Ultrafine Grained Materials VIII — High Pressure Torsion Studies

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Suveen Mathaudhu; Yuri Estrin, Monash University; Zenji Horita, Kyushu University; Enrique Lavernia, University of California - Davis; Xiaozhou Liao, The University of Sydney; Lei Lu, Institute for Materials Research; Qiuming Wei, University of North Carolina - Charlotte; Gerhard Wilde, University of Muenster; Yuntian Zhu, North Carolina State University

Wednesday PM — Room: 6F
February 19, 2014 — Location: San Diego Convention Center

Session Chairs: Kaveh Edalati, Kyushu University; Hyoung Seop Kim, POSTECH

2:00 PM Invited
Development of Microstructural and Hardness Homogeneity in Metals Processed by High-pressure Torsion: *Megumi Kawasaki*[1]; Roberto Figueiredo[2]; Terence Langdon[3]; [1]Hanyang University; [2]Universidade Federal de Minas Gerais; [3]University of Southern California

2:20 PM Invited
Mg Clustering Induced by Severe Plastic Deformation in an Al-Mg Alloy: *Xavier Sauvage*[1]; Nariman Enikeev[2]; Maxim Murashkin[2]; Ruslan Valiev[2]; [1]University of Rouen, CNRS; [2]IPAM-USATU

2:40 PM
Mechanical Properties and Microstructure Evolution of an Aluminum 6082 Alloy Processed by HPT: *Ehab El-Danaf*[1]; Megumi Kawasaki[2]; Magdy El-Rayes[1]; Muneer Baig[1]; Terence Langdon[3]; [1]King Saud University; [2]Hanyang University; [3]University of Southern California

2:55 PM
Application of High-pressure Torsion to Al-6%Cu-0.4%Zr for Ultrafine-grain Refinement and Superplasticity: *Ali Alhamidi*[1]; Zenji Horita[1]; [1]Kyushu University

3:10 PM
Nanostructure Control of Age-hardenable Al-Cu Alloy by Processing High-pressure Torsion for Extra High Strength: *Intan Fadhlina Mohamed*[1]; Yosuke Yonenaga[1]; Seungwon Lee[1]; Zenji Horita[1]; [1]Kyushu University

3:25 PM
An Examination of the Flow Patterns Developed on Disc Lower Surfaces under Different Anvil Misalignments in High-pressure Torsion: *Yi Huang*[1]; Ahmed Al-Zubaydi[1]; Terence Langdon[1]; [1]University of Southampton

3:40 PM Break

3:55 PM
Precipitation Phenomena in HPT Processed 7475 Aluminium Alloy: Kinga Wawer[1]; Daria Setman[2]; Erhard Schafler[2]; *Malgorzata Lewandowska*[1]; Michael Zehetbauer[2]; [1]Warsaw University of Technology; [2]University of Vienna

4:10 PM
Structure and Properties of the Mg-Y-Gd-Zr Alloy after High Pressure Torsion: *Sergey Dobatkin*[1]; Lazar Rokhlin[1]; Maksim Murashkin[2]; Tatiana Dobatkina[1]; Elena Lukyanova[1]; [1]A.A. Baikov Institute of Metallurgy and Materials Science, Russian Academy of Sciences; [2]Ufa State Aviation Technical University

4:25 PM
Grain Refinement and Mechanical Properties of Mg-3.4at%Zn Alloy Strained by High-pressure Torsion: Fanqiang Meng[1]; *Julian Rosalie*[1]; Alok Singh[1]; Hidetoshi Somekawa[1]; Koichi Tsuchiya[1]; [1]National Institute for Materials Science

4:40 PM
Microstructure Evolution and Mechanical Properties of $Ti1_5Mo$ Alloy Processed by High Pressure Torsion: *Miloš Janecek*[1]; Jakub Cížek[1]; Josef Stráský[1]; Kristína Václavová[1]; Veronika Polyakova[2]; Irina Semenova[2]; [1]Charles University; [2]Ufa State Aviation Technical University

4:55 PM
Graphite to Diamond Phase Transformation by High-pressure Torsion: *Kaveh Edalati*[1]; Takeshi Daio[1]; Yoshifumi Ikoma[1]; Makoto Arita[1]; Zenji Horita[1]; [1]Kyushu University

5:10 PM
Fabrication of L10-Ordered FeNi Using High-pressure Torsion and Annealing: *Seungwon Lee*[1]; Kaveh Edalati[1]; Hideaki Iwaoka[1]; Zenji Horita[1]; Takumi Ohtsuki[2]; Takuo Ohkochi[3]; Masato Kotsugi[3]; Takayuki Kojima[4]; Masaki Mizuguchi[4]; Koki Takanashi[4]; [1]Kyushu University; [2]Japan Synchrotron Radiation Research Institute ; [3]Japan Synchrotron Radiation Research Institute; [4]Tohoku University

5:25 PM
Low Temperature Long Term Annealing of Copper Subjected to High-pressure Torsion: *Alexander Zhilyaev*[1]; Terence Langdon[1]; [1]University of Southampton

Ultrafine Grained Materials VIII — Powder Processing of Nanomaterials

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Suveen Mathaudhu; Yuri Estrin, Monash University; Zenji Horita, Kyushu University; Enrique Lavernia, University of California - Davis; Xiaozhou Liao, The University of Sydney; Lei Lu, Institute for Materials Research; Qiuming Wei, University of North Carolina - Charlotte; Gerhard Wilde, University of Muenster; Yuntian Zhu, North Carolina State University

Wednesday PM — Room: 6E
February 19, 2014 — Location: San Diego Convention Center

Session Chairs: Dmitry Orlov, Ritsumeikan University; Troy Topping, University of California, Davis

2:00 PM Invited
Expanding Solid-state Foaming: Intraparticle Expansion as a Means to Enhance Porosity in Metals: Mark Atwater[1]; Kris Darling[2]; *Mark Tschopp*[2]; [1]Millersville University; [2]Army Research Laboratory

2:20 PM
Fabrication of Bulk Ultra-fine Grained Magnesium Alloy via Additive Friction Stir Deposition: *Kumar Kandasamy*[1]; Jacob Calvert[1]; Liam Renaghan[1]; Kevin Creehan[1]; Jeffrey Schultz[1]; [1]Aeroprobe Corporation

2:35 PM
Mechanical and Acoustic Properties of UFG Magnesium: *Zuzanka Trojanova*[1]; Pavel Lukác[1]; [1]Charles University

2:50 PM
Harmonic-structured Materials: Proof of Fabrication Concept Based on Severe Plastic Deformation of Powders: *Dmitry Orlov*[1]; Shota Kato[1]; Choncharoen Sawangrat[1]; Alexei Vinogradov[2]; Kei Ameyama[1]; [1]Ritsumeikan University; [2]Togliatti State University

3:05 PM
Microstructure and Mechanical Properties of Bulk Ultrafine Structured Alloys and Metal Matrix Composites Alloys Synthesized by a Combination of High Energy Mechanical Milling and Thermomechanical Powder Consolidation: *Deliang Zhang*[1]; Jiamiao Liang[1]; Dengshan Zhou[2]; Xun Yao[1]; Yifeng Zheng[1]; [1]Shanghai Jiao Tong University; [2]The University of Waikato

3:20 PM
Thermomechanical Processing of a Cryomilled Al-Mg Alloy: Khan Kaisar[1]; Clara Hofmeister; Anit Giri[2]; Yongho Sohn[3]; Mark van den Bergh[4]; Kyu Cho[2]; *Bhaskar Majumdar*[1]; [1]New Mexico Tech; [2]WMRD; [3]University of Central Florida; [4]DWA Aluminum Composites

3:35 PM Break

3:50 PM Invited
Processing of Nanocrystalline Ceramics for Optical Applications: E Penilla[1]; A Wieg[1]; C Hardin[1]; *J. Garay*[1]; [1]University of California Riverside

4:10 PM
Linear and Non-linear Optical Properties of Functional Transparent Oxide Ceramics via Current Activated Pressure Assisted Densification (CAPAD) and Femtosecond Laser Processing: *Elias Penilla*[1]; Pablo Martinez-Torres[1]; Yasuhiro Kodera[1]; Javier Garay[1]; [1]University of California Riverside

4:25 PM
CAPAD Processing of Nanostructured Rare Earth Doped Zirconia for High Temperature Light Emission Applications: *Corey Hardin*[1]; Yasuhiro Kodera[1]; Sergey Basun[2]; Dean Evans[2]; Javier Garay[1]; [1]University of California Riverside; [2]Air Force Research Laboratory

4:40 PM
Microstructure and Mechanical Properties of Ultrafine Grained Ferritic Steels Processed by Spark Plasma Sintering and Hot Isostatic Pressing: A Comparative Study: *Xavier Boulnat*[1]; Damien Fabrègue[2]; Michel Perez[2]; Jean-Luc Flament[1]; Pierre Wident[1]; Yann de Carlan[1]; [1]CEA, DEN; [2]INSA Lyon - MATEIS

4:55 PM
Influence of Sc and Zr Additions on the Microstructure and Mechanical Properties of UFG Al-Mg Alloys: *Troy Topping*[1]; Tammy Harrell[1]; Tao Hu[1]; Haiming Wen[1]; Julie Schoenung[1]; Enrique Lavernia[1]; [1]University of California, Davis

5:10 PM
Ultrafine-grained Aluminum Nanocomposites with Hierarchically Tailored Distribution of Boron Carbide Nanoparticles: *Lin Jiang*[1]; Troy Topping[1]; Hanry Yang[1]; Enrique Lavernia[1]; Julie Schoenung[1]; [1]University of California Davis

5:25 PM
Influence of Grain Boundary Misorientation Angle on Tensile Ductility of Ultrafine-grained Al Alloy: *Tao Hu*[1]; Kaka Ma[1]; Troy Topping[1]; Brandon Saller[1]; Ali Yousefiani[2]; Julie Schoenung[1]; Enrique Lavernia[1]; [1]University of California, Davis; [2]Boeing Company

2014 Functional Nanomaterials: Synthesis, Properties and Applications — Applications of Nanomaterials I

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Nitin Chopra, The University of Alabama; Terry Xu, The University of North Carolina at Charlotte; Jiyoung Kim, University of Texas at Dallas; Yuanbing Mao, University of Texas - Pan American; Ashwin Ramasubramaniam, University of Massachusetts Amherst; Jung-kun Lee, University of Pittsburgh; Ramki Kalyanaraman, The University of Tennessee, Knoxville; Stephen Turano, Georgia Tech Research Institute

Thursday AM
February 20, 2014
Room: Ballroom D
Location: San Diego Marriott Marquis & Marina

Session Chairs: Nitin Chopra, The University of Alabama; Aswhin Ramasubramaniam, University of Massachusetts Amherst; Jiyoung Kim, The University of Texas at Dallas

8:30 AM Keynote
Piezotronics and Piezo-phototronics: *Zhong Wang*[1]; [1]Georgia Institute of Technology

9:10 AM
Three-dimensional ZnO Nanoforest: Morphological Evolution and Electrochemical Energy Storage Application: *Yuanbing Mao*[1]; Xing Sun[1]; Qiang Li[1]; [1]University of Texas-Pan American

9:30 AM
ZnO Nanorods as Antireflective Coatings for Single Crystalline Silicon Solar Cells: Pantea Aurang[1]; Olgu Demircioglu[1]; Firat Es[1]; Rasit Turan[1]; *Husnu Unalan*[1]; [1]Middle East Technical University

9:50 AM
TiO_2 Nanotubes Filled with $NiFe_2O_4$ Quantum Dots and Ni-Fe Nanoalloy: Synthesis and Applications: *M. Yousef Mohassab-Ahmed*[1]; Ahmed Moustafa[2]; Hong Yong Sohn[3]; Ahmed Farghali[4]; Mohamed Khedr[4]; [1]University of Utah ; [2]Beni-Suef University ; [3]University of Utah; [4]Beni-Suef University

10:10 AM Break

10:30 AM
Ultra-long and Noble Copper Nanowires Tailored by Various Structure Directing Agents in Solution Process: Jahyun Koo[1]; Na Rae Kim[1]; Yung Jong Lee[1]; *Hyuck Mo Lee*[1]; [1]KAIST

10:50 AM
Fabrication and Characterization of Metallo-dielectric Photonic Crystals with Plasmonic Response: *Victoria Chernow*[1]; Julia Greer[1]; [1]California Institute of Technology

11:10 AM Invited
Graphene Coating-enabled Surface Plasmon Coupled Emission and Optical Diode Action: *Apparao Rao*[1]; [1]Clemson University

11:40 AM
Optical and Magnetical Properties of $FeCr_2O_4$ Nanopigments with Spinel Type Structure: *Oscar Restrepo*[1]; Juan Montoya[2]; Edgar Chavarriaga[1]; [1]National University of Colombia; [2]Corporación Universitaria Lasallista.

11:55 AM
Photocatalytic Properties of TiO_2 Nanoparticle/Titanate Nanotube Composite in UV-visible Light Range: *Se-Hoon Kim*[1]; Tohru Sekino[2]; Shun-ichiro Tanaka[2]; [1]KATECH; [2]Tohoku University

2014 TMS RF Mehl Medal Symposium on Frontiers in Nanostructured Materials and Their Applications — Nanomaterials for Energy Applications and Carbon Related Materials

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Thin Films and Interfaces Committee
Program Organizers: Nuggehalli Ravindra, New Jersey Institute of Technology; Ramki Kalyanaraman, University of Tennessee; Haiyan Wang, Texas A&M University; Yuntian Zhu, North Carolina State University; Justin Schwartz, North Carolina State University; Amit Goyal, Oak Ridge National Laboratories

Thursday AM
February 20, 2014
Room: Ballroom E
Location: San Diego Marriott Marquis & Marina

Session Chairs: Nitin Chopra, University of Alabama; Ashutosh Tiwari, University of Utah

8:30 AM Invited
Charged Defect-induced Preferential Scattering for Enhanced Thermoelectric Performance in Few-layered n-Bi_2Te_3: *Apparao Rao*[1]; [1]Clemson University

8:50 AM Invited
Laser Ablation in Liquids: A Unique Route to Fabricate Hollow Micro/Nanoparticles from Bulk Materials: *Douglas Chrisey*[1]; [1]Tulane University

9:10 AM Invited
A New Class of Molecularly-tailored Nanomaterials and Interfaces For Energy Conversion and Thermal Management: *Ganpati Ramanath*[1]; [1]Rensselaer Polytechnic Institute

9:30 AM Invited
Atomistic Study of Thermoelectric, Electronic and Optical Properties of Suspended Graphene Nanosheet and Nanoribbons: *Sarang Muley*[1]; Ravindra Nuggehalli[1]; [1]New Jersey Institute of Technology

9:50 AM Break

10:10 AM Invited
Does Function Follow Form? The Role and Utility of Geometry in Carbon Nanotubes: *Prabhakar Bandaru*[1]; [1]UC, San Diego

10:30 AM Invited
Improved Interlaminar/Interfacial Fracture Toughness through Polymer Nano-particle Thin Film/Spray Mediated Composites: *Ranji Vaidyanathan*[1]; Krishna Bastola[1]; [1]Oklahoma State University

10:50 AM Invited
Gold Nanoparticle Inside Graphene Shells: Prospects in Sensors and Plasmonics: *Nitin Chopra*[1]; [1]The University of Alabama

11:10 AM
Carbon Nanotube Coated Conductor Composites: *Terry Holesinger*[1]; Raymond Depaula[1]; John Rowley[1]; Pallas Papin[1]; [1]Los Alamos National Laboratory

11:30 AM
Optical, Electrical and Electronic Properties of Vanadium Oxides – An Analysis: *Chiranjivi Lamsal*[1]; Nuggehalli Ravindra[1]; [1]New Jersey Institute of Technology

11:50 AM
Encapsulating Polymeric Nitrogen in Carbon Nanotubes: *El Mostafa Benchafia*[1]; Zafar Iqbal[1]; Nuggehalli Ravindra; [1]New Jersey Institute of Technology

12:10 PM Invited
Magnetic Spinel Ferrite Thin Films and Nanostructures: *Arunava Gupta*[1]; [1]University of Alabama

5th International Symposium on High Temperature Metallurgical Processing — Treatment of Solid Slag/ Wastes and Complex Ores

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee
Program Organizers: Tao Jiang, Central South University; Jiann-Yang Hwang, Michigan Technological University; Mark Schlesinger, Missouri University of Science and Technology; Onuralp Yücel, ITU; Rafael Padilla, University of Concepcion; Phillip Mackey, P.J. Mackey Technology; Guifeng Zhou, Wuhan Iron and Steel

Thursday AM
February 20, 2014
Room: 18
Location: San Diego Convention Center

Session Chairs: Rafael Padilla, University of Concepcion; Hongxu Li, University of Science and Technology Beijing

8:30 AM Introductory Comments

8:35 AM
A Pilot-plant Scale Test on DRI Preparation from High-alumina Limonite Ore by Coal-based Rotary Kiln Direct Reduction Process: *Guanghui Li*[1]; Changgen Wang[1]; Mingjun Rao[1]; Yuanbo Zhang[1]; Tao Jiang[1]; [1]School of Minerals Processing and Bioengineering, Central South University

8:50 AM Invited
The Effect of Various Ration of Citric and Sulfuric Acid on the Structure and Leaching Properties of Pellets of Laterite Roasted at High Temperature: *Hongxu Li*[1]; [1]University of Science and Technology

9:05 AM
Improving the Beneficiation of Low-grade Saprolitic Nickel Laterite by Reduction Roasting in the Presence of Additives: *Deqing Zhu*[1]; Guolin Zheng[1]; Jian Pan[1]; Qihou Li[1]; Yueming An[2]; Jinghe Zhu[2]; [1]Central South University; [2]China Nonferrous Metal Mining Group Co. Ltd

9:20 AM Invited
Recycling of Steelworks Waste Using the Direct Reduction Process: *Nikolay Panishev*[1]; Victor Rashnikov[1]; Boris Dubrovsky[1]; Eugene Redin[1]; Edward Knyazev[1]; [1]Magnitogorsk Iron & Steel Works

9:35 AM
Research on Bottom-blowing Smelting Processing Lead Sulfate Secondary Material: Weifeng Li[1]; Chuanfu Zhang[1]; Lihua Jiang[1]; *Jing Zhan*[1]; [1]Central South University

9:50 AM
Preparation of Synthetic Rutile from Titanium Slag: YuFeng Guo[1]; *Jing He*[1]; Tao Jiang[1]; ShuiShi Liu[1]; FuQiang Zheng[1]; Shuai Wang[1]; [1]Central South University

10:05 AM Break

10:15 AM
Characterization of Magnetic Roasting and Magnetic Separation of a High-alumina-content Limonite Ore: Tao Jiang[1]; Xin Zhang[1]; Mingjun Rao[1]; Jinghua Zeng[1]; Yuanbo Zhang[1]; *Guanghui Li*[1]; [1]School of Minerals Processing and Bioengineering, Central South University

10:30 AM
Separation of Oolitic Hematite from Iron-rich Chlorite with Reduction Roasting Technique Followed by Magnetic Separation: *Wen Chen*[1]; [1]Changsha Research Institute Of Mining And Metallurgy

10:45 AM
The Research of Metallurgical Reaction Engineering in Oxygen Bottom Blowing Copper Smelting Process: *Shen Dianbang*[1]; Cui Zhixiang[1]; Yan Hongjie[1]; Yu Pengfei[1]; Cui Zhiqiang[1]; [1]Dongying Fangyuan Nonferrous Metals Co. Ltd

11:00 AM Invited
The Study of Recycling Ni/Fe from Laterite by Coal Pre-reduction and Magnetic Separation: *Hongxu Li*[1]; [1]University of Science and Technology

11:15 AM
The Phase Transformation of Laterite Ore Treated with Insufficient Reductant: *Yaojie Wang*[1]; Yanling Guo[1]; Tao Zeng[1]; Jieyu Zhang[1]; Bingyi Bai[1]; Guoding Gao[1]; [1]Shanghai University

11:30 AM
Adsorptive Removal of Phosphate Anions from Municipal Wastewater Using Raw and Wasted Low Grade Iron Ore with High Phosphorus Adsorbent: *Xiaoli Yuan*[1]; [1]Chongqing University of Science and Technology

A Lifetime of Experience with Titanium Alloys: An SMD Symposium in Honor of Jim Williams, Mike Loretto and Rod Boyer — General Abstracts

Sponsored by: TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Adam Pilchak, Air Force Research Laboratory; James Larsen, Air Force Research Laboratory; David Dye, Imperial College London; Jay Tiley, Air Force Research Laboratory

Thursday AM
February 20, 2014
Room: 1A
Location: San Diego Convention Center

Session Chair: Adam Pilchak, Air Force Research Laboratory

8:30 AM
An Examination of the Thermally Related Factors Influencing the Melting/ Dissolution of Solids in Liquid Titanium.: *Jun Ou*[1]; Steve Cockcroft[1]; Daan Maijer[1]; Lu Yao[1]; Carl Reilly[1]; Ainul Akhtar[1]; [1]The University of British Columbia

8:50 AM
Application of a Combinatorial Approach to Explore the Influence of Composition on Metastable and Equilibrium Microstructures in Eutectoid Binary Titanium Alloys: David Brice[1]; Alyn Gray[1]; Chandana Avasarala[1]; *Peter Collins*[1]; [1]University of North Texas

9:10 AM
On the Microstructure and Properties of the Ti-3Al-2.5V Alloy Obtained by Powder Metallurgy: *Leandro Bolzoni*[1]; Elisa Maria Ruiz-Navas[2]; Elena Gordo[2]; [1]Brunel University; [2]Universidad Carlos III de Madrid

9:30 AM
Orientation-sensitive Dislocation-twin Boundary Interaction and Its Influence on Crack Initiation in a-Titanium via Atom-istic Simulations: *Hao Wang*[1]; Dongsheng Xu[1]; David Rugg[2]; Aijun Huang[3]; Rui Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]Rolls-Royce PLC; [3]Baosteel Co. Ltd.

9:50 AM
Superior Tensile Strength and Ductility in Ti-6Al-4V Recycled from Machining Chips by Severe Plastic Deformation: Edward Lui[1]; Daniel McDonald[1]; Suresh Palanisamy[2]; Matthew Dargusch[3]; *Kenong Xia*[1]; [1]University of Melbourne; [2]Swinburne University; [3]University of Queensland

10:10 AM Break

10:25 AM
Mechanical Properties of Biomedical Beta-type Titanium Alloy with Yttrium Oxide Particles Formed by Yttrium Addition: *Junko Hieda*[1]; Mitsuo Niinomi[1]; Masaaki Nakai[1]; Ken Cho[1]; [1]Institute for Materials Research, Tohoku University

10:45 AM
Phase Transformations and Grain Refinement during Hydrogen Sintering of Ti-6Al-4V Alloy: *Pei Sun*[1]; Zak Fang[1]; Mark Koopman[1]; James Paramore[1]; Lu Yang[1]; [1]The University of Utah

11:05 AM
Effects of Rare Earth Er_2O_3 on Microstructure and Mechanical Properties of Titanium Foams by Powder Metallurgy: *Xiao Jian*[1]; Qiu Guibao[1]; Liao Yilong[1]; [1]Chongqing University

11:25 AM
Tensile Deformation Micro Mechanisms for Ti-based Metallic-glass-matrix Composites: Haoling Jia[1]; Junwei Qiao[2]; An-Cheng Sun[3]; E-Wen Huang[4]; Yong Zhang[5]; ChihPin Chuang[6]; Yanfei Gao[7]; *Peter Liaw*[6]; [1]University of Tennessee; [2]Taiyuan University of Technology; [3]Yuan Ze University; [4]National Central University; [5]University of Science and Technology Beijing; [6]The University of Tennessee; [7]The University of Tennessee & Oak Ridge National Laboratory

Advanced Materials for Power Electronics, Power Conditioning, and Power Conversion II — High Performance Soft Magnets II (This is a joint session with Magnetic Materials for Energy Applications IV)

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Energy Conversion and Storage Committee, TMS: Magnetic Materials Committee
Program Organizers: Paul Ohodnicki, National Energy Technology Laboratory; Michael McHenry, Carnegie Mellon University; Matthew Willard, Case Western Reserve University; Rachael Myers-Ward, NRL; Mike Lanagan, Penn State University; Clive Randall, Penn State University

Thursday AM
February 20, 2014
Room: Ballroom G
Location: San Diego Marriott Marquis & Marina

Session Chairs: Paul Ohodnicki, National Energy Technology Laboratory; Ivan Skorvanek, Institute of Experimental Physics

8:30 AM Joint Session with Magnetic Materials for Energy Applications. A joint session with the Magnetic Materials for Energy Applications symposium is planned. This session will be held in Ballroom G of the Marriott. For complete session details, turn to the Magnetic Mateirals for Energy Applications entry in the program book or online.

8:30 AM Invited: Analysis of Soft Magnetic Materials for Energy Applications: presented by Samuel Kernion, Carpenter Technology Corporation

9:00 AM Fe-rich FeSiBPCu Nano-crystalline Soft Magnetic Alloys Contributable To Energy-saving: presented by Akihiro Makino, Tohoku University

9:20 AM CoNiFe Alloy Powder Synthesis by High Energy Milling; presented by Jesus Calata, Virginia Tech

9:40 AM Invited Novel Morphology of Highly Efficient Two-phase Ferrite Cores for Power Systems: presented by Vincent Harris, Northeastern **University**

10:10 AM Break

10:25 AM Invited: The Use of Pressure and Strain as Processing Variables in Soft Magnetic Nanocomposite Materials: presented by Alex Leary, Carnegie Mellon University

10:55 AM: Application of Small Angle Scattering to FeCo-based Soft Magnetic Nanocomposites: presented by Paul Ohodnicki, National Energy Technology Laboratory

11:15 AM: Fabrication of Nanocrystalline Magnetic Materials for Use in Energy-efficient Distribution Transformers: presented by Naoki Ito, Motoki Ohta, Metglas Inc.

11:35 AM Student: Thin Ferrite Films Compared to Oxide Coated Iron Powder for Electromagnetic Devices: presented by Katie Jo Sunday, Drexel University

Advanced Materials in Dental and Orthopedic Applications — Bone/Dental Implants with Enhanced Biomedical Performance

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Tolou Shokuhfar, Michigan Technological University; Terry Lowe, Colorado School of Mines; Hanson Fong, University of Washington; Mathew Mathew, Rush University Medical Center; Cortino Sukotjo, University of Illinois at Chicago

Thursday AM
February 20, 2014
Room: 32B
Location: San Diego Convention Center

Session Chairs: Cortino Sukotjo, University of Illinois at Chicago; Tolou Shokuhfar, Michigan Tech

8:30 AM Invited
Photofunctionalization: The New Generation Implant Therapy: *Takahiro Ogawa*[1]; [1]UCLA School of Dentistry

9:00 AM Invited
Electrical Stimulation of Titanium for Eradication of Bacterial Biofilms: *Mark Ehrensberger*[1]; Menachem Tobias[1]; Lisa Hufnagel[1]; Nicole Luke[1]; Scott Nodzo[1]; Anthony Campagnari[1]; [1]University at Buffalo

9:30 AM
Frontiers for Bulk Nanostructured Metals in Biomedical Applications: *Terry Lowe*[1]; Ruslan Valiev; [1]Figure Eight LLC

9:50 AM
Cytocompatibility Assessment of Magnesium-based Alloys: Christopher Smith[1]; *Zhigang Xu*[1]; Jenora Waterman[1]; [1]North Carolina State University

10:05 AM Break

10:25 AM Invited
Titania Nanotube Arrays Modulate in Vitro Hemocompatibility and Immune Response: *Ketul Popat*[1]; [1]Colorado State University

10:55 AM Invited
Salivary Protein Adsorption on Microestructured Titanium Surfaces: Effect in Biofilm Formation: *Argelia Almaguer-Flores*[1]; Sandra Rodil[2]; [1]Unversidad Nacional Autónoma de México, Facultad de Odontología; [2]Universidad Nacional Autónoma de México, Instituto de Investigaciones en Materiales

11:25 AM
Optimization of Anodization and Annealing Condition Enhances TiO_2 Nanotubular Surface Hydrophilicity: *Azhang Hamlekhan*[1]; Arman Butt[2]; Sweetu Patel[2]; Dmitry Royhman[3]; Christos Takoudis[2]; Cortino Sukotjo[3]; Mathew Mathew[4]; Tolou Shokuhfar[5]; [1]Michigan Tech; [2]Department of Bioengineering, University of Illinois at Chicago; [3]Department of Restorative Dentistry, College of Dentistry, University of Illinois at Chicago; [4]Rush University Medical Center; [5]Mechanical Engineering–Engineering Mechanics, Michigan Technological University

11:40 AM
Novel Technique for Hydroxyapatite Deposition with High Crystallinity on Pure Titanium via Plasma Electrolytic Oxidation: Ki Ryong Shin[1]; Kang Min Lee[1]; Sang Il Yoon[1]; Young Gun Ko[2]; *Dong Hyuk Shin*[1]; [1]Hanyang University; [2]Yeungnam University

Alloys and Compounds for Thermoelectric and Solar Cell Applications II — Alloys and Compounds for Thermoelectric and Solar Cell Applications: Thermoelectric III

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-wen Chen, National Tsing Hua University; Yoshisato Kimura, Tokyo Institute of Technology; Chih-Huang Lai, National Tsing Hua University; Ce-Wen Nan, Tsinghua University; G. Jeffrey Snyder, California Institute of Technology; Hubert Scherrer, Ecole des Mines; Hsin-jay Wu, National Tsing Hua University

Thursday AM
February 20, 2014
Room: Cardiff
Location: San Diego Marriott Marquis & Marina

Session Chairs: Sinn-wen Chen, National Tsing Hua University; Albert Wu, National Central University

8:30 AM Invited
Progress on the Development of High-temperature, High-efficiency Thermoelectric Converters for Space Applications: *Thierry Caillat*[1]; [1]NASA Jet Propulsion Laboratory

8:55 AM Invited
Nanostructuring of Thermoelectric Materials via a Nonequilibrium Intermediate State: *Teruyuki Ikeda*[1]; G. Jeffrey Snyder[2]; [1]Ibaraki University; [2]California Institute of Technology

9:20 AM Invited
Development of Heusler-type Fe_2VAl Alloys for Thermoelectric Power Generation: *Masashi Mikami*[1]; Yoichi Nishino[2]; [1]National Institute of Advanced Industrial Science and Technology; [2]Nagoya Institute of Technology

9:45 AM
Influences of Thermal Processing on Phase Structure and Compositions in a $Mg_{44}Si_{45}Sn_{11}$ Alloy: *Qingfeng Xing*[1]; Trevor Riedemann[1]; Thomas Lograsso[1]; [1]Ames Laboratory

10:05 AM Break

10:15 AM
Phase Diagram of Ga-Co-Sb and In-Co-Ga Systems and Thermoelectric Properties of Ga/In-containing Skutterudites: *Yinglu Tang*[1]; Yuting Qiu[2]; Lili Xi[2]; Xun Shi[2]; Wenqing Zhang; Lidong Chen; Yuan-Chun Chien; Ssu-Ming Tseng[3]; Sinn-wen Chen[3]; G. Jeffrey Snyder; [1]California Institute of Technology; [2]Chinese Academy of Sciences; [3]National Tsing Hua University

10:35 AM Invited
Ag Whisker Growth of Ag-In-Se Alloys and Alternating Layer Formation in the In/Ag_2Se Reaction Couples: *Sinn-wen Chen*[1]; Chia-ming Hsu[2]; Jhe-yu Lin[1]; Jui-shen Chang[1]; [1]National Tsing Hua University; [2]National United University

11:00 AM
Exploration of Surface Electrical Properties of $Cu_2ZnSn(S,Se)_4$ Thin-films with Conversion Efficiency Higher Than 8%: *Geeyeong Kim*[1]; Ahreum Jeong[2]; Juri Kim[1]; William Jo[1]; Dae-Ho Son[3]; Dae-Hwan Kim[3]; Jin-Kyu Kang[3]; [1]Ewha Womans University; [2]LG Innotek; [3]Green Energy Research Division, Daegu Gyeongbuk Institute of Science and Technology

11:20 AM
Investigation of Electrical Properties of CIGS Thin-films Derived by Sol-gel Process: *Nilgun Baydogan*[1]; Utku Canci[1]; Sengul Akyol[1]; Huseyin Cimenoglu[1]; [1]Istanbul Technical University

11:40 AM
The Influence of Thickness on the Optical Parameters of Thermally Evaporated CdS Thin Films: *Shadia Ikhmayies*[1]; [1]Al Isra University

12:00 PM
Optical Parameters of Thermally Evaporated SnO_2 Thin Films: *Shadia Ikhmayies*[1]; [1]Al Isra University

Aluminum Alloys: Development, Characterization and Applications — Emerging Technologies

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Zhengdong (Steven) Long, Kaiser Aluminum; Subodh Das, Phinix LLC; Tongguang Zhai, University of Kentucky; Xiyu Wen, University of Kentucky

Thursday AM
February 20, 2014
Room: 12
Location: San Diego Convention Center

Session Chair: Yansheng Liu, Kaiser Aluminum

8:30 AM
Deformation of Open-cell Microcellular Pure Aluminum Investigated by the Acoustic Emission Technique: *Michal Knapek*[1]; Patrik Dobron[1]; František Chmelík[1]; Mariia Zimina[1]; Jozef Pešicka[1]; Etienne Combaz[2]; Andreas Mortensen[3]; [1]Department of Physics of Materials, Faculty of Mathematics and Physics, Charles University; [2]Novelis Switzerland SA; [3] Ecole Polytechnique Fédérale de Lausanne (EPFL), Laboratory for Mechanical Metallurgy

8:50 AM
The Research on Process of Impact Factors of Hard Anodic Oxidation for 6061 Aluminum Alloy: Jiexiang Wang[1]; Zhengfu Zhang[1]; *Junsai Sun*[1]; Shiguo Huang[1]; Yamei Han[1]; Jiang Du[1]; [1]Kunming University of Science and Technology

9:10 AM
Using Scrap in Recycling Alloys for Structural Applications in the Automotive Industry: *Werner Fragner*[1]; Helmut Suppan[2]; Marc Hummel[3]; Dominik Bösch[4]; Peter Uggowitzer[5]; [1]AMAG GmbH; [2]AMAG Casting GmbH; [3]AUDI AG; [4]Friedrich-Alexander-Universität Erlangen-Nürnberg; [5]ETH Zürich

9:30 AM
Residual Stress Analysis in Semi-permanent Mold Engine Head Castings: *Mike Walker*[1]; Devin Hess[1]; Dimitry Sediako[2]; [1]General Motors Corporation; [2]Atomic Energy of Canada Limited

9:50 AM
Tensile and Shear Mechanical Properties in a Thermo-mechanical-electrical Processed Spot Weld: *Scott Turnage*[1]; Kiran Solanki[1]; Wilburn Whittington[2]; Radu Florea[2]; Mark Tschopp[3]; Kristopher Darling[3]; [1]Arizona State University; [2]Mississippi State University; [3]Army Research Laboratory

10:10 AM Break

10:25 AM
Microstructural Characterization and Analysis of Cold Spray Al Alloys: *Baillie McNally*[1]; Danielle Belsito[1]; Victor Champagne[2]; Richard Sisson[1]; [1]Worcester Polytechnic Institute; [2]Army Research Lab

10:45 AM
Development of High-strength and Highly Ductile Hypo-eutectic Al-Si Alloys by Nano-refining the Constituent Phases: *Mohammad Shamsuzzoha*[1]; Anwarul Haque[1]; Laurentiu Nastac[1]; [1]University of Alabama

11:05 AM
Anodization and Optical Appearance of Sputter Deposited Al-Zr Coatings: *Visweswara Gudla*[1]; Stela Canulescu[1]; Rajashekhara Shabadi[2]; Kristian Rechendorff[3]; Jørgen Schou[1]; Rajan Ambat[1]; [1]Technical University of Denmark; [2]Universite Lille1; [3]Danish Technological Institute

11:25 AM
Identifying the Driving Forces for Abnormal Grain Growth in Friction Stir Welded and Spin-formed Al-Li 2195: *Wesley Tayon*[1]; Marcia Domack[1]; Eric Hoffman[1]; Stephen Hales[1]; [1]NASA Langley Research Center

Biological Materials Science Symposium — Molecular, Cellular and Tissue Engineering

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Po-Yu Chen, National Tsing Hua University; Rajendra Kasinath, Johnson and Johnson Company; Dwayne Arola, University of Washington; Kalpana Katti, North Dakota State University

Thursday AM
February 20, 2014
Room: 33A
Location: San Diego Convention Center

Session Chairs: Rajendra Kasinath, Montana Tech of the University of Montana; Michael Porter, University of California, San Diego

8:30 AM Invited
Effects of Graphene on Stem Cell Fate: *Chwee Teck Lim*[1]; [1]National University of Singapore

9:00 AM
Drug Releasing Nanoparticles for Odontoblast-like Differentiation of Stem Cells: *Suja Shrestha*[1]; Anibal Diogenes[2]; Anil Kishen[1]; [1]Univeristy of Toronto; [2]University of Texas Health Science Center at San Antonio

9:20 AM
Absorbable Vascular Scaffolding Based on Zinc: *Patrick Bowen*[1]; Jaroslaw Drelich[1]; Jeremy Goldman[1]; [1]Michigan Technological University

9:40 AM Invited
Tuning the Mechanical Properties of 3D Hydrogel Scaffolds for In Vitro Cell Culture: Andrea Jeffery[1]; Kamaldeep Dhami[1]; Matthew Churchward[1]; Kathryn Todd[1]; *Anastasia Elias*[1]; [1]University of Alberta

10:10 AM Break

10:30 AM Invited
Adhesive Tissue Repair with Crosslinkable Complex Coacervates: *Russell Stewart*[1]; Sarbjit Kaur[1]; Ramesha Papanna[2]; Kenneth Moise[2]; [1]University of Utah; [2]University of Texas Medical School

11:00 AM
Strategies for Understanding Biological Effects of Blast Damage in Respiratory Tissues: Benjamin Butler[1]; Thuy-Tien Ngoc[2]; Chiara Bo[2]; Richard Curry[3]; Andrew Jardine[1]; William Proud[2]; Alun Williams[1]; *Katherine Brown*[1]; [1]University of Cambridge; [2]Imperial College London; [3]University of Cape Town

11:20 AM
Probing the Interaction of Cells-nanoparticles Using Force-distance (F-d) Spectroscopy: *Anh Ly*[1]; Swetha Barkam[1]; Soumen Das[1]; Sudipta Seal[1]; [1]Advanced Materials Processing and Analysis Center, NanoScience Technology Center

11:40 AM Invited
Bio-enabled Self-organization for Hybrid Thin Films: Nur Mustafaoglu[1]; Banu Taktak Karaca[2]; James Meyer[3]; Mustafa Urgen[4]; *Candan Tamerler*[3]; [1]University of Notre Dame; [2]University of Kansas; Istanbul Technical University; [3]University of Kansas; [4]Istanbul Technical University

Bulk Metallic Glasses XI — Structure and Modeling

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, The University of Tennessee; Gongyao Wang, University of Tennessee; H. Choo, The University of Tennessee; Y. Gao, The University of Tennessee; Y. F. Shi, Rensselaer Polytechnic Institute

Thursday AM
February 20, 2014
Room: 1B
Location: San Diego Convention Center

Session Chairs: Dmitri Louzguine, WPI-AIMR, Tohoku University; Dong Ma, ORNL

8:30 AM Invited
Mechanical Properties and Deformation Behaviour of Bulk Metallic Glassy, Mixed Phase and Nanostructured Alloys: *Dmitri Louzguine*[1]; [1]WPI-AIMR, Tohoku University

8:50 AM
Mechanical Properties of In Situ Formed ZrN Particulate Zr-based Bulk Metallic Glass Composites: *Je In Lee*[1]; Koichi Tsuchiya[2]; Eun Soo Park[1]; [1]Seoul National University; [2]NIMS

9:00 AM Invited
Thermal Expansion and Glass-to-supercooled-liquid Transition in Bulk Metallic Glasses: *Dong Ma*[1]; A Stoica[1]; X Wang[2]; H Bei[1]; J Neuefeind[1]; Y Ren[3]; [1]ORNL; [2]City University of Hong Kong; [3]Argonne National Lab

9:20 AM
Nanoglasses: Structure, Stability and Mechanical Properties: *Karsten Albe*[1]; [1]TU Darmstadt

9:30 AM Invited
Quantitatively Probing the Mechanical Properties of Metallic Glasses Inside TEM: *Zhiwei Shan*[1]; Lin Tian[1]; Evan Ma[2]; [1]Xi'an Jiaotong University; [2]Johns Hopkins University

9:50 AM
Enhanced Tensile Ductility of a $Zr_{65}Al_{7.5}Ni_{10}Cu_{12.5}Pd_5$ Bulk Metallic Glass by High Pressure Torsion and Its Mechanisms of Work Hardenability: *Soo-Hyun Joo*[1]; Dong-Hai Pi[1]; Albertus Deny Setyawan[2]; Hidemi Kato[2]; Milos Janecek[3]; Sunghak Lee[1]; Hyoung Seop Kim[1]; [1]POSTECH; [2]Tohoku University; [3]Charles University

10:00 AM Break

10:20 AM Invited
Probing Structure of BMG with PDF: From Experiment to Interpretation: Wojciech Dmowski[1]; *Takuya Iwashita*[1]; Takeshi Egami[1]; [1]University of Tennessee

10:40 AM
Microstructural Tailoring and Improvement of Mechanical Properties in CuZr-based Bulk Metallic Glass Composites: *Zengqian Liu*[1]; Ran Li[2]; Tao Zhang[2]; [1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences; [2]Beihang University

10:50 AM Invited
In Situ Neutron Scattering Study of Crystallization Kinetics in Ternary Bulk Metallic Glasses: *Si Lan*[1]; Jie Zhou[2]; Zhaoping Lu[2]; Mikhail Feygenson[3]; Jörg Neuefeind[3]; Xun-Li Wang[1]; [1]City University of Hong Kong; [2]University of Science and Technology Beijing; [3]Oak Ridge National Laboratory

11:10 AM
A Simulation Study of Shear Banding in Finite-sized Samples and Size-dependence of Yield Strength: *Pengyang Zhao*[1]; Ju Li[2]; Yunzhi Wang[1]; [1]The Ohio State University; [2]Massachusetts Institute of Technology

11:20 AM Invited
Composition Interpretation of Ideal Metallic Glasses and Relevant Eutectics Using Cluster Formulas: Lingjie Luo[1]; Hua Chen[1]; Jianbing Qiang[1]; Qing Wang[2]; Yingmin Wang[1]; *Chuang Dong*[1]; [1]Dalian University of Technology; [2]Dalian University of Technology

Bulk Metallic Glasses XI — Structures and Mechanical Properties III

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Gongyao Wang, University of Tennessee; H. Choo, University of Tennessee; Y. Gao, University of Tennessee; Y. F. Shi, Rensselaer Polytechnic Institute

Thursday AM
February 20, 2014
Room: 2
Location: San Diego Convention Center

Session Chairs: Jinn Chu, National Taiwan University of Science and Technology; Eric Homer, Brigham Young University

8:30 AM Invited
Thin Film Metallic Glasses for Microelectronic Applications: Properties and Potentials: *Jinn Chu*[1]; S. F. Wang[2]; [1]National Taiwan University of Science and Technology; [2]National Taipei University of Technology

8:50 AM
Analysis of the Effect of Loading Rate on Plastic Deformation of Zr-based Metallic Glasses by Broadband Nanoindentation Creep: *Zenon Melgarejo*[1]; Joseph Jakes[2]; Matt Besser[3]; Matt Kramer[3]; Paul Voyles[1]; Donald Stone[1]; [1]University of Wisconsin-Madison; [2]Performance Enhanced Biopolymers, United States Forest Service; [3]Iowa State University, and Ames Laboratory (DOE)

9:00 AM Invited
Mechanical Behaviour of Metallic Glasses in Tension: Jie Pan[1]; Zhitao Wang[1]; *Yi Li*[1]; [1]National University of Singapore

9:20 AM Invited
Examining the Initial Stages of Shear Localization in Amorphous Metals: *Eric Homer*[1]; [1]Brigham Young University

9:40 AM
Deformation Mechanisms and Lattice Strain Evolution in Metallic Glass Composites from In Situ Synchrotron X-ray Measurements and Micromechanical Modeling: *Haoling Jia*[1]; Lili Zheng[1]; Weidong Li[1]; Nan Li[1]; Junwei Qiao[1]; Yang Ren[1]; Peter Liaw[1]; Yanfei Gao[1]; [1]University of Tennessee

9:50 AM Break

10:10 AM Invited
A Universal Fracture Criterion of High-strength Materials: *Zhefeng Zhang*[1]; Ruitao Qu[1]; [1]Institute of Metal Research

10:30 AM
Effect of Tungsten Volume Fraction on the Micro-deformation Mechanism of Zr-based Metallic Glass/Porous Tungsten Composites under Cyclic Compression: *Yunfei Xue*[1]; Lu Wang[1]; Xinqiang Zhang[1]; Yandong Wang[1]; Zhihua Nie[1]; Haifeng Zhang[1]; Huameng Fu[1]; [1]Beijing Institute of Technology

10:40 AM Invited
Localized Deformation Behavior of $Fe_{52}Co_{20}$-x$B_{20}Si_4Nb_4$Crx with x = 0, 1, 3, 5 at. Bulk Metallic Glasses under Nanoindentation: *Ki Buem Kim*[1]; Jung Tae Kim[1]; Seung Hwan Hong[1]; [1]Sejong University

11:00 AM
Cluster Formulas of Alloy Phases in Relation to Metallic Glass and Quasicrystal Formation: Chuang Dong[1]; *Jianbing Qiang*[1]; Lingjie Luo[2]; Yingmin Wang[1]; [1]Dalian University of Technology; [2]Dalian University of Technology

11:10 AM
Mechanical Behavior of Bulk Metallic Glasses Subjected to Severe Plastic Deformation: *Harpreet Arora*[1]; H Grewal[2]; Harpreet Singh[2]; Sundeep Mukherjee[1]; [1]University of North Texas; [2]Indian Institute of Technology Ropar

11:20 AM
Effects of Alloying Elements on Microstructure and Mechanical Properties for $Mg_{58.5}Cu_{30.5}Y_{11}$ Bulk Metallic Glass: *Wang Lin*[1]; Qiu Ke-qiang[1]; You Jun-hua[1]; [1]Shenyang University of Technology

Cast Shop for Aluminum Production — General Cast Shop

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Edward Williams, Alcoa

Thursday AM
February 20, 2014
Room: 15A
Location: San Diego Convention Center

Session Chair: Pete Forakis, Emirates Aluminum

8:30 AM Introductory Comments

8:35 AM
Development and Demonstration of a Molten Metal Cooling Trough to Improve Casthouse Performance: *André Larouche*[1]; Frédéric Borel[1]; Jean Crépeau[1]; [1]Rio Tinto Alcan

9:00 AM
Commissioning and Start-up of Ingot Casting Machines in the Biggest Integrated Aluminum Complex in the World: *Abdullah Al-Garni*[1]; Khalid Al-Azmi[1]; Nasser Al-Shammri[1]; [1]Maaden Aluminum Company

9:25 AM
Preventing Explosions In Maintenance Pits under Furnaces: *Alex Lowery*[1]; [1]WISE CHEM LLC

9:50 AM
The Effect of Magnesium Supply on the Quality of Aluminum Melts: *Heather Drieling*[1]; D. Corleen Chesonis[1]; [1]Alcoa Technical Center

10:15 AM Break

10:30 AM
Effects of Microstructure and Defects on Tensile and Fracture Behaviour of a HPDC Component; Potential Properties and Actual Outcome of EN AC-44300 Alloy: *Mohammadreza Zamani*[1]; Salem Seifeddine[1]; Anders Jarfors[1]; [1]Jonkoping University

10:55 AM
Thermal Parameters Analysis during Directional Solidification of Al-Cu Eutectic Alloys: Alex Kociubczyk[1]; Federico Cabello[2]; *Carlos Schvezov*[3]; Ricardo Gregorutti[4]; Alicia Ares[3]; [1]Materials Institute of Misiones - IMAM (CONICET-UNaM).; [2]UNAM (University of Misiones), Faculty of Sciences.; [3]Materials Institute of Misiones - IMAM (CONICET-UNaM). Faculty of Sciences.; [4]LEMIT– CIC. Engineering Faculty. National University of La Plata.

Celebrating the Megascale: An EPD Symposium in Honor of David G.C.Robertson — Pyrometallurgy Process Fundamentals I

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee, TMS: Process Technology and Modeling Committee
Program Organizers: Phillip Mackey, P.J. Mackey Technology; Rodney Jones, Mintek; Eric Grimsey, Curtin University, W A School of Mines; Geoffrey Brooks, Swinburne University of Technology

Thursday AM
February 20, 2014
Room: 16A
Location: San Diego Convention Center

Session Chairs: Mansoor Barati, University of Toronto; P. Pistorius, Carnegie Mellon University

8:30 AM Introductory Comments

8:35 AM
Oxidation of Flash Reduced Iron Particles in Various Gas Mixtures under the Conditions of a Novel Flash Ironmaking Process: *Zhixue Yuan*[1]; Hong Yong Sohn[1]; Miguel Olivas-Martinez[1]; [1]University of Utah

8:55 AM Invited
A New Approach to Investigating Coke Reactivity: *Brian Monaghan*[1]; Ray Longbottom[1]; Mark Reid[1]; Oluwatosin Aladejebi[1]; Apsara Jayasekara[1]; Marc in het Panhuis[1]; [1]University of Wollongong

9:15 AM Invited
The Use of Natural Gas for Reduction of Metal Oxides: Constraints and Prospects: *Oleg Ostrovski*[1]; [1]University of New South Wales

9:35 AM
Decomposition of Methane during Oxide Reduction Using Natural Gas: *Halvor Dalaker*[1]; Pål Tetlie[1]; [1]SINTEF Materials and Chemistry

9:55 AM Break

10:15 AM
Reduction of the Ni- and Ti-oxide Mixtures by Natural Gas: *Casper van der Eijk*[1]; Kai Tang[1]; [1]SINTEF

10:35 AM Invited
Kinetic and Thermodynamic Analyses of the Reduction of Oxides of CU and CO in a SiO_2-CAO-(AL,FE)$_2O_3$ Slag: Yotamu Hara[1]; *Animesh Jha*[1]; [1]Leeds University

10:55 AM
Carbothermic Reduction of Ilmenite Concentrate with Coke Assisted by High Energy Ball Milling: Bing Song[1]; Kai Zhang[1]; Fei Xi[1]; Xuewei Lv[1]; [1]Chongqing University

11:15 AM
Optimization of the Energy Consumption of Metal Electrowinning from Oxides: *Maria Paula Angarita*[1]; Antoine Allanore; [1]Massachusetts Institute of Technology

11:35 AM
Reaction Mechanism and Reaction Rate of Sn Evaporation from Liquid Steel: Sung-Hoon Jung[1]; *Youn-Bae Kang*[1]; [1]Graduate Institute of Ferrous Technology, Pohang University of Science and Technology

Characterization of Minerals, Metals and Materials 2014 — Characterization in Material Extraction

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: John Carpenter, Los Alamos National Laboratory; Chen-Guang Bai, Chongqing University; Jiann-Yang Hwang, Michigan Technological University; Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; Sergio Monteiro, State University of North Rio de Janeiro; Zhiwei Peng, Michigan Technological University; Mingming Zhang, ArcelorMittal Global R&D

Thursday AM
February 20, 2014
Room: 7A
Location: San Diego Convention Center

Session Chairs: Zhiwei Peng, Michigan Technological Univ; Ailiang Chen, Central South University

8:30 AM
Effects of Iron and Manganese Ions on Potentiostatic Current Transients for Copper Electrodeposition: *Ailiang Chen*[1]; Jiann-Yang Hwang[2]; Zhiwei Peng[2]; Yutian Ma[3]; Xuheng Liu[1]; Xingyu Chen[1]; [1]Central South University; [2]Michigan Technological University; [3]Jinchuan Group Co. Ltd

8:50 AM
Determination and Optimization Best Condition for Bioleaching of Sulfide Low Grade Copper Ore by Using DOE(Design of Experimental) Method: *Hossein Etminan*[1]; Hekmat Razavizadeh[2]; [1]GolGohar Mining & Industrial Company; [2]IUST

9:10 AM
Determination of Leaching Reaction Mechanism of Synthetic $CaMoO_4$ in $H_2C_2O_4$ Solutions: *Sedat Ilhan*[1]; Ahmet Kalpakli[1]; Ibrahim Yusufoglu[1]; [1]Istanbul University

9:30 AM
Effect of V_2O_3 and TiO_2 on the Dissolution of Lime in FeO-SiO_2-V_2O_3-TiO_2 Slag: *Rui Tang*[1]; Yu Wang[1]; Shuo Wang[1]; Bing Xie[1]; Jiang Diao[1]; [1]Chongqing University

9:50 AM
Characterization of Wastes Generated during Stainless Steel Production: *Xulong Liu*[1]; Jing Zhang[1]; Qing Xiao[1]; Qiuju Li[1]; [1]Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University

10:10 AM Break

10:20 AM
Investigation of Reaction Stoichiometry of Leaching of Synthetic $CaWO_4$ in $H_2C_2O_4$ Solutions: *Ahmet Kalpakli*[1]; Sedat Ilhan[1]; Ibrahim Yusufoglu[1]; [1]Istanbul University

10:40 AM
Seperation of Shell and Core of Roasted Double-Layered Pellets: *Yang Yong-bin*[1]; Fang Chen[1]; Li Qian[1]; Jiang Tao[1]; Ge Jie[1]; [1]Central South University

11:00 AM
The Study of Extraction Titanium from Titanium-bearing Blast Furnace Slag: *Qing Xiao*[1]; Jing Zhang[1]; Yahui Feng[1]; Qiuju Li[1]; [1]Shanghai University

11:20 AM
Study on Characteristics of Stamping Cokes and Top Charging Cokes: Bing Gao[1]; [1]University of Science and Technology Beijing

Characterization of Minerals, Metals and Materials 2014 — Characterization of Soft Materials I

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: John Carpenter, Los Alamos National Laboratory; Chen-Guang Bai, Chongqing University; Jiann-Yang Hwang, Michigan Technological University; Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; Sergio Monteiro, State University of North Rio de Janeiro; Zhiwei Peng, Michigan Technological University; Mingming Zhang, ArcelorMittal Global R&D

Thursday AM
February 20, 2014
Room: 7B
Location: San Diego Convention Center

Session Chair: Sergio Neves Monteiro, State University of North Rio de Janeiro

8:30 AM
Flexural Mechanical Characterizations of Polyester Matrix Comsites Reinforced with Continuous and Aligned Banana Fibers: Foluke Salgado[1]; Frederico Margem[1]; *Sergio Monteiro*[1]; Romulo Loiola[1]; [1]Universidade Estadual do Norte Fluminense

8:50 AM
Environmentally Assisted Degradation and Failure Analysis of Polymeric Webbing Material: *Pawan Maharjan*[1]; [1]Texas Tech Univeristy

9:10 AM
Thermal Characterization of Epoxy Matrix Reinforced with Buriti Fibers by the Photoacoustic Technique: *Giulio Altoé*[1]; Sérgio Monteiro[2]; Frederico Margem[1]; Roberto Faria Jr.[1]; Thallis Cordeiro[1]; [1]State University of the Northern Rio de Janeiro - UENF; [2]Military Institute of Engineering, IME

9:30 AM
Characterization of Thermal Properties of Polyester Matrix Reinforced with Sisal Fibers by Photoacoustic Technique: Artur Camposo Pereira[1]; Sergio Monteiro[1]; *Frederico Margem*[1]; Thallis Cordeiro[1]; Roberto Faria Jr.[1]; [1]Universidade Estadual do Norte Fluminense

9:50 AM Break

10:10 AM
Izod Impact Tests Polyester Matrix Composites Reinforced with Malva Fibers: *Jean Margem*[1]; Frederico Margem[1]; Marina Margem[1]; Vinicius Alves[1]; Sergio Monteiro[2]; [1]UENF University State Northern Rio de Janeiro; [2]Military Institute of the Engineering

10:30 AM
Charpy Impact Tests in Epoxy Matrix Composites Reinforced with Malva Fibers: Jean Margem[1]; Marina Margem[1]; frederico margem[1]; *vinicius gomes*[1]; sergio monteiro[2]; [1]UENF University State Northern Rio de Janeiro; [2]Military Institute of the Engineering

10:50 AM
Characterization of Thermal Properties of Curaua Fibers Incorporated in Epoxy Matrix by Photothermal and Photoacoustic Techniques: Noan Simonassi[1]; *Frederico Margem*[1]; Rômulo Loiola[1]; Sergio Monteiro[1]; Roberto Faria[1]; Thallis Cordeiro[1]; [1]State University of the Northern Rio de Janeiro

11:10 AM
Bending Tests in Polyester Composites Reinforced with Bamboo Fibers of the Specimen Dendrocalmus Giganteus: *Lucas Martins*[1]; Frederico Margem[1]; Sérgio Monteiro[2]; Rômulo Loyola[1]; Igor Margem[1]; [1]UENF; [2]IME

Computational Discovery of Novel Materials — Physical Properties of New Materials

Sponsored by: TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, Cornell University; Dallas Trinkle, University of Illinois, Urbana-Champaign

Thursday AM
February 20, 2014
Room: 31A
Location: San Diego Convention Center

Session Chair: Francesca Tavazza, NIST

8:30 AM Invited
Rare-earth Element Alternatives in Alloy Design: Contributions from First-principles Calculations: *Susan Sinnott*[1]; Aakash Kumar[1]; Srikant Srinivasan[2]; Scott Scott Broderick[2]; Krishna Rajan[2]; [1]University of Florida; [2]Iowa State University

9:00 AM
High-throughput Calculations of Solute Effects on Bulk and Defect Properties in Rhenium Alloys: *Maarten de Jong*[1]; David Olmsted[1]; Liang Qi[1]; Axel van de Walle[2]; Mark Asta[1]; [1]UC Berkeley; [2]Brown University

9:20 AM Invited
Free Energies of Novel Metal Oxides and Metal Oxide Surfaces at High Temperatures and Pressures Using Thermodynamics Informed by Density Functional Theory: *Donald Brenner*[1]; Christopher O'Brien[1]; Zsolt Rak[1]; [1]North Carolina State University

9:50 AM Break

10:00 AM Invited
Computational Discovery and Design of Novel Single-layer Materials for Energy Technologies and Electronic Applications: Houlong Zhuang[1]; Arunima Singh[1]; *Richard Hennig*[1]; [1]Cornell University

10:30 AM
Ab Initio Calculations of the Optical Properties of Cubic CdS Single Crystal: *Shadia Ikhmayies*[1]; Bothina Hamad[2]; [1]Al Isra University; [2]University of Jordan

10:50 AM
Discovery of Novel LPSO Strengthening Precipitates in Mg-based Alloys with High-throughput DFT: *James Saal*[1]; Chris Wolverton[1]; [1]Northwestern University

11:10 AM
Computational Design and Optimization of Graded Corrosion Coatings: *Samuel Cross*[1]; Christopher Schuh[1]; [1]MIT

11:30 AM
First-principles Design of Hydrogen Dissociation Catalysts Based on Isoelectronic Metal Solid Solutions: *Sang Soo Han*[1]; Dong Hwa Seo[2]; Hyungjun Kim[3]; [1]Korea Institute of Science and Technology; [2]Seoul National University; [3]Korea Advanced Institute of Science and Technology

Computational Thermodynamics and Kinetics — Plasticity/Alloy/Grain Growth/Grain Boundary Properties

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Alloy Phases Committee, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Long Qing Chen, Penn State University; Guang Sheng, Scientific Forming Technologies Corporation; Jeffrey Hoyt, McMaster University; Dallas Trinkle, University of Illinois at Urbana-Champaign

Thursday AM
February 20, 2014
Room: 30D
Location: San Diego Convention Center

Session Chair: Elif Ertekin, University of Illinois at Urbana-Champaign

8:30 AM Invited
Statistical Approach to Modeling the Defect-mediated Plasticity and Deformation of Low-dimensional Nanostructures.: *Elif Ertekin*[1]; [1]University of Illinois

9:00 AM
Effect of Initial Grain Volume Distribution on Microstructural Evolution during Grain Growth: *Robert DeHoff*[1]; Burton Patterson[1]; Tyler Kaub[1]; Veena Tikare[2]; [1]University of Florida; [2]Sandia National Laboratories, New Mexico

9:20 AM
Long-term Atomistic Simulation of Heat Conduction and Mass Transport in Alloys: *Kevin Wang*[1]; Michael Ortiz[1]; [1]California Institute of Technology

9:40 AM
Abnormal Grain Growth in the Potts Model Incorporating Grain Boundary Complexion Transitions that Increase the Mobility of Individual Boundaries: *William Frazier*[1]; Anthony Rollett[1]; Gregory Rohrer[1]; [1]Carnegie Mellon University

10:00 AM Break

10:20 AM
Multiscale Modeling of Strain Effects on Segregation in Ni-Si: *Thomas Garnier*[1]; Zebo Li[1]; Venkateswara Manga[2]; Dallas Trinkle[1]; Maylise Nastar[3]; Pascal Bellon[1]; [1]University of Illinois at Urbana Champaign; [2]University of Arizona; [3]CEA Saclay, SRMP

10:40 AM
Low-temperature Criticality of Martensitic Transformations of Cu Nanoprecipitates in Alpha-Fe: *Paul Erhart*[1]; Babak Sadigh[2]; [1]Chalmers University of Technology; [2]Lawrence Livermore National Laboratory

11:00 AM
Simulation of Grain Boundary Migration in Polycrystalline Graphene: *Dana Zoellner*[1]; Jules Dake[2]; Simon Kurasch[2]; Ute Kaiser[2]; Carl Krill[2]; [1]Otto von Guericke University Magdeburg; [2]Ulm University

11:20 AM
Simulation of Homogenous Precipitation Using the KWN Model and Evaluation of Interfacial Energy of Binary Systems Using Composition Gradient Samples: *Qiaofu Zhang*[1]; Ji-Cheng Zhao[1]; [1]The Ohio State University

11:40 AM
Thermodynamic and Kinetic Modeling of a Bond Coat Alloy: Oxidation Induced Depletion and Its Effect on Microstructure and Material Behavior: *S. Salam*[1]; Y.D. Zhang[1]; H.F. Wang[1]; Z.G. Yang[1]; C. Zhang[1]; [1]Tsinghua University

Data Analytics for Materials Science and Manufacturing — Topology, Graph Theory, and Data Fusion

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Integrated Computational Materials Engineering Committee
Program Organizers: Jeff Simmons, Air Force Research Laboratory; Charles Bouman, Purdue University; Fariba Fahroo, Air Force Office of Scientific Research; Surya Kalidindi, Georgia Institute of Technology; Jeremy Knopp, Air Force Research Laboratory; Peter Voorhees, Northwestern University

Thursday AM
February 20, 2014
Room: 30E
Location: San Diego Convention Center

Session Chairs: Tony Fast, Georgia Institute of Technology; Mary Comer, Purdue University

8:30 AM Invited
Not Your Father's Topology: Modern Views of Connectivity in Grain Structures: *David Srolovitz*[1]; Emanuel Lazar[1]; Jeremy Mason[2]; Robert MacPherson[3]; [1]University of Pennsylvania; [2]Bosphorus University; [3]Institute for Advanced Study

8:55 AM Invited
Scalable Graph-based Techniques for Large-scale Materials Data: *Sai Kiranmayee Samudrala*[1]; Spencer Pfeifer[2]; Olga Wodo[2]; Jaroslaw Zola[3]; Krishna Rajan[2]; Baskar Ganapathysubramanian[2]; [1]Georgia Institute of Technology; [2]Iowa State University; [3]Rutgers University

9:20 AM Invited
Data Topology as a Framework for Materials Discovery and Material Mimetic Design: *Krishna Rajan*[1]; Susan Sinnott[2]; Surendra Saxena[3]; James LeBeau[4]; [1]Iowa State University; [2]University of Florida; [3]Florida International University; [4]North Carolina State University

9:45 AM Invited
A New Data Analytics Framework Integrating Multimodal and Ultra-fast Diagnostic Sensing with Prognostic Modeling for Materials Characterization: *Yiming Deng*[1]; [1]University of Colorado Denver and Anschutz Medical Campus

10:10 AM Break

10:30 AM Invited
Bayesian Inference of Grain Boundary Properties from Heterogeneous Data: *Youssef Marzouk*[1]; Michael Demkowicz[1]; [1]Massachusetts Institute of Technology

10:55 AM Invited
Hyperspectral Image Analysis: From Qualitative to Quantitative Analysis: *Paul Kotula*[1]; [1]Sandia National Laboratories

11:20 AM Invited
2D/3D Data Registration and Fusion: *Emine Gulsoy*[1]; [1]Northwestern University

11:45 AM
A Data Mining Approach in Structure: Property Optimization: *Ruoqian Liu*[1]; Abhishek Kumar[2]; Zhengzhang Chen[1]; Ankit Agrawal[1]; Veera Sundararaghavan[2]; Alok Choudhary[1]; [1]Northwestern University; [2]University of Michigan, Ann Arbor

Dynamic Behavior of Materials VI – An SMD Symposium in Honor of Professor Marc Meyers — Heterogeneous and Brittle Materials

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Naresh Thadhani, Georgia Institute of Technology; George Gray, Los Alamos National Laboratory

Thursday AM
February 20, 2014
Room: 3
Location: San Diego Convention Center

Session Chairs: Bill Proud, Imperial College; Luis Louro, Military Institute of Engineering

8:30 AM Invited
Plastic Flow and Lattice Dynamics Experiments on Shock and Ramp Loaded Ductile Metals at Extreme Pressures and Strain Rates: *Bruce Remington*[1]; [1]Lawrence Livermore National Laboratory

8:50 AM Invited
Prediction of Probabilistic Ignition Behavior of Heterogeneous Energetic Materials with Multiple Sources of Material Stochasticity: Seokpum Kim[1]; Ananda Barua[1]; Yasuyuki Horie[2]; *Min Zhou*[1]; [1]Georgia Institute of Technology; [2]Air Force Research Laboratory

9:10 AM Invited
The Good, the Bad and the Ugly Defects—
Controlling the Dynamic Failure Strength of Brittle Materials: K.T. Ramesh[1]; *Nitin Daphalapurkar*[1]; [1]The Johns Hopkins University

9:30 AM Invited
A Mechanisms Perspective on Why Spinel Outperforms Sapphire in Ballistic Tests Despite Its Inferior Properties: *Ghatu Subhash*[1]; [1]University of Florida

9:50 AM Break

10:10 AM Invited
Mechanically-induced Amorphization and Nanocrystallization in Boron Carbide: *Jerry LaSalvia*[1]; Vladislav Domnich[2]; Kelvin Xie[3]; Eugene Shanholtz[1]; Scott Walck[1]; DeCarlos Taylor[1]; Todd Beaudet[1]; [1]U.S. Army Research Laboratory; [2]Rutgers University; [3]Johns Hopkins University

10:30 AM Invited
Influence of Stress State and Strain Rate on Amorphization in Boron Carbide: *Ghatu Subhash*[1]; Dipankar Ghosh[2]; [1]University of Florida; [2]California Institute of Technology

10:50 AM Invited
The Dynamic Behavior of Granular Materials: *Tracy Vogler*[1]; [1]Sandia National Laboratories

11:10 AM
Effect of Meso to Micro Transition and Effect of Grain Boundary Property Manipulation in Morphology Dependent Dynamic Fracture of SiC and W: Hongsuk Lee[1]; *Vikas Tomar*[1]; [1]Purdue University

11:30 AM
Mesoscale Simulations of Sand under Dynamic Loading and It's Constitutive Response: *Eric Herbold*[1]; Scott Johnson[1]; Oleg Vorobiev[1]; Tarabay Antoun[1]; [1]Lawrence Livermore National Laboratory

Electrode Technology for Aluminium Production — Rodding Operation and Anode Electrical Connections

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Andre Proulx, Rio Tinto Alcan

Thursday AM
February 20, 2014
Room: 14B
Location: San Diego Convention Center

Session Chair: Duygu Kocaefe, Université du Québec à Chicoutimi

8:30 AM Introductory Comments

8:35 AM
Improving Energy Efficiency at Albras. A Case Study in the Rodding Shopping: *Paulo Douglas Vasconcelos*[1]; [1]Albras Alumínio Brasileiro S.A

9:00 AM
ARTS - Anode & Rod Tracking System – A New Tool for Optimization of Anode Performance: *Manfred Beilstein*[1]; Ivan Grle[2]; Alfred Harwardt[1]; [1]Outotec GmbH; [2]ALUMINIJ d.d.

