Pseudo Binary Phase Diagram in FeCoCrNi-Cu High Entropy Alloy System: *Kook Noh Yoon*[1]; Khurram Yaqoob[2]; Je In Lee[1]; Jin Yeon Kim[1]; Eun Soo Park[1]; [1]Research Institute of Advanced Materials, Department of Materials Science and Engineering, Seoul National University; [2]School of Chemical and Materials Engineering, National University of Sciences and Technology

L-89: Hydrogen Effects on the Mechanical Behavior of CoCrFeMnNi High-entropy Alloy: Role of Pre-strain: Yakai Zhao[1]; *Dong-Hyun Lee*[1]; Jung-A Lee[1]; Jin-Yoo Suh[2]; Jae-il Jang[1]; [1]Hanyang University; [2]Korea Institute of Science and Technology

L-90: Mechanical Properties of Entropy Stabilized Oxides: *Tyler Harrington*[1]; Matthew Quinn[2]; William Mellor[2]; Joshua Gild[3]; Jian Luo[1]; Kenneth Vecchio[1]; [1]Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; [2]Department of NanoEngineering, UC San Diego; [3]Materials Science and Engineering Program, UC San Diego

L-91: Precipitation in High-entropy FeNiMnAlCr Alloy: *Margaret Wu*[1]; Zhangwei Wang[1]; Paul Munroe[2]; Ian Baker[1]; [1]Dartmouth College; [2]University of New South Wales

L-92: The Fabrication and Oxidation Behavior of High-entropy Refractory Metal Carbides: *Tyler Harrington*[1]; Lavina Backman[2]; Joshua Gild[3]; Jian Luo[1]; Elizabeth Opila[2]; Kenneth Vecchio[1]; [1]Department of NanoEngineering and Materials Science and Engineering Program, UC San Diego; [2]Department of Materials Science and Engineering, University of Virginia; [3]Materials Science and Engineering Program, UC San Diego

L-93: The Role of Mass Scattering on Thermal Transport across Multiple Component Systems: *Ashutosh Giri*[1]; Jeffrey Braun[1]; Mina Lim[2]; Zsolt Rak[2]; Donald Brenner[2]; Patrick Hopkins[2]; [1]University of Virginia; [2]North Carolina State University

L-94: Microstructure and Properties of the VNbMoTaW High Entropy Alloy Prepared Powder Metallurgy: Jong Hwa Lim[1]; Ki Buem Kim[2]; *Jin Kyu Lee*[3]; [1]Kongju National University; [2]Sejong University; [3]Kongju National University

L-95: A Combinatorial Assessment of AlxCrCuFeNi2 (0 < x < 1.5) Complex Concentrated Alloys: Microstructure, Microhardness, and Magnetic Properties: *Bharat Gwalani*[1]; Tushar Borkar[1]; Deep Choudhuri[1]; Rajarshi Banerjee[1]; [1]University of North Texas Denton

L-96: An Assessment of the Lattice Strain in the CrMnFeCoNi High-Entropy Alloy: *Lewis Owen*[1]; Ed Pickering[2]; Helen Playford[3]; Howard Stone[1]; Matthew Tucker[4]; Nicholas Jones[1]; [1]University of Cambridge; [2]University of Manchester; [3]STFC ISIS Facility; [4]Spallation Neutron Source

L-97: Deformation Behavior and Solid Solution Hardening of Al-containing Refractory High-entropy Alloys: *Hans Chen*[1]; Alexander Kauffmann[1]; Bronislava Gorr[2]; Daniel Schliephake[1]; Christoph Seemüller[1]; Julia Wagner[3]; Hans-Jürgen Christ[2]; Martin Heilmaier[1]; [1]Karlsruhe Institute of Technology (KIT); [2]University of Siegen; [3]University of Stuttgart

L-98: Development of Lightweight High Entropy Alloys using a CALPHAD Approach: *Xuejun Huang*[1]; Weihua Sun[1]; Alan Luo[1]; [1]The Ohio State University

L-99: Development of Refractory High Entropy Alloy Matrix Composite Coating using Laser Cladding Technique: *Gabrielle Martin*[1]; Bharat Jasthi[2]; Michael West[2]; James Tomich[2]; Joshua Hammell[2]; Christian Widener[2]; [1]University of Alabama - Birmingham; [2]South Dakota School of Mines and Technology

L-100: Effects of Cr Content of AlCoCrxFeNi High-entropy Alloys on their Microstructure and Mechanical Properties: Tao-Tsung Shun[1]; Wei Jhe Hung[1]; Hsiang Chen Chang[1]; *Che-Fu Lee*[1]; [1]Feng Chia University

L-101: Exploring the Effects of Grain Refinement in Non-equiatomic High Entropy Alloys: *Benjamin MacDonald*[1]; Zhiqiang Fu[1]; Baolong Zheng[1]; Weiping Chen[2]; Julia Ivanisenko[3]; Yizhang Zhou[1]; Horst Hahn[3]; Enrique Lavernia[1]; [1]University of California Irvine; [2]South China University of Technology; [3]Karlsruhe Institute of Technology

L-102: High Throughput Exploration of High Entropy Alloys for High Temperature and Nuclear Applications via Diffusion Multiples
: *Owais Waseem*[1]; Soon Hyung Hong[1]; Ho Jin Ryu[1]; [1]Korea Advanced Institute of Science and Technology

L-103: Liquid Phase Separation in Equiatomic High-entropy Alloys Containing Copper: *Nicholas Derimow*[1]; Abraham Munitz[2]; Reza Abbaschian[1]; [1]University of California, Riverside; [2]Nuclear Research Center-Negev

L-104: Microstructural Investigations of a Nanocrystalline TiZrHfNbTa High-entropy Alloy: *Benjamin Schuh*[1]; Jean-Philippe Couzinié[2]; Verena Maier-Kiener[3]; Bernhard Völker[3]; Anton Hohenwarter[3]; [1]Montanuniversität Leoben ; [2]CNRS & Université Paris-Est; [3]Montanuniversität Leoben

L-105: Positron Annihilation Study on Equiatomic Multicomponent Alloys: *Shuhei Yoshida*[1]; Tilak Bhattacharjee[1]; Yu Bai[1]; Kazuki Sugita[2]; Masataka Mizuno[2]; Hideki Araki[2]; Nobuhiro Tsuji[3]; [1]Kyoto University; [2]Osaka University; [3]Kyoto 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 Mechanicalproperties: *Bharat Gwalani*[1]; Vishal Soni[1]; J.Y. Hwang[2]; Deep Choudhuri[1]; Rajarshi Banerjee[1]; [1]University of North Texas Denton; [2]Institute of Advanced Composite Materials, Korea Institute of Science and Technology

L-107: Structural and Mechanical Characterization of Refractory High Entropy Alloys: *Boliang Zhang*[1]; Yang Mu[2]; Yi Zhang[2]; Bin Zhang[2]; Wen Jin Meng[2]; Shengmin Guo[2]; [1]Louisiana State University ; [2]Louisiana State University

L-108: Synthesis of High-entropy Metal Diborides and Fluorite Oxides: *Joshua Gild*[1]; Yuanyao Zhang[1]; Tyler Harrington[1]; Kenneth Vecchio[1]; Jian Luo[1]; [1]University of California, San Diego

L-109: Thermal Properties of Entropy Stabilized Oxides: *Jeffrey Braun*[1]; Ashutosh Giri[1]; Zsolt Rak[2]; Mina Lim[2]; Christina Rost[2]; John-Paul Maria[2]; Donald Brenner[2]; Patrick Hopkins[1]; [1]University of Virginia; [2]North Carolina State University

L-110: Thermodynamic Approach for Designing New FCC High Entropy Alloy: *Won-Mi Choi*[1]; Seungmun Jung[1]; Yong Hee Jo[1]; Sunghak Lee[1]; Byeong-Joo Lee[1]; [1]POSTECH

L-111: Thermomechanical and Nanoindentation Study of High Entropy Alloys Derived from

Equilibrium Solidification: *Artashes Ter-Isahakyan*[1]; John Balk[1]; [1]University of Kentucky

L-112: Corrosion-resistant Nobility of AlxCoCrFeNi High-enthropy Alloys: *Yunzhu Shi*[1]; Liam Collins[2]; Rui Feng[3]; Bin Yang[1]; Peter Liaw[3]; [1]University of Science and Technology Beijing; [2]Oak Ridge National Laboratory; [3]The University of Tennessee

