2007 Nanomaterials: Fabrication, Properties and Applications: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Wonbong Choi, Florida International University; Ashutosh Tiwari, University of Utah; Seung Kang, Qualcomm Inc.

Monday AM
February 26, 2007
Room: Oceanic 3
Location: Dolphin Hotel

Session Chairs: Wonbong Choi, Florida International University; Ken Teo, University of Cambridge

9:00 AM Keynote
Inorganic Nanowires: Growth and Applications: *M. Meyyappan*[1]; [1]NASA Ames Research Center

9:40 AM Invited
Synthesis and Integration of Carbon Nanotubes for the Electronic Device Applications: *Wanjun Park*[1]; [1]Materials and Devices Research Center, Samsung Advanced Institute of Technology

10:05 AM
Patterned Forest-Assembly of Single-Wall Carbon Nanotubes and Carbon Nanotube Atomic Force Microscopy Nanoprobes: Haoyan Wei[1]; Sang Nyon Kim[1]; Sejong Kim[1]; Minhua Zhao[1]; Sang-Yong Ju[1]; Bryan Huey[1]; Fotios Papadimitrakopoulos[1]; *Harris Marcus*[1]; [1]University of Connecticut, Materials Science and Engineering Program, Department of Chemical, Materials and Biomolecular Engineering, Institute of Materials Science

10:20 AM
Surface Modification to Enhance Uniform Growth of Carbon Nano-fibers on Larger Structural Components: *Ian Barney*[1]; J.H. Su[1]; R.J. Pulikollu[1]; S.M. Mukhopadhyay[1]; [1]Wright State University

10:35 AM Break

10:50 AM Invited
Carbon Nanotube Based "Generation IV" Photovoltaics: *W. Ready*[1]; Stephan Turano[1]; Rodolfo Camacho[1]; [1]Georgia Tech Research Institute-Electro-Optical Systems Laboratory

11:15 AM
Synthesis and Nonlinear Optical Properties of PbS Quantum Dots: *Suresh Krishna Moorthy*[1]; Sudipta Seal[1]; [1]University of Central Florida

11:30 AM
Photoluminescence at 1.5 μm from Er in an SiO2 Layer with Ge Nanoclusters: The Local Environments of Er Atoms and Comparison with He Case of Si Nanoclusters: *Jeyanthinath Mayandi*[1]; Terje Finstad[1]; Chenglin Heng[1]; Yanjun Li[1]; Hallgeir Klette[2]; [1]University of Oslo; [2]SINTEF

11:45 AM
Interface, Defects and Intermixing in Fe Thin Films Grown on AlGaAs by MBE: *Ramasis Goswami*[1]; Aubrey Hanbicki[2]; George Kioseoglou[2]; Berend Jonker[2]; George Spanos[2]; [1]Science Applications International Corporation; [2]Naval Research Laboratory

12:00 PM
Growth Control of Highly Oriented Nanorods of Zinc Oxide: *Jean-Claude Tedenac*[1]; Mezy Aude[1]; Ravot Didier[1]; Bretagnon Thierry[1]; Lefebvre Pierre[1]; Gerardin Corine[1]; Tichit Didier[1]; [1]Laboratoire de Physique de la Matière Condensée-UMR5617

12:15 PM
Core-Shell SiC-Al2O3 Nanowires Synthesized by a Current Heating Method: *Thanut Jintakosol*[1]; Pisith Singjai[1]; [1]Chiang Mai University

Advanced Metallic Composites and Alloys for High Performance Applications: Advanced Metallics

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS/ASM: Composite Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Awadh Pandey, Pratt & Whitney Rocketdyne; Kevin Kendig, Air Force Research Laboratory; John Lewandowski, Case Western Reserve University

Monday AM
February 26, 2007
Room: Europe 10
Location: Dolphin Hotel

Session Chair: Stephen Kampe, Virginia Tech

9:00 AM Invited
The Effect of Cold Rolling on the Creep Behavior of Udimet 188 Superalloy: *Debjani Palit*[1]; N. Eisinger[2]; Carl Boehlert[1]; [1]Michigan State University; [2]Special Metals Corporation

9:20 AM
Lightweight Truss Core Structures Formed from Expanded Metal: *Brandon Bouwhuis*[1]; Glenn Hibbard[1]; [1]University of Toronto

9:40 AM
Application of Roll-Bonding Technique on Preparing Aluminum Foam Sandwich: *Guoyin Zu*[1]; Min Zhang[1]; Guangchun Yao[1]; Hongbin Li[1]; [1]School of Materials and Metallurgy

10:00 AM
FeAl-Based Intermetallic Sinters Obtained by Liquid Phase Sintering: Stanislaw Józwiak[1]; *Krzysztof Karczewski*[1]; Zbigniew Bojar[1]; [1]Military University of Technology

10:20 AM Break

10:40 AM Invited
Characterization of Particle Reinforced Metal Matrix Composite Microstructures by Three Dimensional (3D) Finite Body Tessellation: Jason Williams[1]; *Nikhilesh Chawla*[1]; [1]Arizona State University

11:00 AM
Atomic Level Characterization of the β Decomposition Products in Ti-6Al-4V Using the Local Electrode Atom Probe: Stephanie Johnson[1]; David Diercks[1]; Rajarshi Banerjee[1]; James Cotton[2]; *Michael Kaufman*[1]; [1]University of North Texas; [2]Boeing Company

11:20 AM
Microstructure and Adhesion Strength of the Sn-9Zn-1.5Ag-1.5Bi Solder Alloy on Cu Substrate: *Chih-Yao Liu*[1]; Moo-Chin Wang[2]; Min-Hsiung Hon[1]; [1]National Cheng Kung University; [2]National Kaohsiung University of Applied Sciences

11:40 AM
Thermal Properties of the Diamond-Copper Interface in Hot-Pressed Metal-Matrix-Composites: *Ivica Smid*[1]; Erich Neubauer[2]; Paul Angerer[3]; Kristina Cowan[1]; [1]Pennsylvania State University; [2]Austrian Research Centers; [3]ECHEM

12:00 PM
The Production of Nanocrystalline and Amorphous Fe-(Co)-B-Si Thin Wires for Magnetic Applications Using In-Rotating-Liquid-Spinning: Georg Frommeyer[1]; Joachim Gnauk[1]; *Susanne Zeller*[1]; [1]Max-Planck-Insitut für Eisenforschung

12:20 PM
A Research Study on the Production of API Steels for Sour Gas Energy Applications: *Shahrokh Pourmostadam*[1]; [1]Mobarakeh Steel Company

Advances in Computational Materials Science and Engineering Methods: Methods at the Atom Scale I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Biomaterials Committee, TMS/ASM: Computational Materials Science & Engineering
Program Organizers: Koen Janssens, Paul Scherrer Institute; Veena Tikare, Sandia National Laboratories; Richard LeSar, Iowa State University

Monday AM
February 26, 2007
Room: Europe 7
Location: Dolphin Hotel

Session Chair: Richard LeSar, Iowa State University

9:00 AM Introductory Comments

9:05 AM Invited
Molecular Dynamics Simulations of the Structure and Properties of Confined Amorphous Films in Ceramics: *Stephen Garofalini*[1]; [1]Rutgers University

9:40 AM Question and Answer Period

9:45 AM
Diffusion-Limited Processes Treated with Accelerated Molecular Dynamics: *Erdi Bleda*[1]; Murray Daw[1]; [1]Clemson University

10:10 AM Question and Answer Period

10:15 AM
Linkage between Atomistic and Continuum-Based Simulations in Nanoscale Powder Metallurgy: Amitava Moitra[1]; Sungho Kim[1]; Seong-Gon Kim[1]; Seong Jin Park[1]; *Randall German*[1]; [1]Mississippi State University

10:40 AM Question and Answer Period

10:45 AM Break

11:15 AM
Multiscale Modeling of Nanoindentation: Ed McGee[1]; *Steven Kenny*[1]; Roger Smith[1]; [1]Loughbough University

11:40 AM Question and Answer Period

11:45 AM
Topological Characterization of Adsorption Phenomena Using Multi-Body Potential Expansions: Nicholas Zabaras[1]; *Baskar Ganapathysubramanian*[1]; [1]Cornell University

12:10 PM Question and Answer Period

12:15 PM
Development and Testing of MEAM Potential for Al-Mg Alloys: *Bohumir Jelinek*[1]; Seong-Gon Kim[1]; Jeffery Houze[1]; Sungho Kim[1]; Mark Horstemeyer[1]; Michael Baskes[2]; [1]Mississippi State University; [2]Los Alamos National Laboratory

12:40 PM Question and Answer Period

Advances in Microstructure-Based Modeling and Characterization of Deformation Microstructures: Characterization of Deformed Structures I

Sponsored by: The Minerals, Metals and Materials Society, ASM-MSCTS: Texture and Anisotropy Committee, ASM-MSCTS: Texture and Anisotrophy Committee
Program Organizers: Reza Shahbazian Yassar, Center for Advanced Vehicular Systems; Sean Agnew, University of Virginia; Jiantao Liu, Alcoa Technical Center

Monday AM
February 26, 2007
Room: Europe 1
Location: Dolphin Hotel

Session Chairs: Sean Agnew, University of Virginia; Anthony Rollett, Carnegie Mellon University

9:00 AM
Deformation-Induced Microstructural Development of Al-Base Sheet Metals: *Stephen Banovic*[1]; Mark Iadicola[1]; Tim Foecke[1]; [1]National Institute of Standards and Technology

9:20 AM Invited
3DXRD Experiments and Modelling of Plastic Deformation and Recrystallization: *Dorte Juul Jensen*[1]; [1]Riso National Laboratory

9:45 AM
Measuring Plastic Heterogeneity in Stainless Steel Using Image Correlation and Electron Backscatter Diffraction: *Lai Mei Li*[1]; Michael Preuss[1]; Joao Quinta da Fonseca[1]; M. Kamaya[2]; [1]University of Manchester; [2]Institute of Nuclear Safety System Inc.

10:05 AM
Grain Boundary Structure in Severe Plastic Deformed OFHC Cu Wires: *Daudi Waryoba*[1]; Kalu Kalu[1]; [1]Florida Agricultural and Mechanical University-Florida State University, College of Engineering and National High Magnetic Field Laboratory

10:25 AM Invited
Characterization of Fatigue Damage Nucleation in Aluminum Alloys: *Hasso Weiland*[1]; [1]Alcoa Technical Center

10:50 AM Break

11:05 AM Invited
Microstructure of Individual Grains in Cold-Rolled Aluminum from Orientation Inhomogeneities Resolved by EBSD: Wei He[1]; Weitao Ma[1]; *Wolfgang Pantleon*[1]; [1]Risoe National Laboratory

11:30 AM
On the In-Grain Orientation Gradient Development in Precipitation Hardening Aluminum Alloys: *Reza Shahbazian Yassar*[1]; James Baird[2]; Mark Horstemeyer[1]; Paul Wang[1]; David Field[3]; Kyla Stolting[2]; John Murphy[2]; [1]Center for Advanced Vehicular Systems; [2]Mississippi State University; [3]Washington State University

11:50 AM Invited
Phase and Crystallographic Load Distributions in a Two Phase HCP-BCC Alloy under Compression: *Song Cai*[1]; Mark Daymond[1]; Rick Holt[1]; [1]Queen's University

12:15 PM
Temperature Dependence of Ductile Fracture: *Andrew Oppedal*[1]; Mark Horstemeyer[1]; [1]Mississippi State University

12:35 PM
Effect of Hot Deformation on the Ti-Al-Nb-W-B Alloys: *Lan Huang*[1]; Peter Liaw[1]; Chain Liu[1]; [1]University of Tennessee

Aluminum Reduction Technology: Environmental and Plant Improvements

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Monday AM
February 26, 2007
Room: Southern 2
Location: Dolphin Hotel

Session Chair: Jerry Marks, J. Marks and Assoc.

9:00 AM
Alumina Dry-Scrubbing Technology: Development of a Cascade Feeding System for Improved Capture Efficiencies: Hugues Vendette[1]; Neal Dando[2]; Alain Moras[3]; Eric Marion[1]; Weizong Xu[2]; [1]Solios; [2]Alcoa Technical Center; [3]Aluminerie de Deschambault

9:25 AM
Development and Operation of a System Based on Water Pulverisation to Decrease, Prior to Treatment, the Temperature of the Gas Emitted from Aluminium Cells: *Myriam Bonnier*[1]; [1]Alcan

9:50 AM
Effective Techniques to Control Fluoride Emissions: *Stephen Lindsay*[1]; [1]Alcoa Inc

10:15 AM
Impact of Potroom Work Practices on Roofline Fluoride Emissions and Wet Scrubber Efficiency: Neal Dando[1]; *Weizong Xu*[1]; Oscar Fisher[1]; [1]Alcoa Inc

10:40 AM Break

10:55 AM
Development of a Wearable Gauge for Measuring Transient Peak HF Concentrations in Aluminum Smelters: *Neal Dando*[1]; Weizong Xu[1]; Jon Peace[1]; [1]Alcoa Inc

11:20 AM
Revolutionary Design of Pot Tending Machines: *Nicolas Dupas*[1]; [1]ECL

11:45 AM
Aluminium Smelter Hot Cavity Bath Treatment Processes: *Patrick Coulombe*[1]; Alain Gaboury[1]; Jean-Francois Riverin[2]; [1]Aluminerie Alouette Inc.; [2]STR Consultants Inc.

12:10 PM
Rectifier Control System Upgrade for Higher Efficiency: *Eric Lambert*[1]; Joe Frisch[1]; [1]ABB Inc

12:35 PM
A New Alumina Distribution and Feeding System for Aluminium Reduction Cells: *Andreas Wolf*[1]; Michael Rinck[1]; Peter Hilgraf[1]; [1]Claudius Peters Projects GmbH

Biological Materials Science: Bioinspired Materials

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Andrea Hodge, Lawrence Livermore National Laboratory; Chwee Lim, National University of Singapore; Eduard Artz, University of Stuttgart; Masaaki Sato, Tohoku University; Marc Meyers, University of California, San Diego

Monday AM
February 26, 2007
Room: Europe 4
Location: Dolphin Hotel

Session Chair: To Be Announced

9:00 AM
Bioinspired Design of Functionally Graded Dental Multilayers: *Nima Rahbar*[1]; Min Huang[1]; Stephen Farias[1]; Onobu Akogwu[1]; Winston Soboyejo[1]; [1]Princeton University

9:20 AM
Mineral Bridges in Abalone Nacre: *Albert Lin*[1]; Po-Yu Chen[1]; Marc Meyers[1]; [1]University of California-San Diego

9:40 AM Invited
Bio-Inspired and Biocompatible Materials with Carbon Nanorubes as Functional Elements: Hyung Gyu Park[1]; Alexander Artyukhin[1]; Shih-Chieh Huang[1]; Yinmin Wang[1]; Jason Holt[1]; Michael Stadermann[1]; Aleksandr Noy[1]; *Olgica Bakajin*[1]; [1]Lawrence Livermore National Laboratory

10:10 AM Invited
Nanoengineered Bone through Electrospinning and Mineralization: Susan Liao[1]; Casey Chan[1]; Ramalingam Murugan[1]; *Seeram Ramakrishna*[1]; [1]National University of Singapore

10:40 AM Break

10:50 AM Invited
Designing Biomimetic Model Surfaces with Enhanced Adhesion: *Eduard Arzt*[1]; Aranzazu del Campo[2]; Christian Greiner[2]; Emerson DeSouza[2]; [1]Max Planck Institut fuer Metallforschung, University of Stuttgart; [2]Max Planck Institut for Metals Research, Institute for Physical Metallurgy, Universität Stuttgart

11:20 AM
A Comparison of the Nanomechanical Properties of Hyaline and Repair Cartilage: *Oliver Franke*[1]; Verena Maier[1]; Kolja Gelse[1]; Karsten Durst[1]; Mathias Göken[1]; [1]University Erlangen

11:40 AM
Synthetic Bone Substitutes Derived from Marine Materials: A Comprehensive Study of Microstructure, Mechanical and Biological Properties: *Xing Zhang*[1]; Kenneth Vecchio[1]; [1]University of California

12:00 PM
Biomimetic Behavior of In Situ Formed Bioactive Composite Developed by Powder Metallurgy (PM) Processing for Load Bearing Applications: *Malobika Karanjai*[1]; Sundaresan Ranganathan[1]; Rama Mohan Tallapragada[2]; Bhagwati Kashyap[2]; [1]International Advanced Research Centre for Powder Metallurgy and New Materials; [2]Indian Institute of Technology Bombay

12:20 PM Invited
Probing Biological Control over Crystallization by In Situ Molecular Imaging and Molecular Modeling: *Roger Qiu*[1]; Andrzej Wierzbicki[2]; John Hoyer[3]; George Nancollas[4]; Dan Morse[5]; Chris Orme[1]; James De Yoreo[1]; [1]Lawrence Livermore National Laboratory; [2]University of South Alabama; [3]University of Pennsylvania; [4]University at Buffalo, SUNY; [5]University of California-Santa Barbara

Bulk Metallic Glasses IV: Glass Science and Technology

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Raymond Buchanan, University of Tennessee; Wenhui Jiang, University of Tennessee; Guojiang Fan, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee

Monday AM Room: Asia 1
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Peter Liaw, University of Tennessee; W.L. Johnson, California Institute of Technology

9:00 AM Introductory Comments

9:05 AM Keynote
Potential Energy Landscapes and Amorphous Metals: *William Johnson*[1]; [1]California Institute of Technology

9:35 AM Keynote
Fabrications and Applications of Late Transition Metal Base Bulk Glassy Alloys with Critical Diameters of Centimeter Order: *Akihisa Inoue*[1]; [1]Tohoku University

10:05 AM Invited
Coupled Order Parameter Nucleation Processes in Metallic Glasses: *Kenneth Kelton*[1]; [1]Washington University and Center for Materials Innovation

10:25 AM Invited
Thermal Conductivity as a Factor influencing Glass-Forming Ability of Bulk Glass-Forming Alloys: *Dmitri Louzguine*[1]; Albertus Setyawan[1]; Hidemi Kato[1]; Akihisa Inoue[1]; [1]Institute for Materials Research

10:45 AM
Thermophysical Properties of Cu-Based Bulk-Metallic Glass-Forming Liquids: *Guojiang Fan*[1]; M. Freels[1]; H. Choo[1]; P. K. Liaw[1]; J. J. Z. Li[2]; W. K. Rhim[2]; W. L. Johnson[2]; W. H. Wang[3]; [1]University of Tennessee; [2]California Institute of Technology; [3]Chinese Academy of Sciences

11:00 AM
TTT Diagram for Magnesium and Zirconium-Based Bulk Amorphous Alloys: *Signo Reis*[1]; Neal Ross[1]; Richard Brow[1]; [1]University of Missouri Rolla

11:15 AM Invited
Development and Characterization of Low Density Ca-Based Bulk Metallic Glasses: An Overview: *Oleg Senkov*[1]; [1]UES Inc

11:35 AM Invited
Glass Forming Ability from the Local Structure Perspective: *Evan Ma*[1]; [1]Johns Hopkins University

11:55 AM
An Alternative Model for Structural Relaxation in Metallic Glass: Deviation from Short Range Ordering: *Aiwu Zhu*[1]; Joseph Poon[1]; Gary Shiflet[1]; [1]University of Virginia

12:10 PM
Effect of the Frequency of Electromagnetic Vibrations on Vibrating Motion in Mg-Y-Cu Bulk Metallic Glasses: *Takuya Tamura*[1]; Yuuki Maehara[1]; Naoki Omura[1]; Kenji Miwa[1]; [1]National Institute of Advanced Industrial Science and Technology

12:25 PM
Multi-Functional Optimization Approach for Predicting Bulk Metallic Glass Systems: Sandeep Gorantla[1]; Yanwen Wang[1]; *Frank Miller*[1]; Rajiv Mishra[1]; Daniel Miracle[1]; Oleg Senkov[1]; [1]University of Missouri - Rolla

12:40 PM
Primary Crystallization in Amorphous Al-Y-Fe Alloys: *Rainer Hebert*[1]; John Perepezko[1]; [1]University of Wisconsin

Characterization of Minerals, Metals, and Materials: Characterization of Structure across Length Scales I

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Arun Gokhale, Georgia Institute of Technology; Jian Li, Natural Resources Canada; Toru Okabe, University of Tokyo

Monday AM Room: Oceanic 8
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Arun Gokhale, Georgia Institute of Technology; Lucille Giannuzzi, FEI Company

9:00 AM Invited
NanoCT: Visualizing of Internal 3D-Structures with Submicrometer Resolution: Cornelius Wuelker[1]; Dirk Neuber[2]; *Bill Eppich*[3]; [1]phoenix|x-ray Systems + Services Inc.; [2]phoenix|x-ray Systems + Services GmbH; [3]phoenix|x-ray Systems + Services

9:30 AM
3-D Atom Probe Tomography of Nanoscale Precipitates in Al-Si-Cu-Mg Casting Alloys: *Junyeon Hwang*[1]; Rajarshi Banerjee[1]; Herbert Doty[2]; Michael Kaufman[1]; [1]University of North Texas; [2]GM Powertrain, Metal Casting Technology Inc.

9:50 AM
Topological and Metric Considerations on Abnormal Grain Growth: *Paulo Rios*[1]; Martin Glicksman[2]; [1]UFF-EEIMVR; [2]University of Florida

10:10 AM
Automated Shape Analysis of γ Precipitates in a Rene88-DT Super-Alloy: *Jeremiah MacSleyne*[1]; Michael Uchic[2]; Marc DeGraef[1]; [1]Carnegie Mellon University; [2]US Air Force Research Laboratory

10:30 AM Break

10:45 AM Invited
An Update on FIB and DualBeam Applications and Techniques for Materials Characterization: *Lucille Giannuzzi*[1]; [1]FEI Company

11:15 AM
Three-Dimensional Analysis of Damage in Incipiently Spalled Tantalum: *Veronica Livescu*[1]; John Bingert[1]; [1]Los Alamos National Laboratory

11:35 AM
3-D Reconstruction of Alpha Laths in Various Ti-Mo Alloys by Serial Sectioning in a Nova 600 FIB: *Robert Williams*[1]; Michael Uchic[2]; Dennis Dimiduk[2]; Hamish Fraser[1]; [1]Ohio State University; [2]Air Force Research Laboratory/MLLMD

11:55 AM
A Comparison of Microstructural Quantification Using Two-Dimensional and Three-Dimensional Characterization Techniques across a Range of Length Scales: *Peter Collins*[1]; Erin Barry[1]; Santhosh Koduri[1]; Robert Williams[1]; Gopal Viswanathan[1]; Vladimir Levit[1]; Hamish Fraser[1]; Benjamin Peterson[1]; [1]Ohio State University

12:15 PM
Topological and Metrical Properties of 3-D Isotropic and Non-isotropic Polycrystals: *Martin Glicksman*[1]; Paulo Rios[2]; [1]University of Florida; [2]UFF-EEIMVR

Computational Thermodynamics and Phase Transformations: First Principles and Atomistic Calculations of Phase and Alloy Thermodynamics I

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, ASM Materials Science Critical Technology Sector, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Corbett Battaile, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory

Monday AM Room: Europe 11
February 26, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Invited
Ab Initio Study of Cation-Oxygen-Vacancy Coupling in Oxygen Conducting Perovskites: *Dane Morgan*[1]; Yueh-Lin Lee[1]; Eric Hellstrom[1]; Kuang-Sheng Hong[1]; Clare Grey[2]; [1]University of Wisconsin; [2]Stony Brook University

9:30 AM
First-Principles and Thermodynamic Calculation of the Nb-Si-B System: *Haoran Gong*[1]; Zhihong Tang[1]; Mufit Akinc[1]; Matthew Kramer[1]; [1]Ames Laboratory, Iowa State University

9:50 AM
First-Principles Calculations on Aluminum-Lanthanides and Aluminum-Actinides Phase Diagrams: *Michael Gao*[1]; Anthony Rollett[1]; Michael Widom[1]; [1]Carnegie Mellon University

10:10 AM
Atomistic Calculation of Free Energy: *Shenyang Hu*[1]; Michael Baskes[1]; Lawrence Pratt[1]; Steven Valone[1]; [1]Los Alamos National Laboratory

10:30 AM Break

10:50 AM Invited
Formation and Stability of Ti, Y, and O-Enriched Nanoclusters in Fe: *C. L. Fu*[1]; M. Miller[1]; M. Krcmar[2]; D. Hoelzer[1]; C. T. Liu[3]; [1]Oak Ridge National Laboratory; [2]Grand Valley State University; [3]University of Tennessee

11:20 AM
Identifying Favorable H-Storage Reactions via First-Principles Thermodynamic Modeling: *Donald Siegel*[1]; Christopher Wolverton[1]; Jun Yang[1]; Andrea Sudik[1]; Vidvuds Ozolins[2]; [1]Ford Motor Company; [2]University of California

11:40 AM
Clustering and Short-Range Order in Fe-Cr Alloys: A Monte Carlo Study: *Mikhail Lavrentiev*[1]; Duc Nguyen-Manh[1]; Sergei Dudarev[1]; Ralf Drautz[2]; Peter Klaver[3]; [1]UKAEA/EURATOM Fusion Association; [2]University of Oxford; [3]Queen's University Belfast

12:00 PM
Formation Mechanism of the Decomposition Morphology in Concentrated Multi-Component Alloys: Zugang Mao[1]; Chantal Sudbrack[1]; Kevin Yoon[1]; Georges Martin[1]; *David Seidman*[1]; [1]Northwestern University

12:20 PM Invited
Is There a Rational Approach to Cluster Expansion Construction? A Case Study of TiMo: *Gus Hart*[1]; [1]Northern Arizona University

Diffusion in Advanced Materials and Processing: Atomistic and Multiscale Simulations

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS: Alloy Phases Committee, TMS: High Temperature Alloys Committee, ASM-MSCTS: Atomic Transport Committee, TMS/ASM: Nuclear Materials Committee, TMS: Solidification Committee
Program Organizers: Yong-Ho Sohn, University of Central Florida; Carelyn Campbell, National Institute of Standards and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Afina Lupulescu, Union College

Monday AM Room: Europe 2
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Yong-Ho Sohn, University of Central Florida; Zi-Kui Liu, Pennsylvania State University

9:00 AM Introductory Comments

9:10 AM Invited
Calculating Diffusion Coefficients via a First-Principles Approach: Manjeera Mantina[1]; Yi Wang[1]; Raymundo Arroyave[2]; Christopher Wolverton[3]; Long Qing Chen[1]; *Zi-Kui Liu*[1]; [1]Pennsylvania State University; [2]Texas A&M University; [3]Ford Motor Company

9:40 AM
First-Principles Computation of Transition-Metal Mobility in a Ni Matrix: *Kwai Chan*[1]; Yi-Ming Pan[1]; Yi-Der Lee[1]; [1]Southwest Research Institute

10:00 AM
Diffusion Coefficients from First Principles Using the MedeA Software Platform: *Alexander Mavromaras*[1]; Walter Wolf[1]; Mikael Christensen[1]; Paul Saxe[1]; Erich Wimmer[1]; [1]Materials Design Inc

10:20 AM Break

10:40 AM Invited
First-Principles Prediction of Diffusion Coefficients in Non-Dilute, Multi-Component Solids: *Anton Van der Ven*[1]; [1]University of Michigan

11:10 AM Invited
Multi-Scale Modelling of Interdiffusion and Stress: *Marek Danielewski*[1]; Bartlomiej Wierzba[1]; [1]AGH University of Science and Technology

11:40 AM
Atomistic Simulation of Vacancies in General Grain Boundaries with Equilibrium and Nonequilibrium Structure: *Airat Nazarov*[1]; Ramil' Murzaev[1]; [1]Ufa State Aviation Technical University

12:00 PM
A Kinetic Discrete Model for Carbon Diffusion in TiC/Ti Nanometer-Scale Multilayers: B.S. Cao[1]; Z.L. Wu[1]; J. Gao[1]; Z.P. Zhang[1]; *M.K. Lei*[1]; [1]Dalian University of Technology

Dynamic Behavior of Materials: Deformation I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Marc Meyers, University of California; Ellen Cerreta, Los Alamos National Laboratory; George Gray, Los Alamos National Laboratory; Naresh Thadhani, Georgia Institute of Technology; Kenneth Vecchio, University of California

Monday AM
February 26, 2007
Room: Europe 3
Location: Dolphin Hotel

Session Chairs: Marc Meyers, University of California at San Diego; Eduardo Bringa, Lawrence Livermore National Laboratory

9:00 AM Award Presentation by Chair Marc Meyers

9:15 AM Invited
Atomistic Shock Simulations: From Single Crystals to Nanocrystals: *Eduardo Bringa*[1]; J. Hawreliak[1]; H. Lorenzana[1]; [1]Lawrence Livermore National Laboratory

9:45 AM
First Principles Prediction of the Fe $\alpha - \varepsilon$ Phase Transition Pathway: *Donald Johnson*[1]; Emily Carter[1]; [1]Princeton University

10:00 AM
Molecular Dynamics Simulation on Shock Compression of Monocrystalline Copper: *Buyang Cao*[1]; Eduardo M. Bringa[2]; Marc Meyers[1]; [1]University of California, San Diego; [2]Lawrence Livermore National Laboratory

10:15 AM
Energy Dissipation during High Rate Plastic Deformation of Zirconium: *Henry Padilla*[1]; Cynthia Smith[1]; John Lambros[1]; Armand Beaudoin[1]; Ian Robertson[1]; [1]University of Illinois at Urbana/Champaign

10:30 AM Break

10:45 AM Invited
Dislocation Mechanics for Shock-Induced Plasticity: *Ronald Armstrong*[1]; Werner Arnold[2]; Frank Zerilli[3]; [1]University of Maryland; [2]EADS; [3]Naval Surface Warfare Center

11:15 AM
Oblique Shocks and Plastic Wave Scattering Due to Interfaces in Crystalline Solids: *Eric Loomis*[1]; Damian Swift[1]; Hector Lorenzana[2]; James Mcnaney[2]; Pedro Peralta[3]; [1]Los Alamos National Laboratory; [2]Lawrence Livermore National Laboratory; [3]Arizona State University

11:30 AM
The Influence of Stored Defects and Grain Size of the Dynamic Response of Copper in Shear: *Ellen Cerreta*[1]; George Gray[1]; Ian Frank[1]; Carl Trujillo[1]; David Korzekwa[1]; Lisa Dougherty[1]; [1]Los Alamos National Laboratory

11:45 AM
A Neutron Diffraction and Self-Consistent Modelling Study of Rate and Temperature Dependent Deformation of Textured Beryllium: *Donald Brown*[1]; Bill Blumenthal[1]; Bjorn Clausen[1]; Carlos Tome[1]; Ricardo Lebensohn[1]; Sven Vogel[1]; [1]Los Alamos National Laboratory

12:00 PM
Neutron Resonance Spectroscopy (NRS): A Unique Method to Measure Temperatures of Dynamically-Loaded Materials: *Vincent Yuan*[1]; Damian Swift[1]; Achim Seifter[1]; [1]Los Alamos National Laboratory

12:15 PM
Dislocation Pattering and Dynamic Fracture in Shocked Ta and U-6wt%Nb: *Luke Hsiung*[1]; Geoffrey Campbell[1]; Gregory Archbold[1]; [1]Lawrence Livermore National Laboratory

12:30 PM
Dynamic Response of Natural and Synthetic Scheelite Single Crystals: *Zaretsky Eugene*[1]; Mogilevsky Pavel[2]; [1]Ben-Gurion University of the Negev; [2]UES Inc.

12:45 PM
Dynamics of Material Response to High Intensity Ultrafast Laser Ablation: *Steven Yalisove*[1]; Tresa Pollock[1]; Shewei Ma[1]; Joel McDonald[1]; [1]University of Michigan

Electrode Technology Symposium (formerly Carbon Technology): Cathode Part I: Cathode Wear and Construction

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS

Monday AM
February 26, 2007
Room: Southern 3
Location: Dolphin Hotel

Session Chair: Thomas Alcorn, Noranda Aluminum Inc

9:00 AM Introductory Comments

9:05 AM
Laboratory Test Methods for Determining the Cathode Wear Mechanism in Aluminium Cells: *Egil Skybakmoen*[1]; Asbjørn Solheim[1]; Sverre Rolseth[1]; Henrik Gudbrandsen[1]; Arne P. Ratvik[1]; [1]SINTEF

9:30 AM
Wear of Carbon Cathodes in Cryolite-Alumina Melts: *Kristin Vasshaug*[1]; Trygve Foosnæs[1]; Geir Martin Haarberg[1]; Arne Petter Ratvik[2]; Egil Skybakmoen[2]; [1]Department of Materials Science and Engineering, Norwegian University of Science and Technology; [2]SINTEF Materials and Chemistry

9:55 AM
Experimental Comparison of Cathode Rodding Practices: Lucio Caruso[1]; Ketil Rye[2]; *Morten Sorlie*[2]; [1]Alcoa Trasformazioni Srl; [2]Elkem Aluminium ANS

10:20 AM
Property Change of Dry Barrier Mixes Used in a Cathode of Aluminium Reduction Cells: Alexander Proshkin[1]; *Peter Polyakov*[2]; [1]Engineering and Technology Center, RUSAL; [2]LLC Science and Technology Center "Light Metals"

10:45 AM Break

11:05 AM
The Usage of Pot Autopsies as a Powerful Tool to Improve Potlife: *Carlos Zangiacomi*[1]; Victor Pandolfelli[2]; Leonardo Paulino[3]; [1]Alcoa Aluminum Inc Brazil; [2]Federal University of Sao Carlos - Brazil; [3]Alcoa Primary Metals

11:30 AM
Treatment of Spent-Potlining for Recovery of Fluoride Values: *Diego Fernandez Lisbona*[1]; Karen Steel[1]; [1]School of Chemical, Environmental and Mining Engineering, University of Nottingham

11:55 AM
Tests of Various Graphitic Cathode Blocks Materials for 300 kA Aluminum Reduction Cells: *Zhongning Shi*[1]; Bijun Ren[2]; Junli Xu[1]; Zhaowen Wang[1]; Zhuxian Qiu[1]; [1]Northeastern University; [2]Yichuan Electric-Power and Aluminium Group

12:20 PM
Research on Crushing Character of Spent Cathode: *Xiping Chen*[1]; Wangxing Li[1]; [1]Chalco

Frontiers in Solidification Science: Nucleation and Crystal Structure

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Chemistry and Physics of Materials Committee, TMS: Solidification Committee
Program Organizers: Jeffrey Hoyt, Sandia National Laboratories; Mathis Plapp, Ecole Polytechnique; Gabriel Faivre, CNRS; Shan Liu, Iowa State University

Monday AM
February 26, 2007
Room: Northern A3
Location: Dolphin Hotel

Session Chair: To Be Announced

9:00 AM Invited
Phase Field Modeling of Heterogeneous Nucleation: *James Warren*[1]; David Saylor[2]; Laszlo Granasy[3]; Tamas Pusztai[3]; [1]National Institute of Standards and Technology; [2]Food and Drug Administration; [3]Research Institute for Solid State Physics and Optics

9:30 AM Invited
Bulk Liquid Undercooling and Nucleation Kinetics Analysis: *John Perepezko*[1]; Gerhard Wilde[2]; Charuayporn Santhaweesuk[1]; [1]University of Wisconsin; [2]University of Münster

10:00 AM Invited
Phase Field Modeling of Polycrystalline Freezing in Two and Three Dimensions: New Developments: *Tamás Pusztai*[1]; László Gránásy[1]; Jack Douglas[2]; James Warren[2]; [1]Research Institute for Solid State Physics and Optics of the Hungarian Academy of Sciences; [2]National Institute of Standards and Technology

10:30 AM
Phase-Field Simulation of Nucleation and Growth in Mg-Alloys: Janin Eiken[1]; *Ingo Steinbach*[1]; [1]RWTH-Aachen

10:50 AM Break

11:00 AM Invited
Orientation Selection in Dendritic Evolution: *Alain Karma*[1]; [1]Northeastern University

11:30 AM Invited
Multiscale Methods and Phase Field Crystal Modeling of Microstructure: Badri Athreya[1]; Pak Yuen Chan[1]; Zhi Huang[1]; *Jonathan Dantzig*[1]; Nigel Goldenfeld[1]; [1]University of Illinois

12:00 PM Invited
Intragranular Variations of Crystallographic Orientation in Hot-Dip Al-Zn Coatings: *Alain Jacot*[1]; Christoph Niederberger[1]; [1]EPFL

General Abstracts: Electronic, Magnetic, and Photonic Materials Division: GaN and Interconnects

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS: Electronic Materials Committee, TMS: Electronic Packaging and Interconnection Materials Committee, TMS: Nanomaterials Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Long Qing Chen, Pennsylvania State University; Sung Kang, IBM Corporation

Monday AM
February 26, 2007
Room: Oceanic 7
Location: Dolphin Hotel

Session Chair: Yu Wang, Virginia Tech

9:00 AM
Characterization of GaN Layers Grown on Metallic TiN Buffer Layers: *Sangjin Lee*[1]; Kazuhiro Ito[1]; Yu Uchida[1]; Susumu Tsukimoto[1]; Yuhei Ikemoto[2]; Koji Hirata[2]; Naoki Shibata[2]; Masanori Murakami[1]; [1]Kyoto University; [2]Toyoda Gosei

9:20 AM
Semi-Empirical Interatomic Potentials for Ga-N and In-N Systems: *Eun Cheol Do*[1]; Byeong-Joo Lee[1]; [1]POSTECH

9:40 AM
Epitaxial Growth of GaN Layers on Metallic TiN Buffer Layers: *Kazuhiro Ito*[1]; Yu Uchida[1]; Sangjin Lee[1]; Susumu Tsukimoto[1]; Yuhei Ikemoto[2]; Koji Hirata[2]; Naoki Shibata[2]; Masanori Murakami[1]; [1]Kyoto University; [2]Toyoda Gosei

10:00 AM
Formation of Controlled Copper Current Paths in Alumina Nano-Oxide Layers for GMR Spin Valves by Rapid Thermal Processing of Al-Cu Sputtered Films: *Zeenath Tadisina*[1]; Rajeshchandra Thunuguntla[1]; Subhadra Gupta[1]; Robb Morris[1]; Gregory Thompson[1]; Jian Zhong[1]; Raghvendra Pandey[1]; [1]University of Alabama

10:20 AM
Properties of Ge/HfN_x as a Diffusion Barrier for Cu Metallization: *Seemant Rawal*[1]; Lii-Cherng "Daniel" Leu[1]; David Norton[1]; KeeChan Kim[1]; Tim Anderson[1]; Lisa McElwee-White[1]; [1]University of Florida

10:40 AM Break

11:10 AM
Thermal Fatigue Characterization of Commonly-Used 63Sn37Pb Solder Joints in Electronic Assemblies: *Arun Iyer*[1]; Michael Oja[1]; Robert Tryon[1]; [1]VEXTEC Corporation

11:30 AM
Characterization of Wire Bonds Subjected to Ultrasonic Welding and Thermal Cycling: Anil Saigal[1]; Peterson Silva[1]; *Robert Greif*[1]; Michael Zimmerman[1]; [1]Tufts University

11:50 AM
The Influence of Heat-Treatment Atmosphere on Interfacial Adhesion Strength of Cu/Cr/Polyimide Films: *Takeo Miyamura*[1]; Junichi Koike[1]; [1]Tohoku University

12:10 PM
Morphological Changes in CIGS2 upon Thickness Reduction of Absorber Layer: *Parag Vasekar*[1]; Neelkanth Dhere[1]; [1]Florida Solar Energy Center, University of Central Florida

12:30 PM
Lead and Lead Free Bulk Solder Material Characterization and High Rate Tensile Test: *Liping Zhu*[1]; Wade Hezeltine[1]; Todd Embree[1]; Raiyo Aspandiar[1]; George Hsieh[1]; Rick Williams[1]; [1]Intel Corporation

General Abstracts: Extraction and Processing: High Temperature Processing

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Aqueous Processing Committee, TMS: Materials Characterization Committee, TMS: Pyrometallurgy Committee
Program Organizers: Boyd Davis, Kingston Process Metallurgy Inc; Michael Free, University of Utah

Monday AM Room: Northern E4
February 26, 2007 Location: Dolphin Hotel

Session Chair: To Be Announced

9:00 AM
Heavy Metals Behavior of Municipal Solid Waste Incineration Bottom Ash with Magnetic Separation: *Gi-Chun Han*[1]; Nam-Il Um[1]; Kwang-Suk You[1]; Hee-Chan Cho[2]; Ji-Whan Ahn[1]; [1]Korea Institute of Geoscience and Mineral Resouces; [2]Seoul National University

9:25 AM
Emission Yields on Pyrolysis Followed by Combustion of Polyethylene in Steady Flow: Cecilia Goncalves[1]; *Jorge Tenorio*[1]; Yiannis Levendis[2]; [1]University of Sao Paulo; [2]Northeastern University

9:50 AM
Utilization of Waste Glass in Alumina-Glass Composite: *Jiann-Yang Hwang*[1]; Xiaodi Huang[1]; Adele Garkida[1]; Shangzhao Shi[1]; Bowen Li[1]; [1]Michigan Technological University

10:15 AM Break

10:35 AM
New Testing Chamber at Messer Austria to Develop Burners for Ferrous, Nonferrous and Glass Production: *Michael Potesser*[1]; Burkhardt Holleis[2]; Davor Spoljaric[3]; Helmut Antrekowitsch[1]; Axel Scherello[4]; [1]University of Leoben; [2]Messer Austria GmbH.; [3]ELME Messer Gaas; [4]Gaswärme-Institut e.V.

11:00 AM
Sulfurization of Rare-Earth Containing UO_2 Solid Solution by CS_2: *Nobuaki Sato*[1]; Genki Shinohara[1]; Akira Kirishima[1]; Osamu Tochiyama[1]; [1]Tohoku University

11:25 AM
Solidification of Fluoride Solution in Aluminum Electrolyte Bath: Bowen Li[1]; Xiaodi Huang[1]; *Jiann-Yang Hwang*[1]; [1]Michigan Technological University

General Abstracts: Extraction and Processing: Hydrometallurgy, Metal Recovery

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Aqueous Processing Committee, TMS: Materials Characterization Committee, TMS: Pyrometallurgy Committee
Program Organizers: Boyd Davis, Kingston Process Metallurgy Inc; Michael Free, University of Utah

Monday AM Room: Northern E2
February 26, 2007 Location: Dolphin Hotel

Session Chair: To Be Announced

9:00 AM
Review of Hydrometallurgical Options to Separate Cobalt and Manganese from Acidic Solutions: *Cesar Ferron*[1]; [1]HydroProc Consultants

9:25 AM
Processing of Electroplating Effluent for the Recovery of Zinc and Chromium Using Ion Exchange Technique: *Manis Kumar Jha*[1]; Vinay Kumar[2]; Jae-chun Lee[1]; [1]Korea Institute of Geoscience and Mineral Resources; [2]National Metallurgical Laboratory

9:50 AM
Precipitation of Aluminum from Concentrated Chloride Solutions: *Vera Gella*[1]; George Demopoulos[1]; [1]McGill University

10:15 AM
Effects of Acidithiobacillus Ferrooxidans on the Electro-Generative Simultaneous Leaching for Sphalerite-MnO2: *Xiao Li*[1]; [1]Central South University

10:40 AM Break

11:00 AM
Chlorine Leaching Technology of Precious Metals in Copper Anode Slimes: Harumasa Kurokawa[1]; Satoshi Asano[1]; Koji Sakamoto[1]; Shinichi Heguri[1]; *Takashi Hashikawa*[1]; [1]Sumitomo Metal Mining Company, Ltd.

11:25 AM
Selective Extraction of Precious Metals with Amide Compounds: *Hirokazu Narita*[1]; Mikiya Tanaka[1]; Kazuko Morisaku[1]; Ken Tamura[2]; [1]National Institute of Advanced Industrial Science and Technology; [2]Chiba Institute of Technology

11:50 AM
Shape-Controlled Synthesis of Porous Fibrous Cobalt Powder: *Jing Zhan*[1]; Chuanfu Zhang[1]; Chengyong Dong[1]; Jianhui Wu[1]; [1]Central South University

General Abstracts: Extraction and Processing: Hydrometallurgy, Wastewater Treatment

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Aqueous Processing Committee, TMS: Materials Characterization Committee, TMS: Pyrometallurgy Committee
Program Organizers: Boyd Davis, Kingston Process Metallurgy Inc; Michael Free, University of Utah

Monday AM Room: Northern E1
February 26, 2007 Location: Dolphin Hotel

Session Chair: To Be Announced

9:00 AM
Cobalt Removal from Waste Water by Use of Supported Liquid Membranes: *Kim Verbeken*[1]; Marc Verhaege[1]; Bruno Vanheule[2]; Luc Pinoy[2]; [1]University of Gent; [2]KaHo St-Lieven

9:25 AM
Separation of Ni/Fe from Industrial Waste Acid by Solvent Extraction Technique Using D2EHPA: *Jae-chun Lee*[1]; Manis Kumar Jha[1]; Jinki Jeong[1]; Min Seuk Kim[1]; Kyoungkeun Yoo[1]; [1]Korea Institute of Geoscience and Minerals Resources

9:50 AM
Evaluation of the Elution of (Cr3+, Zn2+, Ni2+, Cu2+) from Wastewater Using Purolite C-150 and Dowex Marathon C Ion Exchange Resins: *Josiane Riani*[1]; Jorge Alberto Tenório[1]; Adriana Gómez[1]; [1]Universidade de São Paulo

10:15 AM
Hydrometallurgical Synthesis, Characterization and Stability of Ca-Fe-AsO4 Compounds: *Levente Becze*[1]; George P. Demopoulos[1]; [1]McGill University

10:40 AM Break

11:00 AM
Immobilization Mechanism of Chromium in Aqueous Solution with Ettringite: *Ji-Whan Ahn*[1]; Kwang-Suk You[1]; Dong Han[1]; [1]Korea Institute of Geoscience

11:25 AM
Removal Mechanism of Orange II Azo Dye by Electrocoagulation: *Jewel Gomes*[1]; David Cocke[1]; Mohammad Mollah[2]; Hector Moreno C.[1]; Eric Peterson[1]; Donald Mencer[3]; [1]Lamar University; [2]University of Dhaka; [3]Wilkes University

11:50 AM
Electrochemical Reactions for Electrocoagulation Using Aluminum Electrodes: *Hector Moreno*[1]; David Cocke[1]; Jewel Gomes[1]; Paul Morkovsky[2]; Jose Parga[3]; Eric Peterson[1]; Donald Mencer[4]; [1]Lamar University; [2]Kaselco; [3]Instituto Tecnologico de Saltillo; [4]Wilkes University

General Abstracts: Extraction and Processing: Pyrometallurgy, Base Metals

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Aqueous Processing Committee, TMS: Materials Characterization Committee, TMS: Pyrometallurgy Committee
Program Organizers: Boyd Davis, Kingston Process Metallurgy Inc; Michael Free, University of Utah

Monday AM
February 26, 2007
Room: Northern E3
Location: Dolphin Hotel

Session Chair: To Be Announced

9:00 AM
Effect of MgO and Al2O3 on the Environmental Behavior of Chromium Based Slags: Elda García-Ramos[1]; *Jose Romero-Serrano*[1]; Beatriz Zeifert[1]; Vanessa Ugarte-Domínguez[1]; Beatriz Estrada-Mateos[1]; [1]National Polytechnic Institute

9:25 AM
Effect of Slag Composition on the Manufacture of Iron Nuggets from Carbon Composite Pellets: Alberto Nogueira[1]; *Marcelo Mourao*[1]; Cyro Takano[1]; [1]University of Sao Paulo

9:50 AM
The Investigation of Sponge Iron Production Parameters by Using Iron Oxide Pellets with Domestic Lignite Coals: *Onuralp Yucel*[1]; Kemal Gecim[1]; Suheyla Aydin[1]; [1]ITU

10:15 AM Break

10:35 AM
Kinetics of Liquid Copper Reduction with Charcoal: *Gabriel Riveros*[1]; Andrzej Warczok[1]; Carlos Puga[1]; [1]Universidad de Chile

11:00 AM
Remote Cooled Element Trial in Flash Furnace Gas Space: *Melissa Trapani*[1]; Roger Player[2]; Dennis Montgomerie[1]; [1]BHP Billiton Olympic Dam; [2]BHP Billiton Technology

General Abstracts: Light Metals Division: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS: Reactive Metals Committee, TMS: Recycling Committee
Program Organizers: Neale Neelameggham, US Magnesium LLC; Anne Kvithyld, Norwegian University of Science and Technology

Monday AM
February 26, 2007
Room: Pacific Hall B
Location: Dolphin Hotel

Session Chairs: Lifeng Zhang, Norwegian University of Science and Technology; C. Srinivasa Narasimhan, MALCO

9:00 AM
Preparation and Application of High-Molecular-Weight Hydroxamic Acid Containing Phenyl as Flocculants for Red Mud Setting: *Chen Feng*[1]; Lian-Song Wang[1]; Yuan-wei Li[2]; [1]Northeastern University; [2]Shenyang Mechanical Fittings for Industrial and Mining Company, Ltd.

9:20 AM
Preparation and Characterization of New Water Base Low Cost Coating Material for Anode Rod Stubs: *Jyoti Mukhopadhyay*[1]; Upendra Singh[1]; [1]JNARDDC

9:40 AM
Reduction in Pot Turn around Time: Vasantha Kumar Rangasamy[1]; *Srinivasa Narasimhan Chakravarthy*[1]; Krishnaraj Thiyagarajan[1]; [1]The Madras Aluminium Company (Malco) Ltd.

10:00 AM
Experiences and Developments through 10 Years of Operation with the Abart Dry Scrubber: *Geir Wedde*[1]; Parto Henriksen[2]; [1]Alstom; [2]Alstom Norway

10:20 AM
Recovery of Residual Metal from Spent Pot Lines for Use in Oxygen Steel Making Process: *Pradeep Maitra*[1]; [1]M/S Dipaly Consultants

10:40 AM Break

10:50 AM
Characteristics of Aluminum Foam Prepared by Infiltration of Liquid Al through Ceramic Foam Bed: *Pravash Maity*[1]; [1]National Institute of Foundry and Forge Tech

11:10 AM
Fundamentals of Inclusion Removal from Molten Aluminum and Silicon through Gas Bubbling: *Lifeng Zhang*[1]; [1]Norwegian University of Science and Technology

11:30 AM
Development and Optimization of Aluminium Alloys for Wire Harnesses in Automotive Engineering: Helmut Antrekowitsch[1]; *Susanne Koch*[1]; Mathias John[2]; Pari Farzi[2]; [1]University of Leoben; [2]Magna Steyr Fahrzeugtechnik

11:50 AM
Structural Characterization of Liquid Al-Si Hypoeutectic Alloys: *Srirangam VenkataSuryaPrakash*[1]; Sumanth Shankar[1]; Matthew Kramer[2]; [1]LMCRC, McMaster University; [2]Iowa State Univerisity

12:10 PM
Structure-Functional Materials of In Situ TiB2 Particulates Reinforced A356 Composite: *Yijie Zhang*[1]; [1]Yantai University

General Abstracts: Materials Processing and Manufacturing Division: Forming of Materials and Processes

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS/ASM: Computational Materials Science and Engineering Committee, TMS: Global Innovations Committee, TMS: Nanomechanical Materials Behavior Committee, TMS/ASM: Phase Transformations Committee, TMS: Powder Materials Committee, TMS: Process Modeling Analysis and Control Committee, TMS: Shaping and Forming Committee, TMS: Solidification Committee, TMS: Surface Engineering Committee
Program Organizers: Fernand Marquis, Naval Postgraduate School; Ralph Napolitano, Iowa State University; Neville Moody, Sandia National Laboratories

Monday AM
February 26, 2007
Room: Northern A4
Location: Dolphin Hotel

Session Chairs: Axel Specker, IPH; Achim Schott, IPH GmbH

9:00 AM
Approach for Flashless Precision Forging Operations for Components with Unsteady Mass Distribution: Axel Specker[1]; *Dominic Gruss*[1]; [1]IPH

9:25 AM
Spray Forming of Al-Mg-Si-Alloy with High Volume of Mg2Si: *Volker Uhlenwinkel*[1]; Nils Ellendt[1]; Olaf Kessler[2]; Olaf Stelling[2]; [1]University Bremen; [2]Foundation for Materials Science

9:50 AM
Warm Forging of a Connecting Rod: *Achim Schott*[1]; [1]IPH GmbH

10:15 AM
Improvements in Electrospark Deposition for Small Repairs through the Use of Ultrasonic Impact Treatment: *Graham Tewksbury*[1]; Danial Danks[1]; Sean O'Connell[1]; John Kelley[1]; Norma Price[1]; William Wood[1]; [1]Portland State University

10:40 AM
The Kinetics of Multidimensional Infiltration: *Kevin Trumble*[1]; [1]Purdue University

11:05 AM
Optimal Blank Design for Complicated Shapes Using Modified Ideal Forming Theory: Mohammad Parsa[1]; *Samira Sokhanvaran*[1]; [1]University of Tehran

11:30 AM
Hot Tearing Prediction during Multi-Component Alloys Solidification: *Jianzheng Guo*[1]; Jianzhong Zhu[1]; [1]ESI US R&D

Innovations in Measurement Science to Assess the Performance of New Materials in the Real-World: Fundamental Measurement Methods

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Mark Stoudt, National Institute of Standards and Technology; Lyle Levine, National Institute of Standards and Technology; Tusit Weerasooriya, Army Research Laboratory

Monday AM — Room: Australia 3
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Mark Stoudt, National Institute of Standards and Technology; Tusit Weerasooriya, Army Research Laboratory

9:00 AM Introductory Comments

9:10 AM Keynote
Mechanical Properties and Performance: *Richard Fields*[1]; [1]National Institute of Standards and Technology

9:50 AM Keynote
Exploring Material-Property Space: Charts, Selection and Limits: Michael Ashby[1]; [1]National Institute of Standards and Technology

10:30 AM Invited
Measurement of the Mechanical Properties of Lattice Materials: Norman Fleck[1]; [1]National Institute of Standards and Technology

11:00 AM Break

11:10 AM Invited
Novel Production, Monitoring and Consolidation of Light Alloy Powders: *James Foley*[1]; [1]Los Alamos National Laboratory

11:40 AM Invited
Using Atomic Force Microscopy to Reveal Slip Modes in TiAl 'Single Crystals': *David Pope*[1]; Yali Chen[1]; [1]University of Pennsylvania

12:10 PM Invited
Application of Computed X-Ray Tomography to the Study of Damage and Ductile Fracture: *David Wilkinson*[1]; Weck Arnaud[1]; Akihide Hosegawa[1]; [1]McMaster University

12:40 PM Invited
Elastic Constants and Thermal Expansion Averages of a Polycrystal: *Roland deWit*[1]; [1]Guest Scientist, National Institute of Standards and Technology

Innovations in Titanium Technology Symposium: Low Cost Materials and Processing

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory; F. H. (Sam) Froes, University of Idaho

Monday AM — Room: Asia 3
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory

9:00 AM Keynote
Low Cost Titanium – An Update: *Francis Froes*[1]; Mehmet Gungor[2]; M. A. Imam[3]; [1]University of Idaho; [2]Concurrent Technologies Corporation; [3]Naval Research Laboratory

9:30 AM Invited
Overview of Applications and Opportunities for Armstrong Low Cost Titanium: *James Sears*[1]; [1]South Dakota School of Mines and Technology

9:50 AM Invited
Low Cost Fabrication of Titanium Alloy Components Directly from Sponge: *James Withers*[1]; Roger Storm[1]; Raouf Loutfy[1]; [1]MER Corporation

10:10 AM
Development of Cost Effective Blended Elemental Powder Metallurgy Ti Alloys: *Fusheng Sun*[1]; Kuang-O (Oscar) Yu[1]; [1]RMI Titanium Company

10:30 AM Break

10:45 AM Invited
Investigation of Potentially Low-Cost Titanium Powders for Use in Automotive Applications: *K. Scott Weil*[1]; Yuri Hovanski[1]; Curt Lavender[1]; [1]Pacific Northwest National Laboratory

11:10 AM
Thermomechanical Processing of "Low-Cost", Armstrong Titanium and Titanium Alloy Powders: *William Peter*[1]; Craig Blue[1]; John Rivard[2]; Clive Scorey[3]; Lance Jacobsen[4]; David Harper[1]; Jim Kiggans[1]; [1]Oak Ridge National Laboratory; [2]Strategic Analysis, Inc; [3]AMETEK, Inc.; [4]International Titanium Powder, L.L.C.

11:30 AM
Advanced Novel Technology of a Cost Effective Titanium Alloys Powder Production: *Gorgees Adam*[1]; [1]Titanox Development Limited

11:50 AM
The Reinvention of the Ti-6Al-4V Alloy (From Low Cost Turnings to Component Shape): *Susan Abkowitz*[1]; Stanley Abkowitz[1]; Harvey Fisher[1]; [1]Dynamet Technology Inc

12:10 PM
Flowformed Ti-6Al-4V: *Mehmet Gungor*[1]; Lawrence Kramer[1]; Ibrahim Ucok[1]; Hao Dong[1]; Wm. Troy Tack[1]; [1]Concurrent Technologies Corporation

Internet and Other Electronic Resources for Materials Education: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS: Education Committee
Program Organizer: Adam Powell, Veryst Engineering LLC

Monday AM — Room: Oceanic 2
February 26, 2007 — Location: Dolphin Hotel

Session Chair: Adam Powell, Veryst Engineering LLC

9:00 AM
Internet Educational Tools for Materials Sciences: *Afina Lupulescu*[1]; Martin Glicksman[2]; Wei Yang[2]; [1]Union College; [2]Rensselaer Polytechnic Institute

9:25 AM Invited
NSF NSDL Materials Digital Library and MSE Education: *Laura Bartolo*[1]; Sharon Glotzer[2]; Matthew Krane[3]; Adam Powell[4]; Krishna Rajan[5]; Donald Sadoway[4]; Vinod Tewary[6]; James Warren[6]; Cathy Lowe[1]; [1]Kent State University; [2]University of Michigan; [3]Purdue University; [4]Massachusetts Institute of Technology; [5]Iowa State University; [6]National Institute of Standards and Technology

9:50 AM Invited
The Transport Phenomena Archive on the Materials Digital Library Pathway: *Adam Powell*[1]; Matthew Krane[2]; Laura Bartolo[3]; [1]Veryst Engineering LLC; [2]Purdue University; [3]Kent State University

10:15 AM
Artificial Neural Network Education for Materials Scientists through Internet: *N. Reddy*[1]; Ji Soo Kim[1]; Chan Hee Park[1]; Chong Soo Lee[1]; [1]Pohang University of Science and Technology

10:40 AM
Wikipedia in Materials Education: Adam Powell[1]; *Arthur Morris*[2]; [1]Veryst Engineering LLC; [2]Thermart

11:05 AM Break

11:10 AM Open Discussion
Information Technology for Materials Education: Moderated by Adam Powell

Magnesium Technology 2007: Magnesium Globalization

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Monday AM — Room: Southern 4/Southern 5
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Alan Luo, General Motors Corporation

9:00 AM Introductory Comments
Randy S. Beals - TMS Magnesium Committee Chair

9:05 AM
Supply and Demand Fundamentals of the Magnesium Industry: *Cam Tissington*[1]; [1]US Magnesium LLC

9:35 AM
Advances in Manufacturing Processes for Magnesium Alloys: *Karl Kainer*[1]; [1]GKSS Research Centre Geesthacht GmbH, Germany

10:05 AM
Motivations Driving the Use of Magnesium in Automotive Applications: *Mark Verbrugge*[1]; [1]General Motors Corporation

10:35 AM Break

11:00 AM
Magnesium Research and Development in China: *Qi'an Wang*[1]; Xinmin Zhang[1]; Wenfang Shi[1]; [1]Chinese Ministry of Science and Technology

11:30 AM
Magnesium Materials Development - A Global Overview: *Mihriban Pekguleryuz*[1]; [1]McGill University

12:00 PM
Global Magnesium Die Casting Development: *Joe Petrillo*[1]; [1]Meridian Technologies Inc., Canada

12:30 PM Panel Discussion

12:55 PM Concluding Comments
Randy S. Beals - TMS Magnesium Committee Chair

Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies: Plenary Session

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizers: Zhenguo "Gary" Yang, Pacific Northwest National Laboratory; Michael Brady, Oak Ridge National Laboratory; K. Scott Weil, Pacific Northwest National Laboratory; Yong-Ho Sohn, University of Central Florida

Monday AM — Room: Asia 2
February 26, 2007 — Location: Dolphin Hotel

Session Chair: K. Scott Weil, Pacific Northwest National Laboratory

9:00 AM Introductory Comments

9:05 AM Plenary
Progress in PEM Fuel Cell Activities: *Jason Marcinkoski*[1]; [1]Department of Energy

9:50 AM Plenary
Goals and Progress of the U.S. Department of Energy's National Hydrogen Storage Project: *Sunita Satyapal*[1]; John Petrovic[2]; Carole Read[1]; George Thomas[3]; Grace Ordaz[1]; [1]U.S. Department of Energy; [2]Los Alamos National Laboratory (retired); [3]Sandia National Laboratories (retired)

10:35 AM Break

10:50 AM Plenary
Advanced Energy Conversion Utilizing Affordable Solid Oxide Fuel Cells: *Gary McVay*[1]; [1]Pacific Northwest National Laboratory

11:35 AM Plenary
Present Status of SOFC Development in Japan: *Harumi Yokokawa*[1]; [1]AIST

Materials Issues for Advanced Nuclear Systems: Energy Generation and Waste Issues

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee, TMS/ASM: Nuclear Materials Committee
Program Organizers: Raul Rebak, Lawrence Livermore National Laboratory; Robert Hanrahan, Los Alamos National Laboratory; Yi-Ming Pan, Southwest Research Institute

Monday AM Room: Europe 5
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Yi-Ming Pan, Southwest Research Institute; Raul Rebak, Lawrence Livermore National Laboratory

9:00 AM Introductory Comments

9:05 AM
Novel Methods to Extend Lifetime of Structural Materials in BWR: *Young Kim*[1]; [1]GE Global Research Center

9:25 AM
Mechanical Property Test of Shell Longitudinal Weld after Plastic Deformation and Heat Treatment in the HTR-10 Reactor Pressure Vessel: *Rengang Zhang*[1]; Maolong Zhang[2]; Yongkang Gu[2]; [1]University of Alabama; [2]Shanghai Boiler Works, Ltd.

9:45 AM
A Zirconium Matrix Cermet for Storage and Transmutation of Transuranic Isotopes Separated from Spent Nuclear Fuel: *Sean McDeavitt*[1]; A. R. Totemeier[1]; A. Parkison[1]; J. J. Wegener[1]; [1]Texas A&M University

10:05 AM
Mechanical Properties and Microstructure of (Zr, Ti)N Pellets as a Surrogate for (Pu,Zr)N Fuel Pellets: *Kirk Wheeler*[1]; Pedro Peralta[1]; Manuel Parra[1]; Kenneth McClellan[2]; [1]Arizona State University; [2]Los Alamos National Laboratories

10:25 AM Break

10:45 AM
Coupled Multi-Electrode Investigation of Crevice Corrosion of Material Relevant to Nuclear Waste Repository: *Florent Bocher*[1]; Francisco Presuel-Moreno[2]; John Scully[1]; [1]University of Virginia; [2]Florida Atlantic University

11:05 AM
Effect of Humidity on the Oxidation Kinetics of Sub-Surface Rock Bolt Materials Using Thermogravimetry: *Anjali Talekar*[1]; Raja Chellappa[1]; Dhanesh Chandra[1]; [1]University of Nevada

11:25 AM
Environmental Effects on Stress Corrosion Cracking of Alloy 22: *Kuang-Tsan Chiang*[1]; Osvaldo Pensado[1]; Pavan Shukla[1]; Yi-Ming Pan[1]; [1]Southwest Research Institute

11:45 AM
Evaluation of Corrosion Resistance of AKOT and Ti Grade 7 for Drip Shield in Yucca Mountain Project: *Shinji Sakashita*[1]; Tomoaki Nakanishi[1]; Takashi Yashiki[1]; Takenori Nakayama[1]; Tiangan Lian[2]; [1]Kobe Steel, Ltd.; [2]Lawrence Livermore National Laboratory

12:05 PM
Resistance of Amorphous Metal Coatings to Impact Damage: *Jeffery Haslam*[1]; Joseph Farmer[1]; Louis Aprigliano[2]; [1]Lawrence Livermore National Laboratory; [2]Consultant

12:25 PM
Salt Fog Testing of Iron-Based Amorphous Alloys: *Raul Rebak*[1]; Louis Aprigliano[2]; S. Day[1]; Jeffery Haslam[1]; Joseph Farmer[1]; [1]Lawrence Livermore National Laboratory; [2]Strategic Analysis Inc.

Materials Processing and Manufacturing Division Symposium: Mechanics and Materials Modeling and Materials Design Methodologies, in the Honor of Dr. Craig Hartley's 40 Years of Contributions to the Field of Mechanics and Materials Science: Microstructure Analysis and Representation I

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Brent Adams, Brigham Young University; Hamid Garmestani, Georgia Institute of Technology

Monday AM Room: Northern A1
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Dennis Dimiduk, US Air Force; Gregory Rohrer, Carnegie Mellon University

9:00 AM
A Framework for Automated 3D Microstructural Analysis and Representation: *Michael Groeber*[1]; Michael Uchic[2]; Dennis Dimiduk[2]; Yash Bhandari[1]; Somnath Ghosh[1]; [1]Ohio State University; [2]Air Force Research Laboratory-MLLMD

9:25 AM
Bcc Screw Dislocations: A Case Study in the Application of the Nye Tensor to Computer Simulations of Crystal Defects: *Budhika Mendis*[1]; Yuri Mishin[2]; Craig Hartley[3]; Kevin Hemker[1]; [1]Johns Hopkins University; [2]George Mason University; [3]Air Force Office of Scientific Research

9:50 AM
Computational Modeling of Microcrack Nucleation Using a Physically Based Finite Element Crystal Plasticity Model of Experimentally Characterized Microstructures: *Thomas Bieler*[1]; Martin Crimp[1]; Anxian Ma[2]; Franz Roters[2]; Dierk Raabe[2]; [1]Michigan State University; [2]Max Planck Institut fur Eisenforschung

10:15 AM
Computer Simulations of Realistic Microstructures of Boron Modified Titanium Alloys with Variable TiB Whisker Orientations: *Harpreet Singh*[1]; Arun Gokhale[1]; Arun Sreeranganathan[1]; Scott Lieberman[1]; Sesh Tamirisakandala[2]; [1]Georgia Institute of Technology; [2]Ohio University

10:40 AM
Examination of Lattice Rotations in Deformed Ni Microcrystals: *Dennis Dimiduk*[1]; Michael Uchic[1]; Paul Shade[2]; Dave Norfleet[2]; Michael Mills[2]; Amit Acharya[3]; [1]US Air Force; [2]Ohio State University; [3]Carnegie Mellon University

11:05 AM
Quantitative Characterization of Microstructural Changes Using Microstructural Anisotropy Tensor: *Ning Ma*[1]; Craig Hartley[2]; Yunzhi Wang[1]; [1]Ohio State University; [2]El Arroyo Enterprises LLC

11:30 AM
Techniques for Characterizing the Crystallography of Interface Planes in Polycrystals and Composites: *Gregory Rohrer*[1]; [1]Carnegie Mellon University

11:55 AM
Microstructure and Processing Path Design Using Statistical Correlation Functions: *Hamid Garmestani*[1]; [1]Georgia Institute of Technology

Materials Processing Fundamentals: Solidification and Deformation Processing

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee, TMS: EMPMD Council, TMS: EPD Council
Program Organizer: Princewill Anyalebechi, Grand Valley State University

Monday AM
February 26, 2007
Room: Northern A2
Location: Dolphin Hotel

Session Chair: Prince Anyalebechi, Grand Valley State University

9:00 AM
Effect of Thermomechanical Processing Parameters on Bake Hardening Ability of Hot Rolled Dual Phase (DP) Steels: Heinz Palkowski[1]; Mohamed Soliman[1]; *Goran Kugler*[1]; [1]Technische Universität Clausthal, Institut für Metallurgie (IMET)

9:15 AM
Deformation Behavior of Hot Rolled Ferrite-Bainite Dual Phase Steels: *A. Saha Podder*[1]; R. Ray[1]; [1]Tata Steel

9:30 AM
Comparative Analysis of Microhardness in Directional Solidified Zn-27wt%Al, Zn-27Wwt%Al + CSi and Zn-27Wwt%Al + Al2O3 Alloys and Composites: Alicia Ares[1]; *Carlos Schvezov*[2]; [1]CONICET/FCEQyN-University of Misiones; [2]FCEQyN-University of Misiones

9:45 AM
Undulatory Solid Shell Growth of Aluminum Alloy 3003 as a Function of the Wavelength of a Grooved Mold Surface Topography: *Princewill Anyalebechi*[1]; [1]Grand Valley State University

10:00 AM
Ungrooved Mold Surface Topography Effects on Cast Subsurface Microstructure: *Princewill Anyalebechi*[1]; [1]Grand Valley State University

10:15 AM
Influence of Process Parameters on the Phase Transformation and Consequent Hardness Induced by the LENS Process: *Liang Wang*[1]; Sergio Felicelli[2]; [1]Center for Advanced Vehicular Systems, Mississippi State University; [2]Mechanical Engineering, Mississippi State University

10:30 AM Break

10:45 AM
Early Stages of Solidification of Aluminum Alloy 3003 and Attendant Subsurface Microstructure as a Function of Mold Material: *Princewill Anyalebechi*[1]; [1]Grand Valley State University

11:00 AM
Study on Aluminum Foam with Fly Ash Increase Viscosity: Wang Yong[1]; Yao Guang-chun[1]; Li Bing[1]; [1]Northeastern University

11:15 AM
Enhanced Hardenability Dual-Phase Steels and the Limitations Imposed by Subsequent Continuous Hot-Dip Galvanizing: *Richard Meguerian*[1]; Joseph McDermid[1]; [1]McMaster University

11:30 AM
Analysis of Defects Produced during Preparation of Pure Al Matrix Foam: Li Bing[1]; Yao Guang-chun[1]; Wang Yong[1]; [1]Northeastern University of China

11:45 AM
Influence of Metallic Ca on the Viscidity of Closed-Cell Aluminum Foam: *Guojun Yang*[1]; Haijun Yu[1]; Guangchun Yao[1]; [1]Northestern University

12:00 PM
Study on Production of Aluminum Foam by Recycling of Scrap Aluminum: Wang Yong[1]; Yao Gang-chun[1]; Li Bing[1]; [1]Northeastern University

Materials Processing under the Influence of External Fields: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS: Aluminum Committee, TMS: Magnesium Committee, TMS: Solidification Committee
Program Organizers: Qingyou Han, Oak Ridge National Laboratory; Gerard Ludtka, Oak Ridge National Laboratory; Qijie Zhai, Shanghai University

Monday AM
February 26, 2007
Room: America's Seminar
Location: Dolphin Hotel

Session Chairs: Gerard Ludtka, Oak Ridge National Laboratory; Dmitri Molodov, Ruth Aacken University

9:00 AM Introductory Comments

9:05 AM Invited
Time-Resolved Analyses of Microstructure in Advanced Materials under High Magnetic Fields at Elevated Temperature Using Neutrons: *Gerard Ludtka*[1]; Frank Klose[1]; Roger Kisner[1]; Jaime Fernandez-Baca[1]; Gail Mackiewicz-Ludtka[1]; John Wilgen[1]; Roger Jaramillo[1]; Louis Santodonato[1]; Xun-Li Wang[1]; Camden Hubbard[1]; Fei Tang[1]; [1]Oak Ridge National Laboratory

9:35 AM
Isothermal Phase Transformation Cycling in Steel by Application of a High Magnetic Field: *Gerard Ludtka*[1]; Roger Jaramillo[1]; Roger Kisner[1]; John Wilgen[1]; Gail Mackiewicz-Ludtka[1]; Peter Kalu[2]; [1]Oak Ridge National Laboratory; [2]Florida Agricultural and Mechanical University-Florida State University, College of Engineering and National High Magnetic Field Laboratory

10:00 AM
Influence of Strong Static Magnetic Field on the Phase Solution and Grain Growth in Cast AZ91 Magnesium Alloy during Homogenization Heat Treatment: *Zhifeng Li*[1]; Jie Dong[1]; Xiaoqing Zeng[1]; Wenjiang Ding[1]; [1]Shanghai Jiaotong University

10:25 AM
Effect of Magnetic Field and Changes in Atomic Environment on the Spin Density and Energy during Diffusion: *Donald Nicholson*[1]; [1]Oak Ridge National Laboratory

10:50 AM Break

11:00 AM Invited
Solid State Materials Processing in a High Magnetic Field: *Hideyuki Ohtsuka*[1]; [1]NIMS

11:30 AM Invited
Impact of Magnetic Field on Recrystallization and Grain Growth in Non-Ferromagnetic Metals: *Dmitri Molodov*[1]; [1]RWTH Aachen University

12:00 PM
Application of Pulsed Magnetic Field Treatment for Residual Stress Reduction of a Welded Structure: *Cai Zhipeng*[1]; Lin Jian[1]; Zhao Haiyan[1]; Wang Mingdao[2]; [1]Tsinghua University; [2]Jing-Tai Technology Ltd. Company

12:25 PM
Retained Austenite in SAE 52100 Steel Post Magnetic Processing and Heat Treatment: Nathaniel Pappas[1]; *Thomas Watkins*[2]; O. Burl Cavin[2]; Gerard Ludtka[2]; Roger Jaramillo[2]; [1]Department of Energy Pre-Service Teacher Intern at Oak Ridge National Laboratory; [2]Oak Ridge National Laboratory

Microstructural Processes in Irradiated Materials: Dislocation - Obstacle Interactions and Radiation Induced Segregation

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Monday AM Room: Europe 8
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Roger Stoller, Oak Ridge National Laboratory; Rick Kurtz, Pacific Northwest National Laboratory

9:00 AM
Dislocation Interactions with Irradiation Produced Defects: *In Situ* TEM Deformation Study: *I. M. Robertson*[1]; M. Briceno[1]; B. Clark[1]; J. Fenske[1]; B. Wirth[2]; [1]University of Illinois; [2]University of California, Berkeley

9:35 AM
Atomic-Scale Plasticity in Presence of Frank Loops: *David Rodney*[1]; Thomas Nogaret[1]; Christian Robertson[2]; [1]GPM2-ENS de Physique Grenoble; [2]SRMA-CEA Saclay

9:55 AM
In-Situ TEM Observation of ODS EUROFER97 and Its Relation to Mechanical Properties: *Amuthan Ramar*[1]; Raul Bonade[1]; Phillipe Spätig[1]; Robin Schäublin[1]; [1]Ecole Polytechnique Fédérale de Lausanne (EPFL), Center for Research in Plasma Physics, Association Euratom-Confédération Suisse

10:15 AM
Atomic-Scale Modeling of Dislocation Dynamics in Environment of Radiation Defects: *Yury Osetskiy*[1]; David Bacon[2]; [1]Oak Ridge National Laboratory; [2]University of Liverpool

10:35 AM Break

10:55 AM
Radiation-Induced Segregation in Advanced Reactor Structural Materials: *Jeremy Busby*[1]; [1]Oak Ridge National Laboratory

11:30 AM
Microstructural Development and Solutes Segregation during Electro-Irradiation around Cascade Damage Introduced by Ion-Irradiation: *Heishichiro Takahashi*[1]; Yuichiro Sueishi[2]; [1]Hokkaido University; [2]Kyoto University

11:50 AM
Monte Carlo Simulation of Grain Boundary Segregation in Fe-Cr and Fe-Cr-Ni: *Je-Wook Jang*[1]; Byeong-Joo Lee[1]; [1]POSTECH

12:10 PM
***Ab Initio*-Based Thermokinetics of the Ni-Cr Binary**: *Julie Tucker*[1]; Dane Morgan[1]; Todd Allen[1]; [1]University of Wisconsin

Outreach Programs in Materials Science and Engineering: Outreach Programs at Universities

Sponsored by: The Minerals, Metals and Materials Society, TMS: Public and Governmental Affairs Committee
Program Organizers: Dan Thoma, Los Alamos National Laboratory; Katherine Chen, California Polytechnic State University

Monday AM Room: Pacific Hall A
February 26, 2007 Location: Dolphin Hotel

Session Chair: Dan Thoma, Los Alamos National Laboratory

9:00 AM Introductory Comments
Dan Thoma, Los Alamos National Laboratory

9:05 AM Invited
The Materials World Modules Program and Its Impact on Secondary Science Education: *Robert Chang*[1]; [1]Northwestern University

9:35 AM Invited
The Summer High School Teacher (HST) Program at CMU MRSEC: *Francine Papillon*[1]; Robert Wesolowski[1]; Gregory Rohrer[1]; [1]Carnegie Mellon University

10:05 AM Invited
Developing and Growing Materials Engineering Outreach Activities: *Katherine Chen*[1]; [1]California Polytechnic State University

10:35 AM Break

10:50 AM
Scanning Electron Microscopy Education Outreach Program: *Carl Boehlert*[1]; [1]Michigan State University

11:20 AM
MSE Outreach Efforts at the University of Florida: *Gerhard Fuchs*[1]; [1]University of Florida

11:50 AM Invited
Bringing Materials Engineering to the General Education Curriculum: *David Bahr*[1]; M. Norton[1]; [1]Washington State University

Pb-Free Electronic Solders: Alloy Design, Characterization and Service Reliability: Interfacial Effects

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fu Guo, Beijing University of Technology; K. Subramanian, Michigan State University; Sung Kang, IBM Corporation; Srinivas Chada, Medtronic; Laura Turbini, University of Toronto; Jin Yu, Korea Advanced Institute of Science and Technology

Monday AM Room: Oceanic 1
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Fu Guo, Beijing University of Technology; C. Kao, National Taiwan University

9:00 AM Opening Remarks
Fu Guo, Beijing University of Technology

9:05 AM
Interfacial Reactions in Model NiTi Shape Memory Alloy Fiber Reinforced Sn Matrix Composites: James Coughlin[1]; Jason Williams[1]; *Nikhilesh Chawla*[1]; [1]Arizona State University

9:25 AM
Interface Reactions between Lead-Free Sn-3.5Ag Solder and Ni-W-P Metallization: *Zhong Chen*[1]; Aditya Kumar[1]; Jayce Lim[1]; T. K. Lee[2]; [1]Nanyang Technological University; [2]Micron Semiconductor Asia Pte Ltd

9:45 AM
Effect of Zn Contents on Interfacial Reactions between Sn-Based Solders and Cu: *Su-Chun Yang*[1]; Cheng-En Ho[1]; Chien-Wei Chang[1]; C. Robert Kao[2]; [1]National Central University; [2]National Taiwan University

10:05 AM
Characterization of Interfacial Reaction Layers Formed between Sn-3.5Ag Solder and Electroless Ni–P Substrate: *Han-Byul Kang*[1]; Jee-Hwan Bae[1]; Kyung-Hwan Kwak[1]; Jae-Wook Lee[1]; Min-Ho Park[1]; Jeong-Won Yoon[1]; Seung-Boo Jung[1]; Cheol-Woong Yang[1]; [1]Sungkyunkwan University

10:25 AM
Au Effect on the IMC Spalling Behavior of SnAgCu Soldering on Ni/Au Finish: *Don Son Jiang*[1]; C. Kao[2]; C. E. Ho[3]; Yu-Po Wang[1]; C. S. Hsiao[1]; [1]Siliconware Precision Industries Company Ltd; [2]National Taiwan University; [3]Michigan State University

10:45 AM Break

10:55 AM
Cruciform Pattern Interfacial Reactions in the Sn-(Bi)/Te Couples: *Chen-nan Chiu*[1]; Sinn-Wen Chen[1]; [1]National Tsing Hua University

11:15 AM
Effect of Bi on the Interfacial Reaction between Sn-3.7Ag-xBi Solders and Cu: *Min He*[1]; Viola Acoff[1]; [1]University of Alabama

11:35 AM
Growth Kinetics of Intermetallic Compound Layers in Ni/Sn/Cu Ternary Diffusion Couple during Solid-State Aging: *Kyoung-Kook Hong*[1]; Jea-Bong Ryu[1]; Chang-Yong Park[2]; Joo-Youl Huh[1]; [1]Korea University; [2]Samsung Electronics

11:55 AM
Phase Formation and Intermetallic Compounds of Sn-9Zn-1.5Ag-1Bi Lead-Free Solder and Cu Substrate: *Chih-Yao Liu*[1]; Moo-Chin Wang[2]; Min-Hsiung Hon[1]; [1]National Cheng Kung University; [2]National Kaohsiung University of Applied Sciences

12:15 PM
Metallurgical Reactions of SnAg Solder with Electroplated Ni UBM: *Hsiao-Yun Chen*[1]; Chih Chen[1]; [1]National Chiao Tung University

Plasticity from the Atomic Scale to Constitutive Laws: Dislocation Core Structure and Solute-Dislocation Interactions

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Christopher Woodward, US Air Force; Michael Mills, Ohio State University; Diana Farkas, Virginia Tech

Monday AM — Room: Europe 9
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Christopher Woodward, US Air Force; William Curtin, Brown University

9:00 AM Invited
Effect of Non-Glide Stresses on Dislocation Motion and Deformation in Transition BCC Metals: *Vaclav Vitek*[1]; Roman Gröger[1]; John Bassani[1]; [1]University of Pennsylvania

9:30 AM
Ab Initio Study of the Core Structure and Mobility of Screw Dislocations in α-Fe: *Lisa Ventelon*[1]; François Willaime[1]; [1]Service de Recherches de Métallurgie Physique

9:50 AM
Dislocation Structure and Mechanical Behavior of Co-Based B2 Intermetallics: *Oleg Kontsevoi*[1]; Yuri Gornostyrev[2]; Arthur Freeman[1]; [1]Northwestern University; [2]Institute of Metal Physics

10:10 AM Invited
Chemistry of Deformation: Solid-Solution Softening from First-Principles to Dislocation Mobility: *Dallas Trinkle*[1]; [1]University of Illinois, Urbana-Champaign

10:40 AM Break

11:00 AM
Influence of Solutes on the Plasticity of bcc Iron: *Youhong Li*[1]; Neeraj Thirumalai[1]; Peter Gordon[1]; Concezione Halsey[1]; Michael Luton[1]; Amit Samanta[2]; Ju Li[2]; [1]ExxonMobil Research and Engineering; [2]Ohio State University

11:20 AM Invited
Quantification of Solute Segregation at Dislocations with the Local Electrode Atom Probe: *Michael Miller*[1]; [1]Oak Ridge National Laboratory

11:50 AM
Impurity-Point Defect Interaction in Fe-Cr Alloys: Size Effects versus Magnetic Behaviour: *Duc Nguyen-Manh*[1]; M. Lavrentiev[1]; S. Dudarev[1]; [1]UKAEA

12:10 PM
Gum Metals: "Ideal" Engineering Alloys: Tianshu Li[1]; J. Morris, Jr.[1]; N. Nagasako[2]; S. Kuramoto[2]; *Daryl Chrzan*[1]; [1]University of California; [2]Toyota Central Research and Development Laboratories Inc.

Properties and Performance of High Temperature Alloys and Coatings: Single Crystal Alloys I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Qiang Feng, Beijing University of Science and Technology; Timothy Gabb, NASA Glenn Research Center; Doug Konitzer, General Electric Aviation; Roger Reed, Imperial College London; Bruce Pint, Oak Ridge National Laboratory; Sammy Tin, Illinois Institute of Technology; Shiela Woodard, Pratt and Whitney

Monday AM — Room: Asia 4
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Qiang Feng, Beijing University of Science and Technology; Timothy Gabb, NASA Glenn Research Center

9:00 AM Keynote
Pushing the Envelope for High Temperature Structural Materials: *Robert Schafrik*[1]; [1]General Electric Company

9:35 AM Invited
Single Crystal Superalloys: What Is Not Known?: *Roger Reed*[1]; [1]Imperial College

10:00 AM
Improved Heat Extraction, Casting Quality, and Mechanical Properties in Large Ni-Base Superalloy Casting via the Liquid-Metal Cooling (LMC) Directional Solidification Technique: *Andrew Elliott*[1]; Tresa Pollock[2]; Ganjiang Feng[1]; [1]General Electric Energy; [2]University of Michigan

10:20 AM
Simulation of the Influence of Carbides on the Permeability of Ni-Base Superalloys: *D. Ness*[1]; L. Thuinet[1]; D. Bernard[2]; P. D. Lee[1]; [1]Imperial College London; [2]ICMB-CNRS

10:35 AM
Diffusion Braze A Ni-Based Single Crystal Alloy: Mechanical Properties and Microstructure: *Zengmei Koenigsmann*[1]; [1]Chromalloy

10:55 AM Break

11:10 AM Invited
Local Electrode Atom Probe Characterization of Solute Enrichments and Surface Roughness of Interfaces in a CMSX-4 Superalloy: *Michael Miller*[1]; Roger Reed[2]; [1]Oak Ridge National Laboratory; [2]Imperial College

11:35 AM
TCP Suppression in a Ruthenium-Bearing Single Crystal Nickel-Base Superalloy: *Robbie Hobbs*[1]; Lijuan Zhang[2]; Catherine Rae[2]; Sammy Tin[3]; [1]Rolls-Royce plc; [2]University of Cambridge; [3]Illinois Institute of Technology

11:55 AM
Alloying Effect of Co on the Microstructural Parameters of Ni-Base Single Crystal Superalloys: *Takanobu Suzuki*[1]; Tadaharu Yokokawa[2]; Yutaka Koizumi[2]; Toshiharu Kobayashi[2]; Hiroshi Harada[2]; Hachiro Imai[1]; [1]Shibaura Institute of Technology; [2]National Institute for Materials Science

12:10 PM
CMSX-486 (R) Single Crystal Alloy - Production Experience and Development of an Improved Version: *Jacqueline Wahl*[1]; Kenneth Harris[1]; [1]Cannon Muskegon Corporation

12:30 PM
Phase Relationship in the Ni-Base and Rh-Base Superalloys Mixtures: *Tomonori Kitashima*[1]; Hiroshi Harada[1]; Kyoko Kawagishi[1]; Takao Murakumo[2]; Akihiro Sato[1]; [1]National Institute for Materials Science; [2]Federal Institute for Materials Research and Testing

12:50 PM
Alloying Effects and Characterization of Pt-Modified γ-Ni+γ'-Ni_3Al-Based Alloys: *Andy Heidloff*[1]; Takeshi Izumi[1]; Brian Gleeson[1]; [1]Iowa State University

Recent Developments in Semiconductor, Electro Optic and Radio Frequency Materials: Recent Advances in Semiconductor Technologies

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Thin Films and Interfaces Committee
Program Organizers: Nuggehalli Ravindra, New Jersey Institute of Technology; Narsingh Singh, Northrop Grumman Corporation, ES; Aris Christou, University of Maryland; Nancy Michael, University of Texas at Arlington; Bhushan Sopori, National Renewable Energy Laboratory; John Parsey, On Semiconductor

Monday AM
February 26, 2007
Room: Oceanic 6
Location: Dolphin Hotel

Session Chairs: John Parsey, On Semiconductor; Aris Christou, University of Maryland

9:00 AM Introductory Comments

9:05 AM Invited
Growth of Bulk and Thick Film of Oxide Materials: *Narsingh Singh*[1]; Hong Zhang[1]; David Knuteson[1]; Andre Berghmans[1]; David Kahler[1]; Brian Wagner[1]; Jack Hawkins[1]; [1]Northrop Grumman Corporation

9:30 AM Invited
Engineering Routes to Nanocomposite Semiconductors for Advanced Functionality and Applications: *Nancy Michael*[1]; Choong-un Kim[1]; [1]University of Texas at Arlington

9:55 AM Invited
Germanide-Silicide Optoelectronics Technologies: Nuggehalli Ravindra[1]; Martin Lepsleter[2]; *Anthony Fiory*[1]; [1]New Jersey Institute of Technology; [2]BTL Fellows

10:20 AM Invited
Electrical Detection of Deoxyribonucleic Acid Hybridization with AlGaN/GaN High Electron Mobility Transistors: *Byoung Sam Kang*[1]; Stephen Pearton[1]; Jaujiun Chen[1]; Fan Ren[1]; Wayne Johnson[2]; [1]University of Florida; [2]Nitronex Corporation

10:45 AM Break

10:55 AM
InGaAs/InAlAs Based Metal-Semiconductor-Metal Photodetector for Opto-Electronic Mixers: *Soohwan Jang*[1]; Nuri Emanetoglu[2]; Travis Anderson[1]; Fan Ren[1]; Stephen Pearton[1]; Paul Shen[2]; [1]University of Florida; [2]US Army Research Laboratory

11:20 AM
Low Angle Incidence Microchannel Epitaxy of GaAs Layer on GaAs (001) Substrates: *Sota Matsuoka*[1]; Yo Yamamoto[2]; Toshiyuki Kondo[1]; Takahiro Maruyama[1]; Shigeya Naritsuka[1]; [1]Department of Materials Science and Engineering, Faculty of Science and Technology, Meijo University; [2]21st Century Coe Program "NANO FACTORY", Meijo University

11:45 AM Invited
Luminescence of Long-Term Ordered Pure and Doped Gallium Phosphide: *Sergei Pyshkin*[1]; John Ballato[2]; Michael Bass[3]; Giorgio Turri[3]; [1]Academy of Sciences; [2]Clemson University; [3]University of Central Florida

12:10 PM
Silicon Germanium Nanostructures Doped with Rare-Earth Metals: *Sufian Abedrabbo*[1]; Dia Eddin Arafah[1]; James Markham[2]; Anthony Fiory[3]; Nuggehalli Ravindra[3]; [1]University of Jordan; [2]Advanced Fuel Research; [3]New Jersey Institute of Technology

12:35 PM
Self Assembly of Au Nanodots: Growth, Physical Properties and Challenges: *Nori Sudhakar*[1]; Chunming Jin[1]; Wei Wei[1]; Jagdish Narayan[1]; [1]North Carolina State University

Recycling and Waste Processing: Materials Recovery from Wastes

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Mark Schlesinger, University of Missouri-Rolla; Robert Stephens, Teckcominco, Inc.; Donald Stewart, Alcoa Technology; Ray Peterson, Aleris International; Jan van Linden, Recycling Technology Services, Inc.; Subodh Das, SECAT; Abdel Serna-Vasquez, Aleris International; Cynthia Belt, Aleris International Inc; John Pickens, Alumitech/Aleris International; John Hryn, Praxair; Richard Kunter, Richard S. Kunter Assoc; Andreas Siegmund, Quemetco Metals Inc.; Masao Suzuki, AI Tech Associates

Monday AM
February 26, 2007
Room: Australia 2
Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM
Salt Cake Management at Secondary Aluminum Smelters: A Case Study of Best Practice: *John Hryn*[1]; Miguel Lizaur[2]; [1]Argonne National Laboratory; [2]Iberica de Aleaciones Ligeras, S.L. (IDALSA)

9:25 AM
Structure of Hot Slag from Aluminum Remelt: *Serguei Novichkov*[1]; Anatoly Zholnin; [1]Mosoblprommontazh

9:50 AM
Mineralogical Study on Steel Slags Oriented to Vanadium and Titanium Recovery: Liang Yu[1]; Yuanchi Dong[2]; *Liaosha Li*[2]; Yun Zhou[2]; Xingrong Wu[2]; [1]University of Science and Technology Beijing; [2]Anhui University of Technology

10:15 AM
Recycling of Blast Furnace Sludge into Clayey Ceramics: *Carlos Maurício Vieira*[1]; Sergio Monteiro[1]; Cláudio André Dias[1]; Alice Mothé[1]; [1]State University of the Northern Fluminense

10:40 AM Break

11:00 AM
Mechanical Activation of Deposited Fly Ash by Grinding: *Gabor Mucsi*[1]; Barnabás Csoke[1]; Csaba Sík[2]; [1]University of Miskolc; [2]H-TPA Company Ltd.