9:25 AM
Anode Rodding Basics: *David Molenaar*[1]; Barry Sadler[2]; [1]CSIRO; [2]Net Carbon Consulting Pty Ltd

9:50 AM
Anode Electrical Resistance Measurements: Learning and Industrial On-line Measurement Equipment Development.: *Guillaume Léonard*[1]; Sébastien Guérard[1]; Denis Laroche[1]; Jean-Claude Arnaud[2]; Stéphane Gourmaud[3]; Marc Gagnon[4]; Marie-Josée Chollier[1]; Yvon Perron[1]; [1]Rio Tinto Alcan / ARDC; [2]Rio Tinto Alcan / Aluval; [3]ECL; [4]Aluminerie Alouette Inc

10:15 AM Break

10:25 AM
Automated Crack Detection Method Applied to CT Images of Baked Carbon Anode: *Donald Picard*[1]; Julien Lauzon-Gauthier[1]; Carl Duchesne[1]; Houshang Alamdari[1]; Mario Fafard[1]; Donald Ziegler[2]; [1]Laval University; [2]Alcoa Primary Metals

10:50 AM
Development of a New Methodology to Measure Contact Pressure Ditribution along the Thermo-electro-mechanical Interfaces: *Mohammadreza Emami*[1]; Daniel Marceau[1]; Martin Désilets[2]; [1]University of Quebec at Chicoutimi; [2]University of Sherbrooke

11:15 AM
Rodding In Hall Heroult Cells: An FEA Model that Predicts Room Temperature Mechanical Properties and Cracking Tendency of Thimbles: Dayalan Gunasegaram[1]; *David Molenaar*[1]; [1]CSIRO

11:40 AM
Temperature Fitting Method for Predicting Equidistant Voltage Drop of Anode Rod in Aluminum Reduction Cell: Jianhong Li[1]; *Ganfeng Tu*[2]; Xiquan Qi[3]; Jing Liu[3]; Hui Dong[3]; Ying Zhang[3]; [1]Northeastern University; Liaoning University of Petroleum & Chemical Technology; [2]Northeastern University; [3]Northeastern University Engineering & Research Institute Co. Ltd.

Gamma TiAl Alloys 2014 — Session VII

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Titanium Committee
Program Organizers: Young-Won Kim, Gamteck, Inc.; Wilfried Smarsly, MTU Aero Engines GmbH; Junpin Lin, University of Science and Technology Beijing; Dennis Dimiduk, Air Force Research Laboratory; Fritz Appel, Helmholtz Zentrum Geesthacht

Thursday AM
February 20, 2014
Room: 6B
Location: San Diego Convention Center

Session Chairs: Junpin Lin, University of Science & Technology Beijing; Miguel Lagos, Tecnalia

8:30 AM Invited
Status of Titanium Aluminide for Aero Engine Aplications: *Wilfried Smarsly*[1]; [1]MTU Aero Engines AG

8:55 AM
Mechanical Properties of a TNM Alloy Protected by the Halogen Effect and Coated with a Thermal Barrier Coating: *Ariane Straubel*[1]; Christoph Leyens[1]; Simone Friedle[2]; Michael Schütze[3]; Nadine Laska[4]; Reinhold Braun[4]; [1]Technische Universität Dresden; [2]DECHEMA-Forschungsinstitut; [3]DECHEMA Forschungsinstitut; [4]Deutsches Zentrum für Luft- und Raumfahrt

9:15 AM Invited
Composition Optimization of ß-γ TiAl Alloys Containing High Niobium: *Laiqi Zhang*[1]; Xiaoli Wang[1]; Junzi Zheng[1]; Yongming Hou[1]; Junpin Lin[1]; [1]University of Science and Technology Beijing

9:40 AM Invited
The Effects of Microstructure on Impact Resitant Properties in Forged TiAl Alloys: *Satoshi Takahashi*[1]; Keiji Kubushiro[1]; Masao Takeyama[1]; [1]IHI Corporation

10:00 AM Break

10:20 AM Invited
Wrought TiAl Blades: *Peter Janschek*[1]; [1]Leistritz Turbinentechnik GmbH

10:45 AM
Phase Transformation and Equilibrium Diagram of Ti-Al-Nb Ternary Alloy: *Yong Xu*[1]; Guojian Hao[2]; Yongfeng Liang[2]; Xiangjun Xu[3]; Junpin Lin[2]; [1]Shandong Jianzhu University; [2]University of Science and Technology Beijing; [3]Zhongyuan University of Technology

11:05 AM Invited
Beta Gamma Alloys: The First Fine-grained Engineering FL Gamma TiAl Alloys: *Young-Won Kim*[1]; Sang-Lan Kim[2]; [1]Gamteck, Inc.; [2]UES, Inc.

11:30 AM
Fine-grained Fully Lamellar Beta Gamma Cast Alloys for High Temperature Rotational Components: *Scott Reed*[1]; Young-Won Kim[2]; [1]Flowserve; [2]Gamteck, Inc.

Integration of Materials Science and Nondestructive Evaluation for Materials Characterization — Quantitative Nondestructive Characterization II: Titanium Alloys

Sponsored by: TMS Structural Materials Division, TMS: Integrated Computational Materials Engineering Committee
Program Organizers: Adam Pilchak, Air Force Research Laboratory; Dennis Dimiduk, Air Force Research Laboratory; Eric Lindgren, Air Force Research Laboratory; Richard Lesar, Iowa State University; Leonard Bond, Iowa State University

Thursday AM
February 20, 2014
Room: 8
Location: San Diego Convention Center

Session Chairs: Adam Pilchak, Air Force Research Laboratory; Stan Rokhlin, The Ohio State University

8:30 AM Invited
Ultrasonic Wave Propagation in Polycrystal Hexagonal Alloys: Computational and Experimental Studies Combined with EBSD for Texture Detection: *Bo Lan*[1]; Fionn Dunne[2]; Mike Lowe[2]; [1]Oxford University; [2]Imperial College London

9:00 AM
Integration of Quantitative NDE and Process Modeling: ICME for the Production Environment: *Adam Pilchak*[1]; Christopher Szczepanski[1]; Jia Li[2]; Nick Sonnentag[3]; Stan Rokhlin[2]; Lee Semiatin[1]; Jon Miller[1]; [1]Air Force Research Laboratory; [2]The Ohio State University; [3]ATI Ladish

9:20 AM Invited
Characterization of Polycrystals by Ultrasonic Scattering. Effect of Texture and Microtexture: *Stan Rokhlin*[1]; Jia Li[1]; [1]The Ohio State University

9:50 AM Break

10:00 AM Invited
A Novel Microtexture Assessment Methodology for Dwell Sensitive Titanium Alloys: *Michael Glavicic*[1]; Kate Fox[2]; Richard Whittaker[2]; Mulyadi Mulyadi[2]; Matt Thomas[3]; Ayman Salem[4]; Steve Sharples[5]; [1]Rolls-Royce; [2]Rolls-Royce plc; [3]TIMET UK; [4]Materials Resources LLC; [5]University of Nottingham

10:30 AM Invited
Spatially Resolved Acoustic Spectroscopy – Material Characterization, from Microns to Metres: Steve Sharples[1]; *Wenqi Li*[1]; Richard Smith[1]; Jethro Coulson[1]; Matt Clark[1]; Michael Somekh[1]; [1]University of Nottingham

11:00 AM Invited
Applying Microstructure Informatics to EBSD and SRAS Big-data to Quantify Microtexture Heterogeneity in Ti Alloys: *Ayman Salem*[1]; Michael Glavicic[2]; Kate Fox[3]; Richard Whittaker[3]; Mulyadi Mulyadi[3]; Matthew Thomas[4]; Steve Sharples[5]; [1]Materials Resources LLC; [2]Rolls-Royce Corporation; [3]Rolls-Royce plc; [4]TIMET UK LTD; [5]University of Nottingham

11:30 AM Panel Discussion

Length Scaling of Lamellar and Patterned Microstructures During Solid-Solid Phase Transformations and Solidification — Growth Kinetics and Precipitate Morphology

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Phase Transformations Committee, TMS: Solidification Committee
Program Organizers: Robert Hackenberg, Los Alamos National Laboratory; Carlos Capdevila-Montes, CENIM-CSIC; Amy Clarke, Los Alamos National Laboratory; John Perepezko, University of Wisconsin-Madison

Thursday AM
February 20, 2014
Room: 32A
Location: San Diego Convention Center

Session Chairs: Francisca Caballero, Spanish National Research Center for Metallurgy (CENIM-CSIC); Rajarshi Banerjee, University of North Texas

8:30 AM Invited
Determining Thermodynamic and Kinetic Conditions for Pearlite vs. Cellular Formation above the Upper Ae1 in Fe-C-12Mn: Aleks Ontman[1]; *Gary Shiflet*[1]; [1]University of Virginia

9:00 AM Invited
Diffusion-controlled Growth of Pearlite in Ternary Steels: *Ashwin Pandit*[1]; H. K. D. H. Bhadeshia[2]; [1]Tata Steel Limited; [2]University of Cambridge

9:30 AM
Manganese Partitioning during Pearlite Growth in Fe-C-Mn Medium Carbon Steel: *María Martín-Aranda*[1]; Carlos Capdevila Montes[1]; Robert E. Hackenberg[2]; Michael K.Miller[3]; Esteban Urones-Garrote[4]; [1]CENIM-CSIC; [2]Los Alamos National Laboratory; [3]Oak Ridge National Laboratory; [4]Universidad Complutense de Madrid, Centro Nacional de Microscopía Electrónica

9:55 AM Break

10:15 AM Invited
In Situ Observations of Moving Interfaces during DP Reaction: *Pawel Zieba*[1]; [1]Polish Academy of Sciences

10:45 AM
Lamellar and Nonlamellar Decomposition in U-Nb: Energy Sinks and Approach to Equilibrium: *Robert Hackenberg*[1]; Anna Llobet[1]; Heather Volz[1]; Robert Forsyth[1]; Pallas Papin[1]; Ann Kelly[1]; Tim Tucker[1]; Kester Clarke[1]; Alice Smith[1]; Geralyn Hemphill[1]; Megan Emigh[2]; [1]Los Alamos National Laboratory; [2]University of Illinois

11:10 AM
Competing Mechanisms between Continuous and Discontinuous Precipitation of Gamma Prime Precipitation in Ternary Nickel Base Alloys: *Tanaporn Rojhirunsakool*[1]; Soumya Nag[1]; Jaimie Tiley[2]; Rajarshi Banerjee[1]; [1]University of North Texas; [2]Wright-Patterson Air Force Base

11:35 AM
Microstructural Features of Secondary Phase Precipitation in Alloy ATI 718Plus®: *Ana Casanova*[1]; Robert Krakow[1]; Olivier Messé[1]; Ed Pickering[1]; Mark Hardy[2]; Catherine Rae[1]; [1]University of Cambridge; [2]Rolls-Royce plc

Magnesium Technology 2014 — Corrosion and Coatings

Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Martyn Alderman, Magnesium Elektron; Norbert Hort, Helmholtz-Zentrum Geesthacht; Michele Manuel, University of Florida; Neale Neelameggham, Ind LLC

Thursday AM
February 20, 2014
Room: 19
Location: San Diego Convention Center

Session Chairs: J. Jordon, The University of Alabama; Eric Nyberg, Pacific Northwest National Laboratory

8:30 AM
Enhancing Corrosion Resistance by a Hydrophobic Surface Feature for Magnesium Alloy AZ91D: *Xiaobo Chen*[1]; Chong Ke[1]; Nick Birbilis[1]; [1]Monash University

8:50 AM
Oxidation and Corrosion Behavior of Non-flammable Magnesium Alloys Containing Ca and Y: *Bong Sun You*[1]; Young Min Kim[1]; Chang Dong Yim[1]; Ha Sik Kim[1]; [1]Korea Institute of Materials Science

9:10 AM
Corrosion Behavior of Magnesium Alloys Containing Sn and Zn: *Chang Dong Yim*[1]; Sang Kyu Woo[2]; Jie Yang[2]; Bong Sun You[1]; [1]Korea Institute of Materials Science; [2]University of Science and Technology

9:30 AM
Effect of Surface Condition on the Localized Corrosion Behavior of Magnesium Alloy AZ31B: *Zach Cano*[1]; Joey Kish[1]; Joe McDermid[1]; [1]McMaster University

9:50 AM
Formation of Self-assembled Monolayers on Cerium Conversion Coated AZ31 Mg Alloy: *S. Salman*[1]; A Nagata[2]; K Kuroda[3]; M Okido[3]; [1]Graduate School of Engineering, Al-Azhar University; [2]Graduate School of Engineering, Nagoya University; [3]EcoTopia Science Institute, Nagoya University

10:10 AM Break

10:30 AM
Effects of Current Density on Microstructure and Corrosion Property of Coating on AZ31 Mg Alloy Processed via Plasma Electrolytic Oxidation: Kang Min Lee[1]; Feryar Einkhah[2]; Mohammad Ali Sani[2]; Young Gun Ko[3]; *Dong Hyuk Shin*[1]; [1]Hanyang University; [2]Sharif University of Technology; [3]Yeungnam University

10:50 AM
Corrosion-stress Relaxation Effects on Tensile Properties of an AZ61 Magnesium Alloy: *Holly Martin*[1]; Christopher Walton[2]; Kamecia Bruce[2]; Ayesha Hicks[2]; M.F. Horstemeyer[2]; Wilburn Whittingham[2]; Paul Wang[2]; [1]Chemical Engineering, Youngstown State University; [2]Center for Advanced Vehicular Systems, Mississippi State University

11:10 AM
Corrosion Behaviour of Friction Stir Welded AZ31 Joints for Automotive Applications: *Xiangrong(Sarah) Zhang*[1]; Zach Cano[1]; B.M. Wilson[1]; J.R. Kish[1]; J.R. McDermid[1]; [1]McMaster University

Magnesium Technology 2014 — Wrought Processing II and Joining

Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Martyn Alderman, Magnesium Elektron; Norbert Hort, Helmholtz-Zentrum Geesthacht; Michele Manuel, University of Florida; Neale Neelameggham, Ind LLC

Thursday AM
February 20, 2014
Room: 17A
Location: San Diego Convention Center

Session Chairs: Amit Pandey, Rolls Royce LG Fuel Cell; Suveen Mathaudhu

8:30 AM
Spike-forging of As-cast TX32 Magnesium Alloy: *Pitcheswara Kamineni*[1]; K. Suresh[1]; Norbert Hort[2]; Karl Kainer[2]; [1]City University of Hong Kong; [2]Helmholtz-Zentrum Geesthacht

8:50 AM
An Introduction to the Forging of Elektron 43 – A High Performance Wrought Magnesium Alloy: *Dominic Henry*[1]; Mark Turski[1]; Paul Lyon[1]; Tim Wilks[1]; [1]Magnesium Elektron

9:10 AM
Structure and Properties of Interlayer Formed between Magnesium Alloy Core and Aluminium Alloy Cover during Deformation: *Sonia Boczkal*[1]; Piotr Korczak[1]; Bartlomiej Plonka[1]; Wojciech Szymanski[1]; Marek Nowak[1]; [1]Institute of Non-Ferrous Metals in Gliwice

9:30 AM Invited
A Novel Process for Producing Large Scale mg-Sheets: *Norbert Grittner*[1]; [1]Leibniz Universität Hannover Institut für Werkstoffkunde

9:50 AM
Effect of Volume Fraction of Icosahedral Phase in CaO Added Mg-Zn-Y Alloys: *Hyunkyu Lim*[1]; Dae-Guen Kim[1]; Tae-Yang Kwak[1]; Wonseok Yang[1]; Hak Young Kim[1]; Young-Ok Yoon[1]; Shae K. Kim[1]; [1]KITECH

10:10 AM Break

10:30 AM
Effect of CaO on Hot Workability, Microstructures, and Mechanical Properties of Mg-9.5Zn-2Y Alloy: Tae-yang Kwak[1]; Daeguen Kim[1]; Jaehack Yang[1]; Young-ok Yoon[1]; Shae k. Kim[1]; Hyunkyu Lim[1]; Woo Jin Kim[2]; [1]Korea Institute of Industrial Technology; [2]Hong-Ik University

10:50 AM
Welding of Dissimilar Light Metals by Disk Laser: *Miroslav Sahul*[1]; Milan Turna[1]; Martin Sahul[1]; [1]Slovak University of Technology Bratislava, Faculty of Materials Science and Technology in Trnava

11:10 AM
Suggestion of a Binary Zinc-based Solder for Joining Mg Alloy AZ 31B: Milan Turna[1]; Milan Ožvold[1]; Miroslav Jána[1]; *Miroslav Sahul*[1]; [1]Slovak University of Technology Bratislava, Faculty of Materials Science and Technology in Trnava

11:30 AM
Friction Stir Welding of Magnesium Alloy Type AZ 31: Tomáš Kupec[1]; Mária Behúlová[1]; Milan Turna[1]; *Miroslav Sahul*[1]; [1]Slovak University of Technology Bratislava, Faculty of Materials Science and Technology in Trnava

11:50 AM
Effects of Process Parameters on Texture Development of ZEK100 Mg Sheets during Friction Stir Spot Welding: *Rogie Rodriguez*[1]; J Jordon[1]; [1]The University of Alabama

Magnetic Materials for Energy Applications IV — High Performance Soft Magnets II (This is a joint session with Advanced Materials for Power Electronics, Power Conditioning and Power Conversion II)

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Magnetic Materials Committee
Program Organizers: Thomas G. Woodcock, IFW Dresden; Julia Lyubina, Evonik Industries AG; Matthew Willard, Case Western Reserve University

Thursday AM
February 20, 2014
Room: Ballroom G
Location: San Diego Marriott Marquis & Marina

Session Chairs: Paul R. Ohodnicki, Jr., National Energy Technology Laboratory; Ivan Skorvanek, Slovak Academy of Sciences

8:30 AM Invited
Analysis of Soft Magnetic Materials for Energy Applications: *Samuel Kernion*[1]; Tanjore Jayaraman[1]; Alex Leary[2]; Michael McHenry[2]; [1]Carpenter Technology Corporation; [2]Carnegie Mellon University

9:00 AM
Fe-rich FeSiBPCu Nano-crystalline Soft Magnetic Alloys Contributable To Energy-saving: *Akihiro Makino*[1]; [1]Tohoku University

9:20 AM
CoNiFe Alloy Powder Synthesis by High Energy Milling: *Jesus Calata*[1]; Alex Aning[1]; Aaron Okwei[1]; Guo-Quan Lu[1]; Khai Ngo[1]; [1]Virginia Tech

9:40 AM Invited
Novel Morphology of Highly Efficient Two-phase Ferrite Cores for Power Systems: *Vincent Harris*[1]; Yajie Chen[1]; [1]Northeastern University

10:10 AM Break

10:25 AM Invited
The Use of Pressure and Strain as Processing Variables in Soft Magnetic Nanocomposite Materials: *Alex Leary*[1]; Vincent DeGeorge[1]; Paul Ohodnicki[2]; Michael McHenry[1]; [1]Carnegie Mellon University; [2]National Energy Technology Laboratory

10:55 AM
Application of Small Angle Scattering to FeCo-based Soft Magnetic Nanocomposites: *Paul Ohodnicki*[1]; Vincent Sokalski[2]; Vincent DeGeorge[2]; Michael McHenry[2]; David Laughlin[2]; Jeffrey Kortright[3]; [1]National Energy Technology Laboratory; [2]Carnegie Mellon University; [3]Lawrence Berkeley National Laboratory

11:15 AM
Fabrication of Nanocrystalline Magnetic Materials for Use in Energy-efficient Distribution Transformers: Naoki Ito[1]; *Eric Theisen*[1]; Motoki Ohta[1]; Ryusuke Hasegawa[1]; [1]Metglas Inc.

11:35 AM
Thin Ferrite Films Compared to Oxide Coated Iron Powder for Electromagnetic Devices: *Katie Jo Sunday*[1]; Kris Darling[2]; Mitra Taheri[1]; [1]Drexel University; [2]Army Research Laboratory

Materials and Fuels for the Current and Advanced Nuclear Reactors III — Structural Materials IV

Sponsored by: TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Ramprashad Prabhakaran, Idaho National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research

Thursday AM
February 20, 2014
Room: 33C
Location: San Diego Convention Center

Session Chair: Indrajit Charit, University of Idaho

8:30 AM
Structure and Properties of Modified High Nitrogen Austenitic Stainless Steels: Jake Harris[1]; *Maxim Gussev*[2]; Jeremy Busby[2]; [1]Ohio State University; [2]Oak Ridge National Laboratory

8:45 AM
Effect of Laser Shock Peening on SCC Behavior of Alloy 600 in Sulfur Bearing Solutions: *Abhishek Telang*[1]; Chang Ye[1]; Amrinder Gill[1]; Sebastien Teysseyre[2]; Vijay Vasudevan[1]; [1]University of Cincinnati; [2]Idaho National Laboratory

9:00 AM
Effect of Creep Deformation on Surface Degradation of Alloy 617 at 800°C in Impure He Environments.: *Alfred Okello*[1]; Gokce Gulsoy[1]; Gary Was[1]; J. Wayne Jones[1]; [1]University of Michigan

9:15 AM
Transition in Creep Mechanisms in HANA-4 Zirconium Alloy: *Boopathy Kombaiah*[1]; Apu Sarkar[1]; Linga Murty Korukonda[1]; [1]North Carolina State University

9:30 AM
Evaluation of Vanadium Carbide for Mitigating Fuel Cladding Chemical Interaction: *Wei-Yang Lo*[1]; Robert Weinmann-Smith[1]; Yong Yang[1]; [1]University of Florida

9:45 AM
Thermo-mechanical Processed Two-dimensional Linear Plane-strain Machining of 316L Austenitic Stainless Steel for Improved SCC Resistance: *Yaakov Idell*[1]; Andreas Kulovits[2]; Giovanni Facco[1]; Jorg Wiezorek[1]; [1]University of Pittsburgh; [2]Carnegie Mellon University

10:00 AM Break

10:20 AM
Stress Corrosion Crack Initiation of Alloy 690 in Subcritical and Supercritical Water: *Tyler Moss*[1]; Gary Was[1]; [1]University of Michigan

10:35 AM
Oxidation of Alloy 617 in Controlled Impure Helium Environments at High Temperatures: *Gokce Gulsoy*[1]; Gary Was[1]; [1]University of Michigan

10:50 AM
The Nanoparticle-matrix Orientation Relationship and the Strengthening Mechanism in Austenitic ODS Stainless Steels: *Yinbin Miao*[1]; Kun Mo[1]; Bai Cui[1]; Wei-Ying Chen[1]; Virginia McCreary[1]; David Gross[1]; Ian Robertson[2]; James Stubbins[1]; [1]University of Illinois at Urbana-Champaign; [2]University of Wisconsin-Madison

11:05 AM
Irradiation Effects on Fission Product Behavior in PyC and SiC: *Shyam Dwaraknath*[1]; Gary Was[1]; [1]University of Michigan

11:20 AM
Effect of Milling and Precipitation Reinforcement on Grain Growth in Oxide-dispersion Strengthened Steels: *Xavier Boulnat*[1]; Nicolas Sallez[2]; Andras Borbély[3]; Cristian Mocuta[4]; Louis Hennet[5]; Dominique Thiaudiere[4]; Joel Malaplate[1]; Jean-Luc Béchade[1]; Yann de Carlan[1]; Pauline Moyaert[1]; Patricia Donnadieu[2]; Damien Fabrègue[6]; Michel Perez[6]; Yves Bréchet[2]; [1]CEA, DEN; [2]Laboratoire SIMAP; [3]Ecole Supérieure des Mines de Saint Etienne; [4]Synchrotron SOLEIL; [5]CEMHTI-CNRS UPR3079; [6]INSA Lyon - MATEIS

11:35 AM
Micro-texture Development in Relation to Total Circumferential Elongation: Burst Test Performance in Zircaloy-4 Clads: *Gulshan Kumar*[1]; Indradev Samajdar[1]; Dinesh Srivastava[2]; Gauttam Dey[2]; N Saibaba; Ramesh Singh[1]; [1]Indian Institute of Technology, Bombay(IIT Bombay); [2]Bhabha Atomic Research Center (BARC), Trombay

Materials Aspects of Corrosion and Fouling in Oil Refining and Exploration — Session III

Sponsored by: TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizer: David Mitlin, University of Alberta and NINT NRC

Thursday AM
February 20, 2014
Room: Mission Hills
Location: San Diego Marriott Marquis & Marina

Session Chair: To Be Announced

8:30 AM Keynote
Challenges & Processes for Deepwater: A DeepStar Perspective: *Greg Kusinski*[1]; [1]Chevron

8:50 AM Invited
Managing Corrosion and Erosion-corrosion Using Surface Engineering: *Anne Neville*[1]; [1]Leeds University

9:10 AM Invited
Micro and Nano-enabled Separation Technologies for the Oil and Gas Applications: *Michael Ohadi*[1]; [1]University of Maryland

9:30 AM Invited
Hygro-responsive Surfaces: A New Approach for Oil-water Separation: *Anish Tuteja*[1]; Gibum Kwon[1]; Arun Kota[1]; Joseph Mabry[2]; [1]University of Michigan; [2]Air Force Research Laboratory

9:50 AM Break

10:00 AM Invited
Fouling Investigation via CFD Modeling of Annular Multiphase Flows during Underbalanced Drilling (UBD): *Dimitrios Gerogiorgis*[1]; Vassilios Kelessidis[2]; [1]University of Edinburgh; [2]Texas A&M University at Qatar

10:20 AM Invited
Novel Organic Coatings for Stainless Steels' Fouling and Corrosion Minimization: *Simo Pehkonen*[1]; Shaojun Yuan[2]; [1]Masdar Institute of Science and Technology; [2]Sichuan University

10:40 AM Invited
Ultrasonic Computerized Tomography of Pipelines for Continuous Monitoring of Corrosion and Erosion Damage: *Francesco Simonetti*[1]; [1]University of Cincinnati

11:00 AM Invited
A Mechanistic Model for Pipeline Steel Corrosion in Supercritical CO_2/SO_2/O_2/H_2O Environments: *Zhe Wang*[1]; Yong Xiang[1]; Zheng Li[1]; [1]Tsinghua University

Materials for High-temperature Applications: Next Generation Superalloys and Beyond — Oxidation and Coatings

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee
Program Organizers: Omer Dogan, DOE National Energy Technology Laboratory; Panos Tsakiropoulos, University of Sheffield; Xingbo Liu, West Virginia University; Paul Jablonski, DOE National Energy Technology Laboratory; Junpin Lin, University of Science and Technology Beijing

Thursday AM
February 20, 2014
Room: 6D
Location: San Diego Convention Center

Session Chairs: Xingbo Liu, West Virginia University; Gary Rozak, H.C. Starck, Inc.

8:30 AM Invited
Protective Scale Formation on Alloys and Coatings Exposed to Harsh Conditions: *Brian Gleeson*[1]; [1]University of Pittsburgh

9:00 AM Invited
Beyond Ni-base Superalloys: The Environmental Resistance Barrier: *Bruce Pint*[1]; [1]Oak Ridge National Laboratory

9:30 AM Invited
Oxidation Behavior of Si-Al-Y Co-deposition Coating on an Nb-Ti-Si Based Ultrahigh Temperature Alloy in the Temperature Range of 800-1350°C: *Xiping Guo*[1]; Jing Li[1]; Ping Guan[1]; [1]Northwestern Polytechnical University

10:00 AM
HVOF Thermal Spray TiC/TiB_2 Coatings of AUSC Boiler/Turbine Components for Enhanced Corrosion Protection: *Kanchan Mondal*[1]; Rasit Koc[1]; Chinbay Fan[2]; Chung-Ying Tsai[1]; Ronald Stanis[2]; [1]Southern Illinois University; [2]Gas Technology Instititue

10:20 AM Break

10:35 AM
Mo-Si-B Based Coating for Oxidation Protection of SiC Composites: *Patrick Ritt*[1]; John Perepezko[1]; [1]University of Wisconsin-Madison

10:55 AM
Determination of the Mode II Interfacial Fracture Toughness of Thermal Barrier Coatings with the Compression Edge-delamination Test: *Simon Lockyer-Bratton*[1]; Jaafar El-Awady[1]; Kevin Hemker[1]; [1]Johns Hopkins University

11:15 AM
Experimental Measurements of the Elastic Response of EBPVD Yttria-stabilized Zirconia Thermal Barrier Coatings: *Binwei Zhang*[1]; R. Jackson[2]; Carlos Levi[2]; Brady Butler[3]; Jaafar El-Awady[1]; Kevin Hemker[1]; [1]Johns Hopkins University; [2]University of California, Santa Barbara; [3]U.S Army Research Laboratory

11:35 AM
Development of a Multi-layered Oxide Scale during the Oxidation of Hyper-eutectic NiAl-Mo Alloys: *Pratik Ray*[1]; Mufit Akinc[2]; Matthew Kramer[1]; [1]Ames Laboratory, US-DOE; [2]Iowa State University

11:55 AM
Al-Cr-Si Based Alloys for Coatings for Refractory Metal Silicide Alloys: *Amir Nanpazi*[1]; Panayiotis Tsakiropoulos[1]; [1]University of Sheffield

Mechanical Behavior at the Nanoscale II — Fatigue and Nanoindentation

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Evan Ma, Johns Hopkins University; Daniel Gianola, University of Pennsylvania; Ting Zhu, Georgia Institute of Technology; Julia Greer, California Institute of Technology

Thursday AM
February 20, 2014
Room: 9
Location: San Diego Convention Center

Session Chairs: Seung Min Han, Korea Advanced Institute of Science and Technology; Qian Yu, University of California Berkeley

8:30 AM
Lifetime and Damage Initiation of Micro-scale fcc Materials in the High and Very High Cycle Fatigue Regimes: *Thomas Straub*[1]; Tobias Kennerknecht[1]; Matthew Berwind[1]; Christoph Eberl[1]; [1]Fraunhofer Institute for Mechanics of Materials (IWM)

8:50 AM
Fatigue-induced Grain Coarsening and Its Influence on the Electromechanical Properties of Metal Films on Polyimide: *Megan Cordill*[1]; Oleksandr Glushko[2]; [1]Erich Schmid Institute of Materials Science; [2]Dept. Material Physics

9:10 AM
Quantitative In Situ TEM Study of Fatigue Crack Nucleation in Nanocrystalline Gold Thin Films: *Ehsan Hosseinian*[1]; Olivier Pierron[1]; [1]Georgia Institute of Technology

9:30 AM
Impurity Strengthening of Nanocrystalline Thin Films by Controlling Stress-driven Grain Growth: *Suman Dasgupta*[1]; Mo-Rigen He[2]; Saritha Samudrala[3]; Mingen Li[1]; Julie Cairney[3]; Daniel Gianola[2]; Kevin Hemker[1]; [1]Johns Hopkins University; [2]University of Pennsylvania; [3]University of Sydney

9:50 AM
Plastic Deformation of Bi-crystalline Micro Pillars Analyzed by In Situ μLaue Diffraction: *Christoph Kirchlechner*[1]; Peter Imrich[2]; Christian Motz[3]; Gerhard Dehm[1]; [1]Max-Planck-Institut für Eisenforschung GmbH; [2]University of Leoben; [3]Universität des Saarlandes

10:10 AM Break

10:30 AM
Elastic Instabilities during Nanoindentation of Perfect Crystals: From Homogeneous Dislocation Nucleation to Diffuse Buckling: Akanksha Garg[1]; *Craig Maloney*[1]; [1]Carnegie Mellon University

10:50 AM
Variation in Nanoindentation Hardness of Platinum: *Michael Maughan*[1]; David Bahr[1]; [1]Purdue University

11:10 AM
Deformation Behaviour of Nanostructured Materials during Small Scale Testing: *Verena Maier*[1]; Megan Cordill[2]; Daniel Kiener[1]; [1]University of Leoben; [2]Erich Schmid Institute of Materials Science

11:30 AM
On a Proper Account of Plastic Size Effects in Continuum Models Including the Flux of Dislocation Density: Christoph Kords[1]; *Philip Eisenlohr*[2]; Franz Roters[1]; [1]Max-Planck-Institut für Eisenforschung; [2]Michigan State University

11:50 AM Invited
Mechanical Behaviors of Two Dimensional Materials: *Jun Lou*[1]; [1]Rice University

Mechanical Behavior Related to Interface Physics II — Biphase Boundary Effects on Mechanical Response of Composites I

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Nan Li, Los Alamos National Laboratory; Jian Wang, Los Alamos National Laboratory; Nathan Mara, Los Alamos National Laboratory; Tonya Stone, Mississippi State University

Thursday AM
February 20, 2014
Room: 11A
Location: San Diego Convention Center

Session Chairs: Daniel Kiener, University of Leoben; Siddhartha Pathak, Los Alamos National Laboratory

8:30 AM
Hardness Versus Layer Thickness in Laminate Composites: *Anthony Rollett*[1]; Irene Beyerlein[2]; Nathan Mara[2]; John Carpenter[2]; Richard Lesar[3]; [1]Carnegie Mellon University; [2]Los Alamos National Laboratory; [3]Iowa State University

8:50 AM Invited
Deformability of Ultrahigh Strength Metal-Ceramic Cu/TiN Nanolayered Composites: *Siddhartha Pathak*[1]; William Mook[1]; Jon Baldwin[1]; Nathan Mara[1]; Amit Misra[1]; [1]Los Alamos National Laboratory

9:20 AM
The Influence of Interfacial Character on Shear Instability in Nanolamellar Composites: *Shijian Zheng*[1]; Jian Wang[1]; John Carpenter[1]; William Mook[1]; Patricia Dickerson[1]; Irene Beyerlein[1]; Nathan Mara[1]; [1]Los Alamos National Laboratory

9:40 AM
Stacking Fault and Partial Dislocation Dominated Strengthening Mechanisms in Highly Textured Cu/Co Multilayers: *Yue Liu*[1]; Youxing Chen[1]; Kaiyuan Yu[1]; Haiyan Wang[1]; Xinghang Zhang[1]; [1]Texas A&M University

10:00 AM Break

10:20 AM Invited
High Temperature Deformation Behavior and Modeling of Al/SiC Nanolaminates: Carl Mayer[1]; Saeid Lotfian[2]; Nan Li[3]; J. Kevin Baldwin[3]; *Nikhilesh Chawla*[1]; Nathan Mara; Amit Misra; Javier LLorca; Jon Molina-Aldareguia; [1]Arizona State University; [2]IMDEA; [3]Los Alamos National Laboratory

10:50 AM
X-ray Diffraction Studies of Forward and Reverse Plastic Flow in Nanoscale Layers during Thermal Cycling: *Michael Gram*[1]; John Carpenter[2]; Andrew Payzant[3]; Amit Misra[2]; Peter Anderson[1]; [1]Ohio State University; [2]Los Alamos National Laboratory; [3]Oak Ridge National Laboratory

11:10 AM
High-temperature Mechanical Properties of Physical Vapour-deposited and Accumulative Roll-bonded Cu/Nb Nanoscale Multilayers: *Jon Molina-Aldareguia*[1]; Miguel Monclus[1]; Irene Beyerlein[2]; Nathan Mara[2]; Tomas Polcar[3]; Javier LLorca[1]; [1]IMDEA Materials Institute; [2]Los Alamos National Laboratory; [3]Czech Technical University in Prague

11:30 AM Invited
High Temperature Properties of Nanoscale Cu Based Composites and Foams: *Daniel Kiener*[1]; Mladen-Mateo Primorac[1]; Marius Kreuzeder[1]; Verena Maier[1]; Mario Stefenelli[2]; Anton Hohenwarter[3]; Manuel Abad[4]; Peter Hosemann[4]; [1]University of Leoben; [2]Materials Center Leoben; [3]Austrian Academy of Science; [4]University of California Berkeley

Multiscale Approaches to Hydrogen-assisted Degradation of Metals — Overcoming HE in Service I / H Diffusion & Trapping

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS/ASM: Computational Materials Science and Engineering Committee, TMS: Integrated Computational Materials Engineering Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Nicholas Winzer, Fraunhofer IWM; Matous Mrovec, Fraunhofer IWM; Brian Somerday, Sandia National Laboratories; Petros Sofronis, University of Illinois; David Bahr, Purdue University; Srinivasan Rajagopalan, ExxonMobil Research and Engineering Company

Thursday AM
February 20, 2014
Room: 11B
Location: San Diego Convention Center

Session Chairs: Srini Rajagopalan, ExxonMobil Research and Engineering Company; Nicholas Winzer, Fraunhofer IWM

8:30 AM Invited
Analysis of Thermal Desorption Spectra for Ultra-high Strength Steel: *Oliver Rott*[1]; Thomas Lostak[1]; Richard-George Thiessen[1]; Ingo Thomas[1]; [1]ThyssenKrupp Steel Europe AG

9:10 AM
Hydrogen Embrittlement in Pulse-plated Nickel Material of Liquid Propulsion Rocket Engines: *Torsten Sebald*[1]; Georgios Paronis[1]; Eggert Reese[2]; Wolfgang von Bestenbostel[2]; [1]Astrium Space Transportation; [2]EADS Innovation Works

9:30 AM Break

9:50 AM Invited
On the Implication of Dislocations and Vacancies Distributions on Hydrogen Diffusion and Trapping in FCC Alloys: Grain-boundaries and Dislocation Patterns: *Xavier Feaugas*[1]; Abdelali Oudriss[1]; Arnaud Metsue[1]; Catherine Savall[1]; Jamaa Bouhattate[1]; Juan Creus[1]; [1]Université de La Rochelle

10:30 AM
Characterization of Hydrogen Traps in Steels Using Thermal Desorption Spectrometry (TDS): *Dakshina Valiveti*[1]; Neeraj Thirumalai[2]; HyunWoo Jin[1]; [1]ExxonMobil Research & Engineering; [2]ExxonMobil Development Company

10:50 AM
A Review on the Influence of Metallurgical Parameters on the Diffusion and Trapping of Hydrogen in Quenched and Tempered Martensitic Steels: *Juan Creus*[1]; Abdelali Oudriss[1]; Stéphane Cohendoz[1]; Cyril Berziou[1]; Egle Conforto[1]; Jamaa Bouhattate[1]; Xavier Feaugas[1]; [1]LaSIE

11:10 AM
Hydrogen Permeability in Zn-Ni and Al Coatings: *Sriraman Rajagopalan*[1]; Salim Brahimi[2]; Stephen Yue[1]; [1]Mcgill University; [2]Ibeca Technologies Corp / McGill University

Multiscale Perspectives on Plasticity in HCP Metals — Mechanisms & Microstructures II

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Benjamin Morrow, Los Alamos National Laboratory; Suveen Mathaudhu; Ellen Cerreta, Los Alamos National Laboratory; Juan P. Escobedo, The University of New South Wales Canberra; Dallas Trinkle, University of Illinois, Urbana-Champaign

Thursday AM
February 20, 2014
Room: 6C
Location: San Diego Convention Center

Session Chairs: Suveen Mathaudhu; Benjamin Morrow, Los Alamos National Laboratory

8:30 AM Invited
Simulating the Evolution of Microtextured Regions during Hot Working of a Near-alpha Titanium Alloy: *Adam Pilchak*[1]; Edwin Schwalbach[1]; Joseph Tucker[2]; Christopher Szczepanski[1]; Lee Semiatin[1]; [1]Air Force Research Laboratory; [2]Air Force Research Laboratory and UES, Inc.

8:50 AM
Deformation Twinning and Associated Stresses in HCP Materials: *M. Arul Kumar*[1]; Carlos Tome[1]; [1]Los Alamos National Laboratory

9:10 AM
The Effect of Temperature on the Deformation Mechanisms of a Zr Alloy: Peter Honniball[1]; Michael Preuss[1]; *Joao Fonseca*[1]; [1]The University of Manchester

9:30 AM
The {10-12} Extension Twinning in Mg: Variant Selection, Morphology, and Interaction with Slip Systems: *Yi Wang*[1]; Hahn Choo[1]; [1]University of Tennessee

9:50 AM Invited
Towards Understanding Shear and Shuffles during Compound Twinning in Hexagonal Close-packed Structures: *Mark Tschopp*[1]; Haitham El Kadiri[2]; Christopher Barrett[2]; [1]Army Research Laboratory; [2]Mississippi State University

10:10 AM Break

10:30 AM Invited
Micromechanics of Pure Magnesium from Atomistic and Continuum Crystal Plasticity Simulations: *Shailendra Joshi*[1]; Balaji Selvarajou[1]; [1]National University of Singapore

10:50 AM
Tensile Twinning Nucleation in Zr Coupled to Neighboring Slip Observed in 3D: Jonathan Lind[1]; S.F. Li[1]; Reeju Pokharel[1]; Ulrich Lienert[2]; *Anthony Rollett*[1]; Robert Suter[1]; [1]Carnegie Mellon University; [2]DESY

11:10 AM
Role of Deformation Twinning on Swift Effects in AZ31 Mg: *Nitin Chandola*[1]; Oana Cazacu[1]; Benoit Revil-Baudard[1]; Ricardo Lebensohn[2]; [1]University of Florida; [2]Los Alamos National Laboratory

11:30 AM
Experimental and Theoretical Investigation of Deformation and Damage in a-Titanium: *Philip Flater*[1]; Nitin Chandola[1]; Joel House[2]; Oana Cazacu[1]; [1]University of Florida; [2]AFRL

Nanoparticulate Materials: Production, Consolidation and Characterization — Particle Synthesis

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee
Program Organizers: Brady Butler, U.S. Army Research Laboratory; Eugene Olevsky, San Diego State University

Thursday AM
February 20, 2014
Room: Carlsbad
Location: San Diego Marriott Marquis & Marina

Session Chair: Nitin Chopra, University of Alabama

8:30 AM Invited
Developing Surfactant-free Growth Approaches for Coating 1-D Nanostructures with Stable Dispersion of Nanoparticles: From Fundamentals to Applications: *Nitin Chopra*[1]; [1]The University of Alabama

9:00 AM Invited
Sol-gel Synthesis $NaCrSi_2O_6$ Nanopigments Aided by Statistical Design of Experiments: *Oscar Restrepo*[1]; Miguel Hernandez[1]; [1]National University of Colombia

9:30 AM
Synthesis of Ceramic Nanopigments: *Oscar Restrepo*[1]; Edgar Chavarriaga[1]; Camilo Restrepo[1]; Juan Montoya[2]; [1]National University of Colombia; [2]Corporación Universitaria Lasallista

9:50 AM Break

10:10 AM
Photochemical Synthesis and Characterization of Palladium @ Platinum Core-shell Composite Nanoparticles: Jiexiang Wang[1]; *Zhengfu Zhang*[1]; Enge Zhao[1]; [1]Kunming University of Science and Technology

10:30 AM
Synthesis of Nano-shell ZnO Material with a Novel Joint Process of Ultrasonic Atomizing and Microwave Decomposition: *Lei Guo*[1]; [1]Key Laboratory of Unconventional Metallurgy, Kunming University of Science and Technology

10:50 AM
Flame Spray Synthesis and Characterization of Nanocrystalline Alumina Particles: *Bobu Jolly*[1]; Subramshu Bhattacharya[1]; [1]Indian Institute of Technolgy Madras

11:10 AM
Preparing Nano-size SnO_2 by Spray Pyrolysis Deposition: *Chen Yuxiang*[1]; Peng Jjinhui[1]; [1]Kunming University of Science and Technology

Nanostructured Materials for Rechargeable Batteries and Supercapacitors II — Session VII

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Energy Conversion and Storage Committee
Program Organizers: David Mitlin, University of Alberta and NINT NRC; Reza Shahbazian-Yassar, Michigan Technological University; Peter Kalisvaart, University of Alberta and NINT NRC

Thursday AM
February 20, 2014
Room: Ballroom F
Location: San Diego Marriott Marquis & Marina

Session Chairs: Jeff Sakamoto, Michigan State University; Yan Yao, University of Houston

8:30 AM Invited
Quantitative Operando Electrochemical TEM to Study Alloying for Advanced Battery Anodes: *Kevin Zavadil*[1]; Yang Liu[1]; Katherine Jungjohann[1]; Paul Kotula[1]; Nathan Hahn[1]; [1]Sandia National Laboratories

8:45 AM Invited
Recent Advances towards Improvement of Electrochemical Flow Capacitors (EFCs): *Majid Beidaghi*[1]; Kelsey Hatzell[1]; Christopher Dennison[1]; Muhammad Boota[1]; Emin Kumbur[1]; Yury Gogotsi[1]; [1]Drexel University

9:00 AM Invited
Enhanced Electrical Capacitance and Energy Storage in Defect Induced Nanocarbons: *Prabhakar Bandaru*[1]; [1]UC, San Diego

9:15 AM Invited
Garnet-based Ceramic Electrolyte: Enabling Li Metal Anodes and Solid State Batteries: *Jeff Sakamoto*[1]; [1]Michigan State University

9:30 AM Invited
Metal hydrides: Relevant Materials for Lithium-ion Batteries Negative Electrodes: *Luc Aymard*[1]; Warda Zaidi[1]; Jean-pierre Bonnet[1]; [1]LRCS UPJV

9:45 AM Invited
In Situ Synthesis of High-energy Cathodes for Lithium-ion Batteries: *Feng Wang*[1]; LiPing Wang[1]; Sung-Wook Kim[1]; Xiaoya Wang[1]; Jianming Bai[1]; [1]Brookhaven National Laboratory

10:00 AM Break

10:15 AM Invited
Bonding, Structure and Properties of Energy Storage and Conversion Materials with Electron Microscopy: *Gianluigi Botton*[1]; Nicolas Gauquelin[1]; Hansuo Liu[1]; Sagar Prabhudev[1]; Samantha Stambula[1]; [1]McMaster University

10:30 AM Invited
Nanoscale Investigation of Charge Dynamics in Electrochemical Supercapacitors Using Ionic Liquids: *Nina Balke*[1]; [1]Oak Ridge National Laboratory

10:45 AM Invited
Ultra High Energy Density of Nanocomposite Capacitors: Haixiong Tang[1]; *Henry Sodano*[1]; [1]University of Florida

11:00 AM Invited
Multivalent Ion Intercalation Materials as Ultra-high Energy Battery Cathodes: *Yan Yao*[1]; [1]University of Houston

11:15 AM Invited
Hydrothermal Synthesis and Characterization of Domino-shaped $Li_4Ti_5O_{12}$ Columns and Porous TiO_2(B) Nanorods as Anode Materials for Lithium-ion Batteries: *Vic Liu*[1]; Xingcheng Xiao[1]; Donjoon Ahn[1]; Jung Hyun Kim[1]; Michael Carpenter[1]; Nicholas Pieczonka[2]; Misle Tessama[1]; Nicole Ellison[2]; [1]General Motors; [2]Optimal CAE Inc.

11:30 AM Invited
ALD TiO_2 Coated Silicon Nanowires for Lithium Ion Battery Anodes with Enhanced Cycling Stability and Coulombic Efficiency: *David Mitlin*[1]; Elmira Lotfabad[1]; Peter Kalisvaart[1]; [1]University of Alberta and NINT NRC

11:45 AM Invited
Aqueous Synthesis of Mesoporous Cr3+/Nb5+ Doped Anatase TiO_2 for Application in Secondary Lithium-ion Batteries: *Yang Hao*[1]; Chun-Kai Lan[1]; Bing-Hong Chen[1]; Jenq-Gong Duh[1]; [1]National Tsing Hua University

12:00 PM
Electrodeposited Si-Al Thin Film as Anode for Li Ion Batteries: *Heng Wang*[1]; Bing Li[1]; Zuxin Zhao[1]; [1]East China University of Science and Technology

Neutron and X-ray Studies of Advanced Materials VII: Challenges of the Future World — Plasticity and Deformation

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Rozaliya Barabash, Oak Ridge National Laboratory; Gernot Kostorz, ETH; Brent Fultz, California Institute of Technology; Peter Liaw, University of Tennessee

Thursday AM
February 20, 2014
Room: 10
Location: San Diego Convention Center

Session Chairs: Peter Liaw, University of Tennessee; Claire White, Princeton University

8:30 AM Invited
Stability of the Two-phase (α/ω) Microstructure of Shocked Zirconium: *Donald Brown*[1]; Jon Almer[2]; Levente Balogh[1]; Ellen Cerreta[1]; Thomas Sisneros[1]; [1]Los Alamos National Laboratory; [2]Argonne National Laboratory

8:55 AM Invited
Structural Characterization of Complex Materials: *Thomas Proffen*[1]; [1]Oak Ridge National Laboratory

9:20 AM
In Situ Diffraction Reveals Grain Size Dependence of Domain Wall Motion and Relation to Macroscopic Properties in $BaTiO_3$: *Dipankar Ghosh*[1]; Jacob Jones[2]; Akito Sakata[2]; Jared Carter[2]; Hyuksu Han[2]; Juan Nino[2]; Pam Thomas[3]; [1]California Institute of Technology; [2]University of Florida; [3]University of Warwick

9:35 AM
Simulations and Experiments of Diffraction Peak Broadening Due to Misorientation in Silicon Single Crystals Deformed by Single Slip: *Darren Pagan*[1]; Matthew Miller[1]; [1]Department of Mechanical and Aerospace Engineering, Cornell University

9:50 AM
Unravelling the Origin of Enhanced Performance of Mg-Zn-Zr Alloy ZK60 by Means of Synchrotron Radiation and Electron Microscopy: *Dmitry Orlov*[1]; Daniele Pelliccia[2]; Xiya Fang[2]; Laure Bourgeois[2]; Nigel Kirby[3]; Andrei Nikulin[2]; Kei Ameyama[1]; Yuri Estrin[2]; [1]Ritsumeikan University; [2]Monash University; [3]Australian Synchrotron

10:05 AM Break

10:10 AM Invited
Environmental-temperature Effect on a Ductile High-entropy Alloy Investigated by In Situ Neutron-diffraction Measurements: *E-Wen Huang*[1]; Chi Lee[2]; Dunji Yu[3]; Ke An[4]; Peter Liaw[5]; Jien-Wei Yeh[2]; [1]National Central University; [2]National Tsing Hua University; [3]Tianjin University; [4]Oak Ridge National Laboratory; [5]University of Tennessee

10:35 AM
In Situ Determination of Crystal Structure and Domain Character in Lead Free Piezoceramics: *Keith Bowman*[1]; Chris Fancher[2]; Matthias Ehmke[3]; [1]Illinois Institute of Tehnology; [2]North Carolina State University; [3]Purdue University

10:50 AM
Formation of <210> Texture in a Cold Drawn Metastable Beta Ti Alloy: *Song Cai*[1]; Jeremy Schaffer[1]; Yang Ren[2]; [1]Fort Wayne Metals Research Products Corp.; [2]Argonne National Laboratory

11:05 AM
Anisotropic Lattice Elastic/Plastic Strain Response in Laser Shock Peened Ti-6Al-4V Alloy: Yixiang Zhao[1]; Yang Ren[2]; Seetha Mannava[1]; Dong Qian[3]; *Vijay Vasudevan*[1]; [1]University of Cincinnati; [2]Argonne National Laboratory; [3]University of Texas at Dallas

11:20 AM
Deformation Mechanisms of a 20Mn TWIP Steel Investigated with In Situ Neutron Diffraction and TEM: *Yongfeng Shen*[1]; Yandong Wang[1]; XiaoPeng Liu[1]; Xin Sun[1]; RuLin Peng[1]; Peter K Liaw[1]; Liang Zuo[1]; [1]Northeastern University

11:35 AM
The Extended Tertiary Creep Stage and Its Relationship with the Diffusion around NiAl Precipitates in NiAl-Strengthened Ferritic Alloys: *Zhiqian Sun*[1]; Shenyan Huang[1]; Donald Brown[2]; Bjørn Clausen[2]; Gian Song[1]; Gongyao Wang[1]; Peter Liaw[1]; [1]The University of Tennessee; [2]The Los Alamos National Labrotory

11:50 AMø
In Situ Neutron Powder Diffraction on Hydrogen Storage Materials: *Roxana Flacau*[1]; Helmut Fritzsche[1]; Jacques Huot[2]; [1]Canadian Neutron Beam Centre, NRC Canada; [2]Université du Québec à Trois-Rivières

Pb-free Solders and Emerging Interconnect and Packaging Materials — Whiskering and Substrate Effects

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Andre Lee, Michigan State University; Fay Hua, Intel Corporation; Tae-Kyu Lee, Cisco; John Elmer, Lawrence Livermore National Laboratory; Yan Li, Intel Corporation; Robert Kao, National Taiwan University; Fan-yi Ouyang, National Tsing Hua University; Chang-Woo Lee, Korea Institute of Industrial Technology; Won Sik Hong, Korea Electronics Technology Institute; Heugel Werner, Bosch Automovitve

Thursday AM
February 20, 2014
Room: 5B
Location: San Diego Convention Center

Session Chairs: Carol Handwerker, Purdue University; Fu Guo, Beijing University of Technology

8:30 AM
Localization of High Thermoelastic Stresses in SAC305 Solder Films Controlling Stress Relaxation via Recrystallization and Surface Defect Formation: *Wei-Hsun Chen*[1]; Pylin Sarobol[2]; John Blendell[1]; Carol Handwerker[1]; [1]Purdue University; [2]Sandia National Laboratories

8:50 AM
Mechanical and Whiskering Behaviors of Sn and Sn-Cu Systems during Thermal Cycling: *Eric Chason*[1]; Fei Pei[1]; [1]Brown University

9:10 AM
Whisker Formation on SAC305 Solder Assemblies: *Polina Snugovsky*[1]; Stephan Stephan[2]; Zohreh Bagheri[3]; Eva Kosiba[3]; Marianne Romansky[3]; Jeffrey Kennedy[3]; [1]Celestica ; [2]BAE Systems; [3]Celestica

9:30 AM
Inhibition of Whisker Formation by Uniform Intermetallic Layer: *Hanwen Lin*[1]; Chih Chen[1]; [1]National Chiao Tung University

9:50 AM
Tensile Behavior of Sn Whiskers by FIB Lift-out and MEMS Testing in an SEM: Sudhanshu Singh[1]; Rohit Sarkar[1]; Huxiao Xie[1]; Carl Mayer[1]; Jagannathan Rajagopalan[1]; *Nikhilesh Chawla*[1]; [1]Arizona State University

10:10 AM Break

10:30 AM
Using Applied Mechanical Stress to Understand Tin Whisker/Hillock Formation: *Fei Pei*[1]; Eric Chason[1]; [1]Brown University

10:50 AM
Whisker Evaluations in 3D Microbump Structures: *George Vakanas*[1]; Bjorn Vandecasteele[2]; Joke De Messemaeker[2]; Geert Willems[2]; Antonio LaManna[2]; Fei Pei[3]; Eric Chason[3]; Fay Hua[1]; Ingrid De Wolf[2]; [1]Intel Corporation; [2]Imec; [3]Brown University

11:10 AM
Testing of Indium Solder Joints Formed between Coated Germanium and Kovar Substrates: *Oguzhan Okudur*[1]; Gökhan Demirci[2]; Ishak Karakaya[1]; [1]Middle East Technical University; [2]Aselsan Inc.