L-113: Microstructural Details and Indentation Behavior of Microcrystalline and Nanocrystalline Ti-Ni-Cr-Co-Fe High-entropy Alloy: Abhijit Abhijit[1]; G. Madhusudhan Reddy[1]; *Koteswararao Rajulapati*[1]; [1]University 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 HREBSD and Microscale DIC: *Timothy Ruggles*[1]; Geoffery Bomarito[2]; Jacob Hochhalter[2]; Saikumar Yeratapally[1]; [1]National Institute of Aerospace; [2]NASA LaRC

I-20: Effects of Alloying Elements and Processing on Deformation Mechanisms and Properties of Mg-Li base Alloys: *Zhongwu Zhang*[1]; Yun Zou[1]; Jian Li[2]; Hong Wang[2]; Ke An[3]; [1]Harbin Engineering University; [2]China Academy of Engineering Physics; [3]Oak Ridge National Laboratory

I-21: Parameter Study and Experimental Validation of Crystal-scale Finite Element Analyses of Titanium Alloys: *Kayleigh Nelson*[1]; Euan Wielewski[1]; [1]University of Glasgow

I-22: The Application of Synchrotron X-ray Tomography in the Solidification of Mg Alloys: *Enyu Guo*[1]; Sansan Shuai[2]; André Phillion[3]; Tao Jing[2]; Peter Lee[1]; [1]University of Manchester; [2]Tsinghua University; [3]McMaster University

Magnesium Technology 2017 — Poster Session

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

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: Dmytro Orlov, Lund University

I-23: A High-specific-strength and Corrosion-resistant Magnesium Alloy: *Wanqiang Xu*[1]; Michael Ferry[1]; [1]University of New South Wales

I-24: A Study on the Mechanical Characteristic of Heat Dissipation Magnesium Alloy by Thixomolding Process: *Ho Seung Jang*[1]; Jong Moon Park[1]; Sueng Hoon Yang[1]; No Jin Park[1]; Min Su Park[2]; Myung Hoon Oh[1]; [1]Kumoh National Institute of Technology/Materials Science and Engineering; [2]Jangwontech Co. Ltd.

I-25: Characterization of Ultrafine Grained WE43 Magnesium Alloy by Equal-channel Angular Pressing and High Pressure Torsion Process: *Camila De Souza*[1]; Tung Nguyen[1]; Marc Meyers[1]; Bingfeng Wang[2]; [1]University of California, San Diego; [2]Central South University, P.R. China

I-26: Constrained Groove Pressing of AZ31 and ZE10 Magnesium Alloys: *Mariia Zimina*[1]; Jan Bohlen[2]; Dietmar Letzig[2]; Gerrit Kurz[2]; Michaela Šlapáková[1]; Jan Bajer[1]; Miroslav Cieslar[1]; [1]Charles University in Prague; [2]Helmholtz-Zentrum Geesthacht

I-27: Damage and Fracture in Magnesium AZ31, Experiments and Modeling: *Babak Kondori*[1]; Ahmed Benzerga[1]; [1]Texas A&M University

I-28: Development of High Strength Mg Alloys with Good Formability at Room Temperature: *T.T.T. Trang*[1]; J. Zhang[2]; A. Zargaran[1]; J.H. Kim[1]; J.H. Hwang[1]; Nack J. Kim[1]; [1]Graduate Institute of Ferrous Technology (GIFT) and CAAM, Pohang University of Science and Technology (POSTECH); [2]Harbin Engineering University

I-29: Effects of Alloying Elements on Mechanical and Corrosion Properties of Extruded Mg-Al-Ca Alloys: *Hyunkyu Lim*[1]; Wonseok Yang[1]; Tae yang Kwak[1]; Youngkyun Kim[1]; Young-Ok Yoon[1]; Shae K. Kim[1]; [1]KITECH

I-30: Enhancement of Impact Fracture Toughness of Magnesium Alloys by Microstructure Modification: *Toshiji Mukai*[1]; Takayuki Hase[1]; Naoko Ikeo[1]; Masatake Yamaguchi[2]; [1]Kobe University; [2]Japan Atomic Energy Agency

I-31: First-principles Model of Alloy-dependent Magnesium Corrosion: *Krista Limmer*[1]; Joseph Labukas[1]; Michael Garvey[2]; Santanu Chaudhuri[2]; Jan Andzelm[1]; [1]U.S. Army Research Laboratory; [2]University of Illinois Urbana-Champaign

I-32: First Principles Modeling of <c+a> Dislocations in an Mg-Y Alloys: *Daniel Buey*[1]; Maryam Ghazisaeidi[1]; [1]Ohio State University

I-33: Formability Analysis on Optimized Condition of Superplastic Forming of Magnesium Alloy Sheet

: *Gopal Kumaresan*[1]; K Kalaichelvan[2]; [1]Production Technology, MIT Campus, Anna University; [2]Ceramic Technology, Anna University

I-34: Hot Blank – Cold Die (HB-CD) Stamping of Magnesium Alloy Sheets _ Material Characterization and Modeling: *Fadi Abu-Farha*[1]; Abdelrahim Lhal[1]; Zeren Xu[1]; Nan Zhang[1]; [1]Clemson University

I-35: Hydrogen Uptake by Magnesium Alloys during Aqueous Corrosion: Michael Brady[1]; Anton Ievlev[1]; Mostafa Fayek[2]; Donovan Leonard[1]; Harry Meyer III[1]; *Matthew Frith*[1]; Luke Daemen[1]; Anibal Ramirez-Cuesta[1]; Olga Ovchinnikova[1]; Lawrence Anovitz[1]; Gernot Rother[1]; Dongwon Shin[1]; Guang-Ling Song[3]; Bruce Davis[4]; [1]Oak Ridge National Laboratory; [2]University of Manitoba; [3]Xiamen University; [4]Magnesium Elektron North America

I-36: Influence of Thermal Treatment on Corrosion Rates of Mg-RE and Mg-10%Zn-0.3%Ca Alloys in 3.5%NaCl Solution: *Marilia Girardi Zorzato*[1]; Joseph Robson[1]; Dirk Engelberg[1]; Julie Gough[1]; [1]University of Manchester

I-37: Interaction of Nitrogen and Mg Lattice in Nanocrystalline Mg Alloys Synthesized Using Cryomilling Process: *Marjan Nezafati*[1]; Anit Giri[2]; Kyu Cho[2]; Chang-Soo Kim[1]; [1]University of Wisconsin Milwaukee; [2]U.S. Army Research Laboratory

I-38: Magnesium Based Biodegradable Composites for Orthopedic Application: Satish Jaiswal[1]; Pallavi Gupta[1]; Partha Roy[1]; *Debrupa Lahiri*[1]; [1]Indian Institute of Technology Roorkee

I-39: Mechanical and Microstructural Characterization of a Multi-Axis Forged AZ31 Billet: *Christian Roach*[1]; Lauren Oh[1]; Xavier Hernandez[1]; Suveen Mathaudhu[1]; [1]University of California, Riverside

I-40: Microstructures and Tensile Properties of As-cast Magnesium AM60-based Composite Containing Alumina Fibres and Nano Particles: *Junxiang Zhou*[1]; Li Fang[1]; Xuezhi Zhang[1]; Henry Hu[1]; [1]University of Windsor

I-41: Negative Difference Effect of Mg Alloy AZ31D in NaCl Solutions: *Shuoshuo Xi*[1]; [1]University of Illinois at Chicago

I-42: Origin of Non-Schmid Behavior of {-1011} Deformation Twinning in Mg: *Akio Ishii*[1]; Shigenobu Ogata[1]; [1]Osaka University

I-43: Phase Transformations of Long Periodic Stacking Ordered (LPSO) Phases at Finite Temperature in Magnesium-Gadolinium-Aluminum Ternary System: *Hongyeun Kim*[1]; Yi Wang[1]; Laszlo Kecskes[2]; Kristopher Darling[2]; Zi-Kui Liu[1]; [1]Pennsylvania State University; [2]US Army Research Laboratory

I-44: Production of Mg-Li Alloys by Vacuum Alnminothermic Reduction Process: Wang Yaowu[1]; *Xianwei Hu*[2]; [1] Northeastern University of China; [2]Northeastern University of China