11:25 AM
Characteristics of Zeolite Manufactured with Sludge Generated from Water Puriciation Plant: *Kwang-Suk You*[1]; Gi-Chun Han[1]; Hee-Chan Cho[2]; Ji-Whan Ahn[1]; [1]Korea Institute of Geosicence and Mineral Resources; [2]Seoul National University

11:50 AM
Using Weathered Granite for Ceramic Tile Production: *Kalayanee Kooptarnond*[1]; Danupon Tonnayopas[1]; [1]Prince of Songkla University

12:15 PM Invited
Generation of Hexavalent Chromium in Calcination of Chromium Containing Hydroxide and Sludge from Surface Finishing Industries: *Ryokichi Shimpo*[1]; Shigeo Hoshino[1]; Mitsuo Iyoda[2]; [1]Musashi Institute of Technology; [2]Techno Industrial MFC Company, Ltd.

12:40 PM
How Flames/Load Interaction Affects Furnace Efficiency in Round Top Furnace Operation: *Brian Golchert*[1]; Hossam Metwally[1]; Ashwini Kumar[1]; Cynthia Belt[2]; Joseph Tessandori[2]; [1]Fluent Inc; [2]Aleris International Inc

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Refractory Metals 2007: Processing and Mechanical Deformation

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Refractory Metals Committee
Program Organizers: Gary Rozak, HC Starck Inc; Todd Leonhardt, Rhenium Alloys Inc

Monday AM
February 26, 2007
Room: Europe 6
Location: Dolphin Hotel

Session Chairs: Todd Leonhardt, Rhenium Alloys Inc; Mehmet Uz, Lafayette College

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9:00 AM Introductory Comments Mehmet Uz, Lafayette College

9:05 AM
An Investigation into the Electrochemical Reduction of Zirconium Dioxide in Molten Calcium Chloride: *Derek Fray*[1]; K. Mohandas[1]; [1]University of Cambridge

9:30 AM
Weldable Ductile Molybdenum Alloy Development: *Brian Cockeram*[1]; David Alven[1]; Evan Ohriner[2]; Lance Snead[2]; [1]Bechtel Bettis Inc; [2]Oak Ridge National Laboratory

9:55 AM
Room Temperature Creep and Dislocation Substructure in Electron Beam Welds in RRR Niobium: Hairong Jiang[1]; Boon-Chai Ng[2]; *Bieler Tomas*[1]; Chris Compton[1]; Terry Grimm[1]; [1]Michigan State University; [2]Andrews University

10:20 AM Break

10:35 AM
Comparing ECAE and Rolling of Niobium: *Derek Baars*[1]; Thomas Bieler[1]; Ted Hartwig[2]; [1]Michigan State University; [2]Texas A&M University

11:00 AM
Anisotropic Deformation Characteristics of Rhenium: *John Bingert*[1]; Paul Maudlin[1]; [1]Los Alamos National Laboratory

11:25 AM
Tensile and Fracture Toughness Properties of Two Mo-Re Alloys: *Mikhail Sokolov*[1]; [1]Oak Ridge National Laboratory

11:50 AM
Study on High Quality Ultra-Fine WC Powder by Turbo-Air Stream Classifying: *Liu Qingcai*[1]; Zheng Yonggang[1]; Yun Gui Du[1]; Linyan Dong[1]; [1]Chongqing University

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Structural Materials Division Symposium: Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch: Fatigue, and Strengthening Mechanisms at Small Length Scale

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinghang Zhang, Texas A&M University; Yuntian Zhu, Los Alamos National Laboratory; Michael Rigsbee, North Carolina State University; C. Suryanarayana, University of Central Florida; Haiyan Wang, Texas A&M University; C. T. Liu, Oak Ridge National Laboratory

Monday AM
February 26, 2007
Room: Asia 5
Location: Dolphin Hotel

Session Chairs: Michael Rigsbee, North Carolina State University; Evan Ma, Johns Hopkins University

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9:00 AM Welcome and Overview by X. Zhang

9:05 AM Keynote
Fatigue at the Nanometer and Submicrometer Scale: Anthony Escuadro[1]; Kai Zhang[1]; *Julia Weertman*[1]; [1]Northwestern University

9:30 AM Invited
Cyclic Deformation and Fatigue at the Sub-Micron and Nano-Scale: *Oliver Kraft*[1]; Dong Wang[1]; Daniel Weygand[2]; Cynthia Volkert[1]; [1]Forschungszentrum Karlsruhe; [2]Universität Karlsruhe

9:50 AM
An Evaluation of the Creep Characteristics of Electrodeposited Nickel-Based Nanocomposite: *Vaclav Sklenicka*[1]; Kveta Kucharova[1]; Gabriele Vidrich[2]; Milan Svoboda[1]; Hans Ferkel[2]; [1]Academy of Sciences; [2]Clausthal University of Technology

10:05 AM
Low-Cycle Fatigue Behaviors of the As-Received and Deformed Magnesium Alloy, AZ31B Using Equal-Channel-Angular Pressing (ECAP): *Liang Wu*[1]; Grigoreta Stoica[1]; Douglas Fielden[1]; Peter Liaw[1]; [1]University of Tennessee

10:20 AM Invited
Optimization of Strength, Ductility and Damage Tolerance in Nanostructured Metals and Alloys: *Subra Suresh*[1]; Ming Dao[1]; [1]Massachusetts Institute of Technology

10:40 AM
Interfacial Plasticity in Nanostructured Metals: *Ting Zhu*[1]; Ju Li[2]; Amit Samanta[2]; Hyoung Gyu Kim[2]; Subra Suresh[3]; [1]Georgia Institute of Technology; [2]Ohio State University; [3]Massachusetts Institute of Technology

10:55 AM Break

11:10 AM Invited
Alloying Effects on the Mechanical Behavior of Nanocrystalline Metals: *Ronald Scattergood*[1]; [1]North Carolina State University

11:30 AM
Strength of Nanocrystalline Metals: Influence of Recovery and Recrystallization: *Tong Shen*[1]; John Swadner[1]; Jian Huang[2]; Shi Feng[1]; Ming Tang[1]; Evan Ma[3]; [1]Los Alamos National Laboratory; [2]Boston College; [3]Johns Hopkins University

11:45 AM
Strengthening in Nanostructured FeAl: *David Morris*[1]; Maria Muñoz-Morris[1]; [1]CENIM-CSIC

12:00 PM Invited
Effect of Solute Segregation on the Hardness of Nanocrystalline Alloys: *Ricardo Schwarz*[1]; Tong Shen[1]; John Swadener[1]; Jian Huang[2]; Shi Feng[1]; Ming Tang[1]; [1]Los Alamos National Laboratory; [2]Boston College

12:20 PM
Mechanical Properties of Dual-Phase Nanocrystalline Al-W and Al-Pb Alloys: *Koteswararao Rajulapati*[1]; R. Scattergood[1]; K. Murty[1]; Carl Koch[1]; Zenji Horita[2]; Terence Langdon[3]; [1]North Carolina State University; [2]Kyushu University; [3]University of Southern California

12:35 PM
Effect of Laser Shock Compression on Hardness of Nanostructured Metals: *Xiaojing Xu*[1]; Yongkang Zhang[1]; Xudong Ren[1]; Jinzhong Lu[1]; [1]Jiangsu University

12:50 PM
Fracture Behavior of nc-Ni above Room Temperature: *Indranil Roy*[1]; Farghalli Mohamed[1]; [1]University of California, Irvine

The Material Recycling Industry: Global Challenges and Opportunities: Plenary Session

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Subodh Das, Secat Inc

Monday AM — Room: Southern 1
February 26, 2007 — Location: Dolphin Hotel

Session Chair: Subodh Das, Secat Inc

9:00 AM
Recycling in the Aluminum Industry: *Terrance Hogan*[1]; [1]Aleris International Inc

9:25 AM
Environmental Management of Airborne Metal Emissions in the Recycling Industry: *Karen Hagelstein*[1]; John Heinze[2]; [1]Times Limited; [2]Environmental Health Research Foundation

9:50 AM
RecycleBank Pays for Recycling: *Scott Lamb*[1]; [1]RecycleBank

10:15 AM
Improved UBC Melting through Advanced Processing: *Thomas Thornton*[1]; Clay Hammond[1]; Jan Van Linden[2]; Paul Campbell[3]; Chris Vild[3]; [1]Wise Alloys LLC; [2]Recycling Technology Service Inc; [3]Pyrotek Inc

10:40 AM Break

10:50 AM
Characterizing Sustainable Material Recovery Systems: A Case Study of E-Waste Materials: *Jeremy Gregory*[1]; Elisa Alonso[1]; Frank Field[1]; Randolph Kirchain[1]; [1]Massachusetts Institute of Technology

11:15 AM
Separation and Recycling Technologie of Mixt Al and Mg Scrap: *Christian Wögerer*[1]; Günther Klammer[2]; Michael Kettner[3]; [1]ARC Seibersdorf Research GmbH; [2]Profactor Produktionsforschungs GmbH; [3]ARC Leichtmetallkompetenzzentrum Ranshofen GmbH

11:40 AM
Integration between Mining and Smelting Business and Environmental Business: *Kazuaki Shimada*[1]; [1]Dowa Mining Company, Ltd.

12:05 PM Question and Answer Period

Towards Functional Nanomaterials: Synthesis, Characterization, and Applications: Directed Nano Fabrication

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Zhiming Wang, University of Arkansas; Alexander Govorov, Ohio University; Andrey Rogach, Ludwig-Maximilians-Universtität München

Monday AM — Room: Oceanic 5
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Samuel Mao, Lawrence Berkeley National Laboratory and University of California at Berkeley; Naoki Kishimoto, National Institute for Materials Science

9:00 AM Invited
Molecular Self-Assembly on Carbon Nanotemplates: *Andrew Wee*[1]; Wei Chen[1]; Shi Chen[1]; Xingyu Gao[1]; [1]National University of Singapore

9:30 AM Invited
Novel Ion Beam Techniques to Control Nanoparticle Composites for Nonlinear Optical Applications: *Naoki Kishimoto*[1]; Kenji Saito[2]; Jin Pan[2]; Haisong Wang[1]; Yoshihiko Takeda[1]; [1]National Institute for Materials Science; [2]University of Tsukuba

10:00 AM Invited
DNA-Directed Organization of Nanoparticles: *Friedrich Simmel*[1]; Thomas Sobey[1]; [1]Ludwig-Maximillian University-Munich

10:30 AM
Effects of Multiplex Catalyst on the Preparation and Characteristic of Nano-Sized Alpha-Alumina: Deng Hua[1]; *Xiao Jin*[1]; Li Jie[1]; Liu YeXiang[1]; Wan Ye[1]; [1]Central South University

10:45 AM
Synthesis and Ethanol Sensing Properties of Flower-Like ZnO Nanostructures: *Chen Yujin*[1]; Zhu Chunling[1]; Xiao Gang[1]; [1]Harbin Engineering University

11:00 AM Break

11:10 AM Invited
Thiol-Capped Nanocrystals: On the Way from Synthesis to Applications: *Nikolai Gaponik*[1]; [1]TU Dresden

11:40 AM Invited
Large-Scale Ab Initio Study of Size, Shape, and Doping Effects on Electronic Structure of Nanocrystals: *Jingbo Li*[1]; [1]National Renewable Energy Laboratory

12:10 PM
Operation by Nanocomposite Properties by Optical Poling: *Ivan Kityk*[1]; [1]J.Dlugosz University Czestochowa

12:25 PM
Biomolecule-Assisted Synthetic Route to Nanostructured Crystals: *Qing Yang*[1]; [1]University of Science and Technology of China

12:40 PM Invited
Fabrication of Nanostructured Materials with Ultrafast Lasers: *Samuel Mao*[1]; [1]Lawrence Berkeley National Laboratory and University of California at Berkeley

Wide Band-Gap Semiconductor Nanostructures: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee, TMS: Young Leaders Committee
Program Organizers: Ashutosh Tiwari, University of Utah; Haiyan Wang, Texas A&M; Minseo Park, Auburn University

Monday AM Room: Oceanic 4
February 26, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Introductory Comments

9:10 AM Keynote
Opportunities and Challenges in Nanostructured Materials: *Jagdish Narayan*[1]; [1]North Carolina State University

9:55 AM Invited
Chemical Sensing with ZnO Nanorods: *David Norton*[1]; L. C. Tien[1]; H. T. Wang[1]; P. W. Sadik[1]; B. S. Kang[1]; F. Ren[1]; S. J. Pearton[1]; [1]University of Florida

10:30 AM Invited
Silicon Carbide in Harsh Environment Micro-, Nano and Sensor Systems – Applications, Challenges and Technological Trends: *F. Solzbacher*[1]; [1]University of Utah

11:05 AM Break

11:35 AM Invited
Synthesis and Application of Wide Bandgap Semiconductor Nanowires: Han-Kyu Sung[1]; *Heon-Jin Choi*[1]; [1]Yonsei University

12:10 PM
Low Temperature Solution Based Synthesis of Exotic ZnO Nanostructures: *Michael Snure*[1]; Ashutosh Tiwari[1]; [1]University of Utah

12:35 PM
Fabrication of High Performance Schottky Rectifiers Based on Bulk GaN Substrate: *Yi Zhou*[1]; Dake Wang[1]; Claude Ahyi[1]; Chin-Che Tin[1]; John Williams[1]; Minseo Park[1]; N. Williams[2]; Andrew Hanser[2]; Edward Preble[2]; [1]Auburn University; [2]Kyma Technologies, Inc.

2007 Nanomaterials: Fabrication, Properties and Applications: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Wonbong Choi, Florida International University; Ashutosh Tiwari, University of Utah; Seung Kang, Qualcomm Inc.

Monday PM Room: Oceanic 3
February 26, 2007 Location: Dolphin Hotel

Session Chairs: W. Ready, GTRI-EOSL; Otto Zhou, University of North Carolina, Chapel Hill

2:00 PM Invited
Electrostatic Funneling Scheme for Wafer-Scale Fabrication of Nanoscale Devices: *Seong Jin Koh*[1]; [1]University of Texas at Arlington

2:25 PM
Maghemite Nanoparticles Obtained by Laser Pyrolysis and Their Application as Magnetic Nanofluids: *Ion Morjan*[1]; Rodica Alexandrescu[1]; Florian Dumitrache[1]; Ion Voicu[1]; Lavinia Gavrila[1]; Iuliana Soare[1]; Ladislau Vekas[2]; Doina Bica[3]; George Filoti[4]; Mircea Morariu[4]; Victor Kuncser[4]; [1]National Institute for Laser Plasma and Radiation Physics; [2]Centre of Fundamental and Advanced Technical Research, Romanian Academy - Timisoara Division; [3]University Politehnica Timisoara; [4]National Institute of Materials Physics

2:40 PM
Formation of Nano-Scaled Hollow Oxide Particles Using Oxidation Reaction: *Ryusuke Nakamura*[1]; Daisuke Tokozakura[1]; Jung Goo Lee[1]; Hirotaro Mori[1]; Hideo Nakajima[1]; [1]Osaka University

2:55 PM
A New Continuous Manufacturing Technology for Nanoparticles: *Christian Wögerer*[1]; Georg Waldner[1]; Heinz Dobesberger[1]; [1]ARC Seibersdorf Research GmbH

3:10 PM
Environment-Friendly Synthesis of Organic-Soluble Silver Nanoparticles toward Inkjet Printing: *Kwi Jong Lee*[1]; Byung Ho Jun[1]; Jaewoo Joung[1]; [1]Samsung Electro-Mechanics

3:25 PM Break

3:40 PM Invited
Intelligent Applications of Carbon Nanotubes and Their Hybrid Architectures: *Swastik Kar*[1]; [1]Rensselaer Polytechnic Institute

4:05 PM
Influence of Processing Parameters on Titanium Dioxide Nano-Tube Formation: *Lalgudi Ramanathan*[1]; Olandir Correa[1]; Clarice Kunioshi[1]; Ana Helena Bressiani[1]; [1]Instituto de Pesquisas Energéticas Nucleares - IPEN

4:20 PM
Core-Shell AgCo Cluster Assembled Materials: *Marc Hou*[1]; Evgueny Zhurkin[2]; Thibaut Van Hoof[1]; [1]Université Libre de Bruxelles; [2]St Petersburg Technical University

4:35 PM
Asymmetric Properties of Strained $SrTiO_3$ Films on $DyScO_3$ Substrates: *Susan Trolier-McKinstry*[1]; Michael Biegalski[1]; Jeff Haeni[1]; Long-Qing Chen[1]; Darrell Schlom[1]; Yulan Li[1]; Venkat Gopalan[1]; Dillon Fong[2]; Stephen Streiffer[2]; Jeff Eastman[2]; P. Fuoss[2]; Marilyn Hawley[3]; A.K. Tagantsev[4]; R. Uecker[5]; P. Reiche[5]; [1]Pennsylvania State University; [2]Argonne National Laboratory; [3]Los Alamos National Laboratory; [4]EPFL; [5]Institute for Crystal Growth

4:50 PM
Evolution of Microstructures and Physical Properties during Annealing in Nanostructured Invar: Jeong Ho Seo[1]; Jong Kweon Kim[1]; *Yong Bum Park*[1]; [1]Sunchon National University

5:05 PM
Single-Step, Size-Controlled Synthesis of Colloidal Silver Nanoparticles Stabilized by Octadecylamine: *Gururaj Neelgund*[1]; M.S. Dharmaprakash[1]; S.A. Shivashankar[1]; [1]Materials Research Centre, Indian Institute of Science

5:20 PM
Synthesis and Characterization of Aluminum-Based Energetic Nanoparticles: *David Reid*[1]; Sudipta Seal[1]; Eric Petersen[1]; [1]University of Central Florida

5:35 PM
Electrochemical Synthesis of Nano-Sized Carbon Particles in Molten Salts: *Inessa Novoselova*[1]; [1]Institute of General and Inorganic Chemistry

8th Global Innovations Symposium: Trends in Materials and Manufacturing Technologies for Energy Production: Plenary

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Global Innovations Committee
Program Organizers: Joy Hines, Ford Motor Company; David Bahr, Washington State University; John Smugeresky, Sandia National Laboratories

Monday PM Room: Australia 3
February 26, 2007 Location: Dolphin Hotel

Session Chair: Joy Hines, Ford Motor Company

2:00 PM Invited
Energy Security for the United States (and the World): *Jeffrey Wadsworth*[1]; [1]Oak Ridge National Laboratory

2:30 PM Invited
Materials for Nuclear Energy Applications: *Marius Stan*[1]; [1]Los Alamos National Laboratory

3:00 PM Invited
Materials Advances for Fuel Cell Applications at the CFCI: *Héctor Abruña*[1]; Francis DiSalvo[1]; [1]Cornell Fuel Cell Institute, Baker Laboratory, Cornell University

3:30 PM
New Low Cost Material Development Technique for Alternate Energy Applications: *John Smugeresky*[1]; D. Gill[1]; Elizabeth Holm[1]; [1]Sandia National Laboratories

4:00 PM Invited
Development of Materials for Solar Energy: The Silicon Case: *Bruno Ceccaroli*[1]; [1]REC Silicon AS

Advanced Metallic Composites and Alloys for High Performance Applications: Fe and Ni Alloys and Composites

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS/ASM: Composite Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Awadh Pandey, Pratt & Whitney Rocketdyne; Kevin Kendig, Air Force Research Laboratory; John Lewandowski, Case Western Reserve University

Monday PM Room: Europe 10
February 26, 2007 Location: Dolphin Hotel

Session Chair: Awadh Pandey, Pratt & Whitney Rocketdyne

2:00 PM Invited
A Cellular Transformation Involving γ (Ni-Al Solid Solution) and γ' (Ni_3Al): Marta Pozuelo[1]; *Alan Ardell*[1]; [1]University of California

2:20 PM
Phasefield Simulations of the Microstructural Evolution in Superalloys, during Directional Solidification and Solution Heat Treatment: *Nils Warnken*[1]; Dexin Ma[2]; Anne Drevermann[1]; Suzana Fries[3]; Ingo Steinbach[1]; [1]Access E.V.; [2]Foundry Institute of the RWTH-Aachen; [3]SGF Consultancy

2:40 PM
Post-Fabrication Strengthening of Ni-Based Thermostructural Panels: *Sara Johnson*[1]; Brian Tryon[1]; Fang Cao[1]; Tresa Pollock[1]; [1]University of Michigan

3:00 PM
Microcrystalline, Ductile in Room Temperature Ni3Al-Based Strips: Production and Properties: *Pawel Jozwik*[1]; Zbigniew Bojar[1]; [1]Military University of Technology

3:20 PM
Electrodeposition of Ni-P Alloys from a Sulfamate Electrolyte System: Relationship between Ph Value and Structural Characteristics: *Liuwen Chang*[1]; Chih-Hsiung Chen[2]; Honda Fang[3]; [1]National Sun Yat-Sen University; [2]China Steel Corporation; [3]MesoPhase Technologies, Inc.

3:40 PM
Gas Atomized Oxide Dispersion Strengthened Ferritic Stainless Steel: *Joel Rieken*[1]; Iver Anderson[2]; Robert Terpstra[2]; Fran Laabs[2]; [1]Iowa State University; [2]Ames Laboratory

4:00 PM
Interface Reactions and Their Kinetics of Al and Binary Al-Si Alloys to Mild Steel Substrates: *Werner Fragner*[1]; Konrad Papis[2]; Roman Sonnleitner[3]; Peter Uggowitzer[2]; Jörg Löffler[2]; [1]ARC Leichtmetallkompetenzzentrum Ranshofen GmbH; [2]Eidgenössische Technische Hochschule; [3]ECHEM

4:20 PM
Latest Development and Characteristics of Sandwich Structures with Sheet Metal of CrNi-Steel and Core Layer Made of Different Polymers: *Heinz Palkowski*[1]; Günther Lange[1]; [1]Tu Clausthal, Institut für Metallurgie, Werkstoffumformung

4:40 PM
Nano-Particle-Strengthened Martensitic Steels by Conventional Processing: *R. Klueh*[1]; N. Hashimoto[2]; M. Miller[1]; [1]Oak Ridge National Laboratory; [2]Hokkaido University

5:00 PM
Enhancing the Toughness of Brazed Joints in Austenitic Steels by Microstructure Control: *Noah Philips*[1]; Anthony Evans[1]; Carlos Levi[1]; [1]University of California, Santa Barbara

5:20 PM
Low Thermal Expansion Coefficient Fe-Ni-Co Alloys - Plastic Deformation, Alloy Composition and Martensitic Transformation Relationships: *Deniz Sultan Temur*[1]; Ali Arslan Kaya[1]; Gurler Kaya[2]; Murat Kurtulus[2]; [1]TUBITAK MRC Materials Institute; [2]Roketsan Missiles Industries Inc.

Advances in Computational Materials Science and Engineering Methods: Methods at the Atom Scale II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Biomaterials Committee, TMS/ASM: Computational Materials Science & Engineering
Program Organizers: Koen Janssens, Paul Scherrer Institute; Veena Tikare, Sandia National Laboratories; Richard LeSar, Iowa State University

Monday PM Room: Europe 7
February 26, 2007 Location: Dolphin Hotel

Session Chair: Koen Janssens, Paul Scherrer Institute

2:00 PM Introductory Comments

2:05 PM Invited
Grain Boundary Interface Roughening and Its Effect on Grain Boundary Mobility: *David Olmsted*[1]; Stephen Foiles[1]; Elizabeth Holm[1]; [1]Sandia National Laboratories

2:40 PM Question and Answer Period

2:45 PM
Calculations of the Vacancy Formation Energy near GP Zones and a Possible Nucleation Mechanism of Precipitates in Al-Cu Alloys: *Shenyang Hu*[1]; Michael Baskes[1]; Srinivasan Srivilliputhur[1]; [1]Los Alamos National Laboratory

3:10 PM Question and Answer Period

3:15 PM
A Modified Embedded Atom Method Interatomic Potential for the Fe-N System: *Byeong-Joo Lee*[1]; [1]Pohang University of Science and Technology

3:40 PM Question and Answer Period

3:45 PM Break

4:15 PM Invited
Application of Molecular Theory to Complex Fluid Interfaces: *Amalie Frischknecht*[1]; [1]Sandia National Laboratories

4:50 PM Question and Answer Period

4:55 PM
Anharmonic Lattice Statics Analysis of Defective Crystals with Many-Body Interactions: *Arash Yavari*[1]; [1]Georgia Institute of Technology

5:20 PM Question and Answer Period

5:25 PM
Positive Temperature Dependence of Yield Stress and Washing Effect Near Planar Defects in Intermetallide Ni3Al: *Mikhail Starostenkov*[1]; Evgeniya Dudnik[2]; [1]Altai State Technical University; [2]Rubtsovsk Industrial Institute

5:50 PM Question and Answer Period

Advances in Microstructure-Based Modeling and Characterization of Deformation Microstructures: Modeling of Deformed Structures I

Sponsored by: The Minerals, Metals and Materials Society, ASM-MSCTS: Texture and Anisotropy Committee, ASM-MSCTS: Texture and Anisotrophy Committee
Program Organizers: Reza Shahbazian Yassar, Center for Advanced Vehicular Systems; Sean Agnew, University of Virginia; Jiantao Liu, Alcoa Technical Center

Monday PM
February 26, 2007
Room: Europe 1
Location: Dolphin Hotel

Session Chairs: Thomas Bieler, Michigan State University; Hasso Weiland, Alcoa Technical Center

2:00 PM
An Analysis of Microstructure Evolution and the Bauschinger Effect at the Micron Scale: *Amine Benzerga*[1]; P.J. Guruprasad[1]; [1]Texas A&M University

2:20 PM Invited
A General Microstructural Metal Plasticity Model Applied in Testing, Processing and Forming of Aluminium Alloys: *Bjorn Holmedal*[1]; Erik Nes[1]; [1]NTNU

2:45 PM
Computational Modeling of Continuous Dynamic Recrystallization in Magnesium: *Kevin Boyle*[1]; Elhachmi Essadiqi[1]; Ravi Verma[2]; [1]Natural Resources Canada; [2]General Motors Research and Development

3:05 PM
Coupled Simulation of Microstructure and Texture Evolution in Polycrystals: *Bala Radhakrishnan*[1]; Gorti Sarma[1]; [1]Oak Ridge National Laboratory

3:25 PM Invited
Deformation Structures, Properties and Formability of Selected UFG Aluminium Alloys: *Hans Roven*[1]; Manping Liu[1]; Stephane Dumoulin[1]; [1]Norwegian University of Science and Technology

3:50 PM Break

4:05 PM
Modeling the Effects of Mechanical Twinning on the Response of a Magnesium Alloy Sheet during Strain Path Changes: *Ashutosh Jain*[1]; Gwenaelle Proust[2]; Carlos Tome[2]; Sean Agnew[1]; [1]University of Virginia; [2]Los Alamos National Laboratory

4:25 PM Invited
Modeling the Effect of Microstructural Features on the Nucleation of Creep Cavities: *Gorti Sarma*[1]; Bala Radhakrishnan[1]; [1]Oak Ridge National Laboratory

4:50 PM Invited
Modeling Recrystallization in Aluminum Using Input from Experimental Observations: *Abhijit Brahme*[1]; M. Alvi[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

5:10 PM
Phase-Field Modeling of Void Evolution under Elastic-Plastic Deformation: *Shenyang Hu*[1]; Yulan Li[1]; Michael Baskes[1]; [1]Los Alamos National Laboratory

5:30 PM
Crystal Plasticity in Cubic Metals Using Spectral Methods: *Hari Kishore Duvvuru*[1]; Surya Kalididni[1]; [1]Drexel University

5:50 PM
Annealing Behavior of Wire Drawn and ECAE Deformed OFHC Copper: *Daudi Waryoba*[1]; Peter Kalu[1]; [1]Florida Agricultural and Mechanical University-Florida State University, College of Engineering and National High Magnetic Field Laboratory

Alumina and Bauxite: Alumina Refinery Design and Development

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Peter McIntosh, Hatch Associates; Jean Doucet, Alcan Inc; Morten Sorlie, Elkem Aluminium ANS

Monday PM
February 26, 2007
Room: Northern E4
Location: Dolphin Hotel

Session Chair: Milind Chaubal, Sherwin Alumina Company

2:00 PM Introductory Comments

2:10 PM
Alumina Yield in the Bayer Process - Past, Present and Prospects: *Roelof Den Hond*[1]; Iwan Hiralal[2]; Ab Rijkeboer[3]; [1]Alcor Technology; [2]Hiracon Consultancy; [3]Rinalco Consultancy

2:35 PM
Chemical Reaction Engineering in the Bayer Process: *Daniel Thomas*[1]; [1]WorleyParsons

3:00 PM
Energy Consumption in Bayer Process: *Songqing Gu*[1]; Lijuan Qi[1]; [1]Zhengzhou Research Institute of Chalco

3:25 PM
Outlooks for the Future in Bauxite Processing: Vadim Lipin[1]; *Vladimir Kazakov*[2]; [1]Saint Petersburg State Polytechnical University; [2]St. Petersburg State Technologic University of Vegetable Polymers

3:50 PM Break

4:00 PM
Alumina Plants – 3G: *Drakic Milenko*[1]; [1]MD Consultant S.A.

4:25 PM
Pressure Decantation at Gramercy Alumina: *Patricia Landry*[1]; Hugh Edwards[1]; [1]Gramercy Alumina

4:50 PM
Capital Cost: To Be or Not to Be: *Peter-Hans Ter Weer*[1]; Anthony (Tony) McCabe[2]; [1]TWS Services and Advise BV; [2]Global Alumina

5:15 PM
Initial Optimization of Chinese Mixed Combination Process to Produce Alumina: *Baiyong Zhang*[1]; [1]Chalco

5:40 PM Concluding Comments

Aluminum Alloys for Transportation, Packaging, Aerospace and Other Applications: Aluminum Applications

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Subodh Das, Secat Inc

Monday PM — Room: Northern A4
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Subodh Das, Secat Inc; Gyan Jha, ARCO Aluminum Inc

2:00 PM
Recent Trends in SCC Failures in Aluminum Beverage Cans: Shridas Ningileri[1]; *S.K. (Sandy) DeWeese*[2]; [1]Secat Inc; [2]Ball Corporation

2:25 PM
Investigation of "Wear" During the Processing of Aluminum Sheet Alloys: *Gyan Jha*[1]; Weimin Yin[2]; Basil Darras[3]; Marwan Khraisheh[3]; Shridas Ningileri[2]; [1]ARCO Aluminum Inc; [2]Secat Inc; [3]University of Kentucky

2:50 PM
State-of-the-Art: Aleris Aluminum Recycling and Continuous Casting at Uhrichsville, Ohio: *Zhong Li*[1]; Steve Kirkland[1]; Dave Thompson[1]; Paul Platek[1]; [1]Aleris International Inc

3:15 PM
Characterization of Surface Defects Encountered in Twin Roll Cast Aluminum Strips: *Murat Dundar*[1]; Ozgul Keles[1]; [1]Assan Aluminum

3:40 PM Break

3:50 PM
Life Cycle Cost Analysis Methodology: A Case Study of Aluminum Applications in Passenger Cars: *Subodh Das*[1]; Adrian Ungureanu[2]; Ibrahim Jawahir[2]; [1]Secat Inc; [2]University of Kentucky

4:15 PM
Superplastic Deformation of Warm-Rolled 6013 Al Alloy: *Sung Soo Park*[1]; Hamid Garmestani[1]; D. Lee[1]; Nack Kim[2]; Sooho Kim[3]; Eui Lee[4]; [1]School of Materials Science and Engineering, Georgia Institute of Technology; [2]Center for Advanced Aerospace Materials, Pohang University of Science and Technology; [3]General Motors Research and Development Center, Materials and Processes Laboratory; [4]Code 4342, Naval Air Warfare Center

4:40 PM
Fabrication of Ultrahigh Strength Aluminum Alloy by the Route Consisting of Solid Solution, Large Deformation and Ageing: *Xiaojing Xu*[1]; Xiaonong Cheng[1]; [1]Jiangsu University

5:05 PM
Fabrication of Carbon Fibers Reinforced Aluminum Foam: *Zhuokun Cao*[1]; Guangchun Yao[1]; Yihan Liu[1]; [1]Northeastern University of China

Aluminum Reduction Technology: Operational and Technology Improvements

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Monday PM — Room: Southern 2
February 26, 2007 — Location: Dolphin Hotel

Session Chair: Gretta Stephens, Alcoa - Point Henry

2:00 PM
The 77 Day Safe Start-Up of ALBA Line-5: *Abdul Raoof Abdulla*[1]; [1]ALBA

2:25 PM
Inalum's Best Practice Approach for Performance Improvement: *Dante Sinaga*[1]; Harmon Yunaz[1]; Syahrul Bice[1]; M. Kondo[1]; [1]PT INALUM

2:50 PM
Operational and Control Improvements in Reduction Lines at Aluminium Delfzijl: *Marco Stam*[1]; Mark Taylor[2]; John Chen[2]; Sikke van Dellen[1]; [1]Aluminium Delfzijl B.V.; [2]University of Auckland

3:15 PM
Henan Hongkong Longquan Aluminum Co. Ltd., China-Second Phase: *Haibo She*[1]; Bijun Ren[2]; Juanzhang Zhang[3]; [1]SAMI; [2]Henan Hongkong Longquan Aluminum Company Ltd.; [3]Luoyang Longquan Tiansong Carbon Company Ltd.

3:40 PM Break

3:55 PM
The Latest Developments of Alcan's AP36 and ALPSYS Technologies: *Oliver Martin*[1]; B. Benkahla[1]; T. Tomasino[1]; Sylvain Fardeau[1]; Claude Richard[1]; Isabelle Hugron[1]; [1]Alcan Inc

4:20 PM
The Results of Amperage Increase in Pre-Baked Cells OA-300 M1 from 300 to 330 KA: *Yuri Bogdanov*[1]; Viatcheslav Veselkov[1]; Aleksei Nadtochy[2]; Vladimir Skornyakov[3]; [1]SibVAMI; [2]"Ural Aluminium Smelter" Branch JSC, "SUAL" JSC; [3]"SUAL" JSC

4:45 PM
Experience and Pitfalls with Amperage Increase in Hydro Aluminum Potlines during the Last Ten Years: Halvor Kvande[1]; *Bjørn Moxnes*[1]; Havard Gikling[1]; Marvin Bugge[1]; [1]Hydro Aluminium AS

5:10 PM
Production Boost at Alro: *Cristian Stanescu*[1]; Gheorghe Dobra[1]; Satish Manaktala[1]; [1]ALRO S A

5:35 PM
Development and Progress of 300 kA Aluminum Reduction Cells in Yichuan Aluminum Smelter Plant: *Ren Bijun*[1]; Zhuxian Qiu[2]; Songling Dai[1]; [1]Yichuan Electric-Power and Aluminium Group; [2]Northeastern University

Biological Materials Science: Mechanical Behavior of Biomaterials

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Andrea Hodge, Lawrence Livermore National Laboratory; Chwee Lim, National University of Singapore; Eduard Artz, University of Stuttgart; Masaaki Sato, Tohoku University; Marc Meyers, University of California, San Diego

Monday PM
February 26, 2007
Room: Europe 4
Location: Dolphin Hotel

Session Chairs: John Nychka, University of Kentucky; Jikou Zhou, Lawrence Livermore National Laboratory

2:00 PM
Structural and Mechanical Properties of Avian Materials: *Sara Bodde*[1]; Yasuaki Seki[1]; Bimal Kad[1]; Marc Meyers[1]; [1]University of California

2:20 PM Keynote
Mechanical Behavior of Cells on Porous Tissue Engineering Scaffolds: *Lorna Gibson*[1]; Brendan Harley[1]; Toby Freyman[2]; Ioannis Yannas[1]; [1]Massachusetts Institute of Technology; [2]Boston Scientific

3:00 PM Invited
Hierarchical Deformation Mechanisms in Tendon and Bone: *Peter Fratzl*[1]; Himadri Gupta[1]; Wolfgang Wagermaier[1]; Paul Roschger[2]; [1]Max Planck Institute of Colloids and Interfaces; [2]Ludwig Boltzmann Institute of Osteology

3:30 PM
Mechanical and Ultra-Structural Analysis of Permanent Attachment Systems in Plants: *Ruth Schwaiger*[1]; Tina Steinbrecher[2]; Deane Harder[2]; [1]Forschungszentrum Karlsruhe; [2]University of Freiburg

3:50 PM Break

4:10 PM Invited
Multi-Scale Mechanical Analysis of Aortic Tissues: *Takeo Matsumoto*[1]; [1]Nagoya Institute of Technology

4:40 PM Invited
***In Vitro* Bioactivity of 45S5 Bioglass as Function of Indentation Load**: *John Nychka*[1]; Ding Li[1]; Beth Alexander[1]; [1]University of Kentucky

5:00 PM
Effects of Moisture on the Mechanical Behavior of a Natural Composite Fiber: Sara Walter[1]; Mark Johnson[1]; Brian Flinn[1]; *George Mayer*[1]; [1]University of Washington

5:20 PM
Time-Dependent Deformation of Prismatic Biological Materials: *Jikou Zhou*[1]; [1]Lawrence Livermore National Laboratory

5:40 PM
Elastic Modulus Variations of Dentin Bonded Interfaces: *Grayson Marshall*[1]; Shabnam Zartoshtimanesh[1]; Sally Marshall[1]; [1]University of California, San Francisco

Bulk Metallic Glasses IV: Mechanical Properties I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Raymond Buchanan, University of Tennessee; Wenhui Jiang, University of Tennessee; Guojiang Fan, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee

Monday PM
February 26, 2007
Room: Asia 1
Location: Dolphin Hotel

Session Chairs: A. S. Argon, Massachusetts Institute of Technology; Brett Conner, Air Force Office of Scientific Research

2:00 PM Keynote
What Can Plasticity in Amorphous Silicon Tell us about Plasticity in Amorphous Metals?: *Ali Argon*[1]; [1]Massachusetts Institute of Technology

2:30 PM Invited
Low-Temperature Anelastic and Viscoelastic Deformation in an Al-Rich Metallic Glass: *Michael Atzmon*[1]; Amritha Rammohan[1]; [1]University of Michigan

2:50 PM Invited
Flow and Fracture Studies on Bulk Metallic Glasses: *John Lewandowski*[1]; [1]Case Western Reserve University

3:10 PM Invited
Thermomechanical Instability Analysis of Inhomogeneous Deformation in Amorphous Alloys and Experimental Comparisons: *Yanfei Gao*[1]; T. Nieh[1]; P. Liaw[1]; [1]University of Tennessee

3:30 PM
Temperature Evolutions of a Zr-Based Bulk-Metallic Glass during Compression: *Wenhui Jiang*[1]; Fengxiao Liu[1]; Hao Hsiang Liao[1]; Hahn Choo[1]; Peter Liaw[1]; [1]University of Tennessee

3:45 PM
Observation of Deformation Behavior of Metallic Glasses during In Situ Straining in Transmission Electron Microscope: *H. J. Chang*[1]; E. S. Park[2]; W. J. Moon[3]; Y. J. Kim[3]; D. H. Kim[1]; [1]Yonsei University, Center for Noncrystalline Materials; [2]Harvard University; [3]Korea Basic Science Institute

4:00 PM Invited
In-Situ Observations on Fracture Process of Fe-Based Metallic Glass Ribbons: Xianghong Xu[1]; Gang Wang[2]; Fujiu Ke[1]; *Yilong Bai*[3]; Weihua Wang[2]; [1]Department of Applied Physics, Beihang University; [2]Institute of Physics, Chinese Academy of Sciences; [3]Institute of Mechanics, Chinese Academy of Sciences

4:20 PM Invited
Mechanical Properties of Zr-TM-Al (TM: Cu, Ni, Co) Bulk Glassy Alloys: *Yoshihiko Yokoyama*[1]; Akihisa Inoue[1]; Peter Liaw; [1]Institute of Materials Research

4:40 PM
Characterization of Bulk Metallic Glasses under Static Indentation, Dynamic Indentation and Scratch Process: Hongwen Zhang[1]; *Ghatu Subhash*[1]; [1]Michigan Technological University

4:55 PM
Experiments on High Strain-Rate Compression of Bulk Metallic Glasses: *George Sunny*[1]; Vikas Prakash[1]; John Lewandowski[1]; [1]Case Western Reserve University

5:10 PM
Dynamic Compressive Deformation Behavior of Zr-Based Amorphous Alloy and Composite: *Yang Gon Kim*[1]; Dong-Geun Lee[2]; Byoungchul Hwang[2]; Sunghak Lee[1]; Nack Kim[1]; [1]Pohang University of Science and Technology; [2]Korea Institute of Machinery and Materials

5:25 PM
Formability of Zr57Nb5Al10Cu15.4Ni12.6 Bulk Metallic Glass: *Y. Wang*[1]; S. Gorantla[1]; Rajiv Mishra[1]; F. Miller[1]; R. Brow[1]; Daniel Miracle[2]; [1]University of Missouri; [2]US Air Force

Cast Shop Technology: Cast House Operations and Melting

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: David DeYoung, Alcoa Inc; Rene Kieft, Corus Group; Morten Sorlie, Elkem Aluminium ANS

Monday PM — Room: Northern E1
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Introductory Comments

2:05 PM
World Class Melting Operations: *David White*[1]; [1]The Schaefer Group, Inc.

2:30 PM
Technology Trends in the Modern Aluminium Casthouse Furnaces: Mike Unitt[1]; Andrew Haberl[1]; Barry Houghton[1]; [1]Solios

2:55 PM
Understanding of the Physical Laws which Control the Purification of Molten Aluminum: *Shaun Hamer*[1]; Ravi Tilak[1]; [1]Almex USA Inc.

3:20 PM
Development Sustendtable Research for Utilization of Mineral Clay in the Place of Amianthus in the Aluminum Company: *Rinaldo Braga*[1]; Adnaldo Ferreira[1]; [1]Albras Aluminio Brasileiro SA

3:45 PM Break

4:10 PM
Optimised Oxy-Fuel Melting Process at Sapa Heat Transfer: *Henrik Gripenberg*[1]; Anders Johansson[2]; [1]Linde Gas Division; [2]Sapa Heat Transfer

4:35 PM
Advances in Molten Metal Pump Technology Expand the Capability of Aluminum Reverberatory Furnace Production Rates: *Mark Bright*[1]; Richard Chandler[1]; Richard Henderson[1]; [1]Pyrotek Inc.

5:00 PM
An Update of Twin Chamber Furnace Technology for Recycling of Aluminium Scrap: *Hans-Walter Graeb*[1]; Jan de Groot[1]; [1]Thermcon Overns B.V.

5:25 PM
Computer Simulations of Melt Flow and Particle Removal in the Cyclone: *Andrey Turchin*[1]; Dmitry Eskin[1]; John Courtenay[2]; Laurens Katgerman[3]; [1]NIMR; [2]MQP Ltd; [3]TU Delft

Characterization of Minerals, Metals, and Materials: Characterization of Structure across Length Scales II

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Arun Gokhale, Georgia Institute of Technology; Jian Li, Natural Resources Canada; Toru Okabe, University of Tokyo

Monday PM — Room: Oceanic 8
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Jian Li, Natural Resources Canada; Arun Gokhale, Georgia Institute of Technology

2:00 PM Invited
Atomic-Level Characterization of Alloys Using Aberration-Corrected Scanning Transmission Electron Microscopy: *David Williams*[1]; Masashi Watanabe[1]; [1]Lehigh University

2:30 PM
The Impact of Indexing Parameters on the Speed and Accuracy of Automated Electron Backscatter Diffraction Measurements: Matthew Nowell[1]; *Stuart Wright*[1]; John Carpenter[1]; [1]EDAX-TSL

2:50 PM
A New Scheme to Index Micro-Laue X-Ray Diffraction Patterns: *Vipul Gupta*[1]; Sean Agnew[1]; [1]University of Virginia

3:10 PM
3DAP Study of Alloy Element Effects on the Tempering of Steel: *Chen Zhu*[1]; Xiangyuan Xiong[2]; Alfred Cerezo[1]; George Krauss[3]; George Smith[1]; [1]University of Oxford; [2]Monash University; [3]Colorado School of Mines

3:30 PM
Characterization of Nano-Scale Compositional Fluctuations in Sm-Ba-Cu-O Superconductor by TEM and STEM/EELS: *Shih-Yun Chen*[1]; Alexandre Gloter[2]; Christian Colliex[2]; In-Gann Chen[3]; Maw-Kuen Wu[1]; [1]Institute of Physics, Academia Sinica; [2]Laboratoire de Physique des Solides, CNRS-UMR 8502; [3]Department of Materials Science and Engineering, National Cheng-Kung University

3:50 PM Break

4:10 PM Invited
Microstructural Characterization of Snow Firn Using SEM/EDS/EBSP: *Ian Baker*[1]; R. Obbard[1]; D. Iliescu[1]; D. Meese[1]; [1]Dartmouth College

4:40 PM
Microstructural Characterization of Ti-Nb Alloys with 2% Al: *Sergio Monteiro*[1]; Lioudmila Matlakhova[1]; Anatoly Matlakhov[1]; [1]State University of the Northern Rio de Janeiro

5:00 PM
Texture Characterization of Cold-Rolled Ti-6Al-4V Specimens by Thermoelectric Power Measurements: *Hector Carreon*[1]; [1]Universidad Michoacana de San Nicolás de Hidalgo

5:20 PM
An Electron Microscope Study of Tweed Structure in GdNi Intermetallic Alloys: *Ozan Ugurlu*[1]; Yaroslav Mudryk[2]; L. Chumbley[1]; Vitalij Pecharsky[2]; [1]Iowa State University; [2]Ames Laboratory

5:40 PM
Non-Metallic Inclusions in Metals: From Nanometer to Milimeter: *Lifeng Zhang*[1]; [1]Norwegian University of Science and Technology

Computational Thermodynamics and Phase Transformations: First Principles and Atomistic Calculations of Phase and Alloy Thermodynamics II

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, ASM Materials Science Critical Technology Sector, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Corbett Battaile, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory

Monday PM Room: Europe 11
February 26, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Invited
Kinetics of Phase Transformations from First Principles: *Anton Van der Ven*[1]; [1]University of Michigan

2:30 PM Invited
Precipitation in Al-Mg-Si from First-Principles: *Christopher Wolverton*[1]; Yi Wang[2]; Chinnappan Ravi[3]; Hui Zhang[2]; Tao Wang[2]; Long Qing Chen[2]; Zi-Kui Liu[2]; [1]Ford Motor Company; [2]Pennsylvania State University; [3]Indira Gandhi Centre for Atomic Research

3:00 PM
Stress Anisotropy Controls Pathway of Martensitic Transformation in Titanium: *Richard Hennig*[1]; Dallas Trinkle[2]; [1]Cornell University; [2]University of Illinois Urbana-Champaign

3:20 PM
On Some Aspects of Phase Transitions in Mechanically Driven Alloys: *Jong Lee*[1]; [1]Michigan Technological University

3:40 PM Break

4:00 PM Invited
Reliable First-Principles Prediction of Alloy Thermodynamic Characterization Data via Cluster Expansion Methods: *Duane Johnson*[1]; Teck Tan[1]; N. Zarkevich[1]; [1]University of Illinois

4:30 PM Invited
The Tensorial Cluster Expansion: *Axel van de Walle*[1]; [1]California Institute of Technology

5:00 PM
Using Multi-Body Energy Expansions from Ab Initio Calculations for Computation of Alloy Phase Structures: Nicholas Zabaras[1]; *Veera Sundararaghavan*[1]; [1]Cornell University

5:20 PM
Vibrational Thermodynamics of Vanadium Alloys: *Oliver Delaire*[1]; Max Kresch[1]; Matthew Lucas[1]; Tabitha Swan-Wood[1]; Brent Fultz[1]; [1]California Institute of Technology

Diffusion in Advanced Materials and Processing: Interfaces, Surfaces and Nanostructures

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS: Alloy Phases Committee, TMS: High Temperature Alloys Committee, ASM-MSCTS: Atomic Transport Committee, TMS/ASM: Nuclear Materials Committee, TMS: Solidification Committee
Program Organizers: Yong-Ho Sohn, University of Central Florida; Carelyn Campbell, National Institute of Standards and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Afina Lupulescu, Union College

Monday PM Room: Europe 2
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Graeme Murch, University of Newcastle; Yuri Mishin, George Mason University

2:00 PM Invited
Growth Kinetics on Nanoscale: Finite Diffusion Permeability of Interfaces: *Dezso Beke*[1]; Zoltán Erdélyi[1]; [1]University of Debrecen

2:30 PM
Diffusion Mechanisms in Nanocrystalline and Nanolaminated Au-Cu: *Alan Jankowski*[1]; [1]Lawrence Livermore National Laboratory

2:50 PM
Modeling of Oxygen Diffusion and Segregation at Interfaces in Ag-MgO Composites: Thomas Fiedler[1]; Nilindu Muthubandara[2]; Andreas Ochsner[1]; *Irina Belova*[2]; Graeme Murch[2]; [1]University of Aveiro; [2]University of Newcastle

3:10 PM
Stability and Shrinkage by Diffusion of Hollow Nanospheres: Alexander Evteev[1]; Elena Levchenko[1]; Irina Belova[1]; *Graeme Murch*[1]; [1]University of Newcastle

3:30 PM Break

3:50 PM Invited
Diffusion along Dislocation Cores in Metals: *Y. Mishin*[1]; [1]George Mason University

4:20 PM
Anomalous Diffusion along Interfaces in Crystalline Solids: *Raghavan Narayanan*[1]; Alexander King[1]; [1]Purdue University

4:40 PM
Revised Mixing Models for Diffusion in Polycrystals: *Ying Chen*[1]; Christopher Schuh[1]; [1]Massachusetts Institute of Technology

5:00 PM
Diffusion of Mn into Grain Boundaries and Triple Junctions in LiF Thin Films: *Hakkwan Kim*[1]; Alexander King[1]; [1]Purdue University

Dynamic Behavior of Materials: Deformation II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Marc Meyers, University of California; Ellen Cerreta, Los Alamos National Laboratory; George Gray, Los Alamos National Laboratory; Naresh Thadhani, Georgia Institute of Technology; Kenneth Vecchio, University of California

Monday PM Room: Europe 3
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Ronald Armstrong, University of Maryland; Dennis Grady, Applied Research Associates

2:00 PM Invited
Energy Localization in Meteoritic Target Materials: Hydrodynamic Instabilities and Planar Deformation Features (PDFs) in Quartz: *Robert Graham*[1]; M. Martin[2]; N. N. Thadhani[2]; B. Morosin[3]; [1]The Tome Group; [2]Georgia Institute of Technology; [3]Sandia National Laboratories

2:30 PM Invited
Shear Localization Resistance by Design: *Gregory Olson*[1]; [1]Northwestern University

2:45 PM
Shearband Patterns under Static and Dynamic Indentations in Bulk Metallic Glasses: *Ghatu Subhash*[1]; Hongwen Zhang[1]; [1]Michigan Technological University

3:00 PM
Kinetics Modeling under Shock-Loading Conditions: *Steven Valone*[1]; [1]Los Alamos National Laboratory/MST-8

3:15 PM Break

3:30 PM
Plastic Processes Leading to Damage and Failure: *T.W. Wright*[1]; K.T. Ramesh[2]; [1]US Army Research Laboratory; [2]Johns Hopkins University

4:00 PM
Dynamic Failure of Silicon Nitride under Combined Pressure and Shear Impact: George Sunny[1]; David Nathenson[1]; *Vikas Prakash*[1]; [1]Case Western Reserve University

4:15 PM
Dynamic Response of 5083-H131 Aluminum Alloy: *J. Boteler*[1]; D. Dandekar[2]; [1]NSWC -Indian Head; [2]Army Research Laboratory

4:30 PM
Fragments Produced when Tungsten Penetrates Aluminum: *Stephan Bless*[1]; [1]University of Texas at Austin

4:45 PM
Deformation and Fracture Behaviour of Metal Matrix Composites during Dynamic Mechanical Loading: *Akindele Odeshi*[1]; Gbadebo Owolabi[1]; Meera Singh[1]; Nabil Bassim[1]; [1]University of Manitoba Winnipeg

5:00 PM
Dislocation Dynamics Simulations of High Strain Rate Deformation of FCC Cu: *Zhiqiang Wang*[1]; Irene Beyerlein[1]; Richard LeSar[2]; [1]Los Alamos National Laboratory; [2]Iowa State University

5:15 PM
Collective Evolution of Dislocations and Voids in the Shock Recovered Metals from Polychromatic Microdiffraction: *Rozaliya Barabash*[1]; G. Ice[1]; W. Liu[2]; J. Belak[3]; M. Kumar[3]; [1]Oak Ridge National Laboratory; [2]Advanced Photon Source; [3]Lawrence Livermore National Laboratory

5:30 PM
Influence of Microstructure on the Spall Failure of Aluminum Materials: Jonathan Brewer[1]; Douglas Dalton[1]; Evan Jackson[1]; *Eric Taleff*[1]; Todd Ditmire[1]; [1]University of Texas

5:45 PM
Effects of Strain Rate and Adiabatic Heating on the Deformation Behavior of Cold Heading Steels: *Jari Rämö*[1]; Veli-Tapani Kuokkala[1]; Taina Vuoristo[1]; [1]Tampere University of Technology

Electrode Technology Symposium (formerly Carbon Technology): Anode Technology and Production

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS

Monday PM Room: Southern 3
February 26, 2007 Location: Dolphin Hotel

Session Chair: David Emerson, Alcoa

2:00 PM Introductory Comments

2:05 PM
Carbon Nanofiber Additions to Electrodes for the Aluminium Electrolysis: *Sten Yngve Larsen*[1]; Shahid Akhtar[1]; Geir Ausland[2]; Zhixin Yu[1]; Harald A. Øye[1]; Trygve Foosnæs[1]; [1]Norges Teknisk-Naturvitenskapelige Universitet ; [2]Elkem Solar AS

2:30 PM
Problems of the Stub – Anode Connection: *Siegfried Wilkening*[1]; Jules Côté[2]; [1]VAW Aluminum Technology; [2]Aluminerie Alouette Inc.

2:55 PM
Using Troubleshooting Software to Reduce Variation and Improve Anode Quality: Barry Sadler[1]; *Jason Govender*[2]; Nicole Ulbricht[3]; Stephen Scrase[3]; Kevin Viviers[3]; Tjaart van der Walt[4]; Simon Frank[4]; Cobus van Heerden[4]; [1]Net Carbon Consulting; [2]Mozal Aluminium Smelter; [3]Hillside Aluminium Smelter; [4]CSense Systems Pty Ltd

3:20 PM
New Green Anode Plant at BALCO - Start-Up and Operation in the First Year: *Manfred Beilstein*[1]; Shailender Kumar[2]; K.A. Chowdary[2]; Anand Pandey[3]; Rudolf Gemein[1]; [1]Outokumpu Technology GmbH; [2]VEDANTA Alumina Ltd.; [3]BALCO-Bharat Aluminium Company Ltd.

3:45 PM
Effect of Vacuum Vibroforming on Porosity Development during Anode Baking: *Michal Tkac*[1]; Trygve Foosnæs[1]; Harald Øye[1]; [1]Norwegian University of Science and Technology

4:10 PM Break

4:30 PM
Alumar Coke Blending Facility Strategy: Francisco Figueiredo[1]; Aluisio Nascimento[1]; *Vinicius Piffer*[1]; Ciro Kato[1]; Helio Truci[1]; [1]Consorcio de Aluminio do Maranhao (Alumar)

4:55 PM
Review of Coke and Anode Desulfurization: *Les Edwards*[1]; Keith Neyrey[1]; Lorentz Lossius[2]; [1]CII Carbon LLC; [2]Hydro Aluminium AS

5:20 PM
Production and Application of Coal Tar Pitch in China: *Fengqin Liu*[1]; [1]Zhengzhou Research Institute of Chalco

Friction Stir Welding and Processing IV: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Rajiv Mishra, University of Missouri; Murray Mahoney, Rockwell Scientific Company; Thomas Lienert, Los Alamos National Laboratory; Kumar Jata, US Air Force

Monday PM
February 26, 2007
Room: Northern E3
Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Introductory Comments

2:05 PM Keynote
Friction Stir Welding - After a Decade of Development: *William Arbegast*[1]; [1]South Dakota School of Mines and Technology

2:30 PM
Development of FSW for Thin-Gauge 5XXX Extrusions: *Kevin Colligan*[1]; Mark Smitherman[1]; [1]Concurrent Technologies Corporation

2:45 PM
Buckling Behavior of Friction Stir Welded 7075 Compression Panels Stiffened with Single Angle Stiffeners: *Anil Patnaik*[1]; William Arbegast[2]; Matthew Heringer[1]; Karl Koch[1]; [1]South Dakota School of Mines and Technology; [2]Advanced Materials Processing Center, South Dakota School of Mines and Technology

3:00 PM
Friction Stir Welding of an Aluminum Coal Hopper Railcar Prototype: *Casey Allen*[1]; Dana Medlin[1]; Clark Oberebt[1]; Haven Mercer[1]; William Arbegast[1]; [1]South Dakota School of Mines and Technology

3:15 PM
Heat Transfer Considerations for Designing FSW Sandwiched Panel Structures for Cryogenic Applications: *Michael Langerman*[1]; [1]South Dakota School of Mines

3:30 PM Break

3:45 PM
Static Structural Performance of 7075 Aluminum Friction Stir Welded Helicopter Beams: William Arbegast[1]; *Anil Patnaik*[2]; Bernard Frankl[3]; [1]Advanced Materials Processing Center - South Dakota School of Mines and Technology; [2]South Dakota School of Mines and Technology; [3]North Carolina State University

4:00 PM
A Study on Friction Stir Welding with Heating of Aluminum Alloy A-5052: *Susumu Hioki*[1]; Takehiko Takahashi[1]; Yuuta Kaneko[1]; Riiti Suzuki[1]; [1]Akita Prefectural University

4:15 PM
Study of the Effect of Artificial Aging on Microstructural Evolution of Friction Stir Welded Thin Sheet 2024-T3 Using Transmission Electron Microscopy: *Alpesh Shukla*[1]; William Baeslack[2]; [1]Rensselaer Polytechnic Institute; [2]Ohio State University

4:30 PM
Static Strength Comparison of Discontinuous Friction Stir Welded Stiffened Panels: *Joshua Merry*[1]; Bryan Tweedy[1]; Christian Widener[1]; Dwight Burford[1]; [1]Wichita State University

4:45 PM
Fatigue Crack Propagation Behavior of Friction Stir Welded 5083-H32 and 6061-T651 Aluminum Alloys: *Seongjin Hong*[1]; Sangshik Kim[1]; Chang Gil Lee[2]; Sung-Joon Kim[2]; [1]Gyeongsang National University; [2]Korea Institute of Machinery and Materials

5:00 PM
Development of Statistical Design Curves for Tensile Strength and Fatigue Characteristics of 7075 T73 Aluminum Friction Stir Welded Butt Joints: *Srikanth Kandukuri*[1]; William Arbegast[1]; Anil Patnaik[1]; Casey Allen[1]; [1]South Dakota School of Mines and Technology

Frontiers in Solidification Science: Atomic Scale

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Chemistry and Physics of Materials Committee, TMS: Solidification Committee
Program Organizers: Jeffrey Hoyt, Sandia National Laboratories; Mathis Plapp, Ecole Polytechnique; Gabriel Faivre, CNRS; Shan Liu, Iowa State University

Monday PM
February 26, 2007
Room: Northern A3
Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Invited
A Quantitative Parameter-Free Prediction of Simulated Crystal-Nucleation Times: *James Morris*[1]; Rachel Aga[1]; Jeffrey Hoyt[2]; Mikhail Mendelev[3]; [1]Oak Ridge National Laboratory; [2]Sandia National Laboratories; [3]Ames Laboratory

2:30 PM Invited
Crystal-Melt Interfacial Free Energies from Computer Simulation: From Hard Spheres to Molecules: *Brian Laird*[1]; [1]University of Kansas

3:00 PM Break

3:20 PM Invited
Atomistic-Simulation Studies of Faceted Crystal-Melt Interfaces: Dorel Buta[1]; *Mark Asta*[2]; Jeffrey Hoyt[3]; [1]Northwestern University; [2]University of California; [3]Sandia National Laboratories

3:50 PM Invited
Molecular Dynamics Simulation of Solidification and Vitrification in Al and Al-Fe Alloys: *Mikhail Mendelev*[1]; Cai-Zhuang Wang[1]; Kai-Ming Ho[1]; James Morris[2]; [1]Ames Laboratory; [2]Oak Ridge National Laboratory

Frontiers in Solidification Science: Poster Session

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Chemistry and Physics of Materials Committee, TMS: Solidification Committee
Program Organizers: Jeffrey Hoyt, Sandia National Laboratories; Mathis Plapp, Ecole Polytechnique; Gabriel Faivre, CNRS; Shan Liu, Iowa State University

Monday, 4:20 PM
February 26, 2007
Room: Northern A3
Location: Dolphin Hotel

3D Reconstruction of Coarse Dendritic Microstructures During the Solidification of Al-Cu Alloys: *Demian Ruvalcaba*[1]; Dmitry Eskin[1]; Laurence Katgerman[2]; [1]Netherlands Institute for Metals Research; [2]Delft University of Technology

A Two-Phase Approach for the Modelling of Hot Tearing Formation in DC Casting of Aluminium Ingots: *Mohammed M'Hamdi*[1]; Hallvard G. Fjær[2]; Asbjørn Mo[1]; Dag Mortensen[2]; [1]SINTEF; [2]Institute for Energy Technology

Alloy Crystal-Melt Interfacial Properties from Atomistic Simulations: *Chandler Becker*[1]; David Olmsted[2]; Mark Asta[3]; Jeffrey Hoyt[2]; Stephen Foiles[2]; [1]Northwestern University; [2]Sandia National Laboratories; [3]University of California

Bubble Formation and Solid-Pore Interactions in Directional Solidification: *Ying Sun*[1]; Christoph Beckermann[2]; [1]State University of New York-Binghamton; [2]University of Iowa

Coherence of Dendritic Sidebranching in Directional Solidification of a Dilute Alloy: *Alain Pocheau*[1]; Simona Bodéa[1]; Marc Georgelin[1]; [1]Institut de Recherche sur les Phénomènes Hors Equilibre

Columnar to Equiaxed Transition and Fragmentation in Al-Ni and Al-Si Alloys during Directional Solidification: *Hyejin Jung*[1]; Nathalie Mangelinck-Noel[1]; Henri Nguyen-Thi[1]; Bernard Billia[1]; Adeline Buffet[2]; Jurgen Hartwig[2]; José Baruchel[2]; [1]L2MP,UMR 6137, University Paul Cezanne Aix-Marseille 3, Faculte de Saint Jerome; [2]ESRF-Polygone Scientifique Louis Néel

Dendritic Seaweed Growth and the Relationship to Spontaneous Grain Refinement: *Andrew Mullis*[1]; [1]Leeds University

Determining the Freezing Rate during Final-Stage Solidification of the Ni-Base Superalloy IN713LC: *Magnus Lekstrom*[1]; Neil D'Souza[2]; Hongbiao Dong[3]; Mahmoud Ardakani[1]; Barbara Shollock[1]; [1]Imperial College London; [2]Rolls-Royce plc; [3]University of Leicester

Fully Implicit, Adaptive Grid Methods for Phase-Field Simulation of Solidification in Pure Metals and Alloys: *Jan Rosam*[1]; Andrew Mullis[1]; Peter Jimack[1]; [1]University of Leeds

Influence of Processing Variables on Microporosity Formation in Al-4.5% Cu Alloy: *Joo Ro Kim*[1]; Reza Abbaschian[2]; [1]University of Florida; [2]University of California Riverside

Limits of Stability and Spacing Adjustment Mechanisms of Eutectic Growth: *Melis Serefoglu*[1]; Ralph Napolitano[1]; [1]Iowa State University

Metastable Phase Formation of Rare-Earth Sesquioxides by Containerless Process: *Atsunobu Masuno*[1]; Yasutomo Arai[1]; Jianding Yu[1]; [1]Japan Aerospace Exploration Agency

Microstructures of Zn-Cd Dilute Alloys Directionally Solidified: *Fornaro Osvaldo*[1]; Hugo Palacio[2]; [1]IFIMAT-UNICEN, CONICET; [2]IFIMAT-UNICEN, CICPBA

Modeling of Microstructure Evolution from Liquid State to Room Temperature in Steels: *Adrian Catalina*[1]; Doru Stefanescu[2]; Leo Chuzhoy[1]; Michael Johnson[1]; [1]Caterpillar Inc.; [2]Ohio State University

Non-Equilibrium Solidification of Intermetallic Compounds in the Ni-Al Alloy System: Sven Reutzel[1]; *Helena Hartmann*[1]; Peter Galenko[2]; Hamid Assadi[3]; Dieter Herlach[2]; [1]Ruhr-University Bochum, Germany; [2]German Aerospace Center (DLR); [3]Tarbiat Modarres University, Iran

Non-Newtonian Behaviour of Liquid Metals: *Zhongyun Fan*[1]; Vijay Vasarni[1]; [1]Brunel University

Phase-Field Modeling of Solidification with Density Change and Solid Movement: *Ying Sun*[1]; Christoph Beckermann[2]; [1]State University of New York-Binghamton; [2]University of Iowa

Phase-Field Simulations of Buoyancy-Driven Convective Effects on Dendritic Growth of Binary Alloys: *Juan Ramirez*[1]; Sharen Cummins[1]; [1]Los Alamos National Laboratory

Phase-Field Simulations of Rod Eutectic Growth: Andrea Parisi[1]; *Mathis Plapp*[1]; [1]Ecole Polytechnique

5:55 PM
The Effects of Internal Convection on Phase Selection in Undercooled Fe-Cr-Ni Alloys: Alaina Hanlon[1]; Douglas Matson[2]; *Robert Hyers*[1]; [1]University of Massachusetts; [2]Tufts University

6:00 PM
Transition from Cells to Dendrites in a Directional Solidification Process: Jing Teng[1]; *Shan Liu*[1]; Rohit Trivedi[1]; [1]Iowa State University

6:05 PM
Solidification Behavior of Immiscible Alloy under High Magnetic Field: *En-Gang Wang*[1]; Xiaowei Zuo[1]; Lin Zhang[1]; Jicheng He[1]; [1]Northeastern University

General Abstracts: Light Metals Division: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS: Reactive Metals Committee, TMS: Recycling Committee
Program Organizers: Neale Neelameggham, US Magnesium LLC; Anne Kvithyld, Norwegian University of Science and Technology

Monday PM — Room: Pacific Hall B
February 26, 2007 — Location: Dolphin Hotel

Session Chair: Konrad Papis, ETH Zurich

2:00 PM
Mechanical Deformation of Nanostructured Magnesium Alloy and Its Modelling: *Yujie Wei*[1]; Lallit Anand[2]; [1]Brown University; [2]Massachusetts Institute of Technology

2:20 PM
Simulation for Loss of Electromagnetic Stirring Force Due to the Penetrated Aluminum into the Furnace Lining: *Koichi Takahashi*[1]; Makoto Maruyama[1]; Nobuhito Ishikawa[1]; Mitsuhiro Otaki[1]; [1]Furukawa-Sky Aluminum Corporation

2:40 PM
Microstructural Development in Aluminum 6262 after Severe Deformation and Heat Treatment: *Samuel Adedokun*[1]; Hans Chapman[2]; Yaw Owusu[2]; [1]FAMU-FSU College of Engineering; [2]RECCET

3:00 PM
Al-Al and Al-Mg Compound Casting: *Konrad Papis*[1]; Peter Uggowitzer[1]; [1]Swiss Federal Institute of Technology-Zurich

3:20 PM Break

3:30 PM
Adaptive Control of Database Based Low Pressure Al Die Casting Machine with Acquisition of the Dynamic Dispersion of the Metal Front within the Die: *Christian Wögerer*[1]; Dedinak Andreas[1]; Richard Kretz[2]; Peter Schuldenzucker[2]; [1]ARC Seibersdorf Research GmbH; [2]LKR ARC Leichtmetallkompetenzzentrum Ranshofen GmbH

3:50 PM
Comparison of the Corrosion Behaviors of Twin-Roll Cast and DC Cast AA 6016 and AA6082 for Automotive Applications: *Aziz Dursun*[1]; Beril Dilsizoglu[1]; Mustafa Ürgen[2]; Köksal Kurt[2]; Gerhard Anger[3]; [1]Assan Aluminium; [2]Istanbul Technical University; [3]AMAG Automotive GmbH

4:10 PM
Heat Distribution Characterization of Thermal Insulating Coatings: Christopher Wilhelm[1]; *Eui Lee*[2]; David Piatkowski[2]; Omar S. Es-Said[1]; Alex Chi[3]; [1]Loyola Marymount University; [2]Naval Air Systems Command; [3]Demeton Inc.

4:30 PM
Optimization of the Surface Quality of Cladded Brightening Strip: Roman Pschera[1]; Helmut Antrekowitsch[1]; *Susanne Koch*[1]; Johann Reiter[2]; Gerhard Anger[2]; [1]University of Leoben; [2]AMAG Rolling GmbH

4:50 PM
Property Investigation of Ti-Al6-V4 Produced by Additive Manufacturing: *Johannes Vlcek*[1]; [1]European Aeronautic Defence and Space Company

Hume-Rothery Symposium: Scattering Studies and the Fundamental Properties of Materials: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Patrice Turchi, Lawrence Livermore National Laboratory; Wolfgang Donner, University of Houston; J. Robertson, Oak Ridge National Laboratory

Monday PM
February 26, 2007
Room: Oceanic 7
Location: Dolphin Hotel

Session Chairs: David Price, Centre de Recherche sur la Matière Divisée; Didier de Fontaine, University of California Berkeley

2:00 PM Introductory Comments

2:10 PM Keynote
How Big is an Atom: *Simon Moss*[1]; [1]University of Houston

3:00 PM Invited
Neutron Scattering Studies of Short-Range Order, Atomic Displacements, and Effective Pair Interactions in a Null Matrix 62Ni0.52Pt0.48 Crystal: *Jose Rodriguez*[1]; S. C. Moss[2]; J. L. Robertson[3]; J. R. D. Copley[1]; D. A. Neumann[1]; J. Major[4]; [1]National Institute of Standards and Technology; [2]University of Houston; [3]Oak Ridge National Laboratory; [4]Max Planck Institute fuer Metallforschung

3:30 PM Break

3:50 PM Invited
Ordered and Disordered Surface Phases of Bi on Cu (111): *Elias Vlieg*[1]; [1]Radboud University Nijmegen

4:20 PM Invited
First-Principles Theory of Short- and Long-Range Order in Ultrathin Surface Alloy Films of Bulk-Immiscible Metals: Tejodher Muppidi[1]; Bo Yang[2]; Mark Asta[2]; *Vidvuds Ozolins*[1]; [1]University of California, Los Angeles; [2]University of California, Davis

Innovations in Titanium Technology Symposium: Novel Materials and Processes I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory; F. H. (Sam) Froes, University of Idaho

Monday PM
February 26, 2007
Room: Asia 3
Location: Dolphin Hotel

Session Chairs: Francis Froes, University of Idaho; James Sears, South Dakota School of Mines and Technology

2:00 PM Keynote
Development of the FFC Cambridge Process for the Production of Titanium and Its Alloys: *Richard Dashwood*[1]; Martin Jackson[1]; Kevin Dring[2]; Kartik Rao[1]; Rohit Bhagat[1]; Daniel Brett[1]; Douglas Inman[1]; [1]Imperial College London; [2]Norsk Titanium AS

2:30 PM Invited
Operation of Electrolysis Cells for the Direct Production of Titanium from Solid Oxide Precursors: *Kevin Dring*[1]; Odd-Arne Lorentsen[2]; Eirik Hagen[2]; Christian Rosenkilde[2]; [1]Norsk Titanium AS; [2]Norsk Hydro ASA

2:50 PM
Electrochemical Reduction of Titanium Oxide from CaCl2 Melts Saturated with CaO: *Joel Katz*[1]; [1]Los Alamos National Laboratory

3:10 PM
Synthesis and Enrichment of Titanium Subchlorides in Molten Salts: *Osamu Takeda*[1]; Toru Okabe[1]; [1]University of Tokyo

3:30 PM Break

3:45 PM Keynote
Thermodynamic, Kinetic, and Microstructural Aspects in the Electrochemical Reduction of Titanium Dioxide in Molten Calcium Chloride: *Carsten Schwandt*[1]; Duncan Alexander[2]; Derek Fray[1]; [1]University of Cambridge; [2]Arizona State University

4:10 PM
Production of Ti-Al Alloys Using Ionic Liquid Electrolytes at Low Temperatures: *Debabrata Pradhan*[1]; Ramana Reddy[1]; [1]University of Alabama

4:30 PM
Precipitation of Rutile Nano-Sized Particles via Forced Hydrolysis of a Titanium Tetrachloride Solution: *Cecile Charbonneau*[1]; George P. Demopoulos[1]; [1]McGill University

4:50 PM
Producing Titamium by Titania Electrolysis in a 5KA Cell: *Huimin Lu*[1]; Huanqing Han[1]; [1]Beijing University of Aeronautics and Astronautics

Magnesium Technology 2007: Automotive Applications and USAMP Programs

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Monday PM
February 26, 2007
Room: Southern 5
Location: Dolphin Hotel

Session Chairs: Randy Beals, DaimlerChrysler; Bob Powell, General Motors Research and Development Center

2:00 PM
Summary of NA Automotive Strategic Vision for Mg: *Gerald Cole*[1]; [1]LightWeight Strategies LLC

2:20 PM
USAMP High Integrity Magnesium Automotive Components Project (HIMAC): Bruce Cox[1]; *Randy Beals*[1]; Larry Ouimet[2]; Richard Osborne[2]; Alan Luo[2]; Naiyi Li[3]; Jacob Zindel[3]; [1]Daimler Chrysler; [2]General Motors Corporation; [3]Ford Motor Company

2:40 PM
Development of Enabling Technologies for Magnesium Automotive Body Applications: *Alan Luo*[1]; Anil Sachdev; [1]General Motors Corporation

3:00 PM
Ultra-Large Castings for Lightweight Vehicle Structures: *Mike Maj*[1]; Randy Beals[2]; [1]Ford Motor Company; [2]DaimlerChrysler

3:20 PM
Thin-Wall Molding of Magnesium Alloys: *Frank Czerwinski*[1]; [1]Husky Injection Molding Systems

3:40 PM Break

4:00 PM
A Lightweight Automobile Body Concept Featuring Ultra-Large, Thin-Wall Structural Magnesium Castings: *Stephen Logan*[1]; Randy Beals[1]; [1]DaimlerChrysler

4:25 PM
Casting and Testing of the USAMP Magnesium Intensive Powertrain: *Joy Hines*[1]; Robert McCune[1]; John Allison[1]; Bob Powell[2]; Larry Ouimet[3]; William Miller[3]; Randy Beals[4]; Lawrence Kopka[4]; Peter Ried[5]; [1]Ford Motor Company; [2]General Motors Research and Development Center; [3]General Motors Powertrain; [4]Daimler Chrysler Corporation; [5]Ried and Associates LLC

4:50 PM
Friction Stir Welding of Dissimilar Magnesium Alloys for Automotive Applications: *Frank Hunt*[1]; Harsha Badarinarayan[1]; Kazutaka Okamoto[1]; Diana Platt[2]; [1]Hitachi America, Ltd; [2]University of Michigan

5:15 PM
Microstructure and Creep of Die-Cast Magnesium Alloys: *Jessica TerBush*[1]; Akane Suzuki[1]; Nicholas Saddock[1]; Wayne Jones[1]; Tresa Pollock[1]; [1]University of Michigan

Magnesium Technology 2007: Wrought Alloys and Forming Processes I: Deformation

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Monday PM
February 26, 2007
Room: Southern 4
Location: Dolphin Hotel

Session Chairs: Mihriban Pekguleryuz, McGill University; Xiaoqin Zeng, Shanghai Jiao Tong University

2:00 PM
Simulation of Large Strain Deformation Phenomena in Magnesium Alloy AM30: *Julie Levesque*[1]; Kaan Inal[2]; Kenneth Neale[3]; Alan Luo[4]; Raja Mishra[4]; Lan Jiang[5]; Stephane Godet[6]; [1]University of Sherbrooke; [2]University of Waterloo; [3]University of Sherbrooke; [4]General Motors Research and Development Center; [5]McGill University; [6]Université Catholique de Louvain

2:20 PM
Mechanical Behavior of Wrought AM50 at Room and Elevated Temperature: *Paul Krajewski*[1]; Amir Eliezer[2]; [1]General Motors Corporation; [2]Sumi Shumoon College of Engineering

2:40 PM
Hot Deformation Mechanisms in Mg-1%Zn Alloys: *Geoff Seale*[1]; Jon Carter[2]; Ravi Verma[3]; Paul Krajewski[2]; Elhachmi Essadiqi[4]; Faramarz Zarandi[1]; Stephen Yue[1]; [1]McGill University; [2]General Motors Corporation; [3]General Motors Research and Development Center; [4]CANMET Materials Technology Laboratory

3:00 PM
Texture Evolution in AM30 Mg Alloy Deformed along Different Strain Paths: *Lan Jiang*[1]; John Jonas[1]; Raj Mishra[2]; Alan Luo[2]; Anil Sachdev[2]; Stéphane Godet[3]; [1]McGill University; [2]General Motors; [3]Université Catholique de Louvain

3:20 PM
Nucleation and Growth Phenomena during Recrystallization of Magnesium - Rare Earth Metal Alloys: *Jeremy Senn*[1]; Sean Agnew[1]; Ashutosh Jain[1]; [1]University of Virginia

3:40 PM Break

4:00 PM
In-Situ Neutron Diffraction Study of Mechanical Twinning in a Textured Magnesium Alloy during Strain Path Changes: *Ashutosh Jain*[1]; Donald Brown[2]; Bjorn Clausen[2]; Sean Agnew[1]; [1]University of Virginia; [2]Los Alamos National Laboratory

4:20 PM
Relation between Deformation Twin and Deformation-Induced Surface Relief in AZ31 Mg Alloy Sheets: *Daisuke Ando*[1]; Takeo Miyamura[1]; Junichi Koike[1]; [1]Department of Materials Science, Tohoku University

4:40 PM
Secondary Twinning Modes in Magnesium Alloys and Measurement of Associated Strain Localization: *Matthew Barnett*[1]; [1]Deakin University

5:00 PM
On the Post Superplastic Forming Properties of AZ31 Magnesium Alloy: *Marwan Khraisheh*[1]; Fadi Abu-Farha[1]; [1]University of Kentucky

5:20 PM
Explanation on the Elongation Variation of AZ31 Alloy at the Elevated Temperature: *Yong Nam Kwon*[1]; Y.-S. Lee[1]; J.-H. Lee[1]; [1]Korea Institute of Machinery and Materials

Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies: PEMFCs

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizers: Zhenguo "Gary" Yang, Pacific Northwest National Laboratory; Michael Brady, Oak Ridge National Laboratory; K. Scott Weil, Pacific Northwest National Laboratory; Yong-Ho Sohn, University of Central Florida

Monday PM
February 26, 2007
Room: Asia 2
Location: Dolphin Hotel

Session Chairs: Ali R-Raissi, University of Central Florida; Eve Steigerwalt, Dana Corporation

2:00 PM Invited
Membrane Degradation Mechanisms in Polymer Electrolyte Membrane Fuel Cells: *James Fenton*[1]; Vishal Mittal[1]; Russ Kunz[2]; [1]University of Central Florida; [2]University of Connecticut

2:35 PM Invited
Overview of Polymer Electrolyte Membrane Fuel Cell Stack Sealing: *Eve Steigerwalt*[1]; Mike Anderson[1]; Jacob Meyer[1]; [1]Dana Corporation

3:10 PM
Modeling Platinum Loss in PEM Fuel Cell Cathodes: Edward Holby[1]; *Dane Morgan*[1]; Yang Shao-Horn[2]; [1]University of Wisconsin-Madison; [2]Massachusetts Institute of Technology

3:35 PM
Study on the Proton Conduction Mechanism in Proton Exchange Membranes Using AC Impedance Technique: *Jinjun Shi*[1]; Bor Jang[1]; [1]Wright State University

3:55 PM Break

4:05 PM Invited
Materials and Catalysis Aspects of Hydrogen Generation from Amine Borane Complexes – A Review: *Ali T-Raissi*[1]; Nahid Mohajeri[1]; Olawale Adebiyi[1]; Karthikeyan Ramasamy[1]; [1]University of Central Florida

4:40 PM
A Novel Contact Element for PEM Fuel Cells: *Mahmoud Abd Elhamid*[1]; Gayatri Vyas[1]; Mark Mathias[1]; Youssef Mikhail[1]; [1]General Motors, Fuel Cell Activities

5:05 PM
The Effects of Mechanical Forming on the Use of Clad Metals in PEM Fuel Cell Bipolar Plates: *K. Scott Weil*[1]; Sung Tae Hong[1]; Zhenguo "Gary" Yang[1]; Gordon Xia[1]; Jin Kim[1]; [1]Pacific Northwest National Laboratory

5:30 PM
Effects of PdO Distributions over TiO2 Particles on Its Chemochromic Behaviors for Hydrogen Detection: *Nahid Mohajeri*[1]; Ali T-Raissi[1]; Gary Bokerman[1]; Janine Captain[2]; Barbara Peterson[3]; Mary Whitten[4]; Steve Trigwell[3]; Cristina Berger[4]; [1]Florida Solar Energy Center; [2]National Aeronautics and Space Administration; [3]Arctic Slope Regional Corporation Aerospace-Kennedy Space Center; [4]University of Central Florida

5:55 PM
Electrochemical Study of Cobalt Phthalocyanine/Platinum as DMFC Anodic Catalyst: *Yuhao Lu*[1]; Ramana Reddy[1]; [1]University of Alabama

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Materials Issues for Advanced Nuclear Systems: Material Characterization Issues

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee, TMS/ASM: Nuclear Materials Committee
Program Organizers: Raul Rebak, Lawrence Livermore National Laboratory; Robert Hanrahan, Los Alamos National Laboratory; Yi-Ming Pan, Southwest Research Institute

Monday PM — Room: Europe 5
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Robert Hanrahan, National Nuclear Security Administration; Raul Rebak, Lawrence Livermore National Laboratory

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2:00 PM Introductory Comments

2:05 PM
Creep Behavior of Grain Boundary Engineered Ferritic-Martensitic Alloy T91: *Gaurav Gupta*[1]; Gary Was[1]; [1]University of Michigan

2:25 PM
An Analytical Model for the Amoeba Effect in UO_2 Fuel Pellets: Yong Choi[1]; *Jong Lee*[2]; [1]Sun Moon University; [2]Michigan Technological University

2:45 PM
Effect of Microstructural Heterogeneity on Stress Variability in ZrN Pellets: *Manuel Parra Garcia*[1]; Ajit Batwal[1]; Pedro Peralta[1]; [1]Arizona State University

3:05 PM
In-Situ Neutron-Diffraction Measurements of Intergranular Strains in a Zircaloy-4 Alloy: *Elena Garlea*[1]; Hahn Choo[1]; Peter Liaw[1]; Edward Oliver[2]; Javier Santisteban[2]; Camden Hubbard[3]; [1]University of Tennessee; [2]ISIS, Rutherford Appleton Laboratory; [3]Oak Ridge National Laboratory

3:25 PM
The Mechanism of Zr and Hf in Reducing Radiation-Induced Segregation in 316 Stainless Steel: *Micah Hackett*[1]; Gary Was[1]; [1]University of Michigan

3:45 PM Break

4:05 PM
Microstructure Evolution during Recrystallization of MoNiCr Alloy: *Libor Kraus*[1]; Jozef Zrnik[1]; [1]COMTES FHT Sro

4:25 PM
Corrosion Behavior of Alloy 617 in Impure Helium Environment: *Deepak Kumar*[1]; Gary Was[1]; [1]University of Michigan

4:45 PM
Strain Hardening and Plastic Instability in Structural Alloys for Advanced Nuclear Systems: *Xianglin Wu*[1]; Xiao Pan[1]; James Stubbins[1]; [1]University of Illinois at Urbana-Champaign

5:05 PM
Synchrotron X-Rays for Microstructural Investigations of Advanced Reactor Materials: *Wolfgang Hoffelner*[1]; Annick Froideval[1]; Manuel Pouchon[1]; Jiachao Chen[1]; Maria Samaras[1]; [1]Paul Scherrer Institute

5:25 PM
Stable Nanoclusters in MA/ODS Ferritic Alloys: *Michael Miller*[1]; David Hoelzer[1]; James Bentley[1]; C. L. Fu[1]; [1]Oak Ridge National Laboratory

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Materials Processing and Manufacturing Division Symposium: Mechanics and Materials Modeling and Materials Design Methodologies, in the Honor of Dr. Craig Hartley's 40 Years of Contributions to the Field of Mechanics and Materials Science: Homogenization/Constitutive Behavior I

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Brent Adams, Brigham Young University; Hamid Garmestani, Georgia Institute of Technology