11:30 AM
Influence of the IMC Layer on Nucleation Undercooling of Beta-Sn in Solder Joints: *Sergey Belyakov*[1]; Christopher Gourlay[1]; [1]Imperial College London

Phase Transformation and Microstructural Evolution — Martensitic Phase Transformations and Functional Materials

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Phase Transformations Committee
Program Organizers: Amy Clarke, Los Alamos National Laboratory; Sudarsanam Suresh Babu, The Ohio State University; Ning Ma, ExxonMobile Research & Engineering; Tadashi Furuhara, Tohoku University; Frédéric Danoix, Université de Rouen; Mohamed Gouné, University of Bordeaux; Francisca Caballero, National Center for Metallurgical Research (CENIM-CSIC); Dhriti Bhattacharyya, Australian Nuclear Science & Technology Organization; Vijay Vasudevan, University of Cincinnati; Osman Anderoglu, Los Alamos National Laboratory; Stuart Maloy, Los Alamos National Laboratory; Chad Sinclair, University of British Columbia

Thursday AM
February 20, 2014
Room: 13
Location: San Diego Convention Center

Session Chairs: Daniel Coughlin, Los Alamos National Laboratory; Peter Anderson, The Ohio State University

8:30 AM
In Situ Observation of Phase Transformation of Powder Sintering from Ni/TiH2 Using Neutron Diffraction: *Gang Chen*[1]; Klaus-Dieter Liss[2]; Peng Cao[1]; [1]The University of Auckland; [2]Australian Nuclear Science and Technology Organisation

8:50 AM
Characterization of Thermal and Mechanical Behavior of NiTiHfAl Shape Memory Alloys: Derek Hsu[1]; *Oscar Figueroa*[1]; Michele Manuel[1]; [1]University of Florida

9:10 AM
Modeling the Effects of H-phase Precipitation on Ni-Ti-Hf Shape Memory Alloys: *Xiang Chen*[1]; Daniel Coughlin[2]; Fan Yang[1]; Ronald Noebe[3]; Michael Mills[1]; Peter Anderson[1]; [1]The Ohio State University; [2]Los Alamos National Laboratory; [3]NASA Glenn Research Center

9:30 AM
Microstructural Evolution in NiTi Polycrystals Strained by Load Biased Thermal Cycling: *Peter Anderson*[1]; Matthew Bowers[1]; Limei Yang[1]; Marc De Graef[2]; Michael Mills[1]; [1]The Ohio State University; [2]Carnegie Mellon University

9:50 AM
A Phase Field/Finite Element Model to Simulate Plasticity and Martensitic Phase Transformation in Shape Memory Alloys: *Harshad Paranjape*[1]; Sivom Manchiraju[1]; Peter Anderson[1]; [1]The Ohio State University

10:10 AM Break

10:25 AM
Geometrical and Energetic Approaches to Pattern Formation during Cubic to Orthorhombic Martensitic Transformations in Shape Memory Alloys: *Yipeng Gao*[1]; Yunzhi Wang[1]; [1]The Ohio State University

10:45 AM
Low Temperature SEM Observations of the Martensitic Transformation in a AuCuZn Alloy: *Michael Chapman*[1]; Xian Chen[2]; Richard James[2]; Marc De Graef[1]; [1]Carnegie Mellon University; [2]University of Minnesota

11:05 AM
Martensitic Transformations in CuAlMnNi Shape Memory Alloy Microwires: *Nihan Tuncer*[1]; Christopher Schuh[1]; [1]MIT

11:25 AM
Two-way Shape Memory Effect (TWSME) in a Cu-Al-Mn Shape Memory Alloy: Prathap Chandran[1]; *Vedamanikam Sampath*[2]; [1]IRIS, Faculty of Engineering & Industrial Sciences; [2]Indian Institute of Technology Madras

11:45 AM
Crystallographic Design of Ferroic Materials: Pathway Network Construction for Transformation and Deformation: *Yipeng Gao*[1]; Suliman Dregia[1]; Yunzhi Wang[1]; [1]The Ohio State University

12:05 PM
Bulk Processing and Mechanical Properties of Ni3Mo: *Ibrahim Khalfallah*[1]; A. Aning[1]; [1]Virginia Tech

Phase Transformation and Microstructural Evolution — Phase Transformations Induced by Irradiation I

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Phase Transformations Committee
Program Organizers: Amy Clarke, Los Alamos National Laboratory; Sudarsanam Suresh Babu, The Ohio State University; Ning Ma, ExxonMobile Research & Engineering; Tadashi Furuhara, Tohoku University; Frédéric Danoix, Université de Rouen; Mohamed Gouné, University of Bordeaux; Francisca Caballero, National Center for Metallurgical Research (CENIM-CSIC); Dhriti Bhattacharyya, Australian Nuclear Science & Technology Organization; Vijay Vasudevan, University of Cincinnati; Osman Anderoglu, Los Alamos National Laboratory; Stuart Maloy, Los Alamos National Laboratory; Chad Sinclair, University of British Columbia

Thursday AM
February 20, 2014
Room: 31B
Location: San Diego Convention Center

Session Chairs: Dhriti Bhattacharyyaa, Australian Nuclear Science & Technology Organization; Stuart Maloy, Los Alamos National Laboratory

8:30 AM Invited
Radiation-induced Phase Transformations in F-M and Austenitic Alloys at High Dose: *Gary Was*[1]; Zhijie Jiao[1]; [1]University of Michigan

9:00 AM Invited
Nano-scale Precipitate Evolution in Irradiated RPV Steels: Recent Progress in Understanding Late Blooming Phases: *G. Robert Odette*[1]; Peter Wells[1]; Takuya Yamamoto[1]; [1]University of California Santa Barbara

9:30 AM
Irradiation and Temperature Induced Precipitation in Intermetallic Hardening Steels: *Peter Hosemann*[1]; Christina Hofer[2]; Zijing Huang[1]; Erich Stergar[3]; Djamel Kaoumi[4]; Stuart Maloy[5]; [1]UC Berkeley; [2]Montanuniversitaet Leoben; [3]SCK-CEN; [4]University of South Carolina; [5]Los Alamos National Laboratory

9:50 AM
Multiscale Characterization and Modeling of Precipitation in Ferritic Nano-reinforced Steels: *Xavier Boulnat*[1]; Damien Fabrègue[2]; Michel Perez[2]; Sophie Cazottes[2]; Marie-Hélène Mathon[3]; Yann de Carlan[1]; [1]CEA, DEN; [2]INSA Lyon - MATEIS; [3]Laboratoire Leon Brillouin

10:10 AM Break

10:25 AM Invited
Crystalline to Amorphous Phase Transformations under the Influence of Ion Irradiation: Robert Williams[1]; Arda Genç[2]; Michael Presley[1]; Brian Welk[1]; Gopal Viswanathan[1]; Daniel Huber[1]; Wolfgang Windl[1]; *Hamish Fraser*[1]; [1]The Ohio State University; [2]FEI Company

10:55 AM Invited
Phase Transformation in Nanostructured Ferritic Alloys: *Michael Miller*[1]; [1]Oak Ridge National Laboratory

11:25 AM
Irradiation Induced Microstructural Changes in Nickel-molybdenum-chromium Alloys: *Massey de los Reyes*[1]; Dhriti Bhattacharyya[1]; Marquis Kirk[2]; Gregory Lumpkin[1]; [1]Australian Nuclear Science and Technology Organisation (ANSTO); [2]Argonne National Laboratory (ANL)

11:45 AM
Stability of Precipitates under Heavy Ion Irradiation in Fe-based Oxide Dispersion Strengthened (ODS) Steels and Ni-based Super Alloys: *Osman Anderoglu*[1]; Jeff Aguiar[1]; Emanuelle Marquis[2]; Yongqiang Wang[1]; Blas Uberuaga[1]; Stuart Maloy[1]; [1]Los Alamos National Laboratory; [2]University of Michigan

Phase Transformation and Microstructural Evolution — Processing and Microstructural Evolution II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Phase Transformations Committee

Program Organizers: Amy Clarke, Los Alamos National Laboratory; Sudarsanam Suresh Babu, The Ohio State University; Ning Ma, ExxonMobile Research & Engineering; Tadashi Furuhara, Tohoku University; Frédéric Danoix, Université de Rouen; Mohamed Gouné, University of Bordeaux; Francisca Caballero, National Center for Metallurgical Research (CENIM-CSIC); Dhriti Bhattacharyya, Australian Nuclear Science & Technology Organization; Vijay Vasudevan, University of Cincinnati; Osman Anderoglu, Los Alamos National Laboratory; Stuart Maloy, Los Alamos National Laboratory; Chad Sinclair, University of British Columbia

Thursday AM — Room: 31C
February 20, 2014 — Location: San Diego Convention Center

Session Chairs: Kester Clarke, Los Alamos National Laboratory; Paul Gibbs, Los Alamos National Laboratory

8:30 AM
Investigation of Twin Fraction in High Purity Nickel During Recrystallization: *Brian Lin*[1]; Anthony Rollett[1]; Gregory Rohrer[1]; [1]Carnegie Mellon University

8:50 AM
Yield Strength Optimisation in a Polycrystalline Nickel-base Superalloy: *David Collins*[1]; Howard Stone[2]; [1]University of Oxford; [2]University of Cambridge

9:10 AM
Microstructural Aspects that Influence Thermal Coarsening in Nanotwinned Copper: *Thomas LaGrange*[1]; Mukul Kumar[1]; Bryan Reed[1]; Jeremy Mason[1]; Troy Barbee[1]; Vasily Bulatov[1]; Shiu Fai Frankie Li[1]; [1]Lawrence Livermore National Laboratory

9:30 AM
A TEM Study on Graphite Crystals in Ti-alloyed Grey Cast Iron: Elham Moumeni[1]; *Niels Tiedje*[2]; Flemming Grumsen[2]; Hilmar Danielsen[2]; Andy Horsewell[2]; Jesper Hattel[2]; [1]MAN Diesel & Turbo; [2]Technical University of Denmark

9:50 AM
Relationship between Microstructural Evolution, Order-disorder Transformation and Plastic Inhomogeneities during Deformation of Beta Brass: Saud Saleem[1]; *Mitra Basirat*[1]; Hasse Fredriksson[1]; [1]Division of Casting of Metals, Department of Material Science and Engineering, KTH, Sweden

10:10 AM Break

10:25 AM
Transformation Reactions Induced by Cold Rolling: *Zhe Wang*[1]; John Perepezko[1]; [1]University of Wisconsin-Madison

10:45 AM
Changes in Vibrational Entropy in Cu-Fe: *Hillary Smith*[1]; Billy Hornbuckle[2]; Gregory Thompson[2]; Brent Fultz[1]; [1]California Institute of Technology; [2]University of Alabama

11:05 AM
Influence of Oxygen and Cold Deformation on the ω Phase Formation in Gum Metal: Jian Zhang[1]; *Cem Tasan*[1]; Minjie Lai[1]; Hauke Springer[1]; Dierk Raabe[1]; [1]Max-Planck-Institut für Eisenforschung GmbH

11:25 AM
Effect of Intercritical Annealing on Phase Transformation and Mechanical Properties of Thermo-mechanically Processed Dual Matrix Ductile: *Mohamed Soliman*[1]; Hossam Ibrahim[1]; Adel Nofal[2]; Heinz Palkowski[1]; [1]Institute of Metallurgy - Clausthal University of Technology,; [2]Central Metallurgical Research and Development Institute - CMRDI

11:45 AM
Influence of Athermal Mechanisms on Phase Transformations in Al-Cu: *Rémy Besson*[1]; Ludovic Thuinet[2]; Jaeyoung Kwon[2]; Marie-Noëlle Avettand-Fènoël[2]; Alexandre Legris[2]; [1]CNRS - Unité Matériaux et Transformations - Université de Lille; [2]Unité Matériaux et Transformations - Université de Lille

12:05 PM
Aberration-corrected S/TEM Imaging and Density Functional Theory-based Models of Pt/Alumina Interfaces: *Melissa Santala*[1]; Colin Ophus[2]; Mark Asta[3]; Velimir Radmilovic[4]; [1]Lawrence Livermore National Laboraotry; [2]Lawrence Berkeley National Laboratory; [3]University of California, Berkeley; [4]University of Belgrade

Radiation Effects in Oxide Ceramics and Novel LWR Fuels — Effects of Radiation on Thermal and Mechanical Properties of Ceramic Oxide Fuels

Sponsored by: TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee

Program Organizers: Xian-Ming Bai, Idaho National Laboratory; Todd Allen, Idaho National Laboratory; Blas Uberuaga, Los Alamos National Laboratory; Jianliang Lin, Colorado School of Mines; Michele Manuel, University of Florida; Dragos Staicu, European Commission, Joint Research Centre, Institute for Transuranium Elements; Yong Yang, University of Florida

Thursday AM — Room: 33B
February 20, 2014 — Location: San Diego Convention Center

Funding support provided by: The Center for Materials Science of Nuclear Fuel (CMSNF), an Energy Frontier Research Center led by the Idaho National Laboratory

Session Chairs: Thierry Wiss, European Commission - JRC -ITU; Michele Manuel, University of Florida

8:30 AM Invited
Understanding Nuclear Fuel Thermal Conductivity from Phonons in UO_2: *Judy Pang*[1]; Aleksandr Chernatynsky[2]; William Buyers[3]; Bennett Larson[1]; Simon Phillpot[2]; [1]Oak Ridge National Laboratory; [2]University of Florida; [3]National Research Council Canada

9:00 AM
Correlation between Thermal Conductivity and Microstructural Evolutions in CeO_2 upon Radiation and Fission Gas Implantation: *Yuedong Wu*[1]; Heng Ban[2]; Xianming Bai[3]; Aleksandr Chernatynskiy[1]; Jian Gan[3]; Yong Yang[1]; [1]University of Florida; [2]Utah State University; [3]Idaho National Laboratory

9:20 AM
Impact of Nano-pores on the Fuel Thermal Conductivity: *Dragos Staicu*[1]; Sergii Nichenko[1]; [1]European Commission, Joint Research Centre, Institute for Transuranium Elements

9:40 AM
Mechanical Behavior of UO_2 under Irradiation: A Molecular Dynamics Study: Paul Fossati[1]; *laurent Van Brutzel*[1]; [1]CEA

10:00 AM Break

10:30 AM Invited
Thermal Conductivity, Microstructure and Gas Release from a 44 GWd/t MOX Fuel: *Thierry Wiss*[1]; Dragos Staicu[1]; Ondrej Benes[1]; Jean-Yves Colle[1]; Dimitrios Papaioannou[1]; Rudy Konings[1]; Vincenzo Rondinella[1]; Akihiro Sasahara[2]; Takeshi Sonoda[2]; [1]EuropeanCommission - JRC -ITU; [2]CRIEPI

11:00 AM
Misorientation-dependence of Grain Boundary Thermal Resistance in CeO_2: *Xian-Ming Bai*[1]; Aleksandr Chernatynskiy[2]; Jian Gan[1]; [1]Idaho National Laboratory; [2]University of Florida

11:20 AM
Molecular Dynamics Simulations of the Effect of Point Defects and Embedded Xe Atoms on Thermal Transport in Uranium Oxide: *Zhi-Gang Mei*[1]; Marius Stan[1]; [1]Argonne National Laboratory

11:40 AM
Radiation Effects in UO_2: *Lingfeng He*[1]; Billy Valderrama[2]; Mahima Gupta[1]; Janne Pakarinen[1]; Jian Gan[3]; Marquis Kirk[4]; Andrew Nelson[5]; Michele Manuel[2]; Todd Allen[1]; [1]University of Wisconsin-Madison; [2]University of Florida; [3]Idaho National Laboratoy; [4]Argonne National Laboratory; [5]Los Alamos National Laboratory

Recycling and Sustainability Update — Recycling

Sponsored by: TMS Extraction and Processing Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Randolph Kirchain, Massachusetts Institute of Technology; Jeff Spangenberger, Argonne National Laboratory

Thursday AM
February 20, 2014
Room: 16B
Location: San Diego Convention Center

Session Chairs: Jeffrey Spangenberger, Argonne National Laboratory; Randolph Kirchain, Massachusetts Institute of Technology

8:30 AM Award Presentation: Light Metals Subject Best Paper – Recycling

8:40 AM
Sustainably Designed Epoxy Nano-composites for Improved E-Waste Processing and Recycling: *John Howarter*[1]; Alexandra Bruce[1]; Gamini Mendis[1]; Inez Hua[1]; Jeffrey Youngblood[1]; [1]Purdue University

9:00 AM
Challenges to the Biotechnological Recycling of Precious and Rare Metals Sourced from Post-consumer Products: Norizo Saitoh[1]; *Yasuhiro Konishi*[1]; [1]Osaka Prefecture University

9:20 AM
Development of New Process for Recovering PGMs from Autocatalyst Scrap: *Akinari Suzue*[1]; Yu-ki Taninouchi[2]; Toru Okabe[2]; [1]Department of Materials Engineering, Graduate School of Engineering, The University of Tokyo; [2]Institute of Industrial Science, The University of Tokyo

9:40 AM
Zinc Vapor Pretreatment for Acid Leaching of Precious Metals from Automotive Catalyst Converters: *Hideaki Sasaki*[1]; Masafumi Maeda[1]; [1]Institute of Industrial Science, The University of Tokyo

10:00 AM Break

10:20 AM Invited
Sustainable Recycling of Solid Wastes via in-Process Separation: *Naiyang Ma*[1]; [1]ArcelorMittal

10:40 AM
A Novel Recyclable Process for Producing Metal Sulfide Nanocrystals: *Hanan Alchaghouri*[1]; John Thomas[2]; Paul O'Brien[1]; [1]Manchester University; [2]Bangor University

11:00 AM
Recovery of Valuable Metals from Lead Flue Dust by a Intergrated Process: Xie Yang[1]; *Hongxu Li*[1]; Chao Li[1]; Yuyue Wang[1]; [1]University of Science and Technology

11:20 AM
Recycling of Valuable Metals from Poly Cracker Ash of Printed Circuit Boards (PCBs) by Physical Beneficiation and Hydrometallurgical Treatment: *Vinod Kumar*[1]; Anjan Kumari[1]; Manis Jha[1]; Ari Vidyadhar[1]; B.K. Soni[2]; [1]CSIR-National Metallurgical Laboratory; [2]Eco Recycling Company Limited

11:40 AM
Recovery of Metal Values from Pre-concentration of Coarser Size Fraction of Printed Circuit Boards by Froth Flotation: *Vidyadhar Ari*[1]; [1]CSIR - National Metallurgical Laboratory

Shape Casting: 5th International Symposium — Mechanical Properties

Sponsored by: TMS Light Metals Division, TMS Materials Processing and Manufacturing Division, TMS: Aluminum Committee, TMS: Solidification Committee
Program Organizers: Murat Tiryakioglu, University of North Florida; John Campbell, University of Birmingham; Glenn Byczynski, Nemak Canada

Thursday AM
February 20, 2014
Room: 17B
Location: San Diego Convention Center

Session Chair: To Be Announced

8:30 AM
Metallurgy without Bifilms; Fracture-free Plastic Deformation: *John Campbell*[1]; [1]University of Birmingham

8:50 AM
Correlation between Bifilm Index and Toughness of Aluminum Alloys: *Derya Dispinar*[1]; Cem Kahruman[1]; John Campbell[2]; [1]Istanbul University; [2]University of Birmingham

9:10 AM
Impact of Section Thickness on the Microstructure and Mechanical Properties of Semi-solid Castings: *Stephen Midson*[1]; Youfeng He[2]; Xiaogang Hu[2]; Daquan Li[2]; Fan Zhang[2]; Qiang Zhu[2]; [1]The Midson Group; [2]General Research Institute for Non-Ferrous Metals

9:30 AM
The Relationship between Elongation and Fatigue Life in A206 Aluminum Castings: *Murat Tiryakioglu*[1]; [1]University of North Florida

9:50 AM
Magnesium Casting Processes:The HIMAC Project Re-assessed: John Campbell[1]; *Murat Tiryakioglu*[2]; [1]University of Birmingham; [2]University of North Florida

10:10 AM Break

10:25 AM
Manufacturing Cost Modeling of Castings Produced with CRIMSON Process: *Binxu Zeng*[1]; Mark Jolly[1]; [1]Cranfield University

10:45 AM
On Weibull Mixtures in Mechanical Properties of Castings: *Murat Tiryakioglu*[1]; [1]University of North Florida

11:05 AM
Microstructure and Mechanical Properties of Automotive Components Die Cast with Secondary Al alloys by SEED Semi-solid Process: *Giulio Timelli*[1]; Stefano Capuzzi[1]; Stefano Ferraro[1]; Alberto Fabrizi[1]; Leonardo Capra[2]; [1]University of Padua; [2]Raffineria Metalli Capra

11:25 AM
The Effect of Grain Structure on Casting Durability Assessment in Al-Si Alloys: *Glenn Byczynski*[1]; Robert Mackay[1]; [1]Nemak Canada

11:45 AM
Near-net-shape Processing of 2024 Aluminium Alloy by SIMA Method: *Huseyin Ozdes*[1]; Ilker Erdeniz[1]; Eray Erzi[1]; Derya Dispinar[1]; [1]Istanbul University

Solar Cell Silicon — Silicon Refining I

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Conversion and Storage Committee, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Gabriella Tranell, Norwegian University of Science & Technology; Yulia Meteleva-Fischer, Materials Innovation Institute M2i; Arjan Ciftja, SINTEF; Shadia Ikhmayies, Al Isra University

Thursday AM
February 20, 2014
Room: Balboa
Location: San Diego Marriott Marquis & Marina

Session Chairs: Yulia Meteleva-Fischer, Materials Innovation Institute M2i; Gabriella Tranell, Norwegian University of Science & Technology

8:30 AM
Kinetic Model for Gaz-liquid Extraction of Boron from Solar Silicon: The Role of Hydrogen: *Yves Delannoy*[1]; Guy Chichignoud[1]; Mathieu Vadon[1]; [1]Grenoble University, SIMaP

8:55 AM
Boron Removal from Silicon by Humidified Gases: *Jafar Safarian*[1]; Kai Tang[1]; Kjetil Hildal[2]; Gabriella Tranell[3]; [1]SINTEF; [2]ELKEM AS; [3]Norwegian University of Science and Technology

9:15 AM
Boron Removal from Silicon Melts by H_2O/H_2 Gas Blowing – Gas-phase Mass Transfer: *Øyvind Sortland*[1]; Merete Tangstad[1]; [1]NTNU

9:35 AM
Thermodynamic Database and Kinetic Solidification Model of the Si-Ca-Fe System for Refining Metallurgical Grade Silicon: *In-Ho Jung*[1]; Senlin Cui[1]; Manas Paliwal[1]; [1]McGill University

9:55 AM
Removal of Phosphor in Metallurgical Silicon by Rare Earth Elements: *Kai Tang*[1]; Ole Løvvik[1]; Jafar Safarian[1]; Merete Tangstad[2]; [1]SINTEF Materials and Chemistry; [2]Norwegian University of Science and Technology

10:15 AM Break

10:35 AM
Enabling Thin Silicon Technologies for Next Generation Low-cost c-Si Photovoltaics Systems: *Arief Budiman*[1]; Alexander Caldwell[2]; Christophe Bonelli[3]; David Verstraeten[3]; Martin Kunz[4]; Nobumichi Tamura[4]; [1]Singapore University of Technology & Design (SUTD); [2]SunPower Corporation; [3]TOTAL; [4]Advanced Light Source (ALS)

10:55 AM
Novel Effects on the Fracture Strength of Silicon Wafers for the Photovoltaic Industry: *Tania Vodenitcharova*[1]; Oscar Borrero-López[2]; Mohhamad Quadir[1]; Mark Hoffman[1]; [1]The University of New South Wales; [2]Universidad de Extremadura

11:15 AM
Effect of Grain Orientation and Cooling Rate on Stress Distribution in a Small Scale Silicon Ingot: *Sylvain Gouttebroze*[1]; Antoine Autruffe[2]; Lars Martin Sandvik Aas[2]; Morten Kildemo[2]; Xiang Ma[1]; [1]SINTEF; [2]NTNU

11:35 AM
Thermodynamic Behavior and Morphology of Impurities in Solidification from a Si–Al Melt for the Refining of Silicon: *Panpan Wang*[1]; Huimin Lu[1]; Zhijiang Gao[1]; [1]Beihang University

11:55 AM
Magnetically Guided Shaping for Solar Cell Silicon Applications: *Chulmin Choi*[1]; Tae Kyoung Kim[1]; Sungho Jin[1]; [1]University of California, San Diego

Solid-state Interfaces III: Toward an Atomistic-scale Understanding of Structure, Properties, and Behavior through Theory and Experiment — Grain Boundaries I

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Xiang-Yang Liu, Los Alamos National Laboratory; Blas Uberuaga, Los Alamos National Laboratory; Stephen Foiles, Sandia National Labs; Mitra Taheri, Drexel University; Rampi Ramprasad, University of Connecticut

Thursday AM
February 20, 2014
Room: 4
Location: San Diego Convention Center

Session Chair: Stephen Foiles, Sandia National Laboratories

8:30 AM
Atomic-scale Observations of Grain Boundary Structure in Bismuth Telluride: *Douglas Medlin*[1]; Nancy Yang[1]; Kristopher Erickson[1]; Michael Siegal[1]; Graham Yelton[1]; Steven Limmer[1]; [1]Sandia National Laboratories

8:50 AM
Atomic Mechanisms of Interface Motion in Gold Bicrystals: *Ulrich Dahmen*[1]; Abhay Gautam[1]; Colin Ophus[1]; Tamara Radetic[2]; Velimir Radmilovic[2]; Frederic Lancon[3]; [1]LBNL; [2]U. Belgrade; [3]CEA

9:10 AM
Characterization of Atomic Relaxations at Grain Boundaries in Au Using Aberration-corrected Electron Microscopy: *Abhay Gautam*[1]; Colin Ophus[1]; Frédéric Lançon[2]; Velimir Radmilovic[3]; Ulrich Dahmen[1]; [1]Lawrence Berkeley National Laboratory; [2]Laboratoire de Simulation Atomistique (L_Sim); [3]University of Belgrade

9:30 AM
Characterizations of Various Dislocations Present at or near a Σ3[-110]/(-1-11) Grain Boundary of Aluminum by High Resolution Electron Microscopy: *Mohammad Shamsuzzoha*[1]; [1]University of Alabama

9:50 AM
High Throughput Quantification of Grain Boundary Segregation by Correlative Transmission Electron Microscopy and Atom Probe Tomography: *Michael Herbig*[1]; Dirk Raabe[1]; Stefan Zaefferer[1]; Pyuck-Pa Choi[1]; Yujiao Li[1]; Shoji Goto[1]; [1]Max-Planck-Institut für Eisenforschung GmbH

10:10 AM Break

10:20 AM Invited
High Temperature Grain Boundary Phase Transformations Induced by Point Defects: T. Frolov[1]; D. L. Olmsted[1]; M. Asta[1]; *Y. Mishin*[2]; [1]University of California, Berkeley; [2]George Mason University

11:00 AM
Examination of the Full Grain Boundary Character on Radiation Induced Segregation and Defect Denuded Zones in 316L and Ni-Cr Model Alloy: *Christopher Barr*[1]; Kinga Unocic[2]; Khalid Hattar[3]; Xian-Ming Bai[4]; Mitra Taheri[1]; [1]Drexel University; [2]Oak Ridge National Laboratory; [3]Sandia National Laboratories; [4]Idaho National Laboratory

11:20 AM
Effect of Ge on Atomic Structure and Mobility of Grain Boundaries in Au Bicrystal Thin Films: *Tamara Radetic*[1]; Abhay Gautam[2]; Colin Ophus[2]; Ulrich Dahmen[2]; [1]University of Belgrade; [2]National Center for Electron Microscopy, LBNL

11:40 AM
Diffusion and Segregation of Ag in Cu near Special Grain Boundaries: *Sergii Divinsky*[1]; Henning Edelhoff[1]; [1]University of Münster

Solidification in Additive Manufacturing — Session I: Material Behavior in AM Powder Bed Systems

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee, TMS/ASM: Phase Transformations Committee
Program Organizers: Jyoti Mazumder, University of Michigan; Rainer Hebert, University of Connecticut; James Sears, GE GRC; Iver Anderson, Ames Laboratory; Alan Luo, The Ohio State University

Thursday AM
February 20, 2014
Room: 15B
Location: San Diego Convention Center

Session Chair: Rainer Hebert, University of Conneticut

8:30 AM Introductory Comments

8:35 AM Invited
A Comparison of the Behavior of a CoCrMo Alloy Solidified by Direct Metal Laser Melting (DMLM) and Electron Beam Melting (EBM) Additive Manufacturing Techniques: *James Sears*[1]; Michael Gigliotti[1]; Sirkanth Kottilingam[2]; Attila Szabo[2]; [1]GE GRC; [2]GE - Power & Water

9:00 AM
Process Mapping of Melt Pool Geometry and Microstructure for Direct Metal Additive Manufacturing: *Jack Beuth*[1]; Jason Fox[1]; Joy Gockel[1]; Colt Montgomery[1]; Rui Yang[1]; Haipeng Qiao[1]; Amin Anvari[1]; Sneha Narra[1]; Kristen Hauser[1]; Nathan Klingbeil[2]; [1]Carnegie Mellon University; [2]Wright State University

9:20 AM
Effect of Laser Scanning Pattern and Build Direction in Additive Manufacturing on Anisotropy, Porosity and Residual Stress: *Amanda Wu*[1]; Mary LeBlanc[1]; Mukul Kumar[1]; Gilbert Gallegos[1]; Donald Brown[2]; Wayne King[1]; [1]Lawrence Livermore National Laboratory; [2]Los Alamos National Laboratory

9:40 AM
Reduction in Mechanical Anisotropy through High Temperature Heat Treatment of Hastelloy X Processed by Selective Laser Melting (SLM): *Thomas Etter*[1]; Karsten Kunze[2]; Fabian Geiger[1]; Hossein Meidani[1]; [1]Alstom (Switzerland) Ltd; [2]ETH Zurich (EMEZ)

10:00 AM Break

10:15 AM
Selective Laser Sintering of Modified 431D Al Alloy: Ryan Chou[1]; Jason Milligan[1]; Paul Bishop[2]; *Mathieu Brochu*[1]; [1]McGill University; [2]Dalhousie University

10:35 AM
Microstructure of Titanium Alloy Prepared by Selective Laser Melting in Vacuum: *Naoko Sato*[1]; Shizuka Nakano[1]; Toru Shimizu[1]; Masashi Hagiwara[2]; Masahiro Sassa[2]; Kunio Matsuzaki[1]; [1]National Institute of Advanced Industrial Science and Technology Japan; [2]ASPECT Inc.

10:55 AM
Solidification Characteristics and Microstructural Features of Titanium Alloys Fabricated by Electron Beam Selective Melting: *Shenglu Lu*[1]; M. Qian[2]; Huiping Tang[3]; D.H. St John[2]; [1]School of Materials and Metallurgy, Northeastern University; [2]The University of Queensland, School of Mechanical and Mining Engineering, ARC Centre of Excellence for Design in Light Metals; [3]State Key Laboratory of Metal Porous Material, Northwest Institute for Nonferrous Metal Research

Symposium on High Entropy Alloys II — Structures and Mechanical Properties

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Alloy Phases Committee
Program Organizers: Peter Liaw, University of Tennessee ; Gongyao Wang, University of Tennessee; M. C. Gao, National Energy Technology Laboratory; S. N. Mathaudhu

Thursday AM
February 20, 2014
Room: 5A
Location: San Diego Convention Center

Session Chairs: Oleg Senkov, UES, Inc.; Rajiv Mishra, University of North Texas

8:30 AM Invited
On the Exceptional Fracture Toughness Behavior of a High-entropy Iron-containing Alloy at Cryogenic Temperatures: Bernd Gludovatz[1]; D. Catoor[2]; Easo George[2]; *Robert Ritchie*[3]; [1]Lawrence Berkeley National Laboratory; [2]Oak Ridge National Laboratory; [3]University of California Berkeley

8:50 AM
Microstructural Characterization and Mechanical Properties of Laser Deposited High Entropy Alloys: *Harihar Sistla*[1]; Joseph Newkirk[1]; Frank Liou[1]; [1]Missouri University of Science and Technology

9:00 AM Invited
The Influence of Cu and Al on the Microstructure, Mechanical Properties and Deformation Mechanisms in the High Entropy Alloys CrCoNiFeCu, CrCoNiFeAl1.$_5$ and CrCoNiFeCuAl1.$_5$: Brian Welk[1]; Babu Viswanathan[1]; Mark Gibson[2]; Peter Liaw[3]; *Hamish Fraser*[1]; [1]The Ohio State University; [2]CSIRO; [3]The University of Tennessee

9:20 AM Invited
Ultra Grain Refinement in High Entropy Alloys: *Nobuhiro Tsuji*[1]; Ikuto Watanabe[1]; Nokeun Park[1]; Daisuke Terada[1]; Akinobu Shibata[1]; Yoshihiko Yokoyama[2]; Peter Liaw[3]; [1]Kyoto University; [2]Tohoku University; [3]University of Tennessee

9:40 AM Invited
Effect of Aluminum Addition on the Microstructure and Properties of Refractory High Entropy Alloys: *Oleg Senkov*[1]; Christopher Woodward[1]; Jonathan Miller[1]; [1]Air Force Research Laboratory, Materials and Manufacturing Directorate

10:00 AM
Nanostructure Evolution through High-pressure Torsion and Recrystallization in a High-entropy CrMnFeCoNi Alloy: *Nokeun Park*[1]; Akinobu Shibata[1]; Daisuke Terada[1]; Yoshihiko Yokoyama[2]; Peter Liaw[3]; Nobuhiro Tsuji[1]; [1]Kyoto University; [2]Tohoku University; [3]University of Tennessee

10:10 AM Break

10:30 AM Invited
High Strength and Tensile Ductility of a Face-centered-cubic High-entropy Alloy: F. Otto[1]; A. Dlouhy[2]; Ch. Somsen[3]; H. Bei[3]; G. Eggeler[3]; *E. P. George*[1]; [1]Oak Ridge National Laboratory; [2]Institute of Physics of Materials; [3]Ruhr-Universitaet Bochum

10:50 AM
Stacking Fault Energies and Mechanical Properties of FCC High Entropy Alloys: *Alexander Zaddach*[1]; Changning Niu[1]; Khaled Youssef[1]; Douglas Irving[1]; Carl Koch[1]; [1]North Carolina State University

11:00 AM Invited
Vibrational Entropy in Metallic Alloys: *Brent Fultz*[1]; [1]California Institute of Technology

11:20 AM
On the Deformation Mechanisms of a Refractory High-entropy Alloy: *Jean-Philippe Couzinie*[1]; Ivan Guillot[1]; Guy Dirras[2]; Thierry Chauveau[2]; Philippe Djemia[2]; Loïc Perriere[1]; Yannick Champion[1]; [1]CNRS/UPEC; [2]CNRS/University Paris 13

11:30 AM Invited
Mechanical Behavior of an $Al_{0.1}CoCrFeNi$ High Entropy Alloy: Mageshwari Komarasamy[1]; Nilesh Kumar[1]; Zhi Tang[2]; *Rajiv Mishra*[1]; Peter Liaw[2]; [1]University of North Texas; [2]The University of Tennessee

11:50 AM
Structure and Properties of Refractory High-entropy Alloys: *Soumyadipta Maiti*[1]; Walter Steurer[2]; [1]ETH Zurich ; [2]ETH Zurich

Ultrafine Grained Materials VIII — Equal Channel Angular Processing Studies

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Suveen Mathaudhu; Yuri Estrin, Monash University; Zenji Horita, Kyushu University; Enrique Lavernia, University of California - Davis; Xiaozhou Liao, The University of Sydney; Lei Lu, Institute for Materials Research; Qiuming Wei, University of North Carolina - Charlotte; Gerhard Wilde, University of Muenster; Yuntian Zhu, North Carolina State University

Thursday AM
February 20, 2014
Room: 6E
Location: San Diego Convention Center

Session Chairs: Terry Langdon, University of Southern California; Laszlo Toth, Université de Lorraine

8:30 AM Invited
Cryogenic ECAP of CP Titanium: Microstructure and Properties: *Rimma Lapovok*[1]; Hoi Pang Ng[1]; Alexey Podolskiy[2]; Elena Tabachnikova[2]; Igor Psaruk[2]; [1]Monash University; [2]B. Verkin Institute for Low Temperature Physics & Engineering

8:50 AM
Microstructure Evolution of the Recycled Ti-alloys Using Equal Channel Angular Pressing (ECAP): *Qi Shi*[1]; [1]Loughborough University

9:05 AM
Dynamic Phase Transformation and Nonlinear Elasticity Phenomena in an Ultra-fine-grained TiNbTaZr Alloy: *Baolong Zheng*[1]; Yitian Wang[1]; Troy Topping[1]; Yizhang Zhou[1]; Ruslan Valiev[2]; Enrique Lavernia[1]; [1]University of California, Davis; [2]Ufa State Aviation Technical University

9:20 AM
ECAP-conform as an Advanced Technique to Produce Ultrafine-grained Metals: *Georgy Raab*[1]; Arseniy Raab[1]; Elvira Fakhretdinova[1]; [1]Ufa State Aviation Technical University

9:35 AM
The Dynamic Compressive Behavior at Elevated Temperatures of Ultrafine-grained Pure Ti Processed by ECAP: *Liu Wang*[1]; Ying Chun Wang[1]; Alexander V Korznikov[2]; Shu Kui Li[1]; Alexander P Zhilyaev[3]; Elena Korznikova[2]; Haibo Jin[1]; Terence G Langdon[3]; [1]School of Materials Science and Engineering, Beijing Institute of Technology; [2]Institute for Problems of Metals Superplasticity, Russian Academy of Sciences; [3]Materials Research Group, Faculty of Engineering and the Environment, University of Southampton

9:50 AM Invited
Microstructure Evolution Features of FCC Metals during Equal Channel Angular Pressing and Subsequent Annealing: *Jing Tao Wang*[1]; [1]Nanjing University of Science and Technology

10:10 AM Break

10:25 AM Invited
Microstructure and Mechanical Behavior of the Nanostructured SUS316L Steel: An Overview: *Alexei Vinogradov*[1]; Shingo Hayashi[2]; Yoshihisa Kaneko[2]; [1]Togliatti State University ; [2]Osaka City University

10:45 AM
Effect of Boundary Character on the Strength and Ductility of Ultrafine-grained Al-Zn alloy: Hung-Ya Liao[1]; I-Shan Lee[1]; *Pei-Ling Sun*[2]; Po-We Kao[1]; [1]National Sun Yat-Sen University; [2]Feng Chia University

11:00 AM Invited
Transformation of Lamellar Structures during Equal Channel Angular Pressing: Cameron Barr[1]; Daniel McDonald[1]; *Kenong Xia*[1]; [1]University of Melbourne

11:20 AM
Creep in Ultrafine-grained Materials after Pressurization Treatment: *Vaclav Sklenicka*[1]; Jiri Dvorak[1]; Vladimir Betekhtin[2]; Andrey Kadomtsev[2]; Sergey Dobatkin[2]; Petr Kral[1]; Marie Kvapilova[1]; Milan Svoboda[1]; [1]Institute of Physics of Materials, Academy of Sciences of the Czech Republic; [2]Russian Academy of Sciences

11:35 AM
Nanocrystalline NiTiPd Shape Memory Alloys: *Thomas Waitz*[1]; Peter Schindler[2]; Michael Kerber[1]; Vijay Srivastava[3]; Richard James[3]; [1]University of Vienna; [2]Stanford University; [3]University of Minnesota

Ultrafine Grained Materials VIII — Roll Processing Studies

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Suveen Mathaudhu; Yuri Estrin, Monash University; Zenji Horita, Kyushu University; Enrique Lavernia, University of California - Davis; Xiaozhou Liao, The University of Sydney; Lei Lu, Institute for Materials Research; Qiuming Wei, University of North Carolina - Charlotte; Gerhard Wilde, University of Muenster; Yuntian Zhu, North Carolina State University

Thursday AM
February 20, 2014
Room: 6F
Location: San Diego Convention Center

Session Chairs: Heinz Werner Höppel, University Erlangen-Nürnberg; R Jayaganathan, Indian Institute of Technology Roorkee

8:30 AM Invited
Deformation Behavior of Laminates and Bimodal Ultrafine Grained Microstructures: *Mathias Göken*[1]; Heinz-Werner Höppel[1]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

8:50 AM Invited
Ti/Al Laminates Produced by ARB: *Werner Skrotzki*[1]; Juliane Scharnweber[1]; Andy Eschke[1]; Carl-Georg Oertel[1]; Jan Romberg[2]; Tom Marr[2]; Jens Freudenberger[2]; Ludwig Schultz[2]; Ilya Okulov[2]; Uta Kühn[2]; Jürgen Eckert[2]; [1]TU Dresden; [2]IFW Dresden

9:10 AM
Creep Behavior of Particle Reinforced Aluminum Processed by Accumulative Roll Bonding: *Christopher Schunk*[1]; Christian Schmidt[1]; Heinz Werner Höppel[1]; Mathias Göken[1]; [1]University Erlangen-Nürnberg

9:25 AM
How Does Upscaling of the Accumulative Roll Bonding Process Affect the Homogeneity and Mechanical Properties of AA1050A: *Mathis Ruppert*[1]; Wolfgang Böhm[2]; Hung Nguyen[2]; Heinz Werner Höppel[1]; Marion Merklein[2]; Mathias Göken[1]; [1]Department of Materials Science and Engineering, Institute I: General Materials Properties/ University of Erlangen-Nürnberg; [2]Department of Mechanical Engineering, Institute of Manufacturing Technology

9:40 AM Invited
Tailored Grain Size of Bulk NiTi Achieved by Deformation Induced Amorphization and Subsequent Crystallization: *Martin Peterlechner*[1]; Thomas Waitz[2]; Gerhard Wilde[1]; [1]University of Muenster; [2]University of Vienna

10:00 AM Break

10:15 AM Invited
Fully Recrystallized Nanostructures in Bulk Austenitic Steels: *Nobuhiro Tsuji*[1]; Rajib Saha[1]; Shuai Chen[1]; Rintaro Ueji[2]; Akinobu Shibata[1]; Si Gao[1]; Daisuke Terada[1]; [1]Kyoto Univ; [2]Osaka University

10:35 AM Invited
Structure and Mechanical Properties of Nanostructured Al-0.3%Cu Alloy: Aneela Wakeel[1]; *Tianlin Huang*[1]; Guilin Wu[1]; Xiaoxu Huang[2]; [1]Chongqing University; [2]DTU National Laboratory for Sustainable Energy

10:55 AM
Mechanical Behaviour of Ultrafine Grained Zircaloy-2: *Jayaganthan R*[1]; Sunkulp Goel[1]; Nachiket Keskar[1]; Indra Vir Singh[1]; Dinesh Srivastava[1]; Dey G.K[1]; Saibaba N[1]; [1]IIT Roorkee

11:10 AM
Tensile Instability of Nanostructured Al-1%Si Alloy: *Tianlin Huang*[1]; Chao Li[1]; Guilin Wu[1]; Qing Liu[1]; Xiaoxu Huang[2]; [1]Chongqing University; [2]Technical University of Denmark

11:25 AM
Effect of Rolling on Microstructure and Mechanical Properties of Equal-channel Angular Pressed Mg-Gd-Zn-Zr Alloy: *Jinghua Jiang*[1]; Jing Chen[1]; Fumin Lu[1]; Aibin Ma[1]; Dan Song[1]; Donghui Yang[1]; Liuyan Zhang[1]; Jiangqing Chen[1]; [1]Hohai University

2014 Functional Nanomaterials: Synthesis, Properties and Applications — Applications of Nanomaterials II & Energy Nanomaterials

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Nitin Chopra, The University of Alabama; Terry Xu, The University of North Carolina at Charlotte; Jiyoung Kim, University of Texas at Dallas; Yuanbing Mao, University of Texas - Pan American; Ashwin Ramasubramaniam, University of Massachusetts Amherst; Jung-kun Lee, University of Pittsburgh; Ramki Kalyanaraman, The University of Tennessee, Knoxville; Stephen Turano, Georgia Tech Research Institute

Thursday PM
February 20, 2014
Room: Ballroom D
Location: San Diego Marriott Marquis & Marina

Session Chairs: Nitin Chopra, The University of Alabama; Ramki Kalyanaraman, University of Tenessee; Yuanbing Mao, University of Texas, Pan American

2:00 PM
The Research of Photocatalytic Degradation Kinetics of Methyl Orange with the Magnesium Hydroxide /Titanium Dioxide Composite Powder: *Ting Li*[1]; Bo Meng[2]; [1]Northeastern University; [2]Shenyang University of Chemical Technology

2:15 PM
Arsenic Removal from Aqueous Solutions Using Nano-structured Calcium Silicate: *Ozgul Taspinar*[1]; Tuba Yesilyaprak[1]; Ilker Yavas[1]; Unzile Yenial[1]; Gulay Bulut[1]; [1]Istanbul Technical University

2:30 PM
Nanostructured Optical Thin Films for High Temperature Gas Sensing Applications: *Paul Ohodnicki*[1]; Thomas Brown[1]; Michael Buric[1]; Mark Andio[1]; John Baltrus[1]; Congjun Wang[1]; [1]National Energy Technology Laboratory

2:45 PM
Energy Transfer in Hybrid Quantum Dots: *Karel Kral*[1]; [1]Inst. Phys. ASCR, v.v.i.

3:00 PM
Thermochromic Doped Vanadium Dioxide Coatings for Smart Windows: *Ghouwaa Philander*[1]; M. Maaza[1]; E. Iwuoha[2]; [1]iThemba LABS; [2]University of the Western Cape

3:15 PM
The Characteristics of Metal Nanowire Catalyzing Methanol Anodization under Variety Testing Condition: *Xiaolong Qu*[1]; Zhengfu Zhang[2]; Mingli Xu[2]; Xianwan Yang[2]; [1] Kunming University of Science and Technology; [2]Kunming University of Science and Technology

3:30 PM
Thermo-mechanical Experimental Investigation of the Martensitic Transformation Morphology in Nanometer Shape Memory Alloys: Huilong Hou[1]; *Reginald Hamilton*[1]; [1]The Pennsylvania State University

3:45 PM Invited
Scalable Manufacturing of Unique Hexaboride Nanomaterials for Advanced Energy Generation and Gas Storage Applications: *Olivia Graeve*[1]; James Cahill[1]; Victor Vasquez[2]; [1]University of California, San Diego; [2]University of Nevada, Reno

4:15 PM
High Efficient Full-plastic Dye-sensitized Solar Cells Based on a Compressed Double Layer of TiO2 and Blocking Compact Layer: *Yu Ting Huang*[1]; Shien-Ping Feng[1]; Hai Jun Su[1]; [1]The University of Hong Kong

4:30 PM Invited
Combining Different Types of Solar Cells to Create Low-cost Tandems with High Efficiency: Michael McGehee[1]; [1]Stanford University

4:55 PM
Hydrogen Storage Properties of a Nanostructured Palladium Alloy Processed Using Cryomilling: *Joshua Yee*[1]; Lilia Kurmanaeva[1]; Zhihui Zhang[1]; Patrick Cappillino[2]; Vitalie Stavila[2]; Christopher San Marchi[2]; Nancy Yang[2]; Enrique Lavernia[1]; [1]University of California, Davis; [2]Sandia National Laboratories

5:10 PM
Birnessite MnO_2 Nanoflakes for Efficient Energy Storage at Elevated Temperatures: *Jasper Wright*[1]; Wei Zhang[1]; Dawei Liu[1]; [1]Alfred University

5:25 PM
Ion-exchanged MnO_2 Nanoparticles as Cathodes of Lithium Ion Batteries at Elevated Temperatures: *Dawei Liu*[1]; Jasper Wright[1]; Wei Zhang[1]; [1]Alfred University

5th International Symposium on High Temperature Metallurgical Processing — Microwave Heating, Energy and Environment

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee
Program Organizers: Tao Jiang, Central South University; Jiann-Yang Hwang, Michigan Technological University; Mark Schlesinger, Missouri University of Science and Technology; Onuralp Yücel, ITU; Rafael Padilla, University of Concepcion; Phillip Mackey, P.J. Mackey Technology; Guifeng Zhou, Wuhan Iron and Steel

Thursday PM
February 20, 2014
Room: 18
Location: San Diego Convention Center

Session Chairs: Zhiwei Peng, Michigan Technological University; Guifeng Zhou, Wuhan Iron and Steel

2:00 PM Introductory Comments

2:05 PM
Research on Microwave Roasting of High Titanium Siag Process: Kun Yang[1]; [1]Kunming University of Science and Technology

2:20 PM
Study of Dielectric Properties and Drying Characteristics on Zinc Alloy Power from Electric Furnace: Aiyuan Ma[1]; *Libo Zhang*[1]; Jinhui Peng[1]; Bingguo Liu[1]; Yonggang Zuo[1]; [1]Yunnan Provincial Key Laboratory of Intensification Metallurgy, Key Laboratory of Unconventional Metallurgy, Ministry of Education

2:35 PM
Calculation and Analysis the Influence on the Cooling Water Velocity and Hot Metal Circulation to the Long Life BF: *Jiao Kexin*[1]; Zhang Jianliang[1]; Zuo Haibin[1]; Xu Runsheng[1]; Hong Jun[1]; [1]USTB

2:50 PM
Evaluation of Calcium Peroxide on Combustion Characteristics of Pulverized Coal for Use in Pulverized Coal Injection (PCI): Chong Zou[1]; Liang-ying Wen[1]; Sheng-fu Zhang[1]; Chen-guang Bai[1]; Guang-liang Yin[1]; [1]Chongqing University

3:05 PM
Investigation of Mixing Phenomenon Using Water Model of C-H2 Smelting Reduction Furnace: *Jinyin Xie*[1]; Kongfang Feng[1]; Jun Xu[1]; Jieyu Zhang[1]; [1]Shanghai University

3:20 PM
Kinetics of Directed Reduction of Ore Fines Containing Coal by Microwave Heating: *Linqing Dai*[1]; Hongbo Zhu[1]; Libo Zhang[1]; Jinhui Peng[1]; [1]Kunming University of Science and Technology

3:35 PM Break

3:45 PM
Numerical Analysis of Microwave Heating of Iron Oxide Powder Using a Multimode Cavity: Chenhui Liu[1]; *Jinhui Peng*[1]; [1]Kunming University of Science and Technology

4:00 PM
Numerical Simulation of Microwave Absorption of Regenerative Heat Exchangers Subjected to Microwave Heating: Xiaobiao Shang[1]; Junruo Chen[1]; Weifeng Zhang[1]; Jinyan Shi[1]; Guo Chen[1]; Jinhui Peng[1]; [1]Kunming University of Science and Technology

4:15 PM
Study of Dechlorination from Zinc Oxide Dust by Microwave Roasting: Zhiqiang Li[1]; *Libo Zhang*[1]; Aiyuan Ma[1]; Jinhui Peng[1]; Hongying Xia[1]; Yonggang Zuo[1]; [1]Yunnan Provincial Key Laboratory of Intensification Metallurgy, Key Laboratory of Unconventional Metallurgy, Ministry of Education

4:30 PM
Effects of Microwave Heating on Reduction of Ilmenite and Its Separation: Zhucheng Huang[1]; Tiehui Li[1]; Lingyun Yi[1]; *Yuanbo Zhang*[1]; [1]Central South University

4:45 PM Invited
Study on the Dielectric Properties of Panzhihua Ilmenite Concentrates by Using Terminal Open Coaxial Reflection Method: *Lei Ying*[1]; Li Yu[1]; Peng Jinhui[2]; Zhang Libo[2]; [1]Anhui University of Technology; [2] Kunming University of Science and Technology

5:00 PM
Optimization of Processing Parameters for Microwave Direct Reduction of Titanic Iron Ore of Being Used for Electrode Coating Material Using Response Surface Methodology: *Jia Jingyan*[1]; [1]Kunming University of Science and Technology

5:15 PM
Optimization on Drying of Ilmenite by Microwave Heating Using Response Surface Methodology: Yong-Gang Zuo[1]; Bing-guo Liu[1]; *Li-bo Zhang*[1]; Jinhui Peng[1]; Ai-yuan Ma[1]; [1]Key Laboratory of Unconventional Metallurgy, Ministry of Education in China

Advanced Materials in Dental and Orthopedic Applications — Dental and Orthopedic Composites

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Tolou Shokuhfar, Michigan Technological University; Terry Lowe, Colorado School of Mines; Hanson Fong, University of Washington; Mathew Mathew, Rush University Medical Center; Cortino Sukotjo, University of Illinois at Chicago

Thursday PM
February 20, 2014
Room: 1A
Location: San Diego Convention Center

Session Chair: Cortino Sukotjo, University of Illinois at Chicago

2:00 PM
In Silico Design of Nanoclay Based Nanocomposites for Orthopaedic Applications: *Kalpana Katti*[1]; Anurag Sharma[1]; Avinash Ambre[1]; Dinesh Katti[1]; [1]North Dakota State University

2:20 PM
Strategies for Improving the Performance of Dental Restorative Composites: *Dmitriy Khvostenko*[1]; Jamie Kruzic[1]; John Mitchell[2]; Thomas Hilton[3]; Jack Ferracane[3]; [1]Oregon State University; [2]Midwestern University; [3]Oregon Health & Science University

2:40 PM
In Situ Grafted Carbon Nanotube/Graphene/Hydroxyapatite Reinforced PMMA Composites: *Ankur Gupta*[1]; Anh Ly[1]; David Reid[1]; Arvind Agarwal[2]; Sudipta Seal[1]; [1]University of Central Florida; [2]Florida International University

3:00 PM
Accelerated Fatigue of Dentin Caused by Demineralization: *Santiago Orrego*[1]; Dominic Do[1]; Hessam Majd[1]; Mustafa Murat Mutluay[2]; Hockin H. K. Xu[3]; Dwayne Arola[1]; [1]University of Maryland Baltimore County; [2]University of Turku; [3]University of Maryland, Baltimore

3:20 PM Break

3:40 PM
Preparation of Porous ß- TCP/Alumina Composite and Its Characterization: *Sudalai Suriya*[1]; [1]Anna University

4:00 PM
Optimising PMMA-NVP Hydrogels for Orthotropic, Self-inflating Tissue Expanders: *Jessica Smith*[1]; Zamri Radzi[2]; David Jackson[3]; Jan Czernuszka[1]; [1]Department of Material Science, University of Oxford; [2]Faculty of Dentistry, University of Malaya; [3]Oxtex Limited

4:20 PM Invited
Graphite Layer Formation in Metal-on-metal Hip Implants: *Laurence Marks*[1]; [1]Northwestern University

4:40 PM
The Optimum Preparation of WC-Co Composite Powders by Sol-gel and Hydrogen Reduction: Xiaoyan Wang[1]; *Zhengfu Zhang*[1]; Liling Huang[1]; Jinhui Peng[1]; Hongying Hou[1]; [1]Kunming University of Science and Technology

5:00 PM
Nitriding Behavior of Ti_6Al_4V Alloy in Gas Atmosphere: *Farid Siyahjani*[1]; Erdem ATAR[1]; [1]Istanbul Technical University

Aluminum Reduction Technology — Potline Operations- Control

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Margaret Hyland, University of Auckland

Thursday PM
February 20, 2014
Room: 14A
Location: San Diego Convention Center

Session Chair: Sylvain Fardeau, Rio Tinto Alcan

2:00 PM Introductory Comments

2:05 PM
Understanding and Managing Alumina Quality Fluctuations to Minimize Impact on Cell Performance and Metal Quality: *Maryam AlQubaisi*[1]; Andries Louw[1]; Gregory Meintjes[1]; Arvind Kumar[1]; Daniel Whitfield[1]; Mohamed Tawfik Boraie[1]; Ghedyer Hamad[1]; K.G. Venkatasubramaniam[1]; Akhmetov Sergey[1]; [1]Dubai Aluminium

2:30 PM
Developing a New Process Indicator Based on the Relationship between an Electrolysis Cell Impurity Balance and Its Incidents: *Lukas Dion*[1]; László Kiss[1]; Dany Lavoie[2]; Jean-Paul Arvisais[2]; [1]Université du Québec à Chicoutimi; [2]Aluminerie Alouette Inc.

2:55 PM
New Generation Control for Daily Aluminium Smelter Improvement: *Yashuang Gao*[1]; Albert Mulder[1]; Mark Taylor[1]; Dongfang Zhou[2]; Xiaodong Yang[3]; [1]University of Auckland; [2]Shenyang Aluminium & Magnesium Engineering & Research Institute Co. Ltd ; [3]Shenyang Aluminium & Magnesium Engineering & Research Institute Co. Ltd

3:20 PM Break

3:35 PM
Current Status of Research and Development on Automatization and Intellectuality For Plants of Aluminum in China: Jianhong Li[1]; Jing Liu[2]; *Dingxiong Lu*[2]; Jihong Mao[2]; Qingchen Yang[2]; Ganfeng Tu[1]; [1]Northeastern University; [2]Northeastern University Engineering & Research Institute Co. Ltd.