I-45: Quasi-static and Dynamic Behavior and Microstructure Evolution of WE43 Rare Earth Magnesium Alloy: Experiments and Crystal Plasticity Modeling: *Mohammad Jahedi*[1]; Miroslav Zecevic[1]; Brandon McWilliams[2]; Irene Beyerlein[3]; Marko Knezevic[1]; [1]Department of Mechanical Engineering, University of New Hampshire; [2]Weapons and Materials Research Directorate, US Army Research Laboratory; [3]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*[1]; Rmanathan Arunachalam[1]; Sayad Zahid Qamar[1]; [1]Sultan Qaboos University

I-47: Strengthening Mechanism of AZ31 Magnesium with Gradient Structure: Maryam Jamalian[1]; *David P. Field*[1]; [1]Washington State University

I-48: Study on Electric and Thermal Properties of Mg Alloys with Sn and Ca Elements: *Yong-Ho Kim*[1]; Hyo-Sang Yoo[1]; Chang-Gi Jung[1]; Hyeon-Taek Son[1]; [1]Korea Institute of Industrial Technology

I-49: Study on the Reversion Reaction between Magnesium Vapor and CO in the Carbothermic Reduction of Magnesia under Vacuum: *Yang Tian*[1]; Baoqiang Xu[1]; Bin Yang[1]; Dachun Liu[1]; Hai Liu[1]; [1]Kunming University of Science and Technology

I-50: Surface Integrity Characterization from Shot Peening a Biodegradable Magnesium Alloy: *Michael Sealy*[1]; Yuebin Guo[2]; Ziye Liu[2]; Chao Li[2]; [1]University of Nebraska-Lincoln; [2]The University of Alabama

I-51: Textural Contributions to Strengthening in Mg-RE Alloy with Nanospaced Stacking Faults: *Heather Salvador*[1]; Vishnu Bhattacharyya[2]; Yuntian Zhu[3]; Sean Agnew[2]; Suveen Mathaudhu[1]; [1]University of California, Riverside; [2]University of Virginia; [3]North Carolina State University

I-52: The Deformation Behavior of Mg-2Zn Alloy Sheet Containing Oxygen Atoms: *Seung Won Kang*[1]; Dognhyun Bae[1]; [1]Yonsei University

I-53: The Effect of Annealing on the Properties of AW5754 Aluminium Alloy - AZ31 Magnesium Alloy Joints Produced with Explosion Welding: Martin Sahul[1]; *Miroslav Sahul*[1]; Ján Lokaj[1]; Petr Nesvadba[2]; [1]Slovak University of Technology in Bratislava; [2]OZM Research, Ltd.

I-54: Grain Refining in Mg Welds with Arc Oscillation: *Tao Yuan*[1]; [1]Beijing University of Technology

Mechanical and Creep Behavior of Advanced Materials: A SMD Symposium Honoring Prof. K. Linga Murty — Poster Session

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
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

L-114: Effects of Blade Curvature on Fatigue Life of Nickel-based Single Crystal Structures with Film-cooling Holes: *Zhixun Wen*[1]; Yamin Zhang[1]; Youliang Li[1]; Zhufeng Yue[1]; [1]Northwestern Polytechnical University

L-115: High Temperature Tensile Properties and Related Microstructural Evolution of Grade 92 Steel: Somayeh Pasebani[1]; Sultan Alsagabi[1]; *Indrajit Charit*[1]; [1]University of Idaho

L-116: In Situ Investigation on the Micromechanical Behavior of the CuZr-based BMGC by Neutron Diffraction: *Dongmei Wang*[1]; Ke An[2]; Juan Mu[3]; Yan Chen[2]; Yandong Wang[3]; Haijian Xu[3]; [1]1.Northeastern University 2.Oak Ridge National Laboratory; [2]Oak Ridge National Laboratory; [3]Northeastern University

L-117: Mechanical and Creep Behavior of EPDM: *Saeed Babamohammadi*[1]; Jahan Rasty[1]; [1]Texas Tech University

L-118: Understanding of Microstructure and Mechanical Properties of Friction Stir Processed Al-bearing, High-Cr Ferritic Stainless Steel: *Anumat Sittiho*[1]; Vedavyas Tungala[2]; Indrajit Charit[1]; Rajiv Mishra[2]; [1]University of Idaho; [2]University of North Texas

L-119: Mechanical Properties and Serrated Flow in Al-bearing, High-Cr Accident-tolerant Ferritic Steel: Ankan Guria[1]; *Indrajit Charit*[1]; [1]University of Idaho

L-120: Spherical Nanoindentation Creep Behavior of Indium at Room Temperature: *Woo-Jin Kim*[1]; Jung-A Lee[1]; Yakai Zhao[1]; Jae-il Jang[1]; [1]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

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chairs: Joseph Poon, University of Virginia; Yuntian Zhu, North Carolina State University; Deliang Zhang, Shanghai Jiaotong University; Zhe Fan, Texas A&M University

L-121: Cyclic Response of Friction-stir Processed Ultra-fine Grained Copper: Salar Salahi[1]; *G. Guven Yapici*[1]; [1]Ozyegin University

L-122: Projectile Induced Deformation Twinning in Nanocrystalline Aluminum: *Sichuang Xue*[1]; Zhe Fan[1]; Olawale Lawal[2]; Thevamaran Ramathasan[2]; Yue Liu[3]; Kaiyuan Yu[4]; Edwin Thomas[2]; Xinghang Zhang[5]; [1]Texas A&M University; [2]Rice University; [3]Los Alamos National Laboratory; [4]China University of Petroleum; [5]Purdue University

L-123: Aluminum with High Modulus and Superior Strength by Self-Dispersed TiC Nanoparticles: *Chezheng Cao*[1]; Abdolreza Javadi[1]; Weiqing Liu[2]; Xiaochun Li[1]; [1]University of California, Los Angeles; [2]Harbin Institute of Technology

L-124: Multiscale Modeling of Deformation Behavior in Metal/Ceramic Mmultilayer Nanocomposites
: *Mohsen Damadam*[1]; Iman Salehinia[2]; Georges Ayoub[3]; Hussein Zbib[1]; [1]Washington State University; [2]Northern Illinois University; [3]University of Michigan-Dearborn

L-125: Competition between Slip and Martensitic Transformation of Retained Austenite in Carbon-steel/Copper Nanolaminates: *Yadong Ru*[1]; Yang Ren[2]; Lishan Cui[1]; Kaiyuan Yu[1]; [1]China University Of Petroleum Beijing; [2]X-ray Science Division, Argonne National Laboratory

L-126: The Influence of Glassy Phase on the Crack Healing Efficiency of Silicon Carbide/Spinel Ceramic: *Fariborz Tavangarian*[1]; Guoqiang Li[2]; [1]Penn State Harrisburg; [2]Louisiana State University

L-127: Deformation Behavior Transition in Small-sized Metallic Glasses Depending on External Variables
: *So Yeon Kim*[1]; Jinwoo Kim[1]; Andrew Minor[2]; Eun Soo Park[1]; [1]Seoul National University; [2]Lawrence Berkeley National Laboratory

L-128: The Thermal Stability of Cryomilled 5083 Aluminum Containing Diamantane Nanoparticles: *Walid Hanna*[1]; Khinlay Maung[2]; Mohammed Enayati[3]; James Earthman[4]; Farghalli Mohamed[4]; [1]Military Technical College; [2]Precision Castparts Corp.; [3]Department of Materials Engineering, Isfahan University of Technology, ; [4]Department of Chemical Engineering and Materials Science, University of California, Irvine

L-129: Dynamic Behavior of Ultra High Molecular Weight Polyethylene Reinforced with Ceramics Nanoparticles at High Strain Rates: *Édio Lima Júnior*[1]; Sergio Monteiro[1]; Ricardo Weber[1]; Alaelson Vieira[1]; [1]Military Institute of Engineering

L-130: Molecular Dynamics Study of the Creep Behavior of Metallic Glasses and Glass-composites: *Constanze Kalcher*[1]; Tobias Brink[1]; Jochen Rohrer[1]; Alexander Stukowski[1]; Karsten Albe[1]; [1]Technische Universität Darmstadt

L-131: Dislocation Engineering in Novel Nanowire Structures: Chris Chow[1]; *Sam Reeve*[1]; Alejandro Strachan[1]; [1]Purdue University

L-132: An Experimental Investigation of Deformation Mechanisms in FCC Thin Films: *Marissa Linne*[1]; Samantha Daly[2]; [1]University of Michigan; [2]University of California, Santa Barbara