Monday PM — Room: Northern A1
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Anthony Rollett, Carnegie Mellon University; Nasr Ghoniem, University of California

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2:00 PM
A Micromechanical Continuum Model for the Tensile Behavior of Shape Memory Metal Nanowires: Wuwei Liang[1]; *Min Zhou*[1]; [1]Georgia Institute of Technology

2:25 PM
A Non-Linear Intermediate Viscoplastic Model for Large Deformation Behaviour and Texture Evolution in Polycrystals: *Said Ahzi*[1]; [1]University Louis Pästeur

2:50 PM
Crystal Plasticity Models with Multi-Time Scaling for Cyclic Deformation of Polycrystalline Metals: *Somnath Ghosh*[1]; Sivom Manchiraju[1]; [1]Ohio State University

3:15 PM
Cyclic Behaviour of High-Density Polyethylene Used in Pipe Manufacturing: S. Sezer[1]; *Senol Ataoglu*[1]; A. Gulluoglu[1]; [1]Istanbul Technical University

3:40 PM
Dislocation Modeling of Localized Plasticity in Persistent Slip Bands: *Nasr Ghoniem*[1]; Hael Mughrabi; Jaafar El-Awady; [1]University of California

4:05 PM
Effect of the Grain Boundary Character Distribution on Yield Strength: *Bradley Fromm*[1]; Brent Adams[1]; [1]Brigham Young University

4:30 PM
Experimental Micromechanics Study of Lamellar TiAl: *Fu-pen Chiang*[1]; Gunes Uzer[1]; Yi Ding[1]; Andrew H. Rosenberger[2]; [1]Stony Brook University; [2]Air Force Research Laboratory Materials and Manufacturing Directorate

4:55 PM
Exploration of the Effect of Polycrystal Microstructure on Strain Localization with a Fourier Transform Viscoplastic Model: *Anthony Rollett*[1]; Sukbin Lee[1]; Stephen Sintay[1]; Ricardo Lebensohn[2]; [1]Carnegie Mellon University; [2]Los Alamos National Laboratory

5:20 PM
Fatigue Life Variability: Modeling, Simulation, and Application: *Kwai Chan*[1]; Michael Enright[1]; [1]Southwest Research Institute

Materials Processing Fundamentals: Process Modeling

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee, TMS: EMPMD Council, TMS: EPD Council
Program Organizer: Princewill Anyalebechi, Grand Valley State University

Monday PM Room: Northern A2
February 26, 2007 Location: Dolphin Hotel

Session Chair: Adam Powell, Veryst Engineering LLC

2:00 PM
CFD Modelling of Heat Transfer in Supersonic Nozzles for Magnesium Production: *Peter Witt*[1]; Hasan Khan[1]; Geoff Brooks[1]; [1]CSIRO Minerals

2:15 PM
Numerical Modeling of 3-Dimensional Thin Slab Casting Process with EMBR(Electro-Magnetic Brake): *Kee-Hyeon Cho*[1]; Byung-Moon Kim[2]; [1]Research Institute of Industrial Science and Technology; [2]GyeongBuk Regional Stragetic Agency for Innovation

2:30 PM
Process Design of Alloys to Achieve Desired Properties by Inverse Materials Design: *Dongsheng Li*[1]; Hamid Garmestani[1]; [1]Georgia Institute of Technology

2:45 PM
Spout Formation in a Gas-Stirred Ladle – Experimental Results: *Krishnakumar Krishnapisharody*[1]; Gordon Irons[1]; [1]Steel Research Centre, McMaster University

3:00 PM
Spout Formation in a Gas-Stirred Ladle – The Key to Plume Dynamics: *Krishnakumar Krishnapisharody*[1]; Gordon Irons[1]; [1]Steel Research Centre, McMaster University

3:15 PM
Laser Surface Modification of AISI 316L Stainless Steel with WC-Si-Ni: *D. Sastikumar*[1]; A. Viswanathan[1]; Kumar Harish[2]; A.K. Nath[2]; [1]National Institute of Technology; [2]Raja Ramanna Centre for Advanced Technology

3:30 PM Break

3:45 PM
Evolution of the Tecnored Process – From Pilot Plant to Industrial Scale: *Jose Noldin*[1]; Jose D'Abreu[2]; Ian Cox[3]; [1]Catholic University/Tecnored; [2]Catholic University; [3]Tecnored

4:00 PM
Properties of Carbonized Corn Straw as Thermal Insulating Agent of Liquid Metal: *Nan Wang*[1]; [1]Northeastern University

4:15 PM
Preparation of Vanadium Thin Films by Chemical Vapor Deposition: *Masakazu Mukaida*[1]; Misaki Ishitsuka[1]; Shigeki Hara[1]; Hiroyuki Suda[1]; Kenji Haraya[1]; [1]National Institute of Advanced Industrial Science and Technology

4:30 PM
Study on the A1-Matrix Composites Reinforced with CeO2 Coated Graphite in Ultrasonic Field: Zhi Guo Dong[1]; Yao Guangchun[1]; [1]Northeastern University

Materials Processing under the Influence of External Fields: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS: Aluminum Committee, TMS: Magnesium Committee, TMS: Solidification Committee
Program Organizers: Qingyou Han, Oak Ridge National Laboratory; Gerard Ludtka, Oak Ridge National Laboratory; Qijie Zhai, Shanghai University

Monday PM Room: America's Seminar
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Qi-Jie Zhai, Shanghai University; Ke Han, National High Magnetic Field Laboratory

2:00 PM Introductory Comments

2:05 PM Invited
Metals Solidification under the Influence of External Fields: Research Status in Shanghai University: *Qi-Jie Zhai*[1]; Yu-Lai Gao[1]; [1]Shanghai University

2:35 PM
Study on the Pulse Magneto Oscillation Solidification Technique and Its Mechanism for Grain Refinement: Yong-Yong Gong[1]; Jin-Xian Jing[1]; Zan-Qi Xia[1]; Yu-Lai Gao[1]; Qi-Jie Zhai[1]; [1]Shanghai University

3:00 PM
Effect of Pulsed Magnetic Field on the Solidified Structure of Pure Al Melt: *Yu-Lai Gao*[1]; Qiu-Shu Li[1]; Hai-Bin Li[1]; Qi-Jie Zhai[1]; [1]Shanghai University

3:25 PM
Controlling Semiconductor Growth Using Magnetic Fields and Rotation: *Baskar Ganapathysubramanian*[1]; Nicholas Zabaras[1]; [1]Cornell University

3:50 PM Break

4:00 PM Invited
High Magnetic Field Influences on Fabrication of Materials with Magnetic Phases: *Ke Han*[1]; Bao Zhi Cui[1]; [1]National High Magnetic Field Laboratory

4:30 PM
Synthesis of Acicular Magnetite Using Coprecipitation Method under Magnetic Field: *Yang XiYun*[1]; Chen Baizhen[1]; Xu Hui[1]; Shi Xichang[1]; [1]Central South University

4:55 PM
Rapid Ceramic Processing by Field-Assisted Sintering Technique: Veaceslav Zestrea[1]; *Dat Quach*[2]; Vladimir Kodash[2]; Gregory Toguyeni[3]; Joanna Groza[2]; [1]Academy of Sciences of Moldova; [2]University of California; [3]Ecole Polytechnique de l'Universite de Nantes

5:20 PM
Computer-Aided Processing of Advanced Dielectric Composites via Self-Assembly of Arbitrary-Shaped Ferro-Colloidal Particles in External Field: *Yu Wang*[1]; [1]Virginia Tech

5:45 PM
Magnetic Alignment of Nanotubes: *Ben Wang*[1]; Richard Liang[1]; Chuck Zhang[1]; [1]Florida A&M University-Florida State University, Engineering College

Microstructural Processes in Irradiated Materials: Irradiation Effects in Ceramics

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Monday PM Room: Europe 8
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Steven Zinkle, Oak Ridge National Laboratory; Lance Snead, Oak Ridge National Laboratory

2:00 PM
Effect of Ionizing Radiation on Defect Production and Retention in Ceramics: *Steven Zinkle*[1]; [1]Oak Ridge National Laboratory

2:20 PM
Thermal Properties of MgO and $Nd_2Zr_2O_7$ for Inert Matrix Fuel Applications by MD Simulation: *Priyank Shukla*[1]; Taku Watanabe[1]; Juan Nino[1]; Simon Phillpot[1]; James Tulenko[1]; [1]University of Florida

2:40 PM
Changes in the Mechanical Properties of Irradiated Ceramics Investigated by Nanoindentation and Computer Simulation: *Asta Richter*[1]; Roger Smith[2]; Steven Kenny[2]; Bodo Wolf[3]; James Valdez[4]; Kurt Sickafus[4]; Ismail Gheewala[2]; [1]University of Applied Sciences Wildau; [2]Loughborough University; [3]University of Applied Sciences Lausitz; [4]Los Alamos National Laboratory

3:00 PM
Phase Transformation of Graphite Irradiated by High-Intensity Pulsed Ion Beams: X.G. Han[1]; S.M. Miao[1]; X.P. Zhu[1]; *M.K. Lei*[1]; [1]Dalian University of Technology

3:20 PM
Formation and Distribution of Defect Clusters in $SrTiO_3$ Bi-Crystals Implanted with Xe Ions: *Minghui Song*[1]; Xingjian Guo[1]; Nobuo Ishikawa[1]; Masaki Takeguchi[1]; Kazutaka Mitsuishi[1]; Miyoko Tanaka[1]; Kazuo Furuya[1]; [1]National Institute for Materials Science

3:40 PM Break

3:55 PM
Defect Microstructures in Silicon Carbide after Irradiation Creep Deformation at Elevated Temperatures: *Yutai Katoh*[1]; Sosuke Kondo[1]; Lance Snead[1]; [1]Oak Ridge National Laboratory

4:15 PM
Properties of Structures, Host Atoms and Implanted Species in Ion Irradiated SiC: *Weilin Jiang*[1]; Yanwen Zhang[1]; Vaithiyalingam Shutthanandan[1]; Mark Engelhard[1]; William Weber[1]; Suntharampillai Thevuthasan[1]; Exarhos Gregory[1]; Jie Lian[2]; Rodney Ewing[2]; [1]Pacific Northwest National Laboratory; [2]University of Michigan

4:35 PM
Microstructural Defects in Neutron Irradiated SiC at Very High Temperatures: *Sosuke Kondo*[1]; Yutai Katoh[1]; Lance Snead[1]; [1]Oak Ridge National Laboratory

4:55 PM
Influence of Microstructure on Thermal Defect Resistance of SiC Neutron Irradiated up to 1600°C: *Lance Snead*[1]; Yutai Katoh[1]; Sosuke Kondo[1]; [1]Oak Ridge National Laboratory

5:15 PM
The Impact of Point Defects and Clusters and on the Thermal Conductivity and Dimensional Stability of 3C-SiC: *Tjacka Bus*[1]; Brian Wirth[1]; Yutai Katoh[2]; Lance Snead[2]; [1]University of California, Berkeley; [2]Oak Ridge National Laboratory

Outreach Programs in Materials Science and Engineering: Outreach Programs in Industry and Government Laboratories

Sponsored by: The Minerals, Metals and Materials Society, TMS: Public and Governmental Affairs Committee
Program Organizers: Dan Thoma, Los Alamos National Laboratory; Katherine Chen, California Polytechnic State University

Monday PM Room: Pacific Hall A
February 26, 2007 Location: Dolphin Hotel

Session Chair: Katherine Chen, California Polytechnic State University

2:00 PM Invited
Congressional Visit Days: Challenge and Opportunity for the MS&E Community: *Alexander Scott*[1]; [1]TMS

2:30 PM Invited
Materials Camps Demonstrate Proven Success and Impact: Charles Hayes[1]; *Lyle Schwartz*[1]; [1]ASM Materials Education Foundation

3:00 PM Invited
Education and Innovation Challenges: National Innovation Institutes as a New Model: *Duane Dimos*[1]; Justine Johannes[1]; Jeffrey Hoyt[1]; Robert Hwang[1]; [1]Sandia National Laboratories

3:30 PM Invited
The COSMOS Program at University of California-Davis: *Niels Jensen*[1]; [1]University of California

4:00 PM Invited
The Los Alamos Institutes a Model for National Laboratory - University Collaborations: *Charles Farrar*[1]; Gyuhae Park[1]; Matthew Bement[1]; Michael Todd[2]; [1]Los Alamos National Laboratory; [2]University of California, San Diego

4:30 PM Break

4:45 PM Panel Discussion
Collaboration on Outreach Programs for the Benefit of the Materials Community

Pb-Free Electronic Solders: Alloy Design, Characterization and Service Reliability: Microstructure and Characterization

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fu Guo, Beijing University of Technology; K. Subramanian, Michigan State University; Sung Kang, IBM Corporation; Srinivas Chada, Medtronic; Laura Turbini, University of Toronto; Jin Yu, Korea Advanced Institute of Science and Technology

Monday PM Room: Oceanic 1
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Sinn-Wen Chen, National Tsing Hua University; Iver Anderson, Ames Laboratory and Iowa State University

2:00 PM
Asymetrical Solder Microstructure in Ni/Sn/Cu Solder Joint: Shen-njie Wang[1]; *Cheng-Yi Liu*[1]; [1]National Central University

2:20 PM
Extensive Electrical Measurement in Lead-Free Solder Assembly after Environmental Tests by SEM Internal Probing Technique: Toung-Yi Shih[1]; Tom Hsu[1]; Yung-Chi Lin[1]; *Jenq-Gong Duh*[1]; [1]National Tsing Hua University

2:40 PM
Microstructure Evolution of SnAgCuEr Lead-Free Solders under High Temperature Aging: *Hu Hao*[1]; Yaowu Shi[1]; Zhidong Xia[1]; Yongping Lei[1]; Fu Guo[1]; [1]Beijing University of Technology

3:00 PM
A Study of Multi-Reflowed Sn-Ag-Cu Solder Joints: *Huann-Wu Chiang*[1]; Ting-Yu Liu[1]; Yi-Shao Lai[2]; [1]I-Shou University; [2]Advanced Semiconductor Engineering, Inc.

3:20 PM
Kinetic and Microstructure Analysis of SAC+X Solders: *Jason Walleser*[1]; Iver Anderson[1]; Joel Harringa[1]; Alfred Kracher[1]; [1]Iowa State University

3:40 PM Break

3:50 PM
Microstructure of Metallic Particles Reinforced Composite Solder Joints: *Peng Liu*[1]; Yuan Gao[1]; Jianping Liu[1]; Zhidong Xia[1]; Fu Guo[1]; [1]Beijing University of Technology

4:10 PM
Broad Beam Technique to Study Bulk Dissolution of Copper from Substrate Surfaces into Lead-Free Solder Joints: *Ajay Garg*[1]; [1]Michigan Technological University

4:30 PM
Experimental Wettability Study of Lead-Free Solder on Cu Substrate with Varying Fluxes and Temperatures: Dongxia Xu[1]; *Yongping Lei*[1]; Zhidong Xia[1]; Fu Guo[1]; [1]Beijing University of Technology

4:50 PM
Demonstration and Characterization of Sn3.0Ag0.5Cu/Sn57Bi1Ag Combination Solder for 3-D Multi-Stacking: *Yun Hwan Jo*[1]; Joo Won Lee[1]; Sun-Kyoung Seo[1]; Hun Han[2]; Sang Won Han[1]; Hyuck Mo Lee[1]; [1]Korea Advanced Institute of Science and Technology; [2]Samgsung Electronics Company

5:10 PM
The Effects of Rare Earth Addition on Properties and Microstructure of Lead-Free Solder Balls: Yang Yu[1]; *Zhidong Xia*[1]; Fu Guo[1]; Yaowu Shi[1]; [1]Beijing University of Technology

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials VI: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-Wen Chen, National Tsing Hua University; Srinivas Chada, Medtronic; Chih-ming Chen, National Chung Hsing University; Young-Chang Joo, Seoul National University; A. Lindsay Greer, University of Cambridge; Hyuck Lee, Korea Advanced Institute of Science and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Katsuaki Suganuma, Osaka University

Monday PM — Room: Oceanic 2
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Daniel Lewis, Rensselaer Polytechnic Institute; Young Chang Joo, Seoul National University

2:00 PM Introductory Comments

2:05 PM Invited
Thermodynamic Calculation of Phase Equilibria in the Sn-Ag-Cu-Ni-Au System: *Xing Jun Liu*[1]; Cui Ping Wang[1]; Feng Gao[1]; Yuan Yuan Li[1]; Ikuo Ohnuma[2]; Kiyohito Ishida[2]; [1]Xiamen University; [2]Tohoku University

2:30 PM Invited
Lead-Free Solders: Phase Relationships and Thermochemistry of Ag-Ni-Sn: *Hans Flandorfer*[1]; Clemens Schmetterer[1]; Usman Saeed[1]; Herbert Ipser[1]; [1]University of Vienna

2:55 PM
The COST 531 Lead-Free Solders Thermodynamic Database: Andy Watson[1]; *Ales Kroupa*[2]; Alan Dinsdale[3]; Adéla Zemanová[2]; Jirí Vízdal[2]; Jan Vrešt'ál[4]; [1]University of Leeds; [2]Academy of Sciences of the Czech Republic; [3]National Physical Laboratory; [4]Masaryk University

3:15 PM
Thermodynamic Assessment of the Bi-Ni System and Phase Equilibria of the Sn-Bi-Ni System: *Sun-Kyoung Seo*[1]; Moon Gi Cho[1]; Sung Hoon Lee[1]; Jong Hoon Kim[2]; Hyuck Mo Lee[1]; [1]Korea Advanced Institute of Science and Technology; [2]Hynix Semiconductor

3:35 PM Break

3:50 PM
Inhibiting the $AuSn_4$ Formation by Controlling the Interfacial Reaction in Solder Joints: *Li-Yin Hsiao*[1]; Guh Yaw Jang[1]; Jenq-Gong Duh[1]; [1]National Tsing Hua University

4:10 PM
Interfacial Reactions in the Sn-8Zn-3Bi/Cu and Sn-8Zn-3Bi/Ni Couples: *Ching-feng Yang*[1]; Sinn-wen Chen[1]; [1]National Tsing-Hua University

4:30 PM
Effects of Minor Addition of Zn on Interfacial Reactions of Sn-Ag-Cu and Sn-Cu Solders on Various Cu Substrates during Thermal Aging: *Moon Gi Cho*[1]; Hyuck Mo Lee[1]; Sung K. Kang[2]; Da-Yuan Shih[2]; [1]KAIST; [2]IBM T.J. Watson Research Center

4:50 PM
Cross-Interaction between Ni and Cu across a Lead-Free Solder Joint with Different Solder Volumes: *Chien Wei Chang*[1]; Su Chun Yang[1]; C. Robert Kao[2]; [1]National Central University; [2]National Taiwan University

5:10 PM
To Study the Failure Mechanism in Au-Al Ball Bonds for High Temperature Storage Test: *Liang Hung*[1]; [1]Siliconware Precision Industries Company, Ltd

5:30 PM
Ni as a Contact Material in Lead-Free Soldering: IMC Formation: *Clemens Schmetterer*[1]; H. Flandorfer[1]; S. Knott[1]; H. Ipser[1]; [1]University of Vienna

Plasticity from the Atomic Scale to Constitutive Laws: Dislocation Solute, Precipitate and Grain Boundary Interactions

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Christopher Woodward, US Air Force; Michael Mills, Ohio State University; Diana Farkas, Virginia Tech

Monday PM — Room: Europe 9
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Dallas Trinkle, University of Illinois; Satish Rao, UES Inc.

2:00 PM Invited
Multiscale Modeling of Dynamic Strain Aging in Al-Mg Alloys: *W. Curtin*[1]; D. Olmsted[1]; [1]Brown University

2:30 PM
First Principles Study of Dislocations in Al and Al-Mg: *Christopher Woodward*[1]; Louis Hector[2]; Dallas Trinkle[3]; [1]US Air Force; [2]General Motors Technical Center; [3]University of Illinois, Urbana-Champaign

2:50 PM
The Vacancy-Edge Dislocation Interaction in fcc Metals: *Emmanuel Clouet*[1]; [1]SRMP, CEA Saclay

3:10 PM
Point-Defect Mediated Dislocation Nucleation in Nanoidentation: *Amit Samanta*[1]; Ju Li[1]; Ting Zhu[2]; [1]Ohio State University; [2]Georgia Institute of Technology

3:30 PM
Oxygen in Grain Boundaries: A Molecular Dynamics Study: *Andreas Elsener*[1]; Olivier Politano[2]; Peter Derlet[1]; Helena Van Swygenhoven[1]; [1]Paul Scherrer Institute, Switzerland; [2]LRRS, UMR 5613 CNRS-Université de Bourgogne, France

3:50 PM Break

4:10 PM Invited
Shearing Mechanisms of Gamma' Precipitates by Single (A/2) <110> Dissociated Dislocations in Ni-Based Superalloys: *Brigitte Decamps*[1]; [1]Centre National de la Recherche Scientifique

4:40 PM
Recent Development of Microscopic Phase Field Model of Dislocations: *Chen Shen*[1]; Ju Li[1]; Michael Mills[1]; Yunzhi Wang[1]; [1]Ohio State University

5:00 PM
Structures, Energies and Dislocation Nucleation Behaviours of Σ3 Asymmetric Tilt Grain Boundaries: *Mark Tschopp*[1]; David McDowell[1]; [1]Georgia Institute of Technology

5:20 PM
The Effect of Grain Boundary Misorientation on Intragranular Slip in Zinc Bicrystals: *Askar Sheikh-Ali*[1]; [1]Kazakh-British Technical University

Properties and Performance of High Temperature Alloys and Coatings: Polycrystalline Alloys

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Qiang Feng, Beijing University of Science and Technology; Timothy Gabb, NASA Glenn Research Center; Doug Konitzer, General Electric Aviation; Roger Reed, Imperial College London; Bruce Pint, Oak Ridge National Laboratory; Sammy Tin, Illinois Institute of Technology; Shiela Woodard, Pratt and Whitney

Monday PM Room: Asia 4
February 26, 2007 Location: Dolphin Hotel

Session Chairs: James Larsen, US Air Force; Sammy Tin, Illinois Institute of Technology

2:00 PM Invited
Evaluation of 3rd Generation Powder Metallurgy Superalloys for High Temperature Gas Turbine Engine Disk Applications: *Randolph Helmink*[1]; [1]Rolls-Royce/LibertyWorks

2:25 PM Invited
Mechanisms and Modeling of Creep in Polycrystalline Ni-Base Superalloys: Raymond Unocic[1]; Peter Sarosi[1]; Ju Li[1]; Yunzhi Wang[1]; *Michael Mills*[1]; [1]Ohio State University

2:50 PM
Long Term Aging of Nickel-Base Superalloys: *Anita Garg*[1]; Timothy Gabb[2]; John Gayda[2]; [1]University of Toledo; [2]NASA Glenn Research Center

3:10 PM
Effect of a Supersolvus Heat Treatment on the Microstructure and Mechanical Properties of a Powder Metallurgy Processed Nickel-Base Superalloy: D. Stolz[1]; *Gerhard Fuchs*[1]; [1]University of Florida

3:30 PM
Observations on Phase Relations and Mechanical Properties of a V-Modified Alloy 718: *Michael Fahrmann*[1]; Akane Suzuki[2]; [1]Special Metals Corporation; [2]University of Michigan

3:50 PM
Microstructures and Tensile Properties of New Ni-Co-Base Disk Superalloys: *Cui Chuanyong*[1]; Gu Yuefeng[1]; Harada Hiroshi[1]; Sato Akihiro[1]; Fujioka Junzo[1]; [1]National Institute of Materials Science

4:10 PM Break

4:25 PM Invited
Multiscale Phase Field Modeling of Phase Transformation and Plastic Deformation in Superalloys: Chen Shen[1]; Ju Li[1]; Michael Mills[1]; *Yunzhi Wang*[1]; [1]Ohio State University

4:50 PM Invited
A Novel Philosophy for Worst-Case Fatigue Behavior of Nickel-Base Superalloys at Elevated Temperature: James Larsen[1]; Sushant Jha[2]; M. J. Caton[1]; A. H. Rosenberger[1]; R. John[1]; [1]U.S. Air Force Research Laboratory; [2]Universal Technology Corporation

5:15 PM
Physically-Based Probabilistic Fatigue Lifetime Simulation of a Nickel-Based Superalloy: *Sushant Jha*[1]; Michael Caton[2]; James Larsen[2]; [1]Universal Technology Corporation; [2]U.S. Air Force

5:30 PM
Effect of Dwell-Loading and Grain Size on the Fatigue Variability Behavior of Nickel-Based Superalloys: *M. Caton*[1]; Sushant Jha[2]; J. Larsen[1]; [1]US Air Force Research Laboratory, Wright-Patterson Air Force Base; [2]Universal Technology Corporation

5:45 PM
Ultrasonic Fatigue Crack Initiation in Nickel-Base Superalloy René 88 DT at Elevated Temperature: *J. Miao*[1]; T. M. Pollock[1]; W. Jones[1]; [1]University of Michigan, Ann Arbor

Recent Developments in Semiconductor, Electro Optic and Radio Frequency Materials: Progress in Semiconductor Optoelectronics and Beyond

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Thin Films and Interfaces Committee
Program Organizers: Nuggehalli Ravindra, New Jersey Institute of Technology; Narsingh Singh, Northrop Grumman Corporation, ES; Aris Christou, University of Maryland; Nancy Michael, University of Texas at Arlington; Bhushan Sopori, National Renewable Energy Laboratory; John Parsey, On Semiconductor

Monday PM Room: Oceanic 6
February 26, 2007 Location: Dolphin Hotel

Session Chairs: Nancy Michael, University of Texas; Dia Eddin Arafah, University of Jordan

2:00 PM Introductory Comments

2:05 PM
Improved Au Schottky Contacts on GaAs Using Cryogenic Metal Deposition: *Hung-Ta Wang*[1]; Soohwan Jang[1]; Travis Anderson[1]; Jau-Jiun Chen[1]; Byoung Sam Kang[1]; Fan Ren[1]; Andrew Herrero[1]; Andrew Gerger[1]; Brent Gila[1]; Stephen Pearton[1]; [1]University of Florida

2:30 PM
Formation of Ag-Si Contact in Fire-Through Metallization for Solar Cells: Experimental Studies: *Vishal Mehta*[1]; Bhushan Sopori[1]; P. Rupnowski[1]; Jesse Appel[1]; Aziz Shaikh[2]; Nazrali Merchant[2]; Dave Carlson[3]; N. M. Ravindra[4]; [1]National Renewable Energy Laboratory; [2]Ferro Electronic Materials; [3]BP Solar; [4]New Jersey Institute of Technology

2:55 PM
Microwave Performance of AlGaN/GaN High Electron Mobility Transistors on Si/SiO2/Poly-SiC Substrates: *Travis Anderson*[1]; Fan Ren[1]; Lance Covert[1]; Jenshan Lin[1]; Steve Pearton[1]; Julien Thuret[2]; P. Bove[2]; H. Lahreche[2]; [1]University of Florida; [2]Picogiga International

3:20 PM
The Performance of Cu (In,Ga)Se2 Thin Film Solar Cell Developed by Single Step Electrodposition Process: *Shyam Kumar*[1]; Bhuwanehwar Prajapati[1]; [1]National Institute of Foundry and Forge Technology

3:45 PM Break

3:55 PM
Passivation of Silicon Solar Cells by Hydrogen-Rich Silicon Nitride Layer: Nuggehalli Ravindra[1]; *Chuan Li*[1]; Bhushan Sopori[2]; Rene Rivero[2]; Anthony Fiory[1]; [1]New Jersey Institute of Technology; [2]National Renewable Energy Laboratory

4:20 PM Invited
Light Trapping in Solar Cells: Theory and Practical Implementation: *Bhushan Sopori*[1]; [1]National Renewable Energy Laboratory

4:45 PM
Spintronics and Diluted Magnetic Semiconductors Based on ZnO: *Shivaraman Ramachandran*[1]; John Prater[1]; J. Narayan[1]; [1]North Carolina State University

5:10 PM Invited
Modeling of Magnetic Field Assisted Assembly of Semiconductor Devices: Nuggehalli Ravindra[1]; *Sudhakar Shet*[1]; Rene Rivero[1]; Michael Booty[1]; Anthony Fiory[1]; Martin Lepselter[1]; [1]New Jersey Institute of Technology

5:35 PM
Self Assembly of Au Nanodots in ZnO Matrix: Growth, Physical Properties and Challenges: *Nori Sudhakar*[1]; Chunming Jin[1]; Wei Wei[1]; Jagdish Narayan[1]; [1]North Carolina State University

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Recycling and Waste Processing: Batteries and Co/Ni

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Mark Schlesinger, University of Missouri-Rolla; Robert Stephens, Teckcominco, Inc.; Donald Stewart, Alcoa Technology; Ray Peterson, Aleris International; Jan van Linden, Recycling Technology Services, Inc.; Subodh Das, SECAT; Abdel Serna-Vasquez, Aleris International; Cynthia Belt, Aleris International Inc; John Pickens, Alumitech/Aleris International; John Hryn, Praxair; Richard Kunter, Richard S. Kunter Assoc; Andreas Siegmund, Quemetco Metals Inc.; Masao Suzuki, AI Tech Associates

Monday PM — Room: Australia 2
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM
Recycling of Cadmium from Domestic Sealed NiCd Batteries by Use of Chlorine/Air Mixtures: *Derek Fray*[1]; Antony Cox[1]; [1]University of Cambridge

2:30 PM
Development of a Recycling Process for Batteries Used in Hybrid and Electric Vehicles: *Masao Miyake*[1]; Yu Hosokawa[1]; Hisao Kimura[1]; Masafumi Maeda[1]; [1]University of Tokyo

3:00 PM
Recycling Cobalt from Spent Lithium Ion Battery: *Zhidong Xia*[1]; Xiaoqian Xie[1]; Yaowu Shi[1]; Yongping Lei[1]; Fu Guo[1]; [1]Beijing University of Technology

3:30 PM Break

3:50 PM
Recovery of Nickel and Cobalt from Magnetic Steel Scrap Containing Nickel and Cobalt: Jing Zhan[1]; *Chuanfu Zhang*[1]; Jianhui Wu[1]; Meng Bai[2]; [1]Central South University; [2]Jiangxi Copper Guixi Smelter Xuaxin Metal Liabilities Company, Ltd

4:20 PM
Use of Ammonia/Ammonium Carbonate Solutions for the Recovery of Metals: *Faustino Prado*[1]; [1]Prado Technology Corporation

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Refractory Metals 2007: Oxidation and Thin Films

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Refractory Metals Committee
Program Organizers: Gary Rozak, HC Starck Inc; Todd Leonhardt, Rhenium Alloys Inc

Monday PM — Room: Europe 6
February 26, 2007 — Location: Dolphin Hotel

Session Chairs: Gary Rozak, HC Starck Inc; Brian Cockeram, Bechtel Bettis Inc

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2:00 PM
Effects of Cr and Ti Contents on the Oxidation Behavior of V-Cr-Ti Alloys: *Mehmet Uz*[1]; K. Natesan[2]; [1]Lafayette College; [2]Argonne National Laboratory

2:25 PM
Alloys from Nb-W-Cr System for High Temperature Applications: *Abdul Bhuiya*[1]; Purushotham Kakarlapudi[1]; Shailendra Varma[1]; Ken Natesan[2]; [1]University of Texas at El Paso; [2]Argonne National Laboratory

2:50 PM
Microstructure and High Temperature Oxidation Behavior of Cr-W Alloys: *Omer Dogan*[1]; [1]National Energy Technology Laboratory

3:15 PM
High Temperature Corrosion of Cr-W Alloys in Simulated Syngas: *Omer Dogan*[1]; Sophie Bullard[1]; Bernie Covino[1]; [1]National Energy Technology Laboratory

3:40 PM Break

3:55 PM
Disordered Interfacial Films and Activated Sintering: Phenomenological Similarities among Ice, Ceramics and Refractory Metals: *Jian Luo*[1]; Vivek Gupta[1]; [1]Clemson University

4:20 PM
Properties of Nickel Film Prepared by Electrochemical Deposition under Super-Gravity Condition: *Zhancheng Guo*[1]; Zhangfu Yuan[2]; [1]Metallurgical Engineering School, University of Science and Technology of Beijing, China; [2]Institute of Process Engineering, Chinese Academy of Sciences

Shape Casting: The 2nd International Symposium: Liquid Metal/Solidification

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS: Solidification Committee
Program Organizers: Paul Crepeau, General Motors Corporation; Murat Tiryakioglu, Robert Morris University; John Campbell, University of Birmingham

Monday PM
February 26, 2007
Room: Northern E2
Location: Dolphin Hotel

Session Chair: Sumanth Shankar, McMaster University

2:00 PM Introductory Comments

2:10 PM
Preventative Metal Treatment through Advanced Melting System Design: *Mark Osborne*[1]; Thomas Meyer[2]; Mike Kinosz[1]; C. Eckert[1]; [1]Apogee Technology, Inc; [2]General Motors Powertrain

2:35 PM
A Comparison of Methods Used to Assess Aluminium Melt Quality: *Derya Dispinar*[1]; John Campbell[2]; [1]University of Istanbul; [2]University of Birmingham

3:00 PM
Initial Filtration Behaviour of Liquid Aluminium Alloys: *Xinjin Cao*[1]; [1]Institute for Aerospace Research

3:25 PM
Radioactively Labelled Particle Tracking in Steel Castings: *Youssef Beshay*[1]; William Griffiths[1]; David Parker[1]; Xianfeng Fan[1]; [1]University of Birmingham

3:50 PM Break

4:05 PM
The Effect of Holding Time on Double Oxide Film Defects in Al Castings: *William Griffiths*[1]; Ahmed Omotunde[1]; Ramin Raiszadeh[2]; [1]University of Birmingham; [2]Shahid Bahonar University of Kerman

4:30 PM
Rheological Characterization of Liquid Aluminum and Aluminum-Silicon Hypoeutectic Alloys: *Minhajuddin Malik*[1]; Guillaume Lambotte[2]; Mohamed Hamed[1]; Sumanth Shankar[1]; [1]McMaster University; [2]CRCT - Ecole Polytechnique de Montreal

4:55 PM
New Approaches to Understanding Modification and Nucleation Mechanisms in Hypoeutectic Al-Si Alloys: *Kazuhiro Nogita*[1]; Arne Dahle[2]; [1]ARC Centre of Excellence for Design in Light Metals, University of Queensland; [2]University of Queensland

5:20 PM
Unintentional Effects of Sr Additions in Al-Si Foundry Alloys: Stuart McDonald[1]; Matthew Dargusch[1]; *David StJohn*[1]; [1]CAST Cooperative Research Centre

Structural Materials Division Symposium: Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch: Processing and Characterization of Materials Subjected to Severe Plastic Deformation

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinghang Zhang, Texas A&M University; Yuntian Zhu, Los Alamos National Laboratory; Michael Rigsbee, North Carolina State University; C. Suryanarayana, University of Central Florida; Haiyan Wang, Texas A&M University; C. T. Liu, Oak Ridge National Laboratory

Monday PM
February 26, 2007
Room: Asia 5
Location: Dolphin Hotel

Session Chairs: Yuntian Zhu, Los Alamos National Laboratory; Tong Shen, Los Alamos National Laboratory

2:00 PM Invited
Achieving Superplastic Behavior in F.C.C. and H.C.P. Metals Processed by ECAP: Roberto Figueiredo[1]; Megumi Kawasaki[1]; Cheng Xu[1]; *Terence Langdon*[1]; [1]University of Southern California

2:20 PM
Development of Ultrafine Grained Structure in Low Carbon Steel by ECAP at Increased Temperatures: *Jozef Zrnik*[1]; Sergey Dobatkin[2]; [1]COMTES FHT Sro; [2]Baikov Institute of Metallurgy and Materials Science

2:35 PM
Comparison of ECAP and Plane-Strain Machining: *Terry McNelley*[1]; Srinivasan Swaminathan[1]; Alexander Zhilyaev[2]; Srinivasan Chandrasekar[3]; W. Dale Compton[3]; Alexander King[3]; Kevin Trumble[3]; [1]Naval Postgraduate School; [2]Centro Nacional de Investigaciones Metalurgicas; [3]Purdue University

2:50 PM Invited
The Nature and Importance of Vacancy Type Defects in SPD Nanometals: *Michael Zehetbauer*[1]; Daria Setman[1]; Elena Korznikova[2]; Erhard Schafler[1]; [1]University of Vienna; [2]Ufa State Aviation Technical University

3:10 PM
Characterization of Nanostructured Pure Aluminium with Different Grain Size Distributions Synthesised Using Back Pressure Equal Channel Angular Consolidation: Xiaolin Wu[1]; Wei Xu[1]; *Kenong Xia*[1]; [1]University of Melbourne

3:25 PM Break

3:40 PM Invited
Grain Boundaries Engineering of UFG Metals for Advanced Properties: *Ruslan Valiev*[1]; [1]UFA State Aviation Technical University

4:00 PM
Deformation Behavior Modeling of Nanostructured CP TI: *Igor Alexandrov*[1]; Roza Chembarisova[1]; Vil Sitdikov[1]; [1]Ufa State Aviation Technical University

4:15 PM Invited
A Mechanistic Model for Shear Bands in Nanostructured Materials: Shailendra Joshi[1]; *K.T. Ramesh*[1]; [1]Johns Hopkins University

4:35 PM
Dynamic Mechanical Behavior of Ultrafine Grained and Nanocrystalline bcc Metals: *Qiuming Wei*[1]; Kaliat Ramesh[2]; Evan Ma[2]; Brian Schuster[3]; Laszlo Kecskes[3]; Robert Dowding[3]; [1]University of North Carolina at Charlotte; [2]Johns Hopkins University; [3]US Army Research Laboratory

4:50 PM
Scale up and Applications of Equal Channel Angular Extrusion (ECAE) for the Electronic and Aerospace Industries: *Stephane Ferrasse*[1]; Frank Alford[1]; Susan Strothers[1]; Janine Kardokus[1]; [1]Honeywell International Inc

5:05 PM
Microstructure/Properties Relationship in Nanomaterials: *Alla Sergueeva*[1]; Daniel Branagan[1]; Amiya Mukherjee[1]; [1]University of California

5:20 PM
The Effect of Geometrically-Necessary Dislocations on Grain Refinement and Mechanical Properties of an Al-7si Composite Processed by Severe Plastic Deformation: *Maria Muñoz-Morris*[1]; Ivan Gutierrez[1]; David Morris[1]; [1]CENIM-CSIC

5:35 PM
Microstructural Evolution in Copper Subjected to Severe Plastic Deformation: Experiments and Analysis: *Anuj Mishra*[1]; Bimal Kad[1]; Morgana Martin[2]; Fabienne Gregori[3]; Naresh Thadhani[2]; Edward Kenik[3]; Marc Meyers[1]; [1]University of California; [2]Georgia Institute of Technology; [3]University of Paris

Towards Functional Nanomaterials: Synthesis, Characterization, and Applications: Nano Magnetism, Ferroelectric, Mechanics, and Other Properties

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Zhiming Wang, University of Arkansas; Alexander Govorov, Ohio University; Andrey Rogach, Ludwig-Maximilians-Universtität München

Monday PM
February 26, 2007
Room: Oceanic 5
Location: Dolphin Hotel

Session Chairs: Xiangcheng Sun, University of Western Ontario; Elena Guliants, University of Dayton Research Institute

2:00 PM Invited
Nonamagnetism by Surface Manipulation: *Xiaofeng Jin*[1]; [1]Fudan University

2:30 PM Invited
Tuning Properties of Functional Iron Nanoparticles in Sonochemistry: *Elena Guliants*[1]; Christopher Bunker[2]; [1]University of Dayton Research Institute; [2]Air Force Research Laboratory

3:00 PM
First-Principles Studies of Ferroelectric Nanodomains: *Bo-Kuai Lai*[1]; Inna Ponomareva[1]; Ivan Naumov[1]; Igor Kornev[1]; Huaxiang Fu[1]; Laurent Bellaiche[1]; Greg Salamo[1]; [1]University of Arkansas

3:15 PM
Synthesis and Characterization of Periodic Magnetic Nanostructures: *Raju Ramanujan*[1]; Akhilesh Srivastava[1]; [1]Nanyang Technological University

3:30 PM
The Application of Arrays of Nickel Nanobars: The Underlying Magnetic Properties: *Prabeer Barpanda*[1]; [1]Rutgers University

3:45 PM Break

3:55 PM Invited
Experimental Mechanics of Nanostructures - Challenges and Opportunities: *Xiaodong Li*[1]; [1]University of South Carolina

4:25 PM
Self-Assembly of Magnetic FePt and FePt(M) Nanoparticles: *Xiangcheng Sun*[1]; [1]University of Western Ontario

4:40 PM
Interfacial Strain and Nanoferroelectric Domain of (Ba, Sr)TiO3 Films on Pt/Ti/SiO2/Si Substrate: *Jihua Zhang*[1]; Chuanren Yang[1]; Hongwei Chen[1]; [1]University of Electronic Science and Technology of China

4:55 PM
Optical Studies of ZnO Nanocrystals: Effect of Morphology and Surface States: Yinyan Gong[1]; Tamar Andelman[1]; Stephen O'Brien[1]; *Igor Kuskovsky*[2]; [1]Columbia University; [2]Queens College of CUNY

5:10 PM
Directed Growth of Single-Wall Carbon Nanotube Bundles by Means of an "All-Laser" Processing for Nanoelectronic Device Applications: *M.A. El Khakani*[1]; B. Aïssa[1]; E. Champagne[1]; [1]Institut National de la Recherche Scientifique, INRS-EMT

Wide Band-Gap Semiconductor Nanostructures: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee, TMS: Young Leaders Committee
Program Organizers: Ashutosh Tiwari, University of Utah; Haiyan Wang, Texas A&M; Minseo Park, Auburn University

Monday PM
February 26, 2007
Room: Oceanic 4
Location: Dolphin Hotel

Session Chair: Dhananjay Kumar, North Carolina A&T University

2:00 PM Introductory Comments D. Kumar

2:10 PM Invited
Wide Band Gap Based Semiconductor Micro- and Nanoresonators for Sensor Applications: *Oliver Ambacher*[1]; K. Tonisch[1]; F. Will[1]; V. Cimalla[1]; K. Brueckner[1]; R. Stephan[1]; M. Hein[1]; [1]Technical University Ilmenau

2:45 PM Invited
Zinc Oxide Thin Films and Nanostructures: Physical Vapor Synthesis and Integration into Flexible Electronics Platforms: *Renato Camata*[1]; Masashi Matsumura[1]; Mevlut Bulut[1]; Jonathan Williams[1]; [1]University of Alabama, Birmingham

3:20 PM
ZnO Based Diluted Magnetic Semiconductors and Spin Polarized Injection into ZnO: *Shivaraman Ramachandran*[1]; John Prater[1]; Jagdish Narayan[1]; [1]North Carolina State University

3:50 PM Break

4:20 PM
Electrical and Optical Properties of Ga Doped ZnO Thin Films Grown Using PLD: *Michael Snure*[1]; Minseo Park[2]; Ashutosh Tiwari[1]; [1]University of Utah; [2]Auburn University

4:45 PM
One-Dimensional ZnO Nanostructures for Dye-Sensitized Solar Cell Application: *An-Jen Cheng*[1]; William Ward[1]; Dake Wang[1]; Curtis Shannon[1]; Minseo Park[1]; Yonhua Tzeng[1]; Wonwoo Lee[2]; [1]Auburn University; [2]University of Alabama, Birmingham

5:10 PM
Effect of Annealing and Growth Conditions on Electrical, Magnetic and Magnetoresistance Properties of Manganite Thin Films: *Nori Sudhakar*[1]; V. Bhosle[1]; G. Trichy[1]; Jagdish Narayan[1]; [1]North Carolina State University

5:35 PM
Characterization of Nanostructure ZnO Thin Film Grown by Pulsed Laser Deposition: *Wonwoo Lee*[1]; [1]University of Alabama at Birmingham

2007 Nanomaterials: Fabrication, Properties and Applications: Session III

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Wonbong Choi, Florida International University; Ashutosh Tiwari, University of Utah; Seung Kang, Qualcomm Inc.

Tuesday AM
February 27, 2007
Room: Oceanic 3
Location: Dolphin Hotel

Session Chairs: Seung Kang, Qualcomm Inc.; Young Hee Lee, Sungkyunkwan University

9:00 AM Keynote
Geometry-Controlled Carbon Nanotubes and Related Structures: *Sungho Jin*[1]; [1]University of California at San Diego

9:40 AM Invited
Carbon Nanotube Field Emission X-Ray Technology for Biomedical Imaging and Homeland Security Applications: *Otto Zhou*[1]; [1]University of North Carolina Chapel Hill

10:05 AM
Carbon Nanotube Emission Enhancement by Microchannel Plate and Field Emission of Tungsten Oxide Multistage Field Emitters: *Raghunandan Seelaboyina*[1]; Jun Huang[1]; Wonbong Choi[1]; [1]Florida International University

10:20 AM
Health Hazards of Manufactured, Natural Environmental, and Other Anthropogenic Atmospheric Nanoparticulate Materials: Past, Present, and Future: *Lawrence Murr*[1]; [1]University of Texas at El Paso

10:35 AM Break

10:50 AM Invited
Carbon Nanotube Cathodes for Microscopy and High Frequency Applications: *Ken Teo*[1]; Mark Mann[1]; William Milne[1]; Eric Minoux[2]; Ludovic Hudanski[2]; Pierre Legagneux[2]; Oliver Groening[3]; Franck Peauger[4]; Dominique Dieumegard[4]; [1]University of Cambridge; [2]Thales Research and Technology; [3]EMPA; [4]Thales Electron Devices

11:05 AM
Decoration of Functionalized Single-Walled Carbon Nanotubes with Metal: *Qiang Zeng*[1]; Enrique Barrera[1]; [1]Rice University

11:20 AM
Spinning of Polymer Nano-Composite: Mostafa El-Ashry[1]; *Kareem Gouda*[1]; [1]British University in Egypt

11:35 AM
Synthesis and Characterization of Ce-Doped YAG by Citrate-Nitrate Gel Combustion Process: *Xianzhong Guo*[1]; Xiaomei Guo[1]; Kewen Li[1]; Shanshan Liang[2]; [1]Boston Applied Technologies, Inc.; [2]Stony Brook University

11:50 AM
A Novel Perovskite Lead Zirconate Titanate (PZT) from Lead Glycolate, Sodium Tris(Glycozirconate), and Titanium Glycolate via Sol-Gel Process: *Nuchnapa Tangboriboon*[1]; [1]Chulalongkorn University

12:05 PM
Synthesis and Investigation of Thermoelectric Properties of Sodium-Doped V2O5: *Monika Marciniak*[1]; [1]University of Washington

Advanced Metallic Composites and Alloys for High Performance Applications: Refractory Alloys and Composites

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS/ASM: Composite Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Awadh Pandey, Pratt & Whitney Rocketdyne; Kevin Kendig, Air Force Research Laboratory; John Lewandowski, Case Western Reserve University

Tuesday AM
February 27, 2007
Room: Europe 10
Location: Dolphin Hotel

Session Chair: John Lewandowski, Case Western Reserve University

9:00 AM Invited
Ductility and Impact Resistance of P/M Molybdenum-Rhenium Alloys: *Joachim Schneibel*[1]; Gerhard Leichtfried[2]; Martin Heilmaier[3]; [1]Oak Ridge National Laboratory; [2]Plansee SE; [3]Otto-von-Guericke University Magdeburg

9:20 AM
A Nitride-Based Reaction for the Formation of a Three-Phase Mo-Si-B Alloy: Joe Cochran[1]; *Michael Middlemas*[1]; [1]Georgia Institute of Technology

9:40 AM
Nano-Grained WC-Co Composite Powders by the Chemical Vapor Synthesis: *Taegong Ryu*[1]; Manolete Mena[1]; Hong Yong Sohn[1]; Gilsoo Han[1]; Zhigang Fang[1]; [1]University of Utah

10:00 AM
An Investigation on Oxidation Behavior and Microstructure of Plasma Sprayed W/Cu Composite: *Suk-Bong Kang*[1]; Hyun-Ki Kang[2]; Kwangjun Euh[1]; [1]Korea Institute of Machinery and Materials; [2]Almati Company, Ltd.

10:20 AM
Research on Fabrication and Technique of New Carbon - Copper Composite Slider: *Lian Wei Yang*[1]; Jinhui Li[1]; Guang Yao[2]; [1]Tsinghua University; [2]Northeastern University

10:40 AM
Mechanical Testing of the Molybdenum Solid-Solution Matrix in MoSiB Alloys: *Chris Rockett*[1]; Michael Middlemas[1]; Joe Cochran[1]; [1]Georgia Institute of Technology

11:00 AM
High Temperature Strength of Mo-Re-X Ternary Alloys: *Joachim Schneibel*[1]; E. Felderman[2]; [1]Oak Ridge National Laboratory; [2]Arnold Engineering Development Center

11:20 AM
Improved Mechanical Properties of Ultrafine Grained Nb-1%Zr via Equal Channel Angular Extrusion (ECAE): *Guney Yapici*[1]; Ibrahim Karaman[1]; Hans Maier[2]; [1]Texas A&M University; [2]University of Paderborn

11:40 AM
Preparation of CuCr Alloy by Thermit Reduction Electromagnetic Stirring: *Dou Zhihe*[1]; Zhang Ting-an[1]; [1]Northeastern University

12:00 PM
Phosphide Precipitates in Copper-Based Alloys: *Joon Hwan Choi*[1]; [1]Korea Institute of Machinery and Materials

12:20 PM
Comparison and Characterization of Copper–Graphite Composites Made with Cu-Coated and Uncoated Graphite Powders: *Liu Wei*[1]; Yao Guangchun[1]; Liu Yihan[1]; [1]Northeastern University

Advances in Computational Materials Science and Engineering Methods: Phase Field Methods I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Biomaterials Committee, TMS/ASM: Computational Materials Science & Engineering
Program Organizers: Koen Janssens, Paul Scherrer Institute; Veena Tikare, Sandia National Laboratories; Richard LeSar, Iowa State University

Tuesday AM Room: Europe 7
February 27, 2007 Location: Dolphin Hotel

Session Chair: Richard LeSar, Iowa State University

9:00 AM Introductory Comments

9:05 AM Invited
Phase-Field Modeling of Solid State Phase Transformations and Microstructure Evolution: *Long Qing Chen*[1]; [1]Pennsylvania State University

9:40 AM Question and Answer Period

9:45 AM
A Comparative Study of Numerical Methods and Computational Tools for Phase Field Equations of Solidification: *Zhiheng Huang*[1]; Paul Conway[1]; [1]Loughborough University

10:10 AM Question and Answer Period

10:15 AM
A Level Set Simulation of Dendritic Solidification of Multi-Component Alloys: *Nicholas Zabaras*[1]; Lijian Tan[1]; [1]Cornell University

10:40 AM Question and Answer Period

10:45 AM Break

11:15 AM
Phase Field Modeling of Strained Heteroepitaxial Multilayer Thin Film Evolution: *Ramanarayan Hariharaputran*[1]; Vivek Shenoy[1]; [1]Brown University

11:40 AM Question and Answer Period

11:45 AM
Microscopic Phase-Field Simulation of Morphological Evolution in $Ni_{75}Al_xV_{25-x}$ Alloy: *Yongsheng Li*[1]; Zheng Chen[1]; Yanli Lu[1]; Yongxin Wang[1]; [1]Northwestern Polytechnical University

12:10 PM Question and Answer Period

12:15 PM
Computing Property Variability of Polycrystals Induced by Grain Size and Orientation Uncertainties: Nicholas Zabaras[1]; *Sethuraman Sankaran*[1]; [1]Cornell University

12:40 PM Question and Answer Period

Advances in Microstructure-Based Modeling and Characterization of Deformation Microstructures: Characterization of Deformed Structures II

Sponsored by: The Minerals, Metals and Materials Society, ASM-MSCTS: Texture and Anisotropy Committee, ASM-MSCTS: Texture and Anisotrophy Committee
Program Organizers: Reza Shahbazian Yassar, Center for Advanced Vehicular Systems; Sean Agnew, University of Virginia; Jiantao Liu, Alcoa Technical Center

Tuesday AM Room: Europe 1
February 27, 2007 Location: Dolphin Hotel

Session Chairs: Reza Shahbazian Yassar, Center for Advanced Vehicular Systems; Matthew Miller, Cornell University

9:00 AM
Influence of the Interactions between Dislocation Mechanisms on Internal Strain Generation in HCP Zircaloy-2: *Feng Xu*[1]; Mark Daymond[1]; Rick Holt[1]; [1]Queen's University

9:25 AM Invited
Measuring the Mechanical Response of Polycrystalline Alloys at the Crystal Level: *Matthew Miller*[1]; [1]Cornell University

9:50 AM
Application of the Artificial Intelligence Techniques in Modeling the Microstructure-Property Relationships of Materials: *Osama AbuOmar*[1]; Reza Shahbazian Yassar[2]; Eric Hansen[3]; Kyla Stolting[4]; [1]Computer Science Department; [2]Center for Advanced Vehicular Systems; [3]Mississippi State University; [4]Mechanical Engineering Department

10:10 AM
Characterization of Deformed Polycrystalline Cubic Alloys Using 2-Point Spatial Correlations: Christopher Hovanec[1]; *Dejan Stojakovic*[1]; Surya Kalidindi[1]; Roger Doherty[1]; [1]Drexel University

10:30 AM
A Novel Approach to the Rapid Population of Databases for Modeling of Microstructural Evolution and Mechanical Properties: *Benjamin Peterson*[1]; Erin Barry[1]; Santhosh Koduri[1]; Peter Collins[1]; Gopal Viswanathan[1]; Vladimir Levit[1]; Hamish Fraser[1]; [1]Ohio State University

10:50 AM Break

11:05 AM Invited
Grain Orientation, Deformation Microstructure and Flow Stress: *Niels Hansen*[1]; [1]Risoe National Laboratory

11:30 AM
Rolling History Microstructural Analyses of Texture Gradients for 6022 Aluminum Sheet: *Christina Burton*[1]; Mark Horstemeyer[1]; Paul Wang[1]; Reza Shahbazian Yassar[1]; [1]Mississippi State University

11:50 AM
The ODF of the Recrystallization Texture and the 40<111> Transformed Rolling Texture of Al-Mn-Mg Alloy: *Jiantao Liu*[1]; Joseph Fridy[1]; Robert Dick[1]; Thomas Rouns[1]; Edward Llewellyn[1]; [1]Alcoa Technical Center

12:10 PM
Three Dimensional EBSD Characterizations of Deformed Materials: *Matthew Nowell*[1]; Stuart Wright[1]; [1]EDAX-TSL

12:30 PM
Investigation of Plasticity in Nanoscale Metallic Multilayers by In-Situ Synchrotron Diffraction: *Cahit Aydiner*[1]; Yun-Che Wang[1]; Don Brown[1]; Amit Misra[1]; Jon Almer[2]; [1]Los Alamos National Laboratory; [2]Argonne National Laboratory

12:50 PM
Grain Refinement and Hardness Increase of Copper Subjected to High Pressure Torsion: *Youshi Hong*[1]; Fengshou Shangguan[1]; Ziling Xie[1]; [1]Institute of Mechanics, Chinese Academy of Sciences

Alumina and Bauxite: Alumina Refinery Safety and Integrity

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Peter McIntosh, Hatch Associates; Jean Doucet, Alcan Inc; Morten Sorlie, Elkem Aluminium ANS

Tuesday AM
February 27, 2007
Room: Northern E4
Location: Dolphin Hotel

Session Chair: Peter McIntosh, Hatch Associates

9:00 AM Introductory Comments

9:05 AM Keynote Address and Presentation
The Role of Management Leadership in Ensuring Safety and Integrity of Alumina Refineries: *Joe Lombard*[1]; [1]Managing Director Light Metals, Hatch Associates

9:30 AM
Inspection Techniques for Digestion Pressure Relief System: *William Harrington*[1]; Garry Harrell[1]; Bill Cohea[1]; [1]Gramercy Alumina, LLC

9:55 AM
Pressure Equipment Management: Management of Alumina Refinery Integrity and Operations Safety: *Peter Bletchly*[1]; [1]Queensland Alumina Limited

10:20 AM
The Role of Independant Audits in the Management of Aluminium Related Businesses: *Anthony Kjar*[1]; [1]Gibson Crest Pty Ltd

10:45 AM Break

10:55 AM
Behavior of Beryllium in Bayer Process and Development of Its Reliable Determination Method: *Alexander Suss*[1]; Andrey Panov[1]; Irina Paromova[1]; Olga Shipova[1]; Nataliya Kutkova[1]; [1]VAMI

11:20 AM Keynote Address and Presentation
Experiences from Other Chemical Process Industries for Safety and Integrity of High Pressure Refineries: *Speaker TBA* from the Centre for Chemical Process Safety.

11:45 AM Panel Discussion

Aluminum Alloys for Transportation, Packaging, Aerospace and Other Applications: Aluminum Products

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Subodh Das, Secat Inc

Tuesday AM
February 27, 2007
Room: Northern A4
Location: Dolphin Hotel

Session Chairs: Subodh Das, Secat Inc; Zhong Li, Aleris International Inc

9:00 AM
Improvement of Quality of Trimmed Surface of Aluminum Panels: *Sergey Golovashchenko*[1]; [1]Ford Motor Company

9:25 AM
Failure Analysis of Some Aluminium Alloys Used to Produce Aluminium Containers Especially Three Compartment and Airline Trays: Nick Singleton[1]; *Ebriham Alaradi*[1]; Mohamed Essa[1]; [1]GARMCO

9:50 AM
Aluminum Products for Bridges and Bridge Decks: *Subodh Das*[1]; J. Gilbert Kaufman[1]; [1]Secat Inc

10:15 AM
Fatigue Crack Growth Behaviour of Aluminium Alloy 2219 Welded Plates: *Ram Prasad*[1]; Ganji Narayana[2]; K. Sreekumar[2]; [1]Indian Institute of Technology Bombay; [2]Indian Space Research Organisation

10:40 AM Break

10:50 AM
Failure Analysis of Sandwich Columns Comprising Al Alloy Foam Core and Al Face Sheets under Compression: Kapil Mohan[1]; *Yip Tick Hon*[1]; Sridhar Idapalapati[1]; [1]NTU

11:15 AM
Study on Evolution Behaviors of Bubble in Aluminum Melt: *Hongjie Luo*[1]; Guangchun Yao[1]; [1]Northeastern University

11:40 AM
Study on Increasing Viscosity for Producing Foam Aluminum: *Li Wei*[1]; [1]Department of Materials Science and Engineering, Shenyang Ligong University

12:05 PM
Sound Absorption Property of Closed-Cell Aluminum Foam: *Haijun Yu*[1]; Guangchun Yao[1]; [1]Northeastern University

Aluminum Reduction Technology: Slotted Anodes - Joint Session with Electrode Technology Symposium (formerly Carbon Technology)

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS; John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS

Tuesday AM
February 27, 2007
Room: Southern 2
Location: Dolphin Hotel

Session Chair: Geoffrey Bearne, Comalco Ltd

9:00 AM Introductory Comments

9:05 AM
Production and Performance of Slotted Anodes: *Markus Meier*[1]; Raymond Perruchoud[1]; Werner Fischer[1]; [1]Research and Development Carbon Ltd

9:35 AM
Slot Cutting in Anodes: *Jean-Jacques Grunspan*[1]; [1]Brochot SA

10:00 AM
Modeling the Bubble Driven Flow in the Electrolyte as a Tool for Slotted Anode Design Improvement: *Dagoberto Severo*[1]; Vanderlei Gusberti[1]; Elton Pinto[1]; Ronaldo Moura[2]; [1]PCE Ltd; [2]ALBRAS Aluminio Brasileiro SA

10:25 AM Break

10:40 AM
The Effect of Implementing Slotted Anodes on Some Operational Parameters of a Pb-Line: *Ketil Rye*[1]; Ellen Myrvold[1]; Ingar Solberg[1]; [1]Elkem Aluminum

11:05 AM
Development and Deployment of Slotted Anode Technology at Alcoa: *Xiangwen Wang*[1]; Gary Tarcy[1]; Steve Whelan[1]; Silvio Porto[1]; Christopher Ritter[1]; Bob Ouellet[1]; Graham Homley[1]; Andrew Morphett[1]; Gilles Proulx[1]; Stephen Lindsay[1]; [1]Alcoa Inc

11:35 AM
The Impact of Slots on Reduction Cell Individual Anode Current Variation: *Geoffrey Bearne*[1]; Derek Gadd[1]; Simon Lix[2]; [1]Comalco Ltd; [2]New Zealand Aluminium Smelter Ltd

12:00 PM Panel Discussion
Senior representatives from the major aluminium companies will be invited to share their experiences with the production and use of slotted anodes in their plants, followed by an open discussion forum.

Biological Materials Science: Biological Materials I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Andrea Hodge, Lawrence Livermore National Laboratory; Chwee Lim, National University of Singapore; Eduard Artz, University of Stuttgart; Masaaki Sato, Tohoku University; Marc Meyers, University of California, San Diego

Tuesday AM — Room: Europe 4
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM
Effects of the Reinforcement Morphology on the Fatigue Properties of Hydroxyapatite Reinforced Polymers: *Robert Kane*[1]; Gabriel Converse[1]; Ryan Roeder[1]; [1]University of Notre Dame

9:20 AM
Design and Fabrication of 3-D Porous Bioactive Bone-Grafts via Fused Deposition Modeling Using Nanocrystalline Hydroxyapatite: Monica Hopkins[1]; *Samar Kalita*[1]; [1]University of Central Florida

9:40 AM
Post-Selection Genetic Engineering of Inorganic-Binding Peptides for Practical Materials Applications: *Candan Tamerler*[1]; Mustafa Gungormus[2]; Hanson Fong[2]; Deniz Sahin[1]; Emre Oren[2]; Sibel Cetinel[1]; Nevin Gul Karaguler[1]; Mehmet Sarikaya[2]; [1]Istanbul Technical University; [2]University of Washington

10:00 AM
Physical, Mechanical and In-Vitro Characterization of Bioglass® - Hydroxyapatite Bioceramics: *Hande Demirkiran*[1]; Alonso Fuentes[1]; Kytai Nguyen[1]; Pranesh Aswath[1]; [1]University of Texas at Arlington

10:20 AM
Hydrothermal Healing Effect and the Reinforced Intermediate Layers on Improving the Bonding Strength of Plasma-Sprayed Hydroxyapatite Coatings: *Chung-Wei Yang*[1]; Truan-Sheng Lui[1]; [1]National Cheng Kung University

10:40 AM Break

10:50 AM Invited
Characterization of Structure-Property Relationships in Human Bone: *Robert Ritchie*[1]; Joel Ager[2]; Guive Balooch[2]; [1]University of California; [2]Lawrence Berkeley National Laboratory

11:20 AM Invited
Bionic Design of Tube Formation in the Integrated Cellular Structure: *Kazuo Tanishita*[1]; [1]Keio University

11:50 AM
Delamination Behavior of Human Stratum Corneum: *Reinhold Dauskardt*[1]; Kemal Levi[1]; Kenneth Wu[1]; Joy Baxter[2]; Helen Meldrum[2]; Manoj Misra[2]; Eugene Pashkovski[2]; [1]Stanford University; [2]Unilever

12:10 PM
Shape Memory Alloy Scaffolds for Bone Tissue Engineering: *Yuncang Li*[1]; Jianyu Xiong[1]; Peter Hodgson[1]; Cui'e Wen[1]; [1]Deakin University

12:30 PM
Synthesis of Porous Hydroxyapatite Hollow Spheres: *Viswanath Balakrishnan*[1]; N. Ravishankar[1]; [1]Indian Institute of Science

Bulk Metallic Glasses IV: Alloy Development and Glass-Forming Ability

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Raymond Buchanan, University of Tennessee; Wenhui Jiang, University of Tennessee; Guojiang Fan, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee

Tuesday AM — Room: Asia 1
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Takeshi Egami, University of Tennessee; G.J. Fan, University of Tennessee

9:00 AM Keynote
Frustrating Business of Glass Formation: *Takeshi Egami*[1]; [1]University of Tennessee

9:30 AM Invited
New Ternary Ni-Nb-Zr Bulk Metallic Glasses: Zhengwang Zhu[1]; Haifeng Zhang[1]; Wensheng Sun[1]; *Zhuangqi Hu*[1]; [1]Institute of Metal Research, CAS

9:50 AM Invited
Glass Formation in Ternary and Quaternary Fe and Al Based Alloy Systems: *Yi Li*[1]; [1]National University of Singapore

10:10 AM Invited
Microstructural Characterization of Zr Bulk Metallic Glasses with a Pulsed Laser Local Electrode Atom Probe: *Michael Miller*[1]; [1]Oak Ridge National Laboratory

10:30 AM
Atomic Scale Characterization of Amorphous and Nanocrystalline Bulk Metallic Glasses: *Ananth Puthucode*[1]; Hansoo Kim[1]; Michael Kaufman[1]; Rajarshi Banerjee[1]; [1]University of North Texas

10:45 AM
Atomistic Simulations and Structural Characterization of Binary Cu-Zr Glasses: *Ashwini Bharathula*[1]; Katherine Flores[1]; Wolfgang Windl[1]; [1]Ohio State University

11:00 AM Invited
A Model for the Nanoscale Structure in Partially Crystallized Bulk Metallic Glasses: Ling Yang[1]; *Xun-li Wang*[2]; Alexandru Stoica[2]; [1]University of Cincinnati; [2]Oak Ridge National Laboratory

11:20 AM Invited
Locating the Best Bulk Metallic Glass Former in Quaternary Alloy Systems Using a "3D-Pinpoint" Approach: *Jian Xu*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

11:40 AM
Glass Formation Mechanism of Minor Yttrium Addition in CuZrAl Alloys: *Yong Zhang*[1]; [1]University of Science and Technology Beijing

11:55 AM
Binary Eutectic Clusters and Glass Formation in Ideal Glass-Forming Liquids: *Z. P. Lu*[1]; C. T. Liu[2]; D. Ma[1]; X.-L. Wang[1]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

12:10 PM
Fabrication of Fe-Based Bulk Metallic Glass Components Using Laser Additive Manufacturing: *Shawn Kelly*[1]; [1]Applied Research Laboratory, Pennsylvania State University

12:25 PM
Predicting the Role of Diffusion in the Composition-Dependence of Crystal Nucleation in Glass Forming Systems: *Feng Jiang*[1]; James Morris[2]; Peter Liaw[1]; Hahn Choo[1]; [1]University of Tennessee; [2]Ceramics Division, Department of Metal, Oak Ridge National Laboratory

12:40 PM
Critical Heat Flux and Instant Critical Cooling Rate of Bulk Metallic Glass Vit1 Under Uni-Directional Heat Conduction Conditions: *Yuelu Li*[1]; Sumanth Shankar[1]; [1]Light Metal Castings Reserach Centre, McMaster University

Cast Shop Technology: Metal Treatment

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: David DeYoung, Alcoa Inc; Rene Kieft, Corus Group; Morten Sorlie, Elkem Aluminium ANS

Tuesday AM — Room: Northern E1
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Pierre Le Brun, Alcan CRV

9:00 AM Introductory Comments

9:05 AM
In-Line Salt Fluxing Process: A Final Solution to Chlorine Gas Utilization in Cast Houses: *Sebastien Leboeuf*[1]; Claude Dupuis[1]; Bruno Maltais[2]; Marc-André Thibault[2]; [1]Alcan Inc.; [2]STAS

9:30 AM
The Almex HF Series Degassing and Metal Purification Systems: A Novel Approach to Vessel Design: *Shaun Hamer*[1]; Ravi Tilak[1]; [1]Almex USA Inc.

9:55 AM
Porous Plug Technology for Degassing in Aluminum Foundry Ladles: *Klaus Gamweger*[1]; Reinhard Schwaiger[2]; [1]RHI AG; [2]RHI

10:20 AM
Kinetic Study of the Magnesium Removal from Molten Aluminum Using Ar-SF6-O2 Gaseous Mixtures: *Alfredo Valdes*[1]; [1]CINVESTAV

10:45 AM Break

11:10 AM
Simulation of Aluminium Filtration Including Lubrication Effect in Three Dimensional Foam Microstructures: *Hervé Duval*[1]; Carlos Rivière[2]; Emilie Laé[2]; Pierre Le Brun[2]; Jean-Bernard Guillot[1]; [1]Ecole Centrale Paris; [2]ALCAN

11:35 AM
PDBF: Proven Filtration for High-End Applications: *Ghislain Le Roy*[1]; [1]Novelis Pae

12:00 PM
Removal of Intermetallic Particles for the Purification of Aluminium Alloys: *Pierre Le Brun*[1]; Christoph Kräutlein[2]; Georg Rombach[3]; Patrick Pouly[4]; Paul De Vries[5]; Jan Luyten[6]; [1]Alcan CRV; [2]Institute of Makers of Explosives; [3]Hydro Aluminium; [4]Novelis; [5]Corus Research and Development; [6]VITO

12:25 PM
Designing of Launder System during Aluminum Casting through CFD Simulation: *Lifeng Zhang*[1]; [1]Norwegian University of Science and Technology

Characterization of Minerals, Metals, and Materials: Characterization of Mechanical and Physical Properties of Materials I

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Arun Gokhale, Georgia Institute of Technology; Jian Li, Natural Resources Canada; Toru Okabe, University of Tokyo

Tuesday AM — Room: Oceanic 8
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Peter Liaw, University of Tennessee; Oleg Senkov, UES Inc

9:00 AM Invited
The Interpretation of Tension Behavior in Ceramic Matrix Composites: *Jeongguk Kim*[1]; Peter Liaw[2]; [1]Korea Railroad Research Institute; [2]University of Tennessee

9:30 AM
Grain Boundary Engineering (GBE) of Shot-Peened Type 304 Stainless Steel: *Osama Alyousif*[1]; Dirk Engelberg[2]; T. Marrow[2]; [1]Kuwait University; [2]University of Manchester

9:50 AM
On the Measurement of Yield Strength by Spherical Indentation: *Erik Herbert*[1]; Warren Oliver[1]; George Pharr[2]; [1]MTS Nano Instruments; [2]University of Tennessee, Oak Ridge National Laboratory

10:10 AM
Characterization of AlN Whiskers: *Pablo Caceres-Valencia*[1]; [1]University of Puerto Rico-Mayaguez

10:30 AM
Laser Shock Peening(LSP) of IN718 Superalloy: *Amrinder Singh Gill*[1]; Vijay Vasudevan[1]; S.R. Mannava[1]; [1]University of Cincinnati

10:50 AM Break

11:10 AM Invited
Characterization of Material Deposition on Orbiter Vehicle Columbia Window Panes: Insight for a Failure Investigation: J. D. Olivas[1]; P. A. Melroy[1]; *S. J. McDanels*[2]; T. A. Wallace[3]; M. C. Zapata[2]; [1]NASA, Johnson Space Center; [2]NASA, Kennedy Space Center; [3]NASA, Langley Research Center

11:40 AM
Wear Resistance of Modified Epoxy Composites Reinforced with Diamond Crystals: *Sergio Monteiro*[1]; Gustavo Menezes[1]; Ruben Jesus Rodriguez[1]; Felipe Lopes[1]; Ana Lucia Skury[1]; Guerold Bobrovnitchii[1]; [1]State University of the Northern Rio de Janeiro

12:00 PM
Influence of the Micromorphology of Natural Fibers on the Reinforcement of Polymeric Composites: *Sergio Monteiro*[1]; João José Rangel[2]; [1]State University of the Northern Rio de Janeiro; [2]Candido Mendes University

12:20 PM
Fracture Behavior of Curua Fiber Reinforced Polyester Composites: *Sergio Monteiro*[1]; Ailton Ferreira[1]; Regina Coeli Aquino[2]; Felipe Lopes[1]; Jose Roberto d'Almeida[3]; [1]State University of the Northern Rio de Janeiro; [2]Federal Center for Technological Education; [3]Catholic University of Rio de Janeiro

12:40 PM
Study on the Tensile Properties of Copper Coated Carbon Fibers: *Zhuokun Cao*[1]; Guangchun Yao[1]; Yihan Liu[1]; [1]Northeastern University of China

Computational Thermodynamics and Phase Transformations: Microstructure Properties and Evolution I

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, ASM Materials Science Critical Technology Sector, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Corbett Battaile, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory

Tuesday AM Room: Europe 11
February 27, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Invited
Mesoscale Grain Boundary Properties from Molecular Dynamics Simulations: *Stephen Foiles*[1]; [1]Sandia National Laboratories

9:30 AM
Statistical Characterization of Atomistic Motion during Grain Boundary Migration: *Hao Zhang*[1]; David Srolovitz[1]; [1]Princeton University

9:50 AM Invited
Characterization of Complex Microstructures for Computer Simulation: *Hamish Fraser*[1]; Brian Welk[1]; Santosh Koduri[1]; Robert Williams[1]; Peter Collins[1]; Gopal Viswanathan[1]; Vladimir Levit[1]; [1]Ohio State University

10:20 AM Invited
A Framework for Automated 3D Microstructural Analysis and Representation: *Michael Groeber*[1]; Michael Uchic[2]; Dennis Dimiduk[2]; Yash Bhandari[1]; Somnath Ghosh[1]; [1]Ohio State University; [2]Air Force Research Laboratory, Materials and Manufacturing Directorate

10:50 AM Invited
Measuring Facet Planes in Coarse Martensite in Low Carbon Steels by Combining 3D Reconstruction with EBSD: George Spanos[1]; *David Rowenhorst*[1]; R. Masamoral[1]; [1]Multi-Functional Materials Branch, Code 6355, Naval Research Laboratory

11:10 AM Break

11:30 AM Invited
Three-Dimensional Simulation of Coarsening in Liquid Phase Sintering: Sukbin Lee[1]; *Anthony Rollett*[1]; Jeff Rickman[2]; [1]Carnegie Mellon University; [2]Lehigh University

12:00 PM
Modeling Abnormal Grain Growth in Nanocrystalline Nickel: *Elizabeth Holm*[1]; David Follstaedt[1]; Mark Miodownik[2]; [1]Sandia National Laboratories; [2]King's College London

12:20 PM
Thermodynamic Viewpoints on Nanograin Growth Kinetics: *Xiaoyan Song*[1]; Lingmei Li[1]; Jiuxing Zhang[1]; Fu Guo[1]; [1]Beijing University of Technology

12:40 PM
Heterogeneous Dislocation Distributions and Recrystallization Kinetics: A Phase-Field Study: Subbalakshmi Sreekala[1]; *Mikko Haataja*[1]; [1]Princeton University

Diffusion in Advanced Materials and Processing: Energy Technology

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS: Alloy Phases Committee, TMS: High Temperature Alloys Committee, ASM-MSCTS: Atomic Transport Committee, TMS/ASM: Nuclear Materials Committee, TMS: Solidification Committee
Program Organizers: Yong-Ho Sohn, University of Central Florida; Carelyn Campbell, National Institute of Standards and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Afina Lupulescu, Union College

Tuesday AM Room: Europe 2
February 27, 2007 Location: Dolphin Hotel

Session Chairs: Dennis Keiser, Idaho National Laborotory; Kyoko Kawagishi, NIMS - Japan

9:00 AM Invited
Substitutional and Interstitial Diffusion in α_2-Ti_3Al(O): Evan Copland[1]; David Young[2]; *Brian Gleeson*[3]; [1]NASA; [2]University of New South Wales; [3]Iowa State University

9:30 AM
Interdiffusion in Ni-Cr-X and Fe-Ni-Cr-X (X = Al, Si, Ge or Pd) Alloys at 700° and 900°C: *Narayana Garimella*[1]; Michael Brady[2]; Yong-Ho Sohn[1]; [1]University of Central Florida; [2]Oak Ridge National Laboratory

9:50 AM Invited
EQ Coating in Advanced TBC System for Ni-Base Superalloys: *Kyoko Kawagishi*[1]; Akihiro Sato[1]; Jestine Ang[2]; Kazuhide Matsumoto[1]; Hiroshi Harada[1]; [1]National Institute for Materials Science; [2]University of British Columbia

10:20 AM
Diffusion Characteristics at the 17-4 PH Steel-Nickel Interface: *Arijit Laik*[1]; Prakash Gawde[1]; Karanam Bhanumurthy[1]; Gajanan Kale[1]; [1]Bhabha Atomic Research Centre

10:40 AM Break

11:00 AM Invited
Interdiffusion Behavior in Annealed RERTR Nuclear Fuel Plates: *Dennis Keiser*[1]; [1]Idaho National Laboratory

11:30 AM
Assessment of Ternary Multicomponent Diffusion in Alloy 22 (Ni-Cr-Mo): *Alonso Jaques*[1]; Jeffrey LaCombe[1]; [1]University of Nevada, Reno

11:50 AM Invited
Alloying Effect on Interdiffusion Layer Growth in U-Mo/Al Dispersion Nuclear Fuel: *Yeon Soo Kim*[1]; Gerard Hofman[1]; Ho Jin Ryu[1]; [1]Argonne National Laboratory

12:20 PM
Interdiffusion Behavior in U-7wt.%Mo and U-10wt.%Mo Alloys in Contact with Al: *Emmanuel Perez*[1]; Yong-Ho Sohn[1]; Dennis Keiser[2]; [1]University of Central Florida; [2]Idaho National Laboratory

Dynamic Behavior of Materials: Deformation III

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Marc Meyers, University of California; Ellen Cerreta, Los Alamos National Laboratory; George Gray, Los Alamos National Laboratory; Naresh Thadhani, Georgia Institute of Technology; Kenneth Vecchio, University of California

Tuesday AM Room: Europe 3
February 27, 2007 Location: Dolphin Hotel

Session Chairs: James Asay, Sandia National Laboratories; Lawrence Murr, University of Texas

9:00 AM
Thermoplastic Deformation Localization in Impulse Loaded Metals: *Dennis Grady*[1]; [1]Applied Research Associates

9:30 AM
Shear Localization: A Historical Overview: *Stephen Walley*[1]; [1]Cavendish Laboratory

10:00 AM
Atomistic Calculations of Shock Induced Phase Transformations and Spall: *Michael Baskes*[1]; S. G. Srinivasan[1]; Greg Wagner[2]; [1]Los Alamos National Laboratory; [2]Sandia National Laboratories

10:15 AM Break

10:30 AM
Shear Banding in Bulk Metallic Glasses: *Lan-Hong Dai*[1]; Long-Fei Liu[1]; Yi-Long Bai[1]; [1]State Key Laboratory of Nonlinear Mechanics, Institute of Mechanics, Chinese Academy of Sciences

11:00 AM
Dynamically Driven Phase Transformations in Composite Materials: *JeeYeon Plohr*[1]; Brad Clements[1]; Frank Addessio[1]; [1]Los Alamos National Laboratory

11:15 AM
High-Strain Rate Compression Testing of Ice: Mostafa Shazly[1]; *Vikas Prakash*[1]; Bradley Lerch[2]; [1]Case Western Reserve University; [2]NASA-Glenn Research Center

11:30 AM
Constitutive Modeling and Validation for Pre-Strained Materials: *Shuh-Rong Chen*[1]; George Gray[1]; Paul Maudlin[1]; Carl Cady[1]; [1]Los Alamos National Laboratory

11:45 AM
Comparison of Quasi-Static and Dynamic Fracture of Nitinol: *Fengchun Jiang*[1]; Kenneth Vecchio[1]; Raghavendra Adharapurapu[1]; Justin Cheney[1]; [1]University of California, San Diego

12:00 PM
Scaling Relationships and Dynamic Failure: *Mukul Kumar*[1]; James Stölken[1]; Roger Minich[1]; [1]Lawrence Livermore National Laboratory

12:15 PM
The Influence of Stored Work on Shear Deformation in 1018 Steel: *Lisa Dougherty*[1]; Ellen Cerreta[1]; George Gray III[1]; Carl Trujillo[1]; Erik Pfeif[1]; [1]Los Alamos National Laboratory

12:30 PM
Microstructural Evolution during Deformation of a 10Ni-0.1C Steel: *Ping Wang*[1]; K. Kumar[1]; [1]Brown University

12:45 PM
The Mechanical Response of Pure Iron at High Strain Rates under Dominant Shear Loading: *Daniel Rittel*[1]; Guruswami Ravichandran[2]; [1]Technion; [2]Caltech

Electrode Technology Symposium (formerly Carbon Technology): Slotted Anodes - Joint Session with Aluminum Reduction Technology

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS; Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Tuesday AM Room: Southern 2
February 27, 2007 Location: Dolphin Hotel

Session Chair: Geoffrey Bearne, Comalco Ltd

See page 55 for abstract titles.