4:00 PM
Statistical Evaluation and Modeling of the Link between Anode Effects and Bath Height, and Implications for the ALPSYS Pot Control System: *Sylvain Fardeau*[1]; Arthur Martel[1]; Pierre Marcellin[1]; Patrick Richard[1]; [1]Rio Tinto Alcan

Biological Materials Science Symposium — Biomedical Materials, Implants and Applications

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Po-Yu Chen, National Tsing Hua University; Rajendra Kasinath, Johnson and Johnson Company; Dwayne Arola, University of Washington; Kalpana Katti, North Dakota State University

Thursday PM
February 20, 2014
Room: 33A
Location: San Diego Convention Center

Session Chairs: Po-Yu Chen, National Tsing Hua University; Dwayne Arola, University of Maryland Baltimore County

2:00 PM Invited
Enamel Protein Interactions Direct Self-assembly and Guide Hydroxyapatite Formation at Physiologic Conditions: *Malcolm Snead*[1]; [1]Herman Ostrow School of Dentistry of the University of Southern California

2:30 PM
Bioactive Ceria-PLGA-Protein Based 3D Scaffold for Tissue Regeneration: *Swetha Barkam*[1]; Julian Ortiz[1]; Biman B Mandal[2]; Soumen Das[1]; Sudipta Seal[1]; [1]University of Central florida; [2]Indian Institute of Technology Guwahati

2:50 PM
The Impact of Grain Boundary Grooving on Biological Functions: *Krishna Chaitanya Nune*[1]; Devesh Misra[1]; Mahesh Somani[2]; Pentti Karjalainen[2]; [1]University of Louisiana at Lafayette; [2]University of Oulu

3:10 PM
Graphene Reinforced Ultra High Molecular Weight Polyethylene for Orthopedic Application: *Debrupa Lahiri*[1]; Cheng Zhang[2]; Rupak Dua[2]; Francois Hec[3]; Mikael Thiesse[3]; Andriy Durygin[2]; Sharan Ramaswamy[2]; Arvind Agarwal[2]; [1]Indian Institute of Technology Roorkee; [2]Florida International University; [3]Universite de Lyon-INSA de Lyon

3:30 PM Break

3:40 PM Invited
Dentin Hard Tissue Stabilization Using Functionalized Chitosan Nanoparticles: *Anil Kishen*[1]; [1]University of Toronto

4:10 PM
The Mechanical Property and Potential Biomedical Applications of Cuttlebone: *Ming-Han Chou*[1]; Yao-Tein Ku[2]; Yueh-Ying Chou[2]; Wen-Guang Liu[3]; Tzay-Ming Hong[1]; Chuan-Chin Chiao[3]; Po-Yu Chen[2]; [1]Department of Physics, National Tsing Hua University; [2]Department of Materials Science and Engineering, National Tsing Hua University; [3]Department of Life Science, National Tsing Hua University

4:30 PM
Effect of Endodontic Chemicals on the Ultrastructure, Chemical and Mechanical Characteristics of Dentin Hard Tissue: *Arezou Ossareh*[1]; Anil Kishen[1]; [1]University of Toronto

4:50 PM
Investigation of a Commercially Pure Titanium Grade 4 for Implant Purposes: *Daniel Fernandes*[1]; Carlos Elias[2]; Felipe Lopes[2]; Sergio Monteiro[2]; [1]University of California, San Diego; [2]Military Institute of Engineering

5:10 PM
Study and Characterization of Cryorolled Zircaloy-2 Alloy as Orthopedic Implant: *Pramanshu Trivedi*[1]; Sunkulp Goel[1]; Snehasish Das[1]; Partha Roy[1]; Debrupa Lahiri[1]; R Jayaganthan[1]; [1]Indian Institute of Technology Roorkee India

5:30 PM Concluding Comments

Bulk Metallic Glasses XI — Mechanical and other Properties

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Gongyao Wang, University of Tennessee; H. Choo, University of Tennessee; Y. Gao, University of Tennessee; Y. F. Shi, Rensselaer Polytechnic Institute

Thursday PM
February 20, 2014
Room: 2
Location: San Diego Convention Center

Session Chairs: Maria Baró, Universitat Autònoma de Barcelona; Hongbin Bei, Oak Ridge National laboratory

2:00 PM Invited
Thermo-mechanical Analysis of Sustained Elastic Deformation for $Cu_{50}Hf_{41.5}Al_{8.5}$ Bulk Metallic Glass: *Rainer Hebert*[1]; Arif Mubarok[2]; [1]University of Connecticut; [2]University of Massachusetts

2:20 PM
Structural Relaxation and Dependence of Shear Modulus in Metallic-glass-forming Supercooled Liquids: *Jun Ding*[1]; Yongqiang Cheng[2]; Evan Ma[1]; [1]Johns Hopkins University; [2]Oak Ridge National Laboratory

2:30 PM Invited
Nanomechanics of Structural Origin of the Ductile to Brittle Transition in Bulk Metallic Glasses: Weidong Li[1]; Yanfei Gao[1]; *Hongbin Bei*[2]; [1]University of Tennessee; [2]Oak Ridge National Laboratory

2:50 PM
Changes in Tensile Ductility, Strength and Fictive Temperature of Metallic Glass Nanowires Prepared in Different Structural States by Ion Irradiation: *Daniel Magagnosc*[1]; Golden Kumar[2]; Jan Schroers[3]; Peter Derlet[4]; Daniel Gianola[1]; [1]University of Pennsylvania; [2]Texas Tech University; [3]Yale University; [4]Paul Scherrer Institut

3:00 PM Invited
Recovery of Relaxation State in Zr-based Metallic Glasses: *Junji Saida*[1]; Rui Yamada[1]; Masato Wakeda[2]; [1]Tohoku University; [2]Osaka University

3:20 PM
Effect of Thermal Oxidation on the Surface Characteristics of Zr-based Bulk Metallic Glasses: *Ka Ram Lim*[1]; Won Tae Kim[2]; Do Hyang Kim[3]; [1]Korea Institute of Materials Science; [2]Cheongju University; [3]Yonsei University

3:30 PM Break

3:50 PM Invited
Structural and Mechanical Modifications Induced on $Cu_{47.5}Zr_{47.5}Al_5$ Metallic Glass by Shot Peening and Surface Laser Treatments: Jordina Fornell[1]; Eva Pellicer[1]; Daniel Nieto[2]; Eva García-Lecina[2]; Amadeu Concustell[3]; Santiago Suriñach[1]; Alan Lindsey Greer[4]; *Maria D Baró*[1]; Jordi Sort[5]; [1]Universitat Autònoma de Barcelona; [2]CIDETEC; [3]Universitat de Barcelona; [4]University of Cambridge; [5]Institució Catalana de Recerca i Estudis Avançats (ICREA) and Universitat Autònoma de Barcelona

4:10 PM
Temperature Effects on Mechanical Behavior of Zr-Based Bulk Metallic Glass Composites: *Jessica Booth*[1]; Mohsen Seifi[1]; John Lewandowski[1]; [1]Case Western Reserve University

4:20 PM
Interfacial Microstructure and Mechanical Properties of Ti Joint Brazed with Ti-Zr-based Metallic Glass Filler: Joon Hyuk Lee[1]; *Jin Kyu Lee*[2]; [1]Kongju National University; [2]Kongju National University

4:30 PM
Structure and Properties of a Nanoscaled Composition Modulated Metallic Glass: *Xavier Sauvage*[1]; Yannick Champion[2]; Reinhard Pippan[3]; L. Perrière[2]; O. Renk[3]; Fabien Cuvilly[1]; [1]University of Rouen, CNRS; [2]ICMPE, UMR 7182 CNRS-UPEC; [3]Erich Schmid Institute of Material Sciences of the Austrian Academy of Sciences

4:40 PM
The Formation of Superclusters in $Cu_{64}Zr_{36}$ Bulk Metallic Glasses: *Jerome Zemp*[1]; Massimo Celino[2]; Bernd Schönfeld[1]; Jörg Löffler[1]; [1]ETH Zurich; [2]ENEA

4:50 PM
Shear Band Nucleation and Propagation in Bulk Metallic Glasses Investigated by Digital Image Correlation: *Yuan Wu*[1]; H. Bei[1]; Y. L. Wang[1]; Y. F. Gao[2]; E. P. George[2]; [1]1Materials Science and Technology Division, Oak Ridge National Laboratory; [2]Materials Science and Technology Division, Oakridge National Laboratory; Department of Materials Science and Engineering, University of Tennessee

5:00 PM Invited
Distinguished Work-hardening Capacity of a Ti-based Metallic Glass Matrix Composite upon Dynamic Loading: *Junwei Qiao*[1]; Huijun Yang[1]; Zhihua Wang[1]; Peter Liaw[2]; [1]Taiyuan University of Technology; [2]The University of Tennessee

Celebrating the Megascale: An EPD Symposium in Honor of David G.C.Robertson — Pyrometallurgy Process Fundamentals II

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee, TMS: Process Technology and Modeling Committee
Program Organizers: Phillip Mackey, P.J. Mackey Technology; Rodney Jones, Mintek; Eric Grimsey, Curtin University, W A School of Mines; Geoffrey Brooks, Swinburne University of Technology

Thursday PM
February 20, 2014
Room: 16A
Location: San Diego Convention Center

Session Chairs: Shin-ya Kitamura, Tohoku University; M. Rhamdhani, Swinburne University of Technology

2:00 PM Introductory Comments

2:05 PM Invited
Electricity-independent Generation of Si Based on the Use of Rice Husk: A Concept Process: *Mansoor Barati*[1]; [1]University of Toronto

2:25 PM Invited
Electrically Enhanced Metal Purification Using Slag: Md Saiful Islam[1]; *Muhammad Akbar Rhamdhani*[1]; Geoff Brooks[1]; [1]Swinburne University of Technology

2:45 PM
Crystallization Behavior of Molten Blast Furnace Slag Using Confocal Scanning Laser Microscope: *Liu Lu*[1]; Hu Meilong[1]; Bai Chenguang[1]; [1]Chongqing University

3:05 PM Invited
Viscosity-Structure Relationship in the $CaO-SiO_2-MnO-CaF_2$ Slag for the Production of Mn Ferroalloys: *Joohyun Park*[1]; Kyuyeol Ko[2]; [1]Hanyang University; [2]LS-Nikko Copper

3:25 PM Break

3:45 PM
Recovery of Vanadium from a High Ca/V Ratio Vanadium Slag Using Sodium Roasting and Ammonia Leaching: Song Xu[1]; *Mujun Long*[1]; Dengfu Chen[1]; Helin Fan[1]; Yuting Chen[1]; Xue Sun[1]; [1]Chongqing University

4:05 PM
Sintering Process of Nickel Laterite Based of Limonitic Style: Enguang Guo[1]; Mei Liu[1]; Pan Chen[1]; Qiugang Yuan[1]; *Xuewei Lv*[1]; [1]Chongqing University

Celebrating the Megascale: An EPD Symposium in Honor of David G.C.Robertson — Pyrometallurgy Process Fundamentals III

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee, TMS: Process Technology and Modeling Committee
Program Organizers: Phillip Mackey, P.J. Mackey Technology; Rodney Jones, Mintek; Eric Grimsey, Curtin University, W A School of Mines; Geoffrey Brooks, Swinburne University of Technology

Thursday PM
February 20, 2014
Room: 13
Location: San Diego Convention Center

Session Chairs: Ken Coley, McMaster University; In-Ho Jung, McGill University

2:00 PM Introductory Comments

2:05 PM Invited
Development of a Thermodynamic Database for Mold Flux and Application to the Continuous Casting Process for Steelmaking: Marie-Aline Van Ende[1]; *In-Ho Jung*[1]; [1]McGill University

2:25 PM
Thermodynamic Optimization of Mn-Si-C System: *Min-Kyu Paek*[1]; Youn-Bae Kang[2]; Jong-Jin Pak[1]; [1]Hanyang University; [2]Pohang University of Science and Technology

2:45 PM
Removal of Non-metallic Inclusions from Molten Steel Using a High Frequency Magnetic Field: Shengqian Wang[1]; *Lifeng Zhang*[1]; Yue Tian[1]; [1]University of Science and Technology Beijing

3:05 PM
Fluid Flow, Alloy Dispersion and Inclusion Motion in Argon-stirred Steel Ladles: Yanlong Li[1]; *Lifeng Zhang*[1]; [1]University of Science and Technology Beijing

3:25 PM
Flow Sheet Based Approach Coupled with Application of Thermodynamics for the Modelling of Various Iron and Steelmaking Processes: *Ajay Shukla*[1]; [1]Indian Institute of Technology, IIT Madras

Characterization of Minerals, Metals and Materials 2014 — Characterization of Minerals

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: John Carpenter, Los Alamos National Laboratory; Chen-Guang Bai, Chongqing University; Jiann-Yang Hwang, Michigan Technological University; Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; Sergio Monteiro, State University of North Rio de Janeiro; Zhiwei Peng, Michigan Technological University; Mingming Zhang, ArcelorMittal Global R&D

Thursday PM
February 20, 2014
Room: 1B
Location: San Diego Convention Center

Session Chairs: Bowen Li, Michigan Technological University; Martin Ogwuegbu, Federal University of Technology, Owerri

2:00 PM
Microwave Permittivity, Permeability, and Penetration Depth of Pyrite: *Zhiwei Peng*[1]; Jiann-Yang Hwang[1]; Byoung-Gon Kim[2]; Jeong-Yun Kim[2]; Xinli Wang[1]; [1]Michigan Technological University; [2]Korea Institute of Geoscience and Mineral Resources

2:20 PM
Characterization of Waste from Ornamental Stones for Use in Mortar: *Afonso Azevedo*[1]; Jonas Alexandre[1]; Gustavo Xavier[1]; Sergio Monterio[2]; Carlos Mauricio Vieira[1]; [1]UENF; [2]IME

2:40 PM
Titanomagnetite Properties and Microstructures: *Xinye Liu*[1]; Whitney Schoenthal[1]; Tyler Cox[1]; Adam Wise[1]; Michael McHenry[1]; David Laughlin[1]; [1]Carnegie Mellon University

3:00 PM
Characterization of Clays Using for Formulations of Detergents: *Maria das Graças Valenzuela*[1]; Flavio Carvalho[2]; Francisco Valenzuela-Díaz[2]; [1]Centro Universitário Estacio Radial de São Paulo; [2]University of São Paulo

3:20 PM Break

3:40 PM
Differential Characterization of Ikperejere Iron shale and Iron Sandstone Deposit: *Martin Ogwuegbu*[1]; Gerald Onyedika[1]; Bowen Li[2]; Kelechi Onwukamike[1]; [1]Federal University of Technology, Owerri; [2]Michigan Technological University

4:00 PM
Synthesis and Characterization of the Potassium Jarosite Analogue with Cr(VI): *Francisco Patiño*[1]; Iván Reyes[2]; Ister Mireles[1]; Juan Hernández[1]; Mizraim Flores[3]; Martín Reyes[1]; [1]Universidad Autónoma del Estado de Hidalgo; [2]Universidad Tecnológica de Tula-Tepeji; [3]Universidad Tecnológica de Tulancingo

4:20 PM
A New Process of Fluosilicic Acid Leaching for Recovering Bismuth from Materials Containing Bismuth Oxide: Xiang Zhang[1]; Chuanfu Zhang[1]; *Jing Zhan*[1]; Zhijian Wang[1]; [1]Central South University

4:40 PM
Fundamental Research on the Characteristics of Sierra Leone Iron Ore for Sintering: Jieji Dong[1]; *Guang Wang*[1]; Maofang Zuo[1]; Qingguo Xue[1]; [1]University of Science and Technology Beijing

Characterization of Minerals, Metals and Materials 2014 — Characterization of Soft Materials II

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: John Carpenter, Los Alamos National Laboratory; Chen-Guang Bai, Chongqing University; Jiann-Yang Hwang, Michigan Technological University; Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; Sergio Monteiro, State University of North Rio de Janeiro; Zhiwei Peng, Michigan Technological University; Mingming Zhang, ArcelorMittal Global R&D

Thursday PM
February 20, 2014
Room: 7B
Location: San Diego Convention Center

Session Chairs: Gregory Dillon, Penn State Erie, The Behrend College; Sergio Monteiro, Military Institute of Engineering

2:00 PM
Processing Determinatives of Microstructure Development in Polyureas: *Gregory Dillon*[1]; Autchara Pangon[2]; Alicia Castagna[3]; James Runt[2]; [1]Penn State Erie, The Behrend College; [2]The Pennsylvania State University; [3]Du Pont

2:20 PM
Comparison between Bio-composite Based on Green HDPE/ Brazil Nut Shell Fiber (BNSF) Treated and Non Treated by Electron-beam Radiation: *Rejane de Campos*[1]; Mahesh Hosur[2]; Shaik Jeelani[2]; Francisco Díaz[3]; Esperidiana de Moura[1]; Emilia Seo[1]; [1]Nuclear and Energy Research Institute, IPEN-CNEN/SP; [2]Material Science and Engineering Tuskegee University; [3]Metallurgical and Materials Engineering Department, Polytechnic School, University of São Paulo

2:40 PM
Dynamic-mechanical Behaviour in Epoxy Composites Reinforced with Jute Fiber: *Isabela Silva*[1]; Alice Bevitori[1]; Caroline Oliveira[1]; Frederico Margem[1]; Sergio Monteiro[1]; [1]UENF

3:00 PM
Investigation on Mechanical and Morphological Behaviours of Copolyester/ Starch Blend Reinforced with Rice Husk Ash: *Eliane Oliveira*[1]; Valquiria Silva[1]; Rene Oliveira[1]; Alejandra Teran[2]; Anibal Abreu Castillo[3]; Francisco Valenzuela-Díaz[4]; Julio Harada[1]; Esperidiana Moura[1]; [1]Instituto de Presquisas Energeticas e Nucleares-IPEN-CNEN/SP; [2]Laboratorio Tecnologico del Uruguay - Tecnologia de Irradiacion ; [3]Laboratorio Tecnologico del Uruguay - Tecnologia de Irradiacion; [4]Metallurgical and Materials Engineering Department, Polytechinic School,University of São Paulo

3:20 PM Break

3:40 PM
Charpy Toughness Behavior of Continuous Banana Fibers Reinforced Epoxy Matrix Composites: Foluke Salgado[1]; Frederico Margem[1]; *Sergio Monteiro*[1]; Romulo Loiola[1]; [1]Universidade Estadual do Norte Fluminense

4:00 PM
Thermal Photoacoustic Characterization of Polymeric Composites Reinforced Polyester Ramie Fibers: *Caroline Oliveira*[1]; Alice Bevitori[1]; Isabela Silva[1]; Frederico Margem[1]; Sérgio Monteiro[2]; Roberto Faria Jr.[1]; Thallis Cordeiro[1]; Giulio Altoé[1]; [1]UENF - Universidade Estadual do Norte Fluminense; [2]IME - Instituto Militar de Engenharia

4:20 PM
Weibull Analysis of the Density of Ramie Fibers with Different Diameters: *Alice Bevitori*[1]; Isabela Amaral da Silva[1]; Caroline Gomes de Oliveira[1]; Frederico Margem[1]; Sergio Monteiro[2]; [1]UENF; [2]IME

Characterization of Minerals, Metals and Materials 2014 — Method Development in Characterization

Sponsored by: TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: John Carpenter, Los Alamos National Laboratory; Chen-Guang Bai, Chongqing University; Jiann-Yang Hwang, Michigan Technological University; Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; Sergio Monteiro, State University of North Rio de Janeiro; Zhiwei Peng, Michigan Technological University; Mingming Zhang, ArcelorMittal Global R&D

Thursday PM
February 20, 2014
Room: 7A
Location: San Diego Convention Center

Session Chairs: Eric Payton, Federal Institute for Materials Research and Testing; Julie Fife, Paul Scherrer Institut

2:00 PM
In Situ Characterizations of Complex Materials across Atomic and Microstructural Length Scales with Combined X-ray Scattering and Diffraction Techniques: *Fan Zhang*[1]; Andrew Allen[1]; Lyle Levine[1]; Jan Ilavsky[2]; Carelyn Campbell[1]; Adam Creuziger[1]; Nataliya Kazantseva[1]; [1]National Institute of Standards and Technology; [2]Argonne National Laboratory

2:20 PM
Using Moment Invariants to Quantify the Extent of Rafting in Ni-based Superalloys: *Lily Nguyen*[1]; Rongpei Shi[2]; Yunzhi Wang; Marc De Graef[1]; [1]Carnegie Mellon University; [2]Ohio State University

2:40 PM
Time-resolved (4D) In Situ X-ray Tomographic Microscopy at TOMCAT: Understanding the Dynamics of Materials during Elevated Temperature Processes: *Julie Fife*[1]; Mattia Pistone[2]; Michel Rappaz[3]; Marco Stampanoni[4]; [1]Paul Scherrer Institut; [2]University of Bristol; [3]Ecole Polytechnique Fédérale de Lausanne; [4]Paul Scherrer Institut and Swiss Federal Institute of Technology Zürich

3:00 PM
Experimental Estimation of J Integral from Load-front Face Displacement Record for Compact Tension Specimens: *Yunming Hu*[1]; David Salmon[1]; Kaikai Shi[2]; Lishun Cai[2]; [1]MTS Systems Corp; [2]School of Mechanics and Engineering, Southwest Jiaotong University

3:20 PM
Structure Characterization of SN-based and CE-based Alloys Treated by Ultrafast Scanning: *Bingge Zhao*[1]; Linfang Li[1]; Qijie Zhai[1]; Yulai Gao[1]; [1]Shanghai University

3:40 PM Break

3:50 PM
Processing EBSD Patterns for Z-contrast Assisted Phase Segmentation: *Eric Payton*[1]; Leonardo Agudo[2]; Gert Nolze[2]; [1]Alfred University; [2]Federal Institute for Materials Research and Testing

4:10 PM
Determination of the Plastic Flow Stress Curve of Sheet Metal at Large Strains Using the Virtual Fields Method: Jin-Hwan Kim[1]; *Myoung-Gyu Lee*[1]; [1]POSTECH

4:30 PM
Anisotropic Finite Element Modeling of the Fused Deposition Modeling Process: Modeling Process: *Skyler Ogden*[1]; Scott Kessler[2]; [1]Colorado University Boulder; [2]Colorado Mesa University

4:50 PM
Lorentz Image Simulations for Quantitative Measurements of Magnetic Domain Wall Width: *Shan Hua*[1]; Marc De Graef[1]; [1]Carnegie Mellon University

5:10 PM
Utilizing Synchrotron Fast Microtomography for Studies of Localized Corrosion in Steel: *Xianghui Xiao*[1]; Zuotao Zeng[1]; Zhonghou Cai[1]; Ken Natesan[1]; [1]Argonne National Laboratory

Computational Discovery of Novel Materials — Optimization, Validation, and Application of Empirical Potentials

Sponsored by: TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Francesca Tavazza, National Institute of Standards and Technology; Richard Hennig, Cornell University; Dallas Trinkle, University of Illinois, Urbana-Champaign

Thursday PM
February 20, 2014
Room: 31A
Location: San Diego Convention Center

Session Chair: Dallas Trinkle, University of Illinois, Urbana Champaign

2:00 PM
Development of Interatomic Potentials for Screw Dislocations in Iron and Tungsten Using Ab Initio Data: *Mihai-Cosmin Marinica*[1]; Lisa Ventelon[1]; Mark Gilbert[2]; Lucile Dézerald[1]; Laurent Proville[1]; David Rodney[3]; Jaime Marian[4]; Sergei Dudarev[2]; Francois Willaime[1]; [1]CEA; [2]CCFE; [3]CNRS/UJF; [4]LANL

2:20 PM Invited
Ab Initio-based Interatomic Potentials for Body-centered Cubic Refractory Metals: *Michael Fellinger*[1]; Hyoungki Park[1]; Jeremy Nicklas[1]; John Wilkins[1]; [1]The Ohio State University

2:50 PM
Efficient Generation of Accurate Li-Ge MEAM Potentials through Coupling to an Ab-initio Structure Prediction Algorithm: *William Tipton*[1]; Jeremy Nicklas[2]; John Wilkins[2]; Richard Hennig[1]; [1]Cornell University; [2]The Ohio State University

3:10 PM Invited
Applications of the ReaxFF Force Field for Identifying Reactive Properties for Complex Materials and Interfaces: *Adri van Duin*[1]; Thomas Senftle[1]; Alireza Ostadhossein[1]; Michael Janik[1]; Sulin Zhang[1]; [1]Penn State

3:40 PM Break

3:55 PM Invited
Atomistic Study of Microstructural Evolution during Eeformation: *Diana Farkas*[1]; [1]Virginia Tech

4:25 PM Invited
Will the Real Material Please Stand Up?: *Chandler Becker*[1]; Zachary Trautt[1]; [1]NIST

4:55 PM
Comparison between MD and Hybrid FEM-MD Investigations of Early Stages of Nanoindentation.: *Francesca Tavazza*[1]; Li Ma[1]; Chandler Becker[1]; Lyle Levine[1]; [1]National Institute of Standards and Technology

Computational Thermodynamics and Kinetics — Battery/Oxides/Steel/Alloy

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Alloy Phases Committee, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Long Qing Chen, Penn State University; Guang Sheng, Scientific Forming Technologies Corporation; Jeffrey Hoyt, McMaster University; Dallas Trinkle, University of Illinois at Urbana-Champaign

Thursday PM
February 20, 2014
Room: 30D
Location: San Diego Convention Center

Session Chair: Yong Ni, University of Science and Technology of China

2:00 PM
Transition from Two-phase to Single-phase Lithiation and Evolution of Diffusion Induced Stress in a Spherical Electrodes Particle under Galvanostatic Operation: Lei Zhang[1]; *Yong Ni*[1]; Linghui He[1]; [1]University of Science and Technology of China

2:20 PM
Chemical and Polar Ordering in $Pb(Sc_{0.5},Nb_{0.5})O_3$ and $Pb(Sc_{0.5},Ta_{0.5})O_3$: *Benjamin Burton*[1]; Eric Cockayne[1]; [1]NIST

2:40 PM
Multiscale Approach for Explosive Performance: Analyses on the Effect of Hot Spot Density on Material Consumption Rate: *George Levesque*[1]; Peter Vitello[1]; Albert Nichols[1]; Craig Tarver[1]; [1]Lawrence Livermore National Laboratory

3:00 PM
Steady State Ionic Diffusion and Thick-film Stage Metal Oxidation: *Tian-Le Cheng*[1]; You-Hai Wen[1]; [1]National Energy Technology Laboratory

3:20 PM Break

3:50 PM
Thermochemical Models and Phase Equilibria of Urania Rare Earth Fluorite Phases: *Jacob McMurray*[1]; Theodore Besmann[2]; Stewart Voit[2]; Dongwon Shin[2]; Benjamin Slone[2]; [1]University of Tennessee/Oak Ridge National Laboratory; [2]Oak Ridge National Laboratory.

4:10 PM
Numerical and Experimental Study of Heat Generation during Refill Friction Spot Welding: *Hua Wang*[1]; [1]Helmholtz-Zentrum Geesthacht

4:30 PM
BCC Ordering Modelled Using the Compound Energy Formalism: *Bonnie Lindahl*[1]; Malin Selleby[1]; [1]KTH Royal Institute of Technology

Data Analytics for Materials Science and Manufacturing — Microstructure Quantification

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Integrated Computational Materials Engineering Committee
Program Organizers: Jeff Simmons, Air Force Research Laboratory; Charles Bouman, Purdue University; Fariba Fahroo, Air Force Office of Scientific Research; Surya Kalidindi, Georgia Institute of Technology; Jeremy Knopp, Air Force Research Laboratory; Peter Voorhees, Northwestern University

Thursday PM
February 20, 2014
Room: 30E
Location: San Diego Convention Center

Session Chairs: Patrick Callahan, Carnegie Mellon University; Stephen Niezgoda, The Ohio State University

2:00 PM Invited
Quantifying the Similarity between Two Microstructures: *Patrick Callahan*[1]; [1]Carnegie Mellon University

2:25 PM
Toward the Minimal Set of Morphological Information for Statistical Material Microstructure Modeling: *Yang Jiao*[1]; [1]Arizona State University

2:45 PM
Virtual Analysis of Experimental Techniques for Determining Grain Volume Distribution and Number per Unit Volume: *Tyler Kaub*[1]; Robert DeHoff[1]; Veena Tikare[2]; Burton Patterson[1]; [1]University of Florida; [2]Sandia National Laboratories, New Mexico

3:05 PM
A Markov Random Field Approach for Microstructure Synthesis: Abhishek Kumar[1]; *Veera Sundararaghavan*[1]; [1]Aerospace Department

3:25 PM Invited
2D Stochastic-integral Models for Characterizing Random Grain Noise in Titanium Alloys: *Elias Sabbagh*[1]; R. Murphy[1]; Harold Sabbagh[1]; Matthew Cherry[2]; Adam Pilchak[3]; Jeremy Knopp[3]; Mark Blodgett[4]; [1]Victor Technologies, LLC; [2]University of Dayton Research Institute; [3]Air Force Research Laboratory; [4]Wright-Patterson AFB

3:50 PM Break

4:00 PM Invited
Data Analysis and Quantification of 3D Microstructures: *David Rowenhorst*[1]; Amanda Levinson[1]; Richard Fonda[1]; [1]The US Naval Research Laboratory

4:25 PM Invited
Comparison of Novel Microstructure Quantification Frameworks for Visualization, and Analysis of Microstructure Data: *Stephen Niezgoda*[1]; [1]Department of Materials Science and Engineering, The Ohio State University

4:50 PM
Integrated Material Characterization Property Prediction Using 3D Image-based Analytics and Modeling: *Shawn Zhang*[1]; [1]FEI

5:10 PM
A Novel Method for Automated Quantification of Particles in Solidified Aluminium: *Robert Fritzsch*[1]; Shahin Akbarnejad[1]; Ragnhild Aune[2]; [1]Norwegian University of Science and Technology; [2]Royal Institute of Technology (KTH), Sweden

Dynamic Behavior of Materials VI – An SMD Symposium in Honor of Professor Marc Meyers — Mechanical Properties

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Naresh Thadhani, Georgia Institute of Technology; George Gray, Los Alamos National Laboratory

Thursday PM — Room: 3
February 20, 2014 — Location: San Diego Convention Center

Session Chairs: Said Ahzi, University of Strasbourg; Ellen Cereta, Los Alamos National Laboratory

2:00 PM Keynote
Influences on Susceptibility to Adiabatic Shear Failure of HSLA-steels: *Lothar Meyer*[1]; Frank Pursche[1]; Norman Herzig[1]; [1]Nordmetall GmbH

2:30 PM Invited
Mechanistic Response of Boron-icosahedral Based Compounds to Knoop Indentation: *Jerry LaSalvia*[1]; Vladislav Domnich[2]; Kelvin Xie[3]; Scott Walck[1]; Robert Pavlacka[1]; James Campbell[1]; [1]U.S. Army Research Laboratory; [2]Rutgers University; [3]Johns Hopkins University

2:50 PM
The Role of Defects on the Dynamic Fragmentation of SiC Ceramics under Impact Loading: *Pascal Forquin*[1]; Gilles Rossiquet[2]; [1]Grenoble University; [2]Saint-Gobain CREE

3:10 PM
Microstructure Investigations of Conventional and Harmonic Pure Titanium Deformed by Direct Impact Hopkinson Pressure Bars (DIHPB): David Tingaud[1]; Kei Ameyama[2]; Hervé Couque[3]; Takahiro Seo[2]; *Guy Dirras*[1]; [1]Université Paris 13; [2]Ritsumeikan University; [3]Nexter-Munitions

3:30 PM Break

3:50 PM
LaservShock-induced Spall in Tantalum: *Tane Remington*[1]; Christopher Wehrenberg[2]; Brian Maddox[2]; Damien Swift[2]; Bruce Remington[2]; Marc Meyers[1]; [1]UCSD; [2]LLNL

4:10 PM
Microstructure and Properties of Dynamically Deformed Fe-6Ni Martensitic Steel: *Hassan Ghassemi Armaki*[1]; Sharvan Kumar[1]; [1]Brown University

4:30 PM
Experimental Study on Deformation and Fracture of Al_2O_3 Ceramic under Dynamic Loading: Jingjing Chen[1]; Baoqiao Guo[1]; Haibo Liu[1]; *Pengwan Chen*[1]; [1]Beijing Institute of Technology

4:50 PM
Failure Process of Alumina Ceramics under Dynamic Uniaxial Compression: *Peifeng Li*[1]; Zhiyong Wang[1]; [1]Nanyang Technological University

5:10 PM
Vaporizing Foil Actuator: A Novel Tool for Collision Welding: *Anupam Vivek*[1]; Glenn Daehn[1]; Steven Hansen[1]; Bert Liu[1]; [1]Ohio State University

Electrode Technology for Aluminium Production — Inert Anodes, Cathode Design and Alternative Processes

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Andre Proulx, Rio Tinto Alcan

Thursday PM — Room: 14B
February 20, 2014 — Location: San Diego Convention Center

Session Chair: Gregory Goupil, Institut National de la Recherche Scientifique (INRS)

2:00 PM Introductory Comments

2:05 PM
Effect of La on the Electrolysis Performance of 46Cu-25Ni-19Fe-10Al Metal Inert Anode: *Peng Weiping*[1]; Liu Ying[1]; Guo Jie[1]; Zhao Ruilong[1]; Yang Jianhong[1]; Li Wangxing[1]; [1]Chalco

2:30 PM
Evaluation of Different Strategies for Limiting Electrolyte Penetration in Cu-Ni-Fe-O Anodes for Al Electrolysis: *Gregory Goupil*[1]; Elena Gavrilova[1]; Boyd David[2]; Daniel Guay[1]; Lionel Roué[1]; [1]INRS-EMT; [2]KPM Inc.

2:55 PM
Inert Anodes: An Update: *Rudolf Pawlek*[1]; [1]TS+C

3:20 PM
Investigating the Corrosion Behaviors of Fe-Ni-Cr Anode Material for Aluminum Electrolysis: *Zengjie Wang*[1]; Jilai Xue[1]; Luxing Feng[1]; Fangyin Dai[1]; [1]Unversity of Science and Technology Beijing

3:45 PM Break

3:55 PM
The Metal Phase Selection of 10NiO-$NiFe_2O_4$-based Cermet Anodes for Aluminum Electrolysis: *Hanbing He*[1]; [1]Central South University

4:20 PM
Study on the Anode and Cathode Configuration of Aluminum Reduction Cell: *Yungang Ban*[1]; Yu Mao[1]; Jihong Mao[1]; Xiaoling Yang[1]; Jing Liu[1]; Zhenyu Cao[1]; [1]Northeastern University Engineering & Research Institute Co. Ltd

4:45 PM
Study on Cathode Structure Optimization of Aluminum Reduction Cell: *Yungang Ban*[1]; Yu Mao[1]; Jihong Mao[1]; Xiaoling Yang[1]; Hui Dong[1]; Shangyuan Wang[1]; [1]Northeastern University Engineering & Research Institute Co. Ltd

Fatigue in Materials: Fundamentals, Multiscale Modeling and Prevention — Environmental-temperature Effects on Fatigue and Life Prediction

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Antonios Kontsos, Drexel University; Tongguang Zhai, University of Kentucky

Thursday PM
February 20, 2014
Room: 10
Location: San Diego Convention Center

Session Chairs: Tongguang Zhai, University of Kentucky; Antonios Kontsos, Drexel University

2:00 PM Introductory Comments

2:05 PM Invited
Control of the Environmental Contribution to Fatigue in Aluminum Alloys: *Richard Gangloff*[1]; [1]University of Virginia

2:25 PM
Fracture Mechanics Solutions for Failure Modes of Adhesive-Bonded Lap-Shear Specimens of Magnesium and Steel Sheets: *Wei-Jen Lai*[1]; Jwo Pan[1]; Tsung-Yu Pan[2]; Zhili Feng[2]; Michael Santella[2]; [1]University of Michigan; [2]Oak Ridge National Laboratory

2:45 PM Invited
Fatigue Life Prediction of Magnesium Alloys Subjected to Variable Amplitude Loading: *Hongtae Kang*[1]; Jing Xiao[1]; A.K. Khosrovaneh[2]; Y.L. Lee[3]; Xuming Su[4]; [1]University of Michigan at Dearborn; [2]General Motor Company LLC.; [3]Chrysler LLC.; [4]Ford Motors

3:05 PM
Thermodynamic Considerations of Vacuum Levels for Simulating Internal Fatigue Crack Growth in Titanium Alloys and Nickel-base Superalloys: *Vikas Sinha*[1]; James Larsen[2]; [1]Air Force Research Laboratory, Materials and Manufacturing Directorate; UES, Inc. [2]Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RXCM, Wright-Patterson Air Force Base

3:25 PM Break

3:45 PM
Fatigue Fracture Mechanisms in Nickel-base Superalloy IN100 at Room and Elevated Temperatures: *Vikas Sinha*[1]; Sushant Jha[2]; William Porter, III[3]; Michael Caton[4]; James Larsen[4]; [1]Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RXCM, Wright-Patterson Air Force Base; UES, Inc.;[2]Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RXCM, Wright-Patterson Air Force Base; Universal Technology Corporation; [3]Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RXCM, Wright-Patterson Air Force Base; University of Dayton Research Institute; [4]Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RXCM, Wright-Patterson Air Force Base

4:05 PM
Fatigue Behavior Self-piecing Rivets and Clinch Joints of Aluminum Sheets: Cheng-Ming Su[1]; Pai-Chen Lin[1]; *Wei-Jen Lai*[2]; Jwo Pan[2]; [1]National Chung Cheng University; [2]University of Michigan

4:25 PM
Effects of Sn-grain Orientation on the Fatigue Life of Lead-free Solder Joints: *Luke Wentlent*[1]; Sa'D Hamasha[1]; Debora Schmitz[1]; Peter Borgesen[1]; [1]Binghamton University

4:45 PM
Effects of Hot Compressive Dwell on Fatigue Crack Growth Behavior of Cast Aluminum Alloys: *Xiang Chen*[1]; Diana Lados[1]; Richard Pettit[2]; [1]Worcester Polytechnic Institute; [2]FractureLab

5:05 PM Concluding Comments

Gamma TiAl Alloys 2014 — Session VIII - Panel Discussion

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Titanium Committee
Program Organizers: Young-Won Kim, Gamteck, Inc.; Wilfried Smarsly, MTU Aero Engines GmbH; Junpin Lin, University of Science and Technology Beijing; Dennis Dimiduk, Air Force Research Laboratory; Fritz Appel, Helmholtz Zentrum Geesthacht

Thursday PM
February 20, 2014
Room: 6B
Location: San Diego Convention Center

Session Chairs: Fritz Appel, Helmholtz-Zentrum-Geesthacht; Dennis Dimiduk, Air Force Research Laboratory

2:00 PM Invited
Advances, Dilemmas and Future of Gamma Alloy Materials-processes Technology: *Young-Won Kim*[1]; [1]Gamteck, Inc.

2:25 PM Panel Discussion - Wrought Alloys - Status, Issues, Dilemmea, and Future

2:50 PM Panel Discussion - Cast Alloys for AeroEngine Applications - Status, Issues, Dilemma, and Future

3:15 PM Panel Discussion - Cast Alloys for Turbocharger Wheels - Status, Issues, Dilemma, and Future

3:40 PM Break

3:50 PM Panel Discussion - Beta-Solidified Alloys - Status, Issues and Future

4:20 PM Panel Discussion - Current and Novel Processing - Status, Issues and Future

4:50 PM Panel Discussion - Future Applications and Their Issues

5:10 PM Concluding Comments

Integration of Materials Science and Nondestructive Evaluation for Materials Characterization — Quantitative Nondestructive Characterization III

Sponsored by: TMS Structural Materials Division, TMS: Integrated Computational Materials Engineering Committee
Program Organizers: Adam Pilchak, Air Force Research Laboratory; Dennis Dimiduk, Air Force Research Laboratory; Eric Lindgren, Air Force Research Laboratory; Richard Lesar, Iowa State University; Leonard Bond, Iowa State University

Thursday PM
February 20, 2014
Room: 8
Location: San Diego Convention Center

Session Chairs: Nikhilesh Chawla, Arizona State University; Eric Lindgren, Air Force Research Laboratory

2:00 PM Invited
Application of Acoustic Emission Technique for Online Monitoring of Friction Stir Welding Process during Welding of AA6061-T6 Aluminum Alloy: *B M Rajaprakash*[1]; Suresha C N[2]; sarala Upadhya[1]; Rachappa[1]; [1]University Visvesvaraya College of Engineering; [2]Jyothy Institute of Technology

2:30 PM
Forward Modeling of Crack Induced Wave Propagation: *Jefferson Cuadra*[1]; Matteo Mazzotti[1]; Prashanth Vanniamparambil[1]; Ivan Bartoli[1]; Antonios Kontsos[1]; [1]Drexel University

2:50 PM
Microstructural Evaluation of a Lean Duplex UNS S32304 - X-ray Diffraction and Scanning Electron Mycroscopy Techniques Correlated with Eddy Current Testing: *Adriana Rocha*[1]; Maria Lopez[1]; Joao Alcoforado Rebello[1]; Sergio Tavares[2]; [1]LNDC/COPPE/UFRJ; [2]UFF

3:10 PM
Non-destructively Monitoring the Variations of Rolling and Annealing Texture in Low-C Steel Sheets by Magnetic Barkhausen Noise Method: *Hakan Gur*[1]; Umit Akcaoglu[2]; [1]Metallurgical & Materials Eng. Dept.; [2]Middle East Technical University

3:30 PM Break

3:45 PM
Probing Fundamentals of Acoustic Emission during Micro-scratch Testing: *Alexey Danyuk*[1]; Dmitry Merson[1]; Igor Yasnikov[1]; Alexei Vinogradov[2]; [1]Togliatti State University; [2]Togliatti State University

4:05 PM
Revealing Acting Deformation Mechanisms in Mg Alloys with In Situ Monitoring of Acoustic Emission: *Alexei Vinogradov*[1]; Alexey Danyuk[2]; Dmitry Orlov[3]; Yuri Estrin[4]; Kei Ameyama[3]; [1]Togliatti State University ; [2]Togliatti State University; [3]Ritsumeikan University; [4]Monash Univeristy

4:25 PM
Stochastic Reconstruction of 3D Grain Orientations and 2nd Phase Particles in Metallic Microstructures from 2D Images: *Yang Jiao*[1]; Antony Kirubanandham[1]; Nikhilesh Chawla[1]; [1]Arizona State University

Magnesium Technology 2014 — Alloy Design

Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Martyn Alderman, Magnesium Elektron; Norbert Hort, Helmholtz-Zentrum Geesthacht; Michele Manuel, University of Florida; Neale Neelameggham, Ind LLC

Thursday PM — Room: 17A
February 20, 2014 — Location: San Diego Convention Center

Session Chairs: Alan Luo, Ohio State University; Sean Agnew, University of Virginia

2:00 PM
In-situ Neutron Diffraction Study of Aging in Alloy ZK60A: *Sean Agnew*[1]; Christopher Calhoun[1]; Bjorn Clausen[2]; [1]University of Virginia; [2]Los Alamos National Laboratory

2:20 PM
Development of a High Strength Ductile Wrought Mg-Zn Based Alloy: *Lan Ma*[1]; Taisuke Sasaki[1]; Taiki Nakata[2]; Tadakatsu Ohkubo[1]; Kazuhiro Hono[1]; Shigeharu Kamado[2]; [1]National Institute for Materials Science; [2]Nagaoka University of Technology

2:40 PM
Significant Precipitation Strengthening in Extruded Mg-Sn-Zn Alloys: *Taisuke Sasaki*[1]; Fady Elsayed[2]; Taiki Nakata[3]; Shigeharu Kamado[3]; Tadakatsu Ohkubo[1]; Kazuhiro Hono[1]; [1]National Institute for Materials Science; [2]University of Tsukuba; [3]Nagaoka University of Technology

3:00 PM
Al and Zn Impurity Diffusion in Binary and Ternary Magnesium Solid-solutions: *Catherine Kammerer*[1]; Nagraj Kulkarni[2]; Robert Warmack[2]; Yongho Sohn[1]; [1]University of Central Florida; [2]Oak Ridge National Laboratory

3:20 PM
Formation and Evolution of Intermetallic Phases in the Mg-Nd-Zn-Zr System: *Ke-Xue Peng*[1]; Jie-Yu Zhang[1]; Zhi-Hong Zhang[2]; Qian Li[1]; [1]Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University; [2]Baotou Research Institute of Rare Earths

Magnesium Technology 2014 — Biomedical Applications

Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Martyn Alderman, Magnesium Elektron; Norbert Hort, Helmholtz-Zentrum Geesthacht; Michele Manuel, University of Florida; Neale Neelameggham, Ind LLC

Thursday PM — Room: 19
February 20, 2014 — Location: San Diego Convention Center

Session Chairs: Michele Manuel, University of Florida; Wim Sillekens, European Space Agency

2:00 PM Invited
Design Strategy for Zn Reduction in an Extreme-high-pure Mg-Zn-Ca System with High Strength and Simultaneously High Ductility: *Joëlle Hofstetter*[1]; Minh Becker[1]; Christian Wegmann[1]; Jörg Löffler[1]; Peter Uggowitzer[1]; [1]ETH Zurich

2:20 PM
Development of a Generalized Understanding of Environmentally-Assisted Degradation of Mg-Al Alloys: *Nicholas Winzer*[1]; Heiko Höpfel[1]; Paula Casajus[1]; [1]Fraunhofer IWM

2:40 PM
Coating Systems for Biodegradable Magnesium Applications: *Jan-Marten Seitz*[1]; Matthew Vaughan[2]; Rainer Eifler[1]; Chris Seal[3]; Margaret Hyland[3]; Hans Jürgen Maier[1]; [1]Leibniz Universitaet Hannover; [2]Texas A&M University; [3]The University of Auckland

3:00 PM
Improvement of Cytocompatibility of Magnesium Alloy ZM21 by Surface Modification: *Agnieszka Witecka*[1]; Akiko Yamamoto[1]; Wojciech Swieszkowski[2]; [1]National Institute for Materials Science; [2]Warsaw University of Technology

3:20 PM
Cytocompatibility of Mg Alloys and the Effect of Cells on Their Degradation in Biological Environment: *Akiko Yamamoto*[1]; Yuko Kohyama[1]; [1]National Institute for Materials Science

3:40 PM
Selective Laser Melting of Magnesium Parts: *Matthias Gieseke*[1]; Christian Nolke[2]; Stefan Kaierle[2]; Hans Meier[3]; Heinz Haferkamp[3]; [1]Laser Zentrum Hannover ; [2]Laser Zentrum Hannover e.V.; [3]Leibniz Universität

Materials and Fuels for the Current and Advanced Nuclear Reactors III — General

Sponsored by: TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Ramprashad Prabhakaran, Idaho National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research

Thursday PM — Room: 32B
February 20, 2014 — Location: San Diego Convention Center

Session Chair: Walter Luscher, Pacific Northwest National Laboratory

2:00 PM
Spectroscopic Real Time Monitoring of Molten Salts in Nuclear Electrorefiner Systems: *Michael Simpson*[1]; [1]University of Utah

2:20 PM
Nano-particles for Spent Nuclear Fuel Separation: Maninder Kaur[1]; *Yaqiao Wu*[2]; Huijin Zhang[1]; You Qiang[1]; Leigh Martin[3]; Terry Todd[3]; [1]University of Idaho; [2]Boise State University; [3]Idaho National Laboratory

2:40 PM
Design of an In-reactor Experiment to Measure Tritium Release Kinetics and Speciation from $LiAlO_2$-based Breeding Materials: *Walter Luscher*[1]; David Senor[1]; Robert Gates[1]; Bruce Schmitt[1]; Edward Love[1]; Jim Livingston[1]; David Baldwin[1]; Kevin Clayton[2]; Glen Longhurst[3]; [1]Pacific Northwest

National Laboratory; [2]Idaho National Laboratory; [3]Southern Utah University

3:00 PM
Molten Salts and Nuclear Energy: *Marcelle Gaune-Escard*[1]; [1]Polytech

3:20 PM
Interactions between Gliding Dislocations and Different Types of the Irradiation-induced Loops in α-iron: Molecular Dynamics Simulations and Dislocation Dynamics Simulations Comparison: *Xiangjun Shi*[1]; Laurent Dupuy[1]; Benoit Devincre[2]; Dmitry Terentyev[3]; Ludovic Vincent[1]; [1]CEA, DEN, SRMA; [2]Laboratoire d'Etude des Microstructures, CNRS-ONERA; [3]SCK-CEN, Nuclear Materials Science Institute

3:40 PM Break

4:00 PM
The Effects of Processing on Precipitate Distribution and Mechanical Properties of a Nanostructured Ferritic Alloy (NFA): *Laura Dial*[1]; Richard DiDomizio[1]; Shenyan (Sharon) Huang[1]; Ning Zhou[1]; [1]GE Global Research

4:20 PM
Line Dislocation Dynamics Simulation of Fundamental Dislocation Properties in Zirconium: *Apu Sarkar*[1]; Jacob Eapen[1]; K.L. Murty[1]; [1]North Carolina State University

4:40 PM
Understanding the Mechanisms for Amorphization Resistance in ZrC: *Ming-Jie Zheng*[1]; Izabela Szlufarska[1]; Dane Morgan[1]; [1]University of Wisconsin, Madison

5:00 PM
Correlation of Crystallographic Texture of Zr-excel Pressure Tube Materials with Thermal Creep Behavior: *Kazi. F Ahmmed*[1]; Mark. R Daymond[1]; [1]Queens University

5:20 PM Concluding Comments

Materials and Fuels for the Current and Advanced Nuclear Reactors III — Modeling

Sponsored by: TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Ramprashad Prabhakaran, Idaho National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research

Thursday PM
February 20, 2014
Room: 33C
Location: San Diego Convention Center

Session Chair: Remi Dingreville, Sandia National Laboratories

2:00 PM Invited
Thermal Transport in Uranium Dioxide from First Principles: *Simon Phillpot*[1]; Aleksandr Chernatynskiy[1]; [1]University of Florida

2:25 PM
Grain Boundary Diffusion of Ag in Polycrystalline Silicon Carbide in TRISO Fuel Particles: *Jie Deng*[1]; Hyunseok Ko[1]; Dane Morgan[1]; Izabela Szlufarska[1]; [1]Department of Materials Science and Engineering, University of Wisconsin, Madison

2:40 PM
Material Characterization of Zr Nuclear Fuel Clad Tubes via Imperfection Modeling: *Elizabeth Stephens*[1]; Rick Shimskey[1]; Richard Davies[1]; Curt Lavender[1]; [1]Pacific Northwest National Laboratory

2:55 PM
Integration of a Viscoplastic Self Consistent Plasticity Model with Finite Element Framework MOOSE: *Alankar Alankar*[1]; Ricardo Lebensohn[1]; [1]Los Alamos National Laboratory

3:10 PM
A Micromechanical Model of Hydrided Cladding under Long-term Storage and Transport: *Remi Dingreville*[1]; Glen Hansen[1]; [1]Sandia National Laboratories

3:25 PM Break

3:45 PM Invited
Radiation Induced Hardening in Iron and Ferritic Alloys: An Atomic-scale View: *Yury Osetskiy*[1]; Roger Stoller[1]; Dmitry Terentyev[2]; [1]Oak Ridge National Laboratory; [2]SCK

4:10 PM
Thermodynamic Modeling of Precipitate Phases in Austenitic Steels: *Ying Yang*[1]; Jeremy Busby[1]; [1]Oak Ridge National Laboratory

4:25 PM
Electronic Structure Calculations of Structure and Chemistry of the Y_2O_3/Fe Interface: *Samrat Choudhury*[1]; Christopher Stanek[1]; Blas Uberuaga[1]; [1]Los Alamos National Laboratory

4:40 PM
Thermodynamic and Kinetic Modeling of Oxide Precipitation in Nanostructured Ferritic Alloys: *Leland Barnard*[1]; G. Robert Odette[2]; Nicholas Cunningham[2]; Izabela Szlufarska[1]; Dane Morgan[1]; [1]University of Wisconsin, Madison; [2]University of California Santa Barbara

4:55 PM
A Unified Viscoplastic Constitutive Model for Creep Damage Analysis in the Welded Joints of Modified 9Cr-1Mo Steel: *Mehdi Basirat*[1]; Triratna Shrestha[1]; Indrajit Charit[1]; Gabriel Potirniche[1]; [1]University of Idaho

5:10 PM
Ab Initio Enhanced CALPHAD Modeling of Actinide Rich Metallic Nuclear Fuels: *Wei Xie*[1]; Wei Xiong[1]; Chris Marianetti[2]; Dane Morgan[1]; [1]University of Wisconsin, Madison; [2]Columbia University

Materials for High-temperature Applications: Next Generation Superalloys and Beyond — Emerging Materials

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee
Program Organizers: Omer Dogan, DOE National Energy Technology Laboratory; Panos Tsakiropoulos, University of Sheffield; Xingbo Liu, West Virginia University; Paul Jablonski, DOE National Energy Technology Lab; Junpin Lin, University of Science and Technology Beijing

Thursday PM
February 20, 2014
Room: 6D
Location: San Diego Convention Center

Session Chairs: Jim Ciulik, M&M Engineering Associates; David Honecker, Climax Molybdenum Technology Center

2:00 PM Invited
Prospective and Challenges of Nanolaminated Ternary Carbides and Nitrides (MAX Phases): *Yanchun Zhou*[1]; [1]Aerospace Research Institute of Materials & Processing Technology

2:30 PM
Fabrication and Mechanical Properties of Fiber-reinforced Ti_2AlC and Ti_3SiC_2: *Huili Gao*[1]; Darin Tallman[2]; Morgan O'Neil[1]; Michel Barsoum[2]; Miladin Radovic[1]; [1]Texas A&M University; [2]Drexel University

2:50 PM
Pt-base Superalloys for Ultra High Temperature Applications: *Rainer Völkl*[1]; [1]University Bayreuth

3:10 PM
Hierarchical Microstructure of Ferritic Alloys Strengthened By Two-phase $L_2$1-Ni_2TiAl / B_2-NiAl Precipitates: *Christian Liebscher*[1]; Velimir Radmilovic[2]; Ulrich Dahmen[3]; Mark Asta[1]; Gautam Ghosh[4]; [1]UC Berkeley; [2]University of Belgrade; [3]Lawrence Berkeley National Laboratory; [4]Northwestern University

3:30 PM Break

3:45 PM
Mechanical Testing of Ferritic Oxide Dispersion Strengthened Steel Structures Produced by Selective Laser Melting: *Thomas Boegelein*[1]; Sebastien Dryepondt[2]; Amit Pandey[2]; Joseph Robinson[3]; Jetinder Singh[3]; Gordon Tatlock[1]; Karl Dawson[1]; [1]High Temperature Materials Group, School of Engineering, University of Liverpool; [2]Materials Science and Technology Division, Oak Ridge National Laboratory; [3]Manufacturing Science and Engineering Research Centre, School of Engineering, University of Liverpool

4:05 PM
Thermodynamic Modeling of Wetting in C/Cu Composites: *Khurram Iqbal*[1]; Jianjun Sha[1]; [1]Dalian University of Technology

Mechanical Behavior at the Nanoscale II — Length Scale Effects

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Evan Ma, Johns Hopkins University; Daniel Gianola, University of Pennsylvania; Ting Zhu, Georgia Institute of Technology; Julia Greer, California Institute of Technology

Thursday PM — Room: 9
February 20, 2014 — Location: San Diego Convention Center

Session Chairs: Megan Cordill, Erich Schmid Institute of Materials Science; Evan Ma, Johns Hopkins University

2:00 PM
Film Thickness Effects on the Deformation Behavior of Cu/Cr Thin Films on Polyimide: *Vera Marx*[1]; Christoph Kirchlechner[1]; Megan Cordill[2]; Gerhard Dehm[1]; [1]Max-Planck-Institut für Eisenforschung GmbH; [2]Erich Schmid Institute of Materials Science, Austrian Academy of Sciences

2:20 PM
Damage Evolution during Cyclic Tension-tension Loading of Micron-sized Cu Lines at Temperatures up to 673 K: *Alexander Wimmer*[1]; Alexander Leitner[2]; Thomas Detzel[3]; Werner Robl[4]; Walther Heinz[5]; Gerhard Dehm[6]; [1]Austrian Academy of Sciences; [2]Department Materials Physics, University of Leoben; [3]Infineon Technologies Austria AG; [4]Infineon Technologies Germany AG; [5]Kompetenzzentrum Automobil- und Industrie-Elektronik GmbH; [6]Max-Planck-Institute fuer Eisenforschung

2:40 PM
Surface Energy Drives Size Effect in Nano-sized Metallic Glasses: *David Chen*[1]; Dongchan Jang[1]; Kelly Guan[2]; Qi An[3]; William Goddard[3]; Julia Greer[1]; [1]Division of Engineering and Applied Sciences, California Institute of Technology; [2]Department of Chemistry and Chemical Engineering, California Institute of Technology; [3]Materials and Process Simulation Center, California Institute of Technology

3:00 PM
Enhanced Radiation Tolerance and Strengthening Mechanisms in Helium Ion Irradiated Cu/Co Multilayers: *Youxing Chen*[1]; Xinghang Zhang[1]; [1]Texas A&M University

3:20 PM
In Situ Measurement and Modeling of Intrinsic Stress Evolution in Nanocrystalline Films: *Hang Yu*[1]; Carl Thompson[1]; [1]Massachusetts Institute of Technology

3:40 PM Break

3:55 PM
Reversible Cyclic Deformation of Au Nanowires by a Transition to a Twinning-detwinning Mechanism Evidenced from In Situ TEM: *Subin Lee*[1]; Jiseong Im[1]; Youngdong Yoo[2]; Erik Bitzek[3]; Daniel Kiener[4]; Bongsoo Kim[2]; Sang Ho Oh[1]; [1]POSTECH; [2]KAIST; [3]Friedrich-Alexander Universität Erlangen-Nürnberg; [4]Montanuniversität

4:15 PM
Mechanical Behaviors of Nanostructures of Low Melting Temperature Metals as Revealed by Synchrotron Laue X-ray Microdiffraction: *Arief Budiman*[1]; M Burek[2]; Lucas Berla[3]; D Jang[4]; Martin Kunz[5]; Nobumichi Tamura[5]; William Nix[3]; Julia Greer[4]; Ting Tsui[2]; [1]Singapore University of Technology & Design (SUTD); [2]University of Waterloo; [3]Stanford University; [4]California Institute of Technology; [5]Advanced Light Source (ALS)

4:35 PM
Mechanical Behavior of Dealloyed Nanoporous Silicon: *Xu Jiang*[1]; Thomas Balk[1]; [1]University of Kentucky

4:55 PM
Compression Behaviour of Nanoporous Gold Studied by Molecular Dynamics Simulation: *Bao-Nam Ngo*[1]; Alexander Stukowski[2]; Karsten Albe[2]; Joerg Weissmueller[3]; [1]Helmholtz-Zentrum Geesthacht; [2]Technische Universitaet Darmstadt; [3]Technische Universitaet Hamburg-Harburg

5:15 PM
Micro-mechanical Behavior and Reliability Assessment of Micro-injection-molded and Shape Cut 17-4 PH Stainless Steel Based MEMS: *Stefan Slaby*[1]; Tobias Müller[1]; Volker Piotter[1]; Oliver Kraft[1]; Christoph Eberl[2]; [1]Karlsruhe Institute of Technologie (KIT); [2]Fraunhofer Institute for Mechanics of Materials Freiburg

Mechanical Behavior Related to Interface Physics II — Biphase Boundary Effects on Mechanical Response of Composites II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Nan Li, Los Alamos National Laboratory; Jian Wang, Los Alamos National Laboratory; Nathan Mara, Los Alamos National Laboratory; Tonya Stone, Mississippi State University

Thursday PM — Room: 11A
February 20, 2014 — Location: San Diego Convention Center

Session Chairs: Caizhi Zhou, Missouri University of Science and Technology; Dallas Trinkle, University of Illinois, Urbana-Champaign

2:00 PM Invited
Density-functional Theory Methods for Interfaces: Lattice Greens Function and Energy Density Methods: *Dallas Trinkle*[1]; Min Yu[2]; Bora Lee[1]; Maryam Ghazisaeidi[3]; [1]University of Illinois, Urbana-Champaign; [2]Lawrence Berkeley National Laboratory; [3]Ohio State University

2:30 PM
3D Discrete Dislocation Dynamics Simulations of Plasticity in Al-TiN Nanolayered Composites: *Caizhi Zhou*[1]; [1] Los Alamos National Laboratory

2:50 PM Invited
Interface Behavior in Plastically Deformed Nanoscale Metallic Multilayers: *Guang-Ping Zhang*[1]; Jia-Wei Yan[1]; Yuan-Ping Li[1]; [1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

3:20 PM
Effect of Misfit Dislocations on Structure, Bonding and Adhesive Strength of Interfaces between bcc and fcc Fe and Transition Metal Carbides: First Principles Modeling: *Oleg Kontsevoi*[1]; Arthur Freeman[1]; Gregory Olson[1]; [1]Northwestern University

3:40 PM Break

4:00 PM Invited
Buckling Behaviors and Adhesion Energy of Nanostructured Cu/X (X = Nb, Zr) Multilayer Films on Compliant Substrate: *Gang Liu*[1]; Kai Wu[1]; Jin-Yu Zhang[1]; Jun Sun[1]; [1]Xi'an Jiaotong University

4:30 PM
Interface-based Plasticity in the Nanoscale Multilayers as Revealed by Synchrotron X-ray Microdiffraction: *Arief Budiman*[1]; Nan Li[2]; Lucas Berla[3]; Youbin Kim[4]; Seungmin Han[4]; Martin Kunz[5]; Nobumichi Tamura[5]; William Nix[3]; Jian Wang[2]; Amit Misra[2]; [1]Singapore University of Technology &

Design (SUTD); [2]LANL; [3]Stanford University; [4]KAIST; [5]ALS

4:50 PM
Dislocation Mechanisms in Semi-coherent Interfaces in Nanoscale Metallic Laminates: *Firas Akasheh*[1]; Mohammad Rezaul Karim[1]; [1]Tuskegee University

5:10 PM
Effect of Friction Stir Welding on the Structural Stability and Local Mechanical Properties in Cu-Nb Multilayered Nano-composites: *Shraddha Vachhani*[1]; Josef Cobb[2]; Judy Schneider[2]; John Carpenter[3]; Nathan Mara[3]; [1]Georgia Institute of Technology; [2]Mississippi State University; [3]Los Alamos National Laboratory

Mechanical Behavior Related to Interface Physics II — Biphase Boundary Effects on Mechanical Response of Composites III

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Nan Li, Los Alamos National Laboratory; Jian Wang, Los Alamos National Laboratory; Nathan Mara, Los Alamos National Laboratory; Tonya Stone, Mississippi State University

Thursday PM
February 20, 2014
Room: 12
Location: San Diego Convention Center

Session Chairs: John Carpenter, Los Alamos National Laboratory; Yao Shen, Shanghai Jiao Tong University

2:00 PM
Simulations for 2-D and 3-D Thermoelastic Stress Distributions in Textured Sn Films Related to Whisker Formation: *Wei-Hsun Chen*[1]; Benjamin Anglin[2]; Carol Handwerker[1]; Anthony Rollett[2]; John Blendell[1]; [1]Purdue University; [2]Carnegie Mellon University

2:20 PM
Interpreting Hardness Data in Nanoscale Multilayer Thin Films: *Michael Gram*[1]; Amit Misra[2]; Peter Anderson[1]; [1]Ohio State University; [2]Los Alamos National Laboratory

2:40 PM Invited
Effect of Joining on Texture Evolution and Interface Character in Bulk Cu-Nb Multilayer Nanocomposites: *John Carpenter*[1]; Josef Cobb[2]; Shraddha Vachhani[3]; S. Gravener[1]; Rodney McCabe[1]; Patricia Dickerson[1]; Robert Dickerson[1]; Irene Beyerlein[1]; Judy Schneider[2]; Nathan Mara[1]; [1]Los Alamos National Laboratory; [2]Mississippi State University; [3]Georgia Tech

3:10 PM
MD Study of PMMA/CNT Nanocomposites: *Yae Ji Kim*[1]; Alejandro Strachan[1]; [1]Purdue University

3:30 PM Break

3:50 PM
Mechanical Behavior of Cr Films on Polyimide as a Function of the Deposition Technique: *Verena Maier*[1]; Jörg Paulitsch[2]; Megan Cordill[3]; [1]University of Leoben; [2]Vienna University of Technology; [3]Erich Schmid Institute of Materials Science