L-133: Impact of Heat Treatments at Varying Temperature on the Strength and Ductility of Nanotwinned Inconel: *Nathan Heckman*[1]; Andrea Hodge[1]; [1]University of Southern California

L-134: Mechanical Characterization of fcc and bcc Metals by Extraction of Nanoindentation Stress-strain Curves: *Alexander Leitner*[1]; Verena Maier-Kiener[1]; Reinhard Fritz[1]; Daniel Kiener[1]; [1]Montanuniversität Leoben

L-135: Multi-stages Spiral Twist Extrusion: A Novel Severe Plastic Deformation Technique for Bulk Nanostructured Materials: *Waleed El-Garaihy*[1]; Dina Fouad[2]; Hanadi Salem[2]; [1]Qassim University; [2]American University in Cairo

L-136: Superelasticity, Micaceous Plasticity and Size Effects of Novel Intermetallic Compound $CaFe_2As_2$ At Small Length Scales

: *John Sypek*[1]; Christopher Weinberger[2]; Paul Canfield[3]; Sergey Bud'ko[3]; Seok-Woo Lee[1]; [1]University of Connecticut; [2]Drexel University; [3]Iowa State University

L-137: Deformation Induced Martensitic Phase Transformation and Reverse Transformation in Stainless Steels as a Function of Milling Time and Annealing Temperature.: *Ahmet Batibay*[1]; Hasan Kotan[1]; Hakan Gungunes[2]; Kris Darling[3]; [1]Necmettin Erbakan University; [2]Corum Hitit University; [3]US 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 Zhou*[1]; Deliang Zhang[1]; [1]Northeastern University

L-139: Enhanced Mechanical and Electrical Properties of Nanocrystalline Cu Matrix Nanocomposite with In-situ Formed NbC Nanoparticles: *Wei Zeng*[1]; Dengshan Zhou[1]; Deliang Zhang[1]; [1]Shanghai Jiaotong University

L-140: Effects of the Angle between Micro-crack and Loading Direction on Crack Propagation of Single Crystal □-TiAl Alloy: Ruicheng Feng[1]; *Jiantao Lu*[1]; Haiyan Li[1]; Hui Cao[1]; Zhiyuan Rui[1]; [1]Lanzhou University of Technology

L-141: Tensile Properties of Perovskite in Flexible Solar Cells: *Seung-min Ahn*[1]; Eui Dae Jung[1]; Myoung Hoon Song[1]; Ju-Young Kim[1]; [1]UNIST

L-142: Fabrication and Characterization of Aluminum-carbon Nanotubes (Al-CNT) Functionally Graded Cylindrical Composites: Amal Esawi[1]; Ehab Salama[1]; *Sherry Morad*[2]; [1]American University in Cairo; [2]American University in Cairo

L-143: High Strength and High Conductivity Wires Made from Cu-Ag Alloys Designed for the Construction of High Magnetic Fields Generators: *Eliza Sieja-Smaga*[1]; Artur Kawecki[1]; Tadeusz Knych[1]; Andrzej Mamala[1]; Krystian Franczak[1]; Kinga Korzen[1]; Grzegorz Kiesiewicz[1]; Pawel Kwasniewski[1]; [1]AGH University of Science and Technology

L-144: Mechanical Characterization of Cold Sprayed Aluminum Alloy Using Micropillar Compression: *Tyler Flanagan*[1]; Benjamin Bedard[1]; Sumit Suresh[1]; Mark Aindow[1]; Avinash Dongare[1]; Harold Brody[1]; Xuemei Wang[2]; Victor Champagne[3]; Seok-Woo Lee[1]; [1]University of Connecticut; [2]United Technologies Research Center; [3]U.S. Army Research Laboratory

L-145: Development and Characterization of Sputter Deposited Nickel-molybdenum-tungsten Thin Films for High Temperature Metal MEMS Applications: *Gianna Valentino*[1]; Gidong Sim[1]; Jessica Krogstad[2]; Timothy Weihs[1]; Kevin Hemker[1]; [1]Johns Hopkins University; [2]University of Illinois at Urbana-Champaign

L-146: Mechanical Behavior of Sub-micron-sized Nanocrystalline Pillars under Monotonic and Cyclic Loading: *Jung-A Lee*[1]; Brandon B. Seo[2]; Moo-Young Seok[1]; Yakai Zhao[1]; Upadrasta Ramamurty[3]; Ting Y. Tsui[2]; Jae-il Jang[1]; [1]Hanyang University; [2]University of Waterloo; [3]Indian Institute of Science

L-147: Nanoindentation Response of Fe-10%Cr Structures with Voids: An Atomistic Study
: *Mohammad Abu-Shams*[1]; Ishraq Shabib[1]; [1]Central Michigan University

L-148: Preparation and High Temperature Deformation of Nanocrystalline MgO: *Darren Dewitt*[1]; Yasuhiro Kodera[1]; Harry Green[2]; Javier Garay[1]; [1]University of California, San Diego; [2]University of California, Riverside

L-149: Solute Atoms Enhance Tensile Ductility in a Nanostructured Al-Mg Alloy: *Yaojun Lin*[1]; Shulei Li[2]; Zhigang Yan[2]; Haiming Wen[3]; Enrique Lavernia[4]; [1]Wuhan University of Technology; [2]Yanshan University; [3]Idaho State University; [4]University of California, Irvine

L-150: Strong, Ductile, Thermally Stable Cu-based Metal-intermetallic Nanostructured Alloys: *Keith Dusoe*[1]; Sriram Vijayan[1]; Thomas Bissell[1]; Mark Aindow[1]; Seok-Woo Lee[1]; [1]University of Connecticut

L-151: Synthesis of Bulk Single-crystalline Quasicrystal Approximant YCd_6 and Its Small-scale Mechanical Properties: *Gyuho Song*[1]; Tai Kong[2]; Paul Canfield[2]; Seok-Woo Lee[1]; [1]University of Connecticut; [2]Iowa State University

L-152: Flexibility of Perovskite LED Based on Mechanical Properties of Component Materials: *Si Hoon Kim*[1]; Jae Choul Yu[1]; Young-Cheon Kim[1]; Yun-Seok Nam[1]; Myoung Hoon Song[1]; Ju-Young Kim[1]; [1]UNIST

L-153: The Influence of Severe Plastic Deformation on the Fatigue Crack Growth Behavior of Pure Metals and Alloys: *Thomas Leitner*[1]; Anton Hohenwarter[1]; Reinhard Pippan[2]; [1]Montanuniversität Leoben; [2]Austrian Academy of Sciences

L-154: The Precipitation and Strengthening Behavior of Ultrafine Structured Al-7wt%Si-0.3wt%Mg Alloy: *Jiamiao Liang*[1]; Zhen Zhang[1]; Xun Yao[1]; Yifeng Zheng[1]; Deliang Zhang[1]; [1]Shanghai Jiao Tong University

L-155: Towards an Understanding of Shear Band Formation in Nanocrystalline and Ultrafine-grained Single Phase Materials: *Oliver Renk*[1]; Pradipta Ghosh[1]; Reinhard Pippan[1]; [1]Erich Schmid Institute of Materials Science

L-156: Effect of Annealing Temperature on Texture Transformation in FCC Thin Films: *Nathaniel Rogers*[1]; Rekha King[1]; Margaret Kirkland[2]; Laurel Vincett[2]; Brandon Hoffman[2]; Shefford Baker[1]; [1]Cornell University; [2]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]; Michael Falk[1]; [1]Johns Hopkins University

L-158: A Study on Growth Nanotwins for CuZn Synthesized by Electrodeposition and Magnetron Sputtering: *Chelsea Appleget*[1]; Andrea Hodge[1]; [1]University of Southern California

L-159: Atomistic Simulation of Creep Deformation in Metallic Nanoglasses: *Omar Adjaoud*[1]; Karsten Albe[2]; [1]Technische Universität Darmstadt ; [2]Technische Universität Darmstadt

L-160: Effects of the Processing Variables on Microstructural Homogeneity Manufactured by High Pressure Double Torsion: *Mohammad Jahedi*[1]; Irene Beyerlein[2]; Marko Knezevic[1]; [1]Department of Mechanical Engineering, University of New Hampshire; [2]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*[1]; Oliver Renk[1]; Thomas Leitner[2]; Bo Yang[1]; Reinhard Pippan[1]; [1]Erich Schmid Institute of Materials Science; [2]Montanuniversität Leoben