Friction Stir Welding and Processing IV: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Rajiv Mishra, University of Missouri; Murray Mahoney, Rockwell Scientific Company; Thomas Lienert, Los Alamos National Laboratory; Kumar Jata, US Air Force

Tuesday AM Room: Northern E3
February 27, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Invited
Analysis of Self-Reacting Friction Stir Welds in a 2024-T351 Alloy: Tomasz Neumann[1]; Rudolf Zettler[1]; Pedro Vilaça[2]; *Jorge dos Santos*[1]; Luisa Quintino[2]; [1]GKSS Forschungszentrum; [2]Technical University Lisbon

9:20 AM
Mechanisms of Metal Flow Related Defect Formation in Friction Stir Welds: *William Arbegast*[1]; Casey Allen[1]; [1]South Dakota School of Mines and Technology

9:35 AM
A Torque-Based Model for Predicting Power Input in Friction Stir Welding: *Jefferson Pew*[1]; Tracy Nelson[2]; Carl Sorensen[2]; [1]Exxon Mobile; [2]Brigham Young University

9:50 AM
Numerical Simulation of the Friction Stir Welding Process Using an ALE Formulation: *L. Fourment*[1]; S. Guerdoux[1]; Michael Miles[2]; T. Nelson[2]; [1]Ecole des Mines de Paris (CEMEF); [2]Brigham Young University

10:05 AM
Optimization of Friction Stir Welding Parameters Based on Thermomechanical Predictions: *Lyne St-Georges*[1]; Véronique Dassylva-Raymond[2]; László Kiss[2]; Alexandre Perron[2]; [1]REMAC Industrial Innovators; [2]Universite du Quebec a Chicoutimi

10:20 AM
Phase Space Analysis of Friction Stir Weld Quality: Enkhsaikhan Boldsaikhan[1]; *Antonette Logar*[1]; Edward Corwin[1]; William Arbegast[1]; [1]South Dakota School of Mines and Technology

10:35 AM Break

10:50 AM
In-Situ Neutron Diffraction Measurement of Temperature and Stress Fields in Friction Stir Processing of an Al Alloy: *Zhili Feng*[1]; W. Woo[2]; X. L. Wang[1]; D. W. Brown[3]; B. Clausen[3]; K. An[1]; C. Hubbard[1]; H. Choo[2]; S. A. David[1]; [1]Oak Ridge National Laboratory; [2]University of Tennessee; [3]Los Alamos National Laboratory

11:05 AM
Surface Temperature and its Relationship to Power Input in FSP of Al - F357: *P. Kalya*[1]; K. Krishnamurthy[1]; Rajiv Mishra[1]; John Baumann[2]; [1]University of Missouri; [2]Boeing Company

11:20 AM
A Numerical Study of the Plunge Stage in Friction Stir Welding Using ABAQUS: *Saptarshi Mandal*[1]; Justin Rice[1]; Gene Hou[1]; Abdelmageed Elmustafa[1]; [1]Old Dominion University

11:35 AM
Real-Time Classification of Friction Stir Weld Quality: Enkhsaikhan Boldsaikhan[1]; *Edward Corwin*[1]; Antonette Logar[1]; William Arbegast[1]; [1]South Dakota School of Mines and Technology

11:50 AM
Minimizing Lack of Consolidation Defects in Friction Stir Welds: *Srikrishna Chimbli*[1]; Dana Medlin[1]; William Arbegast[1]; [1]South Dakota School of Mines

Frontiers in Solidification Science: Microstructures I

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Chemistry and Physics of Materials Committee, TMS: Solidification Committee
Program Organizers: Jeffrey Hoyt, Sandia National Laboratories; Mathis Plapp, Ecole Polytechnique; Gabriel Faivre, CNRS; Shan Liu, Iowa State University

Tuesday AM
February 27, 2007
Room: Northern A3
Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Invited
Coupled Growth in Polymer Systems: *Rohit Trivedi*[1]; Jing Teng[1]; [1]Iowa State University

9:30 AM Invited
Real-Time Observation of the Dynamics of Lamellar and Rod-Like Eutectic Microstructures: *Silvere Akamatsu*[1]; Sabine Bottin-Rousseau[2]; Mikael Perrut[2]; Gabriel Faivre[1]; [1]CNRS; [2]University Paris VI

10:00 AM Invited
Evolution of Eutectic Patterns during Coupled Growth of Al and Al2Cu in Ternary Al-Cu-Ag Alloys: *Ulrike Hecht*[1]; Victor Witusiewicz[1]; Anne Drevermann[1]; Stephan Rex[1]; [1]ACCESS Materials and Processes

10:30 AM Break

10:50 AM Invited
Morphological Similarity between Macro-Step Pattern in Sublimation and Interface Pattern in Solidification: Seong Gyoon Kim[1]; Jin Yang[2]; *Won Tae Kim*[3]; [1]Kunsan National University; [2]Sapphire Technology Company; [3]Cheongju University

11:20 AM Invited
Computational Studies of the Interaction of Solidification Fronts with Embedded Particles: *H. Udaykumar*[1]; Justin Garvin[1]; Yi Yang[1]; [1]University of Iowa

11:50 AM
Crystal Anisotropy and Growth Directions of Cells and Dendrites in Directional Solidification: *Alain Pocheau*[1]; Marc Georgelin[1]; Julien Deschamps[1]; [1]Institut de Recherche sur les Phénomènes Hors Equilibre

12:10 PM
Damage Formation during the Deformation of a Solidifying Al–Mg Alloy: *Andre Phillion*[1]; Peter Lee[2]; Steven Cockcroft[1]; [1]University of British Columbia; [2]Imperial College

Fundamentals of Shape Memory and Related Transitions: Electronic Structure and Phonons

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Michael Manley, University of California; James Morris, Oak Ridge National Laboratory

Tuesday AM
February 27, 2007
Room: Europe 6
Location: Dolphin Hotel

Session Chair: Dallas Trinkle, University of Illinois

9:00 AM Introductory Comments

9:10 AM Plenary
Electron-Phonon Coupling in Shape Memory Alloys: *Stephen Shapiro*[1]; [1]Brookhaven National Laboratory

9:50 AM Invited
Electronic Structure and Anomalous Vibrational Effects in Heusler Compounds from First-Principles: *Alexey Zayak*[1]; [1]University of Texas, Austin

10:20 AM Invited
Electronic Instabilities in Shape-Memory Alloys: *Jason Lashley*[1]; Peter Riseborough[2]; J. Smith[1]; Cy Opeil[3]; Trevor Finlayson[4]; [1]Los Alamos National Laboratory; [2]Temple University; [3]Boston College; [4]Monash University

10:50 AM Break

11:10 AM Invited
Boson Peak in Cu-Based Shape Memory Alloys: *Antoni Planes*[1]; Lluis Manosa[1]; Ricardo Romero[2]; Marcelo Stipcich[2]; Jason Lashley[3]; [1]Department ECM, Universitat de Barcelona; [2]IFIMAT, Universidad de Centro de la Provincia de Buenos Aires; [3]Los Alamos National Laboratory

11:40 AM Invited
Phonon Mechanisms and Long-Range Elasticity in Shape Memory Alloys: *Avadh Saxena*[1]; [1]Los Alamos National Laboratory

12:10 PM
Temperature and Compositional Effects on the Phonons of Ni0.5Ti0.5-xFex (x = 0, 0.03): *Michael Manley*[1]; Mark Asta[1]; Dan Thoma[2]; James Smith[2]; Robert Hackenberg[2]; W. Hults[2]; [1]University of California; [2]Los Alamos National Laboratory

General Abstracts: Structural Materials Division: Advances in Steel I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Composite Materials Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS: High Temperature Alloys Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS/ASM: Nuclear Materials Committee, TMS: Product Metallurgy and Applications Committee, TMS: Refractory Metals Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Titanium Committee
Program Organizers: Rollie Dutton, US Air Force; Ellen Cerreta, Los Alamos National Laboratory

Tuesday AM — Room: Europe 5
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Lisa Dougherty, Los Alamos National Laboratory; Veronica Livescu, Los Alamos National Laboratory

9:00 AM Introductory Comments

9:10 AM
Dilatometric Analysis of Phase Transformation during Heat Treatment of TRIP-Aided Cold Rolled Steels: *Dong-Woo Suh*[1]; Chang-Seok Oh[1]; Seong-Jun Park[1]; Sung-Joon Kim[1]; [1]Korea Institute of Machinery and Materials

9:30 AM
Influence of Rolling Process in Secondary Hardening Co-Ni Steels: *Cho Ki Sub*[1]; Kim Jeong Hoon[1]; Sim Ho Seop[1]; Lee Kon Bae[1]; Yang Heong Ryeal[2]; Kwon Hoon[1]; [1]Kookmin University; [2]Inchun City College

9:50 AM
Multicomponent High-Strength Low-Carbon Ferritic Steel with Nanosize Precipitates: *Prakash Kolli*[1]; Semyon Vaynman[1]; Dieter Isheim[1]; Morris Fine[1]; David Seidman[1]; [1]Northwestern University

10:10 AM
Nitrogen Diffusion Hardening of Austenitic Stainless Steels: *Ozgur Celik*[1]; Huseyin Cimenoglu[1]; Eyup Sabri Kayali[1]; [1]Istanbul Technical University

10:30 AM Break

10:50 AM
Reverse Austenite Transformation of Ultrafine Grained Ferrite-Pearlite Low Carbon Steel Fabricated by Equal Channel Angular Pressing: *Kyung-Tae Park*[1]; Young Il Son[2]; Dong Shin[3]; Chong Lee[4]; Young Kook Lee[5]; [1]Hanbat National University; [2]Agency for Defense Development; [3]Hanyang University; [4]Pohang University of Science and Technology; [5]Yonsei University

11:10 AM
Brittle Crack Susceptibility of Low Temperature Separator Vessel Material: *Ahmad Nawaz*[1]; [1]Ghulam Ishaq Khan Institute

11:30 AM
Temporal Evolution of the Nanostructure and Compositional Profiles in Multicomponent High-Strength Low-Carbon Steel: *Prakash Kolli*[1]; David Seidman[1]; [1]Northwestern University

Hume-Rothery Symposium: Scattering Studies and the Fundamental Properties of Materials: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Patrice Turchi, Lawrence Livermore National Laboratory; Wolfgang Donner, University of Houston; J. Robertson, Oak Ridge National Laboratory

Tuesday AM — Room: Oceanic 7
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: J. Robertson, Oak Ridge National Laboratory; Simon Billinge, Michigan State University

9:00 AM Invited
The Nanostructure Problem, and Some First Steps to Solve It: *Simon Billinge*[1]; [1]Michigan State University

9:30 AM Invited
The Investigation of the Structure and Optical Properties of Single Wall Boron Nitride Nanotubes: *Annick Loiseau*[1]; [1]Office National d'Etudes et Recherches Aérospatiales - Centre National de la Recherche Scientifique

10:00 AM Invited
The Tale of Inhomogeneous Nanodomains in Yttrium Barium Copper Oxide Superconductors: *Zahirul Islam*[1]; [1]Argonne National Laboratory

10:30 AM Break

10:50 AM Invited
Nanostructures: From Ensemble Average to Single Object Properties: *Till Metzger*[1]; [1]European Synchrotron Radiation Facility

11:20 AM Invited
X-Ray Scattering Study of Self-Organized InAs/GaSb Nanowire Arrays: *Jianhua Li*[1]; Donna Stokes[1]; Kevin Bassler[1]; Simon Moss[1]; [1]University of Houston

11:50 AM Invited
Computer Simulations of the Strained Growth of Nanostructured III-V Semiconductor Multilayers: *Kevin Bassler*[1]; [1]University of Houston

Innovations in Measurement Science to Assess the Performance of New Materials in the Real-World: High Strain Rate Deformation

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Mark Stoudt, National Institute of Standards and Technology; Lyle Levine, National Institute of Standards and Technology; Tusit Weerasooriya, Army Research Laboratory

Tuesday AM — Room: Australia 3
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: K. Ramesh, Johns Hopkins University; Lyle Levine, National Institute of Standards and Technology

9:00 AM Invited
Materials Performance in the World Trade Center Disaster: *Frank Gayle*[1]; Stephen Banovic[1]; William Luecke[1]; Tim Foecke[1]; Chris McCowan[1]; Tom Siewert[1]; Dave McColskey[1]; Richard Fields[1]; [1]National Institute of Standards and Technology

9:30 AM Invited
Uncertainty Quantification of Material Properties of Two Types of Steels at Elevated Temperatures for Stochastic Modeling of Structures on Fire: *Jeffrey Fong*[1]; James Filliben[1]; Richard Fields[1]; [1]National Institute of Standards and Technology

10:00 AM Invited
Developments in Crack-Arrest Toughness Measurement of Ferritic Steels: Richard Link[1]; James Joyce[1]; *Charles Roe*[2]; [1]United States Naval Academy; [2]Naval Surface Warfare Center Carderock Division

10:30 AM
Measurement of Initiation Fracture Toughness as a Function of Loading Rate in Brittle Materials: *Tusit Weerasooriya*[1]; Paul Moy[1]; Wayne Chen[2]; [1]Army Research Laboratory; [2]Purdue University

10:55 AM Break

11:05 AM Invited
Techniques for the Measurement of the High-Strain-Rate Deformations of Materials: *K. Ramesh*[1]; [1]Johns Hopkins University

11:35 AM Invited
Dynamic Characterization of Shape-Memory Alloys: *Weinong Chen*[1]; Bo Song[1]; [1]Purdue University

12:05 PM Invited
Mechanical Testing at High Loading and Heating Rates Using an Electrically Pulse-Heated Kolsky Bar Technique: *Steven Mates*[1]; [1]National Institute of Standards and Technology

12:35 PM
Compensation of Inertial Effects Associated with Quartz Force Transducer Embedded Split Hopkinson Bar: *Daniel Casem*[1]; Tusit Weerasooriya[1]; Paul Moy[1]; [1]US Army Research Laboratory

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Innovations in Titanium Technology Symposium: Novel Materials and Processes II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory; F. H. (Sam) Froes, University of Idaho

Tuesday AM — Room: Asia 3
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Patrick Martin, Air Force Research Laboratory/MLLMD; Stephen Fox, TIMET

9:00 AM Invited
Processing Routes to Produce Titanium from TiO2: *James Withers*[1]; John Laughlin[1]; Raouf Loutfy[1]; [1]MER Corporation

9:30 AM
The Production of Titanium from a Composite Anode: *James Withers*[1]; John Laughlin[1]; Raouf Loutfy[1]; [1]MER Corporation

9:50 AM
Net Shape Powder Metallurgy Processing Using ITP Titanium Powder: *Curt Lavender*[1]; Yuri Hovanski[1]; K. S. Weil[1]; L. C. Jacobsen[2]; [1]Battelle Memorial Institute - Pacific Northwest National Laboratory; [2]International Titanium Powder

10:10 AM
Microwave Melting of Armstrong Process Titanium: *Taras Lyssenko*[1]; [1]International Titanium Powder

10:30 AM Break

10:45 AM Invited
A Novel Recycling Process of Titanium Metal Scraps by Using Chloride Wastes: *Haiyan Zheng*[1]; Toru Okabe[1]; [1]Univeristy of Tokyo

11:10 AM
Effect of Al2O3 Addition on the Electro-Winning of Ti in DC-ESR Operation: *Masahiro Kawakami*[1]; Toshihide Takenaka[1]; Takahiro Kawabata[1]; Akihiro Matsuyama[1]; [1]Toyohashi University of Technology

11:30 AM
A Fundamental Investigation on Recovery of Titanium from Titanium-Bearing Blast Furnace Slag: Dong Haigang[1]; *Jiang Tao*[1]; Guo Yufeng[1]; Li Guanghui[1]; [1]Central South University

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Intellectual Property in Materials Science: Patents, Tech Transfer and Licensing: Patents

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division
Program Organizer: Steven Marsh, Dorsey & Whitney LLP

Tuesday AM — Room: America's Seminar
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Steven Marsh, Dorsey & Whitney LLP; Iver Anderson, Ames Laboratory and Iowa State University

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9:00 AM Invited
Obtaining Patents and Using Them to Protect, Expand and Generate Funds for Your Business: *Gary Abelev*[1]; [1]Dorsey and Whitney LLP

9:30 AM Invited
Claim Strategies: Patenting Alloys and Other Material Compositions: *Steven Marsh*[1]; [1]Dorsey and Whitney LLP

10:00 AM Invited
A View of the Nanotech Patent Landscape: *John Miller*[1]; [1]Arrowhead Research Corporation

10:30 AM Break

10:45 AM Invited
An Analysis of the Value of Patents during the Invention-Innovation Life Cycle: *Jainagesh Sekhar*[1]; [1]University of Cincinnati

11:15 AM Invited
University Spin-Off Companies: The Need for Rational Matches of the Inside and Outside Environments: *Rand German*[1]; [1]Center for Advanced Vehicular Systems, Mississippi State University

11:45 AM Invited
Converting Science to Practice: Personal Experiences with Patent Licensing: *Iver Anderson*[1]; [1]Iowa State University

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Magnesium Technology 2007: Casting and Solidification I

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Tuesday AM — Room: Southern 5
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Gerald Cole, LightWeightStrategies LLC; En-Hou Han, Chinese Academy of Sciences

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9:00 AM
Mathematical Modeling and Experimental Investigation of Shrinkage Porosity in Squeeze Casting of Magnesium Alloy AM50A: *Fang Yu*[1]; Shuping Wang[1]; Naiyi Li[2]; Henry Hu[1]; [1]University of Windsor; [2]Ford Motor Company

9:20 AM
Effect of Pressure Levels on Tensile Properties of Squeeze Cast Magnesium Alloy MG-AL-CA: *Henry Hu*[1]; Masoumi Hohsen[1]; Naiyi Li[1]; [1]University of Windsor

9:40 AM
Effects of Processing Variables on Flow Behavior of Semi-Solid Magnesium Alloys: *Hwa Chul Jung*[1]; Kwang Seon Shin[1]; [1]Seoul National University

10:00 AM
Effect of Solid Fraction on Microstructure and Fluidity of AZ91D in New Type Semi-Solid Injection Process: *Kenji Miwa*[1]; Rudi Rachmat[1]; Takuya Tamura[1]; Naoki Omura[1]; [1]National Institute of Advanced Industrial Science and Technology (AIST)

10:20 AM
Lost Foam Casting of Magnesium AM60B Alloy: *Qingyou Han*[1]; Ralph Dinwiddie[1]; Philip Sklad[1]; Kenneth Currie[2]; Fred Vondra[2]; Mohamed Abdelrahman[2]; Graham Walford[3]; Dennis Nolan[4]; [1]Oak Ridge National Laboratory; [2]Tennessee Technological University; [3]Walford Technologies; [4]Foseco-Morval

10:40 AM Break

11:00 AM
The Role of Carbon for Grain Refinement in Mg-Al Based Alloys: *Young Min Kim*[1]; Chang Dong Yim[1]; Young Han Kim[1]; Bong Sun You[1]; [1]Korea Institute of Machinery and Materials

11:20 AM
Grain Refinement of Magnesium Alloys by Cavitation: *Anthony Ramirez*[1]; Ma Qian[1]; [1]Brunel University

11:40 AM
Real-Time Monitoring of Hot Tearing of AZ91E Casting: *Guoping Cao*[1]; Sindo Kou[1]; [1]University of Wisconsin

12:00 PM
Hot Tearing of Mg-Al-Ca Alloy Castings: *Guoping Cao*[1]; Sindo Kou[1]; [1]University of Wisconsin

12:20 PM
Magnesium Foam Produced by Foaming in Melt: *Haibin Ji*[1]; Guangchun Yao[1]; Hongbin Li[1]; [1]Northeastern University

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Magnesium Technology 2007: Wrought Alloys and Forming Processes II: Rolling and Forming

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Tuesday AM
February 27, 2007
Room: Southern 4
Location: Dolphin Hotel

Session Chairs: Jennifer Jackman, Natural Resources Canada; Sean Agnew, University of Virginia

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9:00 AM
Finite Element Simulation of Hot Rolling of Magnesium Alloy: *Elhachmi Essadiqi*[1]; Guowu Shen[1]; Claude Galvani[1]; Kevin Spencer[1]; Abdelbaset Elwazri[2]; Steve Yue[2]; Ravi Verma[3]; [1]CANMET Materials Technology Laboratory; [2]McGill University; [3]General Motors Research and Development, Materials and Processes Laboratory

9:20 AM
Effect of Hot Rolling Parameters on the Hot Tensile Behavior of AZ31 Magnesium Sheet: *Geremi Vespa*[1]; Ravi Verma[2]; Jon Carter[2]; Steve Yue[1]; [1]McGill University; [2]General Motors Research and Development Center

9:40 AM
Microstructure Evolution during Rolling of AZ31 Magnesium Alloy under Decreasing Temperature: *Faramarz Zarandi*[1]; Ravi Verma[2]; Stephen Yue[1]; Elhachmi Essadiqi[3]; [1]McGill University; [2]General Motors Research and Development Center; [3]CANMET Materials Technology Laboratory

10:00 AM
Effect of Grain Size on Elevated Temperature Deformation Behavior of AZ31 Magnesium Alloy: *Emilie Hsu*[1]; Ravi Verma[2]; [1]McGill University; [2]General Motors Research and Development Center

10:20 AM
Development of Magnesium Sheetmetal Forming Parts for Electronic Appliances: Case Studies: *Wonkyu Bang*[1]; Hwan Jin Sung[1]; In Joon Kim[1]; Dongkyun Choo[1]; Woo Jin Park[1]; In Ho Jung[1]; Sangho Ahn[1]; [1]RIST

10:40 AM Break

11:00 AM
Mg Coil Production via Strip Casting and Coil Rolling Technologies: In Ho Jung[1]; Wonkyu Bang[1]; In Joon Kim[1]; Hwan Jin Sung[1]; Woo Jin Park[1]; Dongkyun Choo[1]; *Sangho Ahn*[1]; [1]RIST

11:20 AM
Superplastic Behavior of Twin-Roll Strip Cast Mg Alloys: *Geun Tae Bae*[1]; Sung Soo Park[1]; Dae Hoon Kang[1]; Nack Kim[1]; [1]Pohang University of Science and Technology

11:40 AM
Influence of Process Parameters on the Mechanical Properties of Rolled Magnesium ZM21-Sheets: *Kerstin Nestler*[1]; Jan Bohlen[1]; Dietmar Letzig[1]; Karl Ulrich Kainer[1]; [1]GKSS-Research Centre Geesthacht

12:00 PM
Effect of Rolling Parameters on the Miscrostructure and Mechanical Properties of Mg-Zn-Y Alloys: *Ju Youn Lee*[1]; Hyun Kyu Lim[1]; Do Hyung Kim[1]; Won Tae Kim[2]; Do Hyang Kim[1]; [1]Yonsei University; [2]Department of Applied Physics, Chongju University

12:20 PM
Workability of Cold-Rolling and Heat Treatment Characteristics of Mg-Li-Al Alloy: Hong Bin Li[1]; Guangchun Yao[1]; Zhiqiang Guo[1]; Zhengang Liu[1]; [1]Northeastern University

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Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies: SOFCs I

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizers: Zhenguo "Gary" Yang, Pacific Northwest National Laboratory; Michael Brady, Oak Ridge National Laboratory; K. Scott Weil, Pacific Northwest National Laboratory; Yong-Ho Sohn, University of Central Florida

Tuesday AM
February 27, 2007
Room: Asia 2
Location: Dolphin Hotel

Session Chairs: Jiahong Zhu, Tennessee Technological University; Paul Jablonski, Department of Energy

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9:00 AM Invited
Glass-Ceramic Sealants for the Assembling of Solid Oxide Fuel Cell Stacks: *Sonja-Michaela Gross*[1]; Thomas Koppitz[1]; Uwe Reisgen[1]; Eric Wanko[1]; Josef Remmel[1]; [1]Research Centre Juelich

9:35 AM Invited
SOFC Seal Development at Pacific Northwest National Laboratory: *Yeong-Shyung Chou*[1]; Jeffry Stevenson[1]; Prabhakar Singh[1]; [1]Pacific Northwest National Laboratory

10:10 AM
Effects of Atmospheres on Bonding Characteristics between Silver and Alumina: *Jin Yong Kim*[1]; Jung Choi[1]; John Hardy[1]; K. Weil[1]; [1]Pacific Northwest National Laboratory

10:35 AM Break

10:50 AM
Stress Induced Disruption of SOFC Interfaces: *Yves Idzerda*[1]; Alex Lussier[1]; Joe Dvorak[1]; Shane Stadler[2]; Johnathon Holroyd[1]; Marco Liberati[1]; Elke Arenholz[3]; Satish Ogale[4]; T. Wu[4]; T. Venkatesan[4]; [1]Montana State University; [2]Southern Illinois University; [3]The Advanced Light Source; [4]University of Maryland

11:15 AM
Parametric Investigation of a New Planar Solid Oxide Fuel Cell Sealing Approach Using Finite Element Analysis: *K. Scott Weil*[1]; Brian Koeppel[1]; [1]Pacific Northwest National Laboratory

11:40 AM
Shape Memory Alloy/Glass Composite Gas Seal for Solid Oxide Fuel Cells: *Christopher Story*[1]; W. Reynolds[1]; Kathy Lu[1]; [1]Virginia Polytechnic Institute and State University

12:05 PM
Microstructure and Mechanical Properties of Ceramic Joints Brazed with Copper-Doped Ag-Al Based Braze Fillers: *Jin Yong Kim*[1]; Jung Choi[1]; John Hardy[1]; K. Weil[1]; [1]Pacific Northwest National Laboratory

Materials Processing and Manufacturing Division Symposium: Mechanics and Materials Modeling and Materials Design Methodologies, in the Honor of Dr. Craig Hartley's 40 Years of Contributions to the Field of Mechanics and Materials Science: Homogenization/Constitutive Behavior II

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Brent Adams, Brigham Young University; Hamid Garmestani, Georgia Institute of Technology

Tuesday AM — Room: Northern A1
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Robert Wagoner, Ohio State University; Charles Neu, Forensic Sciences Inc

9:00 AM
Control of Properties in Deformation Processes Using Multi-Scale Sensitivity Analysis: *Nicholas Zabaras*[1]; Veera Sundararaghavan[1]; [1]Cornell University

9:25 AM
Influence of Crystallographic Orientation in Fretting and Sliding Contacts: *Richard Neu*[1]; [1]Georgia Institute of Technology

9:50 AM
Meso-Scale Simulation of Dislocation - Grain Boundary Interactions: *Myoung Gyu Lee*[1]; Robert H. Wagoner[1]; Brent L. Adams[2]; [1]Ohio State University; [2]Brigham Young University

10:15 AM
On Modeling Texture Evolution and Yielding Asymmetry of Hexagonal Closed-Packed Metals: *Oana Cazacu*[1]; Brian Plunkett[1]; Ricardo Lebensohn[2]; [1]University of Florida/REEF; [2]Los Alamos National Laboratories

10:40 AM
Quantitative Analysis of Rolling and Recrystallization Textures in Aluminum Alloys: *James Morris*[1]; Wenchang Liu[1]; Zhong Li[2]; C.-S Man[1]; [1]University of Kentucky; [2]Aleris International Inc.

11:05 AM
The Effect of Plastic Anisotropy and Material-Hardening on the Springback: An Experimental and Numerical Study: *Hesam Golmakani*[1]; [1]Ferdoowsi University

11:30 AM
The Properties and Performance of Enamel in the Prevention of Corrosion in Ferrous Materials.: *Richard Kwayisi*[1]; [1]University of Science and Technology

11:55 AM
Towards Incorporating the Kinematic and Kinetic Effects of Net Burger's Vector in Crystal Plasticity: *Jobie Gerken*[1]; Paul Dawson[2]; [1]Los Alamos National Laboratory; [2]Cornell University

Materials Processing Fundamentals: Smelting and Refining

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee, TMS: EMPMD Council, TMS: EPD Council
Program Organizer: Princewill Anyalebechi, Grand Valley State University

Tuesday AM — Room: Northern A2
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Geoffrey Brooks, Swinburne University of Technology

9:00 AM
In-Situ Analysis of the Direct Reduction Process of Wustite by Solid-State Carbon in TEM: *Ishikawa Nobuhiro*[1]; Aoyagi Takeshi[1]; Furuya Kazuo[1]; Kimura Takashi[1]; Mitsuoka Nayuta[2]; Inami Takashi[2]; [1]National Institute for Materials Science; [2]Ibaraki University

9:15 AM
Kinetics of the Pressure Leaching of Sulfidized Chalcopyrite in H2SO4-O2 Media: *Rafael Padilla*[1]; Paola Pavez[1]; Maria Ruiz[1]; [1]University of Concepcion

9:30 AM
Experimental Study of CO2 Sequestration by Steelmaking Slag: Henry Rawlins[1]; Kent Peaslee[1]; Von Richards[1]; *Simon Lekakh*[1]; [1]University of Missouri-Rolla

9:45 AM
Effect of Na4O7P2 on Cu Powder Preparation from Copper Oxide Slurries: *Hun Chung*[1]; Jong Ahn[1]; Tri Hoang[2]; Dong Kim[1]; Jae Lee[1]; Jong Kim[2]; [1]Korea Institute of Geoscience and Mineral Resources; [2]Chungnam National University

10:00 AM
Study on Hydrogen-Enriching Gas Reforming in Smelting Reduction Iron-Making Process: *Nan Wang*[1]; [1]Northeastern University

10:15 AM
The Role of Iron in the Pressure Leaching of White Metal: *Maria Ruiz*[1]; Eduardo Gallardo[1]; Rafael Padilla[1]; [1]University of Concepcion

10:30 AM Break

10:45 AM
Passivation Behaviour of Copper Anodes with Various Chemical Composition: *Zaki Mubarok*[1]; Helmut Antrekowitsch[1]; Gregor Mori[1]; [1]University of Leoben, Austria

11:00 AM
Preliminary Investigation into the Effect of Green Compact Microstructural Design on the Density of Combustion Synthesized Aluminide Composites: Na Wang[1]; *Khaled Morsi*[1]; [1]San Diego State University

11:15 AM
Preliminary Investigations into the Powder Processing of Microstructurally Designed Titanium Matrix Composites: *Khaled Morsi*[1]; Vipul Patel[1]; Shayan Naraghi[1]; [1]San Diego State University

Metrologies for Advanced Materials and Devices: Characterization, Measurement and Testing Science: Metrology for Micro and Nano Structures

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Thin Films and Interfaces Committee
Program Organizers: Choong-Un Kim, University of Texas at Arlington; Nuggehalli Ravindra, New Jersey Institute of Technology; Bhushan Sopori, National Renewable Energy Laboratory; Dia-Eddin Arafah, University of Jordan; David Field, Washington State University

Tuesday AM
February 27, 2007
Room: Oceanic 6
Location: Dolphin Hotel

Session Chairs: David Field, Washington State University; Choong-un Kim, University of Texas

9:00 AM Introductory Comments

9:10 AM Invited
Atomic Force Microscopy Nanometrology and In-Situ Mechanical Testing - Challenges and Opportunities: *Xiaodong Li*[1]; [1]University of South Carolina

9:40 AM Invited
Metrology for Interconnect Reliability in Microelectronic Devices: *Nancy Michael*[1]; Dongmei Meng[1]; Woong Ho Bang[1]; Liangshan Chen[1]; Choong-un Kim[1]; Y.-J. Park[2]; Laura Matz[2]; [1]University of Texas; [2]Texas Instruments, Inc

10:10 AM
Tunable Refractive Index Anti-Reflection Nano Silica Coatings via Sol-Gel Acid and Base Catalyzed Chemistry: *Abhilash Vincent*[1]; Erik Brinley[1]; Ajay Karakoti[1]; Sudipta Seal[1]; [1]University of Central Florida

10:35 AM Break

10:45 AM Invited
Recent Advances in Radiation Pyrometry: Nuggehalli Ravindra[1]; *Anthony Fiory*[1]; [1]New Jersey Institute of Technology

11:10 AM Invited
Relationship of Intrinsic Luminescence to Recombination Lifetime in Silicon Wafers: *Richard Ahrenkiel*[1]; [1]University of Denver

11:40 AM Invited
Diagnostics and Process Monitoring Techniques for Solar Cell Production: *Bhushan Sopori*[1]; [1]National Renewable Energy Laboratory

12:10 PM
Characterization of Solar Cell Substrates Using Diode Array Technique: *Jesse Appel*[1]; Bhushan Sopori[2]; Przemyslaw Rupnowski[2]; Anna Duda[2]; Lorenzo Roybal[2]; Vishal Mehta[1]; N. M. Ravindra[3]; [1]National Renewable Energy Laboratory and New Jersey Institute of Technology; [2]National Renewable Energy Laboratory; [3]New Jersey Institute of Technology

12:35 PM Invited
The Analysis on a Solder-Ball Shear Test: Woong Ho Bang[1]; *Choon-Sik Kang*[2]; Kyu Hwan Oh[2]; Choong-Un Kim[1]; [1]University of Texas at Arlington; [2]Seoul National University

Microstructural Processes in Irradiated Materials: Modeling, Microstructure and Embrittlement in Fe-Cr Alloys

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Tuesday AM
February 27, 2007
Room: Europe 8
Location: Dolphin Hotel

Session Chairs: Roger Smith, Loughborough University; Gary Was, University of Michigan

9:00 AM
Multiscale Modelling of Radiation Damage and Phase Transformation: The Challenge of FeCr Alloys: *Lorenzo Malerba*[1]; Alfredo Caro[2]; Janne Wallenius[3]; [1]Belgian Nuclear Research Center; [2]Lawrence Livermore National Laboratory; [3]KTH

9:35 AM
Simulation of Radiation Damage in FeCr: Carolina Björkas[1]; *Niklas Juslin*[1]; Kai Nordlund[1]; [1]Accelerator Laboratory, University of Helsinki

9:55 AM
Point Defects and Precipitation in Fe-Cr Alloys: *Magdalena Caro*[1]; Harun Dogo[2]; Ryan Till[3]; Alfredo Caro[1]; [1]Lawrence Livermore National Laboratory; [2]Naval Postgraduate School; [3]Arizona State University

10:15 AM
Atomistic Simulations of Radiation-Induced Defect Processes and Segregation in Fe-Cr Systems: *Srinivasan Srivilliputhur*[1]; Carolyn Tomchik[2]; Alfredo Caro[3]; M. Baskes[1]; M. Caro[3]; S. Maloy[1]; J. Stubbins[2]; [1]Los Alamos National Laboratory; [2]University of Illinois; [3]Lawrence Livermore National Laboratory

10:35 AM Break

10:55 AM
Microstructural Response of a 9 Cr Oxide Dispersion Strengthened Steel to Heavy Ion Irradiation: *Todd Allen*[1]; Jian Gan[2]; Jeremy Busby[3]; Michael Miller[3]; Shigeharu Ukai[4]; S. Thevuthasan[5]; S. Shutthanandan[5]; [1]University of Wisconsin; [2]Idaho National Laboratory; [3]Oak Ridge National Laboratory; [4]Hokkaido University; [5]Pacific Northwest National Laboratory

11:30 AM
The Mechanism of Irradiation Hardening Accompanied by No-Loss-of-Elongation in ODS Steels: *Akihiko Kimura*[1]; [1]Kyoto University

11:50 AM
Irradiation Embrittlement in the Absence of Irradiation Hardening: *R. Klueh*[1]; M. Sokolov[1]; [1]Oak Ridge National Laboratory

12:10 PM
Heavy-Ion Irradiation Damage in FeCr Alloys: *Michael Jenkins*[1]; Zhongwen Yao[1]; Sen Xu[1]; Marquis Kirk[2]; [1]University of Oxford; [2]Argonne National Laboratory

Pb-Free Electronic Solders: Alloy Design, Characterization and Service Reliability: Electromigration and Void Formation

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fu Guo, Beijing University of Technology; K. Subramanian, Michigan State University; Sung Kang, IBM Corporation; Srinivas Chada, Medtronic; Laura Turbini, University of Toronto; Jin Yu, Korea Advanced Institute of Science and Technology

Tuesday AM
February 27, 2007
Room: Oceanic 1
Location: Dolphin Hotel

Session Chairs: Chih Chen, National Chiao Tung University; Darrel Frear, Freescale Semiconductor

9:00 AM
Effect of Electromigration on the Mechanical Characteristics of Ultra-Thin Solder Joints: *C. E. Ho*[1]; Deep Choudhuri[1]; Adam Southworth[1]; Andre Lee[1]; K. Subramanian[1]; [1]Michigan State University

9:20 AM
Kinetic Study of Grain Rotation Induced by Electrical Current in Pure Tin: *Albert T. Wu*[1]; Ming-Hsun Chen[1]; Wen-Lin Shih[1]; C. Robert Kao[2]; [1]National Taipei University of Technology; [2]National Taiwan University

9:40 AM
Effect of Thickness of Cu under-Bump-Metallization on the Electromigration Lifetime of Flip-Chip Solder Joints: *Shih-Wei Liang*[1]; Yuan-Wei Chang[1]; Chih Chen[1]; [1]National Chiao Tung University

10:00 AM
Additive Effect on the Kirkendall Void Formation in Eutectic SnAg Solder Joint on Common Substrates: *Feng Gao*[1]; Tadashi Takemoto[1]; [1]Osaka University

10:20 AM
Effect of Electromigration on UBM Consumption in Lead Free Solder Joints Tested at Room Temperature: *Yen-Liang Lin*[1]; C. Kao[2]; Yi-Shao Lai[3]; [1]National Central University; [2]National Taiwan University; [3]Advanced Semiconductor Engineering, Inc.

10:40 AM Break

10:50 AM
Electromigration in SnCu Solder Stripes: *Chien-An Chen*[1]; C. C. Wei[1]; Chih Chen[1]; [1]National Chiao Tung University

11:10 AM
EM (Electromigration) Effect on the Interfacial Reaction of EL-Ni (Electroless Ni)/Au UBM and Sn1.8Cu Solder: *Yao-Chun Chuang*[1]; Cheng-Yi Liu[1]; [1]National Central University

11:30 AM
Electromigration Study of Flip-Chip Solder Joints Using Kelvin Bump Structure: *Yuan-Wei Chang*[1]; Chih Chen[1]; [1]National Chiao Tung University

11:50 AM
Electromigration Study of SnAgCu Using Solder Stripe: *Yung-Ching Hsu*[1]; [1]National Chiao Tung University

12:10 PM
Investigation of Void Nucleation and Propagation during Electromigration in Flip-Chip Solder Joints: *Sheng-Hsiang Chiu*[1]; Chih Chen[1]; [1]National Chiao Tung University

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials VI: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-Wen Chen, National Tsing Hua University; Srinivas Chada, Medtronic; Chih-ming Chen, National Chung Hsing University; Young-Chang Joo, Seoul National University; A. Lindsay Greer, University of Cambridge; Hyuck Lee, Korea Advanced Institute of Science and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Katsuaki Suganuma, Osaka University

Tuesday AM
February 27, 2007
Room: Oceanic 2
Location: Dolphin Hotel

Session Chairs: Hyuck Lee, Korea Advanced Institute of Science and Technology; Katsuaki Suganuma, Osaka University

9:00 AM Invited
Prevention of Sn Whisker Formation by Surface Treatment of Sn Plating: *Katsuaki Suganuma*[1]; Keun-Soo Kim[2]; Yuuhi Yorikado[1]; Masanobu Tsujimoto[2]; Isamu Yanada[2]; [1]Osaka University; [2]C. Uyemura and Company, Ltd.

9:25 AM Invited
Detachment of Interfacial Intermetallic Compound Layer in Solder Joints: *Kejun Zeng*[1]; [1]Texas Instruments

9:50 AM
Investigation of Dissolution Behavior and Kinetics of Metallic Substrates and Intermetallic Compounds in Molten Lead-Free Solders: *Yee-Wen Yen*[1]; Yu Tseng[2]; Chiapyng Lee[2]; Chien-Chung Jao[2]; Wei-Kai Liou[1]; Chung-Yu Lee[1]; Chun-Lei Hsu[1]; [1]National Taiwan University of Science and Technology, Graduate Institute of Materials Science and Technology; [2]National Taiwan University of Science and Technology, Department of Chemical Engineering

10:10 AM
Interfacial Reactions between the Molten Sn-Zn and Sn-Cu Solders and the Fe Substrate: *Yu-Chih Huang*[1]; Sinn-wen Chen[1]; [1]National Tsing Hua University

10:30 AM Break

10:50 AM
Sn-Cu Intermetallic Layer Thickness Measurement Using Electrochemical Method: *Ker-Chang Hsieh*[1]; Min-Hsien Lu[1]; [1]National Sun Yat Sen University

11:10 AM
Effect of Strain and Thermomechanical Fatigue on Allotropic Transformation in Sn and Sn-Based Alloys: *Deep Choudhuri*[1]; C. E. Ho[1]; Adam Southworth[1]; Andre Lee[1]; K. Subramanian[1]; [1]Michigan State University

11:30 AM
Lattice Parameter Changes and Phase Reactions for $AuIn_2$: A. Noori[1]; A. Pangan[1]; *Mark Goorsky*[1]; Rajinder Sandhu; P. Chang-Chien[2]; M. Yajima[2]; X. Zeng[2]; R. Tsai[2]; [1]University of California; [2]Northrup Grumman Space Technology

11:50 AM
Enhanced Wettability of Oxidized Copper with Lead-Free Solder by Ar-H2 Plasmas for Flip Chip Bumping: *Yung-Sen Lin*[1]; Chun-Hao Chang[1]; Wei-Jhih Lin[1]; [1]Feng Chia University

12:10 PM
Crystalline Analyses of the Stress-Induced Void during Self-Annealing in Cu Interconnects: *Heung Nam Han*[1]; Hyo-Jong Lee[1]; Jae Hun Kim[1]; Kyu Hwan Oh[1]; Sun-Jung Lee[2]; [1]Seoul National University; [2]Samsung Electronics Company

Plasticity from the Atomic Scale to Constitutive Laws: Atomistic Simulations of Dynamic Processes and Nano-Scale Plasticity

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Christopher Woodward, US Air Force; Michael Mills, Ohio State University; Diana Farkas, Virginia Tech

Tuesday AM
February 27, 2007
Room: Europe 9
Location: Dolphin Hotel

Session Chairs: Diana Farkas, Virginia Tech; William Gerberich, University of Minnesota

9:00 AM Invited
Moving Dislocations in Disordered Alloys: *Alfredo Caro*[1]; Jaime Marian[1]; [1]Lawrence Livermore National Laboratory

9:30 AM
Dynamic Emission of Dislocations Loops in Fcc Crystals: *Dan Mordehai*[1]; Guy Makov[2]; Itzhak Kelson[3]; [1]Commissariat à l'Energie Atomique; [2]Nuclear Research Center Negev; [3]Tel Aviv University

9:50 AM
From Micro to Macro Plasticity: Stefan Brandstetter[1]; Steven Van Petegem[1]; *Helena Van Swygenhoven*[1]; [1]Paul Scherrer Institute, Switzerland

10:10 AM
Contact-Induced Shear Localization in Nanocrystalline Al by Atomistic Simulation: *Virginie Dupont*[1]; Frederic Sansoz[1]; [1]University of Vermont

10:30 AM
Atomistic Simulations of Nanoporosity in <100> and <110> Tilt Grain Boundaries in Cu and Al: *Garritt Tucker*[1]; Mark Tschopp[1]; David McDowell[1]; [1]Georgia Institute of Technology

10:50 AM Break

11:10 AM Invited
A Quasicontinuum Study of Scale Effects in Uniaxially Compressed Au Nanopillars: *Jaime Marian*[1]; Jaroslaw Knap[1]; Michael Ortiz[2]; [1]Lawrence Livermore National Laboratory; [2]California Institute of Technology

11:40 AM
Effects of Twin Boundaries on the Slip Activity of Nanosized FCC Metallic Pillars: Konstantin Afanasyev[1]; *Frederic Sansoz*[1]; [1]University of Vermont

12:00 PM
Tension Compression Asymmetry and Size Effects in Nanocrystalline Ni Nanowires: *Joshua Monk*[1]; Diana Farkas[1]; [1]Virginia Tech

12:20 PM
Dislocations and Their Interactions in Nanocrystalline Grains: *Evan Ma*[1]; X. L. Wu[2]; [1]Johns Hopkins University; [2]Institute of Mechanics

Properties and Performance of High Temperature Alloys and Coatings: Single Crystal Alloys II and Oxidation

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Qiang Feng, Beijing University of Science and Technology; Timothy Gabb, NASA Glenn Research Center; Doug Konitzer, General Electric Aviation; Roger Reed, Imperial College London; Bruce Pint, Oak Ridge National Laboratory; Sammy Tin, Illinois Institute of Technology; Shiela Woodard, Pratt and Whitney

Tuesday AM
February 27, 2007
Room: Asia 4
Location: Dolphin Hotel

Session Chairs: Pierre Caron, ONERA; Roger Reed, Imperial College

9:00 AM Invited
Linking the Processing, Properties and Chemistry of Advanced Single Crystal Ni-Base Superalloys: *Sammy Tin*[1]; [1]Illinois Institute of Technology

9:25 AM
Effect of HIPping on the Deformation Anisotropy and Fracture of Single Crystal Ni-Base Superalloys: *Fereshteh Ebrahimi*[1]; Eboni Westbrooke[1]; Micheal Kessler[1]; [1]University of Florida

9:45 AM
Modelling the High Temperature Creep Behaviour of the Single Crystal Nickel-Based Superalloy CMSX4 <001>: Hector Basoalto[1]; Bernd Vermeulen[1]; Jeffery Brooks[1]; Gina Coventry[2]; *Steve Williams*[2]; Julian Mason-Flucke[2]; Stephen Bagnall[2]; [1]QinetiQ Ltd.; [2]Rolls-Royce plc.

10:05 AM
On the Creep and Phase Stability of Advanced Ru-Bearing Ni-Base Single Crystal Superalloys: *An-Chou Yeh*[1]; Akihiro Sato[2]; Atsushi Sato[1]; Hiroshi Harada[1]; [1]National Institute for Materials Science; [2]Ishikawajima-Harima Heavy Industries

10:25 AM
Detection of Fatigue Damage Accumulation in a Single Crystal Nickel-Base Superalloy: *Jianzhang Yi*[1]; Christopher Torbet[1]; Tresa Pollock[1]; Wayne Jones[1]; Divine Kumah[1]; Naji Husseini[1]; Roy Clark[1]; [1]University of Michigan

10:45 AM
Characterization of LCF Damage in Ni-Based Superalloys for Airfoil Applications: *Clarissa Yablinsky*[1]; Katharine Flores[1]; Michael Mills[1]; James Williams[1]; [1]Ohio State University

11:00 AM Break

11:15 AM Invited
Compositional Effects on the Cyclic Oxidation Resistance of Superalloys: *James Smialek*[1]; Timothy Gabb[1]; Charles Barrett[1]; [1]NASA

11:40 AM
Cyclic Oxidation of Ru-Containing Single Crystal Superalloys at 900°C: *Qiang Feng*[1]; Brian Tryon[2]; Tapash Nandy[2]; Tresa Pollock[2]; [1]University of Science and Technology Beijing, University of Michigan; [2]University of Michigan

12:00 PM
The Effect of Co and Refractory Element (Re+W) Contents on Cyclic Oxidation of Ru-Containing Single Crystal Superalloys at 1100°C: *Shuwei Ma*[1]; Dipak Das[1]; Tresa Pollcok[1]; [1]University of Michigan

12:20 PM
Microstructure and Oxidation Behavior of Aluminide Coated Ru-Containing Superalloys: *Dipak Das*[1]; Kenneth Murphy[2]; Tresa Pollock[1]; [1]University of Michigan; [2]Howmet Research Center

12:40 PM
The Effects of Silicon on the Oxidation Resistance of Ni-Base Superalloys: *Atsushi Sato*[1]; Hiroshi Harada[2]; Tadaharu Yokokawa[2]; Kyoko Kawagishi[2]; Hachiro Imai[1]; [1]Shibaura Institute of Technology; [2]National Institute for Materials Science

Recycling and Waste Processing: Automotive Recycling, Global Challenges and Opportunities

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Mark Schlesinger, University of Missouri-Rolla; Robert Stephens, Teckcominco, Inc.; Donald Stewart, Alcoa Technology; Ray Peterson, Aleris International; Jan van Linden, Recycling Technology Services, Inc.; Subodh Das, SECAT; Abdel Serna-Vasquez, Aleris International; Cynthia Belt, Aleris International Inc; John Pickens, Alumitech/Aleris International; John Hryn, Praxair; Richard Kunter, Richard S. Kunter Assoc; Andreas Siegmund, Quemetco Metals Inc.; Masao Suzuki, AI Tech Associates

Tuesday AM — Room: Australia 2
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM
Effect of Global Trade on Recycling and Recycling Technology: *Wijnand Dalmijn*[1]; [1]Dalmijn

9:25 AM
Future Developments in Car Recycling in the Netherlands: *David Bebelaar*[1]; [1]Automotive Recycling Nederland

9:55 AM
A Mechanical Separation Process to Recover Metals and Polymers from Shredder Residue: *Joseph Pomykala Jr.*[1]; Bassam Jody[1]; Edward Daniels[1]; Jianhong Yang[1]; Jeffrey Spangenberger[1]; [1]Argonne National Laboratory

10:25 AM Break

10:35 AM
Elemental Analysis and Chemical Composition Based Material Separation: *Adam Gesing*[1]; [1]Gesing Consultants Inc

11:05 AM
DE-XRT Imaging for Automatic Particle Sorting: *Tako de Jong*[1]; [1]Delft University of Technology

11:35 AM
The Success of Vehicle Recycling in North America: *Richard Paul*[1]; [1]Lear Automotive EEDS Spain S.L.

12:00 PM Panel Discussion

Shape Casting: The 2nd International Symposium: Process Design/Analysis

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS: Solidification Committee
Program Organizers: Paul Crepeau, General Motors Corporation; Murat Tiryakioglu, Robert Morris University; John Campbell, University of Birmingham

Tuesday AM — Room: Northern E2
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Makhlouf Makhlouf, Worcester Polytechnic Institute

9:00 AM Introductory Comments

9:10 AM
Advanced Intermetallic Materials and Processes: Overview of the IMPRESS Integrated Project: *David Jarvis*[1]; Daniela Voss[1]; Nicholas Lavery[1]; [1]European Space Agency

9:35 AM
A Self-Learning Approach for Casting Process Optimization: *Rajesh Ransing*[1]; Meghana Ransing[1]; [1]University of Wales Swansea

10:00 AM
Quantitative XCT Evaluation of Porosity in an Aluminum Casting: *Joseph Wells*[1]; [1]JMW Associates

10:25 AM
Naturally Pressurised Filling System Design: *John Campbell*[1]; [1]University of Birmingham

10:50 AM Break

11:10 AM
Improved Soundness and Mechanical Properties Obtained by Solidification under Pressure in A206: *Pavan Chintalapati*[1]; John Griffin[1]; [1]University of Alabama at Birmingham

11:35 AM
The Design of L-Shaped Runners for Aluminium Gravity Casting: *Fu-Yuan Hsu*[1]; Mark Jolly[2]; John Campbell[2]; [1]Auspicium Company Ltd; [2]University of Birmingham

12:00 PM
Analysis of a Confluence Weld Defect in an Aluminum Casting Alloy: *Oscar García-García*[1]; Miguel Sánchez-Araiza[2]; Manuel Castro-Román[1]; José Escobedo B[1]; [1]CINVESTAV; [2]Castech S.A. de C.V.

12:25 PM
Study of Mold Temperature Effect on the Incidence of Porosity in a Cast Cylinder Head: *Jacobo Vargas Orihuela*[1]; Manuel Castro-Roman[1]; Martin Herrera-Trejo[1]; Miguel Sánchez-Araiza[2]; [1]CINVESTAV; [2]Castech S.A. de C.V.

Structural Materials Division Symposium: Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch: Plasticity and Deformation Mechanisms at Small Length Scale I

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinghang Zhang, Texas A&M University; Yuntian Zhu, Los Alamos National Laboratory; Michael Rigsbee, North Carolina State University; C. Suryanarayana, University of Central Florida; Haiyan Wang, Texas A&M University; C. T. Liu, Oak Ridge National Laboratory

Tuesday AM
February 27, 2007
Room: Asia 5
Location: Dolphin Hotel

Session Chairs: Xinghang Zhang, Texas A&M University; K. Hsia, National Science Foundation

9:00 AM Invited
Plastic Deformation at the Micron Scale: Strain Gradients and Dislocation Source-Controlled Plasticity: *William Nix*[1]; [1]Stanford University

9:20 AM
A Simple Analysis of Partial Dislocations: *K. Jimmy Hsia*[1]; Huajian Gao[2]; [1]National Science Foundation; [2]Brown University

9:35 AM Invited
A Remarkable Microstructure in Phase-Transformed Ta Thin Films: *Shefford Baker*[1]; Robert Knepper[1]; Ray Fertig[1]; [1]Cornell University

9:55 AM
Strength Limits and Deformation of Ultrathin Copper and Silver Films: Wen Chung Li[1]; *T. John Balk*[1]; [1]University of Kentucky

10:10 AM
Etch-Induced Nanoscale Flaws Influence the Strength of Several Silicon Microfabrication Technologies: *Brad Boyce*[1]; David Miller[1]; Kenneth Gall[2]; Conrad Stoldt[3]; [1]Sandia National Laboratories; [2]Georgia Institute of Technology; [3]University of Colorado, Boulder

10:25 AM
Orientation Effects on Properties of Wear Tested Single Crystal Nickel: *Neville Moody*[1]; Megan Cordill[2]; Somuri Prasad[1]; William Gerberich[2]; [1]Sandia National Laboratories; [2]University of Minnesota

10:40 AM Break

10:55 AM Invited
Life of a Dislocation in a Nanocrystalline FCC Metal: Experiments and Simulations: *Helena Van Swygenhoven*[1]; [1]Paul Scherrer Institute, Switzerland

11:15 AM
Shear Plasticity Model for Nanocrystals: Anna Kolesnikova[1]; Ilya Ovid'ko[1]; *Alexey Romanov*[2]; [1]Institute of Problems of Mechanical Engineering; [2]Ioffe Physico-Technical Institute

11:30 AM Invited
Mechanical Property Evaluation at the Micro-Scale Using FIB Fabrication Methods: *Michael Uchic*[1]; Dennis Dimiduk[1]; Robert Wheeler[2]; Paul Shade[3]; Hamish Fraser[3]; [1]Air Force Research Laboratory; [2]UES, Inc.; [3]Ohio State University

11:50 AM
Statistical Nature of Surface Dislocation Nucleation: Ting Zhu[1]; *Ju Li*[2]; Amit Samanta[2]; Austin Leach[1]; Ken Gall[1]; [1]Georgia Institute of Technology; [2]Ohio State University

12:05 PM Invited
Length Scale Effects in the Deformation of Metals: *Cynthia Volkert*[1]; Nicolas Cordero[1]; Erica Lilleodden[1]; Alex Donohue[2]; Frans Spaepen[2]; [1]Forschungszentrum Karlsruhe; [2]Harvard University

12:25 PM
Experiments and Dislocation Dynamics Simulations of Plasticity in BCC Metal Micro-Pillars: *Julia Greer*[1]; Christopher Weinberger[2]; Wei Cai[2]; [1]Palo Alto Research Center (PARC); [2]Stanford University

12:40 PM
Nanomechanical Characterization of Individual Nano-/Microfibers: George Sunny[1]; *Pankaj Kaul*[1]; Vikas Prakash[1]; Alexis Abramson[1]; [1]Case Western Reserve University

Towards Functional Nanomaterials: Synthesis, Characterization, and Applications: Nanoscale Superstructures, Metallic Nanoparticles and Plasmon

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Zhiming Wang, University of Arkansas; Alexander Govorov, Ohio University; Andrey Rogach, Ludwig-Maximilians-Universtität München

Tuesday AM
February 27, 2007
Room: Oceanic 5
Location: Dolphin Hotel

Session Chairs: Alexander Govorov, Ohio University; Hugh Richardson, Ohio University

9:00 AM Invited
Nanoscale Superstructures from Nanowires and Nanoparticles: Nicholas Kotov[1]; *Jaebeom Lee*[1]; Alexander Govorov[2]; [1]University of Michigan; [2]Ohio University

9:30 AM Invited
Thermo-Optical Properties of Nanoparticles Embedded in Ice: Characterization of Heat Generation and Melting: *Hugh Richardson*[1]; Alexander Govorov[1]; Zachary Hickman[1]; Alyssa Thomas[1]; Martin Kordesch[1]; [1]Ohio University

10:00 AM Invited
Thermodynamically Driven Controlled Self-Assembly of Fluorescent Semiconductor Nanocrystals within Polycrystalline Superstructures with Desired Optical Properties: Alyona Sukhanova[1]; Alexander Baranov[1]; Vladimir Oleinikov[2]; Mikhail Artemyev[1]; Dmitry Klinov[2]; *Igor Nabiev*[1]; [1]Université de Reims Champagne-Ardenne; [2]Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences

10:30 AM
Wavelength Tuning of Surface Plasmon Resonance by Annealing Silver-Copper Nanoparticles: *Makoto Hirai*[1]; Ashok Kumar[1]; [1]University of South Florida

10:45 AM Break

10:55 AM Invited
Nanometals for Molecular Beacons and Optical Molecular Rulers: *Geoffrey Strouse*[1]; [1]Florida State University

11:25 AM Invited
The Nanooptics of Metallic Nanoparticles: *Garnett Bryant*[1]; [1]National Institute of Standards and Technology

11:55 AM Invited
Peptide Coated Nanoparticles for Catalysis and Sensing Applications: *Joseph Slocik*[1]; Jeffrey Zabinski, Jr.[1]; David Phillips[1]; Rajesh Naik[1]; Alexander Govorov[2]; [1]Air Force Research Laboratory; [2]Ohio University

12:25 PM
Microscopic Models of Hybrid Nanocrystals: Exciton-Plasmon Interactions and Photonic Properties: *Alexander Govorov*[1]; Wei Zhang[1]; Garnett Bryant[2]; [1]Ohio University; [2]National Institute of Standards and Technology

12:40 PM
Self-Organized Periodic Array of Single Crystal Oxide Nano Islands: *Michael Rauscher*[1]; L. Zimmerman[1]; S. Dregia[1]; J. Lee[1]; S. Akbar[1]; [1]Ohio State University

Wide Band-Gap Semiconductor Nanostructures: Session III

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee, TMS: Young Leaders Committee
Program Organizers: Ashutosh Tiwari, University of Utah; Haiyan Wang, Texas A&M; Minseo Park, Auburn University

Tuesday AM — Room: Oceanic 4
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Florian Solzbacher, University of Utah; Nori Sudhakar, North Carolina State University

9:00 AM Invited
Toward the Achievement of Tailor-Made Solid-State Lighting with a Phosphor-Less Technology Based on InGaN/GaN Quantum Wells: *Mitsuru Funato*[1]; M. Ueda[1]; K. Nishizuka[1]; Y. Kawakami[1]; Y. Narukawa[2]; T. Mukai[2]; [1]Kyoto University; [2]Nichia Corporation

9:35 AM Invited
MgZnO Nanoalloys: Optical, and Phonon Properties at Ambient and Extreme Conditions: *Leah Bergman*[1]; Matt McCluskey[2]; Tsvetanka Zheleva[3]; [1]University of Idaho; [2]Washington State University; [3]Army Research Laboratory

10:10 AM Invited
Advanced Carbon Materials for Vacuum Microelectronics and Thermonic Energy Converter Applications: *Sanju Gupta*[1]; [1]Missouri State University

10:35 AM Invited
Nanoscale Magnetic Properties of Self-Assembled Magnetic Particles in Single and Multilayered Structures: *Dhananjay Kumar*[1]; Alok Gupta[1]; [1]North Carolina A&T State University

11:00 AM Break

11:20 AM
Effect of Al Doping on the Properties of Zn(Cu)O Based Diluted Magnetic Semiconductors: *Deepayan Chakraborti*[1]; John Prater[2]; Jagdish Narayan[1]; [1]North Carolina State University; [2]Army Research Office

11:45 AM
Process Control and Gas Phase Dynamics during Laser Synthesis of ZnO Nanocrystals: *Masashi Matsumura*[1]; Mevlut Bulut[1]; Renato Camata[1]; [1]University of Alabama, Birmingham

12:10 PM
Optical and Electrical Properties of Ga-Doped Mg0.15Zn0.85O Thin Films: *Wei Wei*[1]; Chunming Jin[1]; Vikram Bhosle[1]; Andy Doraiswamy[2]; Roger Narayan[2]; Jagdish Narayan[1]; [1]North Carolina State University; [2]University of North Carolina at Chapel Hill

12:35 PM
Silicon Carbide White Light Emitting Diodes: *Sachin Bet*[1]; Nathaniel Quick[2]; Aravinda Kar[1]; [1]University of Central Florida; [2]Applicote Associates, LLC

1:00 PM
Pulsed Laser Deposition of Chromium-Doped Zinc Selenide Thin Films and Nanostructures for Mid-Infrared Laser Applications: Jonathan Williams[1]; *Renato Camata*[1]; [1]University of Alabama at Birmingham

2007 Nanomaterials: Fabrication, Properties and Applications: Session IV

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Wonbong Choi, Florida International University; Ashutosh Tiwari, University of Utah; Seung Kang, Qualcomm Inc.

Tuesday PM — Room: Oceanic 3
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Stephen Pearton, University of Florida; Seung Kang, Qualcomm Inc.

2:00 PM Invited
Magnetism and Transport in Epitaxially Grown Fractals and Nanodots of Transition Metal Alloys and Compounds: *R. Budhani*[1]; [1]Condensed Matter – Low Dimensional Systems Laboratory, Indian Institute of Technology Kanpur

2:25 PM
Functional Magnetic Nanostructures: *Srikanth Hariharan*[1]; [1]University of South Florida

2:40 PM
Domain Structures and Induced Magnetic Properties of Isolated and Interacting Iron (Fe) Ellipsoids inside Carbon Nanotubes: *Prabeer Barpanda*[1]; [1]Rutgers University

2:55 PM
Synthesis, $L1_0$ Ordering, and Magnetic Properties of $Fe_{50}Pt_{35}Rh_{15}$ Nanoparticles: *Mohammad Shamsuzzoha*[1]; Zhiyong Jia[1]; David E. Nikles[1]; J. W. Harrell[1]; [1]University of Alabama

3:10 PM
High-Temperature Magnetic Material: Nanostructured ε-Phase Fecon: Raghumani Ningthoujam[1]; Namdeo Gajbhiye[2]; *Nori Sudhakar*[3]; A. K. Nigam[4]; [1]Chemistry Division, Bhabha Atomic Research Centre, Mumbai; [2]Chemistry Department, Indian Institute of Technology; [3]Physics Department, Indian Institute of Technoloy; [4]Tata Institute of Fundamental Research Centre

3:25 PM Break

3:40 PM Invited
GaN,ZnO and InN Nanowires for Gas Sensing Systems: *Stephen Pearton*[1]; [1]University of Florida

4:05 PM
Functionalized Nanoelectrode Array on Microtip for Enzyme-Free Detection of Specific Analytes: *Somenath Roy*[1]; Aparna Datta Roy[1]; Harindra Vedala[1]; Wonbong Choi[1]; [1]Florida International University

4:20 PM
Precision Nanofabrication of Protein Nanostructures for Applications in Tissue Engineering and Drug Delivery: *Jianyu Liang*[1]; Shelley Dougherty[1]; [1]Worcester Polytechnic Institute

4:35 PM
Critical Factors in the Microfluidic Production of Semiconductor Nanocrystals: Fiona Doyle[1]; *Jeffrey Winterton*[1]; [1]University of California

4:50 PM
Doping of Nano-SnO2 for Enhanced Room Temperature Sensing: *Christina Drake*[1]; [1]University of Central Florida

5:05 PM
A General Route to Porous Nanostructured Oxides: *Qing Yang*[1]; [1]University of Science and Technology of China

5:30 PM
Solution Precursor Plasma Spray Nanostructured TiO2 Coating: *Dianying Chen*[1]; Eric Jordan[1]; Maurice Gell[1]; Xinqing Ma[1]; [1]University of Connecticut

5:45 PM
Synthesis of Nanosized Tungsten and Tungsten Carbide Powder: *Guo Zhimeng*[1]; Luo Ji[1]; Hao Lu[1]; Lin Tao[1]; Lu Guangfeng[1]; [1]School of Materials Science and Engineering, University of Science and Technology Beijing

8th Global Innovations Symposium: Trends in Materials and Manufacturing Technologies for Energy Production: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Global Innovations Committee
Program Organizers: Joy Hines, Ford Motor Company; David Bahr, Washington State University; John Smugeresky, Sandia National Laboratories

Tuesday PM — Room: Australia 3
February 27, 2007 — Location: Dolphin Hotel

Session Chair: David Bahr, Washington State University

2:00 PM
The Distribution of Oxygen in mc-Silicon Ingots for Solar Cell Applications: *Marisa Di Sabatino*[1]; Eivind Ovrelid[2]; Espen Olsen[2]; [1]Norwegian University of Science and Technology; [2]SINTEF

2:25 PM
In Situ Passivation during High Pressure Gas Atomization of Improved $MRE_2Fe_{14}B$ for High Performance Permanent Magnet Applications: *Peter Sokolowski*[1]; Iver Anderson[2]; Wei Tang[2]; Yaqiao Wu[2]; Kevin Dennis[2]; Matthew Kramer[1]; R. McCallum[1]; [1]Iowa State University; [2]Ames Laboratory

2:50 PM
Magnetostriction Studies in Single Crystals of Iron-Gallium Alloys: *Tanjore Jayaraman*[1]; Nakorn Srisukhumbowornchai[2]; Swieng Thuanboon[1]; Sivaraman Guruswamy[1]; [1]University of Utah; [2]King Mongkut's University of Technology Thonburi

3:15 PM
Studies of Magnesium Oxide-Coated Lithium Cobalt Oxide Materials: *Jinlin Lu*[1]; Xiujing Zhai[2]; Yan Fu[2]; [1]Shenyang Institute of Chemical Technology; [2]Northeastern University

3:40 PM Break

3:55 PM
Corrosion Behavior of Iron-Gallium Alloys in Aqueous Environments: *Tanjore Jayaraman*[1]; Nakorn Srisukhumbowornchai[2]; Michael Free[1]; Sivaraman Guruswamy[1]; [1]University of Utah; [2]King Mongkut's University of Technology Thonburi

4:20 PM
Investigation of Steel-Compound-Parts Manufactured by Indirect Impact Extrusion: Bernd-Arno Behrens[1]; Friedrich-Wilhelm Bach[2]; Kai Moehwald[2]; *Armin Kueper*[1]; [1]Institute of Metal Forming and Metal Forming Machine Tools (IFUM), University of Hanover; [2]Institute of Materials Science (IW), University of Hanover

4:45 PM
Development of Advanced Thermal Barrier Coatings for Mo-Si-B Materials: *Joshua Jackson*[1]; David Olson[1]; Brajendra Mishra[1]; Angelique Lasseigne[1]; [1]Colorado School of Mines

5:10 PM
Processing Gas Turbine Components with High Pressure Water Jet: *William Thompson*[1]; [1]Springfield Manufacturing LLC

5:35 PM
Hydrogen Effects on Laser Engineered Net Shape (LENS) Repaired Weldments: Paul Korinko[1]; *Thad Adams*[1]; [1]Savannah River National Laboratory

Advanced Metallic Composites and Alloys for High Performance Applications: Al Alloys and Composites

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS/ASM: Composite Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Awadh Pandey, Pratt & Whitney Rocketdyne; Kevin Kendig, Air Force Research Laboratory; John Lewandowski, Case Western Reserve University

Tuesday PM — Room: Europe 10
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Kevin Kendig, US Air Force Research Laboratory

2:00 PM Invited
Elevated Temperature Strength of an Al-Zn-Mg-Cu Alloy Modified with Sc and Zr: *Oleg Senkov*[1]; Svetlana Senkova[1]; Daniel Miracle[2]; [1]UES Inc; [2]US Air Force

2:20 PM
Precipitation of $Al_3(Sc,Zr)$ Particles in an Al-Zn-Mg-Cu-Sc-Zr Alloy during Heat Treatment: *Marat Shaghiev*[1]; Svetlana Senkova[1]; Oleg Senkov[1]; [1]UES, Inc.

2:40 PM
Aluminum - Intermetallic Particulate Composites: G.S. Murty[1]; *Brian Gordon*[1]; [1]Touchstone Research Laboratory

3:00 PM
Interfacial Intermetallic Growth in Fe Fibre Reinforced Aluminium Alloys: Yong Sun[1]; *Simon Barnes*[1]; Akihiro Katsuya[2]; [1]University of Manchester; [2]NHK Spring Company Ltd.

3:20 PM
Carbon Fiber with Ni-Coated Reinforced Aluminum Matrix Composites: *Han Bianhua*[1]; Tianjiao Luo[1]; Chunlin Liang[1]; Guangchun Yao[1]; Yihan Liu[1]; [1]Northeasten University

3:40 PM
Tensile Properties of Short-Carbon-Fiber Reinforced 2024 Alloy Matrix Composites: *Tianjiao Luo*[1]; Guangchun Yao[1]; Linli Wu[1]; Yihan Liu[1]; Bianhua Han[1]; [1]Northeastern University

4:00 PM
Fabrication of Carbon Nanotube Reinforced Aluminum Alloy Matrix Composite: *Chitoshi Masuda*[1]; Yu-Usuke Nishimiya[1]; [1]Waseda University

4:20 PM
Filament Winding of Metal Matrix Composites: *Brian Gordon*[1]; [1]Touchstone Research Laboratory

4:40 PM
Reinforcement Homogeneity and the Fracture of Discontinuously Reinforced Aluminum: *Garth Wilks*[1]; J. E. Spowart[1]; [1]Wright Patterson Air Force Base

5:00 PM
In Situ Fiber Strength Distribution in Nextel-Reinforced Aluminum Matrix Composites: *Joseph Butler*[1]; Jeffrey Schultz[1]; Stephen Kampe[1]; [1]Virginia Tech

5:20 PM
Thermal Management of Cast Carbon Fiber-Al Composites: Pradeep Rohatgi[1]; Vindhya Tiwari[1]; *Nikhil Gupta*[2]; [1]University of Wisconsin; [2]Polytechnic University

Advances in Computational Materials Science and Engineering Methods: Phase Field Methods II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Biomaterials Committee, TMS/ASM: Computational Materials Science & Engineering
Program Organizers: Koen Janssens, Paul Scherrer Institute; Veena Tikare, Sandia National Laboratories; Richard LeSar, Iowa State University

Tuesday PM Room: Europe 7
February 27, 2007 Location: Dolphin Hotel

Session Chair: Koen Janssens, Paul Scherrer Institute

2:00 PM Introductory Comments

2:05 PM Invited
A 3D Cellular Automaton Dislocation Model for FCC Crystals and Its Role in Multiscale Materials Modeling: *Qizhen Li*[1]; Peter Anderson[2]; [1]University of Nevada, Reno; [2]Ohio State University

2:40 PM Question and Answer Period

2:45 PM
Multiscale Phase Field Modeling of Phase Transformations in Solids: *Valery Levitas*[1]; Dong-Wook Lee[1]; Dean Preston[2]; [1]Texas Tech University; [2]Los Alamos National Laboratory

3:10 PM Question and Answer Period

3:15 PM
Coupled Composition-Deformation Phase-Field Method for Biological Membranes: Chloe Funkhouser[1]; Francisco Solis[2]; *Katsuyo Thornton*[1]; [1]University of Michigan; [2]Arizona State University

3:40 PM Question and Answer Period

3:45 PM Break

4:15 PM
Phase Field Study for Self-Assemble of the Second Phase Particles in Coherent Phase Transition: Pil-Ryung Cha[1]; *Jin-You Kim*[2]; [1]Kookmin University; [2]Seoul National University

4:40 PM Question and Answer Period

4:45 PM
Phase Field Modeling of Microstructural Evolution in Titanium Alloys: *Ning Ma*[1]; Yunzhi Wang[1]; [1]Ohio State University

5:10 PM Question and Answer Period

5:15 PM
Phase Field Based Microstructural Evolution Modeling of Binary and Ternary Nb-Si Alloys: *Sujoy Kar*[1]; Sundar Amancherla[1]; Bernard Bewlay[2]; Ying Yang[3]; Austin Chang[3]; [1]GE India Technology Center Pvt Ltd; [2]GE Global Research; [3]University of Wisconsin

5:40 PM Question and Answer Period

Advances in Microstructure-Based Modeling and Characterization of Deformation Microstructures: Modeling of Deformed Structures II

Sponsored by: The Minerals, Metals and Materials Society, ASM-MSCTS: Texture and Anisotropy Committee, ASM-MSCTS: Texture and Anisotrophy Committee
Program Organizers: Reza Shahbazian Yassar, Center for Advanced Vehicular Systems; Sean Agnew, University of Virginia; Jiantao Liu, Alcoa Technical Center

Tuesday PM Room: Europe 1
February 27, 2007 Location: Dolphin Hotel

Session Chairs: Mark Horstemeyer, Mississippi State University; Stuart Wright, EDAX-TSL

2:00 PM
Microstructural Modeling of Grain Subdivision and Large Strain Failure Modes in F.C.C. Crystalline Materials: Omid Rezvanian[1]; *Mohammed Zikry*[1]; A.M. Rajendran[1]; [1]North Carolina State University

2:20 PM Invited
Atomistic Processes of Phase Transformation and Dynamic Recrystallization in Intermetallic Titanium Aluminide Alloys: *Fritz Appel*[1]; [1]GKSS Research Centre Geesthach

2:45 PM Invited
Elastic-Plastic Self-Consistent Model Including Grain Reorientation Due to Twinning: *Bjorn Clausen*[1]; Carlos Tome[1]; Donald Brown[1]; Sean Agnew[2]; [1]Los Alamos National Laboratory; [2]University of Virginia

3:10 PM
Forming Limit Diagram Prediction for Non-Cubic Metals: Application to Magnesium Alloys: *C. John Neil*[1]; Sean Agnew[1]; [1]University of Virginia

3:30 PM Invited
Internal State Variable Modeling of Structure-Property Relationships in Deformed Microstructures: *Mark Horstemeyer*[1]; Kiran Solanki[1]; [1]Mississippi State University, Center for Advanced Vehicular Systems

3:55 PM Break

4:10 PM
Microstructure Modeling for the Superalloy Ingot Breakdown Process: *Alexander Bandar*[1]; Ravi Shankar[1]; Li Cai[1]; Wei-Tsu Wu[1]; Donald Weaver[2]; [1]Scientific Forming Technologies Corporation; [2]Air Force Research Laboratory, Metals Processing Section (AFRL/MLLP)

4:30 PM
Modeling the Mechanical Behavior of Hexagonal Materials: Application to Zirconium: *Gwenaelle Proust*[1]; Irene Beyerlein[1]; George Kaschner[1]; Carlos Tome[1]; [1]Los Alamos National Laboratory

4:50 PM Invited
Observation and Modeling of Dislocation Structure Evolution During Deformation of Aluminum: *David Field*[1]; Ioannis Mastorakos[1]; Colin Merriman[1]; [1]Washington State University

5:15 PM
Multiscale Characterization and Modeling of Ductile Fracture in Cast Aluminum Alloys: *Somnath Ghosh*[1]; Valiveti Dakshinamurthy[1]; Hu Chao[1]; Jie Bai[1]; [1]Ohio State University

5:35 PM
The Effect of Colony Orientation on Deformation Behavior and Slip Transmission during Hot Working of Ti-6Al-4V Single-Colony Samples: *Ayman Salem*[1]; S. Semiatin[1]; [1]US Air Force Research Laboratory

Alumina and Bauxite: Bauxite and Digestion

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Peter McIntosh, Hatch Associates; Jean Doucet, Alcan Inc; Morten Sorlie, Elkem Aluminium ANS

Tuesday PM — Room: Northern E4
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Daniel Thomas, Worley Parsons

2:00 PM Introductory Comments

2:10 PM
The Transformation of Goethite to Hematite under High Temperature Bayer Digestion Process and Its Relationship to Colloidal Iron: *Joseph Murray*[1]; Mitch Loan[1]; Kieran Hodnett[1]; [1]University of Limerick

2:35 PM
Jamaican Bauxite Iron Mineralogy; Its Effects on the Bayer Process: *Desmond Lawson*[1]; Lawrence Andermann[2]; Liam Burke[1]; Austin Mooney[1]; Ab Rijkeboer[3]; [1]West Indies Alumina Company; [2]SNF Holding Company; [3]Rinalco Consultancy

3:00 PM
Mechano-Activated Bauxite Behaviour: *Sébastien Fortin*[1]; Guy Forté[2]; [1]Alcan International Ltd; [2]Alcan - ARDC

3:25 PM
Effects of Microwave Roasting on the Leaching Behavior of Diaspore: *Wang YiYong*[1]; [1]Northeastern University

3:50 PM Break

4:00 PM
New Super Mills for Bauxite Grinding at the Gove Alumina Refinery: *Colin Thorpe*[1]; [1]Alcan Bauxite and Aluminum Technology, Alcan Engineering

4:25 PM
Grind Circuit Optimization: *Everett Phillips*[1]; Peter Dimas[1]; David Slinkman[1]; [1]Nalco Company

4:50 PM
New Technology for Indirect Heating of Thick Bauxite Slurries: Robert Kelly[1]; Dirk deBoer[1]; *Mark Edwards*[1]; [1]Hatch Associates

5:15 PM
Improvements of the Limestone-Sinter Process Treating High-Silicon Material for Production of Alumina: *Shangguan Zheng*[1]; Du Junxia[1]; [1]Institute of Non-ferrous Metallurgy, Central South University

5:40 PM Concluding Comments

Aluminum Alloys for Transportation, Packaging, Aerospace and Other Applications: Alloy Development

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Subodh Das, Secat Inc

Tuesday PM — Room: Northern A4
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Subodh Das, Secat Inc; Shridas Ningileri, Secat Inc

2:00 PM
New Aluminum Alloy for the Next Generation Aircraft: *Iulian Gheorghe*[1]; [1]Universal Alloy Corporation

2:25 PM
Towards Microstructurally Based Models for Sheet Formability and Fracture of Al Alloys: *David Wilkinson*[1]; Mukesh Jain[1]; Jidong Kang[1]; Haixiao Hu[1]; [1]McMaster University

2:50 PM
A Kind of New Aluminum Alloy Research: *Hua Shen*[1]; Zhi Guo Dong[1]; Weidong Yang[1]; Guangchun Yao[1]; [1]School of Materials and Metallurgy

3:15 PM
Development of Superplasticity in an Al-Mg-Sc Alloy: Jaya Prasad[1]; *Subramshu Bhattacharya*[1]; [1]IIT Madras

3:40 PM Break

3:50 PM
Thixoforging of AA6061 Alloy: *Yücel Birol*[1]; [1]Marmara Research Center

4:15 PM
Application of a New Constitutive Model for the FE Simulation of Local Hot Forming of Age Hardening Aluminium Alloys: Asbjørn Mo[1]; *Sylvain Gouttebroze*[1]; Øystein Grong[2]; Ketill Pedersen[1]; Hallvard Fjær[3]; [1]SINTEF; [2]Norwegian University for Science and Technology; [3]Institute for Energy Technology

4:40 PM
The Influence of Particle Size to the Preparation of Foam Aluminum by Powder Metallurgy Method: Zhiqiang Guo[1]; Guangchun Yao[1]; Yihan Liu[1]; [1]School of Materials and Metallurgy, Northeastern University

5:05 PM
Friction Stir Welding of Aluminum Alloys 6061-T6 and 6101-T6: *Carter Hamilton*[1]; Stanislaw Dymek[2]; [1]Miami University; [2]Akademia Górniczo - Hutnicza University of Science and Technology

Aluminum Reduction Technology: Cell Fundamentals and Phenomena

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Tuesday PM — Room: Southern 2
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Gary Tarcy, Alcoa Inc

2:00 PM
Bubble Noise from Søderberg Pots: *Marianne Jensen*[1]; Tor Pedersen[1]; Kjell Kalgraf[1]; [1]Elkem Aluminium ANS

2:25 PM
Theory of Bubble Noise, Bath Height, and Anode Quality: *Kjell Kalgraf*[1]; [1]Elkem Aluminium Research

2:50 PM
Electrode Processes of Sulphur Species in Molten Salts: *Pavel Fellner*[1]; Marta Ambrová[1]; Jomar Thonstad[2]; Jana Jurisová[1]; [1]Slovak University of Technology; [2]NTNU

3:15 PM
Cells Life Behavior Due to Shutdown and Restart up Strategies: *Handerson Dias*[1]; [1]ALBRAS

3:40 PM
Modified Alumina-Cryolite Bath with High Electrical Conductivity and Dissolution Rate of Alumina: *Anton Frolov*[1]; Alexander Gusev[1]; Yurii Zaikov[2]; Andrey Khramov[2]; Nikolai Shurov[2]; Olga Tkacheva[2]; Alexei Apisarov[2]; Vadim Kovrov[2]; [1]Engineering-Technological Center Ltd, RUSAL; [2]Institute of High Temperature Electrochemistry

4:05 PM Break

4:20 PM
Interaction of Heat Resistance Concrete with Low Melting Electrolyte KF-AlF3(CR=1,3): *Yurii Zaikov*[1]; Alexander Chuikin[1]; Alexander Redkin[1]; Andrei Khramov[1]; Nikolai Shurov[1]; Vasilii Kryukovskii[2]; [1]Institute of High Temperature Electrochemistry; [2]Russian Aluminum Company Rusal

4:45 PM
Effect of Ca in Characterization of Bath Electrolyte by the X-Ray Methods: *Frank Feret*[1]; [1]Alcan Inc

5:10 PM
Predictive Models for the Density and Viscosity of the NaF-AlF_3-CaF_2-Al_2O_3 Electrolyte: *Christian Robelin*[1]; Patrice Chartrand[1]; [1]CRCT (Ecole Polytechnique de Montreal)

5:35 PM
The Study on Non-Homogeneity of Electrolyte Melt Electrical Resistivity at Different Melt Level in Aluminum Reduction Cells: Peng Jianping[1]; Feng Naixiang[1]; Wang Yaowu[1]; You Jing[1]; *Ma Shaoxian*[2]; Ma Chenggui[2]; [1]Northeastern University; [2]Northeastern University Design and Research Institute

6:00 PM
Aluminium Production Process Options with a Focus on the Application of Hydrogen Diffusion Anodes: *Sankar Namboothiri*[1]; Mark Taylor[1]; John Chen[1]; Margaret Hyland[1]; Mark Cooksey[2]; [1]Light Metals Research Centre; [2]CSIRO Light Metals Flagship

6:25 PM
Aluminum-Iron Master Alloys Prepared Using Plain Carbon Steel Anode: *Dali Cao*[1]; Zhuxian Qiu[2]; Jikun Wang[3]; Zhongning Shi[2]; Zhaowen Wang[2]; [1]Shenyang Institute of Chemical Technology; [2]Northeastern University; [3]Yunnan Metallurgy Group

6:50 PM
Economic and Locational Advantages of Soderberg Smelters: *William Morrison*[1]; [1]William B. Morrison and Associates

Aluminum Reduction Technology: Modelling I

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Tuesday PM — Room: Southern 1
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Martin Segatz, Hydro Aluminium GmbH

2:00 PM
Impact of the Vertical Potshell Deformation on the MHD Cell Stability Behavior of a 500 kA Aluminum Electrolysis Cell: *Marc Dupuis*[1]; Valdis Bojarevics[2]; Daniel Richard[3]; [1]GeniSim Inc; [2]University of Greenwich; [3]Hatch Associates Ltd

2:25 PM
Modeling the Effect of the Anode Changing Sequence with a Non-Linear Shallow Water Stability Model: Vanderlei Gusberti[1]; *Dagoberto Severo*[2]; Schneider Andre[2]; Elton Pinto[2]; Antonio Vilela[1]; [1]LASID - PPGEM - Programa de Pos Graduacao em Engenharia Metalurgica, Minas e Materiais; [2]PCE Ltd

2:50 PM
Analysis of the Formation of Magnetic Forces in the Metal Pad: *Marcus Gustafsson*[1]; Dariusz Kacprzak[1]; Mark Taylor[1]; [1]University of Auckland

3:15 PM
Simulation of Cell Thermoelectric Field with Consideration of Electrochemical Reactions: *Gennady Arkhipov*[1]; Vitali Pingin[1]; Yaroslav Tretyakov[1]; [1]Energy Technology Centre, Russia

3:40 PM
Numerical Simulation of Electrical Joints in the By-Pass System of 230 kA Cells at CVG VENALUM: Ulises Ortega[1]; *Juan Salazar*[2]; Juan Gonzalez[2]; [1]National Polytechnic University UNEXPO; [2]CVG VENALUM

4:05 PM Break

4:20 PM
Shallow Water Model with Variable Bottom Height: *Valdis Bojarevics*[1]; Koulis Pericleous[1]; [1]University of Greenwich

4:45 PM
CFD Modelling of Electrolyte Flow in Aluminium Reduction Cells: Yuqing Feng[1]; *Mark Cooksey*[1]; M. Schwarz[1]; [1]Commonwealth Scientific and Industrial Research Organisation

5:10 PM
A New Model for MHD Instabilities in Aluminum Reduction Cells: *Mehdi Kadkhodabeigi*[1]; Yadollah Saboohi[1]; [1]Sharif University of Technology

5:35 PM
Numerical Study of Busbar Configuration of 600kA Aluminum Electrolysis Cell: *Mao Li*[1]; Jie-ming Zhou[1]; [1]Central South University

Biological Materials Science: Biological Materials/ Bio-Medical

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Andrea Hodge, Lawrence Livermore National Laboratory; Chwee Lim, National University of Singapore; Eduard Artz, University of Stuttgart; Masaaki Sato, Tohoku University; Marc Meyers, University of California, San Diego

Tuesday PM — Room: Europe 4
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Andrea Hodge, Lawrence Livermore National Laboratory

2:00 PM Introductory Comments

2:05 PM Invited
Nanobiomechanical Approaches to Studying Cancer: *C.T. Lim*[1]; [1]National University of Singapore

2:35 PM Keynote
Advanced Biomaterials for Regenerative Medicine: *Samuel Stupp*[1]; [1]Northwestern University

3:15 PM Invited
Significantly Accelerated Osteoblast Cell Growth on Aligned TiO_2 Nanotubes: *Sungho Jin*[1]; Brian Oh[1]; [1]University of California at San Diego

3:45 PM Break

4:05 PM Invited
Integration of "Bio" in the Materials Science and Engineering Program at Georgia Tech: *Naresh Thadhani*[1]; Robert Snyder[1]; [1]Georgia Institute of Technology

4:35 PM
Materials Science and Engineering Using Genetically Engineered Proteins and Peptides: Candan Tamerler[1]; *Mehmet Sarikaya*[1]; [1]University of Washington

4:55 PM
Direct Contact Cytotoxicity Assays for Filter-Collected, Carbonaceous Nanoparticulate Material and Observations of Lung Cell Response: *Karla Soto*[1]; K.M Garza; Y. Shi[1]; L.E. Murr[1]; [1]University of Texas

5:15 PM
Structure and Mechanical Properties of Crab Exoskeletons: *Po-Yu Chen*[1]; Albert Lin[1]; Marc Meyers[1]; [1]University of California, San Diego

5:35 PM
The Electronic Properties of Metal-Labeled DNA: *Chenzhong Li*[1]; [1]Florida International University

Biological Materials Science: Poster Session

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Andrea Hodge, Lawrence Livermore National Laboratory; Chwee Lim, National University of Singapore; Eduard Artz, University of Stuttgart; Masaaki Sato, Tohoku University; Marc Meyers, University of California, San Diego

Tuesday, 5:55 PM — Room: Europe 4
February 27, 2007 — Location: Dolphin Hotel

Application of Magnesium Alloys as Implant Material: *Ozgur Duygulu*[1]; Ali Arslan Kaya[1]; R. Alper Kaya[2]; Gizem Oktay[1]; Frank Witte[3]; [1]TUBITAK Marmara Research Centre, Materials Institute; [2]Sisli Etfal State Hospital, Clinic of Neurosurgery; [3]Department of Orthopaedic Surgery, Hannover Medical School

The Effect of Crystallographic Texture on Cell-Attachment Behavior and Mechanical Properties of Hydroxyapatite Coatings: *Hyunbin Kim*[1]; Renato Camata[1]; Sukbin Lee[2]; Gregory Rohrer[2]; Anthony Rollett[2]; Kristin Hennessy[1]; Susan Bellis[1]; Yogesh Vohra[1]; [1]University of Alabama at Birmingham; [2]Carnegie Mellon University

3-D Porous Resorbable Tricalcium Phosphate Mandible Bone-Graft via Fused Deposition Modeling (FDM): *Joseph Cardello*[1]; Monica Hopkins[2]; Samar Kalita[2]; [1]Timber Creek High School; [2]University of Central Florida

Matrix Metalloproteinase Influence on Titanium Implant Osseointegration: *Lindsey VanSchoiack*[1]; Julie Janes[2]; Veronica Shubayev[3]; James Earthman[1]; [1]University of California Irvine; [2]San Diego VA Healthcenter; [3]University of California San Diego

Simulation of the Stress State in the Forceps in Aspekt Improve Its Ergonomics: *Szota Michal*[1]; Jassinski Józef[1]; Lacki Piotr[1]; Jeziorski Leopold[1]; [1]Czestochowa Technical University

Bulk Metallic Glasses IV: Mechanical Properties II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Raymond Buchanan, University of Tennessee; Wenhui Jiang, University of Tennessee; Guojiang Fan, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee

Tuesday PM — Room: Asia 1
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: A. L. Greer, University of Cambridge; J. Eckert, Technische Universitat Darmstadt

2:00 PM Keynote
Shear Bands in Metallic Glasses: *A. L. Greer*[1]; [1]University of Cambridge

2:30 PM Invited
Design of Ductile Bulk Metallic Glasses and Composites: *Jurgen Eckert*[1]; [1]Darmstadt University of Technology

2:50 PM Invited
Investigations of Plastic Deformation Processes in a Bulk Metallic Glass: *Katharine Flores*[1]; Ashwini Bharathula[1]; Michael Uchic[2]; [1]Ohio State University; [2]US Air Force Research Laboratory

3:10 PM Invited
Microscopic Deformation Mechanisms in Metallic Glasses: *Mo Li*[1]; [1]Georgia Institute of Technology

3:30 PM
Nanometer Scale in Homogeneity and Enhancement of Plasticity in Bulk Metallic Glasses: *Do-hyang Kim*[1]; H. Chang[1]; E. Park[1]; Won Tae Kim[2]; [1]Center for Noncrystalline Materials, Yonsei University; [2]Cheongju University

3:45 PM
Spall Strength of a Zirconium-Based Bulk Metallic Glass: F*uping Yuan*[1]; Vikas Prakash[1]; John Lewandowski[1]; [1]Case Western Reserve University

4:00 PM Invited
Ductile Foreign-Particle-Reinforced Bulk Metallic Glasses and the Tailoring of Their Properties: *Jörg Löffler*[1]; [1]Swiss Federal Institute of Technology-Zurich

4:20 PM Invited
Plastic Deformation Behavior of Bulk Metallic Glass Composites Containing Spherical bcc Phase Precipitates: G. Sun[1]; *G. Chen*[1]; G. Chen[2]; [1]Nanjing University of Science and Technology; [2]Joint Laboratory of Nanostructured Materials and Technology, Nanjing University of Science and Technology, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing

4:40 PM
Yield Point of Metallic Glass: *Ju Li*[1]; Futoshi Shimizu[1]; Shigenobu Ogata[2]; [1]Ohio State University; [2]Osaka University

4:55 PM
The Influence of Pd on Fatigue Behavior of Zr-Based Bulk-Metallic Glasses: *Gongyao Wang*[1]; P. Liaw[1]; Y. Yokoyama[2]; M. Freels[1]; A. Inoue[2]; R. Buchanan[1]; C. Brooks[1]; [1]University of Tennessee; [2]Tohoku University

5:10 PM
A Correlation between Atomic Packing Density and Plastic Deformation of Cu-Zr Amorphous Alloys: An Atomistic Simulation Study: *Young-Min Kim*[1]; Byeong-Joo Lee[1]; [1]Pohang University of Science and Technology

5:25 PM
In-Situ Neutron Scattering Measurement of Stress-Strain Behavior of a Bulk Metallic Glass: *Timothy Wilson*[1]; Bjorn Clausen[2]; Jennifer Elle[3]; Thomas Proffen[2]; Don Brown[2]; [1]University of Tennessee; [2]Los Alamos National Laboratory; [3]University of Idaho

5:40 PM
Mechanical Properties of Al Based Amorphous Alloys with Nano-Dispersion Synthesized by Mechanical Alloying and Consolidated by Equal Channel Angular Pressing: D. Roy[1]; S. Bera[1]; Z. Zúberová[2]; R. Hellmig[2]; *Yuri Estrin*[2]; I. Manna[1]; [1]Indian Institute of Technology, Kharagpur, India; [2]Clausthal University of Technology

Cast Shop Technology: Quality Measurements and Grain Refining

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: David DeYoung, Alcoa Inc; Rene Kieft, Corus Group; Morten Sorlie, Elkem Aluminium ANS

Tuesday PM — Room: Northern E1
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Rein Vainik, Opticast Aluminium AB

2:00 PM Introductory Comments

2:05 PM
A Novel, Inexpensive and Rugged Probe for Measuring Gas Bubbles in Liquid Metals: Piero Marcolongo[1]; *James Evans*[1]; Dana Walker[2]; D. Corleen Chesonis[2]; [1]University of California; [2]Alcoa

2:30 PM
Method Developed for Quantitative Assessment of Inclusions in Aluminium Billets: Majed Jaradeh[1]; *Torbjorn Carlberg*[1]; [1]Mid Sweden University

2:55 PM
Improvement in Hydrogen Measurement Technique for Molten Aluminum: Todd Gansemer[1]; *Brian Reynolds*[1]; Jim Hart[2]; D. Corleen Chesonis[2]; [1]Alcoa Davenport Works; [2]Alcoa Technical Center

3:20 PM Break

3:45 PM
Grain Refinement of Al-Si Casting Alloys: *Geoffrey Sigworth*[1]; Mark Easton[2]; Joseph Barresi[3]; Tim Kuhn[1]; [1]Alcoa Inc; [2]Monash University; [3]Comalco Aluminium Ltd

4:10 PM
Refinement of Al-Si Eutectic Grains – A Novel Method to Produce High Integrity Al-Si Castings: Liming Lu[1]; Kazuhiro Nogita[2]; Stuart McDonald[3]; *Arne Dahle*[4]; [1]CSIRO Minerals; [2]Austrailian Research Council Centre of Excellence for Design in Light Metals, University of Queensland; [3]Cooperative Research Centre for Cast Metals Manufacturing; [4]University of Queensland

4:35 PM
Assessment of AlTiB and AlTiC Grain Refiners Performance Using the Alcoa Test: Cristian Stanescu[1]; *Carmen Stanica*[1]; Petru Moldovan[2]; Gheorghe Dobra[1]; Gabriela Popescu[2]; Nicolae Panait[2]; Mihai Butu[2]; [1]ALRO S A; [2]Polytechnic University of Bucharest

5:00 PM
Impact of Grain Refining on SemiSolid Metal Processing: *Shahrooz Nafisi*[1]; [1]Facility for Electron Microscopy Research

5:25 PM
Research on Grain Refiner of Aluminum by Electrochemistry Extraction: *Qun Zhao*[1]; [1]Research Institute of Light Metals

Characterization of Minerals, Metals, and Materials: Characterization of Mechanical and Physical Properties of Materials II

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Arun Gokhale, Georgia Institute of Technology; Jian Li, Natural Resources Canada; Toru Okabe, University of Tokyo

Tuesday PM — Room: Oceanic 8
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Sergio Monteiro, UENF; Toru Okabe, University of Tokyo

2:30 PM
Characterization of Surface-Treated and Cold Worked Nickel-Base Superalloys: *Hyojin Song*[1]; Peter Nagy[2]; Vijay Vasudevan[1]; [1]Department of Chemical and Materials Engineering, University of Cincinnati; [2]Department of Aerospace Engineering and Engineering Mechanics, University of Cincinnati

2:50 PM
Microstructural Characterization of Nitride Coatings: Julien Nazon[1]; Valérie Flaud[1]; Joël Sarradin[1]; Jean-Claude Tedenac[1]; *Nicole Fréty*[1]; [1]Université Montpellier II - CNRS - UMR 5617 - LPMC

3:10 PM
Comparison of the Influence of Hydrogen on the Mechanical Behavior of API X52, X65 and X70 Steels: *Miguel Barron*[1]; Victor Cortes[1]; Julio Juarez[2]; Guillermina Gonzalez[2]; [1]Universidad Autonoma Metropolitana Azcapotzalco; [2]Universidad Nacional Autonoma de Mexico

3:30 PM
Comparison between Traditional and Innovative Steels for Large Plastic Moulds: *Donato Firrao*[1]; Maurizio Chiarbonello[1]; Paolo Matteis[1]; Giovanni Mortarino[1]; Pasquale Russo Spena[1]; Giorgio Scavino[1]; Graziano Ubertalli[1]; Maria Ienco[2]; Gabriella Pellati[2]; Maria Pinasco[2]; Enrica Stagno[2]; Riccardo Gerosa[3]; Barbara Rivolta[3]; Agostino Silvestri[3]; Giuseppe Silva[3]; Adriano Tavasci[3]; Elisa Tata[4]; Severino Missori[4]; Roberto Montanari[4]; Andrea Ghidini[5]; [1]Politecnico Di Torino; [2]Università di Genova; [3]Politecnico di Milano; [4]Università di Roma Tor Vergata; [5]Lucchini Sidermeccanica S.p.A.