4:10 PM Invited
Stress for Transmission of Dislocations Across Interfaces in Multilayers and Reverse Hall-petch Relationship in the Ultrathin Layer Thickness Limit: Shihui He[1]; *Yao Shen*[1]; Xiao Gu[1]; Nan Li[2]; [1]Shanghai Jiao Tong University; [2]Los Alamos National Laboratory

4:40 PM
Quantifying Nanoindentation Deformation Processes near Grain Boundaries in Alpha-titanium Using Microscopic Characterization and Crystal Plasticity Modeling: *Yang Su*[1]; Claudio Zambaldi[2]; David Mercier[2]; Philip Eisenlohr[1]; Thomas Bieler[1]; Martin Crimp[1]; [1]Michigan State University; [2]Max Plank Institute for Iron Research

5:00 PM
Texture Evolution and Bingham Modeling of Nb in Multilayered Ti/Al/Nb Composite Fabricated by ARB Processing: *Liming Zhou*[1]; Viola Acoff[1]; [1]The University of Alabama

5:20 PM
Plasticity Evolution in the Nanoscale Cu/Nb Multilayers as Revealed by Synchrotron X-ray Microdiffraction: *Arief Budiman*[1]; Nan Li[2]; Lucas Berla[3]; Martin Kunz[4]; Nobumichi Tamura[4]; William Nix[3]; Jian Wang[2]; Amit Misra[2]; [1]Singapore University of Technology & Design (SUTD); [2]LANL; [3]Stanford University; [4]Advanced Light Source (ALS)

Multiscale Approaches to Hydrogen-assisted Degradation of Metals — Overcoming HE in Service II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS/ASM: Computational Materials Science and Engineering Committee, TMS: Integrated Computational Materials Engineering Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Nicholas Winzer, Fraunhofer IWM; Matous Mrovec, Fraunhofer IWM; Brian Somerday, Sandia National Laboratories; Petros Sofronis, University of Illinois; David Bahr, Purdue University; Srinivasan Rajagopalan, ExxonMobil Research and Engineering Company

Thursday PM
February 20, 2014
Room: 11B
Location: San Diego Convention Center

Session Chairs: Neeraj Thirumalai, ExxonMobil Research and Engineering Company; Oliver Rott, ThyssenKrupp Steel Europe AG

2:00 PM Invited
Hydrogen- assisted Degradation of Steels Used in Various Market Segments: *Zinedine Zermout*[1]; Lode Duprez[2]; [1]ArcelorMittal Global R&D Gent/OCAS NV; [2]OCAS/ArcelorMittal Global R&D Gent

2:40 PM
Hydrogen Effects on the Material Characteristics of Pulse-plated Nickel: *Eggert Reese*[1]; Torsten Sebald[2]; Georgios Paronis[2]; [1]EADS Innovation Works; [2]Astrium Space Transportation

3:00 PM
Effect of Thermal Up-quenching on Internal Hydrogen Embrittlement of Hot Dip Galvanized High Strength Steel Fasteners: *Salim Brahimi*[1]; [1]McGill University / IBECA Technologies

3:20 PM Break

3:40 PM
Hydrogen Embrittlement of High Strength Advanced Oilfield Alloys: *Indranil Roy*[1]; Manuel Marya[1]; Xinghang Zhang[2]; [1]Schlumberger; [2]Texas A&M University

4:00 PM Invited
Hydrogen Embrittlement in Precipitation Strengthened Ni-base Superalloys: *Samuel Kernion*[1]; John Magee[1]; Thomas Werley[1]; Mark Burton[1]; Paul Maxwell[1]; Brian Somerday[2]; [1]Carpenter Technology Corporation; [2]Sandia National Laboratories

Multiscale Perspectives on Plasticity in HCP Metals — Multiscale Modeling

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Benjamin Morrow, Los Alamos National Laboratory; Suveen Mathaudhu; Ellen Cerreta, Los Alamos National Laboratory; Juan P. Escobedo, The University of New South Wales Canberra; Dallas Trinkle, University of Illinois, Urbana-Champaign

Thursday PM
February 20, 2014
Room: 6C
Location: San Diego Convention Center

Session Chair: Dallas Trinkle, University of Illinois, Urbana-Champaign

2:00 PM Invited
A Multiscale Approach towards Internal Strain Predictions in Hexagonal Materials: *Laurent Capolungo*[1]; Nicolas Bertin[1]; Pierre Alexandre Juan[1]; Stephane Berbenni[2]; Carlos Tome[3]; [1]Georgia Institute of Technology; [2]Laboratoire d'Etude des Microstructures et de Mecanique des Materiaux, UMR CNRS 7239; [3]Los Alamos National Laboratory

2:20 PM
Ab Initio Modelling of Secondary Slip in Zirconium: *Nermine Chaari*[1]; Emmanuel Clouet[1]; David Rodney[2]; [1]CEA, Saclay; [2]INP Grenoble

2:40 PM
Prismatic Glide in Titanium and Zirconium from Ab Initio Calculations: *Emmanuel Clouet*[1]; Alexandre Prieur[1]; [1]SRMP, CEA Saclay

3:00 PM
Stability and Dynamics of Self-interstitial Atom Clusters in hcp Materials: *Gopinath Subramanian*[1]; Danny Perez[1]; Blas Uberuaga[1]; Arthur Voter[1]; [1]Los Alamos National Laboratory

3:20 PM Invited
Formation of Long Periodic Stacking Orders in Mg Alloys: *Zi-Kui Liu*[1]; Bill Y Wang[1]; Yi Wang[1]; ShunLi Shang[1]; Kristopher A. Darling Darling[2]; Laszlo Kecskes[2]; Suveen Mathaudhu; [1]The Pennsylvania State University; [2]US Army Research Laboratory

3:40 PM Break

4:00 PM Invited
Twinning in Mg from First Principles: *Maryam Ghazisaeidi*[1]; W. Curtin[1]; [1]EPFL

4:20 PM
Atomic-scale Comparison between {-1101} and {-1102} Twin Growth Mechanisms in Magnesium: *Laura Leclerq*[1]; Laurent Capolungo[1]; David Rodney[2]; [1]Georgia Tech Lorraine; [2]INP Grenoble

4:40 PM
Large Scale Molecular Dynamics Simulations of the Effect of Dislocation Density on Twinning in c-Axis Compression of Magnesium Single Crystals: Yizhe Tang[1]; *Jaafar El-Awady*[1]; [1]Johns Hopkins University

5:00 PM
The Nucleation, Core Structure, and Slip of Pyramidal Dislocations in HCP Magnesium: A Molecular Dynamics Study: *Yizhe Tang*[1]; Jaafar El-Awady[1]; [1]Johns Hopkins University

Nanoparticulate Materials: Production, Consolidation and Characterization — Novel Synthesis, Processing and Characterization

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee
Program Organizers: Brady Butler, U.S. Army Research Laboratory; Eugene Olevsky, San Diego State University

Thursday PM
February 20, 2014
Room: Carlsbad
Location: San Diego Marriott Marquis & Marina

Session Chair: Brady Butler, US Army Research Laboratory

2:00 PM Invited
Nano-orientation Mapping of Ultrafine Grained and highly Constrained Non-ferrous Structural Metallic Alloys: Iman Ghamarian[1]; Yue Liu[1]; *Peter Collins*[1]; [1]University of North Texas

2:30 PM Invited
Control of Nanoprobe Configurations for Electrode Applications: *Jirapon Khamwannah*[1]; Calvin Gardener[1]; Patrick Mercier[2]; Sungho Jin[1]; [1]Materials Science and Engineering, University of California, San Diego; [2]Electrical and Computer Engineering Department, University of California, San Diego

3:00 PM
Magnetic Shape Memory Nanotubes for Targeted Drug Delivery: *Spomenka Kobe*[1]; [1]Jožef Stefan Institute

3:20 PM
Influence of Passivation on Aging of Nano-aluminum- Heat Flux Calorimetry and Microstructural Studies: *Sreekumar Pisharath*[1]; Zhang Fan[1]; How Ghee Ang[1]; [1]Energetics Research Institute

3:40 PM Break

4:00 PM Invited
Nanoparticles for Energy Applications: *Sungho Jin*[1]; [1]University of California San Diego

4:30 PM
Biogeneration of Silica Nanoparticles from Rice Husk Ash by the Action of Fusarium Oxysporum: Tatiana Pineda-Va´squez[1]; Mabel Torres-Taborda[2]; Margarita Ramírez-Camona[2]; Ana Casas-Botero[2]; Carlos Lemos Soares[1]; *D. Hotza*[1]; [1]UFSC; [2]UPB

4:50 PM
Production of Silica Nanoparticles from Agroindustrial Waste and Its Use as Reinforcement in a Polymer Nanocomposite: *Angel Ortiz*[1]; Jaciele Teixeira[1]; Michele Gomes[1]; Rene Oliveira[1]; Esperidiana Moura[1]; [1]Nuclear and Energy Research Institute, IPEN-CNEN/SP

5:10 PM
Sintering Atmosphere and Solid-vapor Reactions in Nano-tungsten Processing: *Brady Butler*[1]; Joseph Marsico[2]; David Runk[3]; Bradley Klotz[3]; [1]U.S. Army Research Laboratory; [2]US Army, Science and Engineering Apprenticeship Program (SEAP).; [3]Bowhead Science and Technology

Nanostructured Materials for Rechargeable Batteries and Supercapacitors II — Session VIII

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Energy Conversion and Storage Committee
Program Organizers: David Mitlin, University of Alberta and NINT NRC; Reza Shahbazian-Yassar, Michigan Technological University; Peter Kalisvaart, University of Alberta and NINT NRC

Thursday PM
February 20, 2014
Room: Ballroom F
Location: San Diego Marriott Marquis & Marina

Session Chairs: Shen Dillon, University of Illinois; William Chueh, Stanford University

2:00 PM Invited
Synthesis and Characterization of Oxide Nanowire Electrodes: *Shen Dillon*[1]; [1]University of Illinois at Urbana-Champaign

2:15 PM Invited
PEG and Fluoroalkyl Functionalized Ionic Liquids as Electrolyte Solvents for Lithium Ion Batteries: *Sitaraman Krishnan*[1]; Lin Wu[1]; Dipankar Roy[2]; Simon Rock[2]; [1]Department of Chemical & Biomolecular Engineering, Clarkson University; [2]Department of Physics, Clarkson University

2:30 PM Invited
Nanocrystalline Anatase TiO_2: a New Anode Material for Rechargeable Sodium Ion Batteries: *David Mitlin*[1]; Yang Xu[1]; [1]University of Alberta

2:45 PM Invited
Nanoscale Visualization of Intercalation in Many Particle $LiFePO_4$ Electrodes: *William Chueh*[1]; [1]Stanford University

3:00 PM Invited
Modeling Fracture and Failure in Si Thin Film Nanoelectrodes on Substrates: *Huajian Gao*[1]; [1]Brown University

3:15 PM Invited
Nanostructured Solid Electrolyte for All-solid Lithium-sulfur Batteries: *Chengdu Liang*[1]; Zhan Lin[1]; Zengcai Liu[1]; Nancy Dudney[1]; [1]Oak Ridge National Laboratory

3:30 PM Invited
Interconnected Carbon Nanosheets Derived from Hemp for Ultrafast Supercapacitors with High Energy: *David Mitlin*[1]; Huanlei Wang[1]; Zhi Li[1]; [1]University of Alberta and NINT NRC

3:45 PM Break

4:00 PM
In Operando Measurement of Strain Evolution by X-ray Diffraction in Bicontinuous NiSn Inverse Opal Anodes for Lithium Ion Batteries: *Matthew Glazer*[1]; Jiung Cho[2]; Jonathan Almer[3]; John Okasinski[3]; Paul Braun[2]; David Dunand[1]; [1]Northwestern University; [2]University of Illinois at Urbana-Champaign; [3]Argonne National Laboratory

4:15 PM
$FeWO_4$: An Anode Material for Sodium-ion Batteries: *Wei Wang*[1]; Weiyi Xiong[1]; He Sun[1]; Shuqiang Jiao[1]; [1]University of Science and Technology Beijing

4:30 PM
High Electrochemical Performance Li_4Ti_5-x-yNbxCryO$_{12}$ (0=x+y=0.075) as an Anode Material for Lithium-ion Battery: *Chun-Kai Lan*[1]; Bing-Hong Chen[1]; Hao Yang[1]; Jenq-Gong Duh[1]; [1]National Tsing Hua University

4:45 PM
Asymmetric Supercapacitors with Dominant Pseudocapacitance Based on Manganese Oxide Nanoflowers in Neutral Aqueous Electrolyte: *Yuanbing Mao*[1]; Qiang Li[1]; [1]University of Texas-Pan American

5:00 PM Invited
Carbon Nanotube-nano Si Hybrids as Anode in Li-ion Battery: Sameer Chouksey[1]; Gaurav Mittal[1]; Debrupa Lahiri[1]; *Indranil Lahiri*[1]; [1]Indian Institute of Technology Roorkee

5:15 PM
Prospect of Carbon Nanotubes in Li-ion Battery: *Indranil Lahiri*[1]; [1]Indian Institute of Technology Roorkee

Pb-free Solders and Emerging Interconnect and Packaging Materials — Microstructure Evolutions

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Andre Lee, Michigan State University; Fay Hua, Intel Corporation; Tae-Kyu Lee, Cisco; John Elmer, Lawrence Livermore National Laboratory; Yan Li, Intel Corporation; Robert Kao, National Taiwan University; Fan-yi Ouyang, National Tsing Hua University; Chang-Woo Lee, Korea Institute of Industrial Technology; Won Sik Hong, Korea Electronics Technology Institute; Heugel Werner, Bosch Automovitve

Thursday PM
February 20, 2014
Room: 5B
Location: San Diego Convention Center

Session Chair: Chang-Woo Lee, Korea Institute of Industrial Technology

2:00 PM
The Effects of Different Substrate Areas on Instantaneous Microstructure and Associated Temperature Distribution under Current Stressing in Electronic Solder Joints: *Xu Zhang*[1]; Qian Liu[1]; Limin Ma[1]; Fu Guo[1]; Andre Lee[2]; K. N. Subramanian[2]; [1]Beijing University of Technology; [2]Michigan State University

2:20 PM
Kinetics of the Polymorphic Phase Transformation of Cu_6Sn_5: *Guang Zeng*[1]; Stuart McDonald[1]; Qinfen Gu[2]; Stoichi Suenaga[3]; Kazuhiro Nogita[1]; [1]The University of Queensland; [2]The Australian Synchrotron; [3]Nihon Superior Co., Ltd

2:40 PM
Phase Evolution and Nanomechanical Properties of Intermetallic Compounds in Solid-liquid Interdiffusion Bonding: *Jenn-Ming Song*[1]; Tsung-Yun Pai[1]; Wei-Chih Lu[2]; [1]National Chung Hsing University; [2]National Dong Hwa University

3:00 PM
Microstructurally Adaptive Composite Model for Creep of Sn-Ag Based Solders with Large Proeutectic Content: *Babak Talebanpour*[1]; Uttara Sahaym[1]; Indranath Dutta[1]; [1]Washington State University

3:20 PM Break

3:40 PM
Micromechanical Investigation of Lead-free Solder Joints in Microelectronics: *Bastian Philippi*[1]; Andreas Schießl[2]; Angelika Schingale[3]; Gerhard Dehm[4]; [1]Materials Center Leoben Forschung GmbH; [2]Continental Automotive GmbH ; [3]Continental Automotive GmbH; [4]Max-Planck-Institut für Eisenforschung GmbH

4:00 PM
The Dependence of the Solidification Temperature and Sn Grain Morphology of SnAg Solder Bumps on Geometry and Composition: *Greg Parks*[1]; Eric Perfecto[2]; Minhua Lu[2]; Eric Cotts[1]; [1]Binghamton University; [2]IBM T. J. Watson Research Center

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XIII — Microelectronics Reliability II

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Chao-hong Wang, National Chung Cheng University; Chih-Ming Chen, National Chung Hsing University; Jae-Ho Lee, Hongik University; Ikuo Ohnuma, Tohoku University; Clemens Schmetterer, Forschungszentrum Juelich, Inst.; Yee-Wen Yen, National Chung Cheng University; Shien Ping Feng, The University of Hong Kong; Shih-Kang Lin, National Cheng Kung University

Thursday PM
February 20, 2014
Room: 32A
Location: San Diego Convention Center

Session Chairs: Shih-Kang Lin, National Cheng Kung University; Chao-Hong Wang, National Chung Cheng University

2:00 PM
Thermal Stability of Ruthenium Schottky Contact with 4H-SiC under Vacuum Annealing: *Kinnock Munthali*[1]; Chris Theron[1]; F. Danie Auret[1]; [1]University of Pretoria

2:20 PM
Ga-based Cu-to-Cu Interconnection with Pt UBM: *Hao-miao Chang*[1]; Cheng-liang Cho[1]; Yi-kai Kuo[1]; Shih-kang Lin[1]; [1]National Cheng Kung University

2:40 PM
Experimental Investigation and Thermodynamic Modeling of the Ternary Pb-Bi-Te System: *Md. Arifur Rahman*[1]; Wojciech Gierlotka[1]; [1]Yuan Ze University

3:00 PM
Establish Electromigration-induced Failure Map for Flip-chip Sn/Cu Cathode Interface: *Yi Chun Hsu*[1]; C. Y. Liu[1]; [1]National Central University

3:20 PM
In Situ TEM Study on Au Mediated Growth of $NiSi_2$ in Si Nanowire: A Vapor-liquid-solid Analogy: *Wei Tang*[1]; Tom Picraux[2]; Xiaohua Liu[3]; King-Ning Tu[1]; Shadi Dayeh[4]; [1]UCLA; [2]Los Alamos National Laboratory; [3]Sandia National Laboratories; [4]University of California, San Diego

3:40 PM Break

4:00 PM
Anodic Electrodeposition of Nanoporous Nickel Hydroxide with a Facile Patterning Technique: *YaHuei Chang*[1]; ShienPing Feng[1]; [1]Hong Kong University

4:20 PM
Shear-strength Improvement of ENIG/Sn-Bi/Ag/Cu Sandwich Structure by Doping Ag, Cu, or Zn Metals: *Yu-Jin Hu*[1]; Cheng-Yi Liu[1]; [1]National Central University

4:40 PM
Characterization of Interfacial Reactions in Cu/In/Ni Joints at 280 ^{o}C: *Yu-hsiang Wang*[1]; Hui-chin Kuo[1]; Shih-kang Lin[1]; [1]National Cheng Kung University Department of Material Science and Engineering

Phase Transformation and Microstructural Evolution — Phase Transformations Induced by Irradiation II

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Phase Transformations Committee
Program Organizers: Amy Clarke, Los Alamos National Laboratory; Sudarsanam Suresh Babu, The Ohio State University; Ning Ma, ExxonMobile Research & Engineering; Tadashi Furuhara, Tohoku University; Frédéric Danoix, Université de Rouen; Mohamed Gouné, University of Bordeaux; Francisca Caballero, National Center for Metallurgical Research (CENIM-CSIC); Dhriti Bhattacharyya, Australian Nuclear Science & Technology Organization; Vijay Vasudevan, University of Cincinnati; Osman Anderoglu, Los Alamos National Laboratory; Stuart Maloy, Los Alamos National Laboratory; Chad Sinclair, University of British Columbia

Thursday PM
February 20, 2014
Room: 31B
Location: San Diego Convention Center

Session Chairs: Dhriti Bhattacharyyaa, Australian Nuclear Science & Technology Organization; Osman Anderoglu, Los Alamos National Laboratory

2:00 PM Invited
Multiscale Modeling of Nanoscale Precipitate Stability in Irradiated Structural Materials: *Brian Wirth*[1]; Donghua Xu[1]; Alicia Certain[2]; [1]University of Tennessee; [2]Pacific Northwest National Laboratory

2:30 PM
An Insight into the Mechanism of SFT Formation Near 1/2<110> Edge Dislocations in Aluminum Exposed to Irradiation: *Roman Voskoboynikov*[1]; [1]ANSTO

2:50 PM
Effect of Point-defect Sinks on Compositional Patterning Under Irradiation: *Pascal Bellon*[1]; Robert Averback[1]; Shipeng Shu[1]; Xuan Zhang[1]; [1]University of Illinois

3:10 PM
Canonical Bias Monte Carlo for Charged Systems: Daniel Schwen[1]; Alfredo Caro[1]; [1]Los Alamos National Laboratory

3:30 PM
Understanding Interface Effects on Phase Stability of a Ni/Ni_3Al Multilayer Under Ion Irradiation: *C. Sun*[1]; O. Anderoglu[1]; B. Uberuaga[1]; A. Misra[1]; S. A. Maloy[1]; [1]Los Alamos National Laboratory

Phase Transformation and Microstructural Evolution — Processing and Microstructural Evolution III

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Phase Transformations Committee
Program Organizers: Amy Clarke, Los Alamos National Laboratory; Sudarsanam Suresh Babu, The Ohio State University; Ning Ma, ExxonMobile Research & Engineering; Tadashi Furuhara, Tohoku University; Frédéric Danoix, Université de Rouen; Mohamed Gouné, University of Bordeaux; Francisca Caballero, National Center for Metallurgical Research (CENIM-CSIC); Dhriti Bhattacharyya, Australian Nuclear Science & Technology Organization; Vijay Vasudevan, University of Cincinnati; Osman Anderoglu, Los Alamos National Laboratory; Stuart Maloy, Los Alamos National Laboratory; Chad Sinclair, University of British Columbia

Thursday PM
February 20, 2014
Room: 31C
Location: San Diego Convention Center

Session Chairs: Paul Gibbs, Los Alamos National Laboratory; Seth Imhoff, Los Alamos National Laboratory

2:00 PM
Spray Cooling of Early Extracted Hot Stamped Parts: *Florian Nürnberger*[1]; Max Diekamp[1]; Jörn Moritz[1]; Lars Wolf[1]; Sven Hübner[1]; Bernd-Arno Behrens[1]; [1]Leibniz Universität Hannover

2:20 PM
Influence of Laser Surface Hardening Treatment on Mechanical Properties of Low Carbon Automotive Grade Steels: *Badirujjaman Syed*[1]; SM Shariff[2]; G Padmanabham[2]; S Kundu[1]; [1]Tata Steel Ltd; [2]ARCI

2:40 PM
Influence of Cryogenic Treatment on Microstructure Characteristics and Mechanical Properties of AISI D2 Tool Steel: *Hadi Ghasemi Nanesa*[1]; Mohammad Jahazi[1]; [1]École de Technologie Supérieure

3:00 PM
Development of a Stainless Steel as Bipolar Electrode Plate Material for PEM Fuel Cells: *Selçuk Kuyucak*[1]; [1]Dept. of Natural Resources Canada

3:20 PM Break

3:35 PM
Influence of Aging Treatment on In Situ Electrical Resistance Variation during Aging of Nickel-Rich NiTi Shape Memory Wires: Kamel Kazemi-Choobi[1]; Jafar Khalil-Allafi[1]; *Amin Elhami*[2]; Parviz Asadi[2]; [1]Research Center for Advanced Materials and Mineral Processing, Faculty of Materials Engineering, Sahand University of Technology; [2]Department of Mechanical Engineering, Central Tehran Branch, Islamic Azad University

3:55 PM
The Study of Phase Transformations in Metastable Beta-Ti Alloys by Electrical Resistivity Measurement: *Petr Harcuba*[1]; Michal Hájek[1]; Jana Šmilauerová[1]; Pavel Zhánal[1]; [1]Charles University in Prague

4:15 PM
Elinvar Effect Caused by Ferroelastic Nano Domains in Strain Glasses: *Liangxiang Zhang*[1]; Dong Wang[1]; Xiaobing Ren[2]; Yunzhi Wang[3]; [1]Center of Microstructure Science, Multi-Disciplinary Materials Research Center, Frontier Institute of Science and Technology, State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University; [2]Ferroic Physics Group, National Institute for Materials Science; [3]Department of Materials Science and Engineering, The Ohio State University

4:35 PM
Spontaneous Transition and Hidden Order in Doped Ferroelastic Systems: *Junyan Zhang*[1]; [1]Xi'an Jiaotong University

4:55 PM
Solid-liquid Phase Transitions of Fe: From Nano Particle to Bulk and from Spontaneous to Induced Solidifications: *Yongquan Wu*[1]; Rong Li[1]; Tong Shen[1]; [1]Shanghai University

5:15 PM
Evolution of the Structure Morphology of Fe-5 wt.%Mn Alloy during Directional Solidification: *Wei Lu*[1]; [1]Shanghai University

Radiation Effects in Oxide Ceramics and Novel LWR Fuels — Novel Fuels, Pellet-cladding Interaction, and Modeling

Sponsored by: TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Xian-Ming Bai, Idaho National Laboratory; Todd Allen, Idaho National Laboratory; Blas Uberuaga, Los Alamos National Laboratory; Jianliang Lin, Colorado School of Mines; Michele Manuel, University of Florida; Dragos Staicu, European Commission, Joint Research Centre, Institute for Transuranium Elements; Yong Yang, University of Florida

Thursday PM
February 20, 2014
Room: 33B
Location: San Diego Convention Center

Funding support provided by: The Center for Materials Science of Nuclear Fuel (CMSNF), an Energy Frontier Research Center led by the Idaho National Laboratory

Session Chairs: Yong Yang, University of Florida; Yongfeng Zhang, Idaho National Laboratory

2:00 PM Invited
Irradiation Behavior of High-burnup LWR-MOX (Mixed-Oxide) Fuels: *Masaki Amaya*[1]; [1]Japan Atomic Energy Agency

2:30 PM
Characterization of MOX Fuel Pellets by Photothermal Microscopy: Facundo Zaldivar Escola[1]; Dario Kunik[2]; *Oscar Martinez*[1]; Nelida Mingolo[1]; Rodolfo Kempf[3]; [1]Universidad de Buenos Aires; [2]Tolket SRL; [3]Comisión Nacional de Energía Atómica

2:50 PM Invited
Reflections on Fuel Pellet-cladding Interaction (PCI): *Dion Sunderland*[1]; [1]ANATECH Corp

3:20 PM
Doping d-UO_2 Fuel Pellets for Improved Hardness and Fracture Toughness at High Temperatures: *Robert McDonald*[1]; Harn Lim[1]; Matthew Catlett[1]; Karin Rudman[1]; Rafael Leckie[2]; Erik Luther[2]; Andrew Nelson[2]; Pedro Peralta[1]; [1]Arizona State University; [2]Los Alamos National Laboratory

3:40 PM Break

4:00 PM
Understanding Irradiation Induced Changes in Structure and Thermal Properties of UO_2 Grain Boundaries: *Tianyi Chen*[1]; Lin Shao[1]; [1]Texas A&M University

4:20 PM
Calculations of Threshold Displacement Energies in $Y_2Ti_2O_7$ and Y_2TiO_5: *Marc Robinson*[1]; Nigel Marks[1]; Meng Qin[2]; Simon Middleburgh[2]; Gordan Thorogood[2]; Greg Lumpkin[2]; Damien Carter[1]; [1]Curtin University; [2]Australian Nuclear Science & Technology Organisation

4:40 PM
Radiation Resistance of Nickel, Iron, Chromium Spinels by MD Simulations: *laurent Van Brutzel*[1]; Pierre Alvarez[1]; Alain Chartier[1]; [1]CEA

Recycling and Sustainability Update — Waste

Sponsored by: TMS Extraction and Processing Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Randolph Kirchain, Massachusetts Institute of Technology; Jeff Spangenberger, Argonne National Laboratory

Thursday PM
February 20, 2014
Room: 16B
Location: San Diego Convention Center

Session Chairs: Randolph Kirchain, Massachusetts Institute of Technology; Jeffrey Spangenberger, Argonne National Laboratory

2:00 PM
Characterization of Components of Liquid Crystal Displays: The End-of-life Management: Tatiana Moreno[1]; Priscilla Hanashiro[1]; Hugo Hashimoto[1]; Viviane Moraes[1]; Jorge Tenório[1]; *Denise Espinosa*[1]; [1]Escola Politécnica da Universidade de São Paulo

2:20 PM
Kinetics and Equilibrium Studies for the Removal of Tannin Acid from Aqueous Solutions by Regeneration Activated Carbon: Aiyuan Ma[1]; *Libo Zhang*[1]; Jinhui Peng[1]; Hongying Xia[1]; Chenyu Sun[1]; Yongguang Luo[1]; Tu Hu[1]; Yonggang Zuo[1]; [1]Yunnan Provincial Key Laboratory of Intensification Metallurgy, Key Laboratory of Unconventional Metallurgy, Ministry of Education

2:40 PM
Recovery of Copper and 1,Hydroxyethane-1,1-Diphosphonic Acid (HEDP) from Cyanide-free Electroplating Wastewater by Electrodialysis: *Tatiana Scarazzato*[1]; Daniella Buzzi[1]; Andrea Bernardes[2]; Jorge Tenorio[1]; Denise Espinosa[1]; [1]University of Sao Paulo; [2]Federal University of Rio Grande do Sul

3:00 PM
The Life Cycle Assessment of Copper Metallurgical Processes: Xie Yang[1]; Xiangxin Hao[1]; *Hongxu Li*[1]; Shiwei Sun[1]; [1]University of Science and Technology

3:20 PM Invited
Reuse of Ornamental Rock Waste for Manufacture of Mortars: *Afonso Azevedo*[1]; Jonas Alexandre[1]; Gustavo Xavier[1]; Sergio Monteiro[2]; Carlos Mauricio Vieira[1]; [1]UENF; [2]IME

3:40 PM Break

4:00 PM Invited
Dynamic Adsorption Behavior of Aqueous Vanadium onto Anion Exchange Resin: *Cui Li*[1]; [1]; [1]Chongqing University

4:20 PM
Synthesis Process and Production Properties of Forsterite-based Refractory from Iron Ore Tailings: *Jing Li*[1]; Qi Wang[1]; [1]University of Sci.&Tec.Liaoning, China

4:40 PM
Zinc Oxide Preparation Using Rotary Hearth Furnace Secondary Dust: *Huiqing Tang*[1]; [1]University of Science and Technology Beijing

5:00 PM
The Estimation of Waste Packaging Containers Generated by Households in Taiwan: *Esher Hsu*[1]; Chen-Ming Kuo[2]; [1]National Taipei University; [2]I-Shou University

Shape Casting: 5th International Symposium — Solidification and Microstructure II

Sponsored by: TMS Light Metals Division, TMS Materials Processing and Manufacturing Division, TMS: Aluminum Committee, TMS: Solidification Committee
Program Organizers: Murat Tiryakioglu, University of North Florida; John Campbell, University of Birmingham; Glenn Byczynski, Nemak Canada

Thursday PM — Room: 17B
February 20, 2014 — Location: San Diego Convention Center

Session Chair: To Be Announced

2:00 PM
Reduced Pressure Test (RPT) for Bifilm Assessment: *Derya Dispinar*[1]; John Campbell[2]; [1]Istanbul University; [2]University of Birmingham

2:20 PM
Prediction of Misruns in Thin Wall Castings Using Computational Simulation: *Juergen Jakumeit*[1]; Emir Subasic[1]; Matthias Bünck[1]; [1]Access e.V.

2:40 PM
Shaping of Metals with Magnetic Fields: *Maria Diana David*[1]; Charles Monroe[1]; John Griffin[1]; [1]University of Alabama at Birmingham

3:00 PM
The Formation of Hydrogen Related Porosity by Double Oxide Film Defects in Al Alloys: Alex Gerrard[1]; *William Griffiths*[2]; [1]Alcoa Aerospace, Transportation and Industrial (Kitts Green); [2]University of Birmingham

3:20 PM
The Influence of Fe, Mn and Cr Additions on the Formation of Iron-rich Intermetallic Phases in Al-Si Die-casting Alloys: Alberto Fabrizi[1]; Stefano Ferraro[1]; *Giulio Timelli*[1]; [1]University of Padua

3:40 PM Break

3:55 PM
The Sr Effect on the Intermetallic Phase of Eutectic Al-Si Alloy: *Jeyakumar Manickaraj*[1]; Anton Gorny[1]; Sumanth Shankar[1]; [1]McMaster University

4:15 PM
Thin Wall Model for Use in Multiple Casting Conditions: *Alexander Noble*[1]; Charles Monroe[1]; Alexander Monroe[2]; [1]University of Alabama at Birmingham; [2]MAGMA Foundry Technologies

4:35 PM
Electrochemical Behavior of Al-1wt.%Cu and Al-4.5wt.%Cu Alloys: Alejandra Roman[1]; Claudia Méndez[1]; *Carlos Schvezov*[1]; Alicia Ares[1]; [1]Materials Institute of Misiones (IMAM)-Faculty of Sciences (FCEQyN-UNaM)

Solar Cell Silicon — Silicon Refining II

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Energy Conversion and Storage Committee, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Gabriella Tranell, Norwegian University of Science & Technology; Yulia Meteleva-Fischer, Materials Innovation Institute M2i; Arjan Ciftja, SINTEF; Shadia Ikhmayies, Al Isra University

Thursday PM — Room: Balboa
February 20, 2014 — Location: San Diego Marriott Marquis & Marina

Session Chairs: Yulia Meteleva-Fischer, Materials Innovation Institute M2i; Shadia Ikhmayies, Al Isra University

2:00 PM
Effective Boron Removal by Calcium Silicate Slags Combined with Solvent Refining: *Kazuki Morita*[1]; Xiaodong Ma[1]; Takeshi Yoshikawa[1]; [1]The University of Tokyo

2:25 PM
Distribution of Boron, Calcium and Aluminium between Silicon and CaO-Al_2O_3-SiO_2 Slags: *Lars Klemet Jakobsson*[1]; Merete Tangstad[1]; [1]NTNU

2:45 PM
Research on the Forecast Model of the Boron Removal from Metallurgical Grade Silicon by Slag Refining Based on GA-BP Neural Network: *Shilai Yuan*[1]; Huimin Lu[1]; Zhijiang Gao[1]; Liyuan Zhao[1]; [1]Beihang University

3:05 PM
Purification of Solar-grade Silicon by Induction Melting in Cold Crucible: Yuriy Cherpak[1]; *Iryna Buchovska*[1]; Anatoly Shkulkov[1]; Bjorn Henriksen[2]; Ragnar Tronstad[2]; Timur Vlasenko[3]; [1]Pillar Ltd.; [2]Elkem Technology; [3]Solin Development B.V.

3:25 PM
A New Centrifuge CVD Reactor that will Challenge the Siemens Process: *Hallgeir Klette*[1]; Trygve Mongstad[1]; Werner Filtvedt[1]; Sverre Sørensen[2]; Josef Filtvedt[2]; Arve Holt[1]; [1]Department of Solar Energy, Institute for Energy Technology (IFE); [2]Dynatec Engineering

3:45 PM Break

4:05 PM
Theoretical Aspects on Pushing and Engulfment of SiC Particles during Directional Solidification Experiments with Molten Silicon: Arjan Ciftja[1]; *Orion Ciftja*[2]; [1]SINTEF; [2]Prairie View A&M University

4:25 PM
Effects of Solidification Rate and Settling Time of SiC Particles on the Macrosegregation of Carbon in Silicon Ingots: *Tiago Ribeiro*[1]; João Neto[1]; Marcelo Martorano[2]; [1]Instute for Technological Research; [2]University of Sao Paulo

4:45 PM
Separation of Si and SiC Microparticles of Solar Grade Silicon Cutting Slurry by Micropore Membrane: *Suning Liu*[1]; Kai Huang[1]; Hongmin Zhu[1]; [1]University of Science and Technology Beijing

5:05 PM
Characterization of Silicon Nanoparticles Incorporated into Metal-coated Carbon Fiber and Nanotube Arrays: *Mohamad Zbib*[1]; David Bahr[1]; [1]Purdue University

Solid-state Interfaces III: Toward an Atomistic-scale Understanding of Structure, Properties, and Behavior through Theory and Experiment — Grain Boundaries II

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Xiang-Yang Liu, Los Alamos National Laboratory; Blas Uberuaga, Los Alamos National Lababoratory; Stephen Foiles, Sandia National Laboratories; Mitra Taheri, Drexel University; Rampi Ramprasad, University of Connecticut

Thursday PM
February 20, 2014
Room: 4
Location: San Diego Convention Center

Session Chair: Douglas Medlin, Sandia National Labs

2:00 PM Invited
The Effect of Stress-coupled Grain Boundary Migration on the Mechanical Response of Nanocrystalline Thin Films: Paul Rottmann[1]; Suman Dasgupta[1]; Saritha Samudrala[2]; Frederic Mompiou[3]; Marc Legros[4]; Julie Cairney[2]; *Kevin Hemker*[1]; [1]Johns Hopkins University; [2]University of Sydney; [3]CEMES-CNRS ; [4]CEMES-CNRS

2:40 PM
Fluctuations in Pre-melted Grain Boundaries: *J. Hickman*[1]; Y. Mishin[1]; [1]George Mason University

3:00 PM
Line Tension of Grain Boundary Triple Junctions in the Copper Tricrystals: *Bingbing Zhao*[1]; Lasar Shvindlerman[1]; Günter Gottstein[1]; [1]IMM, RWTH Aachen University

3:20 PM
In Situ Observation of Grain Boundary Network Development during Grain Boundary Engineering Processes: *Asher Leff*[1]; Christopher Barr[1]; Mitra Taheri[1]; [1]Drexel University

3:40 PM Break

3:50 PM
Developing Grain Boundary Diagrams for Multicomponent Alloys: *Naixie Zhou*[1]; Jian Luo[1]; [1]University of California San Diego

4:10 PM
Investigation of Atomic-scale Energetics on Liquid Metal Embrittlement of Aluminum Due to Gallium: *Mansa Rajagopalan*[1]; Mehul Bhatia[1]; Kiran Solanki[1]; Mark Tschopp[2]; [1]Arizona State University; [2]Army Research Laboratory

4:30 PM
Measurements of Quadruple Node Distributions: *S.F. Li*[1]; J. Mason[1]; J. Lind[2]; M. Kumar[1]; [1]Lawrence Livermore National Laboratory; [2]Carnegie Mellon University

4:50 PM
The Unusual Effects of Bismuth Segregation on Nickel Grain Growth: *Yuanyao Zhang*[1]; Denise Yin[2]; Zhiyang Yu[2]; Martin Harmer[2]; Jian Luo[1]; [1]University of California, San Diego; [2]Lehigh University

5:10 PM
Steady State Grain Growth: Implications for Microstructural Descriptors Beyond Grain Size Distributions: *Mukul Kumar*[1]; Shiu-Fai Li[1]; Thomas Lagrange[1]; Jeremy Mason[1]; Bryan Reed[1]; Vasily Bulatov[1]; [1]Lawrence Livermore National Laboratory

Solidification in Additive Manufacturing — Session II: Solidification in Complex and High Build Rate AM systems

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Solidification Committee, TMS/ASM: Phase Transformations Committee
Program Organizers: Jyoti Mazumder, University of Michigan; Rainer Hebert, University of Connecticut; James Sears, GE GRC; Iver Anderson, Ames Laboratory; Alan Luo, The Ohio State University

Thursday PM
February 20, 2014
Room: 15B
Location: San Diego Convention Center

Session Chair: James Sears, GE GRC

2:00 PM Invited
A Coupled Solidification-microstructural Model of Single-crystal Alloy CMSX-4 Processed through Scanning Laser Epitaxy for Turbine Engine Hot-section Component Repair: Ranadip Acharya[1]; Rohan Bansal[1]; Justin Gambone[1]; *Suman Das*[1]; [1]Georgia Institute of Technology

2:25 PM
Characterization of Functional Gradient Materials Fabricated Using Additive Manufacturing: *Craig Brice*[1]; Ravi Shenoy[1]; Allison Popernack[2]; [1]NASA Langley Research Center; [2]Virginia Tech

2:45 PM
P-V Process Mapping of Ti-6Al-4V Microstructure across Two Additive Manufacturing Processes: Joy Gockel[1]; *Jack Beuth*[1]; Tim Horn[2]; Ola Harrysson[2]; Karen Taminger[3]; [1]Carnegie Mellon University; [2]North Carolina State University; [3]NASA Langley Research Center

3:05 PM
Microstructure and Texture Evolution in Laser Deposited FCC Alloys: *Guru Dinda*[1]; Ashish Dasgupta[1]; [1]Focus: HOPE

3:25 PM Break

3:45 PM
Using Combined EBSD-EDS to Characterize Solidification Microstructures in Additive Manufactured Materials: *Matt Nowell*[1]; [1]EDAX

4:05 PM
Texture Development in Titanium Additive Manufactured Components: *Craig Brice*[1]; Wesley Tayon[1]; Adam Pilchak[2]; [1]NASA Langley Research Center; [2]Air Force Research Laboratory

4:25 PM
Processing Considerations, Microstructures, and Properties of Ti-6Al-4V Fabricated by Laser Engineered Net Shaping: *Yuwei Zhai*[1]; Hayley Sandgren[1]; Diana Lados[1]; [1]Worcester Polytechnic Institute

4:45 PM
Microstructure, Mechanical Properties and the Influence of Heat Treatment (T6) of $AlSi1_0Mg$ Alloy Fabricated by Selective Laser Melting: *Wei Wang*[1]; [1]University of Birmingham

Symposium on High Entropy Alloys II — Other Properties

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Alloy Phases Committee
Program Organizers: Peter Liaw, University of Tennessee ; Gongyao Wang, University of Tennessee; M. C. Gao, National Energy Technology Laboratory; S. N. Mathaudhu

Thursday PM
February 20, 2014
Room: 5A
Location: San Diego Convention Center

Session Chairs: Karin Dahmen, University of Illinois at Urbana Champaign; Wu Kai, Institute of Materials Engineering, National Taiwan Ocean University

2:00 PM Invited
Using the Statistics of Serrations in the Stress Strain Curves to Extract Materials Properties of Slowly-sheared High Entropy Alloys: *Karin Dahmen*[1]; Xie Xie[2]; James Antonaglia[1]; Marina Laktionova[3]; Elena Tabachnikova[3]; Junwei Qiao[4]; Jien Wei Yeh[5]; Che Wei Tsai[5]; Jonathan Uhl; Peter Liaw[2]; [1]University of Illinois at Urbana Champaign; [2]University of Tennesse; [3]B.I. Verkin Institute for Low Temperature Physics and Engineering; [4]Taiyuan University of Technology; [5]National Tsing Hua University

2:20 PM
Characterizing Multi-component Solid Solutions Using Order Parameters and the Bragg-Williams Approximation: *Louis Santodonato*[1]; Peter Liaw[2]; [1]Oak Ridge National Laboratory; [2]The University of Tennessee

2:30 PM Invited
The Influence of Alloy Composition on the Interrelationship between Microstructure Mechanical Properties of High Entropy Alloys with BCC/B2 Phase Mixtures: Brian Welk[1]; Daniel Huber[1]; Jacob Jensen[1]; Gopal Viswanathan[1]; Robert Williams[1]; Peter Liaw[2]; Mark Gibson[3]; Daniel Evans[4]; *Hamish Fraser*[1]; [1]The Ohio State University; [2]University of Tennessee; [3]CSIRO; [4]AFRL/RX

2:50 PM
Microstructure, Phase Stability and Mechanical Behavior of Non-equiatomic FeMnNiCoCr High Entropy Alloys: *Cem Tasan*[1]; Konda Gokuldoss Pradeep[1]; Mengji Yao[1]; Hauke Springer[1]; Dierk Raabe[1]; [1]Max-Planck Institute for Iron Research

3:00 PM
Thermal Stability and Creep Studies of NiCoCrFe High Entropy Alloy: *Praveen S*[1]; Raj Tilak[2]; B S Murty[1]; Ravi Sankar Kottada[1]; [1]Indian Institute of Technology Madras; [2]National Institute of Technology Jamshedpur

3:10 PM Invited
Oxidation Behavior of High Entropy Alloy AlCoCrFeNi: *Kuang-Tsan Chiang*[1]; [1]Southwest Research Institute

3:30 PM Break

3:50 PM Invited
The Oxidation Behavior of AlCoCrFeNi High-entropy Alloy at 1023-1323K (750-1050°C): *Wu Kai*[1]; W.S. Chen[1]; C.C. Sung[1]; Z. Tang[2]; P.K. Liaw[2]; [1]Institute of Materials Engineering, National Taiwan Ocean University; [2]Department of Materials Science and Engineering, University of Tennesee

4:10 PM
Strain-rate Effects on the Structure Evolution of High Entropy Alloys: *Xie Xie*[1]; James Antonaglia[2]; Junpeng Liu[3]; Zhi Tang[1]; Junwei Qiao[4]; Gongyao Wang[1]; Yong Zhang[3]; Karin Dahmen[2]; Peter Liaw[1]; [1]University of Tennessee; [2]University of Illinois at Urbana Champaign; [3]University of Science and Technology Beijing; [4]Taiyuan University of Technology

4:20 PM Invited
Mixing Enthalpy for Alloys Including Al and Structural Enthalpy for High-entropy Alloys: *Akira Takeuchi*[1]; Kenji Amiya[1]; Takeshi Wada[1]; Kunio Yubuta[1]; Wei Zhang[2]; Akihiro Makino[1]; [1]Tohoku University; [2]Dalian University of Technology

4:40 PM Invited
Neutron Diffraction Studies on Creep Deformation Behavior in a High-Entropy Alloy CoCrFeMnNi Under High Temperature and Low Strain Rate: Wanchuck Woo[1]; *E-Wen Huang*[2]; Jien-Wei Yeh[3]; Peter Liaw[4]; Hahn Choo[4]; [1]KAERI (Korea Atomic Energy Research Institute); [2]National Central University; [3]National Tsing Hua University; [4]The University of Tennessee

5:00 PM Invited
The Hot Corrosion Resistance Properties of AlxFeCoCrNi: *Shizhong Yang*[1]; Mohammad Habibi[2]; Li Wang[2]; Shengmin Guo[2]; Zhi Tang[3]; Peter Liaw[3]; Liuxi Tan[1]; Cheng Guo[1]; Michael Jackson[1]; [1]Southern University and A&M College; [2]Louisiana State University; [3]University of Tennessee

5:20 PM
Tribological Properties of AlCoCrFeNi(Cu,Ti) High-entropy Alloys in High Concentration Hydrogen Peroxide Solution: *Yuan Yu*[1]; Jun Wang[1]; Jinshan Li[1]; Hongchao Kou[1]; Tiebang Zhang[1]; Weimin Liu[2]; [1]State Key Laboratory of Solidification Processing; [2]State Key Laboratory of Solid Lubrication

Ultrafine Grained Materials VIII — Alternative SPD and Surface Nanostructuring Methods

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Suveen Mathaudhu; Yuri Estrin, Monash University; Zenji Horita, Kyushu University; Enrique Lavernia, University of California - Davis; Xiaozhou Liao, The University of Sydney; Lei Lu, Institute for Materials Research; Qiuming Wei, University of North Carolina - Charlotte; Gerhard Wilde, University of Muenster; Yuntian Zhu, North Carolina State University

Thursday PM
February 20, 2014
Room: 6E
Location: San Diego Convention Center

Session Chairs: Yi Li, Institute of Metals Research; Anton Hohenwarter, Montanuniversität Leoben

2:00 PM Introductory Comments

2:05 PM
Engineering Refined Surface Microstructures Using Severe Plastic Deformation in Large Strain Extrusion Machining: *Marzyeh Moradi*[1]; Saurabh Basu[1]; M. Ravi Shankar[1]; [1]University of Pittsburgh

2:20 PM
Nanocrystalline Surface Layer Enhancements through Thermo-mechanical Processed Two-dimensional Linear Plane-strain Machining of 316L Austenitic Stainless Steel: *Yaakov Idell*[1]; Giovanni Facco[1]; Andreas Kulovits[2]; Jorg Wiezorek[1]; [1]University of Pittsburgh; [2]Carnegie Mellon University

2:35 PM
Surface Nanocrystallization Method for the Improvement of Tribological Properties in 5XXX and 7XXX Al Alloys: D. Gonzalez-Medina[1]; M. A. L. Hernandez-Rodriguez[1]; *E. Garcia-Sanchez*[1]; [1]Universidad Autónoma de Nuevo León -Facultad de Ingeniería Mecánica y Eléctrica

2:50 PM
Formation of Ultrafine Grain Structure Ti-6Al-4V Alloy by Ultrasonic Peening: *Behrang Poorganji*[1]; Abhishek Telang[1]; Iman Ghamarian[2]; Peyman Samimi[2]; Peter Collins[2]; Vijay Vasudevan[1]; [1]University of Cincinnati; [2]North Texas University

3:05 PM
Gradient Nanostructure and Residual Stress Induced by Ultrasonic Nanocrystal Surface Modification for High Strength and High Ductility 304 Austenitic Stainless Steel: *Chang Ye*[1]; Abhiehek Telang[2]; Amrinder Gill[2]; Zhong Zhou[3]; Seetha Mannava[2]; Dong Qian[3]; Vijay Vasudevan[2]; [1]University of Akron; [2]University of Cincinnati; [3]University of Texas at Dallas

3:20 PM
Grain Refinement and Growth in Copper Using Surface Mechanical Attrition Treatment at Cryogenic Temperatures: *Heather Murdoch*[1]; Kristopher Darling[1]; Mark Tschopp[1]; Anthony Roberts[1]; Tyler Cook[1]; [1]Army Research Laboratory

3:35 PM Break

3:50 PM
Fatigue Strength of Low Carbon Steel with Ultrafine-grained Surface Layer: *Enrico Bruder*[1]; Clemens Müller[1]; [1]TU Darmstadt

4:05 PM
Mechanical Characterization of Electrodeposited CoNi Multilayers with a Bimodal Grain Size Distribution: *Matthew Daly*[1]; Jon McCrea[2]; Brandon Bouwhuis[2]; Glenn Hibbard[1]; Chandra Veer Singh[1]; [1]University of Toronto; [2]Integran Technologies Inc.

4:20 PM
Optimization of the Fatigue Limits of Ultrafine Grained Cu-Zn Alloys: *Zhenjun Zhang*[1]; Jianchao Pang[2]; Xianghai An[2]; Peng Zhang[2]; Zhefeng Zhang[2]; [1]Institute of Metal Research Chinese Academy of Sciences ; [2]Institute of Metal Research Chinese Academy of Sciences

4:35 PM
Corrosion Behavior of Multiaxially Forged Ultrafine Grained 316L Stainless Steel: *Amey Vidvans*[1]; Gajanan Chaudhari[1]; [1]IIT Roorkee

4:50 PM
Texture of Hot-Rolled Copper after Twist Extrusion: *Marat Latypov*[1]; Myoung-Gyu Lee[1]; Yan Beygelzimer[2]; Denis Prilepo[2]; Yuri Gusar[2]; Hyoung Seop Kim[1]; [1]Pohang University of Science and Technology (POSTECH); [2]Donetsk Physics & Engineering Institute of the National Academy of Sciences of Ukraine

5:05 PM
Ultrafine Grained Al-Mg Alloys: Severe Plastic Deformation, Microstructure Evolution and Dynamic Strain Aging: *Shiteng Zhao*[1]; Chenlu Meng[1]; Weiping Hu[1]; Günter Gottstein[1]; [1]RWTH Aachen University

Ultrafine Grained Materials VIII — Applications of UFG Materials

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Suveen Mathaudhu; Yuri Estrin, Monash University; Zenji Horita, Kyushu University; Enrique Lavernia, University of California - Davis; Xiaozhou Liao, The University of Sydney; Lei Lu, Institute for Materials Research; Qiuming Wei, University of North Carolina - Charlotte; Gerhard Wilde, University of Muenster; Yuntian Zhu, North Carolina State University

Thursday PM
February 20, 2014
Room: 6F
Location: San Diego Convention Center

Session Chairs: Indranil Roy, Schlumberger; Malgorzata Lewandowska, Warsaw University of Technology

2:00 PM Introductory Comments

2:05 PM Invited
Superconductivity in Bulk Ultrafine-grained Metals Prepared by High-pressure Torsion: *Terukazu Nishizaki*[1]; Seungwon Lee[2]; Kaveh Edalati[2]; Zenji Horita[2]; Tadahiro Akune[1]; Nobuyoshi Sakamoto[1]; Satoshi Iguchi[3]; Takahiko Sasaki[3]; [1]Kyushu Sangyo University; [2]Kyushu University; [3]Tohoku University

2:25 PM
High-pressure Torsion for Fabrication of High-strength and High-electroconductivity Al Micro-wires: *Jorge Cubero-Sesin*[1]; Makoto Arita[1]; Hiroyuki In[2]; Zenji Horita[1]; [1]Kyushu University; [2]Dyden Corporation

2:40 PM
Formation of Metastable Phases of Silicon Processed by High-pressure Torsion: *Yoshifumi Ikoma*[1]; Kazuhiro Hayano[1]; Kaveh Edalati[1]; Katsuhiko Saito[2]; Qixin Guo[2]; Zenji Horita[1]; [1]Kyushu University; [2]Saga University

2:55 PM
Improvement of Strength in Biomedical ß-Ti Alloy While Maintaining Low Young's Modulus through Severe Plastic Deformation: *Veronika Polyakova*[1]; Svetlana Gatina[2]; Irina Semenova[2]; Ruslan Valiev[2]; [1]Ufa State Aviation Technical University ; [2]Ufa State Aviation Technical University

3:10 PM
Ultrafine Grained Ti-Nb Alloys for Orthopaedics: Ajit Panigrahi[1]; *Thomas Waitz*[1]; Erhard Schafler[1]; Matthias Bönisch[2]; Mariana Calin[2]; Jürgen Eckert[2]; Annett Gebert[2]; Werner Skrotzki[3]; Michael Zehetbauer[1]; [1]University of Vienna; [2]IFW Dresden; [3]TU Dresden

3:25 PM
Modeling and Simulation of Mechanical Properties and Microstructure of SPD Nanostructured Ti-45Nb Biomaterials: *Bartosz Sulkowski*[1]; Ajit Panigrahi[2]; Kadir Ozaltin[3]; Malgorzata Lewandowska[3]; Borys Mikulowski[1]; Michael Zehetbauer[2]; [1]AGH University of Science and Technology; [2]University of Vienna; [3]University of Technology Warsaw

3:40 PM Break

3:55 PM
Industrial Application of Friction Stir Processing: Andrey Rudskoy[1]; *Anton Naumov*[1]; Evgenii Chernikov[1]; Richard Jones[2]; [1]St.Petersburg State Politechnic University; [2]MTI Welding Technologies, Ltd.

4:10 PM
Cyclic Deformation Behavior and Fatigue Life of Laminated UFG Aluminium Sheet Materials Produced by ARB: *Heinz Werner Höppel*[1]; Frank Kümmel[1]; Tina Hausöl[1]; Dorothea Amberger[1]; Mathias Göken[1]; [1]University Erlangen-Nürnberg

4:25 PM
Microimprinting of Ultrafine-grained AZ31 Mg Alloy Processed by High-pressure Torsion: *Jie Xu*[1]; Bin Guo[1]; Debin Shan[1]; Terence Langdon[2]; [1]Harbin Institute of Technology; [2]University of Southern California

4:40 PM
Influence of UFG Structure and Surface Roughness of Ti-6Al-4V on Quality of Diffusion Bonding: *Evgeniya Yakushina*[1]; Alexey Reshetov[1]; Andrzej Rosochowski[1]; [1]Advanced Forming Research Centre, University of Strathclyde

4:55 PM
Assessing Hydrogen Embrittlement Susceptibility of Nanocrystalline Materials: *Indranil Roy*[1]; Manuel Marya[1]; Xinghang Zhang[2]; [1]Schlumberger; [2]Texas A&M University

2014 Functional Nanomaterials: Synthesis, Properties and Applications — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee

Program Organizers: Nitin Chopra, The University of Alabama; Terry Xu, The University of North Carolina at Charlotte; Jiyoung Kim, University of Texas at Dallas; Yuanbing Mao, University of Texas - Pan American; Ashwin Ramasubramaniam, University of Massachusetts Amherst; Jung-kun Lee, University of Pittsburgh; Ramki Kalyanaraman, The University of Tennessee, Knoxville; Stephen Turano, Georgia Tech Research Institute

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

Session Chairs: Nitin Chopra, The University of Alabama; Jiyoung Kim, The University of Texas at Dallas; Ramki Kalyanaraman, University of Tennessee; Terry Xu, The University of North Carolina at Charlotte; Yuanbing Mao, University of Texas - Pan American; Stephan Turano, Georgia Tech Research Institute; Jung-Kun Lee, University of Pittsburgh

K1: A Study on the Silver Nanowires by Means of an Ordered AAO Template and Inkjet-printing Technology: *Bong-Yong Jeong*[1]; [1]KICET

K2: A Study on the Surface Characterization of Nb_2O_5 with Nanorods Substructure by Anodization: *Bong-Yong Jeong*[1]; [1]KICET

K3: Advanced Display Applications of Quantum Dot Light Emitting Diodes by Cd-free Colloidal Quantum Dots: *Jiwan Kim*[1]; Min Suk Oh[1]; Christian Ippen[2]; Tonino Greco[2]; Armin Wedel[2]; Chul Jong Han[1]; [1]Korea Electronics Technology Institute; [2]Fraunhofer IAP

K4: Ag Nanowire Network for Flexible Transparent Conducting Electrodes: *Sung Ho Lee*[1]; Haekyoung Kim[1]; [1]Yeungnam University

K5: Beta-alumina: Synthesis and Characterization of a Solid Electrolyte: *Lorena Caliman*[1]; Douglas Gouvêa[1]; [1]USP - Universidade de São Paulo

K6: Characterization of Cobalt Aluminate Ceramic Ink for Ink-jet Printing: *Jin-Ho Kim*[1]; Kyu-Sung Han[1]; Woo-Suk Cho[1]; [1]Korea Institute of Ceramic Engineering and Technology

K7: Effect of Barrierless Cu-alloy Film as a Buffer Layer on the Stability of Microelectronic Devices: *Chon-Hsin Lin*[1]; [1]Asia-Pacific Institute of Creativity/Biotechnology

K8: First Principle Pressure Induced Phase Transition of Samarium Chalcogenides under Interaction Energy Consideration: *Shanker Chimouriya*[1]; Dipak Adhikari[1]; [1]Kathmandu University

K9: Incorporation of CNTs into TiO_2 Film Processed by Electrophoretic Deposition for Dye-sensitized Solar Cell Applications: *Yeon Sung Kim*[1]; Eung Seok Lee[1]; Young Gun Ko[2]; Bongyoung Yoo[1]; Dong Hyuk Shin[1]; [1]Hanyang University; [2]Yeungnam University

K10: Investigation of Room Temperature Ferromagnetism in Transition Metal Ion Incorporated Titania Thin Films: *Sudesh Sharma*[1]; Sujeet Chaudhary[2]; Subhash C Kashyap[2]; [1]University of Petroleum and Energy Studies; [2]IIT Delhi

K11: Morphological Properties of High Purity Ga_2O_3 Nanomaterials Prepared by Controlled Precipitation: *Kyusung Han*[1]; Jinho Kim[1]; Kwangtaek Hwang[1]; Woosuk Cho[1]; Suhyun Hwang[2]; Youngjong Choi[2]; Deokil Jeon[2]; [1]Korea Institute of Ceramic Engineering and Technology; [2]TSM Co., Ltd.