L-162: Microstructural Influences on the Transition to Drag Dominated Dislocation Motion at High Rates of Strain: *Scott Turnage*[1]; Kristopher Darling[2]; Kiran Solanki[1]; [1]Arizona State University; [2]Army Research Laboratory

L-163: Low Temperature Compositional Patterning in Plastically-deformed Immiscible Alloys: *Nirab Pant*[1]; Yinon Ashkenazy[2]; Pascal Bellon[1]; Robert Averback[1]; [1]University of Illinois at Urbana-Champaign; [2]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*[1]; Soupitak Pal[1]; Yuan Wu[1]; G. R. Odette[1]; [1]University of California, Santa Barbara

L-165: Microstructure and Mechanical Behavior of Nanostructured FeMn Bioresorbable Alloy: *Anqi "Angel" Yu*[1]; Michael Heiden[2]; Christian Roach[1]; Lia Stanciu[2]; Suveen Mathaudhu[1]; [1]University of California Riverside; [2]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*[1]; Gyuseok Kim[2]; Saritha Samudrala[3]; Peter Felfer[3]; Andrew Breen[3]; Julie Cairney[3]; Daniel Gianola[4]; [1]University of Wisconsin-Madison; [2]University of Pennsylvania; [3]University of Sydney; [4]University of California-Santa Barbara

L-167: On the Relationship between the Grain Boundary Character and the Microhardness in Nanocrystalline Ni-W: Mathieu Lagarde[1]; Niusha Shakibi Nia[1]; Julie Bourgon[2]; Egle Conforto[1]; Patrick Girault[1]; Stéphane Cohendoz[1]; Juan Creus[1]; *Xavier Feaugas*[1]; Catherine Savall[1]; [1]Université de La Rochelle; [2]ICMPE

L-168: Surface Rebound of Relativistic Dislocations Directly and Efficiently Initiates Deformation Twinning: *Qingjie Li*[1]; Ju Li[2]; Zhi-Wei Shan[3]; Evan Ma[1]; [1]Johns Hopkins University; [2]Massachusetts Institute of Technology; [3]Xi'an Jiaotong University

L-169: Thermal Stability and Mechanical Behaviour of Electrodeposited Nanocrystalline Iron: *Vijay Kumar D*[1]; Prasad MJNV[1]; [1]Indian Institute of Technology Bombay

L-170: Twinning-dominated Deformation in Body-centered Cubic Tungsten Nanowires: *Jiangwei Wang*[1]; [1]Zhejiang University

L-171: UV Light, Temperature and Humidity Effects on the Mechanical Behavior of Nanocomposites: *Claudia Luhrs*[1]; Stephanie Rockford[1]; Sarath Menon[1]; Hugo Zea[2]; [1]Naval Postgraduate School; [2]Universidad Nacional de Colombia

Multiscale Architectured 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; Huajian Gao, Brown University; Ke Lu, Institute of Metal Research, Chinese Academy of Science; Xiaolei Wu, Institute of Mechanics, Chinese Academy of Science

Tuesday PM
February 28, 2017

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*[1]; Pin Fang Zhang[1]; Hao Yuan[1]; Kui Lin[1]; Ying Liu[1]; De Liang Yin[1]; Jing Tao Wang[1]; Terence Langdon[2]; [1]Nanjing University of Science and Technology; [2]University of Southampton

L-173: Fabrication of Functionally Graded Materials via Asymmetric Cold Rolling: Tyler Harrington[1]; *Jordan Furlong*[2]; Roxan Afshari[2]; Chaoyi Zhu[2]; Kenneth Vecchio[2]; [1]Department of NanoEngineering and Materials Science and Engineering Program, University of California San Diego; [2]Department of NanoEngineering, University of California San Diego

Nanocomposites IV: Nanoscience for Renewable Energy — Poster Session

Program Organizers: Changsoo Kim, University of Wisconsin-Milwaukee; Simona Murph, Savannah River National Laboratories; Muralidharan Paramsothy, NanoWorld Innovations (NWI); Meisha Shofner, Georgia Institute of Technology

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

J-37: Electrochemical Supercapacitor Based on the Hierarchical Coral-like ZnCo2O4 Nanowires: John Anthuvan Rajesh[1]; Jae-Hong Kim[1]; Woo-Sik Jung[1]; *Kwang-Soon Ahn*[1]; [1]Yeungnam University

Nanostructured Materials for Nuclear Applications II — Poster Session

Program Organizers: Cheng Sun, Idaho National Laboratory; Khalid Hattar, Sandia National Laboratories ; Celine Hin , Virginia Tech; Fei Gao , University of Michigan; Osman Anderoglu , Los Alamos National Laboratory; Mitra Taheri , Drexel University; Haiming Wen , Idaho State University

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

J-38: Grain Boundary Density Dependence of Radiation Induced He Bubble Formation in Nanocrystalline Fe and Ni Thin Films: *James Nathaniel*[1]; Asher Leff[1]; Jon Baldwin[2]; Osman El-Atwani[1]; Khalid Hattar[3]; Mitra Taheri[1]; [1]Drexel University; [2]Los Alamos National Laboratory; [3]Sandia National Laboratory

Nanostructured Surfaces for Improved Functional Properties — Poster

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

Tuesday PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: To Be Announced

J-39: Development of Economic Ta2O5-based Catalytic System towards Efficient Oxygen Evolution Reaction via Surface Engineering: *Jun Ding*[1]; [1]National University of Singapore

J-40: Novel Bilayered Nanostructured Ni-Co-SiC/Zn-Ni Composite Coating with Exceptional Tribological and Corrosion Properties by Pulse Electrodeposition: *Swastika Banthia*[1]; Saptarshi Das[2]; Arghya Patra[1]; Srijan Sengupta[1]; Siddhartha Das[1]; Karabi Das[1]; [1]IIT Kharagpur; [2]Heritage Institute of Technology, Kolkatta

J-41: Surfactant Assisted Synthesis of Brown TiO2 and Its Photocatalytic Activity: *Swati Naik*[1]; Gabriel Caruntu[1]; [1]Central MichiganUniversity

J-42: Thermal Diffusivity of Cu-based Composite Materials by Volume Fraction Using SPS Process: *Sangwoo Kim*[1]; Hyouk-Chon Kwon[1]; Hyo-soo Lee[1]; [1]Korea Institute of Industrial Technology

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
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: Carlos Elias, Instituto militar de Engenharia

PAN-1: Control of Shell Thickness on CeO2-ZnO Core-shell by Surfactant Assisted Co-precipitation Methods: *Felipe Sanhueza*[1]; Ramalinga Mangalaraja[1]; Stephano Morales[1]; Saeed Farhang[1]; Elizabeth Elgueta[1]; [1]University of Concepcion

PAN-2: Elastic Modulus of Ternary Titanium Alloys for Biomedical Applications
: *Marcos da Silva*[1]; Raul Araújo[1]; Pedro Kuroda[1]; Carlos Grandini[1]; [1]Unesp/Bauru

PAN-3: Fatigue Response of Ti-6Al-4V Alloy with Surface Modified by Chemical Treatment: *Cesar Escobar Claros*[1]; Leonardo Contri Campanelli[1]; Diego Pedreira Oliveira[1]; Claudemiro Bolfarini[1]; [1]Universidade Federal de São Carlos

PAN-4: Fracture Mechanics Application on the Fatigue Response of Ti-6Al-4V ELI Coated with Nanotubes: *Leonardo Campanelli*[1]; Paulo Sergio da Silva[1]; Nilson Oliveira[2]; Claudemiro Bolfarini[1]; [1]Federal University of São Carlos; [2]University of São Paulo

PAN-5: Injectable Bone Substitute of Fibroin and Nanohydroxyapatite: *Maritza Buitrago*[1]; Claudia Ossa[1]; [1]Universidad de Antioquia

PAN-6: Metal-vitreous Biocide Coating: *Felipe Santos*[1]; Sonia Mello-Castanho[1]; Antonio da Silva[1]; José Bartolomé[2]; Maria Teresa Prieto[2]; Elisa Fernandez-Garcia[3]; Claudinei Santos[4]; [1]IPEN - USP; [2]CSIC - UAM; [3]CINN - University of Oviedo; [4]UERJ/FAT