3:50 PM
A Thermal Characterization of Composites Behaviors on HASTELLOY® C-22HSTM Alloy: *E-Wen Huang*[1]; Fengxiao Liu[1]; Michael Benson[1]; Peter Liaw[1]; Hahn Choo[1]; Lee Pike[2]; Dwaine Klarstrom[2]; [1]University of Tennessee; [2]Haynes International, Inc.

4:10 PM
Evaluation of Structural Strength in Carbody of Freight Car: *Jeongguk Kim*[1]; Jung-Won Seo[1]; Sung-Tae Kwon[1]; Sung-Cheol Yoon[1]; Young Joon Kim[1]; [1]Korea Railroad Research Institute

4:30 PM Break

4:50 PM
A Comparison Between Mechanical Testing for Clayey Ceramic Strength Characterization: *Carlos Maurício Vieira*[1]; Eduardo de Carvalho[1]; Sergio Monteiro[1]; [1]State University of the Northern Fluminense

5:10 PM
Characterization of Clayey Ceramic Incorporated with Eucalyptus Firewood Ash: *Carlos Maurício Vieira*[1]; Mônica Borlini[1]; Sergio Monteiro[1]; [1]State University of the Northern Fluminense

5:30 PM
Fabric Rupture Mechanism of Jute Sackcloth Used as Reinforcement in Polyethylene Composites: *Sergio Monteiro*[1]; Amanda Lima[1]; Luis Augusto Terrones[1]; José Roberto d'Almeida[2]; [1]State University of the Northern Rio de Janeiro; [2]Catholic University of Rio de Janeiro

5:50 PM
Characterization of the Rupture Mechanisms of Coir Fibers in Polyester Composites: *Sergio Monteiro*[1]; Luis Augusto Terrones[1]; Felipe Lopes[1]; Jose Roberto d'Almeida[2]; [1]State University of the Northern Rio de Janeiro; [2]Catholic University of Rio de Janeiro

6:10 PM
Microstructures and Mechanical Properties of Sn-3.0Ag-0.5Cu-xNi Solders: *Fei-Yi Hung*[1]; Truan-Sheng Lui[1]; Li-Hui Chen[1]; Cheng-Wei Chan[1]; [1]National Cheng Kung University

Computational Thermodynamics and Phase Transformations: Microstructure Properties and Evolution II

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, ASM Materials Science Critical Technology Sector, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Corbett Battaile, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory

Tuesday PM — Room: Europe 11
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Invited
Density Functional Approach for Modeling Elasto-Plastic Effects in Solidification: *Nikolas Provatas*[1]; Peter Stefanovic[1]; Ken Elder[2]; [1]McMaster University; [2]Oakland University

2:30 PM Invited
Grain Boundary Segregation and Prewetting Studied by Phase-Field and Atomistic Methods: W. J. Boettinger[1]; *Y. Mishin*[2]; J. A. Warren[1]; P. L. Williams[2]; [1]National Institute of Standards and Technology; [2]George Mason University

3:00 PM
Phase-Field Modeling of Microstructural Evolution during Solidification in Al-Sc Alloys: *You-Hai Wen*[1]; Sarath Menon[1]; Chris Woodward[2]; [1]UES, Inc.; [2]Air Force Research Laboratory/MLLM

Diffusion in Advanced Materials and Processing: Materials Processing

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS: Alloy Phases Committee, TMS: High Temperature Alloys Committee, ASM-MSCTS: Atomic Transport Committee, TMS/ASM: Nuclear Materials Committee, TMS: Solidification Committee
Program Organizers: Yong-Ho Sohn, University of Central Florida; Carelyn Campbell, National Institute of Standards and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Afina Lupulescu, Union College

Tuesday PM — Room: Europe 2
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Daniel Lewis, Rensselaer Polytechnic Institute; Richard Sisson, Worcester Polytechnic Institute

2:00 PM Invited
Unusual Mechanochemical Mechanisms, Thermodynamics and Kinetics of Some Phase Transformations and Chemical Reactions in Solids: *Valery Levitas*[1]; [1]Texas Tech University

2:30 PM Invited
The Influence of Solid State Diffusion on Microstructural Development During Solidification: *John DuPont*[1]; [1]Lehigh University

3:00 PM
Reactivity of the Ag-28Cu Braze Alloy with Titanium: *Myriam Sacerdote-Peronnet*[1]; Jerôme Andrieux[1]; Olivier Dezellus[1]; Françoise Bosselet[1]; Jean-Claude Viala[1]; [1]University of Lyon

3:20 PM
Random Walk Modeling of Isothermal Solidification during TLP Bonding of Nickel Superalloys and Stainless Steels: Muhammad Arafin[1]; *Mamoun Medraj*[1]; Philippe Bocher[2]; Daniel Turner[3]; [1]Concordia University; [2]École de Technologie Supérieure; [3]Pratt and Whitney Canada

3:40 PM Break

3:50 PM Invited
Diffusion in the Al_2O_3-TiO_2 System under Pulsed Current Applications: Dat Quach[1]; Vladimir Kodash[1]; *Joanna Groza*[1]; [1]University of California

4:20 PM
Thermal Stability of Tantalum Nitrides Diffusion Barriers: Julien Nazon[1]; Joël Sarradin[1]; Jean-Claude Tedenac[1]; *Nicole Fréty*[1]; [1]Université Montpellier II - CNRS - UMR 5617 - LPMC

4:40 PM
Elemental Diffusion Behavior for the Sn-37Pb and Sn-3.0Ag-0.5Cu Joints with Cu and Ni Substrates during Aging: Po-Jyun Huang[1]; Kai-Jheng Wang[1]; *Jenq-Gong Duh*[1]; Mysore Dayananda[1]; [1]National Tsing Hua University

5:00 PM
Reaction Paths and Diffusion Paths in Fe/Al-Si Joints Obtained with Various Silicon Contents: *Myriam Sacerdote-Peronnet*[1]; Jean-Claude Viala[1]; [1]University of Lyon

5:20 PM
Calculation of Carburizing Kinetic Parameters from the Carbon Concentration Profiles based on Direct Integration of the Flux: *Olga Karabelchtchikova*[1]; Mohammed Maniruzzaman[1]; Richard Sisson[1]; [1]Worcester Polytechnic Institute

5:40 PM
Diffusion Models for Boronizing Processes: Wycliffe Graham[1]; Roumiana Petrova[1]; *Henry White*[2]; [1]New Jersey Institute of Technology; [2]Stony Brook University

Dynamic Behavior of Materials: Deformation IV

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Marc Meyers, University of California; Ellen Cerreta, Los Alamos National Laboratory; George Gray, Los Alamos National Laboratory; Naresh Thadhani, Georgia Institute of Technology; Kenneth Vecchio, University of California

Tuesday PM — Room: Europe 3
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Stephen Walley, Cavendish Laboratory; K. Ramesh, Johns Hopkins University

2:00 PM
DRX: The Dynamic Deformation Regime: *Lawrence Murr*[1]; [1]University of Texas at El Paso

2:30 PM
Shock and Recovery of Polymers and Particulate Composites: *Eric Brown*[1]; Philip Rae[1]; George Gray[1]; Carl Trujillo[1]; [1]Los Alamos National Laboratory

2:45 PM
Dynamic Behavior of Ceramic Powders: *Tracy Vogler*[1]; Daniel Sandoval[1]; Thomas Buchheit[1]; Moo Lee[1]; John Borg[2]; Dennis Grady[3]; [1]Sandia National Laboratories; [2]Marquette University; [3]Applied Research Associates

3:00 PM
Meso-Scale Hydrodynamic Calculations of Porous Granular Material: *John Borg*[1]; Tracy Vogler[2]; [1]Marquette University; [2]Sandia National Laboratories

3:15 PM
Shock Compression of Iron Nanoparticles: *Chengda Dai*[1]; Daniel Eakins[1]; Naresh Thadhani[1]; [1]Georgia Institute of Technology

3:30 PM Break

3:45 PM
Laser Compression: A New Frontier in Shock Research: *Marc Meyers*[1]; B. Remington[1]; D. Lassila[1]; J. McNaney[1]; E. Bringa[1]; [1]University of California

4:15 PM
Dynamic Response of Cellular Materials Characterized with High Speed Imaging: *Hideaki Kusano*[1]; Toshiji Mukai[2]; [1]Shimadzu Corporation; [2]National Institute for Materials Science

4:30 PM
Dynamic Response of a Multilayer Prismatic Cellular Metal to Underwater Blast: *Zhensong Wei*[1]; Anthony Evans[1]; [1]University of California, Santa Barbara

4:45 PM
Mechanical Property and Energy Absorption of Aluminium Foams under Dynamic and Quasi-Static Compression: *Yuncang Li*[1]; Jianyu Xiong[1]; Mark Forrest[1]; Peter Hodgson[1]; Cui'e Wen[1]; [1]Deakin University

5:00 PM
Research on Dynamic Compressive Property of Aluminum Foam with Different Matrix: *Haijun Yu*[1]; Guangchun Yao[1]; Yihan Liu[1]; [1]Northeastern University

5:15 PM
Design Space Exploration for Dynamic Testing of Foams in Split Hopkinson Pressure Bar: Siladitya Pal[1]; *Spandan Maiti*[1]; Ghatu Subhash[1]; [1]Michigan Technological University

5:30 PM
Dynamic Buckling in Shock Loaded Metallic Prismatic Cores and Their Imperfection Sensitivity: *Enrico Ferri*[1]; Anthony Evans[1]; [1]University of California-Santa Barbara

5:45 PM
Explosive Shock-Wave Consolidation of Aluminum Powder/Carbon Nanotube Aggregate Mixtures: Optical and Electron Metallography.: *Wayne Salas*[1]; Noé Alba-Baena[1]; Lawrence Murr[1]; [1]University of Texas at El Paso

6:00 PM
Characterization of Micro and Nano Second Phase/2-Phase Regimes Created by Explosive Shock-Wave Consolidation of Powder Mixtures: *Noé Alba-Baena*[1]; Wayne Salas[1]; Lawrence Murr[1]; [1]University of Texas at El Paso

Electrode Technology Symposium (formerly Carbon Technology): Properties of Inert Anode Materials

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS

Tuesday PM — Room: Southern 3
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Alexander Gusev, RUSAL

2:00 PM Introductory Comments

2:05 PM
Corrosion Behavior of Nickel Ferrite-Based Ceramics for Aluminium Electrolysis Cells: *Xiao Yan*[1]; Mark Pownceby[1]; Geoff Brooks[1]; [1]Commonwealth Scientific and Industrial Research Organisation

2:30 PM
Effect of Cu Content on the Corrosion Behaviour of Cu/(10NiO-90NiFe2O4) Cermets in Aluminum Electrolysis: Tian Zhongliang[1]; *Lai Yanqing*[1]; Li Xinzheng[1]; Li Jie[1]; Liu Yexiang[1]; [1]School of Metallurgical Science and Engineering

2:55 PM
Effect of Additive and Grain Composition and on Properties of Inert Anodes: Jinhui Xi[1]; Yingjie Xie[2]; Guangchun Yao[2]; Yihan Liu[2]; [1]China University of Mining and Technology; [2]Northeastern University

3:20 PM
Al-Ti-O-X Cermet as Inert Anode for Aluminium Electrolysis: *Xiaozhou Cao*[1]; Zhongning Shi[1]; Hongmin Kan[1]; Xianwei Hu[1]; Zhaowen Wang[1]; Zhuxian Qiu[1]; [1]Northeastern University

3:45 PM
Anti-Corrosion Mechanism of SiC-Si3N4 Sidelining Materials in Aluminium Electrolyte: *Zhaowen Wang*[1]; Xianwei Hu[1]; Zhongning Shi[1]; Bingliang Gao[1]; Guimin Lu[1]; Jianzhong Cui[1]; Zhuxian Qiu[1]; [1]Northeastern University

4:10 PM Break

4:30 PM
Effect of Copper Content on Microstructure and Mechanical Properties of Cu/(10NiO-NiFe2O4) Cermets: Zhang Gang[1]; *Li Jie*[1]; Lai Qing[1]; Zhang Yong[1]; Tian Liang[1]; Ye Long[1]; Liu Xiang[1]; [1]Central South University

4:55 PM
Study on the Conductivity of Fe-Ni-Al2O3 Cermet Inert Anode: *Xiaozhou Cao*[1]; Zhongning Shi[1]; Xianwei Hu[1]; Xiaodong Lu[1]; Zhaowen Wang[1]; Zhuxian Qiu[1]; [1]Northeastern University

5:20 PM
Analysis on Electrolysis Corrosion from the Electric Mechanism of Cermet Inert Anode Based on Nickel Ferrate: *Tao Luo*[1]; Zhao-wen Wang[2]; [1]Sun-Stone Carbon Technology Center; [2]School of Materials and Metallurgy, Northeastern University

Friction Stir Welding and Processing IV: Session III

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Rajiv Mishra, University of Missouri; Murray Mahoney, Rockwell Scientific Company; Thomas Lienert, Los Alamos National Laboratory; Kumar Jata, US Air Force

Tuesday PM — Room: Northern E3
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Invited
Microstructures and Mechanical Properties of Friction Stir Welded AA5182 and AA5754 Aluminum Tailor-Welded Blanks: *Yen-Lung Chen*[1]; [1]General Motors

2:20 PM
Formability and Springback Evaluation of Friction Stir Welded Automotive TWB Sheets: Wonoh Lee[1]; Junehyung Kim[1]; Daeyong Kim[2]; Chongmin Kim[3]; Michael L. Wenner[3]; Kazutaka Okamoto[4]; R.H. Wagoner[5]; *Kwansoo Chung*[1]; [1]Seoul National University; [2]Hyundai-Kia Motors; [3]General Motors; [4]Hitachi America, Ltd.; [5]Ohio State University

2:35 PM
Formability Analysis of Al 5052 Sheets Locally Surface-Modified by the Concept of Surface Friction Joining: *Chang Lee*[1]; Suk Kang[2]; Heung Han[2]; Sung-Joon Kim[3]; Kyu Oh[2]; [1]Korea Institute of Machinery and Materials; [2]Seoul National University; [3]Korea Institute of Machinery and Materials

2:50 PM
Numerical Simulation of the Static and Dynamic Response of Corrugated Sandwich Structures Made with Friction Stir Welding and Superplastic Forming: Karim Muci Kuchler[1]; *Sajith Kumar Annamaneni*[1]; Darrell Herling[2]; William Arbegast[1]; [1]South Dakota School of Mines and Technology; [2]Pacific Northwest National Laboratory

3:05 PM
Mechanical Properties of Friction Stir Welded Metal Matrix Composites at Cryogenic Temperatures: *Chris Vickery*[1]; Sara Hagie[1]; Michael Langerman[1]; William Arbegast[1]; Casey Allen[1]; [1]South Dakota School of Mines and Technology

3:20 PM
OIM Characterization of Banded Regions in a Friction Stir Weld: *Joseph Querin*[1]; Judy Schneider[1]; [1]Mississippi State University

3:35 PM Break

3:50 PM
Friction Stir Lap Joining of Al 7075 with Sealant: *Tim Li*[1]; George Ritter[1]; Nick Kapustka[1]; Richard Lederich[2]; [1]Edison Welding Institute; [2]Boeing Company

4:05 PM
Optimization of Properties in Friction Stir Welded Lap Joints of AA6111 Aluminum Alloy: *Manasij Yadava*[1]; Rajiv Mishra[1]; Y. Chen[2]; X. Gayden[2]; Glenn Grant[3]; [1]University of Missouri; [2]General Motors; [3]Pacific Northwest National Laboratory

4:20 PM
Friction Stir Welding of an Aerospace Grade Magnesium Alloy: *Xinjin Cao*[1]; M. Jahazi[1]; R. Mehta[1]; [1]Institute for Aerospace Research

4:35 PM
Friction Stir Joining of Thermoplastics: *Saritha Mattapelli*[1]; William Arbegast[1]; Robb Winter[1]; [1]South Dakota School of Mines and Technology

4:50 PM
Friction Stir Welding of Bulk Metallic Glasses – Vitreloy 106A: *Rakesh Suravarapu*[1]; Katharine Flores[2]; William Arbegast[1]; Stanley Howard[1]; [1]South Dakota School of Mines and Technology; [2]Ohio State University

Frontiers in Solidification Science: Microstructures II

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS: Chemistry and Physics of Materials Committee, TMS: Solidification Committee
Program Organizers: Jeffrey Hoyt, Sandia National Laboratories; Mathis Plapp, Ecole Polytechnique; Gabriel Faivre, CNRS; Shan Liu, Iowa State University

Tuesday PM — Room: Northern A3
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Invited
Faceted Twinned Bicrystalline Si Dendrites in Al-Si Dlloys: *Ralph Napolitano*[1]; Choonho Jung[2]; Emrah Simsek[3]; [1]Materials Science and Engineering, Iowa State University; Materials and Engineering Physics, Ames Laboratory; [2]Iowa State University; [3]Ames Laboratory

2:30 PM Invited
***In Situ* and Real Time Study of Directional Solidification by Synchrotron Imaging in Al-Based Alloys**: *Henri Nguyen-Thi*[1]; Guillaume Reinhart[1]; Nathalie Mangelinck-Noël[1]; Hyejin Jung[1]; Bernard Billia[1]; Adeline Buffet[2]; Thomas Schenk[3]; Jürgen Härtwig[2]; José Baruchel[2]; [1]L2MP-University Paul Cézanne; [2]ESRF; [3]LPM-Ecole des Mines de Nancy

3:00 PM Invited
Fine Structures: Feedback Control of Unstable Binary Alloy Microstructures: *Wolfgang Losert*[1]; Sílvere Akamatsu[1]; Herman Singer[1]; Andrew Pomerance[1]; Michael Newey[1]; Antonio Pons[2]; Alain Karma[2]; [1]University of Maryland; [2]Northeastern University

3:30 PM Break

3:50 PM Invited
Rapid Dendrite Growth in Undercooled Melts: Experiments and Modeling: *Dieter Herlach*[1]; [1]German Aerospace Center

4:20 PM Invited
Measurements of Experimentally Grown Three-Dimensional Xenon Multiplets and Comparative Phase Field Simulations: *Herman Singer*[1]; Irina Singer[1]; Joerg Bilgram[1]; [1]Swiss Federal Institute of Technology ETH

4:50 PM
Growth of Equiaxed Dendritic Crystals Settling in an Undercooled Melt: Arnoldo Badillo[1]; *Christoph Beckermann*[1]; [1]University of Iowa

5:10 PM
Quantifying Dendritic Coarsening in Three Dimensions: *Amber Genau*[1]; Peter Voorhees[1]; Dimitris Kammer[1]; [1]Northwestern University

Fundamentals of Shape Memory and Related Transitions: Atomistic and Microstructural Mechanisms

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Michael Manley, University of California; James Morris, Oak Ridge National Laboratory

Tuesday PM — Room: Europe 6
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Avadh Saxena, Los Alamos National Laboratory

2:00 PM Introductory Comments

2:10 PM Invited
Structural Transformations and Gigantic Magnetostriction in Fe-Ga Alloys: *Armen Khachaturyan*[1]; Dwight Viehland[2]; [1]Rutgers University; [2]Virginia Tech

2:40 PM
Tracing Phase Transition and "Memory" in Ferromagnetic Shape-Memory Alloys under External Fields: *Yandong Wang*[1]; Yang Ren[2]; E-Wen Huang[1]; Gang Wang[3]; Zhihua Nie[3]; Hahn Choo[1]; Peter Liaw[1]; Liang Zuo[3]; [1]University of Tennessee; [2]Argonne National Laboratory; [3]Northeastern University

3:05 PM
Magnetic Domain Walls and Anti-Phase Boundaries in Ni-Mn-Ga Ferromagnetic Shape Memory Alloys: *Sai Prasanth Venkateswaran*[1]; Noel T. Nuhfer[1]; Marc DeGraef[1]; [1]Carnegie Mellon University

3:30 PM Break

3:50 PM Invited
Martensitic Alpha to Omega in Titanium: Atomic Pathway and Impurity Effects: *Dallas Trinkle*[1]; Richard Hennig[2]; Srilliputhur Srinivasan[3]; Robert Albers[3]; John Wilkins[4]; [1]University of Illinois, Urbana-Champaign; [2]Cornell University; [3]Los Alamos National Laboratory; [4]Ohio State University

4:20 PM Invited
Reaction Coordinate Theory of Martensitic Transformation: Chen Shen[1]; Ju Li[1]; *Yunzhi Wang*[1]; [1]Ohio State University

4:50 PM
Characterization of a New Phase in a Ti-30Ni-20Pt High Temperature Shape Memory Alloy Using DSC, TEM and 3-D Atom Probe Tomography: *Michael Kaufman*[1]; Sarah McMurray[2]; David Diercks[1]; Anita Garg[3]; Ronald Noebe[3]; [1]University of North Texas; [2]Western Kentucky University; [3]NASA Glenn Research Center

5:15 PM
Alternate Transformation Pathways in NiTi: *James Morris*[1]; Maja Krcmar[2]; Y. Y. Ye[3]; C. L. Fu[1]; [1]Oak Ridge National Laboratory; [2]Grand Valley State University; [3]Ames Laboratory

General Abstracts: Structural Materials Division: Advances in Steel II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Composite Materials Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS: High Temperature Alloys Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS/ASM: Nuclear Materials Committee, TMS: Product Metallurgy and Applications Committee, TMS: Refractory Metals Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Titanium Committee
Program Organizers: Rollie Dutton, US Air Force; Ellen Cerreta, Los Alamos National Laboratory

Tuesday PM — Room: Europe 5
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Robert Hackenberg, Los Alamos National Laboratory; Amy Clarke, Los Alamos National Laboratory

2:00 PM Introductory Comments

2:10 PM
Investigation of Specific Compositional Elements as the Bases for the Specimen Bias in Fracture Toughness Reference Temperature for Reactor Pressure Vessel Steels: *Randy Nanstad*[1]; John Merkle[1]; [1]Oak Ridge National Laboratory

2:30 PM
Mechanical Properties and Strain Hardening Behavior of Microstructures Produced by Quenching and Partitioning (Q&P) Processing: *Amy Clarke*[1]; John Speer[2]; David Edmonds[3]; Kejian He[3]; Fernando Rizzo[4]; David Matlock[2]; [1]Los Alamos National Laboratory; [2]Colorado School of Mines; [3]University of Leeds; [4]Pontifícia Universidade Católica-Rio de Janeiro

2:50 PM
Effect of Prior Microstructure and Heating Rate on Austenite Formation in Spheroidized 52100 Steel: *Kester Clarke*[1]; Chester Van Tyne[1]; E. Buddy Damm[2]; Martin Mataya[3]; David Matlock[1]; [1]Colorado School of Mines; [2]Timken Company; [3]Los Alamos National Laboratory

3:10 PM
Effects of Ni Contents on Continuous Cooling Transformation Behavior and Mechanical Properties of Low Carbon HSLA Steels: *Juseok Kang*[1]; Chang Woo Lee[1]; Seong Soo Ahn[1]; Chang Yong Yoo[1]; Chang Gyung Park[1]; [1]Pohang University of Science and Technology

3:30 PM
Effects of Specimen Thickness and Notch Shape on Drop Weight Tear Test and Charpy Impact Test Properties of API X70 and X80 Line-Pipe Steels: *Sang Yong Shin*[1]; Byoungchul Hwang[2]; Sunghak Lee[1]; Nack J. Kim[1]; Ki Bong Kang[3]; [1]Pohang University of Science and Technology; [2]Korea Institute of Machinery and Materials; [3]POSCO

3:50 PM
Effects of Residual Stress on the Mechanical Properties of Steel Wires Used in Automotive Tires: *Yang Yo Sep*[1]; Park Seong Yong[1]; Bae Jong Gu[2]; Park Chan Gyung[1]; [1]POSTECH; [2]Trefilarbed Korea

Hume-Rothery Symposium: Scattering Studies and the Fundamental Properties of Materials: Session III

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Patrice Turchi, Lawrence Livermore National Laboratory; Wolfgang Donner, University of Houston; J. Robertson, Oak Ridge National Laboratory

Tuesday PM — Room: Oceanic 7
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Alphonse Finel, ONERA; Rozaliya Barabash, Oak Ridge National Laboratory

2:00 PM Invited
Diffuse Scattering of Bulk Alloys and the Near-Surface Microstructure: *Bernd Schönfeld*[1]; Gernot Kostorz[1]; [1]ETH Zurich

2:30 PM Invited
Diffuse Scattering Studies of Local Atomic Environments in Alloys: *J. Robertson*[1]; [1]Oak Ridge National Laboratory

3:00 PM Break

3:20 PM Invited
Quantitative Phase Field Modeling of Precipitation: *Alphonse Finel*[1]; Yann Le Bouar[2]; Umut Salman[1]; [1]Office National d'Etudes et de Recherches Aérospatiales; [2]Centre National de la Recherche Scientifique

3:50 PM Invited
Genesis of the Cluster Expansion Method: *Didier de Fontaine*[1]; [1]University of California

4:20 PM Invited
Predicting Short-Range Order and Its Effects on Alloy Properties via Direct First-Principles Calculations: *Duane Johnson*[1]; D. Biava[1]; [1]University of Illinois

4:50 PM Invited
The Role of Displacement Short Range Order in the Determination of Higher Order Correlation: *Yevgeniy Puzyrev*[1]; Donald Nicholson[1]; G. Stocks[1]; G. Ice[1]; [1]Oak Ridge National Laboratory

Innovations in Titanium Technology Symposium: Advances in Materials Processing

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory; F. H. (Sam) Froes, University of Idaho

Tuesday PM — Room: Asia 3
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Taras Lyssenko, International Titanium Powder; Richard Dashwood, Imperial College London

2:00 PM Invited
Advances in Titanium Metal Injection Molding: *Francis Froes*[1]; [1]University of Idaho

2:30 PM
Titanium Powder Metallurgy Composite Materials for Armor and Structural Applications: *Volodymyr Duz*[1]; Vladimir Moxson[1]; Jane Adams[2]; Walter Roy[2]; Stephen Luckowski[3]; [1]ADMA Products Inc; [2]US Army Research Laboratory; [3]US Army ARDEC

2:50 PM
Recent Advances in the Development of 60-Nitinol Using Gas Atomization: *Matthew Schneider*[1]; C. Yolton[1]; [1]Crucible Research

3:10 PM Invited
Sintering Behavior of Titanium Powders: *Stephen Gerdemann*[1]; David Alman[1]; [1]United States Department of Energy

3:35 PM Break

3:50 PM
Compaction of Titanium Powders: *Stephen Gerdemann*[1]; David Alman[1]; [1]United States Department of Energy

4:10 PM
The Adiabatic High Velocity Compaction of Titanium Powder: *Gordon Goranson*[1]; [1]LMC Inc.

4:30 PM
Microstructural Engineering of Pure Titanium for Improved Monotonic and Cyclic Response: *Guney Yapici*[1]; Ibrahim Karaman[1]; Hans Maier[2]; [1]Texas A&M University; [2]University of Paderborn

4:50 PM
Laser Processed Porous Ti for Biomedical Applications: Amit Bandyopadhyay[1]; *Vamsi Balla*[1]; Felix Espana[1]; Susmita Bose[1]; [1]Washington State University

Intellectual Property in Materials Science: Patents, Tech Transfer and Licensing: Commercialization

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division
Program Organizer: Steven Marsh, Dorsey & Whitney LLP

Tuesday PM — Room: America's Seminar
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Gary Abelev, Dorsey & Whitney LLP

2:00 PM Invited
Protection and Licensing of Biomaterials: Lessons Learned from Case Studies: *Frances Toneguzzo*[1]; [1]Massachusetts General Hospital

2:30 PM Invited
Commercialization of Technologies from University Research: *Peter Pritchard*[1]; [1]Center for Economic Growth

3:00 PM Invited
An Investor's View of Intellectual Property in Academic Start-Up Companies: *Amir Nashat*[1]; [1]Polaris Venture Partners

3:30 PM Break

3:45 PM Roundtable Discussion of Patent, Licensing and Tech Transfer Issues

Magnesium Technology 2007: Casting and Solidification II

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Tuesday PM — Room: Southern 5
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Helmut Kaufmann, Aluminium Ranshofen GmbH; Naiyi Li, Ford Motor Company

2:00 PM
Effects of Casting Technique on Microstructure and Mechanical Properties of Magnesium Alloy AM60: *Hong Tae Kang*[1]; Naiyi Li[2]; [1]University of Michigan-Dearborn; [2]Ford Motor Company

2:20 PM
Shear Defects in High Pressure Die Castings: *Christopher Gourlay*[1]; Arne Dahle[1]; [1]CRC for Cast Metals Manufacturing

2:40 PM
Influences of the Process Defect on the Material Properties of a Thin-Walled Cast Structure: *Saravanan Subramanian*[1]; Ronald Cooper[1]; Dan Houston[1]; Patrick Blanchard[1]; Nicholas Warrior[2]; [1]Ford Motor Company; [2]University of Nottingham

3:00 PM
Magnesium Metal Matrix Composites (Mg-MMC) Produced by Innovative Die Casting Process: *German Gertsberg*[1]; Eli Aghion[2]; Amir Arnon[2]; Nir Moskovitch[1]; [1]Magnesium Research Institute; [2]Ben Gurion University

3:20 PM
Research on Preparation Process of Super Light Mg-9Li-1Zn Alloy/Al Cladding Plate: Guoyin Zu[1]; Hongbin Li[1]; Guangchun Yao[1]; [1]School of Materials and Metallurgy

3:40 PM
Effect of Mn Addition on Microstructure and Properties of As-Casting Mg-Li-Al Alloy: Hong Bin Li[1]; Guangchun Yao[1]; Haibin Ji[1]; Zhiqiang Guo[1]; Zhengang Liu[1]; [1]Northeastern University

4:00 PM
Advances in Magnesium Injection Molding: M. Scharrer[1]; A. Lohmueller[1]; *Robert Singer*[1]; [1]Neue Materialien Fürth GmbH

4:20 PM
Effect of Severe Plastic Deformation on Thixomolded AZ91D Mg Alloy: Xiang Li[1]; *Amit Ghosh*[1]; Ray Decker[2]; [1]University of Michigan; [2]Thixomat, Inc.

4:40 PM
Rheo-Diecasting (RDC) of Magnesium Alloys: Zhongyun Fan[1]; Guojun Liu[1]; Yun Wng[1]; Souxun Ji[1]; *Amitabha Das*[1]; [1]Brunel University

5:00 PM
Rheoforming Technologies for Processing Wrought Magnesium Alloys: *Zhongyun Fan*[1]; Shouxun Ji[1]; Yun Wang[1]; Shaoming Zhang[1]; Amitabha Das[1]; [1]Brunel University

5:20 PM
Study of Processing Map on Mg-3Al-1Zn Alloy Prepared by Low Frequency Electromagnetic Casting: Yingxin Wang[1]; Xiaoqin Zeng[1]; Wenjiang Ding[1]; *Alan A. Luo*[2]; Anil K. Sachdev[2]; [1]Shanghai Jiaotong University; [2]General Motors Research and Development Center

Magnesium Technology 2007: Wrought Alloys and Forming Processes III: Extrusions

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Tuesday PM Room: Southern 4
February 27, 2007 Location: Dolphin Hotel

Session Chairs: Karl Kainer, GKSS Research Centre; Ravi Verma, General Motors Research and Development Center

2:00 PM
Extrusion Limits and Mechanical Properties of Magnesium Alloys: Dale Atwell[1]; *Matthew Barnett*[1]; [1]Cooperative Research Centre for Cast Metals Manufacturing (CAST)

2:20 PM
Quality-Affecting Parameters in the Direct Extrusion of Magnesium Alloys: *Wim Sillekens*[1]; [1]TNO Science and Industry

2:40 PM
The Effect of Severe Plastic Deformation on the Mechanical and Corrosion Behavior of Mg Alloys: *Dan Eliezer*[1]; Guy Ben-Hamu[1]; Loter Wagner[2]; [1]Ben-Gurion University of the Negev; [2]Technical University of Clausthal

3:00 PM
The Effect of Texture on the Mechanical Properties of AZ31 Mg Alloy by Equal Channel Angular Extrusion: *Li Jin*[1]; Dongliang Lin[1]; Xiaoqin Zeng[1]; Wenjiang Ding[1]; [1]Shanghai Jiaotong University

3:20 PM
Superplastic Deformation Behavior of AZ31 Magnesium Alloy Processed by Equal Channel Angular Processing: *Hyunseok Lee*[1]; Daewoo Kim[1]; Wonkyu Bang[2]; Youngwon Chang[1]; [1]Pohang University of Science and Technology; [2]Research Institute of Industrial Science and Technology

3:40 PM Break

4:00 PM
Influence of Extrusion Temperature on Microstructure, Texture and Fatigue Performance of AZ80 and ZK60: Muhammad Shahzad[1]; Julia Müller[1]; Sangbong Yi[1]; *Lothar Wagner*[1]; [1]Clausthal University of Technology

4:20 PM
The Influence of Grain Size on Yielding Asymmetry of Extruded AZ31 Magnesium Alloy: *Jingtao Wang*[1]; De Liang Yin[1]; [1]Nanjing University of Science and Technology

4:40 PM
The Role of Texture in Yielding Asymmetry of Extruded AZ31 Magnesium Alloy: De Liang Yin[1]; *Jingtao Wang*[1]; [1]Nanjing University of Science and Technology

5:00 PM
Anisotropic Properties of Thixoextruded AZ31 Mg Wrought Alloy: *Young-Ok Yoon*[1]; Lee Jin Kyu[1]; Hyung-Ho Jo[1]; Shae Kim[1]; [1]Korea Institute of Industrial Technology

5:20 PM
Control of Grain Size and Precipitate Shape on Fracture Toughness in Mg-Zn-Zr Alloy: *Hidetoshi Somekawa*[1]; Alok Singh[1]; Toshiji Mukai[1]; [1]National Institute for Materials Science

Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies: Hydrogen Storage Materials in Conjuction with the 8th Global Innovations Symposium: Metal Powders for Energy Production and Storage Applications

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizers: Zhenguo "Gary" Yang, Pacific Northwest National Laboratory; Michael Brady, Oak Ridge National Laboratory; K. Scott Weil, Pacific Northwest National Laboratory; Yong-Ho Sohn, University of Central Florida

Tuesday PM Room: Oceanic 6
February 27, 2007 Location: Dolphin Hotel

Session Chairs: Zhigang Fang, University of Utah; Chun Lu, Pacific Northwest National Laboratory

2:00 PM Invited
Exploration of Magnesium Borohydride for On-Board Hydrogen Storage: Grigorii Soloveichik[1]; Matthew Andrus[1]; Jun Cui[1]; Yan Gao[1]; John Lemmon[1]; Thomas Raber[1]; Job Rijssenbeek[1]; Malgorzata Rubinsztajn[1]; Suchismita Sanyal[1]; *Ji-Cheng Zhao*[1]; [1]GE Global Research

2:35 PM Invited
Effects of Mechanical Activation on Dehydrogeneation of the Lithium Amide and Lithium Hydride System: Ruiming Ren[1]; Tippawan Markmaitree[2]; William Osborn[2]; *Leon Shaw*[2]; Z. Gary Yang[3]; [1]University of Connecticut/Dalian Jiaotong University; [2]University of Connecticut; [3]Pacific Northwest National Laboratory

3:10 PM
Modification of Light Metal Complex Hydrides for Improved Storage Properties: *Chun Lu*[1]; Jinyong Kim[1]; Zhenguo Yang[1]; Leon Shaw[2]; [1]Pacific Northwest National Laboratory; [2]University of Connecticut

3:35 PM Break

3:50 PM Invited
High Capacity Mg-Based Hydrogen Storage Materials: *Peter Notten*[1]; Peter Kalisvaart[2]; Paul Vermeulen[2]; [1]Philips Research and Eindhoven University; [2]Eindhoven University

4:25 PM
Hydrogen Absorption on Gamma Irradiated Powders: *Luis Muga*[1]; Barbara Galuszka-Muga[1]; [1]TOFTEC Inc.

4:50 PM
NMR Study of Mechanically Activated Li-N-H System: *Chun Lu*[1]; Jianzhi Hu[1]; Zhenguo Yang[1]; Leon Shaw[2]; [1]Pacific Northwest National Laboratory; [2]University of Connecticut

Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies: SOFCs II

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizers: Zhenguo "Gary" Yang, Pacific Northwest National Laboratory; Michael Brady, Oak Ridge National Laboratory; K. Scott Weil, Pacific Northwest National Laboratory; Yong-Ho Sohn, University of Central Florida

Tuesday PM
February 27, 2007
Room: Asia 2
Location: Dolphin Hotel

Session Chairs: Yves Idzerda, Montana State University; Lichun Chen, Technical Materials Inc

2:00 PM Invited
Evaluation of a Surface Treatment on the Performance of Crofer 22 APU in a SOFC Button Cell: *David Alman*[1]; Christopher Johnson[1]; Paul Jablonski[1]; [1]Department of Energy

2:35 PM Invited
Advanced PVD Nanocomposite Protective Coatings for SOFC Metallic Interconnects: *Paul Gannon*[1]; Max Deibert[1]; Vladimir Gorokhovsky[2]; Richard Smith[1]; Zhenguo Yang[3]; Preston White[1]; Edward Musz[1]; Stephen Teintze[1]; [1]Montana State University; [2]Arcomac Surface Engineering, LLC; [3]Pacific Northwest National Laboratory

3:10 PM
Improvement of Oxidation Resistance of Ferritic Fe-Cr Alloy for SOFC Interconnects: *Akihiro Toji*[1]; Toshihiro Uehara[1]; [1]Hitachi Metals, Ltd.

3:35 PM
Evaluation of Model 6-22 Cr Ferritic and Austenitic Stainless Steel Alloys: *Paul Jablonski*[1]; David Alman[1]; [1]Department of Energy

4:00 PM Break

4:15 PM
Issues Related to Scale Area Specific Resistance (ASR) Measurement of Interconnect Alloys: *Jiahong Zhu*[1]; [1]Tennessee Technological University

4:40 PM
Electrical Contacts and Interfacial Resistance between Electrodes and Metallic Interconnects in SOFCs: *Guan-Guang Xia*[1]; Zhimin Nie[1]; Zhenguo "Gary" Yang[1]; Jeff Stevenson[1]; [1]Pacific Northwest National Laboratory

5:05 PM
X-Ray Analysis of SOFC Degradation from Hydrogen Sulfide Exposure: *Alexandre Lussier*[1]; Y. U. Idzerda[1]; S. Sofie[1]; [1]Montana State University

Materials Processing and Manufacturing Division Symposium: Mechanics and Materials Modeling and Materials Design Methodologies, in the Honor of Dr. Craig Hartley's 40 Years of Contributions to the Field of Mechanics and Materials Science: Materials Design

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Brent Adams, Brigham Young University; Hamid Garmestani, Georgia Institute of Technology

Tuesday PM
February 27, 2007
Room: Northern A1
Location: Dolphin Hotel

Session Chairs: David McDowell, Georgia Institute of Technology; Hamish Fraser, Ohio State University

2:00 PM
Challenges and Prospects for Materials Design: *David McDowell*[1]; [1]Georgia Institute of Technology

2:25 PM
Digital Material Frameworks for Material Design and Property Prediction: *Matthew Miller*[1]; Paul Dawson[1]; [1]Cornell University

2:50 PM
Invertible Microstructure-Property-Processing Linkages Using Spectral Methods: *Surya Kalidindi*[1]; Hari Kishore Duvvuru[1]; Marko Knezevic[1]; Massimiliano Binci[1]; [1]Drexel University

3:15 PM
On The Design and Control of Properties in Polycrystalline Materials Using Process-Texture-Property Maps: Nicholas Zabaras[1]; *Veera Sundararaghavan*[1]; [1]Cornell University

3:40 PM
Progress in Materials Modeling and Some Future Needs: Hamish Fraser[1]; Somnath Ghosh[1]; Michael Mills[1]; *James Williams*[1]; [1]Ohio State University

4:05 PM
Application of Microstructure Sensitive Design in Fuel Cell Electrodes: *Dongsheng Li*[1]; Hamid Garmestani[1]; [1]Georgia Institute of Technology

4:30 PM
Design and Control of Microstructure in Controlled Drug Release Systems: *David Saylor*[1]; Chang-Soo Kim[1]; Dinesh Patwardhan[1]; James Warren[2]; [1]U.S. Food and Drug Administration; [2]National Institute of Standards and Technology

4:55 PM
Property Closures for Uniform Ductility and Ultimate Tensile Strengths of Polycrystalline Cubic and Hexagonal Metals: *Marko Knezevic*[1]; Surya Kalidindi[1]; [1]Drexel University

5:20 PM
Computational Systems Design of Hierarchically Structured Materials: *Gregory Olson*[1]; [1]Northwestern University

Materials Processing Fundamentals: Powders, Composites, Coatings and Measurements

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee, TMS: EMPMD Council, TMS: EPD Council
Program Organizer: Princewill Anyalebechi, Grand Valley State University

Tuesday PM
February 27, 2007
Room: Northern A2
Location: Dolphin Hotel

Session Chair: Prince Anyalebechi, Grand Valley State University

2:00 PM
Plasma Synthesis of Ultrafine Nd-Fe-B Magnetic Particles: *Edgar Vidal*[1]; Alejandro Gonzalez[2]; Judith Gomez[1]; Patrick Taylor[1]; [1]Colorado School of Mines; [2]Universidad Simon Bolivar

2:15 PM
Synthesis of Biomorphic TiC Fibers Using Cotton as Bio-Templates: *Sutham Niyomwas*[1]; [1]Prince of Songkla University

2:30 PM
Properties of Magnesia-Calcium Zirconate Refractories Prepared by Nano-Technology: *Min Chen*[1]; [1]Northeastern University

2:45 PM
Synthesis of Porous Composites by Self-Propagating High Temperature Synthesis of TiO2-B2O3-Al System: *Sutham Niyomwas*[1]; [1]Prince of Songkla University

3:00 PM
Residual Strains of Steel Tubular Specimens after Subject to Torsion and Tension Using Neutron Diffraction: *Xin Luo*[1]; D. Penumadu[1]; Ke An[2]; Camden Hubbard[2]; F. Tang[2]; H. Choo[1]; Peter Liaw[1]; [1]University of Tennessee; [2]Oak Ridge National Laboratory

3:15 PM
Study on a New Technology for the Surface Metallization of Graphite particle: *Yihan Liu*[1]; [1]Northeastern University

3:30 PM Break

3:45 PM
Synthesis of Fibrous Nickel Cobaltite Spinel from Ammoniacal Complex Nickel-Cobalt Oxalate: *Jing Zhan*[1]; Chuanfu Zhang[1]; [1]Central South University

4:00 PM
Synthesis of Dense CaO Clinker from Lightweight CaCO3 with Oxides Addition: *Nan Wang*[1]; [1]Northeastern University

4:15 PM
The Study on the Surface Modification of Graphite by ZrO2 Coating in Ultrasonic Field: Zhi Guo Dong[1]; Yao Guangchun[1]; [1]Northeastern University

4:30 PM
The Formation of β-PP Crystals in a Compatibilized Blend of Isotactic Polypropylene and Polyamide-6: *Ronghua Zhang*[1]; [1]City University of Hong Kong

Microstructural Processes in Irradiated Materials: Modeling

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Tuesday PM
February 27, 2007
Room: Europe 8
Location: Dolphin Hotel

Session Chairs: Brian Wirth, University of California; Charlotte Becquart, University of Lille

2:00 PM
A Comparison of Cluster Dynamics Modeling by Reaction Rate Theory and Kinetic Monte Carlo: *Roger Stoller*[1]; Stanislav Golubov[1]; Christophe Domain[2]; Charlotte Becquart[3]; [1]Oak Ridge National Laboratory; [2]Electricite De France; [3]University of Lille

2:35 PM
Microstructural Evolution of Binary Alloys under Irradiation: *Arnoldo Badillo*[1]; Yang Liu[1]; Pavel Krasnochtchekov[1]; Robert Averback[1]; Pascal Bellon[1]; [1]University of Illinois at Urabana-Champaign

2:55 PM
Computer Simulation of Cascade Damage in Pure Iron and Fe-C: Andrew Calder[1]; *David Bacon*[1]; Alexander Barashev[1]; Yuri Osetsky[2]; [1]University of Liverpool; [2]Oak Ridge National Laboratory

3:15 PM
Defect Kinetics in Electron Irradiated Steels: A Multiscale Modeling: *Chu Chun Fu*[1]; Laurent Joly[1]; Jean-Louis Bocquet[1]; Alain Barbu[1]; Francois Willaime[1]; [1]SRMP CEA

3:35 PM Break

3:55 PM
Fitting Interatomic Potential Functions to Quantum Mechanical Calculations Using Neural Networks: *Roger Smith*[1]; Ed Sanville[1]; Steven Kenny[1]; Ajeevsing Bholoa[1]; [1]Loughborough University

4:30 PM
Effect of Interatomic Potential on the Behavior of Dislocation-Defect Interaction Simulation in Irradiated Fe: *Seyed Masood Hafez Haghighat*[1]; Jan Fikar[1]; Robin Schäublin[1]; [1]Centre de Recherches en Physique des Plasmas-Ecole Polytechnique Federale de Lausanne

4:50 PM
Independence of the Long Term Point Defect Cluster Growth on Displacement Cascades Features: *Marc Hou*[1]; Abdelkader Souidi[2]; Charlotte Becquart[3]; Christophe Domain[4]; Lorenzo Malerba[5]; [1]Université Libre de Bruxelles; [2]Centre Universitaire Dr. Moulay Tahar de Saida; [3]Université de Lille 1; [4]Electricité de France R&D; [5]SCK.CEN

5:10 PM
Non-Linear Dynamics of Microstructure Evolution and Pattern Formation in Irradiated Crystals: *Woo Chung Ho*[1]; [1]Hong Kong Polytechnic University

Microstructural Processes in Irradiated Materials: Poster Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Tuesday, 5:30 PM Room: Europe 8
February 27, 2007 Location: Dolphin Hotel

Nanocrystalline Materials: Enhancing Radiation Tolerance: *Tong Shen*[1]; Shi Feng[1]; Ming Tang[1]; James Valdez[1]; Yong Wang[1]; Kurt Sickafus[1]; [1]Los Alamos National Laboratory

Atomistic-Scale Understanding of Hardening Mechanism in Fe-Cr Alloys: *Jae-Hyeok Shim*[1]; Chan Sun Shin[2]; Whung Whoe Kim[2]; Brian Wirth[3]; [1]Korea Institute of Science and Technology; [2]Korea Atomic Energy Research Institute; [3]University of California, Berkeley

Microstructural Characterisation of Ion Irradiated Ultra-High Purity Iron by Experimental And Modeling Methods: *Mercedes Hernández-Mayoral*[1]; María José Caturla[2]; [1]Centro de Investigaciones Energeticas, Mediombientales y Tecnologicas; [2]Universidad de Alicante

Modeling Point Defect Interactions in Fe-Cr Alloys: *Brian Wirth*[1]; Hyon-Jee Lee[1]; Jae-Hyeok Shim[2]; Kevin Wong[1]; [1]University of California, Berkeley; [2]Korea Institute of Science and Technology

Diffusion of Defects Stimulated by *In-Situ* High-Energy Electron Irradiation: Experiment and Theory: Zhongwen Yao[1]; Marquis Kirk[2]; Chung Woo[3]; Sergei Dudarev[4]; *Michael Jenkins*[1]; [1]University of Oxford; [2]Argonne National Laboratory; [3]Hong Kong Polytechnic University; [4]EURATOM/UKAEA Fusion Association

Mutual Interaction of Interstitial Loops in α-Fe and Fe-Cr Alloys: *Dmitry Terentyev*[1]; Lorenzo Malerba[1]; [1]SCK-CEN

Optimization of DBTT of Eurofer ODS Steel by Controlled Heat Treatment: *Zheng Lu*[1]; Roy Faulkner[1]; [1]Loughborough University

Molecular Dynamics Study of Interstitial C Atoms in BCC Iron: Migration and Interaction with Radiation-Produced Point Defects and Defect Clusters: Kanit Tapasa[1]; *Alexander Barashev*[1]; David Bacon[1]; Yuri Osetsky[1]; [1]University of Liverpool

Dislocation Interactions with Helium Bubbles: Hyon-Jee Lee[1]; *Brian Wirth*[1]; Ian Robertson[2]; [1]University of California, Berkeley; [2]University of Illinois, Urbana-Champaign

Pb-Free Electronic Solders: Alloy Design, Characterization and Service Reliability: Whisker Growth, Design, and Modeling

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fu Guo, Beijing University of Technology; K. Subramanian, Michigan State University; Sung Kang, IBM Corporation; Srinivas Chada, Medtronic; Laura Turbini, University of Toronto; Jin Yu, Korea Advanced Institute of Science and Technology

Tuesday PM Room: Oceanic 1
February 27, 2007 Location: Dolphin Hotel

Session Chairs: Nikhilesh Chawla, Arizona State University; Srinivas Chada, Medtronic

2:00 PM
Effect of Stress on Whisker Growth in Matte Sn: *Adam Southworth*[1]; C. E. Ho[1]; Deep Choudhuri[1]; Andre Lee[1]; K. Subramanian[1]; [1]Michigan State University

2:20 PM
Indentation Load Effects on Whisker Growth in Sn3.5Ag Solders: *John Nychka*[1]; Fuqian Yang[1]; Rong Chen[1]; Yan Li[1]; [1]University of Kentucky

2:40 PM
Reliving Sn Whiskers Growth by Reflow: *Cheng-Chang Wei*[1]; P. C. Liu[1]; Chih Chen[1]; Jeffrey Lee[2]; P. C. Chen[3]; [1]National Chiao Tung University; [2]Integrated Service Technology; [3]Advanced Semiconductor Engineering

3:00 PM
Tin Whisker Growth Driven by Electric Current: *Yu-Wei Lin*[1]; C. Robert Kao[1]; Yi-Shao Lai[2]; [1]National Taiwan University; [2]Advanced Semiconductor Engineering Group

3:20 PM
Diffusion-Controlled Whisker Growth: *Fuqian Yang*[1]; [1]University of Kentucky

3:40 PM Break

3:50 PM
Origin of Surface Defects in Final Finishes of PCB by an Electroless Nickel Immersion Gold (ENIG) Process: *Bae-Kyun Kim*[1]; Seong-Jae Lee[1]; Jong-Yun Kim[1]; Kum-Young Jee[1]; Yeo-Joo Yun[1]; Mi-Yang Kim[1]; Song-Hae Park[1]; Jong-Soo Yoo[1]; [1]Samsung Electro-Mechanics

4:10 PM
Experimental Investigation and Thermodynamic Calculation of the Phase Equilibria in the Sn-Bi-Ni Ternary System: *Yoshikazu Takaku*[1]; Ikuo Ohnuma[1]; Zhanmin Cao[2]; Yuji Miyabe[3]; Ryosuke Kainuma[4]; Kiyohito Ishida[1]; [1]CREST-JST, Tohoku University; [2]University of Science and Technology Beijing; [3]Department of Material Science, Tohoku University; [4]CREST-JST, IMRAM, Tohoku University

4:30 PM
Modeling of Materials Properties of Multi-component Lead-Free Solder Alloys: Nigel Saunders[1]; *Zhanli Guo*[1]; Peter Miodownik[1]; Jean-Philippe Schille[1]; [1]Sente Software Ltd.

4:50 PM
Materials and Design Optimization of Integral Heat Spreaders and Solder Thermal Interface Materials in Advanced Intel CPU Packaging: *Thomas Fitzgerald*[1]; Carl Deppisch[1]; Fay Hua[1]; [1]Intel

5:10 PM
The Effect of a Solder Bump Size on the Ball-Shear Test Results: Woong Ho Bang[1]; *Choon-Sik Kang*[2]; Kyu Hwan Oh[2]; Choong-Un Kim[1]; [1]University of Texas at Arlington; [2]Seoul National University

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials VI: Session III

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-Wen Chen, National Tsing Hua University; Srinivas Chada, Medtronic; Chih-ming Chen, National Chung Hsing University; Young-Chang Joo, Seoul National University; A. Lindsay Greer, University of Cambridge; Hyuck Lee, Korea Advanced Institute of Science and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Katsuaki Suganuma, Osaka University

Tuesday PM Room: Oceanic 2
February 27, 2007 Location: Dolphin Hotel

Session Chairs: A. Greer, University of Cambridge; Chih Ming Chen, National Chung-Hsing University

2:00 PM Invited
Electromigration Effects on Intermetallic Compound Growth: *A. L. Greer*[1]; H. T. Orchard[1]; [1]University of Cambridge

2:25 PM Invited
Electromigration of Sn Based Alloy Solders: Incubation Time, Threshold Current Density and Driving Forces: *Young Chang Joo*[1]; [1]Seoul National University

2:50 PM
Electromigration in CuSn Intermetallic Compound: *ChengFeng Chen*[1]; Chin Chen[1]; [1]National Chiao Tung University, Department of Materials Science and Engineering

3:10 PM
Enhanced Electromigration Effects in the Eutectic SnBi Solder by the Addition of 1 wt% Copper: *Chih Ming Chen*[1]; Chih-chieh Huang[1]; [1]National Chung-Hsing University

3:30 PM Break

3:50 PM
Thermomigration of Pb in Eutectic SnPb Flip Chip Solder Joints: *Fan-Yi Ou Yang*[1]; K. N. Tu[1]; [1]University of California, Los Angeles

4:10 PM
Electromigration in Gold Bumps on Flexible Substrates under High Current and High-Electrical Field: *Chung Kuang Lin*[1]; S. W. Liang[1]; Chih Chen[1]; [1]National Chiao Tung University

4:30 PM
Electrical Resistivity and Interfacial Behavior of Bi-Ag/Cu High Temperature Solder Joints: *Jenn-Ming Song*[1]; Kar-Kit Lew[1]; Hsin-Yi Chuang[1]; [1]National Dong Hwa University

4:50 PM
Effect of Soldering Reaction on the Electrical Properties of Bismuth Telluride/Cu Junctions: *Chien-Neng Liao*[1]; Wen-Jin Chen[1]; Jing-Hua Li[1]; [1]National Tsing Hua University

5:10 PM
Thermomigration in Eutectic SnPb and SnAg Solder: *Hsiang-Yao Hsiao*[1]; Chih Chen[1]; [1]National Chiao Tung University

5:30 PM
Electrochemical Properties of the Sn-9Zn-1.5Ag-1Bi and Cu Substrate in 3.5wt % NaCl Solution: *Chih-Yao Liu*[1]; Moo-Chin Wang[2]; Min-Hsiung Hon[1]; [1]National Cheng Kung University; [2]National Kaohsiung University of Applied Sciences

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Plasticity from the Atomic Scale to Constitutive Laws: Dislocation Ensembles

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Christopher Woodward, US Air Force; Michael Mills, Ohio State University; Diana Farkas, Virginia Tech

Tuesday PM — Room: Europe 9
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: Jeff Simmons, US Air Force; Vaclav Vitek, University of Pennsylvania

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2:00 PM Invited
Dislocation Mean Free Paths Determined Using DD Simulations: *Benoit Devincre*[1]; Ladislas Kubin[1]; Thierry Hoc[2]; [1]CNRS; [2]Ecole Centrale Paris

2:30 PM
Dynamical Scaling in a Simple 1-D Model of Dislocation Activity: Jack Deslippe[1]; Raymond Tedstrom[2]; *Murray Daw*[2]; D. Chrzan[1]; T. Neeraj[3]; M. Mills[4]; [1]University of California, Berkeley; [2]Clemson University; [3]Exxon; [4]Ohio State University

2:50 PM
Is It Worth Observing Dislocations in the Microscope?: *Patrick Veyssiere*[1]; [1]Centre National De La Research Science

3:20 PM
Scale-Dependent Chemical Mixing Forced by Plastic Deformation in Solids: *Pascal Bellon*[1]; R. Averback[1]; S. Odunuga[1]; P. Krasnochtchekov[1]; Jia Ye[1]; [1]University of Illinois

3:40 PM Break

4:00 PM Invited
Algorithmic Developments Enabling Strain Hardening Simulations in Dislocation Dynamics: *Tom Arsenlis*[1]; [1]Lawrence Livermore National Laboratory

4:30 PM
In-Situ Neutron Diffraction Studies of Ductile Rare Earth B2 Intermetallics: *Scott Williams*[1]; Don Brown[2]; Bjorn Clausen[2]; Alan Russell[3]; Karl Gschneidner[3]; [1]Iowa State University; [2]Los Alamos National Laboratory; [3]Ames Laboratory

4:50 PM Invited
Deformation Mechanisms Based on Nanoscale Plastic Instabilities: *William Gerberich*[1]; Megan Cordill[1]; William Mook[1]; [1]University of Minnesota

5:20 PM
Dislocation Nucleation and Pileup from Surface Steps under Contact: *Yanfei Gao*[1]; Honghui Yu[2]; [1]University of Tennessee; [2]City College of New York

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Properties and Performance of High Temperature Alloys and Coatings: Coatings and Oxidation I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Qiang Feng, Beijing University of Science and Technology; Timothy Gabb, NASA Glenn Research Center; Doug Konitzer, General Electric Aviation; Roger Reed, Imperial College London; Bruce Pint, Oak Ridge National Laboratory; Sammy Tin, Illinois Institute of Technology; Shiela Woodard, Pratt and Whitney

Tuesday PM — Room: Asia 4
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: K. Jimmy Hsia, National Science Foundation; Doug Konitzer, GE Aviation

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2:00 PM Invited
Advances in Turbine Coatings and Alloys - Turbine Design Benefits: *David Litton*[1]; [1]Pratt and Whitney

2:25 PM
Influence of Cobalt on the Interaction between a Fourth Generation Single Crystal Superalloy and Its Protective Coating: Odile Lavigne[1]; *Pierre Caron*[1]; Catherine Ramusat[1]; [1]ONERA

2:45 PM
A Study of the Roles of Nickel and Aluminium in SRZ Formation: *Jestine Ang*[1]; Atsushi Sato[2]; Kyoko Kawagishi[3]; Toshiharu Kobayashi[3]; Hiroshi Harada[3]; [1]University of British Columbia; [2]Shibaura Institute of Technology; [3]National Institute for Materials Science

3:00 PM
Mechanical Properties of "EQ Coating" Coated Ni-Base Single Crystal Superalloys: *Akihiro Sato*[1]; Kyoko Kawagishi[2]; Yasuhiro Aoki[3]; Kazuhide Matsumoto[2]; Toshiharu Kobayashi[2]; Hiroshi Harada[2]; Mikiya Arai[3]; [1]National Institute for Materials Science/Ishikawajima-Harima Heavy Industries Company, Ltd.; [2]National Institute for Materials Science; [3]Ishikawajima-Harima Heavy Industries Company, Ltd.

3:20 PM Invited
Observations of the Microstructure and Mechanical Behavior of Two-Phase NiCoCrAlY Bond Coats: Budhika Mendis[1]; Chris Eberl[1]; *Kevin Hemker*[1]; [1]Johns Hopkins University

3:45 PM Invited
Microstructure and Property Analysis of of Magnetron Sputter Deposited NiAlHf and NiAlPtHf Coatings for High Temperature Applications: Patrick Coleman[1]; Xiao Li[1]; Bo Ning[1]; Feng Huang[1]; *Mark Weaver*[1]; [1]University of Alabama

4:10 PM Break

4:25 PM Invited
Surface Rumpling of Aluminide Coatings: Causes and Preventions: *Brian Gleeson*[1]; Daniel Sordelet[2]; [1]Iowa State University; [2]Ames Laboratory

4:50 PM
Synthesis and Oxidation Behavior of Platinum-Enriched γ+γ' Bond Coatings on Ni-Based Superalloys: *Ying Zhang*[1]; Justin Stacy[1]; Lirong Liu[1]; Bruce Pint[2]; Allen Haynes[2]; Ben Nagaraj[3]; Brian Hazel[3]; [1]Tennessee Technological University; [2]Oak Ridge National Laboratory; [3]General Electric Aircraft Engines

5:10 PM
Microstructural Changes of Bond-Coated Ni-Base Superalloys Caused by Coating Process and Subsequent Heat Cycles: *Hideyuki Murakami*[1]; Akihiro Yamaguchi[1]; Yingna Wu[1]; Seiji Kuroda[1]; [1]National Institute for Materials Science

5:30 PM
The Effect of Hf Content on the Phase Content, Oxidation Behavior and Phase Transformation-Induced Deformation of Two Phase Ni-Al and Ni-Pt-Al Alloys: *Bruce Pint*[1]; Scott Speakman[1]; Ian Wright[1]; Lirong Liu[2]; Ying Zhang[2]; [1]Oak Ridge National Laboratory; [2]Tennessee Technological University

5:50 PM
Prediction of Microstructure Evolution between Ir Coatings and Ni-Al Alloy Substrates Using a Phase-Field Model: *Machiko Ode*[1]; Taichi Abe[1]; Hideyuki Murakami[1]; Hidehiro Onodera[1]; [1]National Institute for Materials Science

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Recycling and Waste Processing: Precious Metals Recovery

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Mark Schlesinger, University of Missouri-Rolla; Robert Stephens, Teckcominco, Inc.; Donald Stewart, Alcoa Technology; Ray Peterson, Aleris International; Jan van Linden, Recycling Technology Services, Inc.; Subodh Das, SECAT; Abdel Serna-Vasquez, Aleris International; Cynthia Belt, Aleris International Inc; John Pickens, Alumitech/Aleris International; John Hryn, Praxair; Richard Kunter, Richard S. Kunter Assoc; Andreas Siegmund, Quemetco Metals Inc.; Masao Suzuki, AI Tech Associates

Tuesday PM — Room: Australia 2
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

2:30 PM
Recovery of Precious Metals by Using Chemically Modified Waste Paper: Katsutoshi Inoue[1]; *Hidetaka Kawakita*[1]; [1]Saga University

3:00 PM
Kinetics and Mechanism of the Reaction between Pt(IV) Complex Ions and Sodium Tiosulfate in Aqueous Solution: *Krzysztof Paclawski*[1]; Krzysztof Fitzner[1]; [1]AGH University of Science and Technology

3:30 PM
Recovery of Gold by Using Biomass Wastes Containing Polyphenol Compounds: *Katsutoshi Inoue*[1]; Hidetaka Kawakita[1]; [1]Saga University

4:00 PM Break

4:15 PM
Dissolution Rates of Pt-Zn Intermetallic Compounds in Acid: *Hideaki Sasaki*[1]; Masao Miyake[1]; Hisao Kimura[1]; Masafumi Maeda[1]; [1]University of Tokyo

4:45 PM
A New Method of Producing High-Pure Cathode Copper: *Xiao Xin*[1]; [1]Central South University

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Shape Casting: The 2nd International Symposium: Structure/Property

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS: Solidification Committee
Program Organizers: Paul Crepeau, General Motors Corporation; Murat Tiryakioglu, Robert Morris University; John Campbell, University of Birmingham

Tuesday PM — Room: Northern E2
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Glenn Byczynski, Nemak Canadian Operations

2:00 PM Introductory Comments

2:10 PM
The Fracture Strength of Si Particles in Tensile Specimens of A356 Castings: *John Griffiths*[1]; Edward Oliver[2]; Michael Fitzpatrick[3]; Trevor Finlayson[4]; David Viano[1]; Qigui Wang[5]; [1]CSIRO; [2]CCLRC Rutherford Appleton Laboratory; [3]The Open University; [4]Monash University; [5]General Motors Powertrain Engineering

2:35 PM
The Effect of Si Content on the Size and Morphology of Fe-Rich and Cu-Rich Intermetallics in Al-Si-Cu-Mg Alloys: *Carlos Caceres*[1]; Birgir Johannesson[2]; John Taylor[1]; Adrian Canales[3]; Marcos Cardoso[3]; Jose Talamantes[3]; [1]University of Queensland; [2]Icelandic Technological Institute; [3]Corporativo Nemak

3:00 PM
Extreme Value Statistics for Fracture in Aluminum Alloy Castings: *John Campbell*[1]; [1]University of Birmingham

3:25 PM
Effect of Processing on the Structure and Properties of Squeeze Cast Al-7Si-0.3Mg Alloy: *Kumar Sadayappan*[1]; Fragner Werner[2]; [1]CANMET - Materials Technology Laboratory; [2]ARC - LKR

3:50 PM Break

4:10 PM
Effect of Various HIP Conditions on Bifilms and Mechanical Properties in Aluminum Castings: *J. Staley*[1]; M. Tiryakioglu[1]; John Campbell[2]; [1]Robert Morris University; [2]University of Birmingham

4:35 PM
The Influence of Oxide Inclusions on the Post-HIP Fatigue Properties of Two Al-Si-Mg Castings: *Stephen Mashl*[1]; [1]Bodycote IMT Inc

5:00 PM
Structure, Properties, Processing Relations in Cast, Solutionized, and Aged Al-Si-Cu-Mg Alloys: Yong Ma[1]; Jian Fang[1]; *Harold Brody*[1]; [1]University of Connecticut

5:25 PM
Development of Novel Al-Si-Mg Alloys with 8 to 17 wt% Si and 2 to 3.5 wt% Mg: Xiaochun Zeng[1]; *Sumanth Shankar*[1]; Makhlouf Makhlouf[2]; [1]Light Metal Castings Research Centre, McMaster University; [2]Advanced Casting Research Center - Metal Processing Institute, Worchester Polytechnic Institute

Structural Materials Division Symposium: Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch: Stability, Strain and Stress

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinghang Zhang, Texas A&M University; Yuntian Zhu, Los Alamos National Laboratory; Michael Rigsbee, North Carolina State University; C. Suryanarayana, University of Central Florida; Haiyan Wang, Texas A&M University; C. T. Liu, Oak Ridge National Laboratory

Tuesday PM — Room: Asia 5
February 27, 2007 — Location: Dolphin Hotel

Session Chairs: C. Liu, Oak Ridge National Laboratory; Kevin Hemker, Johns Hopkins University

2:00 PM Invited
On the Thermal Stability of Nanostructured Materials: Stabilizing Defects by Solute Segregation: *Reiner Kirchheim*[1]; [1]Institut Fuer Materialphysik

2:20 PM
Effect of Annealing and Deformation on the Mechanical Behavior of Nanostructured Metals: *Xiaoxu Huang*[1]; Naoya Kamikawa[1]; Niels Hansen[1]; [1]Riso National Laboratory

2:35 PM
Thermal Stability of Sputter-Deposited Cu Foils with Nanoscale Growth Twins: O. Anderoglu[1]; A. Misra[2]; H. Wang[1]; R. Hoagland[2]; *Xinghang Zhang*[1]; [1]Texas A&M University; [2]Los Alamos National Laboratory

2:50 PM Invited
Observations of Room Temperature Stress-Assisted Grain Growth in Nanocrystalline Al Thin Films: Daniel Gianola[1]; *Kevin Hemker*[1]; [1]Johns Hopkins University

3:10 PM
Atomic Mechanism of Stress-Assisted Grain Coarsening during Indentation of a Nanostructured Metal: *Frederic Sansoz*[1]; Virginie Dupont[1]; [1]University of Vermont

3:25 PM
Stress-Induced Grain Growth in a Bulk Nanocrystalline Ni-Fe Alloy: A High-Energy X-Ray Diffraction Study: *Guojiang Fan*[1]; L. F. Fu[2]; Y. D. Wang[3]; G. Y. Wang[1]; H. Choo[1]; P. K. Liaw[1]; Y. Ren[4]; N. D. Browning[5]; [1]University of Tennessee; [2]University of California; [3]Northeastern University; [4]Argonne National Laboratory; [5]Lawrence Berkeley National Laboratory

3:40 PM Break

3:55 PM Invited
Atomistically-Informed Mesoscale Simulation of Coupled Grain Growth and Grain-Boundary Diffusion Creep in Nanocrystalline Materials: *Dieter Wolf*[1]; [1]Idaho National Laboratory

4:15 PM
The Use of X-Ray Diffraction to Determine Slip and Twinning Activity in Commercial-Purity (CP) Titanium: *Tamas Ungar*[1]; Krisztián Nyilas[1]; Michael Glavicic[2]; Levente Balogh[1]; Ayman Salem[2]; S. Semiatin[2]; [1]Eotvos University; [2]Air Force Research Laboratory

4:30 PM Invited
Tailoring and Patterning the Grain Size of Nanocrystalline Alloys: *Christopher Schuh*[1]; Andrew Detor[1]; Jason Trelewicz[1]; [1]Massachusetts Institute of Technology

4:50 PM
Stored Energy and Recrystallization Temperature of High Purity Copper after Equal Channel Angular Pressing: *Jingtao Wang*[1]; Yue Zhang[1]; Chang Cheng[1]; [1]Nanjing University of Science and Technology

5:05 PM
A Novel In-Situ Composite Structure in TiAl Alloys: *Fritz Appel*[1]; Michael Oehring[1]; Jonathan Paul[1]; [1]GKSS Research Centre Geesthach

5:20 PM
Characteristics of Nanostructured Ni3Al during Annealing: *Jiangwei Ren*[1]; Aidang Shan[1]; Junbao Zhang[2]; Junliang Liu[2]; Hongwei Song[2]; [1]School of Materials Science and Engineering, Shanghai Jiao Tong University; [2]Baosteel Iron and Steel Company, Ltd.

5:35 PM
Texture Evolution and Deformation Mechanisms in the Largely Deformed Bulk Nano-Metals: Yanling Yang[1]; *Yandong Wang*[1]; Hahn Choo[2]; Nan Jia[1]; Yandong Liu[2]; Liang Zuo[1]; Peter Liaw[2]; [1]Northeastern University; [2]University of Tennessee

5:50 PM
Interface Diffusion Phenomena in Advanced Nanostructured Materials: *Yury Kolobov*[1]; Maxim Ivanov[1]; Konstantin Ivanov[1]; [1]Belgorod State University

Structural Materials Division Symposium: Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch: Poster Session: Mechanical Properties of Nanostructured Materials

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinghang Zhang, Texas A&M University; Yuntian Zhu, Los Alamos National Laboratory; Michael Rigsbee, North Carolina State University; C. Suryanarayana, University of Central Florida; Haiyan Wang, Texas A&M University; C. T. Liu, Oak Ridge National Laboratory

Tuesday, 6:05 PM — Room: Asia 5
February 27, 2007 — Location: Dolphin Hotel

Session Chair: Yuntian Zhu, Los Alamos National Laboratory

Annealing Calorimetry as a Tool for Defect Analysis in Nanometals: *Daria Setman*[1]; Elena Korznikova[2]; Erhard Schafler[1]; Michael Zehetbauer[1]; [1]University of Vienna; [2]Ufa State Aviation Technical University, and Institute of Metals Superplasticity Problems, Russian Academy of Sciences

Asymmetric Cross Rolling: A Potential Severe Plastic Deformation of Processing Ultrafine-Grained Materials: *Bin Chen*[1]; [1]SJTU

Combination of ECAP and Aging Treatment to Strengthen AZ80 Magnesium Alloy: De Liang Yin[1]; *Jingtao Wang*[1]; Li Kui Weng[1]; [1]Nanjing University of Science and Technology

Dynamic Equal-Channel Angular Pressing of Ti for Producing Ultrafine-Grained Structure: *Evgeniy Shorokhov*[1]; Igor Zhgilev[1]; Alexander Gurov[1]; Dmitry Gunderov[2]; [1]Russian Federal Nuclear Center; [2]Ufa State Aviation Technical University

Dynamic Torsional Deformation of Ultra-Fine-Grained Dual Phase Steel Fabricated by Equal Channel Angular Pressing: *Yang Gon Kim*[1]; Byoungchul Hwang[2]; Sunghak Lee[1]; Dong Shin[3]; [1]Pohang University of Science and Technology; [2]Eco-Materials Research Center, Korea Institute of Machinery and Materials; [3]Hanyang University

Effect of Grain Boundary Recovery on Tensile Properties of Nanostructured CP-Ti Produced by Compressive Deformation at LNT: *Xiaojing Xu*[1]; [1]Jiangsu University

Effect of Hot Isostatic Pressing on a Cryomilled Aluminum Alloy and Boron Carbide Nanocomposite: *Rustin Vogt*[1]; Julie Schoenung[1]; Piers Newberry[1]; [1]University of California Davis

Effect of Low Temperature Annealing Twins on Mechanical Properties of nc-Ni: *Indranil Roy*[1]; Hsiao-Wei Yang[1]; Linh Dinh[1]; Farghalli Mohamed[1];

[1]University of California, Irvine

Effect of SiC Film on Tensile Properties of Nanostructured CP-Ti Produced by Compressive Deformation at LNT: *Xiaojing Xu*[1]; Honghong Shao[1]; Jianchang Gao[1]; [1]Jiangsu University

Effect of Strain Rate on the Tensile Behavior of Ultra-Fine Grained Pure Aluminum: *Mingliang Wang*[1]; Aidang Shan[1]; Jiangwei Ren[1]; [1]Shanghai Jiao Tong University

Effects of the Number of Equal-Channel Angular Pressing Passes on the Anisotropy of Ultra-Fine Titanium: *Alexander Korshunov*[1]; Tamara Kravchenko[1]; Lev Polyakov[1]; Andrey Smolyakov[1]; Irina Vedernikova[1]; Alexander Morozov[1]; [1]Russian Federal Nuclear Center- All-Russian Research Institute of Experimental Physics

Fabrication and Tensile Properties of Ultrafine Grained Dual Phase Steels: *Dong Shin*[1]; Duck Young Hwang[1]; Kyung-Tae Park[2]; Young Gun Ko[3]; Chong Lee[3]; [1]Hanyang University; [2]Hanbat National University; [3]Pohang University of Science and Technology

Fabrication of WC-Co Cermets by Laser Engineered Net Shaping: *Yuhong Xiong*[1]; John Smugeresky[2]; Leonardo Ajdelsztajn[1]; Julie Schoenung[1]; [1]University of California, Davis; [2]Sandia National Laboratories

Features of the Formation of the Microstructure of the V–4%Ti–4%Cr Alloy under Severe Plastic Deformations: *Ivan Ditenberg*[1]; Alexandr Tyumentsev[1]; Yury Pinzhin[1]; [1]Institute of Strength Physics and Material Science SB RAS

Flexible Electronics: From Printed Nano-Silver Inks to Organic Thin Film Transistors (OTFTs) on Polymer Substrates: *Julia Greer*[1]; Ana Arias[1]; William Wong[1]; Michael Chabinyc[1]; Robert Street[1]; [1]Palo Alto Research Center (PARC)

Highly Improved Ductility Achieved by Phase Transformation in Ultrafine-Grained Steel: *Sheng Cheng*[1]; Hahn Choo[1]; Xun-li Wang[1]; Peter Liaw[1]; [1]University of Tennessee

Improvement of Room Temperature Superplasticity in Zn-22%Al Alloy: Shao Hua Xia[1]; Jia Wang[1]; *Jingtao Wang*[1]; [1]Nanjing University of Science and Technology

In-Situ Observation of Tensile Deformation of Bimodal Al 5083: *Byungmin Ahn*[1]; Steven Nutt[1]; [1]University of Southern California

Mechanical Behavior of Bulk Ultrafine Grained Zr Processed by Severe Rolling: *Ling Jiang*[1]; Michael Kassner[1]; Oscar Ruano[2]; Teresa Pérez-Prado[2]; [1]USC; [2]CENIM, CSIC

Mechanical Properties of Long-Length Nanostructured Metallic Rods Produced by Continuous ECAP: *Georgy Raab*[1]; Dmitry Gunderov[1]; Yuntian Zhu[2]; Terry Lowe[2]; Ruslan Valiev[1]; [1]Ufa State Aviation Technical University; [2]Los Alamos National Laboratory

Mechanical Properties of Nanostructured fcc/bcc Multilayer Films: E. G. Fu[1]; N. Li[1]; A. Misra[2]; R. Hoagland[2]; *Xinghang Zhang*[1]; [1]Texas A&M University; [2]Los Alamos National Laboratory

Mechanistic Explanation for Strain Softening Phenomenon Observed in Nanocrystalline or Ultrafine-Grained Metals: *Feng Tang*[1]; Julie Schoenung[1]; [1]University of California

Microstructure and Mechanical Properties of Thermal Sprayed Nanocrystalline Cr3C2 Coatings: *Lalgudi Ramanathan*[1]; Francisco Ambrozio[1]; Nelson Lima[1]; Jose Martinelli[1]; Ana Helena Bressiani[1]; [1]Instituto de Pesquisas Energéticas Nucleares - IPEN

Molecular Dynamic Simulations of Plastic Deformation in Nanocrystalline Aluminum-Lead Alloy: *Seonhee Jang*[1]; Yojna Purohit[1]; Douglas Irving[1]; Clifford Padgett[1]; Ronald Scattergood[1]; Donald Brenner[1]; [1]North Carolina State University

Nano- and Ultrafine-Structured Metastable Beta-Titanium Alloys Processed by Severe Plastic Deformation: *Wei Xu*[1]; Xiaolin Wu[1]; Mariana Calin[2]; Kenong Xia[1]; Jürgen Eckert[2]; [1]University of Melbourne; [2]Technische Universität Darmstadt

New Opinion on Microstructure and Hardening Mechanism of Ti-Si-N Nanocomposite Coatings: *Ming Kong*[1]; Geyang Li[1]; [1]Shanghai Jiao Tong University

Numerical Simulations and Comparison with Experiment of the ECAE Process Multi Pass: *Andrey Smolyakov*[1]; Alexander Korshunov[1]; Vyacheslav Soloviev[1]; [1]Russian Federal Nuclear Center- All-Russian Research Institute of Experimental Physics

OIM Sutdy of Micro-Structure and Texture Heterogeneity during ECAP in Copper: *Alexander Zhilyaev*[1]; Srinivasan Swaminathan[2]; Georgy Raab[3]; Terry McNelley[2]; [1]Centro National de Investigaciones Metallúrgicas; [2]Naval Postgraduate School; [3]Ufa State Aviation Technical University

Post-ECAP Annealing of Al-Si Alloys: *Przemyslaw Szczygiel*[1]; Hans Roven[1]; Oddvin Reiso[2]; [1]Norwegian University of Science and Technology; [2]Hydro Aluminium AS

Precipitate Shape and Coherency Loss Mechanisms in Au-Rh Alloys: *Peihua Jing*[1]; Hyon-Jee Lee[1]; Jae-Hyeok Shim[2]; Brian Wirth[1]; I. M. Robertson[3]; [1]University of California, Berkeley; [2]Korea Institute of Science and Technology; [3]University of Illinois

Rate Dependent Behavior of Ultrafine Grained Magnesium Alloy: *Kyle Azevedo*[1]; Shailendra Joshi[1]; K.T. Ramesh[1]; Evan Ma[1]; [1]Johns Hopkins University

Residual Stress Analysis for As-Deposited Soft High Moment Fe65Co35/Ru Laminated Thin Films: *Jinmei Dong*[1]; Subhadra Gupta[1]; [1]University of Alabama

Strain-Hardening Behavior of Ultrafine Grained Microalloyed Steels Produced by Severe Plastic Deformation: *Maurizio Vedani*[1]; Sergio Arnaboldi[1]; Paola Bassani[2]; Ausonio Tuissi[2]; [1]Politecnico di Milano; [2]Consiglio Nazionale delle Ricerche- Istituto per l'Engergetica e le Interfasi

Strain Hardening Behavior of an Ultra-Fine Grained Aluminum Alloy: *Troy Topping*[1]; Andrew Newbery[1]; Zhuhui Zhang[1]; Enrique Lavernia[1]; [1]University of California, Davis

Strengthening Mechanisms of Bulk Nanostructured Ag Prepared by Powder Metallurgy and Subsequent Compressive Deformation at LNT: *Xiaojing Xu*[1]; Jinqi Cao[1]; [1]Jiangsu University

Stress Relaxation Mechanisms in Materials with Nanoinclusions: Vladimir Chaldyshev[1]; *Anna Kolesnikova*[2]; Alexey Romanov[1]; [1]Ioffe Physico-Thechnical Institute; [2]Institute of Problems of Mechanical Engineering

Structure Refinement of Aluminum Alloy 5083 under Severe Plastic Deformation: *Mark Yavorsky*[1]; Vladimir Segal[2]; Phil Young[2]; Gopal Viswanathan[1]; Vladimir Levit[1]; Hamish Fraser[1]; [1]Ohio State University; [2]Engineered Performance Materials

Study on Function of Modified Fly Ash in Production of Aluminum Foam: Wang Yong[1]; Yao Guang-chun[1]; Li Bing[1]; [1]Northeastern University

Superplasticity in Ultrafine-Grained Titanium: Observations and Properties Studies: *Irina Semenova*[1]; Alexander Korshunov[2]; Vladimir Latysh[3]; Terry Lowe[4]; Ruslan Valiev[1]; [1]Ufa State Aviation Technical University; [2]All Russian Scientific Research Institute of Experimental Physics; [3]Innovative Scientific and Technical Centre "Iskra"; [4]Los Alamos National Laboratory

Synthesis and Behavior of Bulk Nanostructured Al 5083-$Al_{85}Ni_{10}La_5$ Composites: *Zhihui Zhang*[1]; Bing Han[1]; Yizhang Zhou[1]; Enrique Lavernia[1]; [1]University of California, Davis

The Effect of Severe Plastic Deformation on Structural-Phase State and Strengthening Mechanisms of Al-Mg-Li Alloy: Evgeniy Naydenkin[1]; *Yury Kolobov*[2]; [1]Institute of Strength Physics and Materials Science; [2]Centre of Nanostructured Materials and Nanotechnologies

The Investigation of Structure State Features Influence on the Regularities and Mechanisms of Plastic Deformation and Fracture of V-4%Ti-4%Cr System Alloys: *Ivan Ditenberg*[1]; [1]Institute of Strength Physics and Material Science SB RAS

The Structure and Micro Hardness of Alloys Based Aluminium Produced by Rapid Quenching of a Melt: *N. Noskova*[1]; N. Vildanova[1]; R. Churbaev[1]; [1]Institute of Metal Physics of UD RAS

Unusual Mechanical Behaviour of Nanocrystalline Titanium Processed by High Pressure Torsion: *Rinat Islamgaliev*[1]; Lilija Kurmanaeva[1]; Vil Kazykhanov[1]; Larisa Schestakova[1]; Ruslan Valiev[1]; [1]Ufa State Aviation Technical University

Effect of Alloying on HPT Deformed Metals: *Martin Hafok*[1]; Reinhard Pippan[1]; [1]Erich Schmid Institute for Materials Science, Austrian Academy of Science

Factors Influencing the ECA Pressing of Ti-6Al-4V Alloy Having Lamellar Microstructure: *Young Ko*[1]; Dong Shin[2]; Chong Lee[1]; [1]Pohang University of Science and Technology; [2]Hanyang University

Towards Functional Nanomaterials: Synthesis, Characterization, and Applications: Nanowires and Nanotubes

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Zhiming Wang, University of Arkansas; Alexander Govorov, Ohio University; Andrey Rogach, Ludwig-Maximilians-Universtität München

Tuesday PM
February 27, 2007

Room: Oceanic 5
Location: Dolphin Hotel

Session Chairs: Dapeng Yu, Peking University; Leigh Smith, University of Cincinnati

2:00 PM Invited
Highly Emissive Nanowires Grown from Colloidal CdTe Nanocrystals: *John Donegan*[1]; Yury Rakovich[1]; Yurii Gun'ko[1]; Yury Volkov[1]; Nikolai Gaponik[2]; Andrey Rogach[3]; [1]Trinity College Dublin; [2]Technische Universitaet Dresden; [3]Maximilians Universitaet Munchen

2:30 PM Invited
Nanochemistry of Silicon Nanowires: *Ning-Bew Wong*[1]; Shuit-Tong Lee[1]; [1]City University of Hong Kong

3:00 PM Invited
Imaging the Electronic and Vibronic States of Single Semiconductor Nanowires: *Leigh Smith*[1]; [1]University of Cincinnati

3:30 PM
Concept on Superconductivity from Quantum Confinement in Nanowires: *J. Zheng-Johansson*[1]; [1]Institute of Fundamental Physics Research

3:45 PM
Formation of Self-Organized Porous Oxide Nanotubes by Anodization in Fluoride Containing Solutions: *Kouji Yasuda*[1]; Jan Macak[2]; Andrei Ghicov[2]; Saule Aldabergenova[2]; Patrik Schmuki[2]; [1]Kyoto University; [2]University of Erlangen-Nuremberg

4:00 PM Break

4:10 PM Invited
Investigation on ZnO Nanowires: *Dapeng Yu*[1]; [1]Peking University

4:40 PM Invited
Cavity QED, Nanophotonics and Quantum Communication with Atomically Doped Carbon Nanotubes: *Igor Bondarev*[1]; [1]North Carolina Central University

5:10 PM
Tunability of Anodized Titania Nanotubes: Role of Stress and Current – Potential Fluctuations: *Ajay Karakoti*[1]; H. Koeplin[2]; Jochen Schneider[2]; Ming Su[1]; Sudipta Seal[1]; [1]University of Central Florida; [2]RWTH Aachen

5:25 PM
Fractal Structure of ZnO Columns: Abil Asvarov[1]; *Aslan Abduev*[1]; Akhmed Akhmedov[1]; [1]Institute of Physics, DSC, RAS

5:40 PM Invited
Carbon Nanotube-DNA Nanoarchitectures and Electronic Functionality: *Cengiz Ozkan*[1]; [1]University of California

Wide Band-Gap Semiconductor Nanostructures: Session IV

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Materials Committee, TMS: Nanomaterials Committee, TMS: Thin Films and Interfaces Committee, TMS: Young Leaders Committee
Program Organizers: Ashutosh Tiwari, University of Utah; Haiyan Wang, Texas A&M; Minseo Park, Auburn University

Tuesday PM
February 27, 2007

Room: Oceanic 4
Location: Dolphin Hotel

Session Chair: Renato Camata, University of Alabama

2:00 PM Invited
Self- and Artificially-Assembled ZnO Multi-Dimensional Nanostructures with Multi-Functional Properties: *Sang-Woo Kim*[1]; [1]Kumoh National Institute of Technology

2:35 PM Invited
First-Principles Study of Harmonic and Anharmonic Lattice Dynamics in SiC and ZnO: *Jianjun Dong*[1]; Xiaoli Tang[1]; [1]Auburn University

3:10 PM
Synthesis and Characterization of Sol-Gel Derived Ag/ITO Nanocomposite Thin Films: *Boen Houng*[1]; Cheng-Ju Huang[1]; Bing-Yi Hou[1]; [1]I-Shou University

3:35 PM Break

3:55 PM
Schottky-Type Visible-Blind Ultraviolet Photodetector Fabricated on Bulk GaN Substrate: *Yi Zhou*[1]; Jia Zhu[1]; An-Jen Cheng[1]; Dake Wang[1]; Claude Ahyi[1]; Chin-Che Tin[1]; John Williams[1]; Minseo Park[1]; N. Williams[2]; Andrew Hanser[2]; Edward Preble[2]; [1]Auburn University; [2]Kyma Technologies, Inc.