K12: Nano-texturization for Light Trapping in Crystalline Silicon Solar Cells: Can Periodic Beat Random?: Pingqi Gao[1]; Hongzhe Wang[1]; *Jichun Ye*[1]; [1]Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

K13: Preparation of CuCr1-xFexO_2 Delafossite Solid Solution Powder Via a Self-combustion Glycine Nitrate Process: *Te-Wei Chiu*[1]; Yi-Ting Chen[1]; Yu-Shan Lu[1]; Sea-Fue Wang[1]; [1]National Taipei University of Technology

K14: Reinforcing Effects of Graphenes in Copper Matrix Composites: *Haneul Jang*[1]; Donghyun Bae[2]; Hyunjoo Choi[1]; Seeun Shin[2]; [1]Kookmin University; [2]Yonsei University

K15: Single ZnO Nanowire as Hydrogen Gas Sensor: *Marlene Cardoza*[1]; Jose Romo[1]; Rafael Garcia[2]; Oscar Contreras[1]; [1]Centro de Nanociencias Y Nanotechnologia de La Unam ; [2]Universidad de Sonora

K16: The Research of CeO_2 Nanopowder Preparation by Using Supercritical Water Oxidation: *Hongxu Li*[1]; Chao Li[1]; Chuanqi Jiao[1]; Xie Yang[1]; Yu Chen[1]; [1]University of Science and Technology

K17: The Synthesis and Study on the L-cysteine-capped CdTe Nanocrystals: *Yongqiang Cao*[1]; Ping Yang[1]; [1]University of Jinan

K18: Thermal Properties of Electrophoresis Deposition Fabricated Nanodiamond Arrays: *Siheng Su*[1]; Jingjing Qiu[1]; [1]Texas Tech University

K19: Thermal Stability of Pulsed Electroplating Nanotwinned Copper: *Dai-Yang Lee*[1]; Yi-Sa Huang[1]; Yi-Cheng Chu[1]; Chih Chen[1]; [1]National Chiao Tung University

2014 TMS RF Mehl Medal Symposium on Frontiers in Nanostructured Materials and Their Applications — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Thin Films and Interfaces Committee

Program Organizers: Nuggehalli Ravindra, New Jersey Institute of Technology; Ramki Kalyanaraman, University of Tennessee; Haiyan Wang; Yuntian Zhu, North Carolina State University; Justin Schwartz, North Carolina State University; Amit Goyal, Oak Ridge National Laboratories

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

Session Chairs: Sudhakar Nori, North Carolina State University; Ravindra Nuggehalli, New Jersey Institute of Technology

K20: Effect of Growth Parameters on Electrical and Optical Properties of Ga and Al Doped Transparent Conducting Zinc Oxide Thin Films: Structure-property Correlations: *Namik Temizer*[1]; Sudhakar Nori[1]; Jagdish Narayan[1]; [1]North Carolina State University

K21: Fabrication of Single crystalline NiO based P-N junctions by KrF Laser Treatment: Structure and Photochemical Properties: *Roya Molaei*[1]; M.Reza Bayati[1]; Jay Narayan[1]; [1]North Carolina State University

K22: Interfacial Modeling and Photochemical Properties of Rutile TiO_2/Sapphire Epitaxial Heterostructures: *Mohammad Reza Bayati*[1]; Roya Molaei[1]; Roger Narayan[1]; Jay Narayan[1]; [1]North Carolina State University

K23: Inverse Spin Hall Effect Studies on ZnO Thin Films: *Megan Prestgard*[1]; Gene Siegel[1]; Shiang Teng[1]; Ashutosh Tiwari[1]; [1]University of Utah

K24: Microstructure and 9MeV Au+ Irradiation Effects of 9Cr-ODS(Oxide Dispersion Strengthened) Steel: *Chenyang Lu*[1]; Lumin Wang[1]; Zheng Lu[2]; [1]University of Michigan; [2]Northeastern University

K25: Observation of the Spin Seebeck Effect in $La_{1-x}Sr_xMnO_3$ (LSMO): *Gene Siegel*[1]; Megan Prestgard[1]; Julia Russ[2]; Ashutosh Tiwari[1]; [1]University of Utah; [2]Ithaca College

K26: Resistance Switching Properties and Mechanism of Switching In Epitaxial Pt/ZnO/TiN Thin Film Heterojunctions Grown on Si(001) Substrate: *Sandhyarani Punugupati*[1]; Jagdish Narayan[1]; Frank Hunte[1]; [1]North Carolina State University

K27: Structural, Optical and Transport Properties of Room Temperature Deposited Al and Ga Doped ZnO Films: *Namik Temizer*[1]; Sudhakar Nori[1]; Jagdish Narayan[1]; [1]North Carolina State University

K28: Thin Film Epitaxy and Stress Relaxation Mechanism in Rutile/Sapphire Heterostructures: *Mohammad Reza Bayati*[1]; Roya Molaei[1]; Roger Narayan[1]; Jay Narayan[1]; [1]North Carolina State University

K29: Variable Range Hopping Conduction and Magnetic Properties of Single Crystal Semiconducting and Topological Insulator Sr_3SnO: *Yi-Fang Lee*[1]; Jagdish Narayan[1]; Justin Schwartz[1]; [1]North Carolina State University

Accelerated Materials Evaluation for Nuclear Application Utilizing Test Reactors, Ion Beam Facilities and Modeling — Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee

Program Organizers: Peter Hosemann, University of California Berkeley; Julie Tucker, Knolls Atomic Power Laboratory; James Cole, Idaho National Laboratory; Todd Allen, University of Wisconsin-Madison

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

L1: An Electron Energy Loss Spectroscopy Study of Helium Bubbles in Nanostructured Ferritic Alloys: *Yuan Wu*[1]; Robert Odette[1]; Takuya Yamamoto[1]; James Ciston[2]; Peter Hosemann[3]; [1]UCSB; [2]Lawrence Berkeley Laboratory; [3]University of California Berkeley

L2: Analysis of Xe Ion Implantation in Mo: *Jeff Rest*[1]; Di Yun[1]; Bei Ye[1]; Zeke Insepov[2]; [1]Argonne National Laboratory; [2]Consultant

L3: Characterization of Developed Microstructure of Nanocrystalline Copper Post Neutron and Ion Irradiation: *Walid Mohamed*[1]; Di Yun[1]; K. L. Murty[2]; Abdellatif Yacout[1]; [1]Argonne National Laboratory; [2]North Carolina State University

L4: Cluster Dynamics Modeling of Defect Cluster Evolution in Ion Irradiated Epitaxial Cr Films on MgO: *Benjamin Ramirez*[1]; A. Selby[1]; Donghua Xu[1]; Brian Wirth[1]; T. Kaspar[2]; C. Wang[2]; V. Shutthanandan[2]; R. Kurtz[2]; [1]University of Tennessee, Knoxville; [2]Pacific Northwest National Laboratory

L5: Co-nucleation of Dislocation Loops and He Bubbles in Neutron Irradiated Ferritic Alloys: Dan Edwards[1]; *Hee Joon Jung*[1]; Rick Kurtz[1]; G. Robert Odette[2]; Takuya Yamamoto[2]; Bo Yao[3]; [1]Pacfic Northwest National Laboratory; [2]University of California, Santa Barbara; [3]IM Flash Technology

L6: Comparative Mechanical Properties Analysis of Ion Irradiated Potential Nuclear Fusion Candidate Materials: *Cameron Howard*[1]; Bill Choi[2]; Scott Parker[1]; Michael Fluss[2]; Amanda Lupinacci[1]; Akihiko Kimura[3]; [1]University of California Berkeley; [2]LLNL; [3]Kyoto University

L7: Comparison of Microstructure of Ion-irradiated and Neutron-irradiated Tubing Made from MA957 ODS Ferritic Alloy: *Mychailo Toloczko*[1]; Alicia Certain[1]; V. Bryk[2]; O. Borodin[2]; A. Kalchenko[2]; V. Melnichenko[2]; V. Voyevodin[2]; I. Neklydov[2]; Frank Garner[3]; [1]Battelle/PNNL; [2]Kharkov Institute of Physics and Technology; [3]Radiation Effects Consulting

L8: Defect Evolution in Iron-based Materials Using Atomistic Simulations: *Haixuan Xu*[1]; Roger Stoller[2]; Yury Osetsky[2]; [1]University of Tennessee; [2]Oak Ridge National Laboratory

L9: Deformation Behavior of Ion Irradiated Zr-4 Cladding Material: Comparison of Experiments to Modeling: *Blythe Clark*[1]; Remi Dingreville[1]; Brad Boyce[1]; Shreyas Rajasekhara[1]; Barney Doyle[1]; [1]Sandia National Laboratories

L10: Effect of Heavy Ion Irradiation on Microstructural Evolution in CF8 Cast Austenitic Stainless Steel: *Wei-Ying Chen*[1]; Meimei Li[2]; Marquis Kirk[2]; Pete Baldo[2]; Tiangan Lian[3]; [1]University of Illinois at Champaign-Urbana; [2]Argonne National Laboratory; [3]Electric Power Research Institute

L11: Effect of Irradiation on the Stability of MX-type Precipitates in Ferritic Steels: *Lizhen Tan*[1]; [1]Oak Ridge National Laboratory

L12: Effect of Low Dose Neutron Irradiation on Tensile Behavior of HT-9 Steel at Room Temperature: *Apu Sarkar*[1]; A.H. Alsabbagh[1]; K.L. Murty[1]; [1]North Carolina State University

L13: Effect of Radiation-induced Lattice Defects on Precipitate Formation in Dilute Fe-Cu-Ni Alloy: *Yongfeng Zhang*[1]; Wei-Feng Rao[1]; Bulent Biner[1]; [1]Idaho National Laboratory

L14: Effects of Dose Rate and Primary Defect Structure on Microstructural Evolution in RPV Steels: *Takuya Yamamoto*[1]; Hideo Watanabe[2]; Peter Wells[1]; Yuan Wu[1]; G. Robert Odette[1]; [1]University of California Santa Barbara; [2]Kyushu University

L15: Effects of Proton Irradiation and Helium Implantation in Al/B4C MMC for Spent Nuclear Fuel Storage: *Feifei Zhang*[1]; Lumin Wang[1]; [1]University of Michigan

L16: Exploring Fission Enhanced Diffusion of Uranium in Uranium Dioxide Using Classical Molecular Dynamics Simulations: *Jonathan Wormald*[1]; Ayman Hawari[1]; [1]North Carolina State University

L17: Helium Implantation Effects on the Tensile Properties and Microstructure of Amorphous Nickel Phosphorous: *Rachel Liontas*[1]; X. Wendy Gu[1]; Yongqiang Wang[2]; Engang Fu[2]; Nan Li[2]; Nathan Mara[2]; Julia Greer[1]; [1]California Institute of Technology; [2]Los Alamos National Laboratory

L18: High Temperature Nanoindentation on Nanostructured Materials: *Zijing Huang*[1]; Manuel Abad[2]; Marisa Figueiredo[2]; Ning Li[1]; Peter Hosemann[2]; [1]Xiamen University, China; [2]University of California Berkeley

L19: IAEA Activities on Modelling and Accelerated Irradiation Testing of Materials for Nuclear Power Applications: *Victor Inozemtsev*[1]; Edvard Bradley[1]; Andrey Zeman[1]; [1]IAEA

L20: Impact of the Injected Interstitial Effect on Ion-induced Void Swelling in Austenitic and Ferritic-martensitic Alloys: *Frank Garner*[1]; S. Golubov[2]; M. Toloczko[3]; Lin Shao[4]; [1]Radiation Effects Consulting; [2]Oak Ridge National Laboratory; [3]Pacific Northwest National Laboratory; [4]Texas A&M University

L21: Influences of the Injected Interstitial and Defect Imbalance on Void Swelling of Pure Iron at 450°C: *Lin Shao*[1]; Chao-chen Wei[1]; Assel Aitkaliyeva[1]; Jonathan Gigax[1]; Di Chen[1]; F.A. Garner[2]; [1]Texas A&M University; [2]Radiation Effects Consulting

L22: Ion-induced Swelling of Yttrium Oxide Dispersion-strengthened 0Cr18Ni10Ti Steel: V. Bryk[1]; *O. Borodin*[1]; A. Kalchenko[1]; V. Voyevodin[1]; V. Ageev[2]; M. Leontyeva-Smirnova,[2]; Frank Garner[3]; [1]Kharkov Institute of Physics and Technology; [2]High-Technology Research Institute of Inorganic Materials; [3]Radiation Effects Consulting

L23: Irradiation Studies on Friction Stir Welded Oxide Dispersion Strengthened Alloys: *Ramprashad Prabhakaran*[1]; Yaqiao Wu[2]; Jatuporn Burns[2]; James Cole[3]; Indrajit Charit[4]; Rajiv Mishra[5]; K.L. Murty[6]; [1]Idaho National Laboratory; [2]Boise State University; [3]Center for Advanced Energy Studies; [4]University of Idaho; [5]University of North Texas; [6]North Carolina State University

L24: Local Chromium Enrichments in High Dose Irradiated Oxide Dispersion Strengthened Steel Alloys: *Nathan Bailey*[1]; Alicia Certain[2]; Erich Stergar[1]; Mychailo Toloczko[2]; Peter Hosemann[1]; [1]University of California at Berkeley; [2]Pacific Northwest National Laboratory

L25: Microstructural Characterization of Proton and Heavy Ion Irradiated Zr-2.5Nb Pressure Tube Alloy after Deformation: *Fei Long*[1]; Mark Daymond[1]; [1]Queen's University

L26: Microstructure Analysis of Ion Beam Irradiated CNS-I and CNS-II Steels: *Xu Wang*[1]; Qingzhi Yan[2]; Lumin Wang[1]; [1]University of Michigan; [2]University of Science and Technology Beijing

L27: Molecular Dynamics Simulations of Displacement Cascades in BCC Metals: *Aaron Selby*[1]; Nathan Capps[1]; Brian Wirth[1]; [1]University of Tennessee

L28: Real Time and In Situ Studies of Materials in a Radiation Environment (MRE): *Simerjeet Gill*[1]; Lynne Ecker[1]; Avishai Ofan[1]; Eric Dooryhee[1]; [1]Brookhaven National Laboratory

L29: Removal of Defect Clusters by Twin Boundaries in Nanotwinned Metals: *Kaiyuan Yu*[1]; Daniel Bufford[1]; Cheng Sun[1]; Yue Liu[1]; Haiyan Wang[1]; Marquis Kirk[2]; Meimei Li[2]; Xinghang Zhang[1]; [1]Texas A&M University; [2]Argonne National Laboratory

L30: Role of Beam Rastering on Microstructural Evolution in Ion Irradiated HT9 Steel: *Elizabeth Beckett*[1]; Zhijie Jiao[1]; Kai Sun[1]; Gary Was[1]; [1]University of Michigan

L31: Self-interstitial Diffusion in Concentrated Fe-Cr by Kinetic Monte Carlo and First Principle Molecular Dynamics Simulations.: *Katharina Vortler*[1]; Ram Krishnamurthy[1]; Leland Barnard[1]; Izabela Szlufarska[1]; Dane Morgan[1]; [1]University of Wisconsin, Madison

L32: Simulation of Radiation Damage of Zirconium Alloys with Accelerator of Heavy Ions: Oleg Borodin[1]; *Victor Bryk*[1]; Ruslan Vasilenko[1]; Victor Voyevodin[1]; Vladimir Novikov[2]; Vacheslav Shishov[2]; [1]Kharkov Institute of Physics and Technology; [2]Bochvar High-technology Research Institute of Inorganic Materials

L33: Stability of Interfaces in Thin Film-substrate System under Ion Irradiation: *Alexander Mairov*[1]; Benjamin Hauch[1]; Kumar Sridharan[1]; Todd Allen[1]; Jinsuo Zhang[2]; [1]University of Wisconsin-Madison; [2]Ohio State University

L34: Study of Radiation-induced Segregation Using Nickel-chromium Binary Alloys: *Samuel Briggs*[1]; Janne Pakarinen[1]; Leland Barnard[1]; Dane Morgan[1]; Izabela Szlufarska[1]; Todd Allen[2]; Kumar Sridharan[1]; [1]University of Wisconsin-Madison; [2]Idaho National Laboratory

L35: Study of Xe Ion Beam Irradiated Mo Single Crystal by Synchrotron Extended X-ray Absorption Fine Structure: *Di Yun*[1]; Jeff Terry[2]; Walid Mohamed[1]; Bei Ye[1]; Kevin Logan[2]; Micheal Pellin[1]; Abdellatif Yacout[1]; [1]Argonne National Laboratory; [2]Illinois Institute of Technology

L36: Surface Stabilities and Helium Trapping of Nano-sized Oxide Phases in Nano-structured Ferritic Alloys: A First Principles Study: *Yong Jiang*[1]; Litong Yang[1]; Yanan Jin[1]; G. Odette[2]; [1]School of Materials Science and Engineering, Central South University; [2]Materials Department, University of California, Santa Barbara

L37: Ultrasonic Signatures of Degradation in Advanced Reactor Materials: *Ryan Meyer*[1]; Chuck Henager[1]; Shenyang Hu[1]; Weilin Jiang[1]; Robert Montgomery[1]; Pradeep Ramuhalli[1]; [1]Pacific Northwest National Laboratory

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

Sponsored by: TMS Extraction and Processing Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Materials Characterization Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: John Carpenter, Los Alamos National Laboratory; Rodney McCabe, Los Alamos National Laboratory; Thomas Bieler, Michigan State University; Khalid Hattar, Sandia National Laboratories; Marko Knezevic, University of New Hampshire; Irene Beyerlein, Los Alamos National Laboratory

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

C1: A Dynamic Hardening Rule for Crystal Plasticity with a Generalization to the Classical Hardening Rule: *Aboozar Mapar*[1]; Thomas Bieler[1]; Farhang Pourboghrat[1]; Christopher Compton[2]; [1]Michigan State University; [2]National Superconducting Cyclotron Laboratory

C2: Identification of Slip Parameters in Commercially Pure Tantalum Using Micro and Nanoindentation: *Bret Dunlap*[1]; Claudio Zambaldi[2]; Philip Eisenlohr[1]; Thomas Bieler[1]; Martin Crimp[1]; [1]Michigan State University; [2]Max-Planck-Institut für Eisenforschung GmbH

C3: In Situ Dynamic Indentation for Materials Characterization under Time and Temperature: *Douglas Stauffer*[1]; Ryan Major[1]; S.A. Syed Asif[1]; [1]Hysitron, Inc.

C4: Observation and Modeling of Deformation Mechanisms in Magnetoelastic Materials: *Ben Wang*[1]; Yongmei Jin[1]; [1]Michigan Technological University

C5: Probing High Temperature Nanomechanics in Indium Nanostructures Using Synchrotron Laue X-Ray Microdiffraction: *Arief Budiman*[1]; M Burek[2]; G Lee[2]; D Jang[3]; Martin Kunz[4]; Nobumichi Tamura[4]; Ting Tsui[2]; [1]Singapore University of Technology & Design (SUTD); [2]University of Waterloo; [3]California Institute of Technology; [4]Advanced Light Source (ALS)

C6: Cryogenic Micromechanical Testing of Tin: *Amanda Lupinacci*[1]; Josh Kacher[2]; Alanna Eilenberg[1]; Andrew Shapiro[3]; Peter Hosemann[1]; Andrew Minor[1]; [1]University of California Berkeley; [2]Lawrence Berkeley National Laboratory ; [3]JPL

C7: Quantitative Measurement of Plastic Zone Size in Al 7075 Using a Combination of X-ray Synchrotron Laue Microdiffraction and Microtomography: *Peter Hruby*[1]; Sudhanshu Shekhar Singh[1]; Jason Williams[1]; Huxiao Xie[1]; Ruqing Xu[2]; Xianghui Xiao[2]; Francesco De Carlo[2]; Nikhilesh Chawla[1]; [1]Arizona State University; [2]Argonne National Laboratory

C8: Understanding and Improving Orientation Precision of EBSD Measurements of Deformed Materials: *Matt Nowell*[1]; Stuart Wright[1]; [1]EDAX

C9: Application of Acoustic Emission Technique for Online Monitoring of Friction Stir Welding Process: *B M Rajaprakash*[1]; Suresha C N[2]; Sarala Upadhya[1]; [1]University Visvesvaraya college of Engineering; [2]Jyothy Institute of Technology

C10: Characterization and Constitutive Material Model Implementation for High-strain-rate Deformation Modeling with Finite Elements: *Jeremy Schreiber*[1]; Ivi Smid[1]; Tim Eden[1]; [1]Penn State

C11: In Situ Testing for Monitoring Damage Development in a Single Ply Composite Material: *Kathryn Dannemann*[1]; Forrest Campbell[2]; Alexander Carpenter[2]; Trenton Kirchdoerfer[3]; Sidney Chocron[3]; James Walker[3]; U. Heisserer[4]; H. van der Werff[5]; [1]Southwest Research Institute,; [2] Southwest Research Institute; [3]Southwest Research Institute; [4]DSM Ahead/MSC; [5]DSM Dyneema

C12: In Situ Hot-Stage TEM Analysis of High Pressure Cold Sprayed 6061 Aluminum Alloy Powder: *Mohammad Reza Rokni*[1]; Christian Widener[1]; [1]SDSM&T

C13: Nanoscratch-induced Microplasticity and Microcracking in Magnesia-yttria (50:50 vol. %) Ceramic Nanocomposite Fabricated by Spark Plasma Sintering: Lin Huang[1]; Wenlong Yao[1]; Kristopher Wehage[1]; Klaus van Benthem[1]; Jing Liu[1]; Amiya Mukherjee[1]; *Julie Schoenung*[1]; [1]University of California, Davis

Advanced Materials in Dental and Orthopedic Applications — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Tolou Shokuhfar, Michigan Technological University; Terry Lowe, Colorado School of Mines; Hanson Fong, University of Washington; Mathew Mathew, Rush University Medical Center; Cortino Sukotjo, University of Illinois at Chicago

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

E1: Antibacterial Properties of Silver Nanoparticles Incorporating into Coating Layer on Ti-6Al-4V Alloy Prepared by Micro Arc Oxidation: *Yeon Sung Kim*[1]; Sang Il Yoon[1]; Eung Seok Lee[1]; Young Gun Ko[2]; Dong Hyuk Shin[1]; [1]Hanyang University; [2]Yeungnam University

E2: Characterization of Cellular Metals of the Ti-6Al-4V Alloys for Biomedical Applications Processed by Rapid Prototyping: *Samira Lea Ruiz*[1]; Luis Fernando Bernardes[2]; André Luiz Jardini Munhoz[2]; Carlos Roberto Grandini[1]; [1]Universidade Estadual Paulista; [2]UNICAMP

E3: Comparative Study on Tribological Behavior of Ti–6Al–7Nb and SS AISI 316L Alloys, for Total Hip Prosthesis: *Fellah Mamoun*[1]; Labaiz Mohamed[1]; Assala Omar[1]; Dekhil Leila[1]; [1]Surface Engineering and Tribology Group, Laboratory of Metallurgy and Engineering Materials

E4: Effect of the Substitutional Element in Selected Mechanical Properties of the Ti-15Mo-xZr System: Fábio Vicente[1]; *Carlos Grandini*[1]; [1]UNESP - Univ. Estadual Paulista

E5: Effect of the Substitutional Element in Selected Mechanical Properties

of the Ti-15Zr-XMo System: *Diego Correa*[1]; Mariana Lourenço[1]; Pedro Kuroda[1]; Carlos Roberto Grandini[1]; [1]UNESP – Univ Estadual Paulista, Laboratório de Anelasticidade e Biomateriais

E6: Influence of the Substitutional Element in Selected Mechanical Properties of the Ti-15Mo-XNb System: *José Roberto Martins Jr*[1]; Carlos Grandini[1]; [1]UNESP

E7: Synthesis, Nanostructure and Hydrophilicity of Nanotube Formed Ti for Biocompatibility: *Maria Cristina Rosifini Alves Rezende*[1]; Jorge Luiz Rosa[2]; Alain Robin[2]; Sandra Giacomini Scheneider[2]; João Augusto Guedes de Oliveira[1]; Maria Emilia Pereira Bensi[1]; Ana Paula Rosifini Alves Claro[1]; [1]Unesp; [2]USP

Algorithm Development in Computational Materials Science and Engineering — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Jonathan Zimmerman, Sandia National Laboratories; Douglas Spearot, University of Arkansas; Adrian Sabau, Oak Ridge National Laboratory; Mark Tschopp, Army Research Laboratory; Mohsen Asle Zaeem, Missouri University of Science and Technology

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February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

F1: Discrete Element Simulation for Magnetic-aligned Compaction of Magnetic Powders: *Rikio Soda*[1]; Kenta Takagi[2]; Kimihiro Ozaki[2]; [1]MagHEM; [2]AIST

F2: Crystal Plasticity Fem Study of the Effects of BW Hardening Model Parameters on Nano-indentation Deformation Behaviour of Copper Single: *Mao Liu*[1]; Lu Cheng[1]; Anh Tieu[1]; [1]University of Wollongong

F3: The J-Integral of a Mixed Mode Crack in Finite Domains with Volterra Dislocations: *Andrew Sheng*[1]; Tamer Crosby[1]; Nasr Ghoniem[1]; [1]UCLA

F4: Simulation of Temperature Field and Microstructure in Heavy Steel Ingots Solidification: *Jing Zhao*[1]; Honggang Zhong[1]; Zhichen Zhang[1]; Jieyu Zhang[1]; Qijie Zhai[1]; [1]Shanghai University

F5: Reduction Effect on Thermal Conductivity of Silicon by Defect Structures Investigated from Atomistic Level: *Tao Wang*[1]; Georg Madsen[1]; Alexander Hartmaier[1]; [1]Ruhr-Universität Bochum

F6: A FEM-based Inverse Calculation Method for Determination of Heat Transfer Coefficient in Liquid Quenching Process: *Peng Du*[1]; Gang Wang[1]; Zhenguo Nie[1]; Yiming Rong[1]; [1]Tsinghua University

F7: Intersecting Slip for Dislocation Dynamics in 2-Dimensions: *William Kuykendall*[1]; Wei Cai[1]; [1]Stanford University

F8: Fast Methods for Long-range Interactions and Improved Load-balancing for Particle Simulations on Massively Parallel Computers: *Godehard Sutmann*[1]; Christoph Begau[2]; [1]Forschungszentrum Juelich; [2]Ruhr-University Bochum

F9: A GPU Cluster Optimized Multigrid Scheme for Computing Unsteady Incompressible Fluid Flow: *Gyula Toth*[1]; Gyorgy Tegze[1]; [1]Wigner Research Centre for Physics

F10: Numerical Determination of Secondary Dendrite Arm Spacing of Fe-C Alloy as a Function of Cooling Rate and Local Solidification Time: *Alexandre Ferreira*[1]; Ingrid Salvino[1]; Ever Melo[1]; [1]Universidade Federal Fluminense

F11: Optimization of Hierarchical Lattice Structures for Energy Absorption: *Steven Wehmeyer*[1]; Matthew Begley[1]; Frank Zok[1]; [1]University of California at Santa Barbara

F12: Multi-scale Method Development: Enabling the Investigation of the Role of Oxygen in Electrical Contact Degradation: *Xiaoyin Ji*[1]; Benjamin Gaddy[1]; Angus Kingon[2]; Douglas Irving[1]; [1]North Carolina State University; [2]Brown University

F13: Automatic Registration Method to Combine Image Sets from Optical Microscopy and SEM: *Otavio Gomes*[1]; [1]CETEM

F14: Bayesian Networks in Materials Science: New Tools to Predict the Properties of Materials: *Franck Tancret*[1]; Philippe Leray[1]; Edern Menou[1]; [1]Université de Nantes

F15: Coarse Grain Model for Coupled Thermo-mechano-chemical Processes and Its Application to Pressure-induced Endothermic Chemical Reactions: *Edwin Antillon*[1]; Kiettipong Banlusan[1]; Alejandro Strachan[1]; [1]Purdue University

F16: Numerical Simulation and Experiment Validation of Multi-pouring Process of a Heavy Steel Ingot: *ZhenHu Duan*[1]; HouFa Shen[1]; BaiChen Liu[1]; [1]Tsinghua University, Beijing

F17: Development of an Asymptotics-based Numerical Model for the Formation and Evolution of Air Gaps in the Vertical Continuous Casting of Alloys: *Saud Saleem*[1]; Michael Vynnycky[2]; Hasse Fredriksson[1]; [1]The Royal Institute of Technology; [2]Mathematics Applications Consortium for Science and Industry (MACSI), Department of Mathematics and Statistics, University of Limerick

F18: Comparing Fixed and Moving Mesh Methods for Phase-field Models: *Benjamin Winchester*[1]; [1]Sandia National Laboratories

F19: Fracture Criterion for Brittle Polycrystalline Materials Based on a Discrete Element Method: *Tonya Stone*[1]; Katerine SalemeRuiz[1]; Bryce Devine[2]; Laura Walizer[2]; Wayne Hodo[2]; [1]Mississippi State University; [2]US Army Engineer Research & Development Center

F20: Effect of Oxygen on Dislocation Core Properties in a-Titanium: A QM/MM Study: *Mehul Bhatia*[1]; Gang Lu[2]; Kiran Solanki[1]; Xu Zhang[2]; [1]Arizona State University; [2]California State University Northridge

Aluminum Alloys: Development, Characterization and Applications — Poster Session

Sponsored by: TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Zhengdong (Steven) Long, Kaiser Aluminum; Subodh Das, Phinix LLC; Tongguang Zhai, University of Kentucky; Xiyu Wen, University of Kentucky

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I1: Interface Evolution in the Process of Fabricating Aluminum Foam Sandwiches: Hao Lin[1]; Hongjie Luo[1]; Wei Sun[1]; Guangchun Yao[2]; [1]Northeastern University,School of Materials and Metallurgy; [2]Shenyang Neu Advanced Materials Company

I2: Simulation of Cold Rolling of Aluminum Single Crystal Oriented with (123)[634]: *Guanyu Deng*[1]; Cheng Lu[1]; Lihong Su[1]; Anh Kiet Tieu[1]; Xianghua Liu[2]; [1]University of Wollongong; [2]Northeastern University Research Academy, Northeastern University

I3: Structure and Microstructure of Continuously Casted Aluminum Clad Ingot in As-cas and Rolled State: *Jong Ho Kim*[1]; [1]Research Institute of Industrial Science and Technology

I4: Physicochemical Properties of Al-Mg and Al-Mg-Zn Alloys: *Tomasz Gancarz*[1]; Wladyslaw Gasior[1]; Janusz Pstrus[1]; Julien Jourdan[2]; Hani Henein[2]; [1]Institute of Metallurgy and Material Science PAS; [2]Chemical and Materials Engineering (CME), University of Alberta

I5: Effect of Tin on the Corrosion and Electrochemical Behavior of Al-Zn-Mg Alloy in Sea Water: *M. Sadawy*[1]; K. Zohdy[1]; [1]Faculty of Engineering, Al-Azhar University, Cairo, Egypt

I6: Alloy AlZn9 Casted in the Process of Rapid Solidification and Consolidated in the Process of Plastic Forming: Wojciech Szymanski[1]; Marcin Szymanek[2]; *Sonia Boczkal*[2]; Maciej Gawlik[2]; Mariusz Bigaj[2]; [1]Institute of Non-Ferrous Metals ; [2]Institute of Non-Ferrous Metals

I7: Nanocrystalline Aluminum Alloys Thermally Stabilized with Diamantane Hydrocarbons: *Simon Pun*[1]; Walid Hanna[1]; Farghalli Mohamed[1]; [1]University of California, Irvine

I8: Friction Coefficients on Compression Testing of AA6060 and 42CrMo4 with Different Lubrication Conditions: *Sabbah Ataya*[1]; Tobias Emde[2]; [1]Suez University; [2]Mannesmann Grobblech GmbH

Biological Materials Science Symposium — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee
Program Organizers: Po-Yu Chen, National Tsing Hua University; Rajendra Kasinath, Johnson and Johnson Company; Dwayne Arola, University of Washington; Kalpana Katti, North Dakota State University

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Room: Sails Pavilion
Location: San Diego Convention Center

Session Chair: Po-Yu Chen, National Tsing Hua University

E8: Applications of Focused Ion Beam – Electron Scanning Microscopy on the Characterization of Polymer Coating: *Jacie Chen*[1]; Don Wei[1]; [1]DawnLabs

E9: Cytotoxicity of Silver Nanoparticles on Cytoskeleton and Mechanical Behavior of Red Blood Cells: *Shou-Yi Chang*[1]; Yu-Ying Shie[1]; Yen-Chung Chen[1]; Ying-Ting Wang[1]; [1]National Chung Hsing University

E10: Ecological-economical Wheelchair: *Miguel Rivera*[1]; Wenqian Zhao[1]; Waseem Haider[1]; [1]The University of Texas-Pan American

E11: Microbial Synthesis and Fabrication of Palladium Nanoparticle Catalysts by Using the Metal Ion-reducing Bacterium Shewanella Algae: *Rie Tanaka*[1]; Koshiro Tamaoki[1]; Norizo Saitoh[1]; Toshiyuki Nomura[1]; Yasuhiro Konishi[1]; [1]Osaka Prefecture University

E12: Structural Characterization on the Foot of Red Abalone and its Contribution to the Structure of Nacre: *Maria Lopez*[1]; Marc Meyers[1]; [1]UCSD

E13: An Experimentally-based Flow Stress Model for Cortical Bone: Ilige Hage[1]; *Ali Ammouri*[1]; Ramsey Hamade[1]; [1]American University of Beirut

E14: Applications of Polymer Nanofibers in Bio-materials, Biotechnology and Biomedicine: *Miguel Rivera*[1]; [1]The University of Texas-Pan American

E15: Effect of P_2O_5 on Sintering Behavior of Na_2O-CaO–Al_2O_3-SiO_2 Glass Ceramic System: Behzad Mehdikhani[1]; *Marjan Heidarzadeh*[1]; [1]Standard Research Institute

E16: Investigations on the Corrosion Behaviour of Magnesium Alloys: ZfW PM F, ZfW D, AM20 PM, LAM220 PM, and LAE442-0,5% Ca PM in Aqueous Solutions: Ringer,Ringer Lactate Borax |3% NaCl pH 9,3; Borax buffer| at 30/37°C: *Volkmar Neubert*[1]; [1]MSE Werkstoffzentrum Clausthal

E17: Measurement of Surface Free Energy of TiO_2 for Haemocompatibility Analysis: Jonathan Schuster[1]; Rosenberger Mario[1]; *Schvezov Carlos*[1]; [1]IMAM (UNaM-Conicet)

E18: Preliminary Investigations into the Processing and Properties Powder-based Novel Neural Electrodes: *T Singh*[1]; J Lopez[1]; C Martinez[1]; K. Morsi[1]; [1]San Diego State University

E19: The Preparation of Silver Nano-particles with Biosorption by Bacillus Megaterium: *Hongxu Li*[1]; Chao Li[1]; Yunchi Guo[1]; Xie Yang[1]; [1]University of Science and Technology

E20: Utilization of Eupatorium Adenophorum Spreng for Preparation of Activated Carbon Using Phosphoric Acid Activation by Ultrasound and Microwave Radiation: *Hongying Xia*[1]; [1]Kunming University of Science and Technology

E21: Stability and Metal Ion Release of Titanium and Stainless Steel Mini-implants with Surface Treatment for Dental Purposes: *Daniel Fernandes*[1]; Carlos Elias[2]; Angela Dalvi[2]; Ruy Marques[3]; [1]University of California, San Diego; [2]Military Institute of Engineering; [3]Rio de Janeiro State University

Bulk Metallic Glasses XI — Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Gongyao Wang, University of Tennessee; H. Choo, University of Tennessee; Y. Gao, University of Tennessee; Y. F. Shi, Rensselaer Polytechnic Institute

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B1: Investigation of the Effects of Secondary Phases on Deformation Behaviour of the Bulk Metallic Glass Composites: *Hyunseok Oh*[1]; Jinkyu Lee[2]; Yeonwook Kim[3]; Wancheok Woo[4]; Eunsoo Park[1]; [1]Seoul National University; [2]Kongju National University; [3]Keimyung University; [4]Neutron Science Division, Korea Atomic Energy Research Institute

B2: Property Evaluation of Thermal and Oxidation Behavior in Al-rich Al-TM-MM Metallic Glasses: *Jinyeon Kim*[1]; Mehdi Mansouri[2]; Jein Lee[1]; Eunsoo Park[1]; [1]Research Institute of Advanced Materials, Department of Materials Science and Engineering, Seoul National University; [2]Department of Materials Science and Engineering, Sharif University of Technology

B3: Fabrication and Wear Properties of CNT / $Ti_50Cu_{28}Ni1_5Sn_7$ Bulk Metallic Glass Composites by Powder Metallurgy Route: *Pee-Yew Lee*[1]; Chih-Feng Hsu[1]; [1]National Taiwan Ocean University

B4: MgZnCa Bulk Metallic Glass Composites with High Ductility as Potential Temporary Implant Metals: *Junheng Gao*[1]; W. Mark Rainforth[1]; Iain Todd[1]; [1]University of Sheffield

Celebrating the Megascale: An EPD Symposium in Honor of David G.C.Robertson — Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS: Pyrometallurgy Committee, TMS: Process Technology and Modeling Committee
Program Organizers: Phillip Mackey, P.J. Mackey Technology; Rodney Jones, Mintek; Eric Grimsey, Curtin University, W A School of Mines; Geoffrey Brooks, Swinburne University of Technology

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H1: Nitrogen Solubility in Mn-Fe-Si-C Alloy Melts: *June-Yong Eom*[1]; Jung-Mock Jang[1]; Min-Kyu Paek[1]; Jong-Jin Pak[1]; [1]Hanyang University

H2: Study on Dezincification and De-lead of Blast Furnace Dust by Fluidized Reduction Experiment: *Shufeng Yang*[1]; Chuanan Hou[1]; Jingshe Li[1]; Xiangzhou Gao[1]; [1]University of Science and Technology Beijing

Characterization of Minerals, Metals and Materials 2014 — Poster Session

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

Program Organizers: John Carpenter, Los Alamos National Laboratory; Chen-Guang Bai, Chongqing University; Jiann-Yang Hwang, Michigan Technological University; Shadia Ikhmayies, Al Isra University; Bowen Li, Michigan Technological University; Sergio Monteiro, State University of North Rio de Janeiro; Zhiwei Peng, Michigan Technological University; Mingming Zhang, ArcelorMittal Global R&D

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C14: A Comparison between the Mechanical and Thermal Properties of Copolyester/Polylactic Acid Blend Reinforced with Green Silica: *Jaciele Teixeira*[1]; Valquiria Silva[1]; Maria Colombo[2]; Rene Oliveira[1]; Julio Harada[1]; Angel Ortiz[1]; Esperidiana Moura[1]; [1]Instituto de Presquisas Energeticas e Nucleares-IPEN-CNEN/SP; [2]Faculdade de Tecnologia da Zona Leste

C15: Brazilian Bentonite Submitted to Mild Acid Treatment: *Francisco Valenzuela-Diaz*[1]; Christiano Andrade[1]; Maria das Gracas Valenzuela[1]; Valquiria Justo[1]; Francisco Mondelo-Garcia[1]; Cristina Volzone[2]; [1]Universidade de Sao Paulo; [2]CETMIC Centro de Tecnología de Recursos Minerales y Cerámica

C16: Characterization of Nickel Laterite Ore: *Tao Li*[1]; [1]Shanghai University

C17: Development of Low-density Polyethylene (LDPE) Composites Reinforced with Coconut Fibers (CF) Modified and without Modifying: *Matheus Bedin*[1]; Rubén Rodriguez[1]; Leticia Monteiro[1]; [1]Universidade Estadual Do Norte Fluminense Darcy Ribeiro (UENF)

C18: Effect of YSZ Addition on the Electrical Properties of NTC Thermistors Based of (YSr)(MnAlCr)O_3 Perovskites: WoonYoung Lee[1]; *JinSung Park*[1]; [1]Chosun university

C19: Formulation and Characterization of Biocomposites with Nanodiamond for Orthopedic Applications: *Lucivan Junior*[1]; Príscila Pereira[1]; Rubén Sánchez[1]; Yam Maia[1]; [1]State University of North Rio de Janeiro

C20: In Situ High Temperature X-ray Analysis of a Supermartensitic Stainless Steel: Tatiane Santos[1]; *Adriana Rocha*[2]; Ricardo de Carvalho[1]; Vicente Buono[3]; [1]Vallourec Tubos do Brasil S.A.; [2]LNDC - UFRJ; [3]UFMG

C21: Influence of Precipitates on SSC Resistance of High Strength Steel: *Rafael Braga*[1]; Vicente Buono[2]; Cesar Olea[1]; [1]Vallourec Tubos do Brasil SA; [2]UFMG

C22: Iron Recovery from Copper Slag through Oxidation-magnetic Concentration at Intermediate Temperature: *Zhiwen Wu*[1]; [1]Shanghai University

C23: Modification of DGEBA Thermoset Resin and Evaluation of Mechanical Properties and Abrasive: *Camila Amaral*[1]; Sánchez Rodríguez[2]; Eduardo Atem[2]; Magno Bessa[2]; [1]Universidade Estadual do Norte Fluminense; [2]Universidade Estadual do Norte Fluminense Darcy Ribeiro

C24: Obtaining Nanocapsules from Phbeg/Mmt Composite: *Maria das Graças Valenzuela*[1]; Camila Matos[2]; Isaac Sayeg[2]; Adriana Moreira[2]; Helio Wiebbeck[2]; Francisco Valenzuela-Díaz[2]; Wang Shu Hui[2]; [1]Centro Universitário Estacio Radial de São Paulo; [2]University of Sao Paulo

C25: Characterization of High Phosphorous Libyan Iron Ores: *Ali Tajouri*[1]; [1]University of Tripoli

C26: Preparation and Characterization of Polypropylene Nanocomposites with Organoclay and Discarded Bond Paper: Francisco Valenzuela-Diaz[1]; *Danilo Fermino*[1]; Maria das Gracas Valenzuela[1]; Esperidiana Moura[2]; Duclerc Parra[2]; [1]Universidade de Sao Paulo; [2]Nuclear and Energy Research Institute, IPEN-CNEN/SP

C27: Research on Preparation and Properties of Inorganic Gelling Materials for Sand Fixation: *Mingsheng He*[1]; Jianbao Li[2]; Gaifeng Xue[1]; Feng Hao[2]; [1]WISCO; [2]Tsinghua University

C28: Structure and Elastic Properties of Ni_3Al Based Super Alloys under High Pressure: *Selva Raju*[1]; Ross Hrubiak[1]; Vadym Drozd[1]; Krishna Rajan[2]; Srikant Srinivasan[2]; [1]Florida International University; [2]Iowa State University

C29: The Leaching of the Toxicity of Stainless Steelmaking Dust and Analysis: *Qing Xiao*[1]; Qiuju Li; [1]Shanghai University

C30: Thermal Decomposition Reaction Mechanisms and Kinetics of Ammonium Paratungstate Tetrahydrate (APT): Anil ESER[1]; Cem Kahruman[1]; *Ibrahim Yusufoglu*[1]; [1]Istanbul University

C31: Toward Achieving Long Term Performance Stability of Li Ion Batteries: Can Evaluation of Trace and Ultra-trace Level Contaminants Help?: *Xinwei Wang*[1]; Karol Putyera[1]; Sanjay Patel[1]; [1]Evans Analytical Group, LLC.

C32: Addition of Nanoclay with Silver Nanoparticles in the Copolyester Biodegradable: *Alexandre Silva*[1]; Mahesh Hosur[2]; Hynd Remita[3]; Jaciele Teixeira[4]; Edinaldo Severino[4]; Esperidiana Moura[4]; Francisco Valenzuela-Diaz[5]; [1]IPEN ; [2]Tuskegee University; [3]CNRS-Université Paris-Sud; [4]IPEN; [5]Escola Politécnica da Universidade de São Paulo

C33: Characterization of Different Clays for the Manufacture of Artifacts Ceramic Red: Afonso Azevedo[1]; Jonas Alexandre[1]; Euzebio Zanelato[1]; Gustavo Xavier[1]; Carlos Mauricio Vieira[1]; Sergio Monteiro[2]; *Thales Otal*[1]; [1]UENF; [2]IME

C34: Characterization of Sisal Fibers Thermal Properties by Photoacoustic Technique: Artur Camposo Pereira[1]; Sergio Monteiro[1]; *Frederico Margem*[1]; Roberto Faria Jr.[1]; [1]Universidade Estadual do Norte Fluminense

C35: Izod Impact Tests of Polyester Composites Reinforced with Bamboo Fibers of the Specimen Dendrocalmus Giganteus: *Lucas Martins*[1]; Frederico Margem[1]; Sérgio Monteiro[2]; Rômulo Loyola[1]; Igor Margem[1]; [1]UENF; [2]IME

C36: Friction Stir Welding of Polycarbonate Sheets: Mostafa Shazly[1]; *Mohamed Ahmed*[2]; Mohamed El-Raey[1]; [1]The British University in Egypt; [2]Suez University

C37: The Grain Growth Kinetics of 0.5 mol% B_2O_3-1 mol% TiO_2-doped ZnO Ceramics: *Gökhan Hardal*[1]; Berat Yüksel[1]; [1]Istanbul University

C38: Izod Impact Resistance of Jute Fiber Reinforced Polyester Matrix: *Isabela Silva*[1]; Alice Bevitori[1]; Caroline Oliveira[1]; Frederico Margem[1]; Sergio Monteiro[1]; [1]UENF

C39: Photoacoustic Characterization of Polyester Matrix Reinforced with Curaua Fibers: Noan Simonassi[1]; *Frederico Margem*[1]; Rômulo Loiola[1]; Sergio Monteiro[1]; Roberto Faria[1]; Thallis Cordeiro[1]; [1]State University of the Northern Rio de Janeiro

C40: Photoacoustic Thermal Characterization of Buriti Fibers: *Giulio Altoé*[1]; Frederico Margem[1]; Sérgio Monteiro[2]; Roberto Faria Jr.[1]; Thallis Cordeiro[1]; [1]State University of the Northern Rio de Janeiro - UENF; [2]Military Institute of Engineering, IME

C41: Synthesis and Characterization of Ammonium Jarosite with Arsenic: *Francisco Patiño*[1]; Mizraim Flores[2]; Iván Reyes[3]; J. Eliecer Méndez[1]; Martín Reyes[1]; Ister Mireles[1]; Juan Hernández[1]; [1]Universidad Autónoma del Estado de Hidalgo; [2]Universidad Tecnológica de Tulancingo; [3]Universidad Tecnológica de Tula-Tepeji

C42: Failure Mode Characterization of Polymer Matrix Composites during Tensile Testing: *Jeongguk Kim*[1]; [1]Korea Railroad Research Institute

C43: Bioleaching and Electrobioleaching of Low Grade Copper Sulfide Ore(Chalcopyrite) of Sarcheshmeh Copper Mine: *Hossein Etminan*[1]; [1]GolGohar Mining & Industrial Company

Computational Modeling and Simulation of Advanced Materials for Energy Applications — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Lan Li, Boise State University; Laura Bartolo, Kent State University; Cong Wang, Northwestern University; Chandler Becker, NIST

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February 17, 2014
Room: Sails Pavilion
Location: San Diego Convention Center

Session Chair: Lan Li, Boise State University

J1: Elastic and Thermodynamics Properties of the B2- ErX (X=Cu, Au, Ag, Ir) Type Rare Earth Intermetallic Compounds from Ab-initio Calculations: SEKKAL Abdessamad[1]; *BENZAIR Abdelnour*[2]; [1]Université Abou Bekr Belkaid Tlemcen, Algérie; [2]Université Abou Bekr Belkaid Tlemcen, Algérie

J2: Development and Practice of Blast Furnace Physical Heat Index Based on the Hot Metal Silicon Content and Temperature Prediction Model: *Bing Dai*[1]; Jian-liang Zhang[1]; Cui Wang[1]; Zhe Jiang[1]; [1]University of Science and Technology Beijing

Computational Thermodynamics and Kinetics — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Alloy Phases Committee, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Long Qing Chen, Penn State University; Guang Sheng, Scientific Forming Technologies Corporation; Jeffrey Hoyt, McMaster University; Dallas Trinkle, University of Illinois at Urbana-Champaign

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Session Chair: Jeff Hoyt, McMaster University

F21: Thermodynamic and Crystallography Analysis on Complex Inclusions in Ti Deoxidized Low Carbon Steel: *Feifei Sun*[1]; Huigai Li[1]; Jieyun Chen[1]; Shaobo Zheng[1]; Qijie Zhai[1]; [1]Shanghai University

F22: Crystal-melt interfacial Properties of HCP Metals by Molecular Dynamics Simulations: *Ebrahim Asadi*[1]; Mohsen Asle Zaeem[1]; [1]Missouri University of Science and Technology

F23: Diffusion Mechanism Map of Solute Atom Diffusion in Alloys: *Akio Ishii*[1]; Shigenobu Ogata[1]; [1]Osaka University

F24: Electronic Structure Calculations of Screw Dislocation Core Structure as a Function of Dilatation and Its Relation to Ductility in Tungsten: *Lucile Dezerald*[1]; Jaime Marian[2]; Francois Willaime; Lisa Ventelon[1]; David Rodney[3]; [1]CEA; [2]Lawrence Livermore National Laboratory; [3]Grenoble INP

F25: Influence Factors for Brittle-to-ductile Transition in Twinned Copper: *Linqing Pei*[1]; Cheng Lu[1]; Kiet Tieu[1]; Xing Zhao[1]; Kuiyu Cheng[1]; Liang Zhang[1]; [1]University of Wollongong

F26: Kinetic Monte Carlo Study of Fission Gas and Grain Growth in Nuclear Fuels: *Richard Hoffman III*[1]; Chaitanya Deo[1]; [1]Georgia Institute of Technology

F27: Micromagnetic Simulations of Spin Transfer Torque Magnetization Switching in Heusler Alloy Co_2FeAl-Based Magnetic Tunnel Junction Spin-valve Nanopillar: *Houbing Huang*[1]; Xingqiao Ma[2]; Long-Qing Chen[1]; [1]Penn State University; [2]USTB

F28: Modeling of (De-)agglomeration of Inert Solid Particles of Arbitrary Shape in Sheared Flow: *Gyula Toth*[1]; Gyorgy Tegze[1]; Laszlo Granasy[1]; [1]Wigner Research Centre for Physics

F29: Molecular Dynamics Modelling of Diffusional Formation of Titanium Carbide Clusters in Iron Matrix: *Yanan Lv*[1]; Peter Hodgson[1]; Lingxue Kong[1]; Weimin Gao[1]; [1]Deakin University

F30: Numerical Simulation of Thermomechanical Processes Coupled with Microstructure Evolution: *Alberto Brito*[1]; Tiago Colombo[1]; Lirio Schaeffer[1]; [1]Universidade Federal of Rio Grande do Sul

F31: Stress Induced Martensitic Transformation in Zirconia and Its Transformation Toughening Effect: *Mahmood Mamivand*[1]; Mohsen Asle Zaeem[2]; Haitham El Kadiri[1]; [1]Mississippi State University; [2]Missouri University of Science and Technology

F32: Thermodynamics Study of Solubility of MgO, CaO, SiO2, FeO, Fe_2O_3 under Different pH Value with OLE Software: *Shaohua Ju*[1]; Zhanyong Guo[1]; Libo Zhang[1]; Jinhui Peng[1]; Mengyang Huang[1]; [1]Yunnan Provincial Key Laboratory of Intensification Metallurgy

F33: Time Scaling Monte Carlo Potts Using Non-ideal Microstructural Features: *Alan Williamson*[1]; Jean-Pierre Delplanque[1]; [1]University of California, Davis

F34: A Phase Field Modeling of Electrostatics: *Dong-Uk Kim*[1]; Pil-Ryung Cha[1]; [1]Kookmin University

F35: Computational Study of Microstructure and Property Relations in Ferroelectric Polycrystals: *Jie Zhou*[1]; Yu Wang[1]; [1]Michigan Technological University

F36: Computational Study of the Stiffness of Asymmetric Tilt Boundaries in a Model BCC Binary Alloy: *Isaac Toda-Caraballo*[1]; Paul Bristowe[1]; [1]University of Cambridge

F37: Crystal Plasticity Based Numerical Modeling of Dynamic Recrystallization in Magnesium Alloys: *Evdokia Popova*[1]; Yauheni Staraselski[1]; Abhijit Brahme[1]; Raja K. Mishra[2]; Kaan Inal[1]; [1]University of Waterloo; [2]General Motors Research and Development Center

F38: Determination of Solid-liquid Interface Free Energy from Molecular Dynamics Simulation: *S. R. Wilson*[1]; M.I. Mendelev[1]; [1]Ames Laboratory, USDOE

F39: First-principles Simulations of the Interaction of Alloying Elements with the Austenite-ferrite (fcc-bcc) Interface in Iron: *Hao Jin*[1]; Ilya Elfimov[1]; Matthias Militzer[1]; [1]The University of British Columbia

F40: First-principles Study of Ni and Cu Additions on Stacking Fault Energy for Third Generation Advanced High Strength Steels: *Krista Limmer*[1]; Julia Medvedeva[1]; [1]Missouri S&T

F41: Modeling and Simulation of Isothermal Reduction of a Single Hematite Pellet in Gas Mixtures of H_2 and CO: *Reza Beheshti*[1]; John Moosberg-Bustnes[1]; Ragnhild E. Aune[2]; [1]Northern Research Institute (Norut Narvik); [2]Royal Institute of Technology (KTH)

F42: Molecular Dynamics Study of Nucleation under High Driving Force Regime: *Ramanarayan Hariharaputran*[1]; David Wu[1]; [1]Institute of High Performance Computing, Agency for Science, Technology and Research

F43: Shear Response of an Al S5 Asymmetrical Tilt Grain Boundary Simulated by Molecular Dynamics: Kuiyu Cheng[1]; Cheng Lu[1]; Kiet Tieu[1]; *Linqing Pei*[1]; [1]University of Wollongong

F44: Simulating the Alignment of Nuclei during Solidification of a Nickel Base Alloy due to External Magnetic Field: *Bala Radhakrishnan*[1]; Nagraj Kulkarni[1]; [1]Oak Ridge National Laboratory

F45: Stable Structures and Thermodynamic Properties of Os-W Alloys: *Qunfei Zhou*[1]; T. John Balk[1]; Matthew J. Beck[1]; [1]University of Kentucky

F46: Thermodynamic Properties of Paramagnetic Iron from First-principles: *Fritz Körmann*[1]; Blazej Grabowski[1]; Biswanath Dutta[1]; Tilmann Hickel[1]; Jörg Neugebauer[1]; [1]Max-Planck-Institut für Eisenforschung

Deformation, Damage, and Fracture of Light Metals and Alloys III — Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Ke An, Oak Ridge National Laboratory; Qizhen Li, University of Nevada, Reno

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Room: Sails Pavilion
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I9: Mechanical Behavior of Eutectic Cu-Zn-Al Shape Memory Alloy: *Haohan Li*[1]; Qizhen Li[1]; [1]University of Nevada, Reno

I10: Mechanical Behavior of Magnesium Subjected to Severe Plastic Deformation: *Xing Jiao*[1]; Qizhen Li[1]; [1]University of Nevada, Reno

I11: Tensile Properties of Twin-roll and Direct Chill Cast AZ31 Magnesium Alloy: *Mariia Zimina*[1]; Premysl Málek[1]; Jan Bohlen[2]; Dietmar Letzig[2]; Gerrit Kurz[2]; Miroslav Cieslar[1]; [1]Charles University in Prague; [2]Magnesium Innovation Centre (MagIC) Helmholtz-Zentrum Geesthacht

I12: Effects of Electromagnetic Field and Re-melting on Degassing of Molten Aluminum Alloys: Yongsheng Ren[1]; Wenzhou Yu[1]; Kuixian Wei[1]; *Wenhui Ma*[1]; [1]Kunming University of Science and Technology

I13: The Effect of a Pulsed Electric Current on the Compressive Behavior of Magnesium Alloys: *Yong-Ha Jeong*[1]; Sung-Tae Hong[1]; Moon-Jo Kim[2]; Heung Nam Han[2]; James Magargee[3]; Jian Cao[3]; Geunan Lee[4]; Kyungsik Han[5]; [1]University of UIsan; [2]Seoul National University; [3]Northwestern University; [4]Korea Institute of Industrial Technology; [5]Ulsan Techno Park

I14: The Electroplastic Tensile Behavior of Aluminum 6061 Alloys with Various Heat Treatment Conditions under a Pulsed Electric Current: *Hyeong-Ho Yu*[1]; Sung-Tae Hong[1]; Moon-Jo Kim[2]; Heung Nam Han[2]; Jian Cao[3]; Suk-Hyun Kim[4]; [1]University of UIsan; [2]Seoul National University; [3]Northwestern University; [4]Sejong Industrial Co.