PAN-7: Nature's Technical Ceramic: The Avian Eggshell: Eric Hahn[1]; *Andrei Pissarenko*[1]; Vincent Sherman[1]; Daniel Fernandes[2]; Marc Meyers[1]; [1]University of California, San Diego; [2]Biomaterials Laboratory, Military Institute of Engineering, Rio de Janeiro, Brazil

PAN-8: Preparation and Characterization of Biodegradable Polymer Blend Reinforced with Bio-hydroxyapatite Nanoparticle: *Pedro Reis*[1]; Esperidiana Moura[1]; Felipe Lourenço[2]; Maria José Oliveira[1]; [1]Instituto de Pesquisas Energéticas e Nucleares; [2]Faculdade de Ciências Farmacêuticas

PAN-9: Selective Laser Sintering of Co-Cr-Mo Alloy for Dental Applications: *Claudinei Santos*[1]; Alexandre Habibe[1]; Paula Silva[2]; Bruno Simba[1]; [1]UERJ; [2]USP-EEL

PAN-10: Surface Characterisation of Anodised Zirconium with Proved Bioactivity: *Andrea Gomez Sanchez*[1]; Maria Katunar[1]; Silvia Cere[1]; [1]INTEMA - CONICET

PAN-11: Wear of TiO_2 Nanofilm Synthetized on Ti6Al4V and 316 Stainless Steel: Jonathan M. Schuster[1]; Mario Rosenberger[1]; *Carlos Schvezov*[1]; [1]IMAM (UNaM-Conicet)

Pan American Materials Congress: Advanced Manufacturing — Poster Session

Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Hotza, UFSC

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

PAN-12: Influence of Dendritic Morphology on the Strain Field of Dendritic Solidification Structures: Alejandro Moreno[1]; Mario Rosenberger[2]; *Carlos Schvezov*[2]; [1]Facultad de Ciencias Exactas Químicas y Naturales - Universidad Nacional de Misiones; [2]Instituto de Materiales de Misiones

PAN-13: Microhardness Assessment of 316L Stainless Steel Fabricated by Laser Engineered Net Shaping: *Katherine Acord*[1]; Thale Smith[2]; Julie Schoenung[1]; [1]University of California, Irvine; [2]University of California, Davis

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
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

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 Mangalaraja*[1]; Jonathan Usuba[1]; Hernán Valle[1]; Jorge Durango[1]; Marta Lopez[1]; Chan Siew Hwa[2]; [1]University of Concepcion; [2]Nanyang Technological University

PAN-15: Green Extract of Mate Tea as Corrosion Inhibitor of Copper and Aluminum: Ana Derna[1]; Claudia Méndez[2]; Liliana Gassa[3]; *Alicia Ares*[4]; [1]FCEQyN-UNaM; [2]IMAM (CONICET-UNaM); [3]INIFTA; [4]CONICET/FCEQyN-UNaM

PAN-16: Heat Capacity and Thermal Expansion of Solar Salts Determined by Thermal Analysis Techniques: *Ekkehard Post*[1]; [1]NETZSCH Geraetebau GmbH

PAN-17: Influence of Organic Solvent on Pt Nanoparticles Synthesis on MWCNT for ORR: *Carolina Silva Carrillo*[1]; Edgar Reynoso-Soto[1]; Rosa-Maria Felix Navarro[1]; Balter Trujillo-Navarrete[1]; Jose Chavez-Carvayar[2]; Francisco Paraguay-Delgado[3]; Gabriel Alonso-Nuñez[4]; [1]Instituto Tecnologico de Tijuana; [2]Instituto de Investigacion En Materiales, Universidad Nacional Autonoma de Mexico; [3]Centro de Investigacion de Materiales Avanzados; [4]Centro 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: *Nalandhiran Pugazhenthiran*[1]; Panneerselvam Sathishkumar[2]; Ramalinga Mangalaraja[1]; Sambandam Anandan[3]; Sepperumal Murugesan[4]; [1]University of Concepcion; [2] University of Concepcion; [3]National Institute of Technology - Trichy; [4]Madurai Kamaraj University

PAN-19: Plasmon-enhanced Solar Fuel Production with Gold-metal Oxide Hybrid Nanomaterials: *Christian Engelbrekt*[1]; Matt Law[2]; Jingdong Zhang[1]; [1]Technical University of Denmark; [2]University of California Irvine

PAN-20: Platinum Salts Synthesis as Precursors to Get Heterogeneous Catalysts for Biofuels Production: *Adriana Martínez*[1]; Sherly Acosta[2]; Jonathan Sierra[2]; Carlos Guerrero[2]; [1]Universidad Nacional de Colombia ; [2]Universidad Nacional de Colombia

PAN-21: Structural and Magnetic Properties of Nano Cobalt Ferrites for Green Refrigeration Technology: *Prabhakaran Thandapani*[1]; Mangalaraja R.V[2]; [1] University of Concepcion; [2]University of Concepcion

PAN-22: Structural and Optical Properties of Graphene-based Nano-architectures Decorated with (Ag, Cu) Metal Nanoparticles: *Udayabhaskar Rednam*[1]; Mangalaraja R. V.[1]; Pandiyarajan Thangaraj[1]; Karthikeyan B[2]; [1]University of Concepsion; [2]National Institute of Technology, Trichy

PAN-23: Synthesis of Mesoporous TiO2 for Photo-anode in Dye-synthetized Solar Cell: *Victor Gonzalez*[1]; Edgar Reynoso[1]; Balter Trujillo[1]; Rosa Felix[1]; [1]Instituto Tecnologico de Tijuana

PAN-24: Tape Casting and Flash Sintering of Nickel Oxide-Gadolinium Doped Ceria (NIO-GDC) Nanostructure Composite Anode for Solid Oxide Fuel Cells: *Jonathan Usuba*[1]; Mangalaraja Ramalinga Viswanathan[1]; Miguel Niño[1]; Jorge Durango[1]; Marta Lopez[1]; Chan Siew Hwa[2]; [1]Universidad de Concepción; [2]Nanyang Technological University

Pan American Materials Congress: Materials for Infrastructure — Poster Session

Program Organizers: Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en química aplicada

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

PAN-25: Calcium Aluminate Cements Under High Temperature Oxidation Environment: *John Zapata*[1]; Henry Colorado[1]; Maryory Gómez[1]; [1]Universidad de Antioquia

PAN-26: Carbonation Study in Calcium Aluminate Cement Pastes: *Jose Vanegas*[1]; Henry Colorado[1]; John Zapata[2]; [1]CCComposites Lab, Universidad de Antioquia (UdeA); [2]GISI. Institución Universitaria de Envigado (IUE)

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
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

PAN-27: Blends of PVDF with Its Processing Waste: Study of the Mechanical Properties of the Blends Thermally Aged: *Leilane Cirilo*[1]; Marysilvia Costa[1]; [1]Programa de Engenharia Metalurgica e de Materiais - COPPE/UFRJ

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
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

PAN-28: Analysis of Coir Fiber Porosity: Fernanda da Luz[1]; *Sérgio Monteiro*[1]; [1]Military Institute of Engineering, IME

PAN-29: Ballistic Performance in Multilayer Armor with Epoxy Composite Reinforced with Malva Fibers: Lucio Nascimento[1]; Luis Henrique Leme Louro[1]; Sérgio Neves Monteiro[1]; Alaelson Vieira Gomes[1]; Édio Pereira Lima Júnior[1]; Rubens Marçal[1]; *Fábio Braga*[1]; [1]Instituto Militar de Engenharia

PAN-30: Curaua Non-woven Fabric Composite for Ceramic Multilayered Armors: A Lightweight, Natural, and Low Cost Alternative for KevlarTM: *Fábio Braga*[1]; Augusto Cabral[1]; Édio Lima Jr.[1]; Sergio Monteiro[1]; Foluke de Assis[1]; [1]Military Institute of Engineering (IME)

PAN-31: Effect of Porosity and Bimodal Microstructure of Ti-based Alloy Foams Consolidated by Hot Pressing: *Christopher Salvo*[1]; Claudio Aguilar[2]; Sheila Lascano[2]; R.V. Mangalaraja[1]; [1]University of Concepcion; [2]Universidad Técnica Federico Santa Maria

PAN-32: Heat Treatment of Reaction Bonded Composites: Evgeni Ionash[1]; *Helen Dilman*[1]; Shmulik Hayun[1]; Nachum Frage[1]; [1]Ben Gurion University of Negev