4:20 PM
Ga:ZnO Films for Transparent Electrode Applications: *Vikram Bhosle*[1]; Jagdish Narayan[1]; [1]North Carolina State University

4:45 PM
Highly Reflective and Low Resistance Cu-Ag Alloy Ohmic Contacts on p-Type GaN: *Jun Ho Son*[1]; Jeong Hoon Lee[1]; Gwan ho Jung[1]; Jong-Lam Lee[1]; [1]Pohang University of Science and Technology

5:10 PM
Growth, Characterization and Magnetic Properties of FePt Thin Films and Nanostructures Integrated with Silicon: *Gopinath Trichy*[1]; Jagdish Narayan[1]; Honghui Zhou[2]; [1]North Carolina State University; [2]Los Alamos National Laboratory

5:35 PM
Magnetoresistance, Electrical Transport and Magnetic Studies on 2D Layered Manganite System $La_{1.2}Ba_{1.8}Mn_{2-X}Ru_{1-X}O_7$: *Nori Sudhakar*[1]; R. S. Ningthoujam[2]; K. P. Rajeev[3]; N. S. Gajbhiye[4]; Jagdish Narayan[1]; [1]North Carolina State University; [2]Bhabha Atomic Research Centre; [3]Indian Institute of Technology; [4]Indian Institute of Technology Kanpur

2007 Nanomaterials: Fabrication, Properties and Applications: Session V

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Wonbong Choi, Florida International University; Ashutosh Tiwari, University of Utah; Seung Kang, Qualcomm Inc.

Wednesday AM Room: Oceanic 3
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Ashutosh Tiwari, University of Utah; Seong Jin Koh, University of Texas at Arlington

9:00 AM Invited
Carbon Nanotube Films for Flexible Transparent Conducting Electrodes: *Young Hee Lee*[1]; [1]Sungkyunkwan University

9:25 AM
Thin Nano-Composite Pyroelectric Films: *Shlomo Berger*[1]; Michal Nitzani[1]; [1]Technion

9:40 AM
Synthesis and Study of Organic-Metallic Composite Rods Based on Ionic Liquids for Electronic Applications: Ashavani Kumar[1]; *Victor Pushparaj*[1]; Saravanababu Murugesan[1]; Caterina Soldano[1]; Jin Xie[1]; George John[2]; Omkaram Nalamasu[1]; Pulickel Ajayan[1]; Robert Linhardt[1]; [1]Rensselaer Polytechnic Institute; [2]City College of New York

9:55 AM
Viscoelastic Response of an Amorphous Copolymer Based Carbon Nano-Tube Nanocomposites: *Jyoti Jog*[1]; [1]National Chemical Laboratory

10:10 AM
Bi-, and Y-Based Thin Films Grown by Magnetron Sputtering for N/MEMS: *Mustafa Yavuz*[1]; Randy Fagan[1]; [1]University of Waterloo

10:25 AM Break

10:40 AM Invited
Plasma Spraying of Carbon Nanotube Reinforced Nanocomposites: *Arvind Agarwal*[1]; [1]Florida International University

11:05 AM
Atomistic Simulations of Interfacial Sliding in Amorphous Carbon Nanocomposites: *Sirish Namilae*[1]; Balasubramanium Radhakrishnan[1]; Gorti Sarma[1]; [1]Oak Ridge National Laboratory

11:20 AM
Characteristics and Densification Behavior of Iron Based Nanopowders Synthesized by Plasma Arc Discharge Process: *Chul-Jin Choi*[1]; Ji-Hun Yu[1]; Hye-Moon Lee[1]; [1]Korea Institute of Machinery and Materials

11:35 AM
Nanoporous Ni-Based Superalloy Membranes: *Oliver Naeth*[1]; Joachim Roesler[1]; [1]Technical University of Braunschweig

11:50 AM
Controlling Ductility of Nanoporous Au Foam through Ag Additions: *Andrea Hodge*[1]; Reed Doucette[2]; Alex Hamza[1]; Juergen Biener[1]; [1]Lawrence Livermore National Laboratory; [2]University of Southern California

12:05 PM
What is Behind the Inverse Hall-Petch Effect in Nanocrystalline Materials?: *Christopher Carlton*[1]; Paulo Ferreira[1]; [1]University of Texas at Austin

8th Global Innovations Symposium: Metal Powders for Energy Production and Storage Applications: Session I in Conjuction with the Symposium on Materials for Clean Power Systems II - Hydrogen Storage

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee
Program Organizers: Zhigang Fang, University of Utah; James Sears, South Dakota School of Mines and Technology

Wednesday AM Room: Oceanic 6
February 28, 2007 Location: Dolphin Hotel

Session Chair: Zhigang Fang, University of Utah

9:00 AM
Effects of Mechanical Milling on Hydrogen Storage Materials of Light-Metal-Based Hydrides: *Jun Lu*[1]; Young Joon Choi[1]; Zhigang Fang[1]; Hong Yong Sohn[1]; [1]University of Utah

9:25 AM
Hydrogen Desorption of Transition Metal Activated Alanates and Borohydrides: *Xia Tang*[1]; Susanne Opalka[1]; Bruce Laube[1]; Sarah Arsenault[1]; Thomas Vanderspurt[1]; Daniel Mosher[1]; Robert Wu[2]; Jamie Strickler[2]; [1]United Technologies Research Center; [2]Albemarle Corporation

9:50 AM
Investigation of a LiBH4 / LiNH2 System for Hydrogen Storage: *Michael Jurczyk*[1]; Sesha Srinivasan[1]; Ashok Kumar[1]; Elias Stefanakos[1]; [1]University of South Florida

10:15 AM
Study on Metal Hydrides (AB5 and AB3+x) and the Complex Hydride (LiAlH4): *Qu Xuanhui*[1]; Li Ping[1]; Zheng Xueping[1]; An Fuqiang[1]; [1]State Key Laboratory for Advanced Metals and Materials, School of Materials Science and Engineering, University of Science and Technology Beijing

10:40 AM Break

11:10 AM
Development of Non-Destructive Techniques for Material Characterization of Advanced Hydrogen Storage Materials: *Angelique Lasseigne*[1]; David Olson[1]; Brajendra Mishra[1]; Joshua Jackson[1]; [1]Colorado School of Mines

11:35 AM
Aluminum Nanopowder as a Precursor of Hydrogen Storage Materials: Jin Won Choi[1]; *Hong Yong Sohn*[1]; Gilsoo Han[1]; Young Joon Choi[1]; Zhigang Fang[1]; [1]University of Utah

12:00 PM
Fabrication of Nanocrystalline Al-Mg Alloy Powders by Electrodeposition Technique for Hydrogen Storage: *Sankara Sarma Tatiparti*[1]; Fereshteh Ebrahimi[1]; [1]University of Florida

12:25 PM
Hydrogenation of Electrodeposited Al-Mg Alloy Powders: *Fereshteh Ebrahimi*[1]; Sankara Tatiparti[1]; Mahesh Tanniru[1]; Darlene Slattery[2]; [1]University of Florida; [2]Florida Solar Energy Center

Advanced Metallic Composites and Alloys for High Performance Applications: Ti Alloys and Composites

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS/ASM: Composite Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Awadh Pandey, Pratt & Whitney Rocketdyne; Kevin Kendig, Air Force Research Laboratory; John Lewandowski, Case Western Reserve University

Wednesday AM
February 28, 2007
Room: Europe 10
Location: Dolphin Hotel

Session Chair: Jonathan Spowart, US Air Force Research Laboratory

9:00 AM Invited
Phase Transformations and Microstructure Evolution in Beta-Gamma TiAl Alloys: *Young-Won Kim*[1]; Dennis Dimiduk[2]; Christopher Woodward[2]; [1]UES Inc; [2]Air Force Research Laboratory

9:20 AM
Using Accumulative Rolling and Diffusion Annealing to Process Ti-46Al-9Nb Intermetallic Sheets: Rengang Zhang[1]; *Viola Acoff*[1]; [1]University of Alabama

9:40 AM
Microstructure and Residual Stress Distribution in Laser Shock Peening Processed Ti-6Al-4V Alloy: *Yixiang Zhao*[1]; Seetha Mannava[1]; Vijay Vasudevan[1]; [1]University of Cincinnati

10:00 AM
Superplasticity in Boron Modified Ti-6Al-4V Alloy: S. Tamirisakandala[1]; M. Scott[1]; *Vikas Sinha*[1]; Daniel Miracle; [1]U.S. Air Force Research Laboratory

10:20 AM
Advancement of Engine and Airframe Performance Capability: Critical Life Prediction Research on Boron-Enhanced Ti-6Al-4V: *Kevin Schwendiman*[1]; Stephan Russ[1]; Daniel Miracle[1]; Kevin Kendig[1]; Sesh Tamirisa[2]; Shankar Mall[3]; [1]Air Force Research Laboratory; [2]Ohio University; [3]Air Force Institute of Technology

10:40 AM Invited
Tensile Fracture Mechanism for SiCf(SCS-6)/Ti Alloys Based Mono-Composites: *Chitoshi Masuda*[1]; [1]Waseda University

11:00 AM
Microstructural Evolution in Ti-5Al-5Mo-5V-3Cr-0.5Fe (TIMETAL-5553) and Related Metal-Matrix Composites: *Rajarshi Banerjee*[1]; Arda Genc[2]; Soumya Nag[2]; Michael Kaufman[1]; Jaimie Tiley[3]; Hamish Fraser[2]; [1]University of North Texas; [2]Ohio State University; [3]Wright Patterson Air Force Base

11:20 AM
Fatigue Behavior and Fatigue Damage of a Ti-6242/SCS-6 Metal Matrix Composite: Dirk Bettge[1]; Burkhard Guenther[1]; Pedro Portella[1]; *Birgit Skrotzki*[1]; J. Hemptenmacher[2]; P. Peters[2]; [1]Federal Institute for Materials Research and Testing (BAM); [2]German Aerospace Center (DLR)

11:40 AM
Comparison of the Tensile, and Creep Behavior for Ti-24Al-17Nb-0.66Mo(at%) and Ti-24Al-17Nb-2.3Mo (at.%) Matrices and Their SiC Fiber-Reinforced Composites: *Jeffrey Quast*[1]; Carl Boehlert[1]; [1]Michigan State University

12:00 PM
Chemical and Mechanical Behavior of Al-Si Matrices Reinforced by Ti: *Myriam Sacerdote-Peronnet*[1]; Olivier Dezellus[1]; Jean-Claude Viala[1]; [1]University of Lyon

12:20 PM
Research on Growth Mechanism of TiB2 Powder Prepared by SHS-Metallurgy: Dou Zhihe[1]; Zhang Ting-an[1]; [1]Northeastern University

Advances in Computational Materials Science and Engineering Methods: Finite Element Method I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Biomaterials Committee, TMS/ASM: Computational Materials Science & Engineering
Program Organizers: Koen Janssens, Paul Scherrer Institute; Veena Tikare, Sandia National Laboratories; Richard LeSar, Iowa State University

Wednesday AM
February 28, 2007
Room: Europe 7
Location: Dolphin Hotel

Session Chair: Veena Tikare, Sandia National Laboratories

9:00 AM Introductory Comments

9:05 AM Invited
Application of Reaxff Reactive Force Fields to Stress Corrosion Cracking: A Link from Quantumchemistry to Finite-Element Simulations: *Adri van Duin*[1]; Mu-Jeng Cheng[1]; William Goddard[1]; Santiago Serebrinsky[1]; Julian Rimoli[1]; Michael Ortiz[1]; [1]California Institute of Technology

9:40 AM Question and Answer Period

9:45 AM
Combined Finite Element and Finite Difference Modeling on Solute Drag in 3D Grain Growth: *Michael Gao*[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

10:10 AM Question and Answer Period

10:15 AM
Impact-Contact Modeling of Particle Bonding in the Cold Gas Dynamic Spray Process: Gaurav Aggarwal[1]; *Ivica Smid*[1]; Albert Segall[1]; [1]Pennsylvania State University

10:40 AM Question and Answer Period

10:45 AM Break

11:15 AM
Large Eddy Simulation of Multiphase Flow in a Bottom Blown Copper Converter: *Miguel Barron*[1]; Cesar Real[1]; Cesar Lopez[1]; Jesus Gonzalez[1]; Gabriel Plascencia[2]; [1]Universidad Autonoma Metropolitana Azcapotzalco; [2]Instituto Politecnico Nacional

11:40 AM Question and Answer Period

11:45 AM
Thermal Stress Simulation Considering Mechanical Interaction between Casting and Model: *Xiaogang Liu*[1]; Jinwu Kang[1]; Tianyou Huang[1]; [1]Tsinghua University

12:10 PM Question and Answer Period

Advances in Microstructure-Based Modeling and Characterization of Deformation Microstructures: Modeling of Deformed Structures III

Sponsored by: The Minerals, Metals and Materials Society, ASM-MSCTS: Texture and Anisotropy Committee, ASM-MSCTS: Texture and Anisotrophy Committee
Program Organizers: Reza Shahbazian Yassar, Center for Advanced Vehicular Systems; Sean Agnew, University of Virginia; Jiantao Liu, Alcoa Technical Center

Wednesday AM Room: Europe 1
February 28, 2007 Location: Dolphin Hotel

Session Chairs: David Field, Washington State University; Bjorn Clausen, Los Almos National Laboratory

9:00 AM
Inherent Ductility of Fcc Metals Studied with Crystal Plasticity: *Fan Zhang*[1]; Kevin Boyle[2]; Allan Bower[1]; Raj Mishra[3]; [1]Brown University; [2]CANMET-MTL; [3]General Motors R&D Center

9:20 AM Invited
Self-Consistent Predictions of the Mechanical Behavior of Viscoplastic Polycrystals Accounting for Intragranular Field Fluctuations: *Ricardo Lebensohn*[1]; Carlos Tome[1]; [1]Los Alamos National Laboratory

9:45 AM
Microstructural-Based Modeling of the Plastic Anisotropy of Zirconium Severely Deformed by Equal Channel Angular Extrusion (ECAE) at Room Temperature: *Guney Yapici*[1]; Irene Beyerlein[2]; Ibrahim Karaman[1]; Carlos Tome[2]; [1]Texas A&M University; [2]Los Alamos National Laboratory

10:05 AM
Microstructure and Texture Evolution during Equal-Channel Angular Pressing by Means of a Crystal Plasticity-Disclination Model: *Airat Nazarov*[1]; Nariman Enikeev[1]; Marat Abdullin[1]; Irene Beyerlein[2]; [1]Ufa State Aviation Technical University; [2]Los Alamos National Laboratory

10:25 AM
Physical Modeling on Deformation and Recrystallization of Austenite in Steels in Thermo-mechanical Processing: *Xitao Wang*[1]; Zhiliang Yu[1]; Tadeusz Siwecki[2]; Goran Engberg[3]; Zuqing Sun[1]; [1]University of Science and Technology Beijing; [2]Corrosion and Metals Research Institute; [3]SSAB Tunnplat AB

10:45 AM Break

11:00 AM Invited
VPSC and FEM/Crystal Plasticity Modeling of Deformation in Lead-Free Solder Joints: *Thomas Bieler*[1]; Adwait Telang[1]; Franz Roters[2]; Dierk Raabe[2]; [1]Michigan State University; [2]Max Planck Institut fur Eisenforschung

11:25 AM
Characterization of Post-Deformation Microstructures for Incorporation into Phase Field Model of Grain Growth in Ni-Base Superalloy: *Eric Payton*[1]; Daniel Corwin[1]; Deborah Whitis[2]; David Mourer[2]; Yunzhi Wang[1]; Michael Mills[1]; [1]Ohio State University; [2]General Electric Company

11:45 AM
The Application of Bayesian Neural Network Modeling for the Prediction of Tensile and Fatigue Properties in α/β Ti Alloys: *Santhosh Koduri*[1]; Brian Welk[1]; Peter Collins[1]; Gopal Viswanathan[1]; Hamish Fraser[1]; Benjamin Peterson[1]; [1]Ohio State University

12:05 PM
The Influence of a Threshold Stress for Grain Boundary Sliding on the Constitutive Response of Polycrystalline Al Alloys during High Temperature Deformation: *NingNing Du*[1]; Allan Bower[1]; Paul Krajewski[2]; Eric Taleff[3]; [1]Brown University; [2]General Motors Research and Development Center; [3]University of Texas at Austin

12:25 PM
Microbeam X-Ray Powder Diffraction Study of Ti-6Al-7Nb Wear Surface: *Eri Miura-Fujiwara*[1]; Gene Ice[2]; Eliot Specht[2]; Kunihiro Hisatsune[1]; [1]Nagasaki University; [2]Oak Ridge National Laboratory

Alumina and Bauxite: Red Mud - Flocculation and Disposal

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Peter McIntosh, Hatch Associates; Jean Doucet, Alcan Inc; Morten Sorlie, Elkem Aluminium ANS

Wednesday AM Room: Northern E4
February 28, 2007 Location: Dolphin Hotel

Session Chair: David Chinloy, Hatch Kaiser

9:00 AM Introductory Comments

9:10 AM
Effect of New Crystal Growth Modifiers on the Crystallization Behavior of Aluminum Trihydrate and Sodium Oxalate: *Jianjun Liu*[1]; Dmitri Kouznetsov[1]; James Counter[1]; David Slinkman[1]; [1]Nalco Company

9:35 AM
Plant Trials of New Rra Flocculants Used in the Bayer Process: *Kevin O'Brien*[1]; Everett Phillips[1]; [1]Nalco Company

10:00 AM
Study on Influence of Carbonate Ion and Organic Impurity on Mud Flocculation in Bayer Process of Alumina Industry: *Wen-zhong Cao*[1]; Hong Zhong[1]; Wei-wei Tian[2]; [1]Central South University; [2]Jiujiang University of Jiangxi

10:25 AM
Autoprecipitation Control with HXPAM Technology: Morris Lewellyn[1]; *Qi Dai*[1]; Scott Moffatt[1]; [1]Cytec Industries Inc.

10:50 AM Break

11:00 AM
The Impact of Pipeline Transport on Surface Disposal Systems for Red Mud Paste: *Donald Hallbom*[1]; [1]PSI Canada/University of British Columbia

11:25 AM
The Conversion and Sustainable Use of Alumina Refinery Residues: Global Solution Examples: *Lee Fergusson*[1]; [1]Virotec Global Solutions

11:50 AM
Study on Suspension Velocity of Ore Particles in Vertical Reactor: *Wen-zhong Cao*[1]; Hong Zhong[1]; Wei-wei Tian[2]; Bo Qiao[2]; [1]Central South University; [2]Jiujiang University of Jiangxi

12:15 PM Concluding Comments

Aluminum Alloys for Transportation, Packaging, Aerospace and Other Applications: Alloy Processing

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Subodh Das, Secat Inc

Wednesday AM Room: Northern A4
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Subodh Das, Secat Inc; Zhengdong Long, University of Kentucky

9:00 AM
Application of Parametric Time-Temperature Parameters to High Temperature Performance of Aluminum Alloys: *J. Gilbert Kaufman*[1]; Zhengdong Long[1]; Shridas Ningileri[1]; [1]Secat, Inc.

9:25 AM
Application of Calorimetry to Quantify Microstructural Evolution and Precipitation Hardening in Al Alloys: *Shahrzad Esmaeili*[1]; Panthea Sepehrband[1]; Dan Cluff[1]; Brian Langelier[1]; [1]University of Waterloo

9:50 AM
Local Hot Forming of Imprints in Aluminium Extrusions: *Borge Bjorneklett*[1]; Hallvard Fjær[2]; [1]Hydro Automotive Structures; [2]Institute for Energy Technology

10:15 AM
Al-V Master Alloys from Reduction of Vanadium Oxide by Aluminum: *Abdel Nasser Omran*[1]; [1]Azhar University

10:40 AM Break

10:50 AM
Hydrogen in Aluminum: *Paul Rozenak*[1]; [1]Hydrogen Energy Batteries Company

11:15 AM
Dual Refinement of Primary and Eutectic Silicon in Hypereutectic Al-Si Alloys: *Mohammad Shamsuzzoha*[1]; Frank Juretzko[1]; [1]University of Alabama

11:40 AM
Compositionally and Structurally Graded Layers Prepared by Plasma-Based Ion Implantation on 2024 Aluminum Alloy: *Jiaxuan Liao*[1]; Zhong Tian[1]; Jiang Xu[1]; Long Jin[1]; [1]University of Electronic Science and Technology

12:05 PM
A Study of Stability of Foam Aluminum by Powder Metallurgy Method: Zhiqiang Guo[1]; Guangchun Yao[1]; Yihan Liu[1]; [1]School of Materials and Metallurgy, Northeastern University

Aluminum Reduction Technology: Anode Effects and Process Control I

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Wednesday AM Room: Southern 2
February 28, 2007 Location: Dolphin Hotel

Session Chair: Martin Iffert, Trimet Aluminium AG

9:00 AM
Anode Effect and Specific Energy Reduction through Cell Control and Operating Parameters Optimisation: *Abdelhamid Meghlaoui*[1]; Abdulla Zarouni[1]; Dinesh Kothari[1]; [1]Dubal

9:25 AM
Maximum Anode Effect Voltage (Vmax): *Alton Tabereaux*[1]; [1]Alcoa Inc

9:50 AM
Potline Start-Up with Low Anode Effect Frequency: *Barry Welch*[1]; Gauti Höskuldsson[2]; Willy Kristensen[3]; [1]Welbank Consulting Ltd; [2]Nordural – Century Aluminium Ltd; [3]Comalco Ltd

10:15 AM
Faster Anode Effect Kill: *Carlos Braga*[1]; Nilton Nagem[1]; Ari Silva[1]; Eliezer Batista[1]; Stephen Martin[2]; Chirstopher Ritter[3]; [1]ALUMAR; [2]ALCOA - Badin; [3]ALCOA - Mt. Holly

10:40 AM
Experiences on the Anode Effect Reduction at Alcoa Pocos De Caldas: *Andre Abreu*[1]; Carlos Zangiacomi[1]; Rodrigo Magalhaes[1]; [1]Alcoa Alumínio S.A.

11:05 AM Break

11:20 AM
Development of Dubal Cell Control Unit: Mamatha Shyamala[1]; *Dinkar Vittala Pai*[1]; Florentino Maloto[1]; [1]DUBAL

11:45 AM
Application of "Smart Feeders" for Alumina Feed Control in Hall-Heroult Prebake Cells: *Roald Hvidsten*[1]; Ketil Rye[1]; [1]Elkem Aluminum

12:10 PM
Adaptive Fuzzy Control System of 300kA Aluminum Production Cell: *Zeng Shuiping*[1]; Li Jinhong[1]; [1]North China University of Technology

12:35 PM
Research of Fuzzy Control for Alumina in SY300 Pots: Ren Bijun[1]; *Wendong Zhao*[2]; Songling Dai[3]; Shichang Chen[1]; [1]Henan Hongkong Longquan Aluminum Company Ltd.; [2]Shenyang Aluminium and Magnesium Engineering and Research Institute; [3]Yichuan Electrical Group

Aluminum Reduction Technology: Modelling II and General

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Wednesday AM Room: Southern 1
February 28, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM
Efficient Operation of Compressed Air Jets for Sidewall Cooling: *Rob Wallace*[1]; Mark Taylor[1]; John Chen[2]; Mohammed Farid[2]; [1]Light Metals Research Centre, University of Auckland; [2]University of Auckland

9:25 AM
Effect of Anode Slots on Electrolyte Flow in Aluminium Reduction Cells: *Mark Cooksey*[1]; William Yang[1]; [1]Commonwealth Scientific and Industrial Research Organisation

9:50 AM
Further Results on the Application of Aluminum-Copper Bimetal Sheets in Aluminum Reduction Cells: *Kayron Lalonde*[1]; [1]Alcoa Inc

10:15 AM Break

10:30 AM
Balco Fuse Technology: P. Suri[1]; *J. Ramaswami*[1]; P. Divakaran[1]; Abhishek Kumar[1]; [1]Bharat Aluminum Company

10:55 AM
The Impact of Channel Width on the Aluminium Reduction Cell Current Efficiency: *Mohamed Ali*[1]; Mohamed Doheim[2]; Abdel Fattah El-kersh[3]; [1]Egyptalum; [2]Assiut University; [3]Minia University

11:20 AM
Analysis of Cathode Voltage Drop in Aluminum Electrolysis Cells with an Electric Contact Model: Wei Liu[1]; *Jie Li*[1]; Yanqing Lai[1]; Zhigang Wang[1]; [1]Central South University

11:45 AM
A Mixed-Integer Nonlinear Programming (MINLP) Zone Model for Conceptual Design and Optimization of an ARP Carbothermic Aluminium Reactor: *Dimitrios Gerogiorgis*[1]; [1]Imperial College

12:10 PM
Producing Aluminum-Silicon Alloys from High-Aluminum Bearing Coal Ash by Carbothermal Reduction Method: *Huimin Lu*[1]; Huanqing Han[1]; [1]Beijing University of Aeronautics and Astronautics

12:35 PM
Study of Making Casting Aluminum-Silica Alloy with Coarse Aluminum-Silicon Alloy Produced by Carbothermal Reduction of Aluminous Ore: Wang Yaowu[1]; Feng Naixiang[1]; Di Yuezhong[1]; *Ma Shaoxian*[2]; Ma Chenggui[2]; [1]Northeastern University; [2]Northeastern University Design and Research Institute

Biological Materials Science: Implant Biomaterials

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Andrea Hodge, Lawrence Livermore National Laboratory; Chwee Lim, National University of Singapore; Eduard Artz, University of Stuttgart; Masaaki Sato, Tohoku University; Marc Meyers, University of California, San Diego

Wednesday AM
February 28, 2007
Room: Europe 4
Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM
Superelasticity and Shape Memory in a New Ni-Rich 55NiTi Bio-Implant Material: An Appraisal: *Raghavendra Adharapurapu*[1]; Kenneth Vecchio[1]; [1]University of California San Diego

9:20 AM
Osteoblast Growth on Hydroxyapatite Deposited Nanoporous TiO2 Template for Biocompatible Orthopedic Implants: *Archana Kar*[1]; Gale Craviso[1]; Manoranjan Misra[1]; [1]University of Nevada, Reno

9:40 AM
Surface Properties and Removal Torque of Dental Implants: *Carlos Elias*[1]; Jose Lima[2]; Yoshiki Oshida[3]; Carlos Muller[4]; [1]Instituto Militar de Engenharia; [2]Universidade Veiga de Almeida; [3]Syracuse University; [4]Oswaldo Cruz

10:00 AM Invited
Texture and Anisotropy in Cortical Bone Tissue and Hydroxyapatite Whisker Reinforced Polymers: *Ryan Roeder*[1]; Gabriel Converse[1]; Weimin Yue[1]; Robert Kane[1]; Justin Deuerling[1]; Alejandro Espinoza Orías[1]; [1]University of Notre Dame

10:30 AM Invited
Nanoscale Architectures for Osseointegration: *Tejal Desai*[1]; [1]University of California, San Francisco

11:00 AM Break

11:10 AM
Property Measurements and Analyses of Laser Deposited Titanium Alloy for Orthopedic Application: *Soumya Nag*[1]; Sonia Samuel[2]; Rajarshi Banerjee[2]; Hamish Fraser[1]; [1]Ohio State University; [2]University of North Texas

11:30 AM
Effect of Nanostrcture and Oxidation on Formation of Biomechanical Oxide Film on Ti-Nb Alloy: Keng-Liang Ou[1]; *Pei-Wen Peng*[2]; Yung-Ming Pan[2]; Yih-Chuen Shyng[3]; [1]Taipei Medical University; [2]Nation Taiwan University; [3]Kaohsiung Military General Hospital

11:50 AM
Fatigue Failure of Ceramic Layers for Biomedical Applications: *Sanjit Bhowmick*[1]; Brian Lawn[1]; [1]National Institute of Standards and Technology

12:10 PM
Production and Characterization of ZrO2 Ceramics and Composites to be Used for Hip Prosthesis: Gultekin Goller[1]; *Melis Arin*[1]; Jef Vleugels[2]; Kim Vanmeensel[2]; [1]Istanbul Technical University; [2]Katholieke Universiteit Leuven

12:30 PM
Production and Characterization of K-Mica-Fluorapatite Based Glass Ceramics Containing Varying Amount of CeO2 Addition: *Ipek Akin*[1]; Gultekin Goller[1]; [1]Istanbul Technical University

12:50 PM
Structural Efect after Titanium Oxidation in Fluidized Bed Due to Biomedical Aspect: Jasinski Józef[1]; Szota Michal[1]; *Mendzik Krzysztof*[1]; [1]Czestochowa Technical University

Bulk Metallic Glasses IV: Supercooled Liquids and Crystallization

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Raymond Buchanan, University of Tennessee; Wenhui Jiang, University of Tennessee; Guojiang Fan, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee

Wednesday AM
February 28, 2007
Room: Asia 1
Location: Dolphin Hotel

Session Chairs: H. J. Fecht, Ulm University; W.H. Jiang, University of Tennessee

9:00 AM Invited
Anomalies in the Thermophysical Properties of Undercooled Zr62Cu20Al10Ni8 Glass-Forming Alloy: *Robert Hyers*[1]; Richard Bradshaw[1]; Mary Richter[1]; Jan Rogers[2]; Thomas Rathz[3]; Anup Gangopadhyay[4]; Kenneth Kelton[4]; [1]University of Massachusetts; [2]NASA Marshall Space Flight Center; [3]University of Alabama in Huntsville; [4]Washington University

9:20 AM Invited
Crossover Temperatures from Liquid- to Glass-Like Dynamics: *Rachel Aga*[1]; James Morris[1]; Valentin Levashov[2]; Takeshi Egami[2]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

9:40 AM Invited
Shear Thinning and Strong to Fragile Transition in the $Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni_{10.0}Be_{22.5}$ Bulk Metallic Glass Forming Liquid: *Ralf Busch*[1]; [1]Oregon State University

10:00 AM
A New Bulk Metallic Glass in the Ni-Nb-Cr System: *Robert McDaniels*[1]; Peter Liaw[1]; Guojiang Fan[1]; [1]University of Tennessee

10:15 AM
Formability of an Mg-Cu-Ag-Y Metallic Glass: *Neal Ross*[1]; Yanwen Wang[1]; Rajiv Mishra[1]; Daniel Miracle[2]; Oleg Senkov[3]; Richard Lederich[4]; [1]University of Missouri; [2]US Air Force; [3]UES Inc; [4]Boeing - Phantom Works

10:30 AM
Pitting Corrosion of Partially Amorphous Al-Based Glassy Alloys with Solute-Lean Nanocrystals: *Ashley Lucente*[1]; Gary Shiflet[1]; John Scully[1]; [1]University of Virginia

10:45 AM
Low Density Ca-Al-Based Bulk Metallic Glasses: *Oleg Senkov*[1]; James Scott[1]; Daniel Miracle[2]; [1]UES Inc; [2]US Air Force

11:00 AM Invited
Compositional Depeandance of Metastable Phase Formation in Model Hypereutectic Zr-Pt Alloys: *Dan Sordelet*[1]; Min Ha Lee[1]; Ryan Ott[1]; [1]Ames Laboratory

11:20 AM Invited
Phase Stability and Transformations in the $Zr_2(Cu_{1-x}Ni_x)$ System: *Matthew Kramer*[1]; Min Xu[1]; D. Sordelet[1]; Yiying Ye[1]; [1]Iowa State University

11:40 AM
The Connection between Kinetic and Thermodynamic Fragility in Bulk Metallic Glasses: Isabella Gallino[1]; Manish Bothara[2]; Christopher Way[2]; *Ralf Busch*[2]; [1]Saarland University; [2]Oregon State University

11:55 AM
Thermal Expansion and Enthalpy Relaxation of the Bulk Metallic Glass La55Al25Ni10Cu10: *Feng Ye*[1]; Tao Zhang[1]; Guo-Liang Chen[1]; [1]University of Science and Technology Beijing

12:10 PM
Glass Structure of Zr-Ni and Zr-Ni-Ti Alloys: Ab Initio Molecular Dynamics Calculation and Extended X-Ray Absorption Fine Structure Investigation: *Xidong Hui*[1]; Zi-kui Liu[2]; Shunli Shang[2]; Yi Wang[2]; Xiongjun Liu[1]; Guoliang Chen[1]; [1]University of Science and Technology Beijing; [2]Pennsylvania State University

12:25 PM
Study of As-Cast and Structurally Relaxed Zr-Based Bulk Metallic Glasses: *Cang Fan*[1]; Th Proffen[2]; T. Wilson[1]; E. Maxey[3]; J. Richardson[3]; H. Choo[1]; P. Liaw[1]; [1]University of Tennessee; [2]Lujan Neutron Scattering Center, LANSCE, Los Alamos National Laboratory; [3]Intense Pulsed Neutron Source Division, Argonne National Laboratory

12:40 PM
Glass Forming Ability for Mg-Cu-Nd Alloys: *Ke-Qiang Qiu*[1]; Qing-Feng Li[1]; Wen-Hui Jiang[2]; [1]School of Materials Science and Engineering, Shenyang University of Technology; [2]Department of Materials Science and Engineering, University of Tennessee

Cast Shop Technology: Casting

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: David DeYoung, Alcoa Inc; Rene Kieft, Corus Group; Morten Sorlie, Elkem Aluminium ANS

Wednesday AM — Room: Northern E1
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Introductory Comments

9:05 AM
Mechanism of the Film-Impingement Cooling in DC Casting: *László Kiss*[1]; Sandor Poncsak[1]; Sébastien Bolduc[1]; Bjørn-Rune Henriksen[2]; [1]Universite du Quebec a Chicoutimi; [2]Elkem ASA

9:30 AM
Wagstaff Inc.'s New AirSlipTM Casting Gas Supply Systems: *David Salee*[1]; [1]Wagstaff, Inc.

9:55 AM
Billet Tooling Design Offering Optimum Combination of Safety, Productivity and Metallurgical Performance: *Shaun Hamer*[1]; Ravi Tilak[1]; [1]Almex USA Inc.

10:20 AM
Modelling of Mould Toe-In during Extrusion Ingot DC-Casting: *Dag Mortensen*[1]; Bjorn Henriksen[2]; Jan Hvistendal[2]; Hallvard Fjaer[1]; [1]Institute for Energy Technology; [2]Elkem Aluminium

10:45 AM Break

11:10 AM
Hot Tearing of Al-Si Alloys: *Liming Lu*[1]; A. Dahle[2]; C. Davidson[1]; D. StJohn[3]; [1]CSIRO; [2]University of Queensland; [3]CRC for Cast Metals Manufacturing

11:35 AM
Effect of Grain Refining on Defect Formation in DC Cast Al-Zn-Mg Alloy Round Billet: *Ravi Nadella*[1]; Dmitry Eskin[1]; Laurens Katgerman[2]; [1]Netherlands Institute for Metals Research; [2]Delft University of Technology

12:00 PM
Microporosity Formation in DC Cast 5083 Alloys: *Carmen Stanica*[1]; Petru Moldovan[2]; Gheorghe Dobra[1]; Gabriela Popescu[2]; Mihai Butu[2]; [1]ALRO; [2]Polytechnic University

12:25 PM
Direct Chill Casting of CLAD Ingot with a Flat CLAD Interface: Robert Wagstaff[1]; Thomas Davisson[1]; *Larry Hudson*[1]; [1]Novelis, Inc

Characterization of Minerals, Metals, and Materials: Characterization of Processing and Properties of Materials

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Arun Gokhale, Georgia Institute of Technology; Jian Li, Natural Resources Canada; Toru Okabe, University of Tokyo

Wednesday AM — Room: Oceanic 8
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Jiann-Yang Hwang, Michigan Technological University; T-T Chen, CANMET-MMSL

9:00 AM
Analysis of Surface Finish of Spheroidal Graphite Iron: *Ramesh Nunna*[1]; Shyam Sunder Rao Sirivolu[1]; [1]VNRVJIET

9:20 AM
A Study on Electro-Magnetism of Peg-20000 Doped with Nano-Cobalt Ferrite Oxide Powder Containing La3+: *Xiao Li*[1]; [1]Central South University

9:40 AM Break

10:00 AM
DTA, TGA, XRD and Mössbauer Study of Zinc Sulfide Concentrates: *Boyan Boyanov*[1]; [1]University of Plovdiv

10:20 AM
Liquidus Temperature, Electrical Conductivity and Nd2O3 Solubility of NdF3-LiF-Nd2O3 Melts: *Xianwei Hu*[1]; Zhaowen Wang[1]; Bingliang Gao[1]; Zhongning Shi[1]; Guimin Lu[1]; Jianzhong Cui[1]; Xiaozhou Cao[1]; [1]Northeastern University

10:40 AM
Experimental Studies on Pre-Treatment of Refractory Gold Concentrate Containing High Arsenic from Hunan by Acidic Pressure Oxidation: Tong Linlin[1]; Yang Hongying[1] *Yin Shuyan*[2]; [1]Northeastern University of China; [2]China Nonferrous Engineering and Research Institute

11:00 AM
Mineralogical and Crystallographic Characterization of Analcime Tuff from Jovici Deposit, Bosnia and Herzegovina: *Jovica Stojanovic*[1]; Ana Radosavljevic-Mihajlovic[2]; Slobodan Radosavljevic[1]; [1]Institute for Technology of Nuclear and Other Mineral Raw Materials; [2]Institute of Nuclear Science Vinca

11:20 AM
Effect of Additives on the Reaction of Carbothermal Reduction and Nitride Preparing for Vanadium Carbide Nitride: S*ansan Yu*[1]; Nianxin Fu[1]; Z.T. Sui[1]; [1]NEU

11:40 AM
Effect of Fluorine on Electroless Nickel Plating of Magnesium Alloys: *Dong Guo*[1]; Zhanguo Fan[1]; Zhongdong Yang[1]; Lin Zhao[1]; Peng Gao[1]; [1]School of Materials and Metallurgy

12:00 PM
Mechanisms of Disintegration of Fine Disseminated Mineral Complexes Exposed to High-Power Nanosecond Electromagnetic Pulses: Valentin Chanturiya[1]; *Igor Bunin*[1]; [1]Russian Academy of Sciences

Computational Thermodynamics and Phase Transformations: Modeling of Phase Transformations I

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, ASM Materials Science Critical Technology Sector, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Corbett Battaile, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory

Wednesday AM — Room: Europe 11
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Invited
Recent Progress in Phase-Field Modeling of Microstructural Evolution: *John Agren*[1]; Klara Asp[1]; [1]Royal Institute of Technology

9:30 AM Invited
Computational Study of Crystallographic Domain Engineering for Advanced Ferroelectrics: *Yu Wang*[1]; Weifeng Rao[1]; [1]Virginia Tech

10:00 AM
3D Phase Field Simulation of Widmanstätten Sideplate Colony and Basket-Weave Structure in α/β Ti-Alloys: *Fan Yang*[1]; Gang Wang[1]; Ning Ma[1]; Yunzhi Wang[1]; [1]Ohio State University

10:20 AM Break

10:40 AM
Modeling of Domain Structures in Graded Multilayer Ferroelectric Thin Films: *Andrei Artemev*[1]; Julia Slutsker[2]; Alexander Roytburd[3]; [1]Carleton University; [2]National Institute of Standards and Technology; [3]University of Maryland

11:00 AM
Phase Field Modeling of Domain Structures in Nano-Composite Ferroelectric Multilayers: *Julia Slutsker*[1]; Andrei Artemev[2]; Alexander Roytburd[3]; [1]National Institute of Standdards and Technology; [2]Carleton University; [3]University of Maryland

11:20 AM
Phase-Field Simulation of Cooperative Growth of Pearlite: *Ingo Steinbach*[1]; Markus Apel[1]; [1]RWTH-Aachen

11:40 AM
Phase-Field Study of the Interplay between Diffusive and Displacive Phase Transformations: *Rajeev Ahluwalia*[1]; Mathieu Bouville[1]; [1]Institute of Materials Research and Engineering, Singapore

12:00 PM
The Critical Limit for Growth of Massive Ferrite in the Fe-Mn System: *Annika Borgenstam*[1]; Henrik Larsson[1]; [1]Royal Institute of Technology

12:20 PM
Modelling of the Transition between Diffusion and Interface Controlled Growth: *Henrik Larsson*[1]; Annika Borgenstam[1]; [1]Royal Institute of Technology

Degradation of Light Weight Alloys: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS: Magnesium Committee
Program Organizers: David Shifler, Office of Naval Research; Julie Christodoulou, Office of Naval Research; James Moran, Alcoa; Airan Perez, Office of Naval Research; Wenyue Zheng, CANMET Materials Technology Laboratories

Wednesday AM — Room: Northern A3
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: David Shifler, Office of Naval Research; Julie Christodoulou, Office of Naval Research

9:00 AM Introductory Comments

9:05 AM
Mechanical Properties for Design of Al Structures: *Catherine Wong*[1]; Jennifer Gaies[1]; Daniel Stiles[1]; [1]Naval Surface Warfare Center

9:30 AM Question and Answer Period

9:35 AM
Identification of Sensitized Aluminum Using Optical Microscopy: *Catherine Wong*[1]; [1]Naval Surface Warfare Center

10:00 AM Question and Answer Period

10:05 AM
Modeling of the Wear Damage and Degradation of Aluminum-Silicon Alloys during Sliding Contacts: *S. Subutay Akarca*[1]; William Altenhof[1]; Ahmet Alpas[1]; [1]University of Windsor

10:30 AM Question and Answer Period

10:35 AM
Sensitization of 5000 Series Aluminum Alloys: *Alicia Field*[1]; Catherine Wong[1]; [1]Naval Surface Warfare Center, Carderock Division

11:00 AM Question and Answer Period

11:05 AM Break

11:25 AM
Environmental Induced Cracking in Al-Li-Cu-Mg-Zr Alloys of Peak Aged and Retrogressed and Reaged Tempers under Applied Potentials: *Karuna Ghosh*[1]; K. Das[2]; U. Chatterjee[2]; [1]National Institute of Technology; [2]Indian Institute of Technology

11:50 AM Question and Answer Period

11:55 AM
Role of Frequency of Low Angle Grain Boundaries in Accelerating the Onset of Abnormal Grain Coarsening: *Roger Doherty*[1]; Christopher Hovanec[1]; [1]Drexel University

12:20 PM Question and Answer Period

12:25 PM
Small-Crack Behavior and Its Effect on Fatigue Life Variability in a Cast AS7GU Aluminum Alloy: *Jianzhang Yi*[1]; Xiaoxia Zhu[1]; Wayne Jones[1]; Carlos Engler-Pinto Jr[2]; John Allison[2]; [1]University of Michigan; [2]Ford Motor Company

12:50 PM Question and Answer Period

Diffusion in Advanced Materials and Processing: Phenomelogy and Experiments

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS: Alloy Phases Committee, TMS: High Temperature Alloys Committee, ASM-MSCTS: Atomic Transport Committee, TMS/ASM: Nuclear Materials Committee, TMS: Solidification Committee
Program Organizers: Yong-Ho Sohn, University of Central Florida; Carelyn Campbell, National Institute of Standards and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Afina Lupulescu, Union College

Wednesday AM Room: Europe 2
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Afina Lupulescu, Union College; Marek Danielewski, AGH University of Science and Technology

9:00 AM Invited
Diffusion Paths and "Strange Attracters": *John Morral*[1]; Yunzhi Wang[1]; [1]Ohio State University

9:30 AM Invited
Application of Diffusion Experiments in Mapping Phase Diagrams and Properties: *Ji-Cheng Zhao*[1]; [1]General Electric Company

10:00 AM
The Effects of Concentration-Dependence of the Diffusivity on the Formation of Non-Linear Diffusion Paths in Multiphase Diffusion Couples: *Hongwei Yang*[1]; John Morral[2]; [1]University of Connecticut; [2]Ohio State University

10:20 AM
Application of Boltzman-Matano Solution to Interdiffusion and Growth of Intermetallic Compounds: *Daniel Lewis*[1]; Tolga Goren[1]; Liang Jiang[2]; J. Zhao[2]; [1]Rensselaer Polytechnic Institute; [2]General Electric Global Research

10:40 AM
The Stress Field in Fe-Ni-Cr Diffusion Couples: *Bartlomiej Wierzba*[1]; Marek Danielewski[1]; Maciej Pietrzyk[1]; [1]AGH, University of Science and Technology

11:00 AM Break

11:10 AM Invited
An Examination of Diffusion Paths in Terms of Interdiffusion Fluxes and Interdiffusion Coefficients: *Mysore Dayananda*[1]; [1]Purdue University

11:40 AM
Determination of Average Ternary Interdiffusion Coefficients using Integration of Interdiffusion Fluxes: *Narayana Garimella*[1]; Yong-Ho Sohn[1]; [1]University of Central Florida

12:00 PM
Phase Field Prediction of Diffusion Paths and Single-Phase Layers in Two-Phase Diffusion Couples: *Ximiao Pan*[1]; Nin Zhou[1]; J. E. Morral[1]; Yunzhi Wang[1]; [1]Ohio State University

12:20 PM
Experimental Observations and Phase-Field Modeling of Interdiffusion Microstructure in Ni-Cr-Al and Fe-Ni-Al Two-Phase Diffusion Couples: *Rashmi Mohanty*[1]; Yong-Ho Sohn[1]; [1]University of Central Florida

12:40 PM
VisiMat© - Software for the Visualization of Multicomponent Diffusion in 2 and 3 Dimensions: Christopher O'Brien[1]; Afina Lupulescu; [1]Pennsylvania State University

Dynamic Behavior of Materials: Mechanical Properties I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Marc Meyers, University of California; Ellen Cerreta, Los Alamos National Laboratory; George Gray, Los Alamos National Laboratory; Naresh Thadhani, Georgia Institute of Technology; Kenneth Vecchio, University of California

Wednesday AM Room: Europe 3
February 28, 2007 Location: Dolphin Hotel

Session Chairs: T. Wright, US Army Research Laboratory; Neil Bourne, University of Manchester

9:00 AM
Strength Properties under High Pressure Dynamic Loading: *James Asay*[1]; [1]Sandia National Laboratories

9:30 AM
Influence of Energetic-Driven "Taylor-Wave" Shock-Wave Prestraining on the Structure/Property Response of 1018 Steel, Depleted Uranium, and U-6Nb: *George Gray*[1]; Robert Hixson[1]; Ellen Cerreta[1]; Rodney McCabe[1]; Shuh-Rong Chen[1]; [1]Los Alamos National Laboratory

9:45 AM
Evaluation of a Hopkinson Bar Loaded Four-Point Bend Fracture Test: *Kenneth Vecchio*[1]; Fengchun Jiang[1]; Justin Cheney[1]; Raghavendra Adharapurapu[1]; [1]University of California, San Diego

10:00 AM
Dynamic Mechanical Characterization of Depleted Uranium and U-6 wt% Niobium: *Carl Cady*[1]; George Gray[1]; Shuh-Rong Chen[1]; Robert Field[1]; Denise Korzekwa[1]; David Teter[1]; [1]Los Alamos National Laboratory

10:15 AM
High Pressure Equation of State of a Zirconium-Based Bulk Metallic Glass: *Morgana Martin*[1]; Toshimori Sekine[2]; Takamichi Kobayashi[2]; Laszlo Kecskes[3]; Naresh Thadhani[1]; [1]Georgia Institute of Technology; [2]National Institute for Materials Science; [3]U.S. Army Research Laboratory

10:30 AM Break

10:45 AM Invited
The High-Strain-Rate Deformations of Structural and Nanocrystalline Metals: *K. Ramesh*[1]; Kevin Hemker[1]; E. Ma[1]; [1]Johns Hopkins University

11:15 AM
Strain-Rate Effects on the Texture Evolution and Mechanical Response of Pure Zirconium: Modeling and Validation Using the Taylor Cylinder Impact Test: *Brian Plunkett*[1]; Oana Cazacu[2]; Joel House[3]; Ricardo Lebensohn[4]; Michael Nixon[1]; [1]Air Force Research Laboratory/MNAC; [2]University of Florida; [3]Air Force Research Laboratory/MNMW; [4]Los Alamos National Laboratory

11:30 AM
Study of Thermal Softening of Aluminum Alloy Using the Taylor Test: *Glenn Whiteman*[1]; Ron Winter[1]; [1]Atomic Weapons Establishment

11:45 AM
Tensile Behavior of High Strength Steels in the Sub-Hopkinson Strain-Rate Regime: *Brad Boyce*[1]; Thomas Crenshaw[1]; [1]Sandia National Laboratories

12:00 PM
Dynamic Friction Experiments at the Atlas Pulsed Power Facility: Christopher Rousculp[1]; *James Hammerberg*[1]; David Oro[1]; George Rodriguez[1]; Peter Goodwin[1]; Michael Salazar[1]; Robert Reinovsky[1]; John Becker[2]; Robert Berglin[2]; Ken Delzer[2]; George Gomez[2]; Robert Malone[2]; Dane Morgan[2]; Troy Pate[2]; Karen Theuer[2]; [1]Los Alamos National Laboratory; [2]National Security Technologies, LLC

12:15 PM
Dynamic Characterization of Epoxy-Cast Al+Fe_2O_3 Thermite Mixtures: *Louis Ferranti*[1]; Naresh Thadhani[1]; [1]Georgia Institute of Technology

12:30 PM
Comparison of the Influence of Temperature on the High Strain Rate Mechanical Responses of PBX9501 and EDC37: *Beckie Govier*[1]; G. Gray III[2]; W. Blumenthal[2]; [1]Atomic Weapons Establishment; [2]Los Alamos National Laboratory

12:45 PM
Influence of Grain Size on the Dynamic Tensile Behavior of Aluminum under Impact Loading: *Pankaj Trivedi*[1]; James Asay[2]; David Field[1]; Yogendra Gupta[1]; [1]Washington State University; [2]Sandia National Laboratories

Electrode Technology Symposium (formerly Carbon Technology): Anode Baking Furnace Technology

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS

Wednesday AM
February 28, 2007
Room: Southern 3
Location: Dolphin Hotel

Session Chair: Victor Buzunov, RUSAL

9:00 AM Introductory Comments

9:05 AM
The Development of Anode Baking Technology from Past to Future: Wolfgang Leisenberg[1]; *Detlef Maiwald*[1]; [1]Innovatherm

9:30 AM
Proven Control Philosophy for Anode Baking Process: Denis Fantin[1]; *Hubert Gay*[1]; Pierre Mahieu[1]; [1]SETARAM Engineering

9:55 AM
Process Optimization in Bake Furnace: *Vinicius Piffer*[1]; Markus Meier[2]; Paulo Miotto[1]; Ciro Kato[1]; Marcos Silva[1]; Peter Sulger[2]; Raymond Perruchoud[2]; [1]Consorcio de Aluminio do Maranhao (Alumar); [2]R&D Carbon Ltd.

10:20 AM
Fuel Consumption: A Key Parameter in Anode Baking Furnace: *Jean Bigot*[1]; Magali Gendre[1]; Jean-Christophe Rotger[1]; [1]Alcan

10:45 AM Break

11:05 AM
A Breakthrough in Anode Baking Furnace Fluewall Design: Magali Gendre[1]; *Jean-Christophe Rotger*[1]; Yann El Ghaoui[1]; Nicolas Mathieu[1]; [1]Alcan/Astronomical, Physical and Mathematical Geodesy

11:30 AM
Refurbishment and Modernization of Existing Anode Baking Furnaces: *Frank Goede*[1]; [1]Riedhammer GmbH

11:55 AM
Refractory for Anode Baking Furnaces; Rebuild on the Run; Minimal Loss in Production Capacity during Reline: *Marcel Franken*[1]; [1]Gouda Vuurvast

12:20 PM
Results of Operating a New RTO Based Fume Treatment System at a Baking Furnace: *Matthias Hagen*[1]; [1]LTB

Electronic, Magnetic and Photonic Materials Division Symposium: Advanced Metallizations and Interconnect Technologies, in Honor of Prof. K. N. Tu's 70th Birthday: Advanced Metallizations and Interconnect Technology I

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Chih Chen, National Chiao Tung University; Lih Chen, National Tsing Hua University; Ulrich Gösele, Max Planck Institute of Microstructure Physics; C. Kao, National Central University; Sinn-Wen Chen, National Tsing-Hua University

Wednesday AM
February 28, 2007
Room: Pacific Hall B
Location: Dolphin Hotel

Session Chairs: Ulrich Goesele, Max-Planck-Institute of Microstructure Physics; Lih Chen, National Tsing Hua University

9:00 AM Introductory Comments
Dr. Robert Rosenberg will introduce Prof. Tu's outstanding contributions in understanding and application of diffusions and reactions in metallic thin films as well as silicide formation during his career at IBM T. J. Watson Research Center.

9:10 AM Invited
Influence of Interface Characteristics on Copper Metallization: *Robert Rosenberg*[1]; [1]IBM

9:35 AM Invited
Kinetics of Phase Transformations in Solder Materials: A Review of King-Ning Tu's Accomplishments: *James Li*[1]; [1]University of Rochester

10:00 AM Invited
Materials Challenges for Low k Dielectrics for Microelectronics: *Paul Ho*[1]; [1]University of Texas

10:25 AM Break

10:55 AM Invited
Thermal and Electromigration-Induced Strains in Polycrystalline Films and Conductor Lines: *G. Cargill*[1]; [1]Lehigh University

11:20 AM Invited
Reduction of Electrical Resistivity of Cu Interconnects: *Masanori Murakami*[1]; Miki Moriyama[2]; Susumu Tsukimoto[1]; Kazuhiro Ito[1]; Takashi Onishi[3]; [1]Kyoto University; [2]Toyoda Gosei Company, Ltd; [3]Surface Design and Corrosion Research Section, Materials Research Laboratory, Kobe Steel, Ltd.

11:45 AM Invited
Novel Metal Silicide Materials for Nanometer Scale CMOS Technology: *Bing-Zong Li*[1]; Yu-Long Jiang[1]; Guo-Ping Ru[1]; Xin-Ping Qu[1]; [1]Fudan University

Friction Stir Welding and Processing IV: Session IV

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Rajiv Mishra, University of Missouri; Murray Mahoney, Rockwell Scientific Company; Thomas Lienert, Los Alamos National Laboratory; Kumar Jata, US Air Force

Wednesday AM Room: Northern E3
February 28, 2007 Location: Dolphin Hotel

Session Chair: To Be Announced

9:00 AM Invited
Hybrid-Laser Friction Stir Welding of Cast IN738 Superalloy: *Zhili Feng*[1]; O. M. Barabash[1]; D. Gandy[2]; S. A. David[1]; [1]Oak Ridge National Laboratory; [2]Electric Power Research Institute

9:20 AM
Effect of Controlled Hot Compression Tests on Flow Stress and Microstructure of HSLA-65 Steels: *Maria Posada*[1]; David Forrest[1]; Carrie Davis[1]; [1]Naval Surface Warfare Center, Carderock Division

9:35 AM
Friction Stir Welding of ODS Alloy MA956: *Zhili Feng*[1]; H. Xu[1]; O. M. Barabash[1]; W. Ren[1]; J. Horton[1]; S. A. David[1]; [1]Oak Ridge National Laboratory

9:50 AM
Friction Stir Welding of HSLA-65 Steel: *Peter Pao*[1]; Richard Fonda[1]; Harry Jones[1]; C.R. Feng[1]; D.W. Moon[1]; Robert Bayles[1]; [1]Naval Research Laboratory

10:05 AM
Formability of Friction Stir Welded Dual Phase 590, TRIP 590, and Dual Phase 780 Steel Sheets: *Michael Miles*[1]; E. Olsen[1]; R. Steele[2]; T. Nelson[1]; M. Li[3]; [1]Brigham Young University; [2]Megastir Technologies; [3]TWB Company

10:20 AM
Characterization of Dual Phase Steel Friction-Stir Weld for Tailor-Welded Blank Applications: *Seung Hwan Park*[1]; Satoshi Hirano[1]; Kazutaka Okamoto[2]; Wei Gan[3]; Robert Wagoner[3]; Kwansoo Chung[4]; Chongmin Kim[5]; [1]Hitachi, Ltd.; [2]Hitachi America Ltd.; [3]Ohio State University; [4]Seoul National University; [5]General Motors Research and Development Center

10:35 AM Break

10:50 AM Invited
Microstructure and Properties of Friction Stir Welded 304 Stainless Steel Using W-Based Alloy Tool: *Yutaka Sato*[1]; Masahiro Muraguchi[1]; Hiroyuki Kokawa[1]; [1]Tohoku University

11:10 AM
Properties and Microstructure of Friction Stir Welded X-65 Steel: *Tracy Nelson*[1]; Sterling Anderson[1]; Scott Mceuen[1]; Trevor Downs[1]; [1]Brigham Young University

11:25 AM
Prediction of Tool Deformation during Friction Stir Welding of L80 Steel: *Wei Gan*[1]; Tim Li[1]; Shuchi Khurana[1]; [1]Edison Welding Institute

11:40 AM
Precipitation Behavior in Ni-Base Alloys during Friction Stir Welding: *Raghavan Ayer*[1]; Hyun-Jo Jun[1]; [1]ExxonMobil Research and Engineering Company

11:55 AM
Properties and Structure of Friction Stir Welded Alloy 718: Carl Sorensen[1]; Ben Nelson[1]; Sam Sanderson[1]; *Tracy Nelson*[1]; [1]Brigham Young University

12:10 PM
Microstructural Evolution in Ti 5-1-1-1 Friction Stir Welds: *Richard Fonda*[1]; Keith Knipling[1]; C. Feng[1]; [1]Naval Research Laboratory

12:25 PM
Effects of Friction Stir Welding on the Coefficient of Thermal Expansion of Invar 36: *Bharat Jasthi*[1]; Stanley Howard[1]; Casey Allen[1]; William Arbegast[1]; [1]South Dakota School of Mines and Technology

Fundamentals of Shape Memory and Related Transitions: Mechanical Behavior

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Michael Manley, University of California; James Morris, Oak Ridge National Laboratory

Wednesday AM Room: Europe 6
February 28, 2007 Location: Dolphin Hotel

Session Chair: Catherine Brinson, Northwestern University

9:00 AM Introductory Comments

9:10 AM Invited
Insights into the Deformation of Shape Memory Alloys from Instrumented Indentation and *in situ* Neutron Diffraction: *Raj Vaidyanathan*[1]; [1]University of Central Florida

9:40 AM
Texture, Strain and Phase Fraction Measurements during Tension-Compression Cycling in Superelastic NiTi: *Shipeng Qiu*[1]; Vinu Krishnan[1]; Donald Brown[2]; Bjorn Clausen[2]; Raj Vaidyanathan[1]; [1]University of Central Florida; [2]Los Alamos National Laboratory

10:05 AM
Phase-Field Study of the Effect of Precipitates on Shape-Memory Materials: *Mathieu Bouville*[1]; Rajeev Ahluwalia[1]; [1]Institute of Materials Research and Engineering, Singapore

10:30 AM
Tensile and Fatigue Behavior of Superelastic Shape Memory Rods: Jason Treadway[1]; *Pranesh Aswath*[2]; Ali Abolmaali[2]; Frank Lu[2]; [1]Imperial College; [2]University of Texas at Arlington

10:55 AM Break

11:15 AM Invited
Some Peculiarities Regarding the R-Phase in Nitinol: *Tom Duerig*[1]; [1]Nitinol Devices and Components

11:45 AM
On the Formation of the R-Phase in NiTiFe Shape Memory Alloys: *Radhakrishnan Manjeri*[1]; Diwakar Nandiraju[1]; Catherine Bewerse[1]; Raj Vaidyanathan[1]; [1]University of Central Florida

12:10 PM
Affect of Local Roughness on the Mechanical Behavior of NiTi: *Melissa Denton*[1]; James Earthman[1]; [1]University of California

12:35 PM
Post-Shape Memory Effect Deformation Structures in U-6wt.%Nb: *Amy Clarke*[1]; Robert Field[1]; Robert Hackenberg[1]; Donald Brown[1]; Dan Thoma[1]; [1]Los Alamos National Laboratory

General Abstracts: Materials Processing and Manufacturing Division: In Situ Synthesis and Rapid Prototyping

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS/ASM: Computational Materials Science and Engineering Committee, TMS: Global Innovations Committee, TMS: Nanomechanical Materials Behavior Committee, TMS/ASM: Phase Transformations Committee, TMS: Powder Materials Committee, TMS: Process Modeling Analysis and Control Committee, TMS: Shaping and Forming Committee, TMS: Solidification Committee, TMS: Surface Engineering Committee
Program Organizers: Fernand Marquis, Naval Postgraduate School; Ralph Napolitano, Iowa State University; Neville Moody, Sandia National Laboratories

Wednesday AM Room: Northern A2
February 28, 2007 Location: Dolphin Hotel

Session Chair: Fernand Marquis, Naval Postgraduate School

9:00 AM
Nano Materials System Development by Laser Based Direct Metal Deposition (LBDMD) Process for Industrial Slurry Erosion Applications: *Eswar Yarrapareddy*[1]; Radovan Kovacevic[1]; [1]Southern Methodist University

9:25 AM
Bulk Ceramic Structures Using Laser Engineered Net Shaping (LENS™): *Vamsi Balla*[1]; Susmita Bose[1]; Amit Bandyopadhyay[1]; [1]Washington State University

9:50 AM
Net-Shape NiTi Shape Memory Alloy Fabrication Using LENS: *Vamsi Balla*[1]; Susmita Bose[1]; Amit Bandyopadhyay[1]; [1]Washington State University

10:15 AM
Recent Progress on Modeling Laser Engineering Net Shaped Process and Product Performance: *Paul Wang*[1]; [1]Mississippi State University

10:40 AM
Nucleation Kinetics of Ferrite in Rapidly Solidified Fe-4mass%B Droplets: *Volha Bialiauskaya*[1]; Teiichi Ando[1]; [1]Northeastern University

11:05 AM
Properties of SnO2 Thin Films Depending on Processing Condition: *Gun-Eik Jang*[1]; Jung-Hoon Lee[1]; Sang-Hee Son[2]; [1]Chungbuk National University; [2]Cheong-ju University

11:30 AM
Perspectives of the Preparation of Alumina-Silica Based Chemicals and Composites from Industrial Wastes: *A. Ismail*[1]; I. Ibrahim[1]; E. Abdel[1]; K. Elbarawy[1]; [1]Central Metallrugical Research and Development Institute

General Abstracts: Structural Materials Division: Microstructure and Properties of Materials

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Composite Materials Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS: High Temperature Alloys Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS/ASM: Nuclear Materials Committee, TMS: Product Metallurgy and Applications Committee, TMS: Refractory Metals Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Titanium Committee
Program Organizers: Rollie Dutton, US Air Force; Ellen Cerreta, Los Alamos National Laboratory

Wednesday AM Room: Europe 5
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Ellen Cerreta, Los Alamos National Laboratory; Joshua Caris, Case Western Reserve University

9:00 AM Introductory Comments

9:10 AM
A Parametric Study of Effects of Indentation on Strain Hardening Solids: Ajit Batwal[1]; *Pedro Peralta*[1]; Antonio Rinaldi[1]; [1]Arizona State University

9:30 AM
Effects of Interfacial Friction Conditions on the Interpretation of Nano-Sliding Experiments: *Yanfei Gao*[1]; Haitao Xu[1]; George Pharr[1]; [1]University of Tennessee

9:50 AM
Crack Propagation across Grain Boundaries: Experiments and Modeling: *Dhiraj Catoor*[1]; K. Kumar[1]; [1]Brown University

10:10 AM
Profile of Mode-I Crack Path in a Heterogeneous Material: *Eric Brown*[1]; Cheng Liu[1]; [1]Los Alamos National Laboratory

10:30 AM Break

10:50 AM
Simulation of Strain Induced Interface Migration in Symmetric Tilt Grain Boundaries: *Sirish Namilae*[1]; Balasubramanium Radhakrishnan[1]; Gorti Sarma[1]; [1]Oak Ridge National Laboratory

11:10 AM
Influence of Molecular Conformation on the Constitutive Response of Polyethylene: A Comparison of HDPE, PEX, and UHMWPE: *Eric Brown*[1]; R. Willms[1]; George Gray[1]; Philip Rae[1]; Carl Cady[1]; [1]Los Alamos National Laboratory

11:30 AM
Friction and Fracture of Ice: *Erland Schulson*[1]; [1]Dartmouth College

11:50 AM
Rapid Sintering to Manufacture Fully Dense Nanocrystalline Hydroxyapatite: *Tien Tran*[1]; Vladimir Kodash[1]; James Shackelford[1]; Joanna Groza[1]; [1]University of California

12:10 PM
Mechanical Properties and Structure of Cu-15Ni-8Sn after Thermal Excursion: *Joshua Caris*[1]; John Lewandowski[1]; John Stephens[2]; [1]Case Western Reserve University; [2]Sandia National Laboratories

12:30 PM
Effect of Trace Elements on Mechanical Behaviors of Accumulative Roll-Bond (ARB)ed Commercially Pure Copper: *Younghwan Jang*[1]; Sangshik Kim[1]; Seungzeon Han[2]; Chayong Lim[2]; Changjoo Kim[2]; Masahiro Goto[3]; [1]Gyeongsang National University; [2]Korea Institute of Machinery and Materials; [3]Oita University

Hume-Rothery Symposium: Scattering Studies and the Fundamental Properties of Materials: Session IV

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Patrice Turchi, Lawrence Livermore National Laboratory; Wolfgang Donner, University of Houston; J. Robertson, Oak Ridge National Laboratory

Wednesday AM Room: Oceanic 7
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Gabrielle Long, Argonne National Laboratory; Wolfgang Donner, University of Houston

9:00 AM Invited
Heusler Films and Multilayers: X-Ray Resonant Magnetic Scattering and Polarized Neutron Reflectivity Studies on the Relation between Structure and Magnetism: *Hartmut Zabel*[1]; Kurt Westerholt[1]; Andre Bergmann[1]; Johannes Grabis[1]; [1]Ruhr-University Bochum

9:30 AM Invited
Formation and Thickness Evolution of Periodic Twin Domains in Manganite Films Grown on $SrTiO_3$ (001) Substrates: *Peter Wochner*[1]; U. Gebhardt[1]; N. Kasper[1]; A. Vigliante[1]; H. Dosch[1]; H.-U. Habermeier[2]; F. Razavi[2]; [1]MPI-MF; [2]MPI-FKF

10:00 AM Invited
Sources of Non-Collinear Magnetism in Disordered Alloys: *Malcolm Stocks*[1]; [1]Oak Ridge National Laboratory

10:30 AM Break

10:50 AM Invited
Understanding the Origins of Positive and Negative Exchange Bias by a Combined Polarized Neutron and Resonant Magnetic X-Ray Scattering Study: *Sunil Sinha*[1]; [1]University of California San Diego and Los Alamos National Laboratory

11:20 AM Invited
Test of the Universality of the Hume-Rothery Electron Concentration Rule by Performing the First-Principles FLAPW and LMTO-ASA Band Calculations for Different Gamma-Brasses: *Uichiro Mizutani*[1]; Ryoji Asahi[2]; Hirokazu Sato[3]; Tsunehiro Takeuchi[4]; [1]Toyota Physical and Chemical Research Institute; [2]Toyota Central R&D Laboratories; [3]Aichi University of Education; [4]Nagoya University

11:50 AM Invited
Scattering on Overlapping Strain Fields Caused by Defects Groupings: *Rozaliya Barabash*[1]; G. Ice[1]; E. Specht[1]; [1]Oak Ridge National Laboratory

12:20 PM Invited
An Order-Disorder Phase Transition on a Quasicrystal: Chemical Disorder and Phason Fluctuations: *Hiroshi Abe*[1]; Ken-ichi Ohshima[2]; [1]National Defense Academy; [2]University of Tsukuba

Innovations in Measurement Science to Assess the Performance of New Materials in the Real-World: Characterization of Advanced Materials

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Mark Stoudt, National Institute of Standards and Technology; Lyle Levine, National Institute of Standards and Technology; Tusit Weerasooriya, Army Research Laboratory

Wednesday AM Room: Australia 3
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Jeffery Fong, National Institute of Standards and Technology; Mahmoud Demeri, FormSys Inc

9:00 AM Invited
The Influence of Constitutive Parameters on Sheet Forming and Formability: *Frederic Barlat*[1]; Jeong-Whan Yoon[1]; [1]Alcoa Technical Center

9:30 AM Invited
Measurement of Springback in Stretch-Draw Forming: *Mahmoud Demeri*[1]; [1]FormSys Inc

10:00 AM
Assessing the Relationships Between Surface Topography and Dynamic Friction During Metal Forming: *Mark Stoudt*[1]; Joseph Hubbard[1]; David Pitchure[1]; [1]National Institute of Standards and Technology

10:25 AM
Plastic Strain and Grain Size Effects in the Surface Roughening of Aluminum Alloys: *Eric Moore*[1]; Mark Stoudt[2]; Robert Reno[1]; [1]University of Maryland Baltimore County; [2]National Institute of Standards and Technology

10:50 AM Break

11:00 AM
Using Digital Image Correlation to Measure Full-Field Strains in Carbon Fiber Tensile Tow Experiments: *Paul Moy*[1]; Allan Gunnarson[1]; [1]US Army Research Laboratory

11:25 AM
A Comparative Study of Photoemission to Probe Surface Microstructure Evolution of Single Crystal Aluminum during Tensile Deformation Using Excimer Laser and Purified Mercury Lamp: *Mingdong Cai*[1]; Lyle Levine[2]; Mark Stoudt[2]; David Pitchure[2]; J. Thomas Dickinson[1]; [1]Washington State University; [2]National Institute of Standards and Technology

11:50 AM
Size Effects in Compression Testing of Periodic Cellular Metals: *Brandon Bouwhuis*[1]; Glenn Hibbard[1]; [1]University of Toronto

Innovations in Titanium Technology Symposium: Advances in Alloy Development

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory; F. H. (Sam) Froes, University of Idaho

Wednesday AM Room: Asia 3
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Daniel Eylon, University of Dayton; Stephen Gerdemann, U.S. Department of Energy

9:00 AM Invited
Atomization of Titanium Alloys Containing Boron: *Charles Yolton*[1]; [1]Crucible Materials Corporation

9:30 AM
Development of Materials Design Methodologies for Boron-Modified Ti-6Al-4V Alloys: *Scott Lieberman*[1]; Arun Sreeranganathan[1]; Harpreet Singh[1]; Yuxiong Mao[1]; Arun Gokhale[1]; Sesh Tamirisakandala[2]; [1]Georgia Institute of Technology; [2]Ohio University

9:50 AM
Processing and Property Improvements in Rolled Plates and Sheets of Ti-6Al-4V + 0.1 wt% B: *Mats Bennett*[1]; Raghavan Srinivasan[1]; Sesh Tamirisa[2]; [1]Wright State University; [2]Ohio University

10:10 AM
Microstructural Stability and Heat Treatment of Boron Modified Beta-21S and Ti-5553: *Balakrishna Cherukuri*[1]; Raghavan Srinivasan[1]; Sesh Tamirisa[2]; [1]Wright State University; [2]Ohio University

10:30 AM Break

10:45 AM
The Microstructure, Tensile, and Creep Behavior of Boron-Modified Ti-15Al-33Nb(at%) and Ti-22Al-26Nb(at%): Chris Cowen[1]; Carl Boehlert[1]; Sesh Tamirisakandala[2]; Daniel Miracle[3]; [1]Michigan State University; [2]Ohio University; [3]US Air Force

11:10 AM
Elevated Temperature Oxidation Resistance of Boron Modified Titanium Alloys: *Deborah Sweeney*[1]; Raghavan Srinivasan[1]; [1]Wright State University

11:30 AM
Progress towards the Development of a Creep-Resistant β-Titanium Alloy Based on Timetal-21S: *Benjamin Peterson*[1]; Peter Collins[1]; Vladimir Levit[1]; Hamish Fraser[1]; [1]Ohio State University

11:50 AM
Effect of Al Content on Phase Constitution and Tensile Properties of Ti-13mass%Cr-1mass%Fe-Al Alloys: *Michiharu Ogawa*[1]; Tetsuya Shimizu[1]; Toshiharu Noda[1]; Masahiko Ikeda[2]; [1]Daido Steel Company, Ltd.; [2]Kansai University

12:10 PM
Effects of Powder Composition and Consolidation Conditions on the Microstructure and Mechanical Properties of TiAl Based Alloys Produced Using Titanox Powders: *Deliang Zhang*[1]; Gorgees Adam[2]; Bhupinder Parmar[1]; Brian Gabbitas[1]; [1]University of Waikato; [2]Titanox Development Ltd

Integrated Computational Materials Engineering: Lessons from Many Fields: ICME in Materials Science

Sponsored by: The Minerals, Metals and Materials Society
Program Organizer: Deborah Whitis, General Electric Company

Wednesday AM
February 28, 2007
Room: Oceanic 4
Location: Dolphin Hotel

Session Chairs: John Allison, Ford Motor Company; Robert Hyers, University of Massachusetts

9:00 AM Introductory Comments Deb Whitis

9:05 AM
CyberDesign Optimization of Structural Automotive Components Employing Multiscale Modeling: *Mark Horstemeyer*[1]; [1]Center for Advanced Vehicular Systems

9:25 AM
Integrated Computational Materials Engineering - A New Paradigm for the Global Materials Profession: *John Allison*[1]; [1]Ford Motor Company

10:10 AM
ICME at GE: Accelerating the Insertion of New Materials and Processes: *Deborah Whitis*[1]; Daniel Wei[1]; Matthew Buczek[1]; Peter Finnigan[2]; Dongming Gao[2]; Daniel Backman[3]; [1]General Electric Company; [2]General Electric Global Research Center; [3]Worcester Polytechnic Institute

10:50 AM Break

11:00 AM
Overview of the Center for Computational Materials Design (CCMD): *Zi-Kui Liu*[1]; David McDowell[2]; [1]Pennsylvania State University; [2]Georgia Institute of Technology

11:40 AM
Computer Aided Heat Treatment Planning System for Quenching and Tempering: *Lei Zhang*[1]; Yiming Rong[1]; [1]Worcester Polytechnic Institute

12:10 PM
Reliability-Based Design Optimization of Automotive Structures for Improved Crash Performance: *Masoud Rais-Rohani*[1]; [1]Mississippi State University

12:30 PM
Cyberinfrastructure for Multiscale Simulations and Design Optimizations: *Tomasz Haupt*[1]; [1]Mississippi State University

Magnesium Technology 2007: Alloy Development I

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Wednesday AM
February 28, 2007
Room: Southern 4
Location: Dolphin Hotel

Session Chairs: Randy Beals, DaimlerChrysler; Kwang Seon Shin, Seoul National University

9:00 AM
Structural Evolution in Mg-Al Alloys: Shaul Avraham[1]; *Menachem Bamberger*[1]; [1]Israel Institute of Technology

9:20 AM
The Capability of New Magnesium Alloys to Address High Temperature Applications Requirements: *Nir Moskovitch*[1]; Eli Aghion[2]; Amir Arnon[2]; [1]Magnesium Research Institute; [2]Ben Gurion University

9:40 AM
Mechanical Properties of High-Pressure Die-Cast Mg-Al-Sn-X Alloys at Elevated Temperatures: Moon Gu Kang[1]; Woo Chul Cho[1]; *Kwang Seon Shin*[1]; [1]Seoul National University

10:00 AM
Microstructure, Corrosion and Creep of Cast Magnesium Alloys Mg2Sn2Ca and Mg4Sn2Ca: Tarek Abu Leil[1]; Kamineni Rao[2]; *Norbert Hort*[1]; Yuanding Huang[1]; Carsten Blawert[1]; Hajo Dieringa[1]; Karl Kainer[1]; [1]GKSS Research Centre; [2]City University Hong Kong

10:20 AM
Effects of Alloying Elements on Microstructures and Mechanical Properties of Mg-Mm-Al-Zn Alloy: *Hyun Kyu Lim*[1]; Yoon Hee Lee[1]; Ju Youn Lee[1]; Do Hyung Kim[1]; Won Tae Kim[2]; Do Hyang Kim[1]; [1]Center for Noncrystalline Materials; [2]Cheongju University

10:40 AM Break

11:00 AM
Mechanical Behavior and Ignition Behavior of Ca-Containing Mg-Al Alloys: Antoine Volland[1]; *Jean-Jacques Blandin*[1]; Michel Suery[1]; [1]INP Grenoble

11:20 AM
Solidification Behavior of CaO Added Magnesium Alloys: *Shae Kim*[1]; [1]Korea Institute of Industrial Technology

11:40 AM
Influence of Alloying Elements on the Mechanical Properties of Zinc Containing Extruded Magnesium Alloys: *Enrique Meza García*[1]; Jan Bohlen[1]; Dietmar Letzig[1]; Karl Ulrich Kainer[1]; [1]GKSS-Research Centre, Institute for Materials Research

12:00 PM
Effect of Microalloying with Calcium on the Hot Working Behavior of AZ31 Magnesium Alloy: *Lihong Shang*[1]; Stephen Yue[1]; Elhachmi Essadiqi[2]; Ravi Verma[3]; Jon Carter[3]; [1]McGill University; [2]CANMET Materials Technology Laboratory; [3]General Motors Research and Development Center

12:20 PM
Cyclic Deformation Behavior of Newly Developed Microalloyed Mg Wrought Alloys in Corrosive Environment: *Claudia Fleck*[1]; Armin Schildknecht[1]; Kay-André Weidenmann[2]; Alexander Wanner[2]; Detlef Loehe[2]; [1]Technical University of Berlin; [2]University of Karlsruhe

Magnesium Technology 2007: Primary Production, Recycling and Environmental/Welding

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Wednesday AM
February 28, 2007
Room: Southern 5
Location: Dolphin Hotel

Session Chairs: Howard Kaplan, US Magnesium LLC; Dan Eliezer, Ben Gurion University of Negev

9:00 AM
Preparation of Aluminum-Magnesium Alloys Starting Form Magnesium Oxide: Shaohua Yang[1]; Yungang Ban[1]; Yuhua Guo[1]; Zhuxian Qiu[1]; [1]Northeastern University

9:20 AM
The Reversion Reaction in the Carbothermic Production of Magnesium: *Geoffrey Brooks*[1]; Michael Nagle[1]; Steve Tassios[1]; Tim Barton[1]; Keri Constanti-Carey[1]; Annette Koo[1]; [1]CSIRO Minerals

9:40 AM
Electrochemical Co-Deposition of Magnesium-Based Alloy in Alkali Chloride Melt: *Hongmin Zhu*[1]; Ninglei Sun[1]; Hengyang Liu[1]; [1]Beijing University of Science and Technology

10:00 AM
Development of CaCO3 Added Mg Alloy for Green Manufacturing: *Lee Jin Kyu*[1]; Seong-Ho Ha[1]; Hyung-Ho Jo[1]; Shae Kim[1]; [1]Korea Institute of Industrial Technology

10:20 AM
Innovative "In-Cell" Re-Melting Concept for MRI 153M and MRI 230D Alloys: *Nir Moscovitch*[1]; G. Gertsberg[1]; Y. Ben-Gigi[1]; O. Bar-Yosef[1]; E. Lerer[1]; N. Fantetti[1]; B. Bronfin[1]; [1]Dead Sea Magnesium

10:40 AM
Development of a Magnesium Recycling Alloy Based on the AM Alloy System: Daniel Fechner[1]; Carsten Blawert[1]; Petra Maier[1]; *Norbert Hort*[1]; Karl Kainer[1]; [1]GKSS Research Centre

11:00 AM
Predicting the Influence of Coatings on Recyclability of Magnesium Using Exergy Analysis: *Christina Meskers*[1]; Udo Boin[1]; Rob Boom[1]; Markus Reuter[2]; Yanping Xiao[1]; [1]Delft University of Technology; [2]University of Melbourne

11:20 AM
Surface Modification of AM60B Using Friction Stir Processing: *Michael Santella*[1]; Tsung-Yu Pan[2]; Cassandra Degen[3]; [1]Oak Ridge National Laboratory; [2]Ford Motor Company; [3]South Dakota School of Mines and Technology

11:40 AM
High Speed Friction Stir Welding of a Wrought Magnesium AZ31 Alloy: Rudolf Zettler[1]; Antonio da Silva[1]; *Jorge dos Santos*[1]; [1]GKSS Forschungszentrum

12:00 PM
Mechanical Properties on the Friction Stir Processed Cast Mg-1at.%Zn-2at.%Y Alloy: *Sung Wook Chung*[1]; T. Morishige[2]; L. F. Chiang[2]; Y. Takigawa[2]; M. Tsujikawa[2]; S. Oki[3]; K. Higashi[2]; [1]Osaka Industrial Promotion Organization; [2]Osaka Prefecture University; [3]Kin-Ki University

12:20 PM
Laser Welding of ZE41A-T5 Magnesium Alloy: Modeling and Experimental: Haider Al Kazzaz[1]; *Mamoun Medraj*[1]; Xinjin Cao[2]; Mohammad Jahazi[2]; [1]Concordia University; [2]NRC - Institute for Aerospace Research

Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies: Materials Oxidation/Corrosion and Protection

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizers: Zhenguo "Gary" Yang, Pacific Northwest National Laboratory; Michael Brady, Oak Ridge National Laboratory; K. Scott Weil, Pacific Northwest National Laboratory; Yong-Ho Sohn, University of Central Florida

Wednesday AM
February 28, 2007
Room: Asia 2
Location: Dolphin Hotel

Session Chairs: Peter Tortorelli, Oak Ridge National Laboratory; Xingbo Liu, West Virginia University

9:00 AM Invited
Cyclic Oxidation of Chromia-Scale Forming Alloys: Lifetime Prediction and Alloying Effects: *Brian Gleeson*[1]; Bingtao Li[1]; [1]Iowa State University

9:35 AM Invited
High-Temperature Sulfidation in Fossil Energy Systems and Alloy Design for Mitigation: *Peter Tortorelli*[1]; Ian Wright[1]; [1]Oak Ridge National Laboratory

10:10 AM
Alumina-Forming, Creep Resistant Austenitic Stainless Steels: Part 2 Oxidation Mechanism: *Michael Brady*[1]; Yukinori Yamamoto[1]; Bruce Pint[1]; Chain Liu[1]; Zhao Ping Lu[1]; Philip Maziasz[1]; Narayana Garimella[2]; Yong-Ho Sohn[2]; [1]Oak Ridge National Laboratory; [2]University of Central Florida

10:35 AM Break

10:50 AM Invited
Anomalous Oxidation of Ferritic Interconnects in Solid Oxide Fuel Cells: *Teruhisa Horita*[1]; Haruo Kishimoto[1]; Katsuhiko Yamaji[1]; Natsuko Sakai[1]; Y. Xiong[1]; Manuel Brito[1]; Harumi Yokokawa[1]; [1]AIST

11:15 AM
Metallic Interconnects and Its Degradation in SOFCs: *Zhenguo "Gary" Yang*[1]; Prabhakar Singh[1]; Jeff Stevenson[1]; Guan-Guang Xia[1]; [1]Pacific Northwest National Laboratory

11:40 AM
Developing TiAlN Coatings for Intermediate Temperature-Solid Oxide Fuel Cell Interconnect Applications: *Xingbo Liu*[1]; Christopher Johnson[2]; Chengming Li[1]; Jing Xu[1]; Caleb Cross[2]; [1]West Virginia University; [2]National Energy Technology Laboratory

12:05 PM
Surface Modification of Metallic Interconnects via Electroplating for SOFC Applications: *Lichun Chen*[1]; Zhenguo "Gary" Yang[2]; [1]Technical Materials Inc; [2]Pacific Northwest National Laboratory

Materials Processing and Manufacturing Division Symposium: Mechanics and Materials Modeling and Materials Design Methodologies, in the Honor of Dr. Craig Hartley's 40 Years of Contributions to the Field of Mechanics and Materials Science: Nanostructure, Defects and Properties

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Brent Adams, Brigham Young University; Hamid Garmestani, Georgia Institute of Technology

Wednesday AM — Room: Northern A1
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: George Voyiadjis, Louisiana State University; K. Murty, North Carolina State University

9:00 AM
Dislocation Reactions under Nano-Indentation: A Molecular Dynamics Study: *Diana Farkas*[1]; Arun Nair[1]; Ron Kriz[1]; [1]Virginia Tech

9:25 AM
Effect of Crystallographic Texture on Mechanical and Corrosion Properties of Zirconium Alloys: *Indrajit Charit*[1]; K. Murty[1]; [1]North Carolina State University

9:50 AM
Effect of Oxygen Vacancies on the Structure of 180° Ferroelectric Domain Walls in PbTiO3: *Arash Yavari*[1]; [1]Georgia Institute of Technology

10:15 AM
An Internal State Variable Model of Micropolar Elasto-Viscoplasticity: *Douglas Bammann*[1]; Jason Mayeur[2]; David McDowell[2]; [1]Sandia National Laboratories; [2]Georgia Tech

10:40 AM
Finite Element Modeling of Dislocation Reduction in GaAs Single Crystals Grown from the VGF Process: X.A. Zhu[1]; *C.T. Tsai*[1]; [1]Florida Atlantic University

11:05 AM
Material Properties and Performance of Enamel: *Richard Kwayisi*[1]; [1]University of Science and Technology

11:30 AM
The Effect of Strain Rate on the Dynamic Hardness in Metals: *George Voyiadjis*[1]; Amin Almasri[1]; [1]Louisiana State University

11:55 AM
The Effect of Surface or Interface Energy on Size Dependent Plasticity at the Micron and Submicron Length Scales: *George Voyiadjis*[1]; Rashid Abu Al-Rub[1]; [1]Louisiana State University

Materials Processing under the Influence of External Fields: Session III

Sponsored by: The Minerals, Metals and Materials Society, TMS: Aluminum Committee, TMS: Magnesium Committee, TMS: Solidification Committee
Program Organizers: Qingyou Han, Oak Ridge National Laboratory; Gerard Ludtka, Oak Ridge National Laboratory; Qijie Zhai, Shanghai University

Wednesday AM — Room: America's Seminar
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Qingyou Han, Oak Ridge National Laboratory; Xiaochun Li, University of Wisconsin-Madison

9:00 AM Introductory Comments

9:05 AM Invited
The Use of Power Ultrasound for Material Processing: *Qingyou Han*[1]; [1]Oak Ridge National Laboratory

9:35 AM
Influence of Power Ultrasonic Treatment on Solidification Structure and Segregation of 1Cr18Ni9Ti Stainless Steel: Qing-Mei Liu[1]; Fei-Peng Qi[1]; Qi-Jie Zhai[1]; Qing-You Han[2]; [1]Shanghai University; [2]Oak Ridge National Laboratory

10:00 AM
A Numerical Investigation of the Solidification of Al-12.6%Si Alloy during Mold-Vibration: *Numan Abu-Dheir*[1]; Marwan Khraisheh[1]; Kozo Saito[1]; [1]University of Kentucky

10:25 AM
Degassing of Molten Aluminum Using Ultrasonic Vibrations: *Hanbing Xu*[1]; Thomas Meek[1]; Qijie Zhai[2]; Qingyou Han[3]; [1]University of Tennessee; [2]Shanghai University; [3]Oak Ridge National Laboratory

10:50 AM Break

11:00 AM Invited
Research Progress on Ultrasonic Cavitation Based Dispersion of Nanoparticles in Al/Mg Melts for Solidification Processing of Bulk Lightweight Metal Matrix Nanocomposite: *Xiaochun Li*[1]; [1]University of Wisconsin-Madison

11:30 AM Invited
Experimental Investigations on Rotary Ultrasonic Machining of Hard-to-Machine Materials: Nikhil Churi[1]; *Z.J. Pei*[1]; Clyde Treadwell[2]; [1]Kansas State University; [2]Sonic-Mill

12:00 PM
Non-Contact Ultrasonic Treatment of Metals in a Magnetic Field: *John Wilgen*[1]; Roger Kisner[1]; Roger Jaramillo[1]; Gerard Ludtka[1]; Gail Mackiewicz-Ludtka[1]; [1]Oak Ridge National Laboratory

12:25 PM
Structural State in the Ni Based Superalloy IN738 after FSP: *Oleg Barabash*[1]; Zhili Feng[1]; Stan David[1]; David Gandy[2]; [1]Oak Ridge National Laboratory; [2]Electric Power Research Institute, Inc

12:50 PM
Numerical Simulation for Mold-Filling and Coupled Heat Transfer Processes of Titanium Shaped Castings under Centrifugal Forces: *Daming Xu*[1]; Hongliang Ma[2]; Jingjie Guo[2]; [1]Oak Ridge National Laboratory; [2]Harbin Institute of Technology

Microstructural Processes in Irradiated Materials: Reactor Pressure Vessel Steels

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Wednesday AM Room: Europe 8
February 28, 2007 Location: Dolphin Hotel

Session Chair: Lorenzo Malerba, Belgian Nuclear Research Center

9:00 AM
Late Blooming Phases and Severe Embrittlement in Low Copper Reactor Pressure Vessel Steels: *G. Odette*[1]; Brian Wirth[2]; Michael Miller[3]; Takuya Yamamoto[1]; [1]University of California, Santa Barbara; [2]University of California, Berkeley; [3]Oak Ridge National Laboratory

9:35 AM
Are Monte Carlo Simulations Able to Reproduce Experimental Observations of Cu Precipitation in Ferritic Dilute Alloy?: Edwige Vincent[1]; *Philippe Pareige*[2]; Charlotte Becquart[3]; Christophe Domain[1]; Abderrahim Almazouzi[4]; Cristelle Pareige[2]; [1]EDF-R&D; [2]GPM-UMR 6634; [3]Laboratoire de Métallurgie Physique et Génie des Matériaux-UMR 8517; [4]SCK•CEN

9:55 AM
Microstructural Evolution under Irradiation of Dilute Fe-CuNiMnSi Alloys Studied by Atomic Kinetic Monte Carlo Model Accounting for Both Vacancies and Self Interstitials: Edwige Vincent[1]; *Christophe Domain*[2]; Charlotte Becquart[1]; [1]LMPGM, UMR 8517; [2]EDF

10:15 AM
Nanoclustering in Neutron Irradiated Low Copper and Copper-Free Steels and Model Alloys: *Michael Miller*[1]; Kaye Russell[1]; G. Odette[2]; [1]Oak Ridge National Laboratory; [2]University of California

10:35 AM Break

10:50 AM
Segregation and Precipitation Kinetics in Fe-Cu Alloys under Irradiation: *Frederic Soisson*[1]; [1]CEA Saclay

11:10 AM
Study of the Kinetic of Formation of Solute Clusters in Cu or Cu Free Ferritic Model Alloys under Neutron Irradiation (3D Atom Probe and Modelling): Estelle Meslin[1]; *Bertrand Radiguet*[2]; Philippe Pareige[2]; Alain Barbu[1]; [1]SRMP - CEA Saclay; [2]Université de Rouen

11:30 AM
Neutron Irradiation on Fe-Cu Model Alloys: *Mercedes Hernández-Mayoral*[1]; Dolores Gómez-Briceño[1]; [1]Centro de Investigaciones Energeticas, Medioambientales y Tecnolgicas

11:50 AM
TEM Study of Interstitial Dislocation Loops Formed in Ferritic Alloys under 1.5 MeV Kr Ions Irradiation: *Estelle Meslin*[1]; Alain Barbu[1]; Philippe Pareige[2]; Bertrand Radiguet[2]; [1]CEA; [2]CNRS

12:10 PM
On the Effect of Nickel-Manganese-Copper Synergisms on Irradiation Hardening of RPV Steels: *G. Odette*[1]; Brian Wirth[2]; Takuya Yamamoto[1]; Doug Klingensmith[1]; Jonathan Smith[1]; [1]University of California, Santa Barbara; [2]University of California, Berkeley

Pb-Free Electronic Solders: Alloy Design, Characterization and Service Reliability: Processing and Reliability Issues

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fu Guo, Beijing University of Technology; K. Subramanian, Michigan State University; Sung Kang, IBM Corporation; Srinivas Chada, Medtronic; Laura Turbini, University of Toronto; Jin Yu, Korea Advanced Institute of Science and Technology

Wednesday AM Room: Oceanic 1
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Laura Turbini, University of Toronto; Jin Yu, Korea Advanced Institute of Science and Technology

9:00 AM
Processing and Material Issues Related to Lead-Free Soldering: *Laura Turbini*[1]; [1]University of Toronto

9:20 AM
Nucleation Control during Solidification of Tin-Silver-Copper-X Solder Joints: *Iver Anderson*[1]; J. Harringa[1]; Jason Walleser[1]; [1]Iowa State University

9:40 AM
Liquation Phenomena in the Sn-In/Ni Interfacial Reactions: *Shih-Kang Lin*[1]; Sinn-Wen Chen[1]; [1]National Tsing-Hua University

10:00 AM
Solidification Characteristics, Microstructure and Fluidity of Pb-Free Solders: *Kazuhiro Nogita*[1]; Christopher Gourlay[1]; Krishanu Biswas[1]; Arne Dahle[1]; [1]University of Queensland

10:20 AM
Damage Accumulation Characteristics of Thermomechanically Fatigued Lead-Free Composite and Non-composite Solder Joints: Yuan Gao[1]; Peng Liu[1]; *Fu Guo*[1]; Jianping Liu[1]; Zhidong Xia[1]; [1]Beijing University of Technology

10:40 AM Break

10:50 AM
Effects of Additives to SnAgCu Alloys on Microstructure and Impact Reliability of Solder Joints: *Weiping Liu*[1]; Ning-Cheng Lee[1]; [1]Indium Corporation of America

11:10 AM
Effect of Silver Content of SnAgCu Solder on Solder Joint Reliability of WLCSP: *Don Son Jiang*[1]; Yu-Po Wang[1]; C. S. Hsiao[1]; [1]Siliconware Precision Industries Company Ltd

11:30 AM
Understanding the Performance of Pb-Free Solder Sn-0.7%Cu Containing Trace Ni Additions: *Tina Ventura*[1]; Christopher Gourlay[1]; Kazuhiro Nogita[1]; Tetsuro Nishimura[2]; Arne Dahle[1]; [1]University of Queensland; [2]Nihon Superior Company, Ltd.