I15: Characterization of Cu Tube Filled with Al Alloy Foam by Means of X-ray Computer Tomography: *Girolamo Costanza*[1]; F. Mantineo[2]; Andrea Sili[2]; Maria Elisa Tata[1]; [1]University of Rome "Tor vergata"; [2]University of Messina

I16: Enhanced Superplastic Deformation of Nanostructured 6061 Al Alloy Fabricated by Asymmetrical Rolling Method: I Putu Widiantara[1]; Young Gun Ko[1]; *Bong Kwon Chung*[1]; [1]Yeungnam University

Dynamic Behavior of Materials VI – An SMD Symposium in Honor of Professor Marc Meyers — Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Naresh Thadhani, Georgia Institute of Technology; George Gray, Los Alamos National Laboratory

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

B5: Domain Re-orientation in a Magnetostrictive Material during High-strain Rate Loading and Inside a Biased Magnetic Field: *Dipankar Ghosh*[1]; Abubakarr Bah[2]; Gregory Carman[2]; Guruswami Ravichandran[1]; [1]California Institute of Technology; [2]University of California Los Angeles

B6: Influence of Nano-particles Agglomeration and Nano-voids Clusters on Mechanical Behavior of Ceramic Nanocomposites under Dynamic Loading: *Evgeniya Skripnyak*[1]; Vladimir Skripnyak[1]; Irina Vaganova[1]; Vladimir Skripnyak[1]; [1]National Research Tomsk State University

B7: Natural Fiber Composite in a Novel Multi-material Ballistic Armor: *Luis Louro*[1]; Willian Trindade[1]; Alaelson Gomes[1]; Arnaldo Ferreira[1]; Sérgio Monteiro[1]; Marcelo Prado da Silva[1]; Ricardo Weber[1]; João Suarez[1]; Carlos Chagas[1]; Eduardo Lima[1]; [1]Military Institute of Engineering

B8: Rapid Depolarization of Poled Ferroelectric Ceramics Using a Split Hopkinson Pressure Bar: *Dipankar Ghosh*[1]; David Pisani[2]; Christopher Lynch[2]; Guruswami Ravichandran[1]; [1]California Institute of Technology; [2]University of California Los Angeles

B9: Shock-Induced Phase Transformations in Ce-Al Metallic Glass: *Alex Bryant*[1]; Seung Soon Jang[1]; Naresh Thadhani[1]; [1]Georgia Institute of Technology

B10: Stress-induced Cell Membrane Deformation Due to the Photoacoustic Effect during Drug Delivery: *Stefany Holguin*[1]; Aritra Sengupta[1]; Mark Prausnitz[1]; Naresh Thadhani[1]; [1]Georgia Institute of Technology

B11: On Dynamic Void Growth by Dislocation Emission for Nano and Micro Size Voids: *Vlado Lubarda*[1]; [1]UCSD

B12: Discussions of the Phase Diagram of Detonation Products Depicted by Numerical Calculation Method: *Xiaohong Wang*[1]; [1]Dalian University of Technology

B13: Dynamic Contact Failure of Two Brittle Particles under Compression: Niranjan Parab[1]; *Weinong Chen*[1]; Kamel Fezzaa[2]; Shengnian Luo[3]; Xianghui Xiao[2]; [1]Purdue University; [2]Argonne National Laboratory; [3]Sichuan University

B14: Dynamic Deformation and Fracture Behavior of Ti-6Al-4V Alloy: Chunhuan Guo[1]; Peijun Zhou[1]; Zichuan Lu[1]; *Fengchun Jiang*[1]; [1]Harbin Engineering University

B15: Effect of Temperature and Strain Rate on Mechanical Response of ZEK100 Mg Alloy Sheet: *Srihari Kurukuri*[1]; Michael Worswick[1]; Raja Mishra[2]; Jon Carter[2]; [1]University of Waterloo; [2]General Motors R & D

B16: Elastic-viscoplastic Anisotropic Modeling of Textured Metals and Validation Using the Taylor Cylinder Impact Test: Benoit Revil-Baudard[1]; *Geremy Kleiser*[1]; Philp Flater[1]; Oana Cazacu[1]; [1]University of Florida

B17: Fragmentation and Constitutive Response of Tailored Mesostructured Aluminum-based Compacts: *Andrew Marquez*[1]; Marc Meyers[1]; David Benson[1]; Melisa Ribero[1]; Kenneth Vecchio[1]; Christopher Braithwaite[2]; Timothy Weihs[3]; Nick Krywopusk[3]; [1]University of California, San Diego; [2]Cavendish Laboratory; [3]Johns Hopkins University

B18: Kinetics of Polymeric Gels: *Shengqiang Cai*[1]; [1]UCSD

B19: Orientation Dependence of Shock Induced Dislocations in Tantalum Single Crystals: *Bo Pang*[1]; I.P. Jones[1]; Yu Lung Chiu[1]; J.C.F. Millett[2]; Glenn Whiteman[2]; N. K. Bourne[2]; [1]School of Metallurgy and Materials, University of Birmingham; [2]AWE

B20: Ejecta Formation in Explosively Driven Two-shockwave Drive: *Shabnam Monfared*[1]; William Buttler[1]; Russell Olson[1]; Frank Cherne[1]; David Oro[1]; Joseph Stone[1]; James Hammerberg[1]; [1]Los Alamos National Laboratory

B21: Simulation of Shaped Charge Collapse Using Smoothed Particle Hydrodynamics: Édio Lima Júnior[1]; *Arnaldo Ferreira*[1]; Luis Louro[1]; [1]Military Institute of Engineering

EMPMD 2014 Technical Division Student Poster Contest — Posters

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

SP1: Ga-based Cu-to-Cu Interconnection with Pt UBM: *Hao-miao Chang*[1]; Shih-kang Lin[1]; [1]National Cheng Kung University

SP2: Exploring Nature's Missing $Li_4Me_5O_{12}$ Defect Spinel Oxides by Ab Initio Calculations: *Ping-chun Tsai*[1]; Shih-kang Lin[1]; Wen-Dung Hsu[1]; [1]National Cheng Kung University (NCKU)

SP3: Thin Ferrite Films Compared to Oxide Coated Iron Powder for Electromagnetic Devices: *Katie Jo Sunday*[1]; [1]Drexel University

SP4: Periodic Layer Formation in the Au-12Ge/Ni Diffusion Couple: *Ming-yueh Tsai*[1]; Shih-kang Lin[1]; [1]National Cheng Kung University

SP5: Interfacial Reaction of the Ni/Sn-Pd System and Ni-Pd-Sn Phase Relations Focused on the Sn-rich Alloys: *Md. Arifur Rahman*[1]; W. Z. Hsieh[1]; T. H. Yang[1]; C. E. Ho[1]; [1]Yuan Ze University

SP6: High Current Density Carbon Nanotube Field Emitters Using Copper Foam: *Gaurav Mittal*[1]; Indranil Lahiri[1]; [1]IIT Roorkee

SP7: Characterization of Interfacial Reactions in Cu/In/Ni Joints at 280 °C: *Yu-hsiang Wang*[1]; Shih-kang Lin[1]; [1]National Cheng Kung University Department of Material Science and Engineering

SP8: High Performance Li-ion Battery Based on CNT-SnO_2 Cross-stacked Structured Binder Free Anode: *Sameer Chouksey*[1]; Indranil Lahiri[1]; [1]IIT Roorkee

SP9: Development of Mn-Al-Ti Permanent Magnet Alloys: *Ozgun Acar*[1]; Ilkay Kalay[2]; Y. Eren Kalay[1]; [1]Middle East Technical University ; [2]Cankaya University

SP10: Gas-Sensing Properties of Metal Oxides and Nanostructured Heterojunctions: *Marc Doran*[1]; [1]Ohio State University

SP11: BSCF Colloid for Dip Coating Low Temperature Fuel Cell Cathodes: *John Schultz*[1]; [1]The Ohio State University

EMPMD 2014 Technical Division Young Professional Poster Contest — Posters

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Young Professionals Committee

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

YP1: Optoelectrical Properties of Free-Standing InGaN Membranes: *Chia-Feng Lin*[1]; [1]National Chung Hsing University

YP2: Why Does an Electric Current Change the Stability of Solder?: *Shih-kang Lin*[1]; Chao-kuei Yeh[1]; Yu-chen Liu[1]; Masahiro Yoshimura[1]; [1]National Cheng Kung University

Energy Technologies and Carbon Dioxide Management — Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Education Committee, TMS: Energy Committee
Program Organizers: Cong Wang, Northwestern University; Jan de Bakker, BBA, Inc; Cynthia Belt, Consultant; Animesh Jha, University of Leeds; Neale Neelameggham, Ind LLC; Soobhankar Pati, MOxST Inc.; Leon Prentice, CSIRO

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Room: Sails Pavilion
Location: San Diego Convention Center

J3: Corrosion Behavior of Differently Heat Treated Steels in CCS Environment with Supercritical CO_2: Anja Pfennig[1]; Phillipp Zastrow[1]; Axel Kranzmann[2]; *Pedro Portella*[2]; [1]HTW Berlin; [2]BAM Berin

J4: Developing Segmented Polyurethanes as Solid-solid Phase Change Materials: *Claire Poh*[1]; Vincent Blouin[2]; [1]Clemson University ; [2]Clemson University

J5: Influence of Volatile Functionality on Pulverized Coal Explosivity: *Qinghai Pang*[1]; [1]University of Science and Technology Beijing

J6: Thermodynamic and Experimental Study on the Steam Reforming Processes of Bio-oil Compounds for Hydrogen Production: *Huaqing Xie*[1]; Qingbo Yu[1]; Kun Wang[1]; Xinhui Li[1]; Qin Qin[1]; [1]School of Materials and Metallurgy, Northeastern University

J7: Iron Ore Sinter Produced with Charcoal Aiming Diminish the Carbon Emissions: *Victor Telles*[1]; Eduardo Junca[1]; Girley Rodrigues[1]; Jorge Tenório[1]; Denise Espinosa[1]; [1]University of Sao Paulo - USP

EPD 2014 Technical Division Student Poster Contest — Posters

Sponsored by: TMS Extraction and Processing Division

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

SP12: REE Selective Processing by Leaching and Chelating SPCs: *Sean Dudley*[1]; Grant Wallace[1]; [1]Montana Tech of the U of M

SP13: High-temperature Wetting of Cryolitic Melts and Liquid Aluminum on Graphite Cathode Materials: *Zhenhuan Huang*[1]; Jilai Xue[1]; Yanan Zhang[1]; Liang Liu[1]; [1]Unversity of Science and Technology Beijing

SP14: Carbothermic Reduction of Synthetic Chromite with/without the Presence of Metallic Iron: *Xianfeng Hu*[1]; Haijuan Wang[2]; Lidong Teng[1]; Seshadri Seetharaman[1]; [1]KTH-Royal Institute of Technology; [2]University of Science and Technology, Beijing

SP15: Polyvinyl Alcohol Nanofibers Prepared by the ForcespinningTM Method: *Javier Acosta Martinez*[1]; Alexsandra Villarreal[1]; Lee Cremar[1]; Karen Lozano[1]; [1]UTPA

SP16: Fabrication and Characterization of TiO_2/Glass Composites for Environmental Remediation: *Luis Laracuente*[1]; Wesley Cuadrado[1]; Jorge De Jesus[1]; Liliana Hernandez[1]; Gerardo Nazario[1]; O.Marcelo Suarez[1]; [1]University of Puerto Rico Mayaguez

SP17: Effect of Nitride Coating on the Properties of Aluminum-silicon Composites Containing Borides: *Angel Rodriguez*[1]; Oscar Marcelo Suarez[1]; [1]University of Puerto Rico - Mayaguez Campus

SP18: The Study of Dephosphorization in Steel as a Function of Sulfur Content: *Brian Jamieson*[1]; Kenneth Coley[1]; [1]McMaster University

EPD 2014 Technical Division Young Professional Poster Contest — Posters

Sponsored by: TMS Extraction and Processing Division, TMS: Young Professionals Committee

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YP3: Study on Separation of Tin from a Low Grade Tin Concentrate through a Leaching and Low Temperature Smelting Process: *Yang Jian-guang*[1]; [1]Central South University

YP4: Ultra-High Temperature Molten-Oxide Electrolysis: *Rachel DeLucas*[1]; Guillaume Lambotte[1]; Antoine Allanore[1]; [1]Massachusetts Institute of Technology

YP5: In-Situ CSLM Investigation on Dissolution of SiO_2 Particles in CaO–Al_2O_3–SiO_2 Slags: Stefan Feichtinger[1]; Susanne Michelic[1]; *Youn-Bae Kang*[2]; Christian Bernhard[1]; [1]Montanuniversitaet Leoben; [2]Pohang University of Science and Technology

YP6: Calcium-antimony Electrodes for Liquid Metal Batteries: Towards Grid-scale Electrochemical Energy Storage: *Takanari Ouchi*[1]; Hojong Kim[1]; Donald Sadoway[1]; [1]MIT

Gamma TiAl Alloys 2014 — Poster Session

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Titanium Committee
Program Organizers: Young-Won Kim, Gamteck, Inc.; Wilfried Smarsly, MTU Aero Engines GmbH; Junpin Lin, University of Science and Technology Beijing; Dennis Dimiduk, Air Force Research Laboratory; Fritz Appel, Helmholtz Zentrum Geesthacht

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Session Chairs: Yongfeng Liang, University of Science & Technology Beijing; Thomas Voisin, CEMES-LOE/CNRS

B21: The Effect of Mould Pre-heat Temperature and Casting Dimension on the Reaction between TiAl Alloy and the Zirconia Investment Casting Moulds: *Chen Yuan*[1]; Xu Cheng[2]; Grant Holt[2]; Paul Withey[2]; [1]University of Birmingham ; [2]University of Birmingham

B22: Directional Solidification of TiAl Alloys: *Yanqing Su*[1]; Liangshun Luo[1]; Xinzhong Li[1]; Jingjie Guo[1]; Hengzhi Fu[1]; [1]Harbin Institute of Technology

B23: Cyclic Oxidation Resistance of High Niobium Containing TiAl Based Alloy with Erbium: *lihua Chai*[1]; Ziqi Gong[1]; Ziyong Chen[1]; Zuoren Nie[1]; [1]Beijing University of Technology

B24: Effects of Mould Shell Materials on Interface Reaction and Anti-oxidation of Investment Cating TiAl Alloy: *Xiao Shulong*[1]; Xu Lijuan[1]; Cao Shouzhen[1]; Tian Jing[1]; Chen Yuyong[1]; [1]Harbin Institute of Technology

B25: Strain Rate Effects on Brittle-to-ductile Transition Temperature of TiAl Compounds: Xiang Zan[1]; *Li Ouyang*[1]; Yu Wang[2]; Weidong Song[3]; Yuehui He[4]; Yong Liu[4]; [1]Hefei University of Technology; [2]University of Science & Technology of China; [3]Beijing Institute of Technology; [4]Central South University

B26: Microstructure and Properties of Ti-45Al-5.5(Cr,Nb,B,Ta) Alloy by Double Mechanical Milling and Hot Isostatic Pressing(HIP): *Xu Lijuan*[1]; Xiao Shulong[1]; Tian Jing[1]; Yu Hongbao[1]; Chen Yuyong[1]; [1]Harbin Institute of Technology

B27: Thermodynamical Calculations Investigating the F-Effect for γ–TiAl Alloys in the Presence of Calcium: *Hans-Eberhard Zschau*[1]; Michael Schütze[1]; Mathias Galetz[1]; [1]DECHEMA - Forschungsinstitut

B28: Composition, Structure and Properties of Vacuum Induction Melted and Hot Pressed Ti-42Al-5Mn Alloy: *Xiong Chao*[1]; Zhang Long[1]; Liu Kui[1]; Li Yiyi[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

B29: Simulation on Extrusion Process of TiAl Large-scale Vacuum Arc Remelted Ingot: *Fan Gao*[1]; [1]Beijing Institute of Aeronautical Materials

B30: Analysis of Solidification Procedures in Directionally Solidified Two-phase Gamma-TiAl Alloys Containing Beta Stabilizing Elements: *Myung-Hoon Oh*[1]; Jong-Moon Park[1]; Seong-Woong Kim[2]; Seung Eun Kim[2]; [1]Kumoh National Institute of Technology; [2]KIMS

B31: The Effect of Milling Time on Ti-48%Al Composite Powder by Mechanical Alloying: Yi Feng[1]; Lei Zhou[1]; *Cai Lan*[1]; [1]Kunming University of Science and Technology

B32: Seeded Growth of Ti-47Al-2Cr-2Nb PST Crystal: *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

B33: Oxygen Reduction in TiAl Produced by the TiPro Process: *Kenneth Sichone*[1]; Brian Gabbitas[1]; [1]The University of Waikato

B34: Rolling and Grinding of Thin Sheets of Beta-Solidified Gamma TiAl Alloys: *Young-Won Kim*[1]; Sang-Lan Kim[2]; [1]Gamteck, Inc.; [2]UES, Inc.

General Recycling — General Recycling Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Jeffrey S. Spangenberger, Argonne National Laboratory; Randolph Kirchain, Massachusetts Institute of Technology

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February 17, 2014
Room: Sails Pavilion
Location: San Diego Convention Center

Session Chair: Jeffrey Spangenberger, Argonne National Laboratory

J8: Characterization of Printed Circuit Boards from Scrap Printers: *Flávia Silvas*[1]; Viviane Moraes[1]; Guilherme Bortolini[1]; Otavio Gomes[2]; Stoyan Gaydardzhiev[3]; Denise Espinosa[1]; Jorge Tenorio[1]; [1]Polythecnic School of University of São Paulo; [2]Centre for Mineral Technology, CETEM; [3]University of Liège

J9: Characterization of Recycled Glass Sintered with TiO_2 Nanoparticles Designed for the Remediation of Polluted Soils: *Wesley Cuadrado*[1]; Anel Arroyo[1]; Liliana Hernández[1]; Gerardo Nazario[1]; O. Marcelo Suárez[1]; [1]University of Puerto Rico - Mayagüez

J10: Development of Recycling Process to Recovery of Metal Values from Spent Primary/Secondary Batteries Using Thermal Treatment: *Jei Pil Wang*[1]; Shun Myung Shin[2]; [1]Pukyong National University; [2]Korea Institute of Geoscience and Mineral Resources

J11: Separation of Manganese from Material Containing Co Using Mixture of Extractants: *Shun Myung Shin*[1]; Sung ho Joo[2]; [1]Korea Institute of Geoscience & Mineral Resources (KIGAM); [2]Korea University of Science & Technology

J12: The Effect of Ethanol Concentration for the Separation of Abs and Hips from Waste Electrical and Electronic Equipment (Weee) by Flotation Technique: Solange Utimura[1]; *Jorge Alberto Tenorio*[1]; Denise Espinosa[1]; [1]University of São Paulo

J13: Convert Melting Slag Directly into High Basicity Glass-cramic: *Li Yu*[1]; Liu Xiaoming[1]; Cang Daqiang[1]; [1]University of Science and Technology Beijing, China

J14: Kinetic Study of Acid Copper Leaching from Waste Printed Circuit Board: *Franco Ramunno*[1]; Viviane Moraes[1]; Denise Espinosa[1]; Jorge Tenório[1]; [1]Universidade de São Paulo

J15: Life Cycle Based Greenhouse Gas Footprints of Metal Production with Recycling Scenarios: *Nawshad Haque*[1]; Terry Norgate[1]; Stephen Northey[1]; [1]CSIRO

J16: Optimal Leaching on Hydrometallurgical Process of Recycling Batteries Using Less Energy and Reactants: *Felipe Costa Hashimoto Bertin*[1]; Rodrigo de Souza Dalti Pereira[1]; Denise Crocce Romano Espinosa[1]; Jorge Alberto Soares Tenório[1]; [1]Polytechnic School of the University of São Paulo

J17: Manganese Ferrite Nanoparticles Production from the Leaching of Batteries by Reductive Precipitation by Sodium Citrate: Lucas Martins[1]; *Daniella Buzzi*[1]; Viviane Moraes[1]; Denise Espinosa[1]; Jorge Alberto Tenório[1]; [1]Polytechnic School of the University of São Paulo

J18: Research on the Fundamental Characteristic of Dust and Sludge Containing Iron from Steel Enterprise: *Rui Mao*[1]; [1]University of Science and Technology Beijing

J19: An Investigation on Controllable Electro-healing Cracks in Nickel: Xiangui Zheng[1]; *Yinong Shi*[1]; Ke Lu[1]; [1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

J20: Study of Degradation of Ceramic Bodies Incorporated with Ornamental Rock Waste Obtained from Test of Wetting and Drying Cycles: *Gustavo Xavier*[1]; Jonas Alexandre[1]; Fernando Jr[1]; Paulo Maia[1]; Afonso Azevedo[1]; [1]UENF

J21: Production of Ornamental Compound Marble with Marble Waste and Unsaturated Polyester: *Carlos Gomes Ribeiro*[1]; Rubén Jesus Sánchez Rodrigues[2]; Carlos Maurício Fontes Vieira[2]; [1]IFES; [2]UENF

J22: Determination of Apparent Dry Density for Ternary Mixture of Crushed Marble Waste: *Carlos Gomes Ribeiro*[1]; Rubén Jesus Sánchez Rodrigues[2]; Carlos Maurício Fontes Vieira[2]; [1]IFES; [2]UENF

J23: Experimental Study on Reduction-magnetic Separation Process of Pickling Sludge: *Xulong Liu*[1]; Qing Xiao[1]; Jing Zhang[1]; Qiuju Li[1]; [1]Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University

J24: The Removal of Heavy Metals and Upgrading Crude Bio-oil from Pteris Vittata Stems and Leaves Harvest Using Hydrothermal Upgrading Process: *Yang Jian-guang*[1]; [1]Central South University

J25: Silver Recovery from Industrial Wastes Using an Electrochemical Reactor REOV-01: *Pedro Ramirez Ortega*[1]; Juan Carlos Gonzalez Islas[1]; Luis Garcia Lechuga[1]; Laura García[1]; [1]Universidad Tecnológica de Tulancingo

J26: Indium Recovery from Discarded Light Emitting Diode (LED) Liquid Cristal Display (LCD) TVs: Influence of Leaching Reagents: *Hugo Hashimoto*[1]; Priscilla Hanashiro[1]; Viviane Moraes[1]; Jorge Alberto Tenório[1]; Denise Espinosa[1]; [1]Escola Politécnica da Universidade de São Paulo

High-temperature Gamma (f.c.c.) /Gamma-Prime (L12 structure) Co-Al-W Based Superalloys — Poster Session

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee
Program Organizers: David Seidman, Northwestern University; David Dunand, Northwestern University; Chantal Sudbrack, NASA Glenn Research Center; Carelyn Campbell, National Institute of Standards and Technology; Ursula Kattner, National Institute of Standards and Technology; David Dye, Imperial College

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Room: Sails Pavilion
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B36: The Role of Ti on Reducing the Misfit of a Co-Al-W Alloy: *Pengjie Zhou*[1]; [1]Jiangsu University of Science and Technology

High-temperature Material Systems for Energy Conversion and Storage — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Energy Conversion and Storage Committee
Program Organizers: Kyle Brinkman, Savannah River National Laboratory (SRNL); Xingbo Liu, West Virginia University; Kevin Huang, University of South Carolina

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Room: Sails Pavilion
Location: San Diego Convention Center

Session Chair: To Be Announced

B37: Ion-exchanged Transition Metal Oxides for Enhanced Lithium Ion Storage at Elevated Temperatures: *Wei Zhang*[1]; Jasper Wright[1]; Dawei Liu[1]; [1]Alfred University

Hume-Rothery Award Symposium: Thermodynamics and Kinetics of Engineering Materials — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Hans Juergen Seifert, Karlsruhe Institute of Technology (KIT); Alan Luo, The Ohio State University; Peter Uggowitzer, ETH Zürich; Fan Zhang, CompuTherm, LLC

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Location: San Diego Convention Center

Session Chair: Hans Seifert, Karlsruhe Institute of Technology

M1: Thermodynamic Estimation of Silicon Tetrachloride to Trichlorosilane for a Low Temperature Hydrogenation Process: *Jijun Wu*[1]; Wenhui Ma[1]; Zhengjie Chen[1]; Kuixian Wei[1]; Bin Yang[1]; Yongnian Dai[1]; [1]Kunming University of Science and Technology

LMD 2014 Technical Division Student Poster Contest — Posters

Sponsored by: TMS Light Metals Division

Monday PM
February 17, 2014
Room: Sails Pavilion
Location: San Diego Convention Center

SP19: Interaction between {10-12} Twins and Stacking Faults in a Mg-Y Alloy: Dalong Zhang[1]; Baolong Zheng[1]; Yizhang Zhou[1]; Subhash Mahajan[1]; Enrique Lavernia[1]; [1]University of California-Davis

SP20: Dynamic Precipitation and Recrystallization in Magnesium Alloys: Effects on Grain Size and Texture: *Abu Syed Humaun Kabir*[1]; Mehdi Sanjari[1]; Jing Su[1]; In-Ho Jung[1]; Stephen Yue[1]; [1]McGill University

SP21: An Atomistically-informed Energy Based Theory of Environmentally Assisted Failure: *Sriram Ganesan*[1]; Veera Sundararaghavan[1]; [1]Department of Aerospace Engineering, University of Michigan-Ann Arbor

SP22: Electric Heating Behavior of Interlaminar Region in ZnO/Woven Carbon Fiber Reinforced Composites: *Kyungil Kong*[1]; Biplab K. Deka[1]; Myungsoo Kim[1]; Aeri Oh[2]; Heejune Kim[2]; Young-Bin Park[1]; Hyung Wook Park[1]; [1]UNIST; [2]LG Hausys R&D Center

SP23: Localized Mechanical Properties of Friction Stir Processed Sensitized 5XXX Al: *Caroline Scheck*[1]; Kim Tran[1]; Jennifer Wolk[1]; Marc Zupan[2]; [1]Naval Surface Warfare Center; [2]University of Maryland, Baltimore County

SP24: Use of High Energy Diffraction Microscopy to Study the Stress Relaxation of AZ31: *Wenli Tang*[1]; Armand Beaudoin[1]; Peter Kenesei[2]; Dallas Trinkle[1]; [1]University of Illinois at Urbana and Champaign; [2]Argonne National Laboratory

SP25: Strengthening of Al and Al-Mg Alloy Wires by Melt Inoculation with Al/MgB_2 Nanocomposite: *Alexandra Padilla*[1]; Raul Marrero[1]; David Florian[1]; Oscar Marcelo Suarez[1]; [1]University of Puerto Rico, Mayagüez Campus

LMD 2014 Technical Division Young Professional Poster Contest — Posters

Sponsored by: TMS Light Metals Division, TMS: Young Professionals Committee

Monday PM
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Room: Sails Pavilion
Location: San Diego Convention Center

YP7: Effect of Carbon Nanotube (CNT) Diameter on the Microstructure and Properties of Al-CNT Composites: *Srinivasa Bakshi*[1]; [1]Indian Institute of Technology Madras

YP8: Magnesium Biomaterials - The Future of Structural Implants: *Nicholas Kirkland*[1]; [1]Nagasaki University

YP9: Analysis the Recovery of Mechanical Properties of Aluminum Alloy Al-Zn-Mg T5 and 6082 T6 After the TIG Welding Process: *Gabriela Bruno*[1]; [1]ALCOA

YP10: Evolution of Metastable Phases in High-pressure Die Cast Mg-Nd Alloy at 177ºC: A Coupled Structural and Compositional Characterization: *Deep Choudhuri*[1]; Rajarshi Banerjee[1]; Mark Gibson[2]; Nilesh Dendge[1]; Soumya Nag[1]; [1]University of North Texas; [2]CSIRO

Magnesium Technology 2014 — Poster Session

Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Martyn Alderman, Magnesium Elektron; Norbert Hort, Helmholtz-Zentrum Geesthacht; Michele Manuel, University of Florida; Neale Neelameggham, Ind LLC

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Location: San Diego Convention Center

I17: Mechanical Anisotropy in a Thermo-mechanically Processed Magnesium Alloy at a Wide Range of Strain Rate and Temperature: *Farhoud Kabirian*[1]; Akhtar Khan[1]; [1]University of Maryland, Baltimore County

I18: The ExoMet Project: EU/ESA Research on High-performance Light-metal Alloys and Nanocomposites: *Wim Sillekens*[1]; David Jarvis[1]; [1]European Space Agency

I19: Effects of Different Strain and Heating Factor on the Microstructure and Compressive Properties of AZ61 Mg Alloy Produced by SIMA Process: *Yi Liang Ye*[1]; Fei Yi Hung[1]; Truan Sheng Lui[1]; Li Hui Chen[1]; [1]National Cheng Kung University

I20: An Investigation of the Local Mechanical Response at the Grain Level for Magnesium: *Ghazal Nayyeri*[1]; Warren Poole[1]; Chadwick Sinclair[1]; [1]University of British Columbia

I21: Effect of Li and Trace Element Addition on Microstructure and Mechanical Properties of Mg-Zn Based Alloys: *Hyeon-Taek Son*[1]; Yong-Ho Kim[1]; Jung-Han Kim[1]; Jeong-Won Choi[1]; Hyo-Sang Yu[1]; [1]Korea Institute of Industrial Technology

I22: Effect of Ti Based Additives on Hydrogen Storage Properties of Magnesium Hydride: *Chengshang Zhou*[1]; Zhigang Zak Fang[1]; Chai Ren[1]; Jingzhu Li[1]; [1]The University of Utah

I23: Flow Behavior and Hot Workability of Extruded ZK60 Magnesium Alloy: Shiyi Wang[1]; *Lei Gao*[2]; Alan Luo[3]; Xiaoqin Zeng[1]; Jeff Wang[2]; [1]Shanghai Jiao Tong University; [2]General Motors China Science Lab; [3]General Motors Global Research and Development Center

I24: Mechanical Properties of Magnesium and AZ31 Nano-pillars: *Zachary Aitken*[1]; Julia Greer[1]; [1]CalTech

I25: Microscale Plastic Strain Distribution in Slip Dominated Deformation of Mg Alloys: *Chad Sinclair*[1]; Guilhem Martin[1]; Ricardo Lebensohn[2]; [1]University of British Columbia; [2]Los Alamos National Laboratory

I26: Advanced Performance of Magnesium Alloy ZK60 Fabricated by a New Integrated Process Providing a Conduit for Transfer to Industrial Manufacturing: *Dmitry Orlov*[1]; Kei Ameyama[1]; Yuri Estrin[2]; [1]Ritsumeikan University; [2]Monash University

I27: Sensory Magnesium Components – Online-Measurement of Static and Dynamic Loads Utilizing Magnetic Magnesium Alloys: *Christian Klose*[1]; Christian Demminger[1]; Hans Jürgen Maier[1]; [1]Leibniz Universität Hannover

I28: Coupled Modeling of Electromagnetic Field, Fluid Flow, Heat Transfer and Solidification during Low Frequency Electromagnetic Casting of AZ80 Magnesium Alloys: *bai yuanyuan*[1]; [1]Northeastern University

I29: Evaluation of Fracture Criteria of Mg-Alloy Sheets during Formability Testing: Yueqian Jia[1]; Yuanli Bai[1]; *Govindarajan Muralidharan*[2]; T. R. Muth[2]; Yanli Wang[2]; [1]University of Central Florida; [2]ORNL

I30: Effect of Friction Stir Processing on Toughness of WE43 Alloy: *S. Das*[1]; N. Kumar[1]; R. Mishra[1]; K. Doherty[2]; K. Cho[3]; B. Davis[4]; R. Delorme[4]; [1]University of North Texas; [2]Army Research Labooratory; [3]Army Research Labooratory ; [4]Magnesium Elektron

I31: Effect of Processing Parameter on the Microstructural Evolution and Mechanical Properties of a WE43 Alloy during Friction Stir Welding: *S. Palanivel*[1]; R.S. Mishra[1]; B. Davis[2]; R. Delorme[2]; K.J. Doherty[3]; K.C. Cho[3]; J.A. Baumann[4]; [1]University of North Texas; [2]Magnesium Elektron North America Inc.; [3]U.S Army Research Laboratory; [4]The Boeing Company

I32: A New Microsegregation Model for the Prediction of as Cast Microstructure of Mg Alloys: *Manas Paliwal*[1]; In-Ho Jung[1]; [1]McGill University

I33: Characterization of Microstructure and Mechanical Properties of Twin Roll Strip-cast Mg-Al-X Alloys: *Sang Jun Park*[1]; Hua Chul Jung[1]; Kyung Hoon Lee[2]; Kwang Seon Shin[1]; [1]Magnesium Technology Innovation Center / Seoul National University; [2]Solution Lab

I34: Forming an Automobile Rear Seat Frame Using Magnesium Alloy Extrudites: *Ali Kaya*[1]; Deniz Tuncer[2]; Alev Osma[2]; [1]Mugla Sitki Kocman University; [2]Ford Co.

I35: Influence of Initial Microstructure and Process Parameter on the Microstructural Evolution of a WE43 Alloy during Friction Stir Welding: *S. Palanivel*[1]; R.S. Mishra[1]; B. Davis[2]; R. Delorme[2]; K.J. Doherty[3]; K.C. Cho[3]; [1]University of North Texas; [2]Magnesium Elektron North America Inc.; [3]U.S Army Research Laboratory

I36: A Multiscale Investigation of the Effect of Yttrium on Deformation in Magnesium: *Mehul Bhatia*[1]; Kiran Solanki[1]; Gang Lu[2]; [1]Arizona State University; [2]California State University Northridge

I37: Deformation Behaviour of AZ80 Alloy and Pure Magnesium under Uniaxial and Plane Strain Compression: *Hamid Azizi-Alizamini*[1]; Guilhem Martin[1]; Warren Poole[1]; [1]The University of British Columbia

I38: Corrosion Protection of Magnesium Alloys Using Ammonium-Phosphate Ionic Liquids- Produced Conversion Coatings: Hassan Elsentriecy[1]; *Jun Qu*[1]; Huimin Luo[1]; Harry Meyer[1]; Michael Brady[1]; [1]Oak Ridge National Laboratory

I39: Magnesium Electrorefining in Non-aqueous Electrolyte at Room Temperature: *Kyungjung Kwon*[1]; Jesik Park[2]; Priyandi Kusumah[1]; Bonita Dilasari[1]; Hansu Kim[3]; Churl Kyoung Lee[2]; [1]Sejong University; [2]Kumoh National Institute of Tech.; [3]Hanyang University

I40: Investigation of the Corrosion for Mg–Li-xGd–yY (x=7、8、9、10、11 wt%;y=1、2、3、4、5 wt%) Alloys: *Min Li*[1]; Guangchun Yao[1]; Yihan Liu[1]; Mengxiao Chen[1]; [1]Northeastern University

I41: Formation of Tetrahedron MgYNi4 and the Catalytic Effect on Hydrogenation Properties of Mg-Ni Alloy: *Wenjie Song*[1]; Jinshan Li[1]; Tiebang Zhang[1]; Xiaojiang Hou[1]; Hongchao Kou[1]; [1]Northwestern Polytechnical University

I42: Reversible Hydrogenation of Mg Synergistically Catalysed by Amorphous Mg_2Ni Alloy and MWCNTs at Room Temperature: *Xiaojiang Hou*[1]; Rui Hu[1]; Tiebang Zhang[1]; Hongchao Kou[1]; Wenjie Song[1]; Jinshan Li[1]; [1]Northwestern Polytechnical University

I43: Additive Manufacturing of Mg Powder via Solid State Wrought Metal Deposition Process: *Kumar Kandasamy*[1]; Jacob Calvert[1]; Liam Renaghan[1]; Kevin Creehan[1]; Jeffrey Schultz[1]; [1]Aeroprobe Corporation

I44: Atomistic Modeling Study on the Interactions between the Liquid Nitrogen and Magnesium-based Alloys during Powder Metallurgy (PM) Process: *Chang-Soo Kim*[1]; Marjan Nezafati[1]; J.B. Ferguson[1]; Kyu Cho[2]; [1]University of Wisconsin-Milwaukee; [2]Army Research Lab

I45: Effects of Processing Routes on Powder Metallurgy Magnesium Alloys: D Kapoor[1]; *R Sadangi*[1]; T Zahrah[2]; R Tandon[3]; D Madan[3]; [1]US Army ARDEC; [2]Matsys Inc; [3]Magnesium Elektron Powder Products

I46: The Effects of Advanced Surface Treatments on Residual Stress, Microstructure, Fatigue Life and Corrosion Properties of Magnesium Alloy AZ91: *Joohan Kim*[1]; James Russo[1]; Abhishek Telang[1]; Seetha Mannava[1]; Dong Qian[2]; Vijay Vasudevan[1]; [1]University of Cincinnati; [2]University of Texas at Dallas

I47: Effects of Surface Pretreatment and Processing Condition on the Film Properties of PEO Processed Strip-cast AZ31+Ca Mg Alloys: *Hwa Chul Jung*[1]; Sun Hwan Kwon[1]; Arumugam Madhan Kumar[1]; Young Hee Park[2]; Kwang Seon Shin[1]; [1]Magnesium Technology Innovation Center, Seoul National University; [2]Research Institute of Industrial Science and Technology

I48: Characterization of Surface and Corrosion Behavior of PEO Coatings on Strip-Cast AZ31Mg Alloy in 3.5% NaCl Solution: Arumugam Madhan Kumar[1]; Hwa Chul Jung[1]; *Kwang Seon Shin*[1]; [1]Seul National University,

I49: Studies on Corrosion Behavior of AZ91D Magnesium Alloy and Al-Si Alloy with Epoxy,Al Power Coatings: *Manivannan Subramanian*[1]; Kumaresh Babu S.P[1]; [1]National Institute of Technology, Tirchirappalli

I50: The Evaluation of Histological Methods for Biodegradable Magnesium and Magnesium Alloys: *Hyung-Seop Han*[1]; Jee Hye Lo Han[1]; Yu-Chan Kim[1]; Jee Wook Lee[2]; Seok-Jo Yang[3]; Hyun-Kwang Seok[1]; [1]Korea Institute of Science and Technology; [2]Kookmin University; [3]Chungnam National University

I51: Effect of Sn Microstructure and Tensile Properties of Hot-rolled Mg-Zn Sheet: *Seung Won Kang*[1]; Heon Kang[1]; Donghyun Bae[1]; [1]Yonsei University

I52: Mechanical Properties Factor Decomposition in Mg-alloys: *Isaac Toda-Caraballo*[1]; Enrique Galindo-Nava[1]; Pedro Rivera-Díaz-del-Castillo[1]; [1]University of Cambridge

I53: LPSO-type Magnesium Alloys with High Strength and High Flame Resistance: *Yoshihito Kawamura*[1]; Jonghyun Kim[1]; [1]Kumamoto University

I54: Comparative Studies on Microstructure, Tensile Properties and Formability of AZ31 and ZX31 Sheets Prepared by Hot Rolling and Annealing Treatment: Jong Yun Lee[1]; *Won Tae Kim*[2]; Do Hyang Kim[1]; [1]Yonsei University; [2]Cheongju University

I55: Thermodynamic Refinement of Mg-RE-based Ternary Systems by Considering As-cast Microstructures: Hailin Chen[1]; *Qing Chen*[1]; Johan Bratberg[1]; Paul Mason[1]; Anders Engström[1]; [1]Thermo-Calc Software AB

I56: Precipitation Evolution and Kinetics in a Magnesium-neodymium-zinc Alloy: *Amirreza Sanaty Zadeh*[1]; Xiangyu Xia[1]; Alan Luo[2]; Donald Stone[1]; [1]University of Wisconsin, Madison; [2]Generals Motor Research and Development Center

Magnetic Materials for Energy Applications IV — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Magnetic Materials Committee
Program Organizers: Thomas G. Woodcock, IFW Dresden; Julia Lyubina, Evonik Industries AG; Matthew Willard, Case Western Reserve University

Monday PM
February 17, 2014
Room: Sails Pavilion
Location: San Diego Convention Center

Session Chair: Hossein Sepehri Amin, NIMS

J27: Sm-Co Thin Layers, Magnetic and Structural Study: Marwen Hannachi[1]; Wajdi Belkacem[1]; Rachid Belhi[1]; Lotfi Bessais[2]; *Najeh Mliki*[1]; [1]Université de Tunis El Manar; [2]CMTR, ICMPE, UMR 7182, CNRS-Université Paris 12

J28: Development of Mn-Al-Ti Permanent Magnet Alloys: *Ozgun Acar*[1]; Ilkay Kalay[2]; Eren Kalay[1]; [1]METU; [2]Cankaya University

J29: Particle Size Dependence on Magnetic Properties of AlNiCo Powders: *Ayse Merve Genc*[1]; Yunus Eren Kalay[1]; [1]Middle East Technical University

J30: Magnetocaloric Effect in Ni_2Mn-X-Y Heusler Alloys: *Mikhail Drobosyuk*[1]; [1]Chelyabinsk State University

J31: The Influence of Antiferromagnetic Anisotropy on the Magnetocaloric Effect: *Bruno Alho*[1]; Alexandre Carvalho[2]; Pedro von Ranke[1]; [1]UERJ; [2]Universidade Federal de São Paulo

J32: Studies on the Magnetocaloric Effect of $LaFe_{12.2-x}Si_xCo_{0.8}$ and the Chemical Hydrogenation Methods of Pure $LaFe_{11.8}Si_{1.2}$ Alloys: *Patryk Wlodarczyk*[1]; Lukasz Hawelek[1]; Aleksandra Kolano-Burian[1]; Marcin Polak[1]; Artur Chrobak[2]; [1]Institute of Non-Ferrous Metals; [2]University of Silesia

J33: Magneto-structural Studies of the $Mn_{2-x}Fe_xP_{1-y}Ge_y$ Compounds Prepared by Solid State Vacuum Sintering: *Lukasz Hawelek*[1]; Patryk Wlodarczyk[1]; Aleksandra Kolano-Burian[1]; Malgorzata Kaminska[1]; Ritta Szymczak[2]; Igor Radelytskyi[2]; Henryk Szymczak[2]; [1]Institute of Non-Ferrous Metals; [2]Institute of Physics, Polish Academy of Sciences

J34: Magnetic Properties and Giant Magnetoimpedance Effect in Nanocrystalline Microwires: *Valentina Zhukova*[1]; Ahmed Talaat[1]; Mihail Ipatov[1]; Juan Blanco[2]; Margarita Churyukanova[3]; Sergei Kaloshkin[4]; Elena Kostitcyna[4]; Evgenia Shuvaeva[4]; Lorena Gonzalez-Legarreta[5]; Blanca Hernando[5]; Arcady Zhukov[6]; [1]Basque Country University, Dpto. Fisica de Materiales; [2]Basque Country University, Dpto. de Física Aplicada; [3]National Univer. of Science and Technology «MISIS», ; [4]National University of Science and Technology «MISIS»,; [5]Universidad de Oviedo; [6]Basque Country University and IKERBASQU

Materials and Fuels for the Current and Advanced Nuclear Reactors III — Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Ramprashad Prabhakaran, Idaho National Laboratory; Dennis Keiser, Idaho National Laboratory; Raul Rebak, GE Global Research

Monday PM
February 17, 2014
Room: Sails Pavilion
Location: San Diego Convention Center

L38: A Theoretical Model of Corrosion Rate Distribution in Liquid LBE Flow Loop at Higher Temperature Ranges: *Miroslav Popovic*[1]; Peter Hosemann[1]; Cristian Cionea[1]; David Fraser[1]; [1]University of California Berkeley

L39: Comparison of EAM and MEAM Interatomic Potentials for Metallic Uranium: *Elton Chen*[1]; Benjamin Beeler[2]; Chaitanya Deo[2]; Michael Baskes[3]; Maria Okuniewksi[4]; [1]Georgia Institute of Technology ; [2]Georgia Institute of Technology; [3]Los Alamos National Laboratory; [4]Idaho National Laboratory

L40: Dynamics of Deformation Localization and Dislocation Channeling in Irradiated Austenitic Stainless Steels: *M. N. Gussev*[1]; K. Field[1]; J. Busby[1]; T. Byun[1]; [1]Oak Ridge National Laboratory

L41: Hardness Recovery under Isochronal Annealing of Highly Irradiated RPV Steels: *Peter Wells*[1]; G. Odette[1]; Tim Milot[1]; Takuya Yamamoto[1]; Jim Cole[2]; Brandon Miller[2]; [1]University of California Santa Barbara; [2]Idaho National Laboratory

L42: Interdiffusion between of Mg and AA6061 Aluminum Alloy: *Mian Fu*[1]; Catherine Kammerer[1]; Le Zhou[1]; Dennis Keiser[2]; Yongho Sohn[1]; [1]University of Central Florida; [2]Idaho National Laboratory

L43: Irradiation Effect of P92 Steel during Ions Irradiations at Elevated Temperature: *Yinzhong Shen*[1]; Jun Zhu[1]; [1]Shanghai Jiao Tong University

L44: Remote Exterior Condition Monitoring System for Spent Nuclear Fuel Dry Storage Containers: *Michael Hurley*[1]; Vikram Patel[1]; Brian Jaques[1]; John Youngsman[1]; Jacqueline Hodge[1]; Sin Ming Loo[1]; Darryl Butt[1]; [1]Boise State University

Materials for High-temperature Applications: Next Generation Superalloys and Beyond — Poster Session

Sponsored by: TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS: Refractory Metals Committee
Program Organizers: Omer Dogan, DOE National Energy Technology Laboratory; Panos Tsakiropoulos, University of Sheffield; Xingbo Liu, West Virginia University; Paul Jablonski, DOE National Energy Technology Laboratory; Junpin Lin, University of Science and Technology Beijing

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Room: Sails Pavilion
Location: San Diego Convention Center

B38: Study of Oxidation and High Temperature Corrosion of AISI Type 430 Stainless Steel: *T.A. Vijey*[1]; [1]Bullsstreet Research Co.

B39: Hot tensile Deformation Behavior and Microstructural Evolution of Haynes 230 and Inconel 617: Kyle Hrutkay[1]; *Djamel Kaoumi*[1]; [1]The University of South Carolina

B40: Effect of Yttrium on Microstructures, Mechanical Property and Oxidation Property at Elevated Temperature of Inconel 713C: *Kee-Do Woo*[1]; Dong-Soo Kang[1]; Dong-Gun Kim[1]; Dae-Young Kim[1]; Whang-Jin Kang[1]; Eun-Jeong Jo[1]; [1]Chonbuk National University

B41: Fabrication and Characterization of Tungsten-matrix Composites Reinforced by Copper-coated Tungsten Wire: *Kevin Cunningham*[1]; G. Robert Odette[1]; Frank Zok[1]; Kirk Fields[1]; David Gragg[1]; Charles Henager[2]; Richard Kurtz[2]; [1]University of California, Santa Barbara; [2]Pacific Northwest National Laboratory

Materials Processing Fundamentals — Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee
Program Organizers: James Yurko, Materion Brush Beryllium and Composites; Lifeng Zhang, University of Science and Technology Beijing; Antoine Allanore, Massachusetts Institute of Technology; Cong Wang, Northwestern University

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February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

D1: A Process Map for a Local Extrusion at the Cu-Al Contact Surface in Hydrostatic Extrusion of Cu-clad Al Bar at Warm Temperatures: *Yong-Shin Lee*[1]; Sang-Hun Yoon[1]; Sangmok LEE[2]; Jongsup Lee[2]; Geun-An Lee[2]; [1]Kookmin University; [2]KITECH

D2: Effects of Niobium Alloying on the Micostructure and Mechanical Properties of Bainite Ductile Iron: *Liang Chang*[1]; Yongsheng Yan[1]; Xiangru Chen[1]; Qin Hua[1]; Qijie Zhai[1]; [1]Shanghai University

D3: Bioleaching and Electrobioleaching of Low Grade Copper Sulfide Ore(Chalcopyrite) of Sarcheshmeh Copper Mine: *Hossein Etminan*[1]; [1]GolGohar Mining & Industrial Company

D4: Computational Study of Texture Development During Templated Grain Growth: *Jie Zhou*[1]; Yu Wang[1]; [1]Michigan Technological University

D5: Determination and Optimization Best Condition for Bioleaching of Sulfide Low Grade Copper Ore by Using DOE(Design of Experimental) Method and Define a Mathematical Equation: *Hossein Etminan*[1]; [1]GolGohar Mining & Industrial Company

D6: Dielectric Properties and Microwave Drying Characteristics of CuCl Residue Filter Cake: Zhan Guo[1]; *Shao Ju*[1]; [1]Kumming Univercity of Science and Technology

D7: Dissolution Behavior of Magnesia in Hydrochloric Acid with Strong Brine: *Zunyu Hu*[1]; Weizhong Ding[1]; Dingsheng Tan[1]; Shuqiang Guo[1]; [1]Shanghai Key Laboratory of Modern Metallurgy & Materials Processing,Shanghai University

D8: Distribution of P_2O_5 between Solid Solution and Liquid Phase in $CaO–SiO_2–Fe_2O_3$ System Containing Na_2O or B_2O_3: Senglin Xie[1]; *Lejun Zhou*[1]; Wanlin Wang[1]; [1]Central South University

D9: Effect of M-EMS on the Macroscopic Quality of TP347 Heat-resistant Stainless Steel Billet: *Zhou Cai*[1]; [1]Chongqing University of Science and Technology

D10: Effect of Uneven Solidification End on Soft Reduction Zone in Wide-thick Slab Continuous Casting Process: *Cheng Ji*[1]; Miaoyong Zhu[1]; Yogeshwar Sahai[2]; [1]Northeastern University of China; [2]The Ohio State University

D11: Effects of Solidification Conditions on As-cast Structure of Ferritic Stainless Steel in Continuous Casting: *Junjie Sun*[1]; Cheng Zhang[1]; Jingzheng Ye[1]; Honggang Zhong[1]; Qijie Zhai[1]; [1]Shanghai University

D12: Effects of Start and Finish Cooling Temperatures on Microstructure and Mechanical Properties of Low-Carbon High-strength and Low-yield Ratio Bainitic Steels: *Dong Ho Lee*[1]; Hyo Kyung Sung[1]; Sunghak Lee[1]; Nack J Kim[1]; Sang Yong Shin[2]; [1]POSTECH; [2]Department of Microstructure Physics and Alloy Design/Max-Planck-Institut für Eisenforschung GmbH

D13: Electrowinning of Silicon with Liquid Electrodes: *Ming Jia*[1]; Yun Cheng[1]; Zhongliang Tian[1]; Yanqing Lai[1]; Yexiang Liu[1]; [1]Central South University

D14: Experimental Study and Characterization on Vacuum Carbonitriding Process for $20Cr_2Ni_4A$ Steel: Yingtao Zhang[1]; Shaofeng Du[2]; Wenjun Zhao[2]; *Gang Wang*[3]; Yiming Rong[3]; [1]Chongqing University; [2]Inner Mongolia Fist Machinery Group Co., Ltd.; [3]Tsinghua University

D15: Fabrication of Functionally Graded Materials by Directional Solidification Process under a Transverse Magnetic Field: *Dafan Du*[1]; Xi Li[1]; Yves Fautrelle[2]; [1]Shanghai University; [2]Grenoble Institute of Technology

D16: Hybrid Porous Metal of Nano-micro Double Size and Regular-ramdom Bimodal: Xingming Zhang[1]; Huawei Zhang[1]; *Yanxiang Li*[1]; [1]Tsinghua University

D17: Hydraulic Simulation of Fluid Flow in Beam Blank Continuous Casting Mold with Double Nozzles: Leilei Zhang[1]; *Dengfu Chen*[1]; Mujun Long[1]; Xin Xie[1]; Xing Zhang[1]; Youguang Ma[1]; [1]Chongqing University

D18: Simulation of Solidification Process of Steel Ingot under Different Thermal Boundary Conditions: *Jian Zhao*[1]; Jieyu Zhang[1]; Bo Wang[1]; Zheng Chen[1]; Jie Ma[1]; [1]Shanghai University

D19: Investigation on Non-Metallic Inclusions of IF Steel in RH Refining Process: *Shunxi Wang*[1]; Jiongming Zhang[2]; Wei Song[2]; Maokang Li[2]; [1]School of Metallurgical and Ecological Engineering, University of Science and Technology Beijing; [2]School of Metallurgical and Ecological Engineering, University of Science and Technology Beijing

D20: Isothermal Bainite Transformation of Cr_5 Steel under Pulsed Current and Pulsed Magnetic Field Treatment: *Xin Xia*[1]; Lijuan Li[1]; Zheng Lu[1]; Qijie Zhai[1]; Qingchun Li[2]; [1]Shanghai University; [2]Liaoning University of Technology

D21: Maximum Rate of Pulverized Coal Injection into Blast Furnace with Consideration of Coke Fines: *Qi Liu*[1]; Susen Cheng[1]; [1]University of Science and Technology Beijing

D22: Microstructural Characterization of Aluminum Metal Matrix Composite Prepared by In Situ Method: *Dumitru Mitrica*[1]; Marian Burada[1]; Raluca Maria Florea[2]; Mihai Ghita[1]; Elvira Alexandrescu[3]; Vasile Soare[1]; Petru Moldovan[4]; [1]National Research & Development Institute for nonferrous and Rare Metals – IMNR; [2]"Gheorghe Asachi" Technical University of Iasi; [3]National Research and Development Institute for Gas Turbines COMOTI of Bucharest; [4]Politehnica University of Bucharest

D23: Modeling of Magnetohydrodynamic, Thermal and Solidified Behavior in Electroslag Remelting Process: *Qiang Wang*[1]; Zhu HE[2]; Baokuan LI[1]; [1]Northeastern University of China; [2]Wuhan University of Science and Technology

D24: New Methodology of Enhancing Etching Factor of Copper Pattern for Advanced Packages: Hai-Joong Lee[1]; *Hyo-Soo Lee*[1]; [1]KITECH

D25: Phase Composition of Scale Layer formed during Continuous Casting: Nan Wang[1]; Jianhong Dong[1]; Bo Li[1]; Min Chen[1]; *Cuihuan Huang*[1]; [1]Northeastern University

D26: Pressureless Sintering of Boron Carbide: *Habibollah Amini Rastabi*[1]; [1]Islamic Azad University

D27: Properties of Cu-based Oxygen Carrier Used in Chemical Looping Air Separation (CLAS): *Kun Wang*[1]; Qingbo Yu[1]; Qin Qin[1]; Wenjun Duan[1]; [1]Northeastern University

D28: Removing Fluorite and Calcite from Scheelite during Floatation Separation Process with Addition of Calcium- and Sodium-Containing Reagents: *Liang Liu*[1]; Jilai Xue[1]; Jun Zhu[1]; [1]Unversity of Science and Technology Beijing

D29: Synthesis of Titanium Dioxide by Microwave Solid State Method and Its Photocatalytic Property: Kun Yang[1]; [1]Kunming University of Science and Technology

D30: Microstructure Modification for Semisolid Slurry of al-4.5wt.%cu Alloy by Pulse Magneto-oscillation Treatment: ZhiShuai Xu[1]; *ZhiChen Zhang*[1]; QiXin Li[1]; Dong Liang[1]; QiJie Zhai[1]; YongYong Gong[1]; [1]Shanghai University

D31: Simulation of Solidification Microstructure in Austenitic Stainless Steel Twin-roll Strip Casting Based on CAFE Model: *Jie Ma*[1]; JieYu Zhang[1]; Bo Wang[1]; Jian Zhao[1]; ShunLi Zhao[2]; Guangxin Wu[1]; [1]Shanghai University; [2]Baoshan Iron & Steel Co., Ltd.

D32: Statistical Estimation of Dislocation Pinning at Precipitates, Voids and Bubbles: *Amlan Dutta*[1]; M Bhattacharya[2]; P. Barat[2]; [1]S. N. Bose National Centre for Basic Sciences; [2]Variable Energy Cyclotron Centre

D33: Effect of MN, NI Contents on Microstructure and Rust Layer of Bridge Weathering Steels under Atmosphere Containing Cl-1: *Guiqin Fu*[1]; Duo Jin[1]; Xin-Liang Gao[1]; Qing Li[1]; Miaoyong Zhu[1]; [1]Northeastern University

D34: Study on the Purification of Nickel by Vacuum Directional Solidification: Gang Wang[1]; Kuixian Wei[1]; *Wenhui Ma*[1]; Wenzhou Yu[1]; Cong Zhang[1]; [1]National Engineering Laboratory for Vacuum Metallurgy;Key Laboratory for Nonferrous Vacuum Metallurgy of Yunnan Province

D35: The Effect of Cooling Intensity on the Solidification Structure and Ferrite Phase Fraction of a Duplex Stainless Steel: *Cheng Zhang*[1]; Jingzheng Ye[1]; Congsen Wu[1]; Jincheng Hu[2]; Honggang Zhong[1]; Qijie Zhai[1]; [1]Shanghai University; [2]Baoshan Iron and Steel Co Ltd

D36: The Solidification Structure and Ferrite to Austenite Transformation of a Novel Lean Duplex Stainless Steel: *Jingzheng Ye*[1]; Cheng Zhang[1]; Congsen Wu[1]; Honggang Zhong[1]; Hongmei Song[1]; Xin Cao[1]; Qijie Zhai[1]; [1]Shanghai University

D37: The Study of Refining Mechanism of Pure Aluminum under Surface Pulsed Magneto Oscillation: *Zhichen Zhang*[1]; Zhishuai Xu[2]; Qixin Li[1]; Dong Liang[1]; Qijie Zhai[1]; [1]Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University; [2]College of Science, Shanghai University

D38: Thermal and Metallographic Parameters Evolution during Solidification of Zn-Sn Alloys: Wilky Desrosin[1]; *Carlos Schvezov*[1]; Alicia Ares[1]; [1]Materials Institute of Misiones (IMAM)-Faculty of Sciences (FCEQyN-UNaM)

D39: Thermodynamic Interaction between Chromium and Phosphorus in Carbon Saturated Fe-Cr Melts: *Seok-Hyo Seo*[1]; Jung-Mock Jang[1]; Kyung-hyo Do[1]; Jong-Jin Pak[1]; [1]Hanyang University

D40: Thermodynamic Relation between Chromium and Sulfur in Fe-Cr Melts: *Kyung-Hyo Do*[1]; Young-Dae Kim[1]; Dong-Sic Kim[1]; Jong-Jin Pak[1]; [1]Hanyang University

Mechanical Behavior at the Nanoscale II — Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Evan Ma, Johns Hopkins University; Daniel Gianola, University of Pennsylvania; Ting Zhu, Georgia Institute of Technology; Julia Greer, California Institute of Technology

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

Session Chairs: Evan Ma, Johns Hopkins University; Daniel Gianola, University of Pennsylvania

C44: Characterization of Transformation-induced Defects in NiTi Shape Memory Alloys: *Matthew Bowers*[1]; Xiang Chen[1]; Peter Anderson[1]; Michael Mills[1]; [1]The Ohio State University

C45: Continuum Dislocation Dynamics Modeling of Mesoscale Deformation of Single Crystals: *Shengxu Xia*[1]; Anter El-Azab[1]; [1]Purdue University

C46: Diameter-dependence of Elastic Properties in ZnO Nanowires: Why Do the Published Results have Conflicting Diameter Dependence?: *Zachary Trautt*[1]; Lawrence Friedman[1]; Robert Cook[1]; Chandler Becker[1]; [1]National Institute of Standards and Technology

C47: Dislocation-mediated Flaw Communication and Wavy Interface Formation in Cu/Ag Nanolayers: *Ruizhi Li*[1]; Huck Beng Chew[1]; [1]University of Illinois at Urbana-Champaign

C48: Effect of Sputter Pressure on Stress Evolution in Ta Thin Films during Beta-to-alpha Phase Transformation: *Elizabeth Ellis*[1]; Markus Chmielus[1]; Marissa Linne[1]; Shefford Baker[1]; [1]Cornell University

C49: Effective Attacking Length Scale of Dislocation Nucleation from the Free Surface in Pure Crystals: *Haijian Chu*[1]; Y.H. Zhang[2]; J. Liu[2]; [1]Shanghai University, and State Key Laboratory for Mechanical Behavior of Materials in Xi'an Jiaotong University; [2]Shanghai University

C50: Effects of Grain Size on the Martensitic Phase Transformation of Nano-polycrystalline NiAl Shape Memory Alloys: *Keith Morrison*[1]; Alejandro Strachan[1]; [1]Purdue University

C51: Fabrication and Characterization of Hollow Metallic Nanolattices: *Lauren Montemayor*[1]; Lucas Meza[1]; Julia Greer[1]; [1]California Institute of Technology

C52: Towards an Understanding of the Fatigue Degradation in Nanoscale Alumina and Titania Coatings: *Farzad Sadeghi-Tohidi*[1]; Eva Baumert[1]; Olivier Pierron[1]; [1]Georgia Institute of Technology

C53: Hydrogen Effect on the Nanomechanical Behavior of Amorphous Alloy Ribbons Having Various Zr Contents: *Yakai Zhao*[1]; In-Chul Choi[1]; Yong-Jae Kim[1]; Jin-Yoo Suh[2]; Jae-il Jang[1]; [1]Hanyang University; [2]Korea Institute of Science and Technology

C54: Influence of Indenter Geometry on Hydrogen Effects in Nanoindentation of a Linepipe Steel: *Dong-Hyun Lee*[1]; Jung-A Lee[1]; Moo-Young Seok[1]; Un Bong Baek[2]; Seung Hoon Nahm[2]; Jae-il Jang[1]; [1]Hanyang University; [2]Korea Research Institute of Standards and Science

C55: Load- and Displacement-controlled Nanoindentation of Al/a-Si Core-shell Nanostructures: *Robert Fleming*[1]; Min Zou[1]; [1]Department of Mechanical Engineering, University of Arkansas

C56: Mechanical Behavior of HCP-based Multilayers at Nanoscale: *Yuanyuan Lu*[1]; Jonathan Ligda[2]; Ruben Kotoka[3]; Baobao Cao[1]; Brian Schuster[2]; Sergey Yarmolenko[3]; Qiuming Wei[1]; [1]The University of North Carolina at Charlotte; [2]US Army Research Laboratory; [3]NC A&T State University

C57: Mechanical Behavior of Nanocrystalline Metal in a Bulk, Thin Slab and Wire: *Hojin Kim*[1]; Alejandro Strachan[1]; [1]School of Materials Engineering and Birck Nanotechnology Center, Purdue University

C58: Nanoscale Creep-fatigue Behavior of Indium at Room Temperature: *Jung-A Lee*[1]; Yong-Jae Kim[1]; In-Chul Choi[1]; Ting Y. Tsui[1]; Jae-il Jang[1]; [1]Hanyang University

C59: Nanoscale Creep and Its Coupled Behavior in 1-D Semiconducting Nanostructures: *Yong-Jae Kim*[1]; Won Woo Lee[1]; In-Chul Choi[1]; Won Il Park[1]; Tae Gwang Yun[2]; Seung Min Han[2]; Jae-il Jang[1]; [1]Hangyang University; [2]Korea Advanced Institute of Science and Technology

C60: Predicting Flow Curve of Dual-phase Steels through Nanoindentation: *Moo-Young Seok*[1]; In-Chul Choi[1]; Yong-Jae Kim[1]; Jae-il Jang[1]; [1]Hanyang University

C61: Size Effects in Nanoscale Multilayered Materials: Influence of Interface Shear Strength: *Arief Budiman*[1]; Youbin Kim[2]; J Baldwin[3]; Nathan Mara[3]; Seung-Min Han[2]; Amit Misra[3]; [1]Singapore University of Technology & Design (SUTD); [2]KAIST; [3]LANL

C62: The Nanomechanical Properties of a Zn-22wt.% Al Alloy Processed by High-pressure Torsion: *In-Chul Choi*[1]; Yong-Jae Kim[1]; Megumi Kawasaki[1]; Terence G. Langdon[2]; Jae-il Jang[1]; [1]Hanyang University; [2]University of Southern California

C63: Thermal Stability of Au-ZnO Nanocomposite: Relationship between Microstructure Evolution and Mechanical Response: *Rachel Schoeppner*[1]; Helena Jin[2]; Somuri Prasad[2]; David Bahr[3]; Neville Moody[2]; [1]Washington State University; [2]Sandia National Laboratories; [3]Purdue University

C64: Wear and Environmental Resistance of Laser-fabricated Oxides on Steel and Ti: *Samantha Lawrence*[1]; David Adams[2]; David Bahr[1]; Neville Moody[2]; [1]Purdue University; [2]Sandia National Laboratories

C65: Non-destructive Evaluation of Surface Residual Stress in Float Glass Using Nanoindentation: Seung-Min Ahn[1]; Seon-Young Park[1]; Young-Cheon Kim[1]; Kang-Sun Lee[2]; *Ju-Young Kim*[1]; [1]UNIST (Ulsan Institute of Science and Technology); [2]Hyundai Motor Group

C66: In Situ EBSD Characterization of the Texture Transformation of Silver Thin Films Related to Film Thickness and Adhesion Layer: *Markus Chmielus*[1]; Elizabeth Ellis[1]; Emily Morrow[2]; Ethan Ocock[2]; Brandon Hoffman[2]; Shefford Baker[1]; [1]Cornell University; [2]Houghton College

C67: Indentation Size Effect in Nanoporous Gold: *Young-Cheon Kim*[1]; Seong-Min Ahn[1]; Ju-Young Kim[1]; [1]UNIST (Ulsan National Institute of Science and Technology)

MPMD 2014 Technical Division Student Poster Contest — Posters

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Monday PM
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Location: San Diego Convention Center

SP26: Densification Evolution during Spark Plasma Sintering of UO_2 Based on Master Sintering Curve Theory: *Zhichao Chen*[1]; Ghatu Subhash[1]; James Tulenko[2]; Ronald Baney[2]; [1]Mechanical & Aerospace Engineering, University of Florida; [2]Materials Science & Engineering, University of Florida

SP27: Abnormal Grain Growth-Identifying Onset Conditions via 3D Monte Carlo Modeling: *Catherine Sahi*[1]; Steven Chiu[1]; Veena Tikare[2]; Robert DeHoff[1]; Burton Patterson[1]; [1]University of Florida; [2]Sandia National Laboratories

SP28: Experimental Investigation of the Effects of Alloying Elements on Coupled Growth in Fe-C Eutectic: *Elis Rivera*[1]; Amber Genau[1]; [1]University of Alabama at Birmingham

SP29: Improvement on the Corrosion Behaviour and Contact Resistance of CoBlast Deposited Graphite/Alumina Coatings by Pack Cementation: *Atinuke Oladoye*[1]; James Carton[1]; Abdul Olabi[2]; [1]Dublin City University; [2]School of Engineering, University of West Scotland

SP30: Determination of Grain Level Strain and Deformed Lattice Parameters Using Far Field High-energy Monochromatic X-ray Diffraction: *Kamalika Chatterjee*[1]; Jonathan Lind[2]; Armand Beaudoin[1]; Peter Kenesei[3]; Jun-Sang Park[3]; Robert Suter[2]; [1]University of Illinois at Urbana-Champaign; [2]Carnegie Mellon University; [3]Argonne National Laboratory

SP31: In Vitro Biocompatibility and Antibacterial Studies of TiSiN Nanocomposite Coating on Ti_6Al_4V Orthopedic Alloy, Deposited by Sputtering Process: *Pramanshu Trivedi*[1]; Pallavi Gupta[1]; Swati Srivastav[1]; R Jayaganthan; R Jayaganthan[1]; [1]Indian Institute of Technology Roorkee India

SP32: Laser Processing of Soft Magnetic Amorphous Ribbons: Multi-modal Characterization and Magnetic Study: *Shravana Katakam*[1]; Arun Devaraj[2]; Mark Bowden[2]; Rajarshi Banerjee[1]; Suntharampillai Thevuthasan[2]; Narendra Dahotre[1]; [1]University of North Texas; [2]Pacific Northwest National Laboratory

SP33: Mechanism of Ag Precipitates Formation in Cu-7wt%Ag-0.05wt%Zr Alloy: *Waraporn Piyawit*[1]; Weizong Xu[1]; Suveen Mathaudhu; Jens Freudenberger[2]; Mike Rigsbee[1]; Yuntian Zhu[1]; [1]North Carolina State University; [2]IFW Dresden

SP34: Modeling of Failure Risk in Hot Forging of Ti-6Al-4V Containing Hard Alpha Anomaly: *Rohit Subramanian*[1]; Shlok Sundaresh[1]; [1]The Ohio State University

SP35: Monte-Carlo Potts Model for Twin Formation during Microstructure Evolution: *Brian Lin*[1]; Gregory Rohrer[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

SP36: Structural Disjoining Potential of Grain Boundary Premelting via Monte Carlo Simulation: *Tara Power*[1]; Jeffrey Hoyt[1]; [1]McMaster University

SP37: Numerical Modelling of Evaporation of Water in Tape Casting: Coupled Thermal and Mass Diffusion: *Masoud Jabbari*[1]; Jesper Hattel[1]; [1]Technical University of Denmark

SP38: Structure Characterization on Micro-sized Single Particle Treated by In Situ Ultrafast Scanning Nanocalorimetry: *Bingge Zhao*[1]; Linfang Li[1]; Qijie Zhai[1]; Yulai Gao[1]; [1]Shanghai University

SP39: A Molecular Dynamics Study of Anomalously Fast Diffusion of Cu in Pb: *Mary Gallerneault*[1]; Jeffrey J. Hoyt[1]; [1]McMaster University

SP40: Recycling of Tungsten Copper Scrap to form Tungsten Carbide Powder: *Alysha Hudson*[1]; Rhys Palmer[1]; Charles Williams[1]; Amaninder Brar[1]; [1]University of Alberta

SP41: Characterizing the Variation of Surface Charge Density of Natural Fibers by High-Resolution Force Spectroscopy: *Eric Cubbage*[1]; T. Moses[2]; E. Stein[3]; S. Breakiron[3]; M. Ellison[3]; D. Dean[2]; M. Kennedy[4]; [1]Material Advantage Clemson University Chapter; [2]Department of Bioengineering, Clemson University; [3]Department of Materials Science and Engineering, Clemson University ; [4]Department of Materials Science and Engineering, Clemson University

SP42: Investigation of Fracture in NiTi Dental Files: *Matthew Wheeler*[1]; Rahnuma Chowdhury[1]; [1]Ohio State University

SP43: Predicting Metastatic Potential In Vitro for Personalized Cancer Treatment: *Megan Malara*[1]; Jackson Thomas[1]; Qiuwan Wang[1]; Heather Powell[1]; [1]The Ohio State University

SP44: Three Dimensional Analysis of Eutectic Dendrites in Al-Ag-Cu Alloy by Serial Sectioning: *Benjamin Graham*[1]; Amber Genau[1]; [1]University of Alabama at Birmingham

MPMD 2014 Technical Division Young Professional Poster Contest — Posters

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Young Professionals Committee

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

YP11: Reactive Spark Plasma Sintering of TiB_2-CNT Ultra-high Temperature Ceramic Composites: *Srinivasa Bakshi*[1]; Karthiselva S[1]; [1]Indian Institute of Technology Madras

YP12: Fretting-corrosion Behavior of Mixed Metal Contacts (Ti_6Al_4V-CoCrMo) in a Hip Modular/Taper Junction: *Mathew Mathew*[1]; Maria Runa[1]; Dmitry Royhman[1]; [1]Rush University

YP13: Process Optimization to Engineer Interface for Tailoring Thermal Transport in Copper/Diamond System: *Vikas Sinha*[1]; J.J. Gengler[1]; C. Muratore[1]; J.E. Spowart[1]; [1]Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson Air Force Base

Multiscale Perspectives on Plasticity in HCP Metals — Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Benjamin Morrow, Los Alamos National Laboratory; Suveen Mathaudhu; Ellen Cerreta, Los Alamos National Laboratory; Juan P. Escobedo, The University of New South Wales Canberra; Dallas Trinkle, University of Illinois, Urbana-Champaign

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B42: Measuring the Critical Resolved Shear Stresses in Mg Alloys by Instrumented Nanoindentation: *Jon Molina-Aldareguia*[1]; Raul Sánchez[1]; Teresa Pérez-Prado[1]; Javier Segurado[1]; Javier Llorca[1]; [1]IMDEA Materials Institute

B43: New Interpretation of Monotonic Swift Effects in Anisotropic Materials: *Benoit Revil Baudard*[1]; Oana Cazacu[1]; Nitin Chandola[1]; [1]University of Florida

Nanoparticulate Materials: Production, Consolidation and Characterization — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee
Program Organizers: Brady Butler, U.S. Army Research Laboratory; Eugene Olevsky, San Diego State University

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February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

Session Chair: Brady Butler, US Army Research Lab

K30: Consolidation of Perspective Refractory Nuclear Ceramics by Field-assisted Methods: *Maria Yurlova*[1]; Evgeny Grigoryev[1]; Eugene Olevsky[2]; D Shornikov[1]; B Tarasov[1]; C Nikitin[1]; [1]MEPHI; [2]NRNU MEPhI, SDSU

K31: Effect of Oxide Dispersion Strengthening on Spark Plasma Sintering Kinetics of 13Cr-2Mo Ferritic/Martensitic Steels: *Igor Bogachev*[1]; Ivan Chernov[1]; Eugene Olevsky[2]; [1]Moscow Engineering Physics University; [2]San Diego State University

K32: Green Synthesis of Silver Nanoparticles Using Arbutus cf. Bicolor Leaves Extract: *Laura García Hernández*[1]; Diana Arenas Islas[1]; Pedro Ramirez Ortega[1]; Mizrraim Flores Guerrero[1]; Luis García Lechuga[1]; [1]Universidad Tecnológica de Tulancingo

K33: Technologies of Synthesis of Micro and Nanoparticles of Metal Oxides (Nitrides) for the Modification of Properties of Aluminum-magnesium Light-weight Alloys: Sergey Bondarchuk[1]; *Alexander Zhukov*[1]; Alexander Vorozhtsov[1]; Ilya Zhukov[1]; Wim Sillekens[2]; David Jarvis[2]; [1]Tomsk State University; [2]European Space Agency (ESA)/ESTEC

K34: Analysis of MMM Junction Device and Effective Method of Reduce the Electrical Shorts: *HoJong Chang*[1]; Eung-Hwi Kim[1]; Sang-Hyun Park[1]; [1]KAIST

Neutron and X-ray Studies of Advanced Materials VII: Challenges of the Future World — Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Rozaliya Barabash, Oak Ridge National Laboratory; Gernot Kostorz, ETH; Brent Fultz, California Institute of Technology; Peter Liaw, The University of Tennessee

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C68: Anomalous Small-angle Scattering with Soft X-rays at Al and Si K Absorption Edges: *Hiroshi Okuda*[1]; Ryo Shirai[1]; Takayoshi Yamamoto[1]; Yuki Nishizawa[1]; Yoshinori Kitajima[2]; [1]Kyoto University; [2]Photon Factory KEK

C69: In Situ Neutron Diffraction and Crystal Plasticity Modeling of a-Uranium: *Christopher Calhoun*[1]; Sean Agnew[1]; Jonathan Morrell[2]; Elena Garlea[2]; [1]University of Virginia; [2]Y-12 Security Complex

C70: Interpretation of Temperature Dependent Tensile Behavior of 304ss by In Situ Neutron Diffraction under Continuous Loading Modede: *Dunji Yu*[1]; Hong Gao[1]; Ke An[2]; Xu Chen[1]; [1]Tianjin University; [2]Oak Ridge National Laboratory

C71: Investigation on Creep Deformation of Ferritic Superalloys with a New Hierarchical Structure Using In Situ Neutron Diffraction: *Gian Song*[1]; Zhiqian Sun[1]; Gongyao Wang[1]; Hong Ding[2]; Christian Liebscher[2]; Mark Asta[2]; Gautam Ghosh[3]; David Dunand[3]; Michael Rawling[3]; Nhon Vo[3]; Peter Liaw[1]; [1]University of Tennessee; [2]University of California, Berkeley; [3]Northwestern University, Evanston

C72: Phase Contrast Microscopy with a Polychromatic X-ray Source: *Amy Wang*[1]; Bart Pauwels[2]; Marc De Graef[1]; Dirk Van Dyck[3]; [1]Carnegie Mellon University; [2]Bruker microCT; [3]University of Antwerp

C73: SANS Study of Highly Irradiated RPV Steels: *Mikhail Sokolov*[1]; Randy Nanstad[1]; Grant Williams[2]; [1]ORNL; [2]UTK

C74: Temperature Dependent Intergranular Stresses during Constrained Continuous Heating and Cooling Cycles in a High Strength Quenched and Tempered Structural Steel: *R. Dutta*[1]; R. Huizenga[2]; M. Amirthalingam[2]; H. Gao[1]; A. King[3]; M. Hermans[2]; I. Richardson[2]; [1]Materials Innovation Institute; [2]Delft University of Technology; [3]French National Synchrotron Facility

C75: Refractive and Diffractive Neutron Optics with Reduced Chromatic Abberation: *Stefan Poulsen*[1]; Henning Poulsen[1]; [1]Technical University of Denmark

C76: Reconstruction of Intensity from Contained Samples: *Thomas Watkins*[1]; R. Barabash[1]; R. Meisner[1]; T. Burchell[1]; T. Rosseel[1]; [1]ORNL

C77: Understanding Semi-solid Mechanics in Al-Cu Using 4D In Situ Synchrotron-based X-ray Tomographic Microscopy: *Biao Cai*[1]; Shyamprasad Karagadde[1]; Peter Lee[1]; Julie Fife[2]; Thomas Connolley[3]; [1]Manchester X-Ray Imaging Facility, School of Materials, University of Manchester; [2]Swiss Light Source, Paul Scherrer Institut; [3]Diamond Light Source Ltd, Harwell Science &Innovation Campus

Pb-free Solders and Emerging Interconnect and Packaging Materials — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Andre Lee, Michigan State University; Fay Hua, Intel Corporation; Tae-Kyu Lee, Cisco; John Elmer, Lawrence Livermore National Laboratory; Yan Li, Intel Corporation; Robert Kao, National Taiwan University; Fan-yi Ouyang, National Tsing Hua University; Chang-Woo Lee, Korea Institute of Industrial Technology; Won Sik Hong, Korea Electronics Technology Institute; Heugel Werner, Bosch Automovitve

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Session Chairs: John Elmer, Lawrence Livermore National Laboratory ; Yan Li, Intel Corporation

B44: Development of Pb and Ag Free Solder Alloys: *Serkan Yilmaz*[1]; Eren Kalay[1]; [1]METU

B45: Elasticity and Residual Stresses of Sintered Ag for Die Bonding Studied by Dynamic Resonant Method: *Vincenzo Caccuri*[1]; Pascal Gadaud[1]; Xavier Milhet[1]; Denis Bertheau[1]; Michel Gerland[1]; [1]Institut Pprime UPR CNRS 3346

B46: Impact of Co-P Surface Finish on Shear Strength of Sn-Ag-Cu Solder Interconnects in Ball Grid Array Packages under Thermal Cycling: Donghua Yang[1]; Jian Cai[1]; Qian Wang[1]; Jingwei Li[1]; Yang Hu[1]; *Liangliang Li*[1]; [1]Tsinghua University

B47: Physicochemical Properties of Sb-Sn-Zn Alloys: *Tomasz Gancarz*[1]; [1]Institute of Metallurgy and Material Science PAS

B48: Recent Development of Nanowire-based Pb-free Nanosolders for Nanoelectronics Assembly and Interconnection: *Fan Gao*[1]; Zhiyong Gu[1]; [1]University of Massachusetts Lowell

B49: Synthesis and Applications of Low Melting Point Tin/Indium (Sn/In) Lead-free Nanosolders: *Yang Shu*[1]; Fan Gao[1]; zhiyong Gu[1]; [1]University of Massachusetts Lowell

B50: Synthesis of High-temperature Lead-free Nanosolders and Their Electronics Applications: *Evan Wernicki*[1]; Zhiyong Gu[1]; [1]University of Massachusetts Lowell

B51: Synthesis of Lead-free Nanosolders Using Microfluidic Devices: *Zhiyang Li*[1]; Yang Shu[1]; Zhiyong Gu[1]; [1]University of Massachusetts Lowell

B52: Wetting of Cu Pads by Liquid Bi-Ag-Cu Alloys: *Przemyslaw Fima*[1]; Anna Sypien[1]; [1]Institute of Metallurgy and Materials Science, Polish Academy of Sciences

B53: Processing of a Package-on-package and Characterization of Its Warpage: *Dong-Myung Jung*[1]; Jung-Yeol Choi[1]; Min-Young Kim[1]; Tae-Sung Oh[1]; [1]Hongik University

B54: Transient Liquid Phase Sintering for Power Electronics: *John Holaday*[1]; Carol Handwerker[1]; [1]Purdue University

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XIII — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Chao-hong Wang, National Chung Cheng University; Chih-Ming Chen, National Chung Hsing University; Jae-Ho Lee, Hongik University; Ikuo Ohnuma, Tohoku University; Clemens Schmetterer, Forschungszentrum Juelich, Inst.; Yee-Wen Yen, National Chung Che ng University; Shien Ping Feng, The University of Hong Kong; Shih-Kang Lin, National Cheng Kung University

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M2: Effect of Crystallographic Direction on the Sintering of ThO_2 Nanoparticles: *Wan-Chin Chao*[1]; Wen-Dung Hsu[1]; [1]National Cheng Kung University

M3: Effect of Bump Height on Electromigration Failure Mode in $Sn_{2.3}Ag$ Solder Joints with Cu and Ni Metallization: *Shun Cai Liu*[1]; Chih Chen[1]; [1]National Chiao Tung University

M4: Effective Suppression of Sn-58Bi/Cu Interfacial Reactions with Minor Ga Addition: *Trong Lan Nguyen*[1]; Shih-kang Lin[2]; [1]Department of Materials and Engineering, National Cheng Kung University; [2]Department of Materials Science and Engineering-Promotion Center for Global Materials Research-Center for Micro/Nano Science and Technology, National Cheng Kung University

M5: Solid-state Reactions by Surface and Bulk Diffusion between Sn-based Solder and Ag Substrate: *Beom-Yong Lee*[1]; Joo-Youl Huh[1]; [1]Korea University

M6: Crystallization and Damage Evolution of Nickel-phosphorus Films on Glass Wafer during Mechanical and Thermal Fatigue: *Yong Jun Oh*[1]; Jong Geun Park[1]; Seung Sik Jang[1]; [1]Hanbat University

Phase Transformation and Microstructural Evolution — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS/ASM: Phase Transformations Committee
Program Organizers: Amy Clarke, Los Alamos National Laboratory; Sudarsanam Suresh Babu, The Ohio State University; Ning Ma, ExxonMobile Research & Engineering; Tadashi Furuhara, Tohoku University; Frédéric Danoix, Université de Rouen; Mohamed Gouné, University of Bordeaux; Francisca Caballero, National Center for Metallurgical Research (CENIM-CSIC); Dhriti Bhattacharyya, Australian Nuclear Science & Technology Organization; Vijay Vasudevan, University of Cincinnati; Osman Anderoglu, Los Alamos National Laboratory; Stuart Maloy, Los Alamos National Laboratory; Chad Sinclair, University of British Columbia

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M7: Phase Growth in Fe-Fe50wt%Si Diffusion Couple under a Magnetic Field: *Fan Lijun*[1]; Zhong Yunbo[1]; Zhou Pengwei[1]; Zheng Tianxiang[1]; Long Qiong[1]; [1]Shanghai University

M8: Determination of Tensile Strenght, Impact Strenght, Hardness and Microstructures of Mild Carbon Steel Quenche in Coconut Water, Fresh Urine, Nigerian Unadultrated Up-wine, Fermented Cassava Water, Ogiri-Ugba Water and Specially Prepared Clay Soil: *Tobechukwu Ayogu*[1]; [1]University of Nigeria, Nsukka

M9: Nucleation and Growth of Nucleus in Supercooled Liquid Fe: A Molecular Dynamics Study: *Rong Li*[1]; Yongquan Wu[1]; [1]Shanghai University

M10: Obtaining a Bimodal Grain Size Distribution via Thermal Means: *David Wu*[1]; Muhammad Huzaifah[1]; Siu Sin Quek[1]; [1]Institute of High Performance Computing, A*STAR

M11: Substructure and Texture Evolution Effects in Understanding Mechanical Property Anisotropy in High Strength Microalloyed Steels: *Pavan Challa Venkata Surya*[1]; Devesh Misra[1]; Murali Manohar[2]; Michael Mulholland[3]; Jack Hartmann[3]; [1]University of Louisiana at Lafayette; [2]ArcelorMittal ; [3]ArcelorMittal

M12: Effects of Cooling Rate On the Microstructure and Solute Partitioning in Hipereutectoid Ti-Cu Alloys: *Rodrigo Contieri*[1]; Eder Lopes[2]; Soumya Nag[1]; Rubens Caram[2]; Raj Banerjee[1]; [1]University of North Texas / Center for Advanced Research and Technology and Department of Materials Science and Engineering; [2]School of Mechanical Engineering / University of Campinas

Progress Towards Rational Materials Design in the Three Decades Since the Invention of the Embedded Atom Method: An MPMD Symposium in Honor of Dr. Michael I Baskes — Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Srinivasan Srivilliputhur, University of North Texas; Amit Misra, Los Alamos National Laboratory; Neville Moody, Sandia National Laboratories; Stephen Foiles, Sandia National Laboratories; Mark Asta, University of California ; Alan Needleman, University of North Texas

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F47: Atomistic Separation and Ordering at Equilibrium in High Temperature U-Zr Alloys: *Alex Moore*[1]; Michael Baskes[2]; Ben Beeler[1]; Maria Okuniewski[3]; Chaitanya Deo[1]; [1]Georgia Institute of Technology; [2]Los Alamos National Laboratory; [3]Idaho National Laboratory

F48: Deformation Debris and Their Contribution to Hindering Dislocations - Atomistic Simulations in Aluminum: *Hao Wang*[1]; Dongsheng Xu[1]; Rui Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

F49: Effect of the Berkovich Indenter Orientation on the Dislocation Nucleation Stresses Estimated from Nanoindentation: *Li Ma*[1]; Ron Dixson[1]; Francesca Tavazza[1]; Yvaonne Gerbig[1]; Douglas Smith[1]; Lyle Levine[1]; [1]NIST

F50: Grain Size Dependent Mechanical Behavior and Deformation Mechanism in Nanocrystalline Copper: *Xing Zhao*[1]; Cheng Lu[1]; A.K. Tieu[1]; Linqing Pei[1]; Lihua Zhan[2]; Minghui Huang[2]; [1]University of Wollongong; [2]State Key Lab of High-performance Complex Manufacturing, Central South University

F51: Interatomic Potential Model that Covers Metallic, Covalent and Ionic Materials: 2NN MEAM + Qeq: *Eunkoo Lee*[1]; Byeong-Joo Lee[1]; [1]POSTECH

F52: Strongly Anharmonic Phonon Dynamics of Cuprite Ag_2O Studied by Inelastic Neutron Scattering and First Principles Molecular Dynamics Simulations: *Tian Lan*[1]; Chen Li; J Niedziela[2]; Hillary Smith; D Abernathy[2]; G Rossman[1]; Brent Fultz; [1]California Institute of Technology; [2]Oak Ridge National Laboratory

Rare Metal Extraction & Processing Symposium — Poster Session

Sponsored by: Associação Brasileira de Metalurgia, Materiais e Mineração – ABM, Chinese Society for Metals, Metallurgy and Materials Society of CIM, Institute of Materials, Minerals and Mining, TMS Extraction and Processing Division, TMS: Hydrometallurgy and Electrometallurgy Committee, TMS: Pyrometallurgy Committee
Program Organizers: Neale Neelameggham, Ind LLC; Shafiq Alam, Memorial University of Newfoundland; Harald Oosterhof, Umicore; Animesh Jha, University of Leeds; Shijie Wang, Rio Tinto, Kennecott Utah Copper Refinergy

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H3: Recovery of Tungsten from Waste Machining Alloy Scrap: *Rahul Kumar*[1]; [1]National Institute of Technology, Jamshedpur

H4: Matrix Studies and Solvent Extraction of Zirconium and Hafnium: *Kilambi Sahira*[1]; [1]National Institute of Technology, Warangal

H5: Bioreductive Recovery of Platinum Group Metals by the Metal-ion Reducing Bacterium Shewanella Algae: Norizo Saitoh[1]; Rie Tanaka[1]; Shingo Maeda[1]; Toshiyuki Nomura[1]; Yasuhiro Konishi[1]; [1]Osaka Prefecture University

H6: Recovery of Tellurium from Silver Separating Residue Produced In Copper Smelter: Zhonglin Ye[1]; *Yifeng Shi*[1]; [1]Recovery of Tellurium from Silver Separating Residue Produced In Copper Smelter

H7: Thermodynamics of Carbon in Fe-V-Ni-Mo Alloy Melts: *Do-Hyeong Kim*[1]; Tae-Jung Kim[1]; Seung-Yeon Won[1]; Min-Kyu Paek[1]; Jong-Jin Pak[1]; [1]Hanyang University

H8: Dysprosium Extraction Using Molten Salt Electrolysis Process: *Aida Abbasalizadeh*[1]; Lidong Teng[1]; Seshadri Seetharaman[1]; [1]Royal Institute of Technology

H9: Recovery of Rare Earth Metals (REMs) from Phosphor Powder of Fluorescent Lamp: *Amrita Kumari Jha*[1]; Rekha Panda[1]; Archana Kumari[1]; Rina Sahu[2]; [1]CSIR-National Metallurgical Laboratory; [2]National Institute of Technology, Jamshedpur, India.

SMD 2014 Technical Division Student Poster Contest — Posters

Sponsored by: TMS Structural Materials Division

Monday PM
February 17, 2014
Room: Sails Pavilion
Location: San Diego Convention Center

SP45: A Novel Route to Process Ni-20Cr Based Alloys for High Temperature Applications: *Somayeh Pasebani*[1]; Aniket Dutt[2]; Indrajit Charit[1]; Rajiv Mishra[2]; [1]University of Idaho; [2]University of North Texas,

SP46: A Study of the Microstructure and Crystallographic Texture Evolution in the Fe-30.5Mn-8.0Al-1.2C And Fe-30.5Mn-2.1Al-1.2C Steels Upon Cold Rolling: *Fabricio Souza*[1]; Ivan Gutierrez-Urrutia[1]; Dierk Raabe[1]; Angelo Padilha[2]; [1]Max-Planck-Institut für Eisenforschung; [2]University of São Paulo

SP47: Alloying and Heat-Treatment Effects on Microstructures and Mechanical Behavior of High-Entropy Alloys Systems: *Zhi Tang*[1]; Oleg Senkov[2]; Chad Parish[3]; Daniel Miracle[2]; Chuan Zhang[4]; Fan Zhang[4]; Michael Gao[5]; Peter Liaw[1]; Takeshi Egami[1]; [1]The University of Tennessee; [2]Air Force Research Laboratory; [3]Oak Ridge National Laboratory; [4]CompuTherm LLC; [5]National Energy Technology Laboratory

SP48: A Framework for Quantifying Errors in Digital Representations of Microstructure: *Gregory Loughnane*[1]; Michael Groeber[2]; Michael Uchic[2]; Ramana Grandhi[1]; [1]Wright State University; [2]Air Force Research Laboratory

SP49: Effect of Nitrogen, Nickel and Carbon on Stress Corrosion Cracking Susceptibility of Austenitic $Fe_{18}Cr_{10}Mn$ Steels: *Youngsub Yoon*[1]; Heon-young Ha[2]; Tae-Ho Lee[2]; Sangshik Kim[1]; [1]Gyeongsang National University; [2]Korea Institute of Materials Science

SP50: Fatigue Properties of LIGA Ni Thin Films: *Farzad Sadeghi-Tohidi*[1]; Olivier Pierron[1]; [1]Georgia Institute of Technology

SP51: Creep Behavior of Chitin-carbon Nanotube Composites: *Sujeily Soto*[1]; O. Marcelo Suarez[1]; Jose Salcedo[1]; [1]University of Puerto Rico

SP52: Comparison of Solute Additions for Stabilization of Nano-sized Grains in Melt-Spun Aluminum: *Andrew Baker*[1]; Paul Sanders[1]; Stephen Kampe[1]; [1]Michigan Technological University

SP53: Recovering Compressive Plasticity of Bulk Metallic Glasses by High Temperature Creep: *Yang Tong*[1]; [1]The University of Tennesee-Knoxville

SP54: The Mechanical Property of Cuttlebone Under Hydrostatic Pressure: *Ming-Han Chou*[1]; Yao-Tein Ku[1]; Yueh-Ying Chou[1]; Wen-Guang Liu[1]; Tzay-Ming Hong[1]; Chuan-Chin Chiao[1]; Po-Yu Chen[1]; [1]; [1]National Tsing Hua University

SP55: The Coarsening Behavior of NiAl Precipitates in NiAl-strengthened Ferritic Steels at 973, 1073, and 1223 K: *Zhiqian Sun*[1]; Jan Ilavsky[2]; Gian Song[1]; Gongyao Wang[1]; Peter Liaw[1]; [1]The University of Tennessee; [2]Argonne National Laboratory

SP56: Processing, Microstructure Characterization, and Biological Response of Hierarchical Surface Coatings for Titanium Implants: *Courtney Gegg*[1]; Grant Crawford[2]; [1]University of California, Davis; [2]South Dakota School of Mines and Technology

SP57: Honeycomb Materials for Improved Automobile Crashworthiness: *Connor Slone*[1]; Kit James[1]; You Li[1]; Peter Anderson[1]; [1]The Ohio State University

SP58: Hydrogels for Stem Cell-Based Heart Muscle Regeneration: *Eduardo Calzadilla-Kolodziej*[1]; [1]The Ohio State University

SP59: Building Block Approach to the Development of an AlCuMnNi High Entropy Alloy: *Aarthi Sridhar*[1]; Cody Crosby[1]; Kevin Laws[2]; Michael Ferry[2]; Lori Bassman[1]; [1]Harvey Mudd College; [2]University of New South Wales

SMD 2014 Technical Division Young Professional Poster Contest — Posters

Sponsored by: TMS Structural Materials Division, TMS: Young Professionals Committee

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

YP14: Deformation Debris and Their Contribution to Affecting Metal Properties: Atomistic Simulations in Aluminum: *Hao Wang*[1]; Dongsheng Xu[1]; Rui Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

YP15: An Equivalent von Neumann-Mullins-relation for Nanocrystalline Grain Growth: *Dana Zoellner*[1]; Peter Streitenberger[1]; Paulo Rios[2]; [1]Otto von Guericke University Magdeburg; [2]Universidade Federal Fluminense

YP16: Enhancing Fracture Toughness Using Elasto-Geometric Heterogeneity: *Md. Hossain*[1]; Guruswami Ravichandran[1]; Kaushik Bhattacharya[1]; [1]California Institute of Technology

YP17: Stabilization of the Tetragonal and Cubic Phases of Hafnium Dioxide by Laser Ablation: *Viktor Panfilov*[1]; Maxim Pugachevskii[2]; [1]Far Eastern State Transport University; [2]Institute for Material Science of Far Eastern Branch of Russian Academy of Sciencies

YP18: A Nanofiber/Hydrogel Composite Structure Mimicking Connective Tissues: *Young Hun Jeong*[1]; Jinah Jang[2]; Dong-Woo Cho[2]; [1]Korea Polytechnic University; [2]POSTECH

YP19: Micro-architected Ni-based Superalloys: *Dinc Erdeniz*[1]; Keith Sharp[2]; David Dunand[1]; [1]Northwestern University; [2]3TEX Incorporated

YP20: Structure and Properties of the Y_2O_3/Fe Interface from First Principles Calculations: *Samrat Choudhury*[1]; Christopher Stanek[1]; Blas Uberuaga[1]; [1]Los Alamos National Laboratory

YP21: Accident-Tolerant Fuel Cladding Materials for Advanced Light Water Reactors: *Indrajit Charit*[1]; Maxwell Bowdon[1]; Somayeh Pasebani[1]; Sultan Alsagabi[1]; [1]University of Idaho

YP22: Grain Boundary Character Evolution of Nickel 200: *Olivia Underwood*[1]; Jeff Evans[1]; [1]University of Alabama in Huntsville

Solid-state Interfaces III: Toward an Atomistic-scale Understanding of Structure, Properties, and Behavior through Theory and Experiment — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Xiang-Yang Liu, Los Alamos National Laboratory; Blas Uberuaga, Los Alamos National Laboratory; Stephen Foiles, Sandia National Laboratories; Mitra Taheri, Drexel University; Rampi Ramprasad, University of Connecticut

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

B55: Charge Transfer Molecular Dynamics Simulations on Ni Vacancy Behavior at Ni/NiO Semi-coherent Interfaces: *Shotaro Hara*[1]; Satoshi Izumi[1]; Shinsuke Sakai[1]; [1]The University of Tokyo

B56: Workfunction Tuning of Zinc Oxide Based Thin Films for Device Applications: *Reinaldo Santos-Ortiz*[1]; Jitendra Jha[1]; [1]University of North Texas

B57: *In Situ* Analysis of the Sensitization of Grain Boundary Engineered 316 Stainless Steel: *Matthew Hartshorne*[1]; Christopher Barr[1]; Mitra Taheri[1]; [1]Drexel University

TMS2014 General Poster Session — Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Extraction and Processing Division, TMS Light Metals Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

A1: A Study on the Characteristics of Materials for Railway Vehicles: *Sung Cheol Yoon*[1]; Joon Hyung Ryu[1]; Young Guk Kim[1]; [1]Korea Railroad Research Institute

A2: A Study on the Mechanical Properties Variation of the AM60B with MgO-CNT: *Min Seok Moon*[1]; Myeong Han Yoo[1]; Shin Jae Kang[2]; Joon Hyuk Song[1]; Je Ha Oh[1]; [1]Korea Institute of Carbon Convergence Technology; [2]Chonbuk National University

A3: Determination of the Optimum NiS Fire Assay Parameters for Platinum in Catalytic Converters: *Mehmet Hakan Morcali*[1]; Suleyman Akman[1]; Onuralp Yucel[1]; [1]Istanbul Technical University

A4: Comprehensive Mathematical Model of Thermal Process In RHF for Direct Reduction: *Xue-feng She*[1]; Jing-song Wang[1]; Jin-zhou Liu[1]; Yu-liang Wu[1]; Qing-guo Xue[1]; Xin-xin Zhang[1]; [1]University of Science and Technology Beijing

A5: Dynamic Mechanical Behavior and Phase-based Constitutive Model of $20Cr_{12}Ni_4Mo_3VNiN$ in High Temperature: *Zhenguo Nie*[1]; Gang Wang[1]; JianChao Yu[1]; Yiming(Kevim) Rong[1]; [1]Tsinghua University

A6: Behavior of Particles in the Liquid-particle Mixture during Solidification: *Myung-Jin Suk*[1]; Gyu-Hee Lee[1]; Ho-Suk Lee[1]; Young Do Kim[2]; Sung-Tag Oh[3]; [1]Kangwon National University; [2]Hanyang University; [3]Seoul National University of Science and Technology

A7: Development of Cylindrical Carbon Composite Components Using Braiding Process: *Woong Ki*[1]; Hyun-kyu Shin[1]; [1]Korea Institute of Carbon Convergence Technology

A8: Development of Mg Seat Frame for Commercial Bus by High Pressure Die-casting Process: *Min Seok Moon*[1]; Myung Han Yoo[1]; Joon Hyuk Song[1]; Je Ha Oh[1]; Shin Jea Kang[2]; Sang Youp Oh[1]; [1]Korea Institute of Carbon Convergence Technology; [2]Chonbuk National University

A9: Consolidation of TiB_2 Ceramics by Using Spark Plasma Sintering: *Ahmet Turan*[1]; Filiz Cinar Sahin[1]; Gultekin Goller[1]; Onuralp Yucel[1]; [1]Istanbul Technical University

A10: Corrosion Analysis of Zn –Sn Alloys: Veronica Scheiber[1]; Claudia Méndez[1]; *Carlos Schvezov*[1]; Alicia Ares[1]; [1]Materials Institute of Misiones (IMAM)-Faculty of Sciences (FCEQyN-UNaM)

A11: Fabrication of Conductive Metallic Circuits on Paper by Printing Ag Nanowire Composite and Irradiation of Intense-pulsed Light: *Jong-Woong Kim*[1]; Ki-Hoon Ok[1]; Chan-Jae Lee[1]; Chul-Jong Han[1]; Min-Gi Kwak[1]; [1]Korea Electronics Technology Institute

A12: Effect of Nitrogen, Nickel and Carbon on Stress Corrosion Cracking Susceptibility of Austenitic Fe18Cr10Mn Steels: *Youngsub Yoon*[1]; Heon-young Ha[2]; Tae-ho Lee[2]; Sangshik Kim[1]; [1]Gyeongsang National University; [2]Korea Institute of Materials Science

A13: Effect of Heat Treatment on Mechanical Properties of Zn-Mg Alloys: *Jong Min Byun*[1]; Seong Yeul Kwak[1]; Tae Yeob Kim[2]; Woo Sung Jung[2]; Young Do Kim[1]; [1]Hanyang University; [2]POSCO

A14: Effect of Pre-strain on Creep Properties and Precipitation Behavior of Cu Added Alumina-forming Austenitic Stainless Steel: *Min-Ho Jang*[1]; Joonoh Moon[2]; Jun-Yun Kang[2]; Tae-Ho Lee[1]; [1]University of Science and Techology; [2]Korea Institute of Materials Science

A15: Enhancing Open Circuit Voltage by Combining Thermoelectric Materials and Dye-sensitized Solar Cell in Series: *Hsuan Lee*[1]; Chih-Ming Chen[2]; [1]National Chung-Hsing University ; [2]National Chung-Hsing University

A16: Effect on Transport-current Characteristics of Thickness Stabilization Layer with Different Properties of YBCO Thin-film Wire Deposited by Thermal Evaparation Method: *Ho Ik Du*[1]; Soung Ouk Heo[1]; Tae Min Kim[1]; Byoung Sung Han[1]; Byoung Jung Choi[1]; Byung Yoon Chu[1]; Sung Chae Yang[1]; [1]Chonbuk National University

A17: Electrochemical Forming of Porous Cu-Sn Alloy Electrode Materials for Li-ion Batteries: *Sunjung Kim*[1]; Bora Ye[1]; Binh Ha Bui[1]; [1]University of Ulsan

A18: Effect of Sn Microstructure and Tensile Properties of Hot-rolled Mg-Zn Sheet: *Seung Won Kang*[1]; Heon Kang[1]; Donghyun Bae[1]; [1]Yonsei university

A19: Effects of Heat Treatment on the Fatigue Deformation Behavior of Modified 7075 Aluminum Alloy: *Kee-Ahn Lee*[1]; Gwan-Yeong Kim[1]; Shae Kwang Kim[2]; Young-Ok Yoon[2]; Si-Young Sung[3]; Bum-Suck Han[3]; [1]Andong National University; [2]Korea Institute of Undustrial Technology; [3]Korea Automotive Technology Institute

A20: Enhanced Thermoelectric Properties of p-Type $Bi_{0.4}Sb_{1.6}Te_3$ by Adjustment of Micro- and Nanograin $Bi_{0.4}Sb_{1.6}Te_3$ Powder Ratio: Pee-Yew Lee[1]; *Tzu-Chien Chen*[1]; [1]National Taiwan Ocean University

A21: Evaluation of Role of Be Minor Addition on Glass-forming Behaviour of Zr-Cu-Al-Ag BMG-forming Alloys by Electrostatic Levitation: *Chae Woo Ryu*[1]; Eun Soo Park[1]; Dong Hee Kang; Geun Woo Lee[2]; Takehiko Ishikawa[3]; Junpei Okada[3]; [1]Seoul National University; [2]Korea Research Institute of Standards and Science; [3]Japan Aerospace Explanation Agency

A22: Estimation of Compressive Strength of High Strength Concrete with Recycled Coarse Aggregate Using Ultrasonic Pulse Velocity Method: *Seonguk Hong*[1]; Seunghun Kim[1]; Yongtaeg Lee[1]; [1]Hanbat National University

A23: Flow Phenomena in an Extra Wide CSP-mold-experimental Investigations: Rüdiger Bahrmann[1]; Antje Rückert[1]; *Herbert Pfeifer*[1]; [1]RWTH-Aachen University

A24: Extension of the Classical Thermodynamic/Kinetic Model to Predict Strain Induced Precipitation in an Ultrafine-grained Al-Cu-Sc Alloy: *Long Jiang*[1]; Gang Liu[1]; Jun Sun[1]; Peng Zhang[1]; [1]State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University

A25: Ion-induced Swelling of Yttrium Oxide-dispersion-strengthened $0Cr_{18}Ni1_0Ti$ Steel: *Victor Bryk*[1]; Victor Voyevodin[1]; Oleg Borodin[1]; Valyeriy Ageev[2]; Alyeksandr Kalchenko[1]; Aleksandra Nikitina[2]; [1]Kharkov Institute of Physics and Technology; [2]High-Technology Research Institute of Inorganic Materials

A26: Leaching of High Carbon Ferromanganese in Acidic Medium: Erdem Kilicarslan[1]; *Selim Ertürk*[1]; Cuneyt Arslan[1]; [1]Istanbul Technical University

A27: Interfacial Reactions between Ag-added Cu Substrate and Sn Solder: *Chih-Ming Chen*[1]; Teng-Kai Yang[1]; Chi-Fan Lin[1]; [1]National Chung Hsing University

A28: Investigation on the Activation Energy of ZnO Thin-film Transistors with Hf and Sn Doping: Dong-Suk Han[1]; Yu-Jin Kang[1]; Jae-Hyung Park[1]; *Jong-Wan Park*[1]; [1]Hanyang Unviersity

A29: Wear Resistance of the Ti/TiC Coatings Deposited by Means of Supersonic Cold Gas Spray Technique: *Jan Kusinski*[1]; Sergi Dosta[1]; Jorge Garcia-Forgas[1]; Slawomir Kac[1]; [1]AGH University of Sciences and Technology

A30: Interatomic Potential Model for Tuning Melting Temperature of Metal Systems: *Kayoung Yun*[1]; Jaeyoung Lee[1]; Ho-Seok Nam[1]; [1]Kookmin University

A31: Influence of Cold Deformation on Passive Film Behavior in the Crevice Corrosion Resistance of the ISO NBR 5832-1Austenitic Stainless Steel for Biomedical Use: Cristiaann Hincapie Ramirez[1]; *Alexander Ramirez*[2]; Isolda Costa[1]; [1]Instituto de Pesquisas Energéticas e Nucleares; [2]University of São Paulo

A32: Increase of Efficiency of the Monte Carlo Microstructure Evolution Model by Application of the Multicore CPU Processors: *Lukasz Madej*[1]; Mateusz Sitko[1]; Rafal Golab[1]; [1]AGH University of Science and Technology

A33: Materials Solutions for Fouling Mitigation in Oil and Gas: *Seth Taylor*[1]; Les Jackowski[1]; [1]Chevron Energy Technology Company

A34: Mechanical Properties and Fabrication of Al-Si-Cu Sintered-body by SPS Method for Sputtering Target: *Junho Jang*[1]; [1]KITECH

A35: Metals Extraction Using Cyanex 272, Verstic 10 and Their Mistures as Extractant: *Adriana Santanilla*[1]; Jorge Alberto Soares Tenório[1]; Denise Crocce Romano Espinosa[1]; [1]Polytechnic School of University of São Paulo

A36: Microstructural Evolution and Anisotropy of Al-Mg Alloy Subjected to Cryorolling through Different Rolling Routes: *Dharmendra Singh*[1]; P. Nageswararao[1]; R. Jayaganthan[1]; [1]IIT Roorkee

A37: Microstructure and Mechanical Properties of Friction-stir-processed AA6082 Seamed Tube: *Kwang-jin Lee*[1]; Ram Song[2]; [1]Korea Institute of Industrial Technology; [2]Chonbuk National University

A38: Numerical Simulation of Solidification Process of Wide and Thick Slab Continuous Casting: Jingbo Yang[1]; Jingshe Li[1]; Xiangzhou Gao[1]; *Shufeng Yang*[1]; [1]University of Science and Technology Beijing

A39: Numerical Simulation of Pulverized Coal Combustion Behavior in the Traditional Blast Furnace and Oxygen Blast Furnace: *Jinzhou Liu*[1]; Shiyang Zhang[1]; Xuefeng She[1]; Jingsong Wang[1]; Lin Lin[1]; Qingguo Xue[1]; [1]University of Science and Technology Beijing

A40: On the Effect of Strain Reversal and the Interactions between Static Recrystallization and Strain-induced Precipitation Process in Microalloyed Austenite: *Krzysztof Muszka*[1]; Thomas Simm[2]; Paulina Graca[1]; Eric Palmiere[2]; [1]AGH Univeristy of Science and Technology; [2]The University of Sheffield

A41: Optical Properties of Cd1-xZnxSe from Density Functional Theory: *Bimal Sarkar*[1]; Ajay Verma[2]; Gabriela Pavlendova[3]; Ivan Banik[3]; [1]Galgotias University; [2]Banasthali Vidhyapith; [3]Slovak University of Technology

A42: Quasicrystal Geopolymer Interface: *Maria Brasileiro*[1]; Severino Guedes Lima[2]; Sandro Torres[2]; Rosa Marinho[3]; Francisca Pereira[1]; Maria Barroso[1]; [1]Federal University of Ceara; [2]Universidade Federal da Paraíba; [3]Universidade Estadual do Ceara

A43: Research of Weldability of Magnesium Alloy by Nd:YAG and Disk Laser: *Tomáš Kramár*[1]; Petr Vondrous[2]; Pavel Kovacócy[3]; [1]Slovak University of Technology ; [2]Czech Technical University; [3]Slovak University of Technology

A44: Preventing Molten Aluminium Water Explosions through Organic Coatings: *Alex Lowery*[1]; [1]WISE CHEM LLC

A45: Statistical Analysis of the Stress Serrations Observed during Portevin–Le Chatelier Effect: *Apu Sarkar*[1]; P. Barat[2]; [1]North Carolina State University; [2]Variable Energy Cyclotron Centre

A46: The Complete Solid Solution Reinforced Heat-resistant Aluminum Alloy: *Si Young Sung*[1]; Jin Pyeong Kim[1]; Dong Ok Kim[1]; Sang Ho Noh[1]; Chang Su Hahn[1]; Beom Suck Han[1]; Sang Ho Kim[2]; Young Jig Kim[3]; [1]KATECH; [2]Korea University of Technology and Education; [3]Sungkyunkwan University

A47: Synthesis of Nanofiber Membrane by Electrospinning Technique: *Bihter Zeytuncu*[1]; Süleyman Akman[1]; Onuralp Yucel[1]; M.Vezir Kahraman[2]; [1]Istanbul Technical University; [2]Marmara University

A48: The Characterization of Mn Based Self-forming Barriers on Low-k Samples with or without UV Curing Treatment: *Jong-Wan Park*[1]; Jae-Hyung Park[2]; Dong-Suk Han[2]; So-Ra Shin[1]; [1]Division of Materials Science & Engineering, Hanyang University; [2]Division of Nanoscale Semiconductor Engineering, Hanyang University

A49: Study on Water Absorbing Behavior of Fine Ore for Sintering Process: *Buxin Su*[1]; [1] University of Science and Technology Beijing

A50: Reuse of Waste from the Cutting of Marble for the Production of Synthetic Slag: *Felipe Grillo*[1]; Denise Espinosa[1]; José Oliveira[2]; [1]University of Sao Paulo - USP; [2]Federal Institute of Espírito Santo

A51: The Effect of Through-thickness Grain Size and Texture Variation on Dynamic Abnormal Grain Growth: *Philip Noell*[1]; Nicholas Pedrazas[1]; Daniel Worthington[2]; Thomas Buchheit[3]; Elizabeth Holm[4]; Eric Taleff[1]; [1]University of Texas at Austin, Dept of Mechanical Engrg; [2]Fujifilm Dimatix, Inc., ; [3]Sandia National Laboratory; [4]Carnegie Melon University

A52: Synergistic Effect on Extraction of Nickel and Cobalt from Synthetic Sulfate Solution Using Dehpa and Cyanex 272 as Extractants: *Adriana Santanilla*[1]; Jorge Alberto Soares Tenório[1]; Denise Crocce Romano Espinosa[1]; [1]Polytechnic School of University of São Paulo

A53: Weibull Statistic for Evaluating Mechanical Behavior and Welding Reliability of Friction Stirr Process (FSP) 7075 Aluminium Alloy: *Bayu Wibawa*[1]; [1]NCKU (National Cheng Kung University)

A54: Design and Development of a Rotary System for Analysis of Complex Geometric Specimens used in Conjunction with a Scanning Electron Microscope: *Kevin Shiveley II*[1]; Adam Shiveley[1]; Adam Pilchak[2]; Jaimie Tiley[2]; [1]Air Force Research Laboratory; Universal Energy Systems, Inc.; [2]Air Force Research Laboratory

A55: Thin Film MIM Capacitors with Single and Bimetal Electrodes: *William Schroeder*[1]; [1]Missouri University of Science and Technology

A56: An Investigation on Thermodynamical Behavior of Fe-based Alloy Systems Produced by Aluminothermic Processes: *Cem Colakoglu*[1]; Murat Alkan[1]; Onuralp Yucel[1]; [1]Istanbul Technical University

A57: Development of Deformation Structures in 6061 Al Alloy Processed by Differential Speed Rolling: *Hae Woong Yang*[1]; Bong Kwon Chung[1]; Joo Hyun Park[1]; Young Gun Ko[1]; [1]Yeungnam University

A58: Thermographic Monitoring of Fracture Behavior in Railway Wheelset Materials: *Jeongguk Kim*[1]; Sung Cheol Yoon[1]; [1]Korea Railroad Research Institute

A59: Direct Copper Patterning on Polyethylene Terephthalate Using Surface Modification and Electroless Plating: *Sang Jin Park*[1]; Tae-Jun Ko[2]; Myoung-Woon Moon[2]; Juil Yoon[3]; Kwon O Chang[3]; Jun Hyun Han[1]; [1]Chungnam National University; [2]Korea Institute of Science and Technology; [3]Hansung University

Ultrafine Grained Materials VIII — Poster Session

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

Program Organizers: Suveen Mathaudhu; Yuri Estrin, Monash University; Zenji Horita, Kyushu University; Enrique Lavernia, University of California - Davis; Xiaozhou Liao, The University of Sydney; Lei Lu, Institute for Materials Research; Qiuming Wei, University of North Carolina - Charlotte; Gerhard Wilde, University of Muenster; Yuntian Zhu, North Carolina State University

Monday PM
February 17, 2014

Room: Sails Pavilion
Location: San Diego Convention Center

B58: Application of High-pressure Torsion to ZnO: *Takashi Nagaoka*[1]; Makoto Arita[1]; Zenji Horita[1]; [1]Kyushu University

B59: Corrosion Resistance of the Hydrated Film on Ultrafine-grained Mg Alloy Prepared by Hydrothermal Method: Song Dan[1]; Ma Aibin[1]; Jiang jinghua[1]; Guo Guanghui[1]; Chen Jianqing[1]; Yang Donghui[1]; [1]Hohai University

B60: Direct Micro-strain Observation of a Trimodal Al-Mg Alloy Using Digital Image Correlation Technique: *Yuzheng Zhang*[1]; Troy Topping[2]; Hanry Yang[2]; Enrique Lavernia[2]; Julie Schoenung[2]; Steven Nutt[1]; [1]University of Southern California; [2]University of California, Davis

B61: Extension of the Classical Thermodynamic/Kinetic Model to Predict Strain Induced Precipitation in an Ultrafine-grained Al-Cu-Sc Alloy: *Long Jiang*[1]; Gang Liu[1]; Jun Sun[1]; Peng Zhang[1]; [1]State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University

B62: Microstructure and Mechanical Properties of Novel CuNb Alloys Prepared by Ball Milling and High Pressure Torsion: *Manuel Abad*[1]; Steven Parker[1]; Daniel Kiener[2]; Mateo Primorac[3]; Peter Hosemann[1]; [1]University of California - Berkeley; [2]Montanuniversität Leoben ; [3]Montanuniversität Leoben

B63: Twin Intersection Mechanisms in Nanocrystalline FCC Metals: *Fan Wu*[1]; Yyuntian Zhu[1]; Jagdish Narayan[2]; [1]NCSU

B64: Ultrafine Grained Zircaloy-2: Processing, Microstructure and Mechanical Behaviour: *Jayaganthan R*[1]; Sunkulp Goel[1]; Nachiket Keskar[1]; Indra Vir Singh[1]; Dinesh Srivastava[1]; Dey G.K[1]; Saibaba N[1]; Saibaba N[1]; [1]IIT Roorkee

B65: Aging Behavior of Ultrafine Grained Al 6061- TiB2 Alloy Composite Processed through Cryorolling: *Nageswararao Palukuri*[1]; Dharmendra Singh[1]; Jayaganthan R[1]; [1]IIT Roorkee

B66: Bulk Ultrafine Structured Al-7wt%Si-0.3wt%Mg Alloys Synthesized by High Energy Ball Milling in Combination with Hot Mechanical Consolidation: *Jiamiao Liang*[1]; Deliang Zhang[1]; [1]Shanghai Jiao Tong University

B67: Cold Spray Processing of Nanocrystalline AA5083 Al Powder: *Mohammad Reza Rokni*[1]; Alan Nardi[2]; Christian Widener[1]; Victor Champagne[3]; [1]SDSM&T; [2]United Technologies Research Center; [3]U.S. Army Research Laboratory

B68: Development of High Strength Al 7075 Alloy through Cryorolling Followed by Warm Rolling: Nageswararao Palukuri[1]; Dharmendra Singh[1]; *Jayaganthan R*[1]; [1]IIT Roorkee

B69: Dry Sliding Wear Behavior of Al 6061- 3% TiB2 In Situ Alloy Composite Processed through Cryorolling: Nageswararao Palukuri[1]; *Dharmendra Singh*[1]; Jayaganthan R[1]; [1]IIT Roorkee

B70: Effect of Aging and Multidirectional Forging on Microstructure and Mechanical Properties of Al-Mg-Si Alloy: Maruff Hussane[1]; *Jayaganthan R*[1]; Nageswararao Palukuri[1]; Dharmendra Singh[1]; [1]IIT Roorkee

B71: Effect of Sample Size on Microstructure and Mechanical Properties of OFHC Copper Processed by Equal Channel Angular Pressing: Fan Liu[1]; Jing Tao Wang[1]; Ze Ning Mao[1]; Cheng Ping Zhou[1]; Yao Jiang[1]; [1]Nanjing University of Science and Technology

B72: Enhancement of Mechanical Properties of Biocompatible Ti-45Nb Alloy by Hydrostatic Extrusion: *Kadir Ozaltin*[1]; Witold Chrominski[1]; Mariusz Kulczyk[2]; Malgorzata Lewandowska[1]; [1]Warsaw University of Technology; [2]Polish Academy of Sciences

B73: Exceptionally High Strength, Nanocrystalline Mg AZ31 Alloy Produced by Cryomilling and SPS: *Dikai Guan*[1]; Mark Rainforth[1]; Iain Todd[1]; [1]The University of Sheffield

B74: Heterogeneous Dislocation Process, Slip Transfer and Shear Band Formation in the Deformation of Nanotwinned Copper by Molecular Dynamics Simulation: *Xing Zhao*[1]; Cheng Lu[1]; A.K. Tieu[1]; Linqing Pei[1]; Lihua Zhan[2]; Minghui Huang[2]; [1]University of Wollongong; [2]State Key Lab of High-performance Complex Manufacturing, Central South University

B75: Influence of Extrusion Temperature on Tensile Properties of Ultrafine Structured Cu-5vol.%$A_{l2}O_3$ Composites Synthesized by Powder Compact Extrusion: *Dengshan Zhou*[1]; Deliang Zhang[2]; Rob Torrens[1]; Charlie Kong[3]; Paul Munroe[3]; [1]University of Waikato; [2]Shanghai Jiao Tong University; [3]The University of New South Wales

B76: Microstructural Changes and Damage Evolution in Ultrafine-grained Copper Microcantilevers during Cyclic Deformation: *Marlene Kapp*[1]; Thomas Kremmer[2]; Christian Motz[3]; Bo Yang[1]; Reinhard Pippan[1]; [1]Erich Schmid Institute of Materials Science; [2]University of Leoben; [3]Saarland University

B77: Microstructural Evolution in Composite Layered Al 6061 Alloy Processed through Cryorolling: Nageswararao Palukuri[1]; *Pradeep S*[1]; [1]IIT Roorkee

B78: The Study of Crystal Orientation Changes during the High Pressure Torsion Process by Crystal Plasticity Finite Element Simulations: *Peitang Wei*[1]; [1]University of Wollongong

B79: Through-process Modeling of Al Alloy Optimization for Cold Spray Processing: *Danielle Belsito*[1]; Baillie McNally[1]; Victor Champagne, Jr.[2]; Richard Sisson, Jr.[1]; [1]Worcester Polytechnic Institute; [2]U.S. Army Research Laboratory

B80: Fatigue Crack Growth Investigations on Ultrafine-grained Metals Produced by High Pressure Torsion: *Thomas Leitner*[1]; Anton Hohenwarter[1]; [1]Montanuniversity Leoben

B81: Error Propagation in Deformation Parameter Measurement: *Cesar Moreno*[1]; Fei Du[1]; Shwetabh Yadav[2]; Tejas Murthy[2]; Christopher Saldana[1]; [1]The Pennsylvania State University; [2]Indian Institute of Science

B82: Microstructure and Texture Evolution in Low-carbon Steel Deformed by Differential Speed Rolling Method: Kotiba Hamad[1]; Rachmad Bastian Megantoro[1]; *Young Gun Ko*[1]; [1]Yeungnam University

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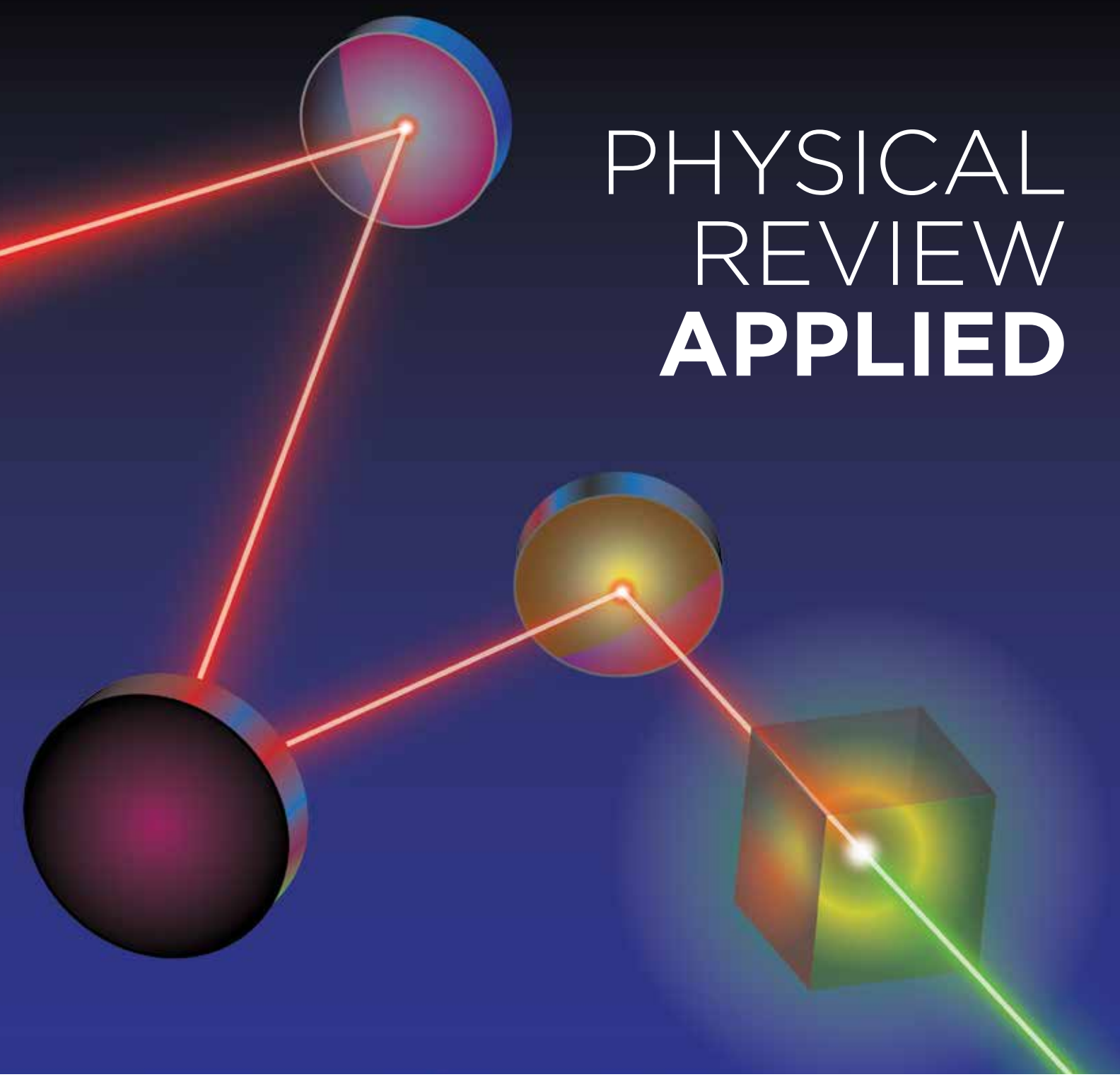

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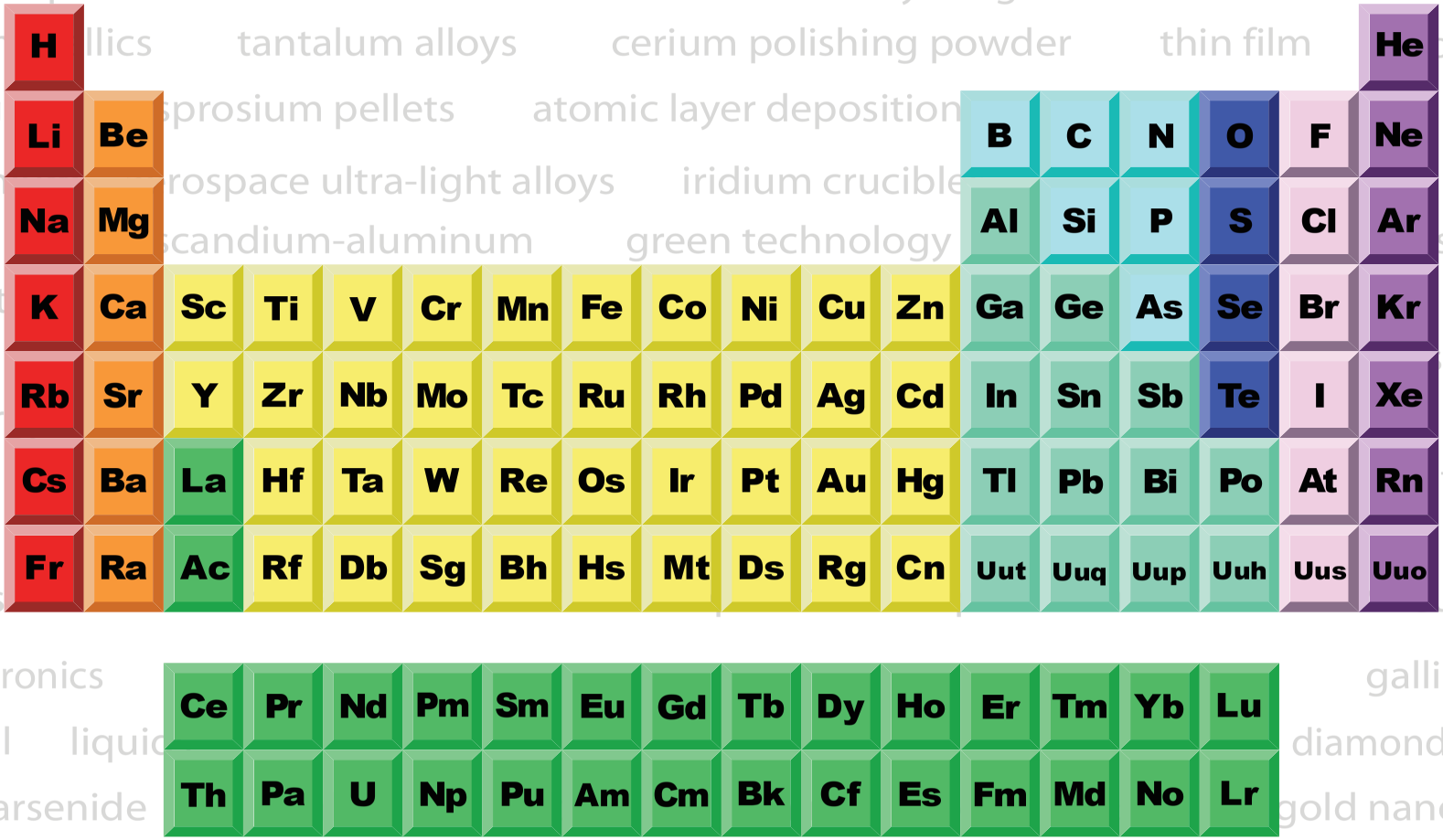

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