PAN-33: Influence of Carbon Nanotube and Graphene on Mechanical and Damping Characteristics of Epoxy Matrix Composite- A Comparative Analysis: *Ankita Bisht*[1]; Pallavi Gupta[1]; Debrupa Lahiri[1]; [1]Indian Institute of Technology Roorkee

PAN-34: Izod Impact Tests in Polyester Matrix Composites Reinforced with Jute Fabric: Foluke de Assis[1]; Sergio Monteiro[1]; Artur Pereira[1]; *Fábio Braga*[1]; [1]Military Institute of Engineering

PAN-35: Processing and Characterization of the Electromagnetic Wave Absorption Potential of Glass Fiberreinforced Thermoset Polymer Matrix Composites: *Tugce Altuntop*[1]; [1]Middle East Technical University

PAN-36: Tensile and Impact Properties of Two Fiber Configurations for Curaua Reinforced Composites: *Fábio Braga*[1]; Noan Simonassi[1]; Augusto Cabral[1]; Sergio Monteiro[1]; Foluke de Assis[1]; [1]Military Institute of Engineering (IME)

PAN-37: The Effect of Ni on the Structural, Hardness and Magnetic Properties of Cu90-xCo10Nix – 7.5% SmCo5 Composite Alloys Prepared by Powder Metallurgy Route: *Marta Lopez*[1]; Mangalaraja Ramalinga Viswanathan[1]; Christopher Salvo[1]; Felipe Sanhueza[1]; Jose Jiménez[2]; [1]University of Concepcion; [2]Centro Nacional de Investigaciones Metalúrgicas, CENIM-CSIC

PAN-38: Thermo-mechanical Properties of Copolymer/Clay Nanocomposites: A Comparative Study of Production Method by In-situ and Solution Mixture: *Oscar Hernández Guerrero*[1]; Mireya Hernández Vargas[2]; Rubén Castillo Pérez[2]; Bernardo Campillo Illanes[2]; [1]UAEM; [2]Universidad Nacional Autónoma de México

PAN-39: Thermo−Mechanical Behavior of Nanostructure Polyacrylic Polymer Based on Al_2O_3 and Bentonite Nanoparticles: *Ruben Castillo-Pérez*[1]; Mireya Hernández-Vargas[1]; Oscar Hernández-Guerrero[2]; Bernardo Campillo-Illanes[1]; Osvaldo Flores-Cedillo[1]; [1]Universidad Nacional Autónoma de México; [2]Universidad Autónoma del Estado de Morelos

PAN-40: Thermo−Mechanical Properties of Waterborne Acrylate Hybrid Nanocomposites: *Mireya Lizbeth Hernandez-Vargas*[1]; Rubén Castillo-Perez[1]; Oscar Hernández-Guerrero[2]; Bernardo Fabián Campillo-Illanes[1]; Osvaldo Flores-Cedillo[1]; [1]Universidad Nacional Autónoma de México; [2]Universidad Autónoma del Estado de Morelos

PAN-41: Ultra High Molecular Weight Polyethylene Reinforced with Ceramics Nanoparticles: *Édio Lima Júnior*[1]; Sergio Monteiro[1]; Ricardo Weber[1]; Alaelson Vieira[1]; [1]Military Institute of Engineering

Pan American Materials Congress: Minerals Extraction and Processing — Poster Session

Program Organizers: Mery Gómez Marroquín, 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

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

PAN-42: Biotechnologies for Water Recycling in the Mineral Industry: Natalia Barboza[1]; Sueli Bertolino[2]; Renata Guerra-Sá[1]; *Versiane Leao*[1]; [1]Universidade Federal de Ouro Preto; [2]Universidade Federeal de Uberlandia

PAN-43: Effect of Ethylenediamine on Smithsonite Flotation: Chao Lv[1]; Shuming Wen[2]; *Shaojun Bai*[2]; Kun Yang[2]; [1] Kunming University of Science and Technology,; [2]Kunming University of Science and Technology,

PAN-44: Electrochemical Preparation of Ti5Si3/TiC Composite from Titanium-rich Slag in Molten CaCl2: *Shangshu Li*[1]; Xingli Zou[1]; Xionggang Lu[1]; Kai Zheng[1]; Xin Li[1]; Yinshuai Wang[1]; [1]Shanghai University

PAN-45: Kinetic Study on the Leaching of Vanadium-bearing Converter Slag with Dilute Sulfuric Acid: Junyi Xiang[1]; Qingyun Huang[2]; Xuewei Lv[1]; Chenguang Bai[1]; [1]School of Materials Science and Engineering, Chongqing University; [2]School of Materials and Metallurgical Engineering, Chongqing University of Science and Technology

PAN-46: Leaching of Celestite Concentrate in Hcl Media with BACl2-NACl Addition: *Emre Yilmaz*[1]; Aysegul Bilen[1]; Rasit Sezer[1]; Selim Erturk[1]; Ibrahim Hizli[2]; Cuneyt Arslan[1]; [1]Istanbul Technical University; [2]Istanbul University

PAN-47: Mechanical Activation Strengthen the Leaching of Oxide-sulphide Zinc Ore: *Kun Yang*[1]; Shiwei Li[1]; Chao[1]; Libo Zhang[1]; Jinhui Peng[1]; [1]Kunming University of Science and Technology

PAN-48: Production of Strontianite from Celestite Ore in Carbonate Media: *Ibrahim Hizli*[1]; Aysegul Bilen[2]; Rasit Sezer[3]; Selim Erturk[2]; Cuneyt Arslan[2]; [1]Istanbul University; [2]Istanbul Technical University- ATUM; [3]Karadeniz Technical University

PAN-49: Recovery of Zinc from Oxide–sulfide Zinc Ore through Oxidation and Chelation: *Kun Yang*[1]; Libo Zhang[1]; Chao Lv; Shiwei Li[1]; Jinhui Peng[1]; [1]Kunming University of Science and Technology

PAN-50: The Direct Leaching of Micro-disseminated Gold Concentrate by Bromide Process and the Characterization of Leaching Products: Chao Li[1]; *Hongxu Li*[1]; Qiankun Jing[1]; [1]University 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
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel & Marina

Session Chair: To Be Announced

PAN-51: Cyclic Closed-die Forming of Commercially Pure Cu at Room and Subzero Temperatures: Danielle Magalhães[1]; Allana Pratti[1]; Andrea Kliauga[1]; Benaque Rubert[1]; *Vitor Sordi*[1]; [1]Federal University of São Carlos

PAN-52: Direct Influence of Recovery Behaviour on Mechanical Properties in Oxygen-free Copper Processed Using Different SPD Techniques: HPT and ECAP: *Meshal Alawadhi*[1]; Yi Huang[1]; Terence Langdon[1]; [1]University of Southampton

PAN-53: Wear Behavior of 2024 and 5083 Aluminum Alloys Processed by ECAP: M. Orozco Sandoval[1]; L. Guerra Fuentes[2]; R. Deaquino Lara[3]; M. A. L. Hernandez Rodriguez[2]; *E. Garcia-Sanchez*[2]; [1]UANL; [2]Universidad Autónoma de Nuevo León -Facultad de Ingeniería Mecánica y Eléctrica; [3]Cinvestav Unidad Saltillo

PAN-54: Fatigue Response of ARMCO Iron after Deformation by Equal Channel Angular Pressing: Jairo-Alberto Muñoz-Bolaños[1]; *Oscar-Fabian Higuera-Cobos*[2]; Jose-Maria Cabrera[1]; [1]Universidad Politecnica de Catalunya; [2]Universidad del Atlántico

PAN-55: Hardness Evolution of AZ80 Magnesium Alloy Processed by HPT at Different Temperatures: *Saad Alsubaie*[1]; Yi Huang[1]; Terence Langdon[1]; [1]University of Southampton

PAN-56: Investigation on Activation Volume and Strain-rate Sensitivity in Ultrafine-grained Tantalum: *Yue Wang*[1]; Ying Liu[1]; Jing Tao Wang[1]; [1]Nanjing University of Science and Technology

PAN-57: Microestructural Characterization of a Asymmetric Accumulative Roll Bonded (AARB) AA1050 Aluminum: Renan de Godoi[1]; Felipe Almeida[1]; Vitor Sordi[1]; *Andrea Madeira Kliauga*[1]; [1]UFSCar

PAN-58: Microstructure and Dynamic Mechanical Response of AA6061-T6 Processed by ECAP: *Carlos Arturo Reyes Ruiz*[1]; Chedly Braham[2]; Jose Maria Cabrera Marrero[3]; Nicolas Ranc[2]; Veronique Favier[2]; Gonzalo González[1]; [1]Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México; [2]Laboratoire Procédés et Ingénierie Mécanique et Matériaux, CNRS UMR 8006, ENSAM-CNAM; [3]Universidad Politécnica de Cataluña

PAN-59: Microstructure and Properties of Equal Channel Angular Extruded and Recrystallized OFHC Copper: *Abhinav Srivastava*[1]; Jason Springs[1]; Zach Levin[1]; Robert Barber[2]; Karl Hartwig[1]; [1]Texas A&M University; [2]Shear Form Inc.