11:50 AM
Reliability of Conductive Adhesives as a Pb-Free Alternative in Flip Chip Applications: *Jong-Woong Kim*[1]; Dae-Gon Kim[1]; Seung-Boo Jung[1]; [1]Sungkyunkwan University

Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials VI: Session IV

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-Wen Chen, National Tsing Hua University; Srinivas Chada, Medtronic; Chih-ming Chen, National Chung Hsing University; Young-Chang Joo, Seoul National University; A. Lindsay Greer, University of Cambridge; Hyuck Lee, Korea Advanced Institute of Science and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Katsuaki Suganuma, Osaka University

Wednesday AM Room: Oceanic 2
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Srinivas Chada, Medtronic; Yee-wen Yen, National Taiwan University of Science and Technology

9:00 AM Invited
Application of Zn-Al Base Alloys to Pb-Free High Temperature Solders: *Ikuo Ohnuma*[1]; Yoshikazu Takaku[1]; Komei Makino[1]; Ryosuke Kainuma[1]; Kiyohito Ishida[1]; [1]Tohoku University

9:25 AM Invited
Homogeneous Nucleation of Intermetallic Compounds Formed between Cu and Solders during Soldering: *Kwang-Lung Lin*[1]; Chang-Ho Yu[1]; [1]National Cheng Kung University

9:50 AM Invited
Unusual Interfacial Reactions in the Sn/Ni-7wt.%V and Sn/Te Couples: *Sinn-Wen Chen*[1]; Chih-chi Chen[1]; Chen-nan Chiu[1]; [1]National Tsing Hua University

10:15 AM
Morphological and Microstructural Evolution of Ni_xP_y Compounds for Phosphorous-Rich Layer in SnAgCu/Ni-P UBM Solder Joint: *Yung-Chi Lin*[1]; Toung-Yi Shih[1]; Shih-Kang Tien[1]; Jenq-Gong Duh[1]; [1]National Tsing Hua University

10:35 AM Break

10:50 AM
Effects of Bath Compositions on the Nucleation and Growth Behavior of Copper Deposits in via Filling: *Jae-Ho Lee*[1]; Sukei Lee[1]; [1]Hong Ik University

11:10 AM
A Novel Copper Alloy Seed Layer for Advanced Barrier-Free Metallization: Jinn P. Chu[1]; *Chon-Hsin Lin*[2]; [1]National Taiwan Ocean University; [2]Chin-Min Institute of Technology

11:30 AM
Surface Finishes of Rolled Copper Foil by Electro Plating Method for Flexible Copper Clad Laminates: *Chang-Yong Lee*[1]; Won-Chul Moon[2]; Seung-Boo Jung[1]; [1]Sungkyunkwan University; [2]Sungkyunkwan University MEPC

11:50 AM
Nucleation and Growth Behavior of Zinc Particles on Aluminum Substrate: *Jae-Ho Lee*[1]; Sung-Ki Lee[2]; Young-Ho Kim[2]; [1]Hong Ik University; [2]Hanayang University

12:10 PM
Fabrication of Magnesium-Based Compound by Liquid Phase Electroepitaxy: *Cho-Hsien Lee*[1]; Cheng-Yi Liu[1]; [1]National Central University

Plasticity from the Atomic Scale to Constitutive Laws: Meso-Scale Plasticity

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Christopher Woodward, US Air Force; Michael Mills, Ohio State University; Diana Farkas, Virginia Tech

Wednesday AM Room: Europe 9
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Amit Acharya, Civil and Environmental Engineering; Benoit Devincre, ONERA

9:00 AM Invited
Effect of Sample Size on the Strength of fcc Metals: *Cynthia Volkert*[1]; [1]Forschungszentrum Karlsruhe

9:30 AM Invited
Large-Scale 3-Dimensional Dislocation Simulations Reveal Key Mechanisms for Strengthening at the Micrometer Scale: *Satish Rao*[1]; Dennis Dimiduk[2]; Triplicane Parthasarathy[1]; Meijie Tang[3]; Christopher Woodward[2]; Michael Uchic[2]; [1]UES, Inc.; [2]US Air Force; [3]Lawrence Livermore National Laboratory

10:00 AM
Indentation Size Effect in Solid Solutions: *Karsten Durst*[1]; Andi Boehner[1]; Oliver Franke[1]; Mathias Goeken[1]; [1]University Erlangen

10:20 AM
Modeling Nano-Indentation Using Multi-Scale Discrete Dislocation Plasticity Analysis: *Shafique Khan*[1]; [1]King Fahd University of Petroleum and Minerals

10:40 AM Break

11:00 AM Invited
Plastic Deformation Monitored In-Situ by High Angular Resolution 3DXRD: New Insights and New Challenges: *Wolfgang Pantleon*[1]; Bo Jakobsen[1]; Ulrich Lienert[2]; Henning Poulsen[1]; [1]Risoe National Laboratory; [2]Argonne National Laboratory

11:30 AM
On the Features of Dislocation Dynamics in Thin Films: Direct Comparison Between In Situ Experiments and Large Scale Atomistic Simulations: *Yury Osetskiy*[1]; Roger Stoller[1]; Yoshitaka Matsukawa[1]; [1]Oak Ridge National Laboratory

11:50 AM Invited
Statistics and Kinetics of Crystal Dislocatrions under Deformation: *Anter El-Azab*[1]; Jie Deng[1]; [1]Florida State University

12:20 PM
Mechanism-Based Discrete Dislocation Predictions of Intrinsic Size Effects in Single Crystal Plasticity: *Amine Benzerga*[1]; P. J. Guruprasad[1]; [1]Texas A&M University

12:40 PM
Understanding Fatigue: *John Gilman*[1]; [1]University of California

Properties and Performance of High Temperature Alloys and Coatings: Coatings and Oxidation II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Qiang Feng, Beijing University of Science and Technology; Timothy Gabb, NASA Glenn Research Center; Doug Konitzer, General Electric Aviation; Roger Reed, Imperial College London; Bruce Pint, Oak Ridge National Laboratory; Sammy Tin, Illinois Institute of Technology; Shiela Woodard, Pratt and Whitney

Wednesday AM Room: Asia 4
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Brian Gleeson, Iowa State University; Bruce Pint, Oak Ridge National Laboratory

9:00 AM Invited
Considerations in the Chemical Design of Thermal Barrier Coatings: Rafael Leckie[1]; Felicia Pitek[1]; Tobias Schaedler[1]; Stephan Kraemer[1]; *Carlos Levi*[1]; [1]University of California, Santa Barbara

9:25 AM Invited
Surface Waviness Formation in Thermal Barrier Coatings: *K. Jimmy Hsia*[1]; Rahul Panat[1]; [1]National Science Foundation

9:50 AM
Degradation Mechanisms of Yttria Stabilized Zirconia Topcoat in Thermal Barrier Coatings by V_2O_5: *Prabhakar Mohan*[1]; Biao Yuan[1]; Vimal Desai[2]; Yong-Ho Sohn[1]; [1]University of Central Florida; [2]New Mexico State University

10:10 AM
Doping Effect on Nanoceria Coatings for High Temperature Oxidation Resistance Coatings: *Ranjith Thanneeru*[1]; Swanand Patil[1]; Sudipta Seal[1]; [1]University of Central Florida

10:25 AM
The Effect of Platinum on Thermal Barrier Coating Failure: *Kristen Marino*[1]; Emily Carter[2]; [1]Department of Chemical Engineering, Princeton University; [2]Department of Mechanical and Aerospace Engineering, Princeton University

10:40 AM
Development of New Surface Preparation of Nickel-Superalloys for Deposition of Conicraly Coatings with High Adhesion: *Gabriele Rizzi*[1]; [1]Turbocoating

11:00 AM Break

11:15 AM Invited
Engineering of Ceramic Top-Coats in Thermal Barrier Coatings: *Nitin Padture*[1]; [1]Ohio State University

11:40 AM
Compositionally Graded Ceramic Coatings Using LENS™: Partha Bandyopadhyay[1]; *Vamsi Balla*[2]; Susmita Bose[2]; Amit Bandyopadhyay[2]; [1]Indian Institute of Technology Khargpur; [2]Washington State University

12:00 PM
Optimization of Plasma Spray Parameters for Achieving Nanostructure Coatings Using Compuational Fluid Dynamics: *Viswanathan Venkatachalapathy*[1]; Sudipta Seal[1]; [1]University of Central Florida

12:15 PM
Characterization of Cold Sprayed CuCrAl-Coated and Uncoated GRCop-84 Substrates for Space Launch Vehicles: *Sai Raj*[1]; J. Karthikeyan[2]; Bradley Lerch[1]; Charles Barrett[1]; Ralph Garlick[1]; [1]NASA Glenn Research Center; [2]ASB Industries, Inc.

12:35 PM
High Temperature Corrosion Behavior of Reactive Element (Hf, Zr, and Y) Modified Fe-Al Coatings in Cyclic Oxidizing-Sulfidizing Environments: *Vikas Behrani*[1]; Preet Singh[1]; [1]Georgia Institute of Technology

Recycling and Waste Processing: Aluminum

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Mark Schlesinger, University of Missouri-Rolla; Robert Stephens, Teckcominco, Inc.; Donald Stewart, Alcoa Technology; Ray Peterson, Aleris International; Jan van Linden, Recycling Technology Services, Inc.; Subodh Das, SECAT; Abdel Serna-Vasquez, Aleris International; Cynthia Belt, Aleris International Inc; John Pickens, Alumitech/Aleris International; John Hryn, Praxair; Richard Kunter, Richard S. Kunter Assoc; Andreas Siegmund, Quemetco Metals Inc.; Masao Suzuki, AI Tech Associates

Wednesday AM Room: Australia 2
February 28, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM
Aluminum Recycling Studies at the Sloan Industry Center for a Sustainable Aluminum Industry: *Subodh Das*[1]; [1]Secat Inc

9:30 AM
Six-Sigma Methodology for Improved Energy Efficiency and Productivity: *Cynthia Belt*[1]; Ray Peterson[1]; [1]Aleris International Inc

10:00 AM
Urban Aluminum Smelters: A Conceptual Paper Describing the Recovery of Used Aluminum Beverage Cans from Landfills: *Subodh Das*[1]; Todd Boggess[1]; Shridas Ningileri[1]; J. Bush[2]; [1]Secat Inc; [2]Finley Bush Consultants Inc

10:30 AM Break

10:50 AM
Identifying Scrap Friendly Alloys Using Chance Constrained Modeling: *Gabrielle Gaustad*[1]; Subodh Das[2]; Randolph Kirchain[1]; [1]Massachusetts Institute of Technology; [2]Secat Inc

11:20 AM
Recycling Aluminum Aerospace Alloys: *Subodh Das*[1]; J. Gilbert Kaufman; [1]Secat Inc

11:50 AM
B4C Particle-Reinforced Al Matrix Composites Production from 7075 Al Alloy Chips by Hot Pressing: *Eyup Kayali*[1]; Onur Meydanoglu[1]; Harun Mindivan[1]; Huseyin Cimenoglu[1]; [1]Istanbul Technical University

Shape Casting: The 2nd International Symposium: Modeling

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS: Solidification Committee
Program Organizers: Paul Crepeau, General Motors Corporation; Murat Tiryakioglu, Robert Morris University; John Campbell, University of Birmingham

Wednesday AM Room: Northern E2
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Mark Jolly, University of Birmingham; Jacob Zindel, Ford Motor Company

9:00 AM Introductory Comments

9:10 AM
Rationalization of Material Properties for Structural Modeling of Aluminum Castings: *Paul Crepeau*[1]; [1]General Motors Corporation

9:35 AM
Modeling the Onset and Evolution of Hydrogen Pores during Solidification: *Sergio Felicelli*[1]; Enrique Escobar de Obaldia[1]; [1]Mississippi State University

10:00 AM
Redesign of an Industry Test for Hot Tearing of High Performance Aluminium Casting Alloys Using Casting Simulation Software: *Mark Jolly*[1]; Adam Smith[1]; [1]University of Birmingham

10:25 AM
Predicting the Tortuous Three Dimensional Morphology of Microporosity in Aluminium Alloys: *Junsheng Wang*[1]; Ludovic Thuinet[1]; Robert Atwood[1]; Peter Lee[1]; [1]Imperial College

10:50 AM Break

11:10 AM Invited
Modelling the Influence of Multi-Component and Multi-Phase Microstructures on Pore Formation in Cast Aluminum Alloys: *Peter Lee*[1]; Junsheng Wang[1]; Ludovic Thuinet[1]; Robert Atwood[1]; [1]Imperial College

11:35 AM
A Process Model for the Age Hardening of a 356-Type Aluminum Alloy: *Mei Li*[1]; Larry Godlewski[1]; Jacob Zindel[1]; John Allison[1]; [1]Ford Motor Company

12:00 PM
A Model for Prediction of Shrinkage Defects Resulting from Pressure Reduction in the Liquid Phase during Feeding: *Ana Reis*[1]; [1]Porto University

12:25 PM
Relationship between HTC Evolution, Gap Formation and Stress Analysis at the Chill Interface in Aluminum Sand Casting: *Andrea Meneghini*[1]; Luca Tomesani[1]; Giovanni Sangiorgi[1]; [1]University of Bologna

Structural Materials Division Symposium: Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch: Plasticity and Deformation Mechanisms at Small Length Scale II

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinghang Zhang, Texas A&M University; Yuntian Zhu, Los Alamos National Laboratory; Michael Rigsbee, North Carolina State University; C. Suryanarayana, University of Central Florida; Haiyan Wang, Texas A&M University; C. T. Liu, Oak Ridge National Laboratory

Wednesday AM Room: Asia 5
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Haiyan Wang, Texas A&M University; Marc Meyers, University of California, San Diego

9:00 AM Invited
Grain Boundary Deformation Mechanisms in Nanocrystalline Materials: The Roles of Grain Boundary Sliding, Migration and Grain Rotation: *Diana Farkas*[1]; [1]Virginia Tech

9:20 AM
On the Role of Frank-Read Sources in Plasticity of Nanomaterials: *Yuri Estrin*[1]; F. R. N. Nabarro[2]; Hyoung Seop Kim[3]; [1]Clausthal University of Technology; [2]University of the Witwatersrand; [3]Chungnam National University

9:35 AM
Strategies for Simultaneously Improving the Strength and Ductility of Nanostructured/Ultrafine-Grained Materials: *Yuntian Zhu*[1]; Yong Hao Zhao[1]; Xiaozhou Liao[2]; Zenji Horita[3]; Terence Langdon[4]; [1]Los Alamos National Laboratory; [2]University of Sydney; [3]Kyushu University; [4]University of Southern California

9:50 AM Invited
Nano-Scale Refinement and Dissolution of Cementite in a Dual-Phase Steel Induced by Plastic Straining: *Ke Lu*[1]; X. Ma[1]; G. Liu[1]; L. Zhou[1]; [1]Institute of Metal Research, Chinese Academy of Science

10:10 AM
Tensile Deformation Behavior of a Nickel Alloy Subjected to Surface Severe Plastic Deformation: J. W. Tian[1]; K. Dai[2]; J. C. Villegas[3]; *L. Shaw*[4]; P. K. Liaw[1]; D. L. Klarstrom[5]; [1]University of Tennessee; [2]Quality Engineering and Software Technology; [3]Intel Corporation; [4]University of Connecticut; [5]Haynes International, Inc

10:25 AM
Microstructural Evolution and Nanostructured Formation in a Cu-Al Alloy Induced by Dynamic Plastic Deformation: *Nairong Tao*[1]; Chuanshi Hong[1]; Ke Lu[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

10:40 AM Break

10:55 AM
Microstructure and Texture of Zr and a Zr-Nb Alloy Subjected to HPT: *Alexander Zhilyaev*[1]; Ling Jiang[1]; Oscar Ruano[1]; Michael Kassner[1]; Azat Guimazov[1]; Teresa Pérez-Prado[1]; [1]CENIM, CSIC

11:10 AM
Deformation of Nanocrystalline Hexagonal Close-Packed Metals: Mechanisms and Cryogenic Effects: *Guangping Zheng*[1]; [1]University of Hong Kong

11:25 AM Invited
Cryomilled Nanostructured Materials: Processing and Properties: *Enrique Lavernia*[1]; Bing Han[1]; Julie Schoenung[1]; [1]University of California

11:45 AM
Synthesis of Nanostructured Metals by Room-Temperature Consolidation of Nanoparticles and Nanocrystalline Powders Using Equal Channel Angular Extrusion: Yaojun Lin[1]; Cathleen Hutchins[1]; *Ibrahim Karaman*[1]; Gregory Ng[2]; Enrique Lavernia[2]; [1]Texas A&M University; [2]University of California

12:00 PM
Low-Temperature Consolidation of Ultrafine Grained Al 6061-T6 Produced by Machining: *Boum-Seock Kim*[1]; Kevin Trumble[1]; Srinivasan Chandrasekar[1]; [1]Purdue University

12:15 PM
Microstructure and Mechanical Properties of Bulk Nanostructured Cu and Cu-Al2O3 Composite Produced by Thermomechancal Consolidation of Powders: *Deliang Zhang*[1]; Aamir Muhktar[1]; Charlie Kong[2]; Paul Munroe[2]; Carl Koch[3]; [1]University of Waikato; [2]University of New South Wales; [3]North Carolina State University

12:30 PM
Mechanical Response of Nanocrystalline Steel Obtained by Mechanical Milling: Rodolfo Rodriguez-Baracaldo[1]; Josep Antoni Benito[2]; *Jose Maria Cabrera*[2]; Jose Manuel Prado[3]; [1]Universidad Nacional de Colombia; [2]Universitat Politècnica de Catalunya; [3]Centre Tecnològic de Manresa

12:45 PM
Processing, Characterization and Mechanical Properties of Carbon Nanotube-Reinforced Alumina Nanocomposites: *Katherine Thomson*[1]; Dongtao Jiang[1]; Scott Robertson[1]; Robert Ritchie[1]; Amiya Mukherjee[1]; [1]University of California

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Towards Functional Nanomaterials: Synthesis, Characterization, and Applications: Quantum Dots

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Zhiming Wang, University of Arkansas; Alexander Govorov, Ohio University; Andrey Rogach, Ludwig-Maximilians-Universtität München

Wednesday AM
February 28, 2007

Room: Oceanic 5
Location: Dolphin Hotel

Session Chairs: Christoph Lienau, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie; Zhiming Wang, University of Arkansas

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9:00 AM Invited
Growth of In-Rich InGaN/GaN Quantum Dots by Metalorganic Chemical Vapor Deposition: *Euijoon Yoon*[1]; Hee Jin Kim[1]; Yong Seon Jeon[1]; Keon-Hun Lee[1]; Go Eun Lee[1]; Ho-Sang Kwak[2]; Byong-O Kim[2]; Yong-Hoon Cho[2]; [1]Seoul National University; [2]Chungbuk National University

9:30 AM Invited
Growth of InN "Quantum Dots" by Molecular-Beam Epitaxy: *Maohai Xie*[1]; [1]University of Hong Kong

10:00 AM
Evolution of InGaAs Quantum Dots on Nanostructured GaAs Surfaces by Droplet Homoepitaxy: *Zhiming Wang*[1]; [1]University of Arkansas

10:15 AM
Predicting and Understanding Order of Heteroepitaxial Quantum Dots: Early Growth Stages: *Lawrence Friedman*[1]; [1]Pennsylvania State University

10:30 AM
Electronic Properties of Conical Quantum Dots Supercrystals: *Javier Nossa*[1]; Ángela Camacho[1]; [1]Universidad de los Andes

10:45 AM Break

10:55 AM Invited
Quantum Dot Optoelectronic Device Integration Using Selective Area MOCVD: *Sudha Mokkapati*[1]; Hoe Tan[1]; C. Jagadish[1]; [1]Australian National University

11:25 AM
Shallow-Patterned GaAs (100) Substrates: Morphology Evolution and Selective Formation of InGaAs Quantum Dots: *Jihoon Lee*[1]; Zh. M. Wang[1]; B. L. Liang[1]; W. T. Black[1]; Vas P. Kunets[1]; Yu I. Mazur[1]; G. J. Salamo[1]; [1]University of Arkansas

11:40 AM
Effect of Electron-Electron Interaction on Nonlinear Near-Resonance Electromagnetic Response of Quantum Dot Systems: *Victor Bondarenko*[1]; Miroslaw Zaluzny[2]; Yang Zhao[1]; [1]Wayne State University; [2]Institute of Physics, M.Curie-Sklodowska University

11:55 AM
Exact Thermodynamics, Quantum Phase Separation, Crossovers and Entanglement Scaling in Small Size Hubbard Nanoclusters: *Armen Kocharian*[1]; Gayanath Fernando[2]; Kalum Palandage[2]; Tun Wang[2]; [1]Los Angeles Pierce College; [2]University of Connecticut

12:10 PM Invited
Ultrafast Coherent Nano-Spectroscopy of Quantum Dots and Metallic Photonic Crystals: *Christoph Lienau*[1]; [1]Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie

2007 Nanomaterials: Fabrication, Properties and Applications: Session VI

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee
Program Organizers: Wonbong Choi, Florida International University; Ashutosh Tiwari, University of Utah; Seung Kang, Qualcomm Inc.

Wednesday PM Room: Oceanic 3
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Arvind Agarwal, Florida International University; Seong Jin Koh, University of Texas at Arlington

2:00 PM Invited
Nanocrystalline Diamond Films and Its Application to Micro- and Nanoscale Multifunctional Devices: *Ashok Kumar*[1]; Z. Xu[1]; H. Jeedigunta[2]; [1]University of South Florida, Department of Mechanical Engineering; Nanomaterials and Nanomanufacturing Research Center; [2]University of South Florida, Department of Electrical Engineering; Nanomaterials and Nanomanufacturing Research Center

2:25 PM
Trinuclear Metallocyclodextrin-Based Donor-Acceptor Complexes: Simple Models of Photosystem II: *Muath Atmeh*[1]; [1]Dublin Institute of Technology

2:40 PM
Poly(1-Butene) Nanocomposites: Effect of Nanofillers on Thermo-Mechanical, Crystallization and Phase Transformation: *Jyoti Jog*[1]; [1]National Chemical Laboratory

2:55 PM
The Study on the Surface Modification of Graphite by Nanno-SiO2/CeO2 Composite Film: *Zhi Guo Dong*[1]; Yao Guangchun[1]; [1]Northeastern University

3:10 PM
In-Situ TEM Study of Grain Growth in Nanocrystalline Copper: Sonia Simoes[1]; Rosa Calinas[2]; *Paulo Ferreira*[3]; Manuel Vieira[1]; Maria Vieira[2]; [1]Universidade do Porto; [2]Universidade de Coimbra; [3]University of Texas at Austin

3:25 PM Break

3:40 PM
Fracture Toughness Enhancement via Plasma Spraying of Insitu Grown CNT - Al2O3 Nano-Composite Coating: *Kantesh Balani*[1]; Tao Zhang[1]; Srinivasa Bakshi[1]; Wenzhi Li[1]; Arvind Agarwal[1]; [1]Florida International University

4:05 PM
Nanoporous Metals and Their Charge-Dependent Strain: *Dominik Kramer*[1]; Smrutiranjan Parida[1]; Jörg Weissmüller[1]; [1]Forschungszentrum Karlsruhe GmbH

4:20 PM
Formation of Nano-Sized Grains in Cu Alloys by Accumulative Roll Bonding Process: *Cha Lim*[1]; Seung Han[1]; Seong Lee[2]; [1]Korea Institute of Machinery and Materials; [2]Mokpo National University

4:35 PM
Time and Temperature Dependent Morphological Variations in Nanocrystalline Cerium oxide: *Satyanarayana Kuchibhatla*[1]; A. Karakoti[1]; T. Ranjith Kumar[1]; S. Seal[1]; Donald Baer[2]; S. Thevuthasan[2]; [1]University of Central Florida; [2]Pacific Northwest National Laboratory

4:50 PM
The Characteristic of Microstructure in Deformed Nanocrystalline Cobalt: *Xiyan Zhang*[1]; Rulin Zuo[1]; Cong Li[1]; [1]Guangxi University

5:05 PM
Thermal Stability of Cryomilled Nanocrystalline Al+1% Diamantane: Rahul Mishra[1]; Indranil Roy[1]; Li-Chung Lai[1]; Farghalli Mohamed[1]; *James Earthman*[1]; [1]University of California

5:20 PM
Surface Deformation during Scratching of Mineral Reinforced Polymer Nanocomposites: *Lalitanand Surampudi*[1]; Qiang Yuan[1]; Devesh Misra[1]; [1]University of Louisiana at Lafayette

5:35 PM
Damping in Severely Deformed Fe-25 at% Al Based Alloys: *Igor Golovin*[1]; [1]Tula State University

8th Global Innovations Symposium: Metal Powders for Energy Production and Storage Applications: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Powder Materials Committee
Program Organizers: Zhigang Fang, University of Utah; James Sears, South Dakota School of Mines and Technology

Wednesday PM Room: Oceanic 6
February 28, 2007 Location: Dolphin Hotel

Session Chair: James Sears, South Dakota School of Mines and Technology

2:00 PM
Discharge Properties of Li/Fe(X)S2 Electrode Using Mechanically Alloyed Metal Sulfide Nano Powders as an Active Materials: *In Shup Ahn*[1]; Sung-Yeal Bae[1]; Dong-Kyu Park[2]; Yoo Young Kim[3]; [1]Gyeongsang University; [2]Kaya AMA, Inc.; [3]Jinju National University

2:25 PM
Influence of Impurity Elements on Structure of Powder Aluminium: *Sergey Lipko*[1]; [1]Siberian Research and Design Institute for Aluminium and Electrode Industry JSC

2:50 PM
Powder Metallurgy Processing and Magnetic Property Studies of Fe-Zn and Ni-Zn Alloys: *Swieng Thuanboon*[1]; Nakorn Srisukhumbowornchai[2]; Tanjore Jayaraman[1]; Sivaraman Guruswamy[1]; [1]University of Utah; [2]King Mongkut's University of Technology Thonburi

3:15 PM
Selective Hydrogen Purification Using Ceramic Oxide Membranes: *Mohamed Elbaccouch*[1]; Ali Raissi[1]; [1]University of Central Florida

3:40 PM Break

4:10 PM
Waste Heat Recovery Using Thermoelectric Devices in the Light Metals Industry: *Bill Choate*[1]; Terry Hendricks[2]; [1]BCS Inc; [2]Pacific Northwest National Laboratory

4:35 PM
Study on Thermoelectric Material Zn4Sb3 Prepared by Mechanochemical Method: *Zhongliang Xiao*[1]; Zhong Cao[1]; Daoxin Wu[1]; Haibo Wang[1]; Daowu Yang[1]; Zhoulan Yin[2]; Qiyuan Chen[2]; [1]Changsha University of Science and Technology; [2]Central South University

5:00 PM
Carburizing Heat Treatment Effect on Abrasive and Mechanical Properties of Powder Metallurgy Parts: *Ali Emamian*[1]; [1]TWI

Advanced Metallic Composites and Alloys for High Performance Applications: Metallic Composites

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS/ASM: Composite Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Awadh Pandey, Pratt & Whitney Rocketdyne; Kevin Kendig, Air Force Research Laboratory; John Lewandowski, Case Western Reserve University

Wednesday PM Room: Europe 10
February 28, 2007 Location: Dolphin Hotel

Session Chair: Tyrone Jones, US Army Research Laboratory

2:00 PM Invited
An Overview of In Situ Metal Matrix Composite Processing and Its Application to Boride-Reinforced Titanium Alumnides: *Stephen Kampe*[1]; Judson Marte[2]; [1]Virginia Tech; [2]GE Global Research

2:20 PM
Incorporation of Local Constitutive Equations for Modeling and Simulation of the Micro-Mechanical Response of Metallic Composites: *Arun Sreeranganathan*[1]; Arun Gokhale[1]; Scott Lieberman[1]; Sesh Tamirisakandala[2]; [1]Georgia Institute of Technology; [2]Ohio University

2:40 PM
Effects of Heat Treatment on Microstructure and Tensile Properties of C/Cu/Al Composites: *Zhuokun Cao*[1]; Guangchun Yao[1]; Yihan Liu[1]; [1]Northeastern University of China

3:00 PM
Reinforcing Effects of Multi-Walled Carbon Nanotubes in Aluminum-Based Nanocomposites: *Hyun-joo Choi*[1]; Donghyun Bae[1]; [1]Yonsei University

3:20 PM Break

3:40 PM
Stress Analysis of a Variable Thickness Orthotropic Rotating Disc: *Mudireddy Reddy*[1]; G. Rama Murty[1]; [1]Osmania University

4:00 PM
Metal Base Composites and Multimaterials: *Myriam Sacerdote-Peronnet*[1]; Jean-Claude Viala[1]; [1]University of Lyon France

4:20 PM
Deformation-Induced Synthesis of Bulk Nanolaminate Samples: *Rainer Hebert*[1]; John Perepezko[1]; [1]University of Wisconsin

4:40 PM
Mechanical Behavior of Ta-Au Multilayers Composites: *Andrea Hodge*[1]; Mukul Kumar[1]; Geoff Campbell[1]; [1]Lawrence Livermore National Laboratory

5:00 PM
Processing Effects on the Solidification Microstructures in the Constrained Geometry of a Metal Matrix Composite: *Matthew Krane*[1]; Nick Green[2]; Mark Jolly[2]; [1]Purdue University; [2]University of Birmingham

5:20 PM
Metal Matrix Composite Design Tool: *Jeffrey Schultz*[1]; Steve Kampe[1]; [1]Virginia Tech

Advances in Computational Materials Science and Engineering Methods: Finite Element Method II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Biomaterials Committee, TMS/ASM: Computational Materials Science & Engineering
Program Organizers: Koen Janssens, Paul Scherrer Institute; Veena Tikare, Sandia National Laboratories; Richard LeSar, Iowa State University

Wednesday PM Room: Europe 7
February 28, 2007 Location: Dolphin Hotel

Session Chair: Veena Tikare, Sandia National Laboratories

2:00 PM Introductory Comments

2:05 PM Invited
Three-Dimensional Microstructure-Property Simulations for Low Thermal Expansion Ceramic Composites: *Edwin Fuller*[1]; Andrew Durnford[1]; Thomas Wanner[2]; Chris Seick[3]; Ivar Reimanis[3]; [1]National Institute of Standards and Technology; [2]George Mason University; [3]Colorado School of Mines

2:40 PM Question and Answer Period

2:45 PM
Creep Modelling of Hardporcelaine Ware during Firing over 1300 C: *Suat Yilmaz*[1]; [1]Istanbul University

3:10 PM Question and Answer Period

3:15 PM Break

3:35 PM
Finite Element Modeling of Piezoelectric Composites: *Ronit Gupta*[1]; Christian Marcheselli[1]; T. Venkatesh[1]; [1]Tulane University

4:00 PM Question and Answer Period

4:05 PM
Finite Element Prediction of 3D Fatigue Crack Growth in Railway Axle: *Hamid Alihossieni*[1]; K. Dehghani[2]; A. Nazarbooland[3]; [1]Railway Research Center; [2]Polytechnic University; [3]Shiraz University

4:30 PM Question and Answer Period

4:35 PM
Tuning the Domain Switching in a Ring Assembly of Cobalt (Co) Nanospheres during Their Magnetization Reversal: A Micromagnetic Study: *Prabeer Barpanda*[1]; [1]Rutgers University

5:00 PM Question and Answer Period

Advances in Microstructure-Based Modeling and Characterization of Deformation Microstructures: Characterization of Deformed Structures III

Sponsored by: The Minerals, Metals and Materials Society, ASM-MSCTS: Texture and Anisotropy Committee, ASM-MSCTS: Texture and Anisotrophy Committee
Program Organizers: Reza Shahbazian Yassar, Center for Advanced Vehicular Systems; Sean Agnew, University of Virginia; Jiantao Liu, Alcoa Technical Center

Wednesday PM — Room: Europe 1
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Jiantao Liu, Alcoa Inc.; Paul Wang, Mississippi State University

2:00 PM
Application of the Raman Technique to Measure Stress States in Individual Si Particles in a Cast Al-Si Alloy: *Stephen Harris*[1]; James Boileau[1]; Bhaskar Majumdar[2]; [1]Ford Research and Advanced Engineering; [2]New Mexico Tech

2:20 PM Invited
Role of Grain Boundaries and Crystal Anisotropy on Grain Size Effects in Polycrystals: *Amit Ghosh*[1]; [1]University of Michigan

2:45 PM
Life Remaining Prognostics for Airframe Structural Components: *Curtis Rideout*[1]; Scott Ritchie[1]; [1]Positron Systems, Inc.

3:05 PM
Retention of <001> Fiber Texture During Thermo-Mechanical Processing in Iron-Silicon Electrical Motor Steel: *Dejan Stojakovic*[1]; Roger Doherty[1]; Surya Kalidindi[1]; Fernando Landgraf[2]; [1]Drexel University; [2]University of Sao Paulo

3:25 PM
Transformations in Laser Multi-Deposited Medium Carbon Steel: *Haitham El Kadiri*[1]; Liang Wang[1]; Sergio Felicelli[1]; Mark Horstemeyer[1]; Paul Wang[1]; [1]Mississippi State University

3:45 PM Break

4:00 PM
Effects of Disoriented Grains on the Elastic Constants of Directionally Solidified Superalloys: *Chen-ming Kuo*[1]; [1]I-Shou University

4:20 PM Invited
The Role of Internal Stresses in the Deformation Behaviour of Precipitation Hardening Aluminum Alloys: Henry Proudhon[1]; *Warren Poole*[1]; [1]University of British Columbia

4:45 PM
Effect of Microstructural Stability on Creep Deformation and Fracture in P22 and P91 Steels: *Xiuhua Zheng*[1]; Bilal Dogan[2]; Umit Ceyhan[2]; [1]Beijing Institute of Technology; [2]GKSS Research Centre

5:05 PM
Effect of Pre-Treatment on Recrystallization Textures in Continuous Cast AA 3105 Aluminum Alloy: *Wenchang Liu*[1]; Zhong Li[2]; C.-S. Man[1]; James Morris[1]; [1]University of Kentucky; [2]Aleris International Inc.

5:25 PM
Effects of Strain Rate, Temperature, and Temperature Gradient on Localized Deformation of AA2024 in Metal Forming Processes: *Soondo Kweon*[1]; Armand Beaudoin[1]; Peter Kurath[1]; Ming Li[2]; [1]UIUC; [2]Alcoa Technical Center

5:45 PM
Microtomographic Characterisation of Columnar Al-Cu Dendrites for Interdendritic Flow Determination: *Devashish Fuloria*[1]; Peter Lee[1]; Dominique Bernard[2]; [1]Imperial College; [2]ICMCB-CNRS, Institut de Chimie de la Matière Condensée de Bordeaux

Alumina and Bauxite: Precipitation

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Peter McIntosh, Hatch Associates; Jean Doucet, Alcan Inc; Morten Sorlie, Elkem Aluminium ANS

Wednesday PM — Room: Northern E4
February 28, 2007 — Location: Dolphin Hotel

Session Chair: David Kirkpatrick, Gramercy Alumina LLC

2:30 PM Introductory Comments

2:40 PM
Mathematical Model to Determine the Productivity at CVG Bauxilum Precipitation Circuit: *Jesus Alcala*[1]; Roco Mendoza[1]; [1]CVG Bauxilum

3:05 PM
Influence of Process Variables in the Agglomeration Phase on the Attrition of the Hydrate and Its Relationship with Its Morphology: Enio Beltran[1]; *Erik Farias*[1]; [1]CVG Bauxilum

3:30 PM
The Mode of Action of Crystal Growth Modifying Reagent on Gibbsite Crystallization and Particle Interaction Forces: *Jonas Addai-Mensah*[1]; James Counter; Kristen Bremmell[1]; [1]University of South Australia

3:55 PM
Effect of Long Fatty Acid Collector on Seeded Precipitation from Sodium Aluminates Solution: *Yu Haiyan*[1]; [1]Dongbei University

4:20 PM Break

4:30 PM
Oxidation of Bayer Liquor Organics with Submerged Plasma: *Lyndon Armstrong*[1]; Gervais Soucy[2]; [1]Alcan; [2]University of Sherbrooke

4:55 PM
Effect of Cationic Polyacrylamide on the Seeded Agglomeration of Supersaturated Sodium Aluminate Liquors: Jianguo Yin[1]; Qiyuan Chen[1]; *Zhoulan Yin*[1]; Jianning Sun[1]; Huiping Hu[1]; [1]School of Chemistry and Chemical Engineering, Central South University

5:20 PM
Improvement in the System of Process Data Capturing and Analysis at CVG Bauxilum: Nelson Angulo[1]; *Marcelino Quiaragua*[1]; [1]CVG Bauxilum

5:45 PM
Thermography as a Predicting Method in Diagnosis of Scaling in Secondary Tanks and Vacuum Lines: *Ricardo Galarraga*[1]; Royman Cañas[1]; Jorge Minguett[1]; [1]CVG Bauxilum

6:10 PM Concluding Comments

Aluminum Alloys for Transportation, Packaging, Aerospace and Other Applications: Alloy Characterization

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Subodh Das, Secat Inc

Wednesday PM Room: Northern A4
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Subodh Das, Secat Inc; Weimin Yin, Secat Inc

2:30 PM
Three-Dimensional Evaluation of Microstructure in AA5083 after Hot Deformation: *Jung-Kuei "Brian" Chang*[1]; Eric Taleff[1]; Paul Krajewski[2]; [1]University of Texas; [2]General Motors Corporation

2:55 PM
Microstructural Evolution of Nanoscale Precipitation-Strengthened Al-Zr and Al-Zr-Sc Alloys: *Keith Knipling*[1]; David Dunand[2]; David Seidman[2]; [1]Naval Research Laboratory; [2]Northwestern University

3:20 PM
Microstructural Evolution of Nanoscale Precipitation-Strengthened Al-Zr and Al-Zr-Ti Alloys: *Keith Knipling*[1]; David Dunand[2]; David Seidman[2]; Morris Fine[2]; [1]Naval Research Laboratory; [2]Northwestern University

3:45 PM
Effect of Second Phase Particles on Recrystallization in Twin Roll Cast AA3105: Naiyu Sun[1]; *Burton Patterson*[1]; Jaakko Suni[2]; Roger Doherty[3]; Hasso Weiland[2]; Gregory Thompson[4]; Lawrence Allard[5]; [1]University of Alabama at Birmingham; [2]Alcoa Inc; [3]Drexel University; [4]University of Alabama at Tuscaloosa; [5]Oak Ridge National Laboratory

4:10 PM Break

4:20 PM
Microstructural Characteristics during Hot Forging of Al-Mg-Si Alloy: *Yong Nam Kwon*[1]; Y.-S. Lee[1]; J.-H. Lee[1]; [1]Korea Institute of Machinery and Materials

4:45 PM
Effects of Zn on the Microstructures and Mechanical Properties of Al-Mg-Mn-RE Alloys: *Hua Shen*[1]; Weidong Yang[1]; Yihan Liu[1]; Zhiguo Dong[1]; Guangchun Yao[1]; [1]School of Materials and Metallurgy

5:10 PM
The Development of (111) Recrystallization Texture through Thickness in A1050 Aluminum Sheets: *Masatoshi Sudo*[1]; Tomokazu Obata[1]; [1]Kanazawa Institute of Technology

Aluminum Reduction Technology: Inert Anode Operation and Electrolyte Properties

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Wednesday PM Room: Southern 2
February 28, 2007 Location: Dolphin Hotel

Session Chair: Gregory Hardie, Comalco Ltd

2:30 PM
Nickel and Nickel Alloys Electrochemistry in Cryolite-Alumina Melts: *Dmitry Simakov*[1]; Evgeny Antipov[2]; Marina Borzenko[2]; Alexander Filatov[2]; Sergey Kazakov[2]; Vladimir Shtanov[2]; Galina Tsirlina[2]; Sergey Vassiliev[2]; Victor Denisov[3]; Victor Ivanov[1]; Zoya Kuzminova[2]; [1]RUSAL Engineering and Technological Centre; [2]Laboratory for Basic Research in Aluminium Production, Moscow State University; [3]Krasnoyarsk State University

2:55 PM
The Influence of the Anode Shape on the Gas Covering of Inert Anodes: *László Kiss*[1]; Sandor Poncsak[1]; Jacques Antille[2]; Thin Nguyen[3]; [1]Universite du Quebec a Chicoutimi; [2]KAN-NAK S.A.; [3]Moltech Technology Center

3:20 PM
Analysis of the Anode Gas Flow under the Crust in Inert Anode Cells: *Alexandre Perron*[1]; László Kiss[1]; Jacques Antille[2]; Thin Nguyen[3]; [1]Universite du Quebec a Chicoutimi; [2]KAN-NAK S.A.; [3]Moltech Technology Center

3:45 PM
Semi-Vertical de Nora Inert Metallic Anode: V. de Nora[1]; *Thinh Nguyen*[1]; Rene Von Kaenel[1]; Jacques Antille[2]; Laurent Klinger[2]; [1]Moltech; [2]KAN-NAK S.A.

4:10 PM
Aluminum Electrolysis in a Low Temperature Heavy Electrolyte System with Fe-Ni-Al2O3 Composite Anodes: *Junli Xu*[1]; Zhongning Shi[1]; Zhuxian Qiu[1]; [1]Northeastern University

4:35 PM Break

4:50 PM
Modeling of Cryolite-Alumina Melts Properties and Experimental Investigation of Low Melting Electrolytes: Alexander Redkin[1]; *Olga Tkatcheva*[1]; Yurii Zaikov[1]; Alexei Apisarov[1]; [1]Institute of High Temperature Electrochemistry

5:15 PM
A Thermodynamic Model for the NaF-Kf-AlF_3-NaCl-KCl-$AlCl_3$ System: *Patrice Chartrand*[1]; Matthias Heyrman[1]; [1]Centra Recherche Calcul Thermochimique, Ecole Polytechnique

5:40 PM
Corrosive Investigation of 5Cu-(10NiO-NiFe2O4) Inert Anode in Low-Temperature Aluminum Electrolysis: Jiawei Wang[1]; Yanqing Lai[1]; Zhongliang Tian[1]; *Jie Li*[1]; Yexiang Liu[1]; [1]School of Metallurgical Science and Engineering

6:05 PM
Liquidus Temperature, Density and Electrical Conductivity of Low Temperature Electrolyte for Aluminum Electrolysis: *Hongmin Kan*[1]; Yungang Ban[1]; Zhuxian Qiu[1]; Zhaowen Wang[1]; Zhongning Shi[1]; [1]Northeastern University

6:30 PM
Alumina Solubility in KF-AlF3 Based Low-Temperature Electrolyte System: *Jian-hong Yang*[1]; Donald Graczyk[1]; Catherine Wunsch[1]; John Hryn[1]; [1]Argonne National Laboratory

6:55 PM
Ionic Liquid Electrowinning of Aluminum-Modeling of Batch Reactor: *Mingming Zhang*[1]; Ramana Reddy[1]; [1]University of Alabama

7:20 PM
Refining Aluminum Process in Ionic Liquids: *Huimin Lu*[1]; Yongheng Wang[1]; [1]Beijing University of Aeronautics and Astronautics

Biological Materials Science: Functional Biomaterials and Devices

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Andrea Hodge, Lawrence Livermore National Laboratory; Chwee Lim, National University of Singapore; Eduard Artz, University of Stuttgart; Masaaki Sato, Tohoku University; Marc Meyers, University of California, San Diego

Wednesday PM Room: Europe 4
February 28, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM
Laser Direct Writing of Biomaterials and Cells for Tissue Engineering: *Roger Narayan*[1]; Anand Doraiswamy[1]; Douglas Chrisey[2]; [1]University of North Carolina; [2]Rensselaer Polytechnic Institute

2:15 PM
Laser Micromachining of Biomaterials - A Transcending Tool for Tissue Microfabrication: Timothy Patz[1]; *Anand Doraiswamy*[2]; Roger Narayan[2]; Douglas Chrisey[3]; [1]Edwards Lifesciences; [2]University of North Carolina; [3]Rensselaer Polytechnic Institute

2:30 PM
Multifunctional Coated Magnetic Nanoparticles for Disease Treatment: *Raju Ramanujan*[1]; S. Purushotham[1]; S. Kayal[1]; [1]Nanyang Technological University

2:45 PM
CAD/CAM Piezoelectric Ink-Jet Deposition of Naturally Derived Bioadhesives for Surgical Applications: *Anand Doraiswamy*[1]; Jonathan Wilker[2]; Peter Mente[3]; Roger Narayan[1]; [1]University of North Carolina; [2]Purdue University; [3]North Carolina State University

3:00 PM
Microwave Synthesis of Biopolymers: Anurag Pandey[1]; *Pranesh Aswath*[1]; [1]University of Texas at Arlington

3:15 PM
Tissue Regeneration on Drug Releasing, Porous, Biodegradable Polymer Scaffolds: *Mayur Uttarwar*[1]; Liping Tang[1]; Pranesh Aswath[1]; [1]University of Texas at Arlington

3:30 PM
Stimuli-Responsive Magnetic Core-Shell Nanoparticles for Targeted Delivery System with Triggered Release: Arjit Nag[1]; Jilin Zhang[1]; *Devesh Misra*[1]; [1]University of Louisiana at Lafayette

3:45 PM Break

4:00 PM
Synthesis of Poly Lactic Acid – Poly Glycolic Acids Blends Using Microwave Irradiation: Anurag Pandey[1]; *Pranesh Aswath*[1]; [1]University of Texas at Arlington

4:15 PM
Surface Modification of Polymers for BioMEMS Applications: *Varshni Singh*[1]; Stephen Myers[1]; Jost Goettert[1]; [1]Louisiana State University

4:30 PM
Gas Phase Synthesis of Calcium Phosphate Nanoparticles with Controlled Crystallographic Phase for Gene Transfection: *Bradley Eaton*[1]; Renato Camata[1]; Hyunbin Kim[1]; Rakesh Kapoor[1]; Selvarangan Ponnazhagan[1]; [1]University of Alabama, Birmingham

4:45 PM
Antibactericidal Function of W-Doped-Anatase Titania-Coated Nickel Ferrite Composite Nanoparticles: *Bhanu Sunkara*[1]; Radhey Srivastava[1]; Devesh Misra[1]; [1]University of Louisiana at Lafayette

5:00 PM
Extract Magnetosomes from Acidthiobacillus Ferrooxidans: J*ianping Xie*[1]; Xinxing Liu[1]; Wen-bin Liu[1]; Guan-zhou Qiu[1]; [1]School of Mineral Processing and Bioengineering

5:15 PM
Vacancy Engineered Cerium Oxide Nanoparticles for Protection from Radiation-Induced Cellular Damage: Roy Tarnuzzer[1]; *Sudipta Seal*[2]; Swanand Patil[2]; Jimmie Colon[3]; [1]Midwest Research Institute; [2]University of Central Florida; [3]MD Anderson Cancer Research Institute

5:30 PM
Simulation of the Stress State in the Surgical Blow Cutter: *Szota Michal*[1]; Jasinski Józef[1]; Stodolnik Bogdan[1]; Jeziorski Leopold[1]; [1]Czestochowa Technical University

Bulk Metallic Glasses IV: Mechanical Properties III

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Raymond Buchanan, University of Tennessee; Wenhui Jiang, University of Tennessee; Guojiang Fan, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee

Wednesday PM Room: Asia 1
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Z. Q. Hu, Chinese Academy of Science; H. Choo, University of Tennessee

2:00 PM Invited
Glass Formation, Mechanical and Erosion Properties of the Zr63-x Alx Cu24 Ni10 Co3 Bulk Metallic Glass Forming Alloy: Dorota Drozdz[1]; Marie-Laure Vaillant[2]; Rainer Wunderlich[1]; *Hans-Jörg Fecht*[1]; [1]University of Ulm; [2]Waterford Institute of Technology

2:20 PM Invited
The Relationship Between Atomic Level Stresses, Local Atomic Environment, and Electronic Structure: *Donald Nicholson*[1]; [1]Oak Ridge National Laboratory

2:40 PM Invited
Elastic Properties of $Zr_{50}Cu_{40-x}Al_{10}Pd_x$ Bulk Metallic Glasses: *Veerle Keppens*[1]; Zhiying Zhang[1]; Don Nicholson[2]; Yoshihiko Yokoyama[3]; Dongchun Qiao[1]; Peter Liaw[1]; Akihisa Inoue[3]; [1]University of Tennessee; [2]Oak Ridge National Laboratory; [3]Tohoku University

3:00 PM
Elastic Properties of Oxyfluoride Glass System: *Shantala Patil*[1]; [1]Gulbarga University, Gulbarga

3:15 PM
Effect of Free Volume Changes on the Fatigue and Fracture Behavior of a Zr-Ti-Ni-Cu-Be Bulk Metallic Glass: *Maximilien Launey*[1]; Jamie Kruzic[1]; Ralf Busch[2]; [1]Oregon State University; [2]Universität des Saarlandes

3:30 PM
On the Temperature Dependence of the Elastic Constants in Amorphous Metals: *Douglas Safarik*[1]; Ricardo Schwarz[1]; [1]Los Alamos National Laboratory

3:45 PM
Mechanical Properties and Fracture Features of Ti-Based Bulk Glass-Forming Alloys: *Feng Jiang*[1]; Hongqi Li[1]; Guojiang Fan[1]; Peter Liaw[1]; Hahn Choo[1]; [1]Department of Materials Science and Engineering, University of Tennessee

4:00 PM Invited
Nano-/Microforming of Bulk Metallic Glasses in Air: *Jinn Chu*[1]; Hadi Wijaya[1]; [1]National Taiwan Ocean University

4:20 PM Invited
Indentation Deformation of Cu47.5Hf47.5Al5 Bulk Metallic Glass: *Fuqian Yang*[1]; Wenwen Du[1]; Dongchun Qiao[2]; Peter Liaw[2]; [1]University of Kentucky; [2]University of Tennessee

4:40 PM
Molecular Dynamics Simulation for the Deformation Behavior of Metallic Glasses: *Pil-Ryung Cha*[1]; Na-Young Park[1]; Ki Bae Kim[2]; Hyung Kwang Seok[2]; Yu Chan Kim[2]; [1]Kookmin University; [2]Korea Institute of Science and Technology

4:55 PM
Modeling the Propagation of Shear Bands in Bulk Metallic Glasses: *Brian Edwards*[1]; Bamin Khomami[1]; Peter Liaw[1]; [1]University of Tennessee

5:10 PM
Large-Scale Molecular Dynamics Simulation of Shear Band Propagation in Metallic Glass: *Futoshi Shimizu*[1]; Shigenobu Ogata[2]; Ju Li[3]; [1]Japan Atomic Energy Agency; [2]Osaka University; [3]Ohio State University

5:25 PM
Mechanical Behavior of Bulk Metallic Glasses: Between Polymers and Oxide Glasses: *Jean-Marc Pelletier*[1]; Catherine Gauthier[1]; Jean-Jacques Blandin[2]; Sebastien Gravier[2]; [1]INSA Lyon; [2]Institut National Polytechnique de Grenoble

5:40 PM
Metallic-Glass Films: Fabrication and the Effects on Fatigue Resistance of Various Structural Materials: *F. X. Liu*[1]; C.L. Chiang[2]; Y. Yang[3]; Y.F. Gao[1]; W.H. Jiang[1]; Y.F. Guan[1]; M.W. Chen[4]; W.O. Soboyejo[3]; J.P. Chu[2]; P.D. Rack[1]; P.K. Liaw[1]; [1]University of Tennessee; [2]National Taiwan Ocean University; [3]Princeton University; [4]Tohoku University

5:55 PM Invited
Metallic Glasses under Load: In Situ and Residual Strain Measurements by High Energy X-Ray Scattering: *Todd Hufnagel*[1]; [1]Johns Hopkins University

Cast Shop Technology: Solidification and Microstructure

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: David DeYoung, Alcoa Inc; Rene Kieft, Corus Group; Morten Sorlie, Elkem Aluminium ANS

Wednesday PM — Room: Northern E1
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Men Chu, Alcoa Inc; Robert Wagstaff, Alcan-Solatens

2:30 PM Introductory Comments

2:35 PM
A Study on the Heat Transfer Coefficient during the High Pressure Die Casting Process if ADC12Z Alloy-Effect of the Process Parameters: *Shoumei Xiong*[1]; Zhi-Peng Guo[1]; Bai-Cheng Liu[1]; Mei Li[2]; John Allison[2]; [1]Tsinghua University; [2]Scientific Research Laboratory, Ford Motor Company

2:55 PM
Study of Microstructures and Mechanical Properties of Strip-Cast AA6111 Alloys, Following Casting, Rolling and Heat Treatment: *Donghui Li*[1]; Jonathan Reichelson[1]; Mihaiela Isac[1]; Roderick Guthrie[1]; [1]McGill University

3:15 PM
Dendrite Fragmentation and Its Role in Formation of Grain Structures of a Casting: *Shan Liu*[1]; [1]Iowa State University

3:35 PM
Natural Convection Streams and Equiaxed Crystals During Dendritic Solidification Processes: *Mostafa El-Bealy*[1]; H. El-Emairy[1]; [1]Ain Shams University

3:55 PM
Investigation of Solidification and Mechanical Properties Behavior of Al-Si Alloy: *Gamal Adbel-Gaber*[1]; Abdel Nasser Omran[2]; Khalil Khalil[1]; [1]Aswan High Institute of Energy; [2]Azhar University

4:15 PM Break

4:30 PM
Effect Iron on the Microstructure and Mechanical Properties of Eutectic Al-Si Alloy: *Henghua Zhang*[1]; [1]Shanghai University

4:50 PM
Modeling of microsegregation and crystallization during solidification of aluminum ternary alloy: *Makoto Morishita*[1]; Hitoshi Ishida[1]; [1]Kobe Steel, Ltd.

5:10 PM
Correlations between Thermal Parameters, Grain Size, Dendritic Spacing and Microardness in Directional Solidified Al-Zn and Zn-Al Alloys: Alicia Ares[1]; *Carlos Schvezov*[1]; [1]CONICET/FCEQyN-University of Misiones

5:30 PM
Study of Rolling Behavior of Closed-Cell Aluminum Foam Material: Guoyin Zu[1]; Guangchun Yao[1]; Hongbin Li[1]; [1]School of Materials and Metallurgy

Characterization of Minerals, Metals, and Materials: Characterization of Processing of Materials I

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Arun Gokhale, Georgia Institute of Technology; Jian Li, Natural Resources Canada; Toru Okabe, University of Tokyo

Wednesday PM — Room: Oceanic 8
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Tzong Chen, CANMET-MMSL; Masao Miyake, University of Tokyo

2:00 PM
Activation Energy for the Sintering Process of Clay Based Ceramic: *Carlos Maurício Vieira*[1]; Sergio Monteiro[1]; [1]State University of the Northern Fluminense

2:20 PM
Effect of Particle Size and Exfoliation to Cation Exchange Capacity of Copper in Vermiculite: Bowen Li[1]; Zhiyong Xu[1]; *Jiann-Yang Hwang*[1]; [1]Michigan Technological University

2:40 PM
Growth of β-$FeSi_2$ by Exchange Reaction between Si and Molten Salt: *Tsuyoshi Yoneyama*[1]; Takeshi Yoshikawa[1]; Kazuki Morita[1]; [1]University of Tokyo

3:00 PM
Characterization of High Pressure and High Temperature Synthesized Carbonado Diamond: *Sergio Monteiro*[1]; Ana Lucia Skury[1]; Guerold Bobrovnitchii[1]; Luiz Fernado dos Santos[1]; João José Rangel[2]; [1]State University of the Northern Rio de Janeiro; [2]Candido Mendes University

3:20 PM
Rapid Solidification and Devitrification of a Marginal Glass Forming Alloy in Gas Atomized Powder and in Melt Spun Ribbons: *Eren Kalay*[1]; Scott Chumbley[1]; Iver Anderson[1]; Ralph Napolitano[1]; [1]Ames Laboratory/ Iowa State University

3:40 PM
Oxide Precipitation during the Dew-Point Control of Transformation Induced Plasticity Steels: *Xiang-Shu Li*[1]; Young Hwa Oh[1]; Sung-Il Baik[1]; Young-Woon Kim[1]; [1]Seoul National University

4:00 PM Break

4:20 PM
Preparation of Alkali Porous Ceramic with Fibrous Wollastonite: Bowen Li[1]; Ying Huang[2]; *Jiann-Yang Hwang*[1]; [1]Michigan Technological University; [2]China Building Materials Academy

4:40 PM
The Effect of Surface Preparation on the Rate of Mass Transfer in Carburizing: *Olga Karabelchtchikova*[1]; Christopher Brown[1]; Mohammed Maniruzzaman[1]; Richard Sisson[1]; [1]Worcester Polytechnic Institute

5:00 PM
Characterization of $Gd_5(Si_xGe_{1-x})_3$ Phase in $Gd_5(Si_xGe_{1-x})_4$ Alloys and Its Persistence: Ozan Ugurlu[1]; *L. Scott Chumbley*[1]; [1]Iowa State University

5:20 PM
Characterization of Physical Properties of Super Alloy Haynes 242 at Cryogenic Temperatures: *Jun Lu*[1]; Ke Han[1]; [1]National High Magnetic Field Laboratory

5:40 PM
Microstructures and Electrical Properties of Sn-9Zn-(0.5RE) Solders: *Fei-Yi Hung*[1]; Truan-Sheng Lui[1]; Li-Hui Chen[1]; Kung-An Lan[1]; [1]National Cheng Kung University

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Computational Thermodynamics and Phase Transformations: Nanomaterials and Confined Systems I

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, ASM Materials Science Critical Technology Sector, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Corbett Battaile, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory

Wednesday PM
February 28, 2007
Room: Europe 11
Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Invited
Challenges in the Structure of Nanoalloys: *Jonathan Doye*[1]; [1]University of Oxford

2:30 PM Invited
Doping of Nanocrystals and the Role of Self-Purification: *James Chelikowsky*[1]; [1]University of Texas

3:00 PM
The Energetics of Segregation and Ordering in Nanocrystalline Ni-W Alloys: *Andrew Detor*[1]; Christopher Schuh[1]; [1]Massachusetts Institute of Technology

3:20 PM Break

3:40 PM
Thin-Film Intermetallic Structures: A Statistical-Thermodynamic Model for Description of Ordering Phenomena: *Olga Semenova*[1]; Regina Krachler[1]; [1]University of Vienna

4:00 PM
Kinetics of Water Adsorption at Anatase TiO2 Surfaces and Nanoparticles: Duc Nguyen[1]; *Patrick Schelling*[2]; J. Woods Halley[1]; [1]University of Minnesota; [2]University of Central Florida

4:20 PM
Phase-Field Study of the Evolution of the Morphology and Composition of Metal Germanosilicide Thin Films: *Mathieu Bouville*[1]; Dongzhi Chi[1]; David Srolovitz[2]; [1]Institute of Materials Research and Engineering, Singapore; [2]Yeshiva University

4:40 PM
Thermodyanamics and Phase Equilibria in the Bi-Sn System for Nano Phases: *Sibasis Acharya*[1]; J.P. Hajra[2]; T. Ray[2]; [1]TU Clausthal; [2]IISc, Bangalore

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Degradation of Light Weight Alloys: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS: Magnesium Committee
Program Organizers: David Shifler, Office of Naval Research; Julie Christodoulou, Office of Naval Research; James Moran, Alcoa; Airan Perez, Office of Naval Research; Wenyue Zheng, CANMET Materials Technology Laboratories

Wednesday PM
February 28, 2007
Room: Northern A3
Location: Dolphin Hotel

Session Chairs: Airan Perez, Office of Naval Research; Wenyue Zheng, CANMET

2:30 PM
Electrochemical Study of Magnesium Hydride Formation in Aqueous Solutions: *Gordon Ping Gu*[1]; Wenyue Zheng[1]; Mimoun Elboujdaini[1]; Jian Li[1]; Edward Ghali[2]; [1]CANMET, Natural Resources Canada; [2]University Laval

2:55 PM Question and Answer Period

3:00 PM
Effects of Pre Exposure on the Rates of Mg Corrosion Measured Using Electrochemical Techniques: *Wenyue Zheng*[1]; [1]CANMET Materials Technology Laboratories

3:25 PM Question and Answer Period

3:30 PM
Spent Nuclear Fuel Storage Basin Water Chemistry at the Savannah River Site: Evaluation and Predictive Modeling of Al Alloy Corrosion: *David Hathcock*[1]; Tracy Murphy[1]; Phil Vormelker[1]; Robert Sindelar[1]; [1]Savannah River National Laboratory

3:55 PM Question and Answer Period

4:00 PM
Environmental Effect on Very Long Life Fatigue of a Cast Aluminum Alloy: *Xiaoxia Zhu*[1]; Jianzhang Yi[1]; John Allison[2]; Wayne Jones[1]; [1]University of Michigan; [2]Ford Motor Company

4:25 PM Question and Answer Period

4:30 PM Break

4:45 PM
The Influence of Media Concentrations on the Passivation Layer Characteristics of Al-Zn Alloys in NaCl Solutions: *Ndubuisi Idenyi*[1]; Chinedu Ekuma[1]; Edmund Umahi[1]; [1]Ebonyi State University

5:10 PM Question and Answer Period

5:15 PM
Precipitation of Crack Tip Hydrides in Zirconium Alloys: *Young Suk Kim*[1]; Sang Bok Ahn[1]; Yong Moo Cheong[1]; [1]Korea Atomic Energy Research Institute

5:40 PM Question and Answer Period

5:45 PM
In-Situ Electrochemical Investigations of Nanoceria Conversion Coated Aluminum Alloys by EC-AFM: *Abhilash Vincent*[1]; S. Deshpande[1]; S. Babu[1]; S. Seal[1]; [1]University of Central Florida

6:10 PM Question and Answer Period

Diffusion in Advanced Materials and Processing: Intermetallics and Glasses

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, ASM Materials Science Critical Technology Sector, TMS: Alloy Phases Committee, TMS: High Temperature Alloys Committee, ASM-MSCTS: Atomic Transport Committee, TMS/ASM: Nuclear Materials Committee, TMS: Solidification Committee
Program Organizers: Yong-Ho Sohn, University of Central Florida; Carelyn Campbell, National Institute of Standards and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Afina Lupulescu, Union College

Wednesday PM Room: Europe 2
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Helmut Mehrer, Universität of Munster; Carelyn Campbell, National Institute of Standards and Technology

2:00 PM Invited
Aspects of Diffusion Modeling in Intermetallics and Ionic Systems: *John Agren*[1]; [1]Royal Institute of Technology

2:30 PM
Diffusional Interactions between a Ni-Base Superalloy Substrate and an Ordered B2 Matrix Coating: *Carelyn Campbell*[1]; [1]National Institute of Standards and Technology

2:50 PM Invited
Diffusion in Metallic Melts: *Axel Griesche*[1]; Michael-Peter Macht[1]; Günter Frohberg[2]; [1]Hahn-Meitner-Institute Berlin; [2]Technical University Berlin

3:20 PM Invited
Diffusion in Bulk Glass Forming Alloys - From the Glass to the Equilibrium Melt: *Klaus Raetzke*[1]; Franz Faupel[1]; Volker Zöllmer[1]; Alexander Bartsch[1]; Andreas Meyer[2]; [1]University of Kiel; [2]TU Munich

3:40 PM Break

4:00 PM Invited
Diffusion and Ionic Conduction in Borate and Silicate Glasses: *Helmut Mehrer*[1]; [1]Universität of Munster

4:30 PM Invited
Non-Random Interaction of Vacancies with Atoms during Interdiffusion and Ionic Conductivity in Materials: *Graeme Murch*[1]; Irina Belova[1]; [1]University of Newcastle

5:00 PM
Modelling of Diffusion in Oxides: *Lars Hoglund*[1]; John Agren[1]; Samuel Hallstrom[1]; [1]Kungliga Tekniska Högskolan (Royal Institute of Technology)

5:20 PM
Interdiffusion and "Kinetic Demixing" in Solid Solutions of Multicomponent Oxide "Line" Compounds: *Srinivasa Reddy*[1]; Mysore Dayananda[2]; Lowell Wiggins[1]; Brian Sundlof[1]; [1]IBM Corporation; [2]Purdue University

5:40 PM
Oxidation in Square Sandwich of GaAs/AlAs/GaAs: *Sanboh Lee*[1]; Sun-Chien Ko[2]; [1]National Tsing Hua University; [2]Chunghwa Telecom Company

Dynamic Behavior of Materials: Mechanical Properties II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Marc Meyers, University of California; Ellen Cerreta, Los Alamos National Laboratory; George Gray, Los Alamos National Laboratory; Naresh Thadhani, Georgia Institute of Technology; Kenneth Vecchio, University of California

Wednesday PM Room: Europe 3
February 28, 2007 Location: Dolphin Hotel

Session Chairs: George Gray, Los Alamos National Laboratory; Kenneth Vecchio, University of California

2:00 PM
The Role of Fluorine on the Shock Induced Equation of State and Shear Strength in Three Simple Polymers: *Neil Bourne*[1]; Jeremy Millett[2]; [1]University of Manchester; [2]AWE

2:30 PM
Dynamic Shear-Off in Solid Metal Plates: *Michael Pontin*[1]; Ken Nahshon[2]; John Hutchinson[2]; Anthony Evans[1]; Frank Zok[1]; [1]University of California Santa Barbara; [2]Harvard University

2:45 PM
Dynamic Yield Stress Obtained with a Split Hopkinson Bar: Bo Song[1]; *Weinong Chen*[1]; Bonnie Antoun[2]; Danny Frew[2]; [1]Purdue University; [2]Sandia National Laboratories

3:00 PM
Dynamic Fragmentation of Silica Glass and Copper: *Sheng-Nian Luo*[1]; Qi An[2]; Lianqing Zheng[3]; Heng-An Wu[2]; Kaiwen Xia[4]; Damian Swift[1]; [1]Los Alamos National Laboratory; [2]University of Science and Technology of China; [3]University of Missouri; [4]University of Toronto

3:15 PM
Dynamic Plastic Response of Aluminum at Temperatures Approaching Melt: *Stephen Grunschel*[1]; Rodney Clifton[1]; [1]Brown University

3:30 PM Break

3:45 PM
Femtosecond Laser Induced Plastic Deformation of Ni-Base Single Crystal Superalloy: *Shuwei Ma*[1]; S. Yalisove[1]; Tresa Pollock[1]; [1]University of Michigan

4:00 PM
Laser Shock Driven Strengthening and Microstructure Evolution of SiCw/2024 Al Composite: *Xiaojing Xu*[1]; Yongkang Zhang[1]; [1]Jiangsu University

4:15 PM
Rapid Undercooling and Refreeze in Shock-Melted Bi and Bi(Zn): *Alan Jankowski*[1]; Jeffrey Colvin[1]; Bryan Reed[1]; Mukul Kumar[1]; [1]Lawrence Livermore National Laboratory

4:30 PM
Shear Localization in Dynamic Deformation - Microstructural: *Yongbo Xu*[1]; Jinghua Zhang[1]; Yilong Bai[2]; Marc Meyers[3]; [1]Shenyang National Laboratory of Materials Sciences, Institute of Metal Research, Chinese Academy of Sciences; [2]State Key Laboratory for Non-Linear Mechanics of Continuous Media, Institute of Mechanics, Chinese Academy of Sciences; [3]University of California, San Diego

4:45 PM
The Effect of Alloying on the Shock Response of Nickel Alloys: Neil Bourne[1]; George Gray[2]; *Jeremy Millett*[3]; [1]University of Manchester; [2]Los Alamos National Laboratory; [3]AWE

5:00 PM
The Effect of Strain Rate on the Yield Stress of Ferritic Stainless Steels: *Kester Clarke*[1]; Robert Comstock[2]; Martin Mataya[3]; David Matlock[1]; [1]Colorado School of Mines; [2]AK Steel Research; [3]Los Alamos National Laboratory

5:15 PM
Shock Compression of Ni+Al Particle Systems Part II: Modeling and Simulation: *Ryan Austin*[1]; Daniel Eakins[1]; David McDowell[1]; Naresh Thadhani[1]; David Benson[2]; [1]Georgia Institute of Technology; [2]University of California, San Diego

5:30 PM
Stress-Strain Response of Particulate Composites at Elevated Rates of Loading: *A. T. Owens*[1]; H. V. Tippur[1]; [1]Department of Mechanical Engineering, Auburn University

Electrode Technology Symposium (formerly Carbon Technology): Cathode Part II: Preheating and Cell Start Up

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS

Wednesday PM — Room: Southern 3
February 28, 2007 — Location: Dolphin Hotel

Session Chair: Mohammed Mahmood, Aluminium Bahrain

2:30 PM Introductory Comments

2:35 PM
Experimental Evaluation of the Preheating Process to Gas with Peripheral Protection in Cells of CVG Alcasa, Venezuela: Rafael Tosta[1]; *Evelyn Inzunza*[1]; [1]CVG Alcasa

3:00 PM
Improvement in Cell Preheat and Start Up at Dubal: *B. Kakkar*[1]; Ali Mohammed[1]; Arvind Kumar[1]; [1]Dubai Aluminum Company

3:25 PM
Improvements for the Electrical Preheating of Hall-Heroult Pots: Günter Berndt[1]; *Ingo Eick*[1]; [1]Hydro Aluminium

3:50 PM
Finite Element Study of the Thermo-Electro-Chimio-Mechanical Behavior of Hall-Héroult Cells under Electrical Preheating: Simon Pilote[1]; *Daniel Marceau*[1]; Mario Fafard[2]; Jean-François Bilodeau[3]; [1]Université du Québec à Chicoutimi; [2]Université Laval; [3]Alcan International Limited

4:15 PM Break

4:35 PM
The Measurement of Thermal Coefficient of Aluminum Reduction Cell Lining Materials: Jiang Yanli[1]; Feng Naixiang[1]; Di Yuezhong[1]; *Mao Jihong*[1]; Ma Chenggui[1]; Qi Xiquan[1]; [1]Northeastern University

Electronic, Magnetic and Photonic Materials Division Symposium: Advanced Metallizations and Interconnect Technologies, in Honor of Prof. K. N. Tu's 70th Birthday: Advanced Metallizations and Interconnect Technology II

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Chih Chen, National Chiao Tung University; Lih Chen, National Tsing Hua University; Ulrich Gösele, Max Planck Institute of Microstructure Physics; C. Kao, National Central University; Sinn-Wen Chen, National Tsing-Hua University

Wednesday PM — Room: Pacific Hall B
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Masanori Murakami, Kyoto University; Bing-Zong Li, Fudan University

2:00 PM Invited
Ultra-Thin Oxide Film Measurement and Its Application in Magnetic Tunnel Junctions (MTJs): J. Yang[1]; C.-X. Ji[1]; *Y. Chang*[1]; [1]University of Wisconsin

2:25 PM Invited
Effects of Electromigration on Interfacial Reactions: *Sinn-Wen Chen*[1]; Shan-Hill Wong[1]; Chia-Ming Hsu[1]; Chao-Hong Wang[1]; Shih-Kang Lin[1]; [1]National Tsing Hua University

2:50 PM Invited
Interfacial Reactions in Lead-Free Electronic Solder Joints: S. Yang[1]; C. Chang[1]; *C. Kao*[2]; [1]National Central University; [2]National Taiwan University

3:15 PM Break

3:45 PM Invited
The Kirkendall Effect Revisited in the Nanoworld: *Ulrich Goesele*[1]; [1]Max Planck Institute of Microstructure Physics

4:10 PM Invited
In Situ Ultrahigh Vacuum Transmission Electron Microscope Investigations of Dynamical Changes of Metal Silicide Nanowires on Silicon: *L. J. Chen*[1]; [1]National Tsing Hua University

4:35 PM Invited
Thirty-Five Years of Interactions with King-Ning Tu: *James Mayer*[1]; [1]Arizona State University

Friction Stir Welding and Processing IV: Session V

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Rajiv Mishra, University of Missouri; Murray Mahoney, Rockwell Scientific Company; Thomas Lienert, Los Alamos National Laboratory; Kumar Jata, US Air Force

Wednesday PM — Room: Northern E3
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM Invited
Study of Plunge Motion during Friction Stir Spot Welding: *Harsha Badarinarayan*[1]; Frank Hunt[1]; Kazutaka Okamoto[1]; Shigeki Hirasawa[2]; [1]Hitachi America Ltd; [2]Kobe University

2:20 PM
Spot Friction Welding of Wrought Magnesium: *Tsung-Yu Pan*[1]; Michael Santella[2]; P.K. Mallick[3]; Alan Frederick[2]; William Schwartz[1]; [1]Ford Motor Company; [2]Oak Ridge National Laboratory; [3]University of Michigan - Dearborn

2:35 PM
The Effect of Engineered Materials on the Faying Surface of Friction Stir Spot Welds: *Bryan Tweedy*[1]; Christian Widener[1]; Dwight Burford[1]; [1]Wichita State University

2:50 PM
Friction Stir Spot Welding of 6016 Aluminum Alloy: *Rajiv Mishra*[1]; S. Webb[1]; Timothy Freeney[1]; Y. Chen[2]; X. Gayden[2]; Glenn Grant[3]; Darrell Herling[3]; [1]University of Missouri; [2]General Motors; [3]Pacific Northwest National Laboratory

3:05 PM
Preliminary Study of Material Flow in Friction Stir Spot Welding Using Different Marker Materials: Karim Muci Kuchler[1]; *Sindhura Kalagara*[1]; William Arbegast[1]; [1]South Dakota School of Mines and Technology

3:20 PM
Finite Element Modeling of Friction Stir Spot Welding (FSSW): *Mokhtar Awang*[1]; Victor Mucino[1]; [1]West Virginia University

3:35 PM Break

3:50 PM
Optimization of Refill Friction Spot Welding for 6061 Aluminum Sheet: *Clark Oberembt*[1]; Casey Allen[1]; William Arbegast[1]; Anil Patnaik[1]; [1]South Dakota School of Mines and Technology

4:05 PM
Numerical Simulation of a Refill Friction Stir Spot Welding Process: Karim Muci Kuchler[1]; *Sindhura Kalagara*[1]; Sai Krishna Itapu[1]; [1]South Dakota School of Mines and Technology

4:20 PM
Effect of Heat Treatment on Microstructure, Mechanical Properties and Composition Variation across the Interface for FSW 6061 Al Alloy Weldments: *Karanam Bhanumurthy*[1]; Nitin Kumbhar[1]; B. P. Sharma[1]; [1]Bhabha Atomic Research Centre

4:35 PM
Investigation of Laser Deposition of High Temperature Refractory Pin Tools for Friction Stir Welding: *Bharat Jasthi*[1]; Aaron Costello[1]; William Arbegast[1]; Stanley Howard[1]; [1]South Dakota School of Mines and Technology

4:50 PM
Liquid Metal Embrittlement of MP-159 Pin Tools: Charles Standen[1]; *Bharat Jasthi*[1]; Dana Medlin[1]; William Arbegast[1]; [1]South Dakota School of Mines

Fundamentals of Shape Memory and Related Transitions: Multiscale Modeling and Applications

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee
Program Organizers: Michael Manley, University of California; James Morris, Oak Ridge National Laboratory

Wednesday PM — Room: Europe 6
February 28, 2007 — Location: Dolphin Hotel

Session Chair: Raj Vaidyanathan, University of Central Florida

2:00 PM Introductory Comments

2:10 PM Invited
Martensite Kinetics and the Design of Shape Memory Alloys: *Gregory Olson*[1]; [1]Northwestern University

2:40 PM
Multiscale Modeling of Phase Transformations in Shape Memory Alloys: *Valery Levitas*[1]; Istemi Ozsoy[1]; Dean Preston[2]; [1]Texas Tech University; [2]Los Alamos National Laboratory

3:05 PM
Effect of Magnetic Field on the Multi-Stage Martensitic Phase Transformation in NiMnGa Magnetic Shape Memory Alloys: *Burak Basaran*[1]; Haluk Karaca[1]; Ibrahim Karaman[1]; Yuriy Chumlyakov[2]; Hans Maier[3]; [1]Texas A&M University; [2]Siberian Physical-Technical Institute; [3]University of Paderborn

3:30 PM
Low Temperature Behavior of Shape Memory NiTiFe: *Vinu Krishnan*[1]; Bjorn Clausen[2]; Mark Bourke[2]; Raj Vaidyanathan[1]; [1]University of Central Florida; [2]Los Alamos National Laboratory

3:55 PM Break

4:15 PM Invited
Micro to Macro Strain Mapping and Reorientation Based Modeling in Shape Memory Alloys: *Catherine Brinson*[1]; M. Panico[1]; K. R. Gall[1]; [1]Northwestern University

4:45 PM
Shape Memory and Superelastic Behavior at Reduced Length Scales: *Prakash Palanisamy*[1]; Mario Mistretta[1]; Catherine Bewerse[1]; Raj Vaidyanathan[1]; [1]University of Central Florida

5:10 PM
The Effect of Grain Refinement via Equal Channel Angular Extrusion on the Thermomechanical Response of a NiTi Alloy: *Benat Kockar*[1]; Ibrahim Karaman[1]; Jae-Il Kim[1]; [1]Texas A&M University

5:35 PM
The Quasibinary NiTi-Nb Eutectic Isopleth: Contact Melting and Microstructural Evolution in a New Braze for Nitinol: *K. B. Low*[1]; D. S. Grummon[1]; J. W. Foltz[1]; J. W. Carter[1]; [1]Michigan State University

General Abstracts: Materials Processing and Manufacturing Division: Modeling and Simulation of Materials and Processes

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS/ASM: Computational Materials Science and Engineering Committee, TMS: Global Innovations Committee, TMS: Nanomechanical Materials Behavior Committee, TMS/ASM: Phase Transformations Committee, TMS: Powder Materials Committee, TMS: Process Modeling Analysis and Control Committee, TMS: Shaping and Forming Committee, TMS: Solidification Committee, TMS: Surface Engineering Committee
Program Organizers: Fernand Marquis, Naval Postgraduate School; Ralph Napolitano, Iowa State University; Neville Moody, Sandia National Laboratories

Wednesday PM — Room: Northern A2
February 28, 2007 — Location: Dolphin Hotel

Session Chair: Ralph Napolitano, Ames Laboratory

2:00 PM
Development of a Predictive Model for Batch-Type Heat Treatment Furnaces: *Alaa Hassan*[1]; Colin Curtis[1]; Mohamed Hamed[1]; [1]McMaster University

2:25 PM
Effect of Filing Time and Gating System Design Parameters Selection on Mold Filling Properties: *Mohamed Gadallla*[1]; Robert Habingreither[1]; [1]Texas State University

2:50 PM
Analysing Behaviour of Submerged Arc Furnace Using Recurrent Neural Networks: *Krishnaiah Jallu*[1]; C. S. Kumar[2]; M. A. Faruqi[1]; [1]Formerly of Indian Institute of Technology, Kharagpur; [2]Indian Institute of Technology, Kharagpur

3:15 PM
Effect of Thermal Boundary Conditions on Natural Convection during Alloy Solidification: *S. Arunkumar*[1]; T. Prasanna Kumar[1]; [1]Indian Institute of Technology, Madras

3:40 PM
An Experimental and Numerical Investigation into the Springback of U-Bending Anisotropic Sheet Metals: *Hesam Golmakani*[1]; [1]Ferdowsi University

4:05 PM
An Investigation into the Springback Characteristics in U-Bending of Anisotropic High Strength Steels: *Hesam Golmakani*[1]; [1]Ferdowsi University

4:30 PM
Modeling and Experimental Validation of Microstructure, Mechanical Properties, and Density Variation of Ductile Iron during Solidification: *Jianzheng Guo*[1]; [1]ESI US R&D

General Abstracts: Structural Materials Division: Nickel Alloys and High Temperature Materials I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Composite Materials Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS: High Temperature Alloys Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS/ASM: Nuclear Materials Committee, TMS: Product Metallurgy and Applications Committee, TMS: Refractory Metals Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Titanium Committee
Program Organizers: Rollie Dutton, US Air Force; Ellen Cerreta, Los Alamos National Laboratory

Wednesday PM — Room: Europe 5
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Rollie Dutton, US Air Force; George Sunny, Case Western Reserve University

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2:00 PM Introductory Comments

2:10 PM
Grain Boundary Curvature in a Model Ni-Based Superalloy: *Kai Song*[1]; Mark Aindow[1]; [1]University of Connecticut

2:30 PM
Tensile Deformation of Alloys 617 and 718 at Ambient and Elevated Temperatures: Vikram Marthandam[1]; *Anand Venkatesh*[1]; Ajit Roy[1]; [1]University of Nevada

2:50 PM
Effect of Mo Addition on the High Temperature Oxidation and Hot Ductility of Fe-29%Ni-17%Co Low Thermal Expansion Alloy: *Kee-Ahn Lee*[1]; Byeong-Geun Seong[2]; Moon-Chul Kim[2]; [1]Andong National University; [2]Research Institute of Industrial Science and Technology

3:10 PM
A Study of a Ni-Mo-Cr-Re Alloy: *Pingli Mao*[1]; Yan Xin[1]; Ke Han[1]; [1]National High Magnetic Feild Laboratory

3:30 PM
Effect of Light Interstitial Impurities on Grain Boundary Strength in Chromium: *Oleg Kontsevoi*[1]; Arthur Freeman[1]; [1]Northwestern University

3:50 PM Break

4:10 PM
Experimental Evidence that the Pieierls-Nabarro Stress is Negligible for Pure Metals: *John Gilman*[1]; [1]University of California

4:35 PM
Properties of Amorphous NiW Reinforced Ni Matrix Composites: *Alex Aning*[1]; C. Wensley[1]; Jeffrey Schultz[1]; Stephen Kampe[1]; [1]Virginia Tech

4:55 PM
Preparation of B4C/SiC Composites by Reactive Hot Pressing: *Filiz Sahin*[1]; Nuket Ergun[1]; Onuralp Yucel[1]; [1]Istanbul Technical University

5:15 PM
Production and Characterization of Potassium Mica and Cordierite Based Glass-Ceramics: *Gultekin Goller*[1]; Ahmet Seckiner[1]; Ipek Akin[1]; [1]Istanbul Technical University

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Hume-Rothery Symposium: Scattering Studies and the Fundamental Properties of Materials: Session V

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Patrice Turchi, Lawrence Livermore National Laboratory; Wolfgang Donner, University of Houston; J. Robertson, Oak Ridge National Laboratory

Wednesday PM — Room: Oceanic 7
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Sunil Sinha, University of California San Diego; Patrice Turchi, Lawrence Livermore National Laboratory

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2:00 PM Invited
Phonon Thermodynamics and Inelastic Neutron Scattering: *Brent Fultz*[1]; Olivier Delaire[1]; Matthew Lucas[1]; Max Kresch[1]; [1]California Institute of Technology

2:30 PM Invited
First-Principles Calculations of Phonons Spectra in Disordered Alloys: *Axel van de Walle*[1]; [1]California Institure of Technology

3:00 PM Break

3:20 PM Invited
Structure and Dynamics of Levitated Liquid Metals: *David Price*[1]; Marie-Louise Saboungi[2]; Louis Hennet[1]; Harald Sinn[3]; Shankar Krishnan[4]; [1]CRMHT; [2]CRMD; [3]APS; [4]Containerless Research Inc.

3:50 PM Invited
X-Ray Studies of Thermally Grown Thin Vitreous SiO2 over Si(001): *Miguel Castro-Colin*[1]; Wolfgang Donner[2]; Simon Moss[2]; [1]University of Texas at El Paso; [2]University of Houston

4:20 PM Invited
The Application of Quasielastic Neutron Scattering to the Study of the Hydration Reaction in Cement: *Dan Neumann*[1]; Vanessa Peterson[1]; Richard Livingston[2]; [1]National Institute of Standards and Technology, Center for Neutron Research; [2]Federal Highways Administration

Innovations in Electrometallurgy: Session I

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division
Program Organizers: Adam Powell, Veryst Engineering LLC; Michael Free, University of Utah

Wednesday PM Room: Oceanic 5
February 28, 2007 Location: Dolphin Hotel

Session Chair: Michael Free, University of Utah

2:00 PM Invited
Detailed Phase Field Modeling of Dendrite and Sponge Formation in Mixed Solid/Liquid Systems: *Adam Powell*[1]; Wanida Pongsaksawad[2]; [1]Veryst Engineering LLC; [2]Massachusetts Institute of Technology

2:30 PM
Study on Unpolluted Deoxidization with Applied External Voltage between Molten Steel and Slag: *Jieyu Zhang*[1]; Jian-Chao Li[2]; Xiong-Gang Lu[1]; K.-C. Chou[1]; [1]Shanghai University; [2]School of Materials Science and Engineering, Inner Mongolia University of Science and Technology

2:55 PM
Preparation of Al-Sc Alloys by Molten Salt Electrolysis: *Shaohua Yang*[1]; Junfu Li[2]; Zhongning Zhi[1]; Zhuxian Qiu[1]; [1]Northeastern University; [2]Henan Branch China Aluminium Company, Ltd

3:20 PM Break

3:30 PM
Modeling of Viscosity of CaO-Al2O3 Melts Slag: *Dou Zhihe*[1]; Zhang Ting-an[1]; [1]Northeastern University

3:55 PM
Direct Electrolytic Reduction of Solid SiO_2 in Molten $CaCl_2$: *Kouji Yasuda*[1]; Toshiyuki Nohira[1]; Rika Hagiwara[1]; Yukio Ogata[1]; [1]Kyoto University

4:20 PM
Development of a 'See-Through' Electrolytic Cell for Molten–Salt Electrowinning: *Andrew Urban*[1]; Eric Frazer[1]; Rex Deutscher[1]; Robert Dorin[1]; Kathie McGregor[1]; [1]CSIRO

Innovations in Measurement Science to Assess the Performance of New Materials in the Real-World: Advanced Measurement Techniques

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Mark Stoudt, National Institute of Standards and Technology; Lyle Levine, National Institute of Standards and Technology; Tusit Weerasooriya, Army Research Laboratory

Wednesday PM Room: Australia 3
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Steven Mates, National Institute of Standards and Technology; Daniel Casem, US Army Research Laboratory

2:00 PM Invited
Neutron Diffraction Determination of Residual Stress at NIST: Henry Prask[1]; *Thomas Gnaeupel-Herold*[1]; [1]National Institute of Standards and Technology

2:30 PM
X-Ray Microbeam Measurements of Elastic Strains within Individual Dislocation Cells in Deformed Copper: *Lyle Levine*[1]; Bennett Larson[2]; Wenge Yang[2]; Michael Kassner[3]; Jonathan Tischler[2]; Michael Delos-Reyes[3]; Richard Fields[1]; Wenjun Liu[2]; [1]National Institute of Standards and Technology; [2]Oak Ridge National Laboratory; [3]University of Southern California

2:55 PM
Electrochemical Repassivation Measurements as a Tool for Understanding Fracture Behavior in Aqueous Environments: *Richard Ricker*[1]; M. R. Stoudt[1]; [1]National Institute of Standards and Technology

3:20 PM
Failure Mechanism Mapping of the Influence of Stress-State and Microstructure on the Failure Behavior of Tungsten Heavy Alloys at High-Rates: *Tusit Weerasooriya*[1]; [1]Army Research Laboratory

3:45 PM Break

3:55 PM Invited
State of the Art of the Conventional Hardness Measuring Methods: Rockwell, Brinell and Vickers: *Samuel Low*[1]; [1]National Institute of Standards and Technology

4:25 PM Invited
On the Swelling of a Spent Nuclear Fuel Rod at Elevated Temperatures: *Tze-jer Chuang*[1]; [1]U.S. Nuclear Regulatory Commission

4:55 PM
Determination of Elasto-Plastic Properties through Instrumented Indentation with Reduced Sensitivity: Hongzhi Lan[1]; *T. Venkatesh*[1]; [1]Tulane University

5:20 PM
Determining Material Mechanical Properties via Indentation: Experiment and Finite Element Analysis: *Li Ma*[1]; Sam Low[1]; John Song[1]; [1]National Institute of Standards and Technology

5:45 PM Concluding Comments

Innovations in Titanium Technology Symposium: Microstructure and Properties I

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory; F. H. (Sam) Froes, University of Idaho

Wednesday PM Room: Asia 3
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Kuang-Oscar Yu, RMI Titanium Company; Charles Yolton, Crucible Materials Corporation

2:00 PM Invited
Microstructure and Mechanical Properties of Ti-6Al-4V Investment Castings: *Ibrahim Ucok*[1]; Lawrence Kramer[1]; Kevin Klug[1]; Hao Dong[1]; Mehmet Gungor[1]; Wm. Troy Tack[1]; [1]Concurrent Technologies Corporation

2:30 PM
Microstructure Effects on Fracture Behavior of Cast Ti-5111: *Amy Robinson*[1]; Ernest Czyryca[1]; Donald Koss[2]; [1]Naval Surface Warfare Center, Carderock Division; [2]Pennsylvania State University

2:50 PM
Dental Titanium Casting at Baylor College of Dentistry - Update: *Mari Koike*[1]; Toru Okabe[1]; Kwai Chan[2]; [1]Baylor College of Dentistry; [2]Southwest Research Institute

3:10 PM
Mechanical Properties of α+β Type Titanium Alloys Fabricated by Metal Injection Molding with Targeting Biomedical Applications: *Mitsuo Niinomi*[1]; Toshikazu Akahori[1]; Masaaki Nakai[1]; Kazuma Ohnaka[2]; Yoshinori Itoh[3]; Kenji Sato[3]; Tomomi Ozawa[4]; [1]Tohoku University; [2]Toyohasi University of Technology; [3]Hamamatsu Industrial Research Institute of Shizuoka Prefecture; [4]Teibow Company, Ltd.

3:30 PM Break

3:45 PM Invited
Mechanical Properties and Structural Superplasticity in Ultrafine-Grained α-Titanium/Ti_xMe_y-Intermetallic Ti-8Fe-4Al, Ti-10Co-4Al and Ti-10Ni-4Al Alloys: *Georg Frommeyer*[1]; [1]Max-Planck-Insitut für Eisenforschung

4:10 PM
The Rapid Determination of TTT and CCT Diagrams for a β-Ti Alloy: *Mark Yavorsky*[1]; Joshua Tuggle[1]; Yanwei Zhang[2]; Yulin Hao[2]; Rui Yang[2]; Peter Collins[1]; Vladimir Levit[1]; Hamish Fraser[1]; [1]Ohio State University; [2]Institute for Metals Research

4:30 PM
Surface Tension and Viscosity of Industrial Ti-Alloys Measured by the Oscillating Drop Method on Board Parabolic Flights: *Rainer Wunderlich*[1]; Kensuke Higuchi[2]; Hans-Jörg Fecht[2]; [1]Universität Ulm; [2]Gakushuin University

4:50 PM
Evolution of Microstructures and Texture in Low Cost Beta Titanium Alloys: *Ashkar Ali*[1]; [1]Indian Institute of Technology

5:10 PM
Dislocations in Ambient Temperature Creep of H.C.P. Metals: *Tetsuya Matsunaga*[1]; Eiichi Sato[2]; [1]University of Tokyo; [2]Japan Aerospace Exploration Agency

Integrated Computational Materials Engineering: Lessons from Many Fields: ICME in Other Fields

Sponsored by: The Minerals, Metals and Materials Society
Program Organizer: Deborah Whitis, General Electric Company

Wednesday PM — Room: Oceanic 4
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Adam Powell, Veryst Engineering LLC; Julie Christodoulou, Office of Naval Research

2:00 PM Introductory Comments

2:05 PM Invited
Computational Fluid Dynamics in Automotive Applications: *Hrvoje Jasak*[1]; [1]Wikki Ltd

2:50 PM Invited
Multiscale Modeling: Weather vs. Materials: *Andreas Muschinski*[1]; Robert Hyers[1]; [1]University of Massachusetts

3:35 PM Break

3:45 PM Invited
Moving Modeling from Theory to Practice: A Short History of the Adoption of Computational Fluid Dynamics in Aerospace Design: Deborah Whitis[1]; *D. Holmes*[1]; [1]General Electric Company

4:30 PM Invited
The BEN Collaborative: The National Sciences Digital Library (NSDL) Biological Sciences Pathway: Linda Akli[1]; Yolanda George[1]; *Nancy Gough*[1]; [1]American Association for the Advancement of Science

5:15 PM Concluding Comments

Magnesium Technology 2007: Alloy Development II

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Wednesday PM — Room: Southern 4
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Wayne Jones, University of Michigan; Qingyou Han, Oak Ridge National Laboratory

2:30 PM
Effect of Additional Elements on the Elevated Temperature Deformation Behavior of Mg-Zn-Y Alloy: *Do Hyung Kim*[1]; Hyun Kyu Lim[1]; Ju Yeon Lee[1]; Won Tae Kim[2]; Do Hyang Kim[1]; [1]Center for Noncrystalline Materials; [2]Cheongju University

2:50 PM
Studies on a High Strength Mg-Zn-Y-Zr Wrought Alloy: *En-Hou Han*[1]; Rongshi Chen[1]; [1]Chinese Academy of Sciences

3:10 PM
Subgrain Stabilized Microstructure in Mg-Zn-Sn-Y Alloys: Anton Gorny[1]; *Alexander Katsman*[1]; Inna Popov[2]; Menahem Bamberger[1]; [1]Technion; [2]Hebrew University of Jerusalem

3:30 PM
Natural Ageing in Mg-Zn(Cu) Alloys: *Joka Buha*[1]; Tadakatsu Ohkubo[1]; Kazuhiro Hono[1]; [1]National Institute for Materials Science

3:50 PM
Microstructure-Property Relationships of Mg Alloys Containing Either Y-Zn-Zr or Zr-B as Alloying Elements: *Sara Longanbach*[1]; Ken Knittel[2]; Andre Lee[1]; Carl Boehlert[1]; [1]Michigan State University; [2]Advanced Ceramics Research

4:10 PM Break

4:30 PM
The Relation between Microstructure and Corrosion Properties of Extruded Mg-Zn Base Alloys: *Guy Ben-Hamu*[1]; Dan Eliezer[1]; K. S. Shin[2]; [1]Ben-Gurion University of the Negev; [2]Seoul National University

4:50 PM
Effect of Quasicrystal Phase on Recrystallization, Texture and Yield Strength of Extruded Mg-Zn-Ho Alloys: *Alok Singh*[1]; Hidetoshi Somekawa[1]; Toshiji Mukai[1]; [1]National Institute for Materials Science

5:10 PM
AM30 - A New Wrought Magnesium Alloy: *Alan Luo*[1]; Anil Sachdev[1]; [1]General Motors Corporation

5:30 PM
Towards Strengthening with Nitride Precipitates-Adding Nitrogen to Magnesium Alloys: *Ali Arslan Kaya*[1]; Ozgur Duygulu[1]; Onuralp Yucel[2]; [1]TUBITAK Marmara Research Centre, Materials Institute; [2]Istanbul Technical University, Department of Metallurgical and Materials Engineering

5:50 PM
Deformable and Corrosion Resistant Novel Magnesium Alloys via Rapid Solidification: *Gady Rosen*[1]; Haim Rosenson[2]; [1]Alubin Ltd; [2]Israel Institute of Metals, Technion Research and Development Foundation Ltd.

Magnesium Technology 2007: Thermodynamics and Fundamental Research

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Wednesday PM Room: Southern 5
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Zi-Kui Liu, Pennsylvania State University; Mark Horstemeyer, Mississippi State University

2:30 PM
Constitution of Magnesium Alloys: *Rainer Schmid-Fetzer*[1]; Joachim Groebner[1]; Djordje Mirkovic[1]; Andreas Janz[1]; Artem Kozlov[1]; [1]Clausthal University of Technology

2:50 PM
Thermodynamic Properties of Magnesium Compounds from First Principles: Hui Zhang[1]; Arkapol Saengdeejing[1]; James Saal[1]; *Zi-Kui Liu*[1]; [1]Pennsylvania State University

3:10 PM
Study of Texture and Strain Evolution during Channel-Die Compression of Mg-Al Alloys by In-Situ Neutron Diffraction: *Dimitry Sediako*[1]; Michael Gharghouri[1]; Michael Watson[1]; [1]National Research Council Canada

3:30 PM
Macro Transformation Kinetics of Discontinuous Precipitation in AZ91 Magnesium Alloy: Zhifeng Li[1]; *Jie Dong*[1]; Xiaoqing Zeng[1]; Wenjiang Ding[1]; [1]Shanghai Jiaotong University

3:50 PM
Prediction of Variability in Mechanical Properties Based on Microstructural Simulation and Finite Element Modeling: *Soon Gi Lee*[1]; Arun Sreeranganathan[1]; Arun Gokhale[1]; [1]Georgia Institute of Technology

4:10 PM
Constitutive Behavior of Wrought Magnesium Alloy AZ61: *Floris Slooff*[1]; Jurek Duszczyk[1]; Laurens Katgerman[1]; [1]Delft University of Technology

4:30 PM
Modeling of Texture Evolution of Magnesium Alloy during Large Plastic Deformation Using Statistical Continuum Model: *Dongsheng Li*[1]; Hamid Garmestani[1]; [1]Georgia Institute of Technology

4:50 PM
Calorimetric Analysis of Dissolution of Secondary Phases in Die Cast Magnesium Alloy AM50: *Lihong Han*[1]; Henry Hu[1]; Derek Northwood[1]; [1]University of Windsor

5:10 PM
Directional Solidification of Mg-Rich Mg-Al-Ca Alloys: *Hongbo Cao*[1]; Chuan Zhang[1]; Jun Zhu[1]; Guoping Cao[1]; Sindo Kou[1]; Rainer Schmid-Fetzer[1]; Y. Chang[1]; [1]University of Wisconsin-Madison

5:30 PM
Precipitation Strengthening of a Mg-Al-Ca Based Die-Cast Alloy with Al_2Ca Phase: *Akane Suzuki*[1]; Nicholas Saddock[1]; Jessica TerBush[1]; Bob Powell[2]; Wayne Jones[1]; Tresa Pollock[1]; [1]University of Michigan; [2]General Motors Research and Development Center

5:50 PM
A Study on the Microstructure of Electromagnetic Casting Mg-6Al-1Zn-0.5Nd Alloy: *Haitao Zhou*[1]; [1]Central South University

Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies: Materials for Clean Coal Power Generation and Gas Separation

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizers: Zhenguo "Gary" Yang, Pacific Northwest National Laboratory; Michael Brady, Oak Ridge National Laboratory; K. Scott Weil, Pacific Northwest National Laboratory; Yong-Ho Sohn, University of Central Florida

Wednesday PM Room: Asia 2
February 28, 2007 Location: Dolphin Hotel

Session Chairs: Henk Verweij, Ohio State University; David Helmick, GE Energy

2:00 PM Invited
IGCC/Hydrogen Fuel Gas Turbine Materials Issues and Needs: *David Helmick*[1]; [1]GE Energy

2:35 PM Invited
Materials Challenges for Advanced Power Generation Turbines: *Allister James*[1]; [1]Siemens Power Generation Inc.

3:10 PM
Integration of Thermodynamic and Heat Transfer Models for Turbines Fired by Syngas and Hydrogen: *Adrian Sabau*[1]; Ian Wright[1]; [1]Oak Ridge National Laboratory

3:35 PM Invited
Application of Inorganic Membranes in Energy Conversion Technology: *Henk Verweij*[1]; [1]Ohio State University

4:00 PM Break

4:15 PM Invited
Size Dependent Study of Methanol Decomposition over Size-Selected Pt Nanoparticles Synthesized via Micelle Encapsulation: *Beatriz Roldan Cuenya*[1]; Jason Croy[1]; Simon Mostafa[1]; [1]University of Central Florida

4:50 PM
Behavior of MnO2 Containing TiS2 Additive as a Cathode in Aqueous Lithium Hydroxide Electrolyte Battery: *Manickam Minakshi*[1]; Pritam Singh[1]; David Mitchell[2]; [1]Murdoch University; [2]Australian Nuclear Science and Technology Organisation

5:15 PM
Influence of Ti Ion Doping on Electrochemical Properties of LiFePO4/C Electrode for Lithium-Ion Batteries: Gao Xuguang[1]; *Hu Rong*[1]; Peng Dong[1]; [1]Central South University

5:35 PM
Synthesis and Electrochemical Characterization of LiFePO4/C Cathode Materials for Li-Ion Batteries: Gao Xuguang[1]; *Hu Guorong*[1]; [1]Central South University

6:00 PM
Synthesis and Characterization of Spherical LiNi0.75Co0.2Mg0.05O2 Cathode Materials: Yanjun Liu[1]; *GuoRong Hu*[1]; XuGuang Gao[1]; Zhongdong Peng[1]; [1]Central South University

Materials Processing and Manufacturing Division Symposium: Mechanics and Materials Modeling and Materials Design Methodologies, in the Honor of Dr. Craig Hartley's 40 Years of Contributions to the Field of Mechanics and Materials Science: Microstructure Analysis and Representation II

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Brent Adams, Brigham Young University; Hamid Garmestani, Georgia Institute of Technology

Wednesday PM — Room: Northern A1
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Naresh Thadhani, Georgia Institute of Technology; Raghavan Srinivasan, Wright State University

2:00 PM
Discrete Particle Simulation of Shock Wave Propagation in a Binary Ni+Al Powder Mixture: *Dan Eakins*[1]; Naresh Thadhani[1]; [1]Georgia Institute of Technology

2:25 PM
Fatigue Damage in Laser Engineered Net Shaping Manufactured Materials: *Gabriel Potirniche*[1]; Jerry Middleton[1]; Hongjoo Rhee[1]; Haitham Elkadiri[1]; Paul Wang[1]; Mark Horstemeyer[1]; [1]Mississippi State University

2:50 PM
Mechanisms and Modeling of Creep in Polycrystalline Ni-Base Superalloy Disk Materials: *Raymond Unocic*[1]; Peter Sarosi[1]; Chen Shen[1]; Y. Wang[1]; Ju Li[1]; Tresa Pollock[2]; Kevin Hemker[3]; Michael Mills[1]; [1]Ohio State University; [2]University of Michigan; [3]Johns Hopkins University

3:15 PM
Micromechanics-Based Modeling of Ductile Fracture with Experimental Integration: *Amine Benzerga*[1]; Ronald McPherson[1]; [1]Texas A&M University

3:40 PM
Prediction and Measurement of Residual Stresses in Extruded and Drawn Rods and Tubes: *Raghavan Srinivasan*[1]; Jahan Rasty[2]; [1]Wright State University; [2]Texas Tech University

4:05 PM
Texture Evolution during Shear Deformation and Annealing of Polycrystalline Iron: *Bala Radhakrishnan*[1]; Gorti Sarma[1]; [1]Oak Ridge National Laboratory

4:30 PM
The Use of Neural Network Modeling for the Prediction of Mechanical Properties and Identifying the Role of Microstructural Features in a/ß Ti Alloys: Peter Collins[1]; Santosh Koduri[1]; Brian Welk[1]; Erin Barry[1]; Benjamin Peterson[1]; Gopal Viswanathan[1]; Vladimir Levit[1]; *Hamish Fraser*[1]; [1]Ohio State University

Materials Processing under the Influence of External Fields: Session IV

Sponsored by: The Minerals, Metals and Materials Society, TMS: Aluminum Committee, TMS: Magnesium Committee, TMS: Solidification Committee
Program Organizers: Qingyou Han, Oak Ridge National Laboratory; Gerard Ludtka, Oak Ridge National Laboratory; Qijie Zhai, Shanghai University

Wednesday PM — Room: America's Seminar
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Ben Li, Washington State University; Zhongyun Fan, Brunel University

2:00 PM Introductory Comments

2:05 PM Invited
Integrated Multiphysics and Multiscale Modeling of Electromagnetically-Assisted Materials Processing Systems: *Ben Li*[1]; [1]University of Michigan

2:35 PM Invited
Coupled Modeling for Electromagnetic Solidification Transport Processes of Alloy Castings: *Daming Xu*[1]; Yunfeng Bai[2]; Jichun Xiong[2]; Hengzhi Fu[2]; [1]Oak Ridge National Laboratory; [2]Harbin Institute of Technology

3:05 PM
Influence of Electric Current Pulse on Solidification Structure of Hypo-eutectic Al-Cu Alloy: Xi-Liang Liao[1]; Yu-Lai Gao[1]; Ren-Xing Li[1]; Qi-Jie Zhai[1]; [1]Shanghai University

3:30 PM Break

3:40 PM Invited
Overcooling in DC Casting from Application of a Low Frequency Electromagnetic Field: *Cui Jianzhong*[1]; Guo Shijie[1]; Le Qichi[1]; [1]Notheastern University

4:10 PM
Pulsed Electromagnetic Forming and Joining: *Sergey Golovashchenko*[1]; [1]Ford Motor Company

4:35 PM
Transient Conditions in VAR of Ti-10-2-3 and Their Impact on Macro-segregation: Dymtro Zagrebelnyy[1]; *Matthew Krane*[1]; [1]Purdue University

5:00 PM Invited
Solidification Behaviour under Intensive Forced Convection: Zhongyun Fan[1]; Amitabha Das[1]; Guojun Liu[1]; Michael Hitchcock[1]; [1]Brunel University

5:30 PM
Monte Carlo Simulation of Growth of Solid under Forced Fluid Flow: *Amitabha Das*[1]; Zhongyun Fan[1]; [1]Brunel University

Microstructural Processes in Irradiated Materials: He Effects, Deformation and Fracture

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Wednesday PM — Room: Europe 8
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM
Modeling of He – Defect Interactions in Fusion Materials: *Richard Kurtz*[1]; Howard Heinisch[1]; Fei Gao[1]; [1]Pacific Northwest National Laboratory

2:35 PM
Multiscale Modeling of Helium Transport and Fate in Irradiated Nanostructured Ferritic Alloys: *Takuya Yamamoto*[1]; G. Robert Odette[2]; Brian Wirth[2]; Rick Kurtz[3]; [1]University of California, Santa Barbara; [2]University of California, Berkeley; [3]Pacific Northwest National Laboratory

2:55 PM
Mechanisms of He-V Cluster Formation in Irradiated Ni and Fe: *Christophe Ortiz*[1]; María José Caturla[1]; [1]University of Alicante

3:15 PM
The Clustering Properties of He And H in Tungsten Studied by Density Functional Theory.: *Charlotte Becquart*[1]; Christophe Domain[2]; [1]LMPGM, UMR 8517; [2]EDF

3:35 PM Break

3:50 PM
Microstructures of Stainless Steels Irradiated in Fast Neutron Spectra and by Proton Irradiation: *Gary Was*[1]; Jeremy Busby[2]; Danny Edwards[3]; [1]University of Michigan; [2]Oak Ridge National Laboratory; [3]Pacific Northwest National Laboratory

4:10 PM
Irradiation Microstructure and Localized Deformation in Austenitic Stainless Steels: *Zhijie Jiao*[1]; Gary Was[1]; [1]University of Michigan

4:30 PM
Formation of Austenite in High Cr Ferritic/Martensitic Steels by High Fluence Neutron Irradiation: *Zheng Lu*[1]; Roy Faulkner[1]; Terence Morgan[1]; [1]Loughborough University

4:50 PM
Development of Irradiation Hardening of Unalloyed and ODS Molybdenum during Neutron Irradiation to Low Doses at 300C and 600C: *Brian Cockeram*[1]; Lance Snead[2]; R. Smith[1]; [1]Bechtel Bettis Inc; [2]Oak Ridge National Laboratory

5:10 PM
Static Strain Aging and Dislocation-Defect Interactions in Irradiated Mild Steel: *Indrajit Charit*[1]; K. Murty[1]; [1]North Carolina State University

5:30 PM
Micromechanical Testing of Ion-Irradiated Fe and Fe-Cr Alloys: *Steve Roberts*[1]; [1]University of Oxford

Microstructural Processes in Irradiated Materials: Poster Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Wednesday, 5:50 PM — Room: Europe 8
February 28, 2007 — Location: Dolphin Hotel

Thermal Aging in RPV Steels and Model Alloys: *G. Odette*[1]; Brian Wirth[2]; Michael Miller[3]; J. Smith[1]; D. Klingensmith[1]; K. Russell[3]; [1]University of California, Santa Barbara; [2]University of California, Berkeley; [3]Oak Ridge National Laboratory

The Effect of Nickel on Neutron Irradiated Copper-Bearing RPV Alloys: *Michael Miller*[1]; Kaye Russell[1]; G. Odette[2]; [1]Oak Ridge National Laboratory; [2]University of California

Kinetic Monte Carlo Simulations of Substitutional Helium Diffusion: *Celine Hin*[1]; Brian Wirth[1]; Fei Gao[2]; Rick Kurtz[2]; [1]University of California, Berkeley; [2]Pacific Northwest National Laboratory

Helium-Vacancy Cluster Evolution during Hot Helium Implantation in Nickel: *Stanislav Golubov*[1]; Alexey Ovcharenko; Roger Stoller[2]; Steve Zinkle[2]; [1]Oak Ridge National Laboratory/University of Tennessee; [2]Oak Ridge National Laboratory

The Effects of Helium and Hydrogen in Irradiated BCC Iron: *Maria Okuniewski*[1]; Chaitanya Deo[2]; Marc Weber[3]; Farida Selim[3]; Kelvin Lynn[3]; Srinivasan Srivilliputhur[2]; Stuart Maloy[2]; Michael Baskes[2]; Michael James[2]; James Stubbins[1]; [1]University of Illinois at Urbana-Champaign; [2]Los Alamos National Laboratory; [3]Washington State University

Thermal Helium Desorption of Helium Implanted Iron: *Donghua Xu*[1]; Brian Wirth[1]; [1]University of California, Berkeley

Characterization of Nanostructural Features in Reactor Pressure Vessel Steels and Model Alloys: *Brian Wirth*[1]; Stephen Glade[1]; G. Robert Odette[2]; Michael Miller[3]; [1]University of California, Berkeley; [2]University of California, Santa Barbara; [3]Oak Ridge National Laboratory

Mechanical Properties of a Commercial Oxide-Dispersion Strengthened and an Advanced Nano-Structured Ferritic Alloy for Nuclear Applications: *David McClintock*[1]; David Hoelzer[2]; Randy Nanstad[2]; Mikhail Sokolov[2]; Roger Stoller[2]; [1]University of Texas at Austin; [2]Oak Ridge National Laboratory

Tensile and Microstructural Behavior of EUROFER and EUROFER-ODS after 15 dpa Irradiation at 250°C: *R. Lindau*[1]; M. Klimenkov[1]; E. Materna-Morris[1]; A. Möslang[1]; H. Schneider[2]; [1]Forschungszentrum Karlsruhe, Institute for Materials Research I; [2]Forschungszentrum Karlsruhe, Institute for Materials Research II

Pb-Free Electronic Solders: Alloy Design, Characterization and Service Reliability: Mechanical Characterization

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee
Program Organizers: Fu Guo, Beijing University of Technology; K. Subramanian, Michigan State Univ; Sung Kang, IBM Corporation; Srinivas Chada, Medtronic; Laura Turbini, University of Toronto; Jin Yu, Korea Advanced Institute of Science and Technology

Wednesday PM — Room: Oceanic 1
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: Andre Lee, Michigan State University; Fay Hua, Intel Corporation

2:00 PM
Effect of Composition on Creep of SnAgCu Solder: Constitutive Responses in Primary and Secondary Regimes: *Tiandan Chen*[1]; Ramesh Guduru[1]; Indranath Dutta[1]; V. Sarihan[2]; [1]Naval Postgraduate School; [2]Freescale Semiconductor Corporation

2:20 PM
Effects of Microstructure on Creep of Sn-3.5Ag Solder: *Sung Bum Kim*[1]; Jin Yu[1]; [1]Korea Advanced Institute of Science and Technology

2:40 PM
Substrate Effects on the Creep Property of Pure Sn Solder Joints: *Kyu-Oh Lee*[1]; John Morris[1]; Fay Hua[2]; [1]University of California-Berkeley; [2]Intel Corporation

3:00 PM
Microstructure and Creep Deformation of Sn-Ag-Cu-Bi/Cu Solder Joints: *Min He*[1]; Sylvester Ekpenuma[2]; Viola Acoff[1]; [1]University of Alabama; [2]Claflin University

3:20 PM
Temperature and Aging Effects on the High Strain Rate Deformation Behavior of Sn3.8Ag0.7Cu Solder: Tiandan Chen[1]; *Xin Long*[1]; Ramesh Guduru[1]; Indranath Dutta[1]; V. Sarihan[2]; D. Frear[2]; [1]Naval Postgraduate School; [2]Freescale Semiconductor Corporation

3:40 PM Break

3:50 PM
Fracture Morphology and Adhesion Strength of Sn-9Zn-1.5Ag-2Bi/Cu via Electrochemical Test: *Chih-Yao Liu*[1]; Moo-Chin Wang[2]; Min-Hsiung Hon[1]; [1]National Cheng Kung University; [2]National Kaohsiung University of Applied Sciences

4:10 PM
Matching Lead-Free Solder Mechanical Test Specimen Microstructure and Mechanical Properties to Ball Grid Array Component Solder Balls: *Graham Tewksbury*[1]; Todd Embree[2]; Liping Zhu[1]; Wade Hazeltine[2]; Jack Devletian[1]; William Wood[1]; [1]Portland State University; [2]Intel

4:30 PM
Mechanical and Electrical Properties of Sn-3.5Ag Ball Grid Array (BGA) Solder Joints with Multiple Reflows: *Ja-Myeong Koo*[1]; Seung-Boo Jung[1]; [1]Sungkyunkwan University

4:50 PM
Mechanical Properties of Bi-Ag Pb-Free Die Attach Solder Joints: *Jenn-Ming Song*[1]; Zong-Mou Wu[1]; [1]National Dong Hwa University

5:10 PM
Mechanical Size Effects in Miniaturized Lead Free Solder Joints: *Peter Zimprich*[1]; Usman Saeed[1]; Agnieszka Betzwar-Kotas[1]; Herbert Ipser[1]; Brigitte Weiss[1]; [1]University of Vienna

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Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials VI: Session V

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee
Program Organizers: Sinn-Wen Chen, National Tsing Hua University; Srinivas Chada, Medtronic; Chih-ming Chen, National Chung Hsing University; Young-Chang Joo, Seoul National University; A. Lindsay Greer, University of Cambridge; Hyuck Lee, Korea Advanced Institute of Science and Technology; Daniel Lewis, Rensselaer Polytechnic Institute; Katsuaki Suganuma, Osaka University

Wednesday PM
February 28, 2007
Room: Oceanic 2
Location: Dolphin Hotel

Session Chairs: Sinn-Wen Chen, National Tsing Hua University; Adolf Mikula, University of Vienna

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2:00 PM Invited
Metal Silicide Nanowires: *L. J. Chen*[1]; [1]National Tsing Hua University

2:25 PM Invited
Why are Thermodynamic Data Derived from emf Measurements Necessary for the Development of Electronic Materials?: *Adolf Mikula*[1]; Sabine Knott[1]; [1]University of Vienna

2:50 PM
Electroless Deposited Co (W, P) Films as Diffusion Barriers for Copper Metallization: Shin Shyan Wu[1]; *Ting Kan Tsai*[1]; Li Chung Yang[1]; [1]National Formosa University of Science and Technology

3:10 PM
Evaluation of dc-Sputtered Glassy Ta-Co-N Thin Film for Copper Metallization: Jau-Shiung Fang[1]; Min-Li Ker[1]; *Hui-Chien Chen*[1]; [1]National Formosa University

3:30 PM Break

3:50 PM
Fabrication of Ni Metal Mask with Fine Pitch by Electroforming Process: *Jun Hyung Lim*[1]; Eui Cheol Park[1]; Chang-min Lee[1]; Jeong-Won Yoon[1]; Sang-su Ha[1]; Jinho Joo[1]; Seung-Boo Jung[1]; [1]Sungkyunkwan

4:10 PM
Phase Evolution Studies in Quaternary III-V Semiconductor Thin Films: *Nitin Singh*[1]; [1]University of Virginia

4:30 PM
Preparation of the High-Quality Indium Zinc Oxide by Reactive Magnetron Co-Sputtering Technique from Indium and Zinc Metallic Targets: Jau-Shiung Fang[1]; *Hui-Chien Chen*[1]; [1]National Formosa University

4:50 PM
Study of Interfacial Reactions of Pt-Based Schottky Contacts on InGaP: *Hsin Chu*[1]; Edward Yi Chang[1]; Li Chang[1]; [1]National Chiao-Tung University

5:10 PM
Study of Interfacial Stability at Al Reflector/ITO Transparent Conducting Layer: *Yung-Hsun Lin*[1]; Cheng-Yi Liu[1]; [1]National Central University

5:30 PM
Bonding Interface Analysis of Au-Ag Bonding Wire: *Eun Kyu Her*[1]; Jeong Tak Moon[2]; Jong Cho[2]; Kyu Oh[1]; Suk Kang[1]; Hee Jung[1]; [1]School of Materials Science and Engineering, Seoul National University; [2]MK Electron

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Plasticity from the Atomic Scale to Constitutive Laws: Rate Limiting Behavior and Informed Constitutive Laws

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Christopher Woodward, US Air Force; Michael Mills, Ohio State University; Diana Farkas, Virginia Tech

Wednesday PM
February 28, 2007
Room: Europe 9
Location: Dolphin Hotel

Session Chairs: Michael Mills, Ohio State University; Anter El-Azab, Florida State University

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2:00 PM Invited
Essential Elements in Modeling the Plastic Response of Crystalline Solids: *Glenn Daehn*[1]; [1]Ohio State University

2:30 PM
Dislocation Processes during Creep of Single Crystal Superalloys after Rafting: *Peter Sarosi*[1]; Rajagapolan Srinivasan[2]; Gunther Eggeler[3]; Daniel Wei[4]; Michael Mills[1]; [1]Ohio State University; [2]GEAE; [3]Institut für Werkstoff, Ruhr-Universitåt Bochum; [4]General Electric

2:50 PM
Studies of Dislocation and Stacking Fault Structures and Contrast in Ni Based Superalloys during Low-cycle Fatigue: *Dhriti Bhattacharyya*[1]; Libor Kovarik[1]; Raymond Unocic[1]; David Mourer[1]; Michael Mills[1]; [1]Ohio State University

3:10 PM Invited
Orthogonal Composite Slip in Metallic Single Crystals: *Jeffrey Florando*[1]; Mary LeBlanc[1]; David Lassila[1]; [1]Lawrence Livermore National Laboratory

3:40 PM Break

3:50 PM Invited
Mechanism-Based Constitutive Modeling for Ni_3Al-Based $L1_2$ Intermetallic Single Crystals: Anomalous Temperature Dependence of the Flow Behavior: Yoon-Suk Choi[1]; *Dennis Dimiduk*[2]; Michael Uchic[2]; Triplicane Parthasarathy[1]; [1]UES Inc; [2]US Air Force Research Laboratory

4:20 PM
Mechanism-Based Constitutive Modeling for Ni_3Al-Based $L1_2$ Intermetallic Single Crystals: The Effect of Pre-Strain on the Thermal Reversibility of the Flow Behavior: *Yoon-Suk Choi*[1]; Dennis Dimiduk[2]; Michael Uchic[2]; Triplicane Parthasarathy[1]; [1]UES Inc; [2]U.S. Air Force Research Laboratory

4:40 PM Invited
A Continuum Framework for Mechanical Behavior and Microstructure at the Mesoscale: *Amit Acharya*[1]; [1]Carnegie Mellon University

5:10 PM Invited
Modeling Anisotropic Mechanical Behaviors with Crystal-Scale Elastoplasticity: *Paul Dawson*[1]; Matthew Miller[1]; [1]Cornell University

5:40 PM
Evolution of Lattice Strain in Near-Beta Ti-10V-2Fe-3Al during Tensile Loading at Room Temperature: *Seema Raghunathan*[1]; Richard Dashwood[1]; Martin Jackson[1]; David Dye[1]; [1]Imperial College

Properties and Performance of High Temperature Alloys and Coatings: Intermetallics and Multidiscipline

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: High Temperature Alloys Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Qiang Feng, Beijing University of Science and Technology; Timothy Gabb, NASA Glenn Research Center; Doug Konitzer, General Electric Aviation; Roger Reed, Imperial College London; Bruce Pint, Oak Ridge National Laboratory; Sammy Tin, Illinois Institute of Technology; Shiela Woodard, Pratt and Whitney

Wednesday PM Room: Asia 4
February 28, 2007 Location: Dolphin Hotel

Session Chairs: K. Kumar, Brown University; Shiela Woodard, Pratt and Whitney

2:00 PM Invited
Recent Progress on Large Ingots of High Nb Containing TiAl Alloys: *Guoliang Chen*[1]; [1]University of Science and Technology Beijing, State Key Laboratory for Advanced Metals and Materials

2:25 PM
High Temperature Mo-Si-B Alloys and Coatings: *John Perepezko*[1]; Ridwan Sakidja[1]; Fabien Rioult[1]; Nobuaki Sekido[1]; [1]University of Wisconsin

2:45 PM
Tensile Response of a Mo-Si-B Solid Solution Alloy: *Padam Jain*[1]; K. Kumar[1]; [1]Brown University

3:05 PM
Development of Mo-Si-B Intermetallics for Improved Efficiency of Power Systems: Zhihong Tang[1]; *Matthew Kramer*[1]; Mufit Akinc[1]; [1]Ames Laboratory and Department of Materials Science and Engineering, Iowa State University

3:20 PM
High Temperature Mechanical Behavior of $MoSi_2$-SiC Composite Synthesized In Situ: *Wangyue Yang*[1]; Zuqing Sun[2]; Laiqi Zhang[2]; Xiaowei Fu[1]; [1]University of Science and Technology Beijing; [2]University of Science and Technology Beijing, State Key Laboratory for Advanced Metals and Materials

3:40 PM
Effect of Cr Addition on the Phase Equilibria of the Nb-Si System: *Ying Yang*[1]; Bernard Bewlay[2]; Y. Chang[3]; [1]CompuTherm LLC; [2]General Electric Company, General Electric Global Research Center; [3]University of Wisconsin

4:00 PM Break

4:15 PM
Microstructure Evolution of Fe_3Al Deformed at Elevated Temperature by Uniaxial Compression Tests: *Zuqing Sun*[1]; Wangyue Yang[2]; Longfei Li[2]; [1]University of Science and Technology Beijing, State Key Laboratory for Advanced Metals and Materials; [2]University of Science and Technology Beijing

4:35 PM
Properties of Refractory NiAl-(Cr, Mo, Re) Alloys in Relation to Atomic Defects and Microstructures: *Georg Frommeyer*[1]; Ralf Rablbauer[1]; Rainer Fischer[1]; [1]Max-Planck-Insitut für Eisenforschung

4:55 PM
Stability of an Fe-Ni-Cr-Nb-N Alloy: A Function of Short- and Long-Term Thermal Exposures: *L. M. Pike*[1]; S. K. Srivastava[1]; [1]Haynes International

5:15 PM
An Improved Rayleigh Number Criterion for Freckle Prediction Incorporating the Effect of Carbides: *Yehia Youssef*[1]; Dylan Ness[1]; Elyssa Cutler[2]; Gerhard Fuchs[2]; Peter Lee[1]; [1]Imperial College; [2]University of Florida

5:35 PM
Modelling of Advanced Nickel-Based Superalloys in an Inertia Friction Weld: *Benedict Grant*[1]; Michael Preuss[1]; Philip Withers[1]; Gavin Baxter[2]; Mike Rowlson[2]; [1]Manchester University; [2]Rolls Royce

5:50 PM
Intragranular Precipitation Variations in Laser Deposited Waspaloy Due to Compositional Inhomogeneities: *Richard Moat*[1]; Mallikarjun Karradge[1]; Andrew Pinkerton[1]; Alexis Deschamps[2]; Francoise Bley[2]; Lin Li[1]; Philip Withers[1]; Michael Preuss[1]; [1]University of Manchester; [2]Domaine Universitaire

6:05 PM
Alumina-Forming, Creep Resistant Austenitic Stainless Steels: Part 1 - Creep Behavior and Microstructure: *Yukinori Yamamoto*[1]; Michael Brady[1]; Zhao Ping Lu[1]; Philip Maziasz[1]; Chain Liu[1]; Bruce Pint[1]; [1]Oak Ridge National Laboratory

Recycling and Waste Processing: Other Nonferrous

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS Light Metals Division, TMS: Recycling and Environmental Technologies Committee
Program Organizers: Mark Schlesinger, University of Missouri-Rolla; Robert Stephens, Teckcominco, Inc.; Donald Stewart, Alcoa Technology; Ray Peterson, Aleris International; Jan van Linden, Recycling Technology Services, Inc.; Subodh Das, SECAT; Abdel Serna-Vasquez, Aleris International; Cynthia Belt, Aleris International Inc; John Pickens, Alumitech/Aleris International; John Hryn, Praxair; Richard Kunter, Richard S. Kunter Assoc; Andreas Siegmund, Quemetco Metals Inc.; Masao Suzuki, AI Tech Associates

Wednesday PM Room: Australia 2
February 28, 2007 Location: Dolphin Hotel

Session Chairs: To Be Announced

2:00 PM
Recovering Zinc at Horsehead: *John Pusateri*[1]; [1]Horsehead Corporation

2:30 PM
The Advantages of Recycling Metallic Zinc from the Processing Wastes of Industrial Molten Zinc Applications: *Mark Bright*[1]; Nathan Deem[1]; Gregory Becherer[1]; [1]Pyrotek Inc.

3:00 PM
Inclusion Removal from Solar-Cell Grade Silicon Scrap through Filtration: *Arjan Çiftja*[1]; Lifeng Zhang[1]; Abel Engh[1]; [1]Norwegian University of Science and Technology

3:30 PM
Substance Flow Analysis of the Nonferrous Metals in China: Guo Xueyi[1]; *Yu Song*[1]; [1]Central South University

4:00 PM Break

4:20 PM
Waste Home Appliances Recycling in Some European and Asian Countries: *Chen-ming Kuo*[1]; Esher Hsu[2]; [1]I-Shou University; [2]National Taipei University

4:50 PM
The Practice of Nonferrous Metal Resource Recycling in China: *Guo Xueyi*[1]; [1]Central South University

Shape Casting: The 2nd International Symposium: Applications/Novel Processes

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee, TMS: Solidification Committee
Program Organizers: Paul Crepeau, General Motors Corporation; Murat Tiryakioglu, Robert Morris University; John Campbell, University of Birmingham

Wednesday PM — Room: Northern E2
February 28, 2007 — Location: Dolphin Hotel

Session Chair: David St. John, CAST Cooperative Research Center

2:30 PM Introductory Comments

2:40 PM
A Novel Technique for Melting and Casting Superalloys: *Sanjay Shendye*[1]; Blair King[1]; [1]Metal Casting Technology, Inc.

3:05 PM
The Quest to Cast the Perfect Aluminium Sand Casting: *Vian Coombe*[1]; [1]Ferrari Gestione Sportiva

3:30 PM
The Nemak Cosworth Casting Process - Innovation: *Glenn Byczynski*[1]; [1]Nemak Canadian Operations

3:55 PM
Investment Casting with Ice Patterns and Comparison with Other Types of Rapid Prototyping Patterns: *Von Richards*[1]; Chun-Ju Huang[1]; Ming Leu[1]; [1]University of Missouri

4:20 PM Break

4:40 PM
Effect of Casting Over-Pressure on the Fatigue Resistance of Aluminum Alloy A356-T6: *David Poirier*[1]; Miguel Neri[2]; Robert Erdmann[1]; [1]University of Arizona; [2]Advanced Materials Research Center (CIMAV)

5:05 PM
Effects of Casting Process Parameters on Porosity and Mechanical Properties of a Step-Shape High Pressure Die Casting of ADC12Z Alloy: Yan-fu Yan[1]; *Shou-Mei Xiong*[1]; Bai-cheng Liu[1]; Mei Li[2]; John Allison[2]; [1]Tsinghua University; [2]Ford Motor Company

5:30 PM
The Effect of Casting in a Helium Atmosphere on the Cooling Rate and Tensile Properties of Resin-Bonded Sand Castings: *Jean-Christophe Gebelin*[1]; William Griffiths[1]; [1]University of Birmingham

5:55 PM
Development of Rheo-Diecasting (RDC) Process for Production of High Integrity Components: Zhongyun Fan[1]; Shouxun Ji[1]; Xin Fang[1]; Guojun Liu[1]; Jayesh Patel[1]; *Amitabha Das*[1]; [1]Brunel University

Structural Materials Division Symposium: Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch: Plasticity and Deformation Mechanisms at Small Length Scale III

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee
Program Organizers: Xinghang Zhang, Texas A&M University; Yuntian Zhu, Los Alamos National Laboratory; Michael Rigsbee, North Carolina State University; C. Suryanarayana, University of Central Florida; Haiyan Wang, Texas A&M University; C. T. Liu, Oak Ridge National Laboratory

Wednesday PM — Room: Asia 5
February 28, 2007 — Location: Dolphin Hotel

Session Chairs: C. Suryanarayana, University of Central Florida; Neville Moody, Sandia National Laboratories

2:00 PM Invited
Deformation of "GUM" Metal in Nanoindentation: *John Morris*[1]; Maio Jin[1]; Matthew Lowrey[1]; Andrew Minor[1]; Shigeru Kuramoto[2]; [1]University of California; [2]Toyota Central Research and Development Laboratory

2:20 PM
Influence of Grain Size on Orientation Changes during Plastic Deformation: *Stephan Scheriau*[1]; [1]Erich Schmid Institute of Material Science

2:35 PM Invited
Examining Small-Scale Plasticity and Source-Limited Deformation through In Situ TEM Nanoindentation and Compression Tests: *Andrew Minor*[1]; Zhiwei Shan[1]; R. Mishra[2]; E. Stach[3]; S.A. Syed Asif[4]; Oden Warren[4]; [1]Lawrence Berkeley National Laboratory; [2]General Motors Research and Development Center; [3]School of Materials Engineering, Purdue University; [4]Hysitron Inc.

2:55 PM
Structural Features, Strength of Nanocrystalline and Nanoquasicrystalline Materials: *N. Noskova*[1]; [1] Institute of Metal Physics of UD RAS

3:10 PM Invited
Nanomechanical Behavior of Engineering Materials: *David Bahr*[1]; [1]Washington State University

3:30 PM
Environmental Impacts on Fracture of Thin Films: *Marian Kennedy*[1]; Neville Moody[2]; David Bahr[1]; [1]Washington State University; [2]Sandia National Laboratories

3:45 PM Break

4:00 PM
Scratch Resistant of Brittle Thin Films on Compliant Substrates: *Zhong Chen*[1]; Edmund Chwa[1]; Linda Wu[2]; [1]Nanyang Technological University; [2]Singapore Institute of Manufacturing Technology

4:15 PM Invited
Stability of Nanolayered Materials Subjected to Large Plastic Strains, Cyclic Loading and Ion Irradiation: *Amit Misra*[1]; Xinghang Zhang[2]; Yun-Che Wang[1]; Nathan Mara[1]; Michael Demkowicz[1]; Richard Hoagland[1]; [1]Los Alamos National Laboratory; [2]Texas A&M University

4:35 PM
Tensile and Fracture Behavior of Nanoscale Multilayers: *Nathan Mara*[1]; Amit Misra[1]; Yun-Che Wang[1]; Richard Hoagland[1]; Alla Sergueeva[2]; Amiya Mukherjee[2]; [1]Los Alamos National Laboratory; [2]University of California, Davis

4:50 PM
The Effect of Dislocation Source Length on Yield Strength of Nanostructured Metallic Multilayer Thin Films: *Qizhen Li*[1]; [1]University of Nevada, Reno

5:05 PM
Stress Evolution and Stability of Nanoporous Gold Thin Films: Ye Sun[1]; *T. John Balk*[1]; [1]University of Kentucky

5:20 PM
High Strength Nanoporous Platinum Prepared by Dealloying: *Haijun Jin*[1]; Jörg Weissmüller[2]; [1]Institut fuer nanotechnologie, Forschungszentrum Karlsruhe GmbH; [2]Forschungszentrum Karlsruhe, Institut für Nanotechnologie, Karlsruhe, Germany; Technische Physik, Universität des Saarlandes, Saarbrücken, Germany

5:35 PM
Microstructure and Microhardness of Copper Subjected to Ultra-High Strain Deformation: Azat Gimazov[1]; *Alexander Zhilyaev*[2]; [1]Institute for Metals Superplasticity Problems; [2]Centro National de Investigaciones Metallúrgicas

5:50 PM
Work Hardening Behavior of Pure Copper with Nanoscale Twins: *Lei Lu*[1]; Xianhua Chen[1]; Ke Lu[1]; [1]Shenyang National Laboratory for Materials Science (SYNL), Institute of Metal Research, CAS

NOTES

Advances in Computational Materials Science and Engineering Methods: Dedicated Computational Methods

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Biomaterials Committee, TMS/ASM: Computational Materials Science & Engineering
Program Organizers: Koen Janssens, Paul Scherrer Institute; Veena Tikare, Sandia National Laboratories; Richard LeSar, Iowa State University

Thursday AM
March 1, 2007
Room: Europe 7
Location: Dolphin Hotel

Session Chair: Corbett Battaile, Sandia National Laboratories

9:00 AM Introductory Comments

9:05 AM Invited
Theoretical and Computational Methods for Phase Coarsening: *Ke-Gang Wang*[1]; [1]Florida Institute of Technology

9:40 AM Question and Answer Period

9:45 AM
Modeling of Phase Volume Fraction in Alpha + Beta Titanium Alloys by Neural Networks and Genetic Algorithms: *N. Subba Reddy*[1]; Young Hwan Cha[1]; Chong Soo Lee[1]; [1]Pohang University of Science and Technology

10:10 AM Question and Answer Period

10:15 AM
On the Use of Image Moment Invariants to Identify Particle Shapes in Microstructures: *Marc DeGraef*[1]; Jeff Simmons[2]; [1]Carnegie Mellon University; [2]US Air Force

10:40 AM Question and Answer Period

10:45 AM Break

11:15 AM
Free-End Nudged Elastic Band Method to Study Thermally Activated Nanomechanical Processes: *Ju Li*[1]; Peter Gordon[2]; Ting Zhu[3]; [1]Ohio State University; [2]ExxonMobil Research and Engineering; [3]Georgia Institute of Technology

11:40 AM Question and Answer Period

11:45 AM
Multiscale Approach to Defects in Carbon Nanotubes and Graphene: *Elif Ertekin*[1]; Murray Daw[2]; Daryl Chrzan[1]; [1]University of California, Berkeley; [2]Clemson University

12:10 PM Question and Answer Period

Alumina and Bauxite: Precipitation, Products and Control

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Peter McIntosh, Hatch Associates; Jean Doucet, Alcan Inc; Morten Sorlie, Elkem Aluminium ANS

Thursday AM
March 1, 2007
Room: Northern E4
Location: Dolphin Hotel

Session Chair: Songqing Gu, Zhengzhou Light Metal Research Institute

9:00 AM Introductory Comments

9:10 AM
Design Developments for Fast Ramp-Up and Easy Operation of New Large Calciners: Michael Missalla[1]; Roger Bligh[1]; Michael Stroeder[1]; *Cornelis Klett*[1]; [1]Outokumpu Technology Ltd

9:35 AM
Application of PEpC Project Execution Strategy for Instrumentation and Control Delivery: *Manoj Pandya*[1]; Jack Murray[2]; Sudhir Jain[2]; [1]Alcan Engineering; [2]Emerson Process Management

10:00 AM
Manufacture of Detergent Grade Zeolite-A from Sodium Aluminate Liquor of Alumina Refinery, Damanjodi: NALCO's Experience and Success Story: *Chitta Mishra*[1]; [1]NALCO

10:25 AM
Effects of Additives on Precipitation of Sodium Aluminate Solution and Gibbsite Morphology: *Jianli Wang*[1]; Qiyuan Chen[1]; Qingwei Wang[2]; Zhoulan Yin[1]; [1]Central South University; [2]Zhengzhou Research Institute of Chalco

10:50 AM Break

11:00 AM
Effect of Modified Additives on Process of Bayer Seeds Precipitation from Caustic Aluminate Solutions: *Zhang Bin*[1]; [1]Central South of University

11:25 AM
Effects and Activation Mechanism of Mechanically-Activated Seeds on the Precipitation Process of Supersaturated Sodium Aluminate Liquors: Qiyuan Chen[1]; Jianguo Yin[1]; *Zhoulan Yin*[1]; [1]School of Chemistry and Chemical Engineering, Central South University

11:50 AM
Effect of Potassium on Physical-Chemical Properties of Sodium Aluminate Solutions: *Yanli Xie*[1]; Zhao Qun[2]; Jin Zhenan[3]; [1]Georgia Institute of Technology; [2]Zhengzhou Research Institute of CHALCO; [3]School of Materials and Metallurgy, Northeastern University

12:15 PM
Superfines from Precipitation of Sodium Aluminate Solutions: *Jilai Xue*[1]; Yunbo Huo[1]; [1]University of Science and Technology, Beijing

12:40 PM Concluding Comments

Aluminum Alloys for Transportation, Packaging, Aerospace and Other Applications: Alloys Mechanical Behavior

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizer: Subodh Das, Secat Inc

Thursday AM
March 1, 2007
Room: Northern A4
Location: Dolphin Hotel

Session Chairs: Subodh Das, Secat Inc; Marwan Khraisheh, University of Kentucky

9:00 AM
Forming Limits of Friction Stir Welded 5182-6111 TWBs during Biaxial Stretching: *Richard Davies*[1]; Frode Stavehaug[2]; Elizabeth Stephens[1]; Glenn Grant[1]; [1]Pacific Northwest National Laboratory; [2]Battelle

9:25 AM
Determining Aluminum Alloy Strain Localization under Biaxial Loading Using In-Situ Optical Strain Imaging: *Elizabeth Stephens*[1]; Frode Stavehaug[2]; Richard Davies[1]; Glenn Grant[1]; [1]Pacific Northwest National Laboratory; [2]Battelle

9:50 AM
Characterization of the Evolution of the Properties of Aluminium Alloys: *Christophe Thiebaut*[1]; Laurence Durut[1]; Thierry Vauzelle[1]; Jean François Mariage[1]; Serge Contreras[1]; [1]Commissariat a L'Energie Atomique

10:15 AM
Solution and Aging Heat Treatment of a Cast Al-Si Alloy: *Sergio Haro Rodriguez*[1]; Julián Ramírez[1]; Simitrio I. Maldonado[1]; Enrique Martinez[2]; Dheerendra Dwivedi[3]; [1]Universidad Autónoma de Zacatecas; [2]Instituto Tecnológico de Zacatecas; [3]Indian Institute of Technology

10:40 AM Break

10:50 AM
Effect of Aging Treatment on the Mechanical Properties of Thixoextruded 7003 Al Wrought Alloy: *Young-Ok Yoon*[1]; Hoon Cho[1]; Shae Kim[1]; Hyung-Ho Jo[1]; [1]Korea Institute of Industrial Technology

11:15 AM
Research on Electromagnetic Shielding Property of Aluminum Foam: *Haijun Yu*[1]; Guangchun Yao[1]; Yihan Liu[1]; [1]Northeastern University

11:40 AM
The Effect of Equal Channel Angular Pressing (ECAP) on the Fracture Toughness of High Solute Aluminum Alloys: *Christopher Hovanec*[1]; Roger Doherty[1]; Surya Kalidindi[1]; [1]Drexel University

12:05 PM
The Effects of Mn Additions on the Microstructure and Mechanical Properties of Type 319 Aluminum Alloys: *Junyeon Hwang*[1]; Herbert Doty[2]; Michael Kaufman[1]; [1]University of North Texas; [2]GM Powertrain Group, Metal Casting Technology Inc.

Aluminum Reduction Technology: Process Control II

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: Geoffrey Bearne, Comalco Ltd; Stephen Lindsay, Alcoa Inc; Morten Sorlie, Elkem Aluminium ANS

Thursday AM
March 1, 2007
Room: Southern 2
Location: Dolphin Hotel

Session Chair: Oliver Martin, Alcan Inc

9:00 AM
Bath Superheat to Control Electrolysis Process: *A. Berezin*[1]; Tatiana Piskazhova[1]; V. Gritsko[2]; A. Tarakanov[2]; I. Volokhov[1]; P. Polyakov[3]; [1]Engineering and Technology Center, Ltd.; [2]Mayak PKF Ltd.; [3]State University of Non-Ferrous Metals and Gold

9:25 AM
Aluminum Reduction Cell Control by Distributed Temperature Data: *Vladimir Yurkov*[1]; [1]RUSAL

9:50 AM
Use of Contigency Tables for Determining Statistical Dependence of Attribute Data from Aluminum Reduction Cell Processes: *Kayron Lalonde*[1]; Wayne Cotten[1]; [1]Alcoa Inc

10:15 AM
Regulating Bath Temperature Conditions on the Base Composition Electrolyte Data: *Alex Knizhnik*[1]; Vyacheslav Veselkov[2]; Yuriy Bogdanov[2]; Ivan Sysoev[2]; Aleksey Nadtochy[2]; [1]Sual; [2]SibVAMI

10:40 AM
Graphitised Cathode Flaking Phenomenon during Alba's Line-5 Start-Up: *Mohamed Mahmood*[1]; [1]Bahrain Aluminium Company (ALBA)

11:05 AM Break

11:20 AM
Fault Diagnosis System for 350kA Pre-Baked Aluminum Reduction Cell Based on BP Neural Network: *Zeng Shuiping*[1]; [1]North China University of Technology

11:45 AM
Usage of Fuzzy Logic as a Strategy for the Aluminium Fluoride Addition in Electrolytic Cells: *Marcos Castro*[1]; Roberto Celio Oliveira[2]; Marcos Vinicius Branco[2]; Vanilson Pereira[2]; Fabio Soares[2]; [1]ALBRAS; [2]UFPA

12:10 PM
Analyzing Routine Process Data from Aluminum Reduction Cells Using Data Mining Method: *Jun Tie*[1]; Jilai Xue[2]; [1]North-China University of Technology; [2]University of Science and Technology

Biological Materials Science: Biological Materials II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Andrea Hodge, Lawrence Livermore National Laboratory; Chwee Lim, National University of Singapore; Eduard Artz, University of Stuttgart; Masaaki Sato, Tohoku University; Marc Meyers, University of California, San Diego

Thursday AM
March 1, 2007
Room: Europe 4
Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Break

9:10 AM
Enhancement of Biocompatibility on Bioactive Ti-Nb-Based Alloy by High-Density Plasma Modification: *En-Yu Wu*[1]; Keng-Liang Ou[2]; Yung-Ning Pan[1]; Chang-Chih Chen[3]; [1]National Taiwan University; [2]Taipei Medical University; [3]Mackay Memorial Hospital

9:30 AM
Nucleation and Growth of Needle-Like Fluorapatite Crystals: *Yong Liu*[1]; Xiaoxian Sheng[1]; Qijun Xiang[1]; Xiaohong Dan[1]; [1]State Key Laboratory of Powder Metallurgy, Central South University

9:50 AM
Surface Structure Modification and Recrystallization of Pulsed Laser Deposited Amorphous Calcium Phosphate Films: *Saulius Drukteinis*[1]; Renato Camata[1]; Hyunbin Kim[1]; [1]University of Alabama at Birmingham

10:10 AM
Structural Evolution via Elastocapillarity-Driven Coalescence of Filaments: *Ramanathan Krishnamurthy*[1]; David Srolovitz[1]; [1]Princeton University

10:30 AM
Improving Wear Resistance of UHMWPE by Mechanical Processing: *Dongsheng Li*[1]; Hamid Garmestani[1]; [1]Georgia Institute of Technology

10:50 AM
Micro Particles Formation, Characterization and Application of Biodegradable Polyurethane for Controlled Released of Theophilline: *Morteza Mahmoudi*[1]; [1]Amirkabir University of Technology

11:10 AM
The Influence of Chloride Ion to the Biooxidation of Arsenic Bearing Gold Concentration: *Dawen Wang*[1]; Hongying Yang[1]; Changliang Zhu[1]; Huanjie Jiang[1]; [1]Northeastern University

11:30 AM
Use of Waste Biomaterials for Removal of Heavy Metals from Effluents: *Sarabjeet Ahluwalia*[1]; Dinesh Goyal[1]; [1]Thapar Institute of Enginnering and Technology

Bulk Metallic Glasses IV: Processing and Mechanical Properties IV

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Peter Liaw, University of Tennessee; Raymond Buchanan, University of Tennessee; Wenhui Jiang, University of Tennessee; Guojiang Fan, University of Tennessee; Hahn Choo, University of Tennessee; Yanfei Gao, University of Tennessee

Thursday AM
March 1, 2007
Room: Asia 1
Location: Dolphin Hotel

Session Chairs: Y. F. Gao, University of Tennessee; K. M. Flores, Ohio State University

9:00 AM Invited
Processing Opportunities of Bulk Metallic Glass: *Jan Schroers*[1]; [1]Yale University

9:20 AM Invited
Oxidation Behavior of Cu-Based Glassy Alloys at 400-550°C in Dry Air: Hsin-Hsin Hsieh[1]; Tsu-Hsin Ho[1]; Yan-Rong Chen[1]; *Wu Kai*[1]; D. C. Qiao[2]; F. Jiang[2]; Peter Liaw[2]; G. Fan[2]; Hahn Choo[2]; [1]National Taiwan Ocean University; [2]University of Tennessee

9:40 AM Invited
Synthesis of Bulk Amorphous/Amorphous Composite Alloys through Powder Metallurgy Route: *Pee-Yew Lee*[1]; Yu-Wei Lin[1]; [1]National Taiwan Ocean University

9:55 AM
Laser Processing of Zr- and Cu- Based Bulk Metallic Glasses: Hongqing Sun[1]; Katharine Flores[1]; [1]Ohio State University

10:10 AM
Forming of Mg Bulk Metallic Glasses in the Supercooled Liquid Region: Sylvain Puech[1]; *Jean-Jacques Blandin*[1]; Jean-Louis Soubeyroux[2]; [1]Institut National Polytechnique de Grenoble; [2]Centre National de la Recherche Scientifique de Grenoble

10:25 AM
Effect of Niobium on Glass-Forming Ability of Fe-Based Alloys by Mechanical Alloying: *Satyajeet Sharma*[1]; Raj Vaidyanathan[1]; C. Suryanarayana[1]; [1]University of Central Florida

10:40 AM Invited
Bulk Metallic Glass: A Very Low Damping Material - Possible Applications: *Jean-Marc Pelletier*[1]; Cédric Haon[2]; Denis Camel[2]; Béatrice Drevet[2]; [1]INSA-Lyon; [2]CEA

11:00 AM Invited
Fabricating Bulk Metallic Glasses by Powder Metallurgy: *Yong Liu*[1]; Zuming Liu[1]; Shiwen He[1]; Baiyun Huang[1]; [1]State Key Laboratory of Powder Metallurgy, Central South University

11:20 AM
Room-Temperature Oxidation of Ca-Based Bulk Amorphous Materials: *Bryan Barnard*[1]; Peter Liaw[1]; Raymond Buchanan[1]; Oleg Senkov[2]; Daniel Miracle[3]; [1]University of Tennessee, Knoxville; [2]UES, Inc., Air Force Research Laboratory; [3]Air Force Research Laboratory

11:35 AM
Inverse Role of Zr76.11Ti4.20Cu4.51Ni3.16Be1.49Nb10.53 Bulk Metallic Glass Composite in Supercooled Liquid Region: *Hyun-Joon Jun*[1]; Kwang Seok Lee[1]; Young Won Chang[1]; [1]Pohang University of Science and Technology

11:50 AM
Compression-Compression Fatigue Behavior of Several Zr-Based Bulk-Metallic Glasses: *Dongchun Qiao*[1]; Gongyao Wang[1]; Y. Yokoyama[1]; Peter Liaw[1]; [1]University of Tennessee

12:05 PM
Structure of Shock Waves and Hugoniot Elastic Limit of a Zirconium-Based Bulk Metallic Glass: *Fuping Yuan*[1]; Vikas Prakash[1]; John Lewandowski[1]; [1]Case Western Reserve University

12:20 PM
Synthesis and Characterization of Metallic Glass/Metallic Glass Composites: *JinKyu Lee*[1]; MinHa Lee[2]; TaekSoo Kim[1]; JungChan Bae[1]; [1]Korea Institute of Industrial Technology; [2]Ames Laboratory, Iowa State University

Cast Shop Technology: Cast Shop Safety

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: David DeYoung, Alcoa Inc; Rene Kieft, Corus Group; Morten Sorlie, Elkem Aluminium ANS

Thursday AM
March 1, 2007
Room: Northern E1
Location: Dolphin Hotel

Session Chair: Seymour Epstein, Aluminum Association

9:00 AM Introductory Comments

9:05 AM
An Update on the Reported Causes of Molten Metal Explosions: *Seymour Epstein*[1]; [1]Aluminum Association, Inc.

9:30 AM
Scrap Inspection Requires Ingenuity and Management: *Maxwell Bertram*[1]; F. Hubbard[1]; D. Pierce[2]; [1]Aleris International Inc; [2]Consultant

9:55 AM
Transferring Molten Aluminum Safely: *Jake Niedling*[1]; [1]Alcoa Inc

10:20 AM
Cause and Prevention of Explosions Involving DC Casting of Aluminum Extrusion Ingot: *Martin Ekenes*[1]; Ray Richter[2]; [1]Consultant; [2]Alcoa Inc

10:45 AM Break

11:10 AM
Emerging Issues for PPE Programs and Management: Two Case Studies in PPE Program Review and Overhaul: *R. Brewer*[1]; C. D. Johnson[2]; [1]Steelgrip, Inc.; [2]The Aluminum Association

11:35 AM
Training for Preventing Molten Metal Explosions in Aluminum Cast Houses: *Martin Ekenes*[1]; [1]Consultant

12:00 PM Panel Discussion

Characterization of Minerals, Metals, and Materials: Characterization of Processing of Materials II

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division, TMS: Materials Characterization Committee
Program Organizers: Arun Gokhale, Georgia Institute of Technology; Jian Li, Natural Resources Canada; Toru Okabe, University of Tokyo

Thursday AM
March 1, 2007
Room: Oceanic 8
Location: Dolphin Hotel

Session Chairs: Jiann-Yang Hwang, Michigan Technological University; Tetsuya Uda, Kyoto University

9:00 AM
Reduction of Titanium Oxide to Titanium Alloy by Hydrogen: *Hidehiro Sekimoto*[1]; Ryosuke Shioi[1]; Tetsuya Uda[1]; Yasuhiro Awakura[1]; [1]Kyoto University

9:20 AM
Characterization of a Bismuth-Rich Copper Anode and Anode Slimes from a Commercial Copper Refinery: Tzong Chen[1]; *John Dutrizac*[1]; Suzanne Beauchemin[1]; [1]CANMET

9:40 AM
The Leaching Behavior of Heavy Metals in MSWI Bottom Ash by Carbonation Reaction with Different Water Content: *Nam-Il Um*[1]; Kwang-Suk You[1]; Gi-Chun Han[1]; Im-Chang Lee[1]; Kye-Hong Cho[1]; Ji-Whan Ahn[1]; Hee-Chan Cho[2]; [1]Korea Institute of Geoscience and Mineral Resources; [2]Seoul National University

10:00 AM
Thermodynamic Measurement for Cr-P Alloy and Phosphorus Oxide with Double Knudsen Cell Mass Spectrometry: *Takashi Nagai*[1]; Masao Miyake[1]; Hisao Kimura[1]; Masafumi Maeda[1]; [1]University of Tokyo

10:20 AM
High Pressure Assisted Sintering of Nanostructured Superhard Material: *Ana Lucia Skury*[1]; Humberto Cesar Vilela[1]; Sergio Monteiro[1]; [1]Universidade Estadual do Norte Fluminense

10:40 AM Break

11:00 AM
Characterization of the Dore Metal and Gold-Rich Slimes from the Moebius Cells in a Copper Refinery Anode Slimes Treatment Circuit: *Tzong Chen*[1]; John Dutrizac[1]; [1]CANMET

11:20 AM
Interplanar Spacing and Expandability of Micron-Sized Vermiculite: Bowen Li[1]; *Jiann-Yang Hwang*[1]; Zhiyong Xu[1]; [1]Michigan Technological University

11:40 AM
Structural Modification in Graphite Treated at High Pressure and High Temperature: *Ana Lucia Skury*[1]; Rosane Manhaes[1]; Sergio Monteiro[1]; Angélica Santos[1]; [1]Universidade Estadual do Norte Fluminense

12:00 PM
Thermodynamic Analysis on Preparation of Special Copper Precursor Powders with Oxalate Precipitation Process: *Youqi Fan*[1]; Chuanfu Zhang[1]; Jing Zhan[1]; Jianhui Wu[1]; [1]Central South University

12:20 PM
The Effect of Mg Content in Limestone Ore on Characteristics of Precipitated Calcium Carbonate Powder: *Jung-Ah Kim*[1]; Ji-Whan Ahn[1]; Hwan Kim[2]; [1]Korea Institute of Geoscience and Mineral Resources; [2]Seoul National University

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Computational Thermodynamics and Phase Transformations: Modeling of Phase Transformations II

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, ASM Materials Science Critical Technology Sector, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Corbett Battaile, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory

Thursday AM
March 1, 2007
Room: Europe 11
Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM
Assessments of the Phase Stability of the Al-Mg-B Alloys Using the CALPHAD Method: *Sungtae Kim*[1]; Donald Stone[1]; Jae-Ik Cho[2]; Jung-Chan Bae[2]; Chang-Seog Kang[2]; Joon Sik Park[2]; Chang-Yeol Jeong[2]; [1]University of Wisconsin; [2]Korea Institute of Industrial Technology

9:20 AM
Phase Stability in 409 Ferritic Stainless Steel at Elevated Temperatures: *Omer Dogan*[1]; Paul Jablonski[1]; [1]National Energy Technology Laboratory

9:40 AM
Phase Transformations and Thermodynamic Modeling of the Cobalt-Titanium-Tin System: *Jean-Claude Tedenac*[1]; Fucheng Yin[1]; Franck Gascoin[1]; [1]LPMC-Universite de Montpellier 2

10:00 AM
Thermodynamic Modeling of the Ca-Ga-N System: *Wenxia Yuan*[1]; Gang Wang[2]; Jingfang Wang[1]; Zuofei Cai[1]; [1]University of Science and Technology Beijing; [2]Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences

10:20 AM
Linking Thermodynamics, Structure and Viscosity of Alumo- and Borosilicate Melts: *A. Grundy*[1]; [1]Centre for Research in Computational Thermochemistry, École Polytechnique de Montréal

10:40 AM
Application of the Cluster/Site Approximation (CSA) to the FCC Phases in NI-AL-CR-PT System: *Jun Zhu*[1]; Weisheng Cao[1]; Ying Yang[2]; Y. Chang[1]; [1]University of Wisconsin; [2]CompuTherm LLC

11:00 AM Break

11:20 AM Invited
Coarsening in Morphologically Complex Systems Following Spinodal Decomposition: Y. Kwon[1]; K. Thornton[2]; *P. Voorhees*[1]; [1]Northwestern University; [2]University of Michigan

11:50 AM
Precipitation Simulation of fcc Iron Precipitates in Cu-Fe Alloys: María del Carmen Gutierrez-Mendez[1]; Erika Avila-Davila[1]; *Víctor Lopez-Hirata*[1]; Viridiana Melo-Maximo[1]; Maribel Saucedo Muñoz[1]; [1]Instituto Politecnico Nacional

12:10 PM
Molecular Dynamics and Phase Field Modeling of Pressure-Driven Solidification: *James Belak*[1]; James Glosli[1]; Patrice Turchi[1]; Mehul Patel[1]; Fred Streitz[1]; [1]Lawrence Livermore National Laboratory

12:30 PM
Numerical Simulation of High Temperature Air Combustion: Yuan Ling[1]; Zhu Miao-Yong[1]; [1]Northeastern University

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Computational Thermodynamics and Phase Transformations: Nanomaterials and Confined Systems II

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, ASM Materials Science Critical Technology Sector, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Computational Materials Science and Engineering Committee
Program Organizers: Corbett Battaile, Sandia National Laboratories; James Morris, Oak Ridge National Laboratory

Thursday AM
March 1, 2007
Room: Europe 10
Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Invited
Phase Equilibria and Concentration Profiles in Nanoscale Binary Alloys: *Jeffrey Hoyt*[1]; [1]Sandia National Laboratories

9:30 AM
Molecular Dynamics Simulations of Multiple Twinned Ag Nanowires: *Joshua Monk*[1]; Jeff Hoyt[2]; Diana Farkas[1]; [1]Virginia Tech; [2]Sandia National Laboratory

9:50 AM
Simulation on the Phase Transformation of Silicon under Multiaxial Stress: *Seongmin Jeong*[1]; Yoshitaka Umeno[1]; Takayuki Kitamura[1]; [1]Kyoto University

10:10 AM Break

10:30 AM Invited
Superheating and Induced Melting at Semiconductor Interfaces: *Kerwyn Huang*[1]; Tairan Wang[2]; John Joannopoulos[3]; [1]Princeton University; [2]Omniguide Communications; [3]Massachusetts Insitute of Technology

11:00 AM
A New Polymorph of Zinc Oxide in Nanowires under Tensile Loading: *Ambarish Kulkarni*[1]; Min Zhou[1]; Kanoknan Sarasmak[2]; Sukit Limpijumnong[2]; [1]Georgia Institute of Technology; [2]Suranaree University of Technology

11:20 AM
Surface Stress and Relaxation in Nanoscale Electrodes and Clusters: Response to Electric Charging: *Jörg Weissmüller*[1]; Florian Weigend[2]; Ferdinand Evers[2]; Raghavan Viswanath[3]; Dominik Kramer[3]; [1]Forschungszentrum Karlsruhe and Universitaet des Saarlandes; [2]Forschungszentrum Karlsruhe and Universitaet Karlsruhe; [3]Forschungszentrum Karlsruhe

11:40 AM
Symmetry Breaking and Spatial Ordering in Stress-Induced Surface Self-Assembly: *Yanfei Gao*[1]; [1]University of Tennessee

12:00 PM
Molecular Dynamics Simulations of the Role of Adatoms, Interstitials, and Grain Boundaries in Thin Film Stress Evolution: Stephen Foiles[1]; *Edmund Webb*[1]; Chun-Wei Pao[1]; David Srolovitz[2]; Jerrold Floro[1]; [1]Sandia National Laboratories; [2]Yeshiva University

Dynamic Behavior of Materials: Fracture

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee
Program Organizers: Marc Meyers, University of California; Ellen Cerreta, Los Alamos National Laboratory; George Gray, Los Alamos National Laboratory; Naresh Thadhani, Georgia Institute of Technology; Kenneth Vecchio, University of California

Thursday AM
March 1, 2007
Room: Europe 3
Location: Dolphin Hotel

Session Chairs: Naresh Thadhani, Georgia Institute of Technology; Ellen Cerreta, Los Alamos National Laboratory

9:00 AM
Molecular Dynamics Simulation of Dynamic Damage and Failure of Materials: *Wenjun Zhu*[1]; Wenqiang Wang[1]; Zhengfei Song[1]; Xiaoliang Deng[1]; Hongliang He[1]; [1]Institute of Fluid Physics

9:30 AM
D3 in Armor Ceramics: Defects, Deformation and Damage at High Strain Rates: *James McCauley*[1]; [1]Army Research Laboratory

9:45 AM
Validating Theories for Brittle Damage: *Rebecca Brannon*[1]; Joseph Wells[2]; [1]Sandia National Laboratories; [2]JMW Associates

10:00 AM
Wiebull Analysis of Variability in Dynamic HEL and Spall Properties of Tantalum: *Michael Furnish*[1]; William Reinhart[1]; Wayne Trott[1]; Lalit Chhabildas[1]; Tracy Vogler[1]; [1]Sandia National Laboratories

10:15 AM
Advances in XCT Diagnostics of Ballistic Impact Damage: *Joseph Wells*[1]; Rebecca Brannon[2]; [1]JMW Associates; [2]Sandia National Laboratories

10:30 AM Break

10:45 AM
Microstructural Effects in FCC Alloys after Small Charge Explosions: *Donato Firrao*[1]; Paolo Matteis[1]; Giorgio Scavino[1]; Graziano Ubertalli[1]; Maria Ienco[2]; Paolo Piccardo[2]; Maria Pinasco[2]; Enrica Stagno[2]; Girolamo Costanza[3]; Roberto Montanari[3]; Maria Tata[3]; Giovanni Brandimarte[4]; Santo Petralia[4]; [1]Politecnico Di Torino; [2]Università di Genova; [3]Università di Roma Tor Vergata; [4]Marina Militare Italiana

11:00 AM
The Investigation of the Ballistic Performance of Armor Ceramics against Long Rod Penetration: *Fenglei Huang*[1]; Liansheng Zhang[1]; [1]Beijing Institute of Technology

11:15 AM
Microstructure, Mechanical Property, and Ballistic Resistance Correlations of High-Strength, High-Toughness Steels: *Xian Zhang*[1]; Eric Focht[1]; Ernest Czyryca[1]; [1]Naval Surface Warfare Center

11:30 AM
Plate Impact Investigation of High-Speed Friction at Metal-on-Metal Interfaces: *Fuping Yuan*[1]; Vikas Prakash[1]; [1]Case Western Reserve University

11:45 AM
Spall Strength of Glass Fiber Reinforced Polymer Composites: *Fuping Yuan*[1]; Liren Tsai[1]; Vikas Prakash[1]; [1]Case Western Reserve University

12:00 PM
Static and Dynamic Indentation Response of Fine Grained Boron Carbide: Dipankar Ghosh[1]; Spandan Maiti[1]; *Ghatu Subhash*[1]; [1]Michigan Technological University

12:15 PM
Dissimilar Dynamic Response of Two Nitinol Alloys: 50NiTi vs. 55NiTi (at.%): *Raghavendra Adharapurapu*[1]; Fengchun Jiang[1]; Kenneth Vecchio[1]; [1]University of California San Diego

12:30 PM
Effect of Product Form on the Dynamic Response of 50NiTi: Sheet vs. Rod Textures: *Raghavendra Adharapurapu*[1]; Fengchun Jiang[1]; Kenneth Vecchio[1]; [1]University of California San Diego

12:45 PM
Microstructural Effects on Plastic Deformation and Damage Nucleation in Shocked Cu Multicrystals: *Stephan DiGiacomo*[1]; Heber D'Armas[2]; Sheng-Nian Luo[3]; Scott Greenfield[3]; Pedro Peralta[1]; Manuel Parra Garcia[1]; [1]Arizona State University; [2]Universidad Simón Bolívar; [3]Los Alamos National Laboratory

Electrode Technology Symposium (formerly Carbon Technology): Cathode Part III: Titanium Diboride

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS

Thursday AM
March 1, 2007
Room: Southern 3
Location: Dolphin Hotel

Session Chair: Elias Symphronio de Castro Neto, CBA - Companhia Brasileira de Alumínio

9:00 AM Introductory Comments

9:05 AM
Chemical Stability of Pitch-Based TiB_2–C Coatings on Carbon Cathodes: *M. Ibrahiem*[1]; T. Foosnæs[1]; H. Øye[1]; [1]Norwegian University of Science and Technology

9:30 AM
Application of TiB2-Coating Cathode Blocks Made by Vibration Molding for 300 kA Aluminum Reduction Cells: *Ren Bijun*[1]; Zhongning Shi[2]; Yungang Ban[2]; Songling Dai[1]; Zhaowen Wang[2]; Zhuxian Qiu[2]; [1]Yichuan Electric-Power and Aluminium Group; [2]Northeastern University

9:55 AM
Application of TiB2/C Composite Cathode Coating Solidified at Ambient Temperature in 300kA Prebaking Aluminium Reduction Cell: *Yungang Ban*[1]; Zhongning Shi[1]; Hongmin Kan[1]; Zhaowen Wang[1]; Zhuxian Qiu[1]; [1]College of Materials and Metallurgy

10:20 AM
Preparation of TiB2 Inert Cathode by Electrodeposition Process for Aluminum Electrolysis: *Yungang Ban*[1]; Zhongning Shi[1]; Hongmin Kan[1]; Zhaowen Wang[1]; Zhuxian Qiu[1]; [1]College of Materials and Metallurgy, Northeast University

10:45 AM
Sodium Expansion of Carbon/TiB2 Composite Cathodes during Aluminum Electrolysis: *Jilai Xue*[1]; Qingsheng Liu[1]; [1]University of Science and Technology

11:10 AM
Study on Expansion of Tib2/C Compound Cathode and Sodium Penetration during Electrolysis: Wang Yaowu[1]; Feng Naixiang[1]; You Jing[1]; Peng Jianping[1]; Duan Xueliang[2]; Wu Jianguo[2]; *Ma Shaoxian*[3]; [1]Northeastern University; [2]Shanxi Jinyang Carbon Company, Ltd; [3]Northeastern University Design and Research Institute

Electrode Technology Symposium (formerly Carbon Technology): Rodding and Coke Inventory

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Aluminum Committee
Program Organizers: John Johnson, RUSAL Engineering and Technological Center LLC; Morten Sorlie, Elkem Aluminium ANS

Thursday AM
March 1, 2007
Room: Southern 1
Location: Dolphin Hotel

Session Chair: C. Mark Read, Bechtel Quebec Ltd

9:00 AM Introductory Comments

9:05 AM
Electrode Plant – Larger Rod Assembly Project (S230): *Paul Harry*[1]; [1]McDonald Keen Group Pty Ltd

9:30 AM
Anode Stubs Inspection System: *Jean-Pierre Gagne*[1]; Marc-André Thibault[1]; Jean-Yves Carrier[2]; Gilles Dufour[2]; Claude Gauthier[2]; [1]STAS; [2]Alcoa Canada, Aluminerie Deschambault

9:55 AM
ECL's Rodding Shop Solutions: *Nicolas Dupas*[1]; [1]ECL

10:20 AM
XELIOS™, A Vibrocompactor Designed for Producing High Density Anodes: *Hugues Vincent*[1]; Jean-François André[1]; [1]Solios Carbone

10:45 AM
Understanding Calcined Coke Bulk Density- Inventory: *Bernard Vitchus*[1]; Frank Cannova[1]; [1]BP Coke

Friction Stir Welding and Processing IV: Session VI

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee
Program Organizers: Rajiv Mishra, University of Missouri; Murray Mahoney, Rockwell Scientific Company; Thomas Lienert, Los Alamos National Laboratory; Kumar Jata, US Air Force

Thursday AM
March 1, 2007
Room: Northern E3
Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM Invited
Stir Zone Temperatures during Friction Stir Processing: *Terry McNelley*[1]; Keiichiro Oh-ishi[2]; Alexander Zhilyaev[3]; Srinivasan Swaminathan[1]; Christian Fuller[4]; Blair London[5]; Murray Mahoney[4]; [1]Naval Postgraduate School; [2]National Institute for Materials Science; [3]Centro Nacional de Investigaciones Metallurgicas; [4]Rockwell Scientific Company; [5]California Polytechnic State University

9:20 AM Invited
Friction Stir Processing of D2 Tool Steel for Enhanced Blade Performance: *Carl Sorensen*[1]; Tracy Nelson[1]; Scott Packer[2]; Charles Allen[3]; [1]Brigham Young Univeristy; [2]Advanced Metal Products; [3]Knives of Alaska

9:40 AM
The Relationship between Friction Stir Process Parameters and Microstructure of Investment Cast Ti-6Al-4V: *Adam Pilchak*[1]; Z. Tim Li[2]; James Fisher[2]; Mary Juhas[1]; James Williams[1]; [1]Ohio State University; [2]Edison Welding Institute

9:55 AM
Friction Stir Processing of a Cast WE43 Magnesium Alloy: *Timothy Freeney*[1]; Rajiv Mishra[1]; Glenn Grant[2]; Ravi Verma[3]; [1]University of Missouri; [2]Pacific Northwest National Laboratory; [3]General Motors Research and Development Center

10:10 AM
Determining the Effects of Friction Stir Processing on the Damping Characteristics of Al 5083 and Al/SiC Metal Matrix Composite: *Karl Koch*[1]; Jonathan Lu[1]; Anthony Barajas[1]; William Arbegast[1]; Casey Alen[1]; Abiuda Reddy[1]; [1]South Dakota School of Mines and Technology

10:25 AM
Friction Stir Microstructural Modification of Investment Cast F357: *S. Jana*[1]; Rajiv Mishra[1]; H. Chou[2]; Darrell Herling[3]; [1]University of Missouri; [2]The Boeing Company; [3]Pacific Northwest National Laboratory

10:40 AM Break

10:55 AM
The Effect of Grain Orientation via FSP on Tensile Behavior: *Ssu- Ta Chen*[1]; Truan- Sheng Lui[1]; Li- Hui Chen[1]; [1]Cheng-Kung University

11:10 AM
The Effect of Friction Stirring on the Erosion Wear Resistance of Al-Si Alloy: *Tun-Wen Cheng*[1]; Truan-Sheng Lui[1]; Li-Hui Chen[1]; [1]National Cheng-Kung University

11:25 AM
Corrosion in Friction Stir Welded Dissimilar Aluminum Alloy Joints of 2024 and 7075: *Christian Widener*[1]; Dwight Burford[1]; Jorge Talia[1]; Bryan Tweedy[1]; [1]Wichita State University

11:40 AM
Investigation to Restore the Exfoliation Resistance of Friction Stir Welded Aluminum Alloy 2024: *Christian Widener*[1]; Dwight Burford[1]; Jorge Talia[1]; Bryan Tweedy[1]; [1]Wichita State University

11:55 AM Panel Discussion

12:25 PM Concluding Comments

General Abstracts: Electronic, Magnetic, and Photonic Materials Division: Magnetic and Ferroelectric Materials

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS: Electronic Materials Committee, TMS: Electronic Packaging and Interconnection Materials Committee, TMS: Nanomaterials Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Long Qing Chen, Pennsylvania State University; Sung Kang, IBM Corporation

Thursday AM
March 1, 2007
Room: Oceanic 7
Location: Dolphin Hotel

Session Chairs: Shenyang Hu, Los Alamos National Laboratory; Long-Qing Chen, Pennsylvania State University

9:00 AM
Microstructure Evolution in Giant Magnetostrictive Materials: *Yongmei Jin*[1]; [1]Texas A&M University

9:20 AM
Thin Film Elastic Modulus Measurement by Magnetostrictive Sensor-A Nondestructive Measurement Technique: *Cai Liang*[1]; L.C. Mathison[1]; Bart Prorok[1]; [1]Auburn University

9:40 AM
Nanostructured Mn-Al-C Permanent Magnets Produced by Mechanical Milling: Q. Zeng[1]; *Ian Baker*[1]; Z. Yan[2]; [1]Dartmouth College; [2]University of Delaware

10:00 AM
High-Gain Magnetic Photonic Assembly Antennas for GHz Frequencies: *Lanlin Zhang*[1]; Gokan Mumcu[1]; Kubilay Sertel[1]; John Volakis[1]; Hendrik Verweij[1]; [1]Ohio State University

10:20 AM
Evidence of Iron Ion Valence Variation in Ferroelectromagnet Pb($Fe_{1/2}Nb_{1/2}$)O_3: *Ying Yang*[1]; J. M. Liu[2]; H. B. Huang[2]; Z. G. Liu[2]; [1]Nanjing University of Aeronautics and Astronautics; [2]Nanjing University

10:40 AM Break

11:10 AM
Nanotwin Diffraction, Adaptive State, and Engineered Domain Configuration in Strongly Piezoelectric Single Crystals: *Yu Wang*[1]; [1]Virginia Tech

11:30 AM
Effects of Deposition Conditions on the Dielectric Non-Linearity of Ba0.6Sr0.4TiO3 Thin Films: *Hongwei Chen*[1]; [1]University of Electronic Science and Technology of China

11:50 AM
Modeling