Pan American Materials Congress: Steels — Poster Session

Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - 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*[1]; [1]Shanghai University

PAN-61: Hydrogen Gaseous Embrittlent Effect over Mechanical Properties of a Heat Treated Experimental Microalloyed Steel with Different Cooling Rates: *Julio Villalobos*[1]; Edgar Lopez[2]; Octavio Vazquez[3]; Sergio Serna[1]; Bernardo Campillo[4]; [1]CIICAP; [2]Universidad del Istmo, Campus Tehuantepec; [3]Instituto Tecnológico de Morelia; [4]ICF-UNAM, FQ-UNAM

PAN-62: Influence of Oxide Size and Composition on MnS Formation in Continuous Casting Slab of Low Carbon Steel: *Fangjie Li*[1]; [1]Shanghai University

PAN-63: Kinetic Study of the Austenite Decomposition during Continuous Cooling in a Welding Steel: *Octavio Vázquez-Gómez*[1]; Edgar López-Martínez[2]; Alexis Gallegos-Pérez[3]; Heber Santoyo-Avilés[4]; Héctor Vergara-Hernández[3]; Bernardo Campillo[5]; [1]Instituto Tecnologico de Morelia - CONACyT; [2]Universidad del Istmo; [3]Instituto Tecnológico de Morelia; [4]Ternium México; [5]Universidad Nacional Autónoma de México

PAN-64: Study of Ductile Austemperized Iron Alloyed with V, Mo AND Cr: *Fatima Alicia de la Rosa Castañeda*[1]; [1]IPN - UPIIZ

PAN-65: Study of the Machining of Nodular Iron Alloyed with V-Mo-Cr with or without Treatment: *Luis Lauro Flores Santos*[1]; [1]IPN - UPIIZ

PAN-66: Tempering Response of Bainitic and Martensitic Microstructures: *Igor Vieira*[1]; Emmanuel De Moor[1]; [1]Colorado School of Mines

PAN-67: Using CCT and TTT Diagrams Obtained by Simulation for Developing AHSS: *Jose Pacheco*[1]; Jose Cruz[2]; Pedro Garnica[3]; Jose Lopez[3]; Josè Gutierrez[4]; Jose Quezada[1]; [1]DICIM UASLP; [2]Facultad de Ingenieria UASLP; [3]Instituto Tecnologico de Morelia; [4]Instituto 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; 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 PM
February 28, 2017

Room: Hall B1
Location: San Diego Convention Center

Session Chair: Shih-kang Lin, National Cheng Kung University

L-174: Investigation on Interfacial Reactions between the Multi-walled Carbon Nanotubes Reinforced Sn-Ag-Cu Composite Solders with Cu: *Gita Hermana*[1]; Shu Fu[1]; Yee Yen[1]; [1]National Taiwan University of Science and Technology

L-175: Application of Computational Thermodynamics in SOFCs: *Shadi Darvish*[1]; Yu Zhong[1]; [1]Florida International University

L-176: Bandgap-enlarged Magnesium-doped Aluminum Zinc Oxide Films by Reactive Sputtering Using Mg and Al-Zn Metallic Targets: *Jau-Shiung Fang*[1]; D.R. Jung[1]; F..J. Po[1]; C.H. Hsu[1]; [1]National Formosa University

L-177: Calorimetric Investigation of the Liquid Sn-3.8Ag-0.7Cu Alloy with Minor Additions of Mn and Ni: *Andriy Yakymovych*[1]; Hans Flandorfer[1]; Herbert Ipser[1]; [1]University of Vienna

L-178: Degradation Mechanism of Piezoelectric Materials: *Hooman Sabarou*[1]; Yu Zhong[1]; [1]Florida International University

L-179: Effect of Silver Precursor Addition on Shear Strength of Cu-Cu Joints with Silver Nanoparticle Paste: *Hung-Tao Chen*[1]; [1]National Cheng Kung University

L-180: Investigating Mixed Crystal Solid Solution of High Performance Scintillators KBa2I5:Eu & KSr2I5:Eu: *Jesse Johnson*[1]; Luis Stand[1]; Mariya Zhuravleva[1]; Merry Koschan[1]; Chuck Melcher[1]; [1]University of Tennessee-Knoxville

L-181: Microstructure and Optical Properties of Cr1-xAlxN Films Synthesized by Reactive Magnetron Sputtering: *Ting-Kan Tsai*[1]; Shu Wei Yang[1]; Jing Heng Li[1]; [1]Nation Formosa University

L-182: Stretchability Characteristics of Thin Metal Films on Polydimethylsiloxane Substrates with the Parylene Adhesion Layer for Stretchable Electronic Packaging: Donghyeon Park[1]; Soo Jin Shin[1]; Jae-Ho Lee[1]; *Tae-Sung Oh*[1]; [1]Hongik University

Recent Developments in Biological, Structural and Functional Thin Films and Coatings — Poster Session

Program Organizers: Adele Carradò, 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
February 28, 2017

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*[1]; Sang Jin Park[1]; Jun Hyun Han[1]; [1]Chungnam National University

H-36: Investigation of Mechanical Properties of W1-yMoyO Nanocomposite Thin Films: *P. Dubey*[1]; G. Lopez[1]; G. Martinez[1]; C. Ramana[1]; [1]University of Texas at El-Paso

H-37: Microstructure and Optical Properties of HfO2/Mo/HfO2 Based Heat Mirrors and Their Potential Use for Efficient Windows Applications: *Juan Gomez*[1]; Paritosh Dubey[1]; C. Ramana[1]; [1]University of Texas at El Paso

H-38: Preparation of Porous Titanium Oxide Film by Sol-gel Method: *Baoqiang Xu*[1]; [1]National Engineering Laboratory for Vacuum Metallurgy, Key Laboratory of Nonferrous Metals Vacuum Metallurgy of Yunnan Province, Kunming University of Science and Technology

H-39: Structure Property Relationship of Tannic Acid Based Copolymers for Anti-oxidant Infused Wound Dressing: *Matthew Korey*[1]; John Howarter[1]; [1]Purdue University

H-40: Structure Property Relationship Studies of Electron Beam Welded Dissimilar Steel to Fe-Al Alloy Joints: *Soumitra Kumar Dinda*[1]; Gour Gopal Roy[1]; Prakash Srirangam[2]; [1]Indian Institute of Technology, Kharagpur; [2]University of Warwick

H-41: Effect of Bias Induced Microstructure on Mechanical Properties of Nanocrystalline ZrWN Coatings: *P. Dubey*[1]; S. Srivastava[2]; R. Chandra[2]; C. Ramana[1]; [1]University of Texas at El-Paso; [2]Indian Institute of Technology Roorkee

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
February 28, 2017

Room: Hall B1
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-Santiago[1]; *Victor Lopez-Hirata*[2]; Maribel Sauced- Muñoz[2]; Pamela Hernandez-Duran[2]; Erika Avila-Davila[3]; [1]Instituto Politecnico Nacional (ESIME); [2]Instituto Politecnico Nacional (ESIQIE); [3]Instituto Tecnologico de Pachuca

L-184: Carbide Precipitation in a Low-alloy Ferritic Steel: Maribel Saucedo-Muñoz[1]; *Victor Lopez-Hirata*[1]; Rodrigo Gomez-Martinez[1]; Arturo Ortiz-Mariscal[1]; Jose Villegas-Cardenas[2]; Jorge Gonzalez-Velazquez[1]; [1]Instituto Politecnico Nacional (ESIQIE); [2]Universidad Politecnica (Valle de México)

L-185: Nanocomposites Ti/B/TiO2 by Mechanical Alloy Synthesis: *Diana Jaramillo*[1]; [1]Centro de Investigacion y Desarrollo Tecnológico en Electroquimica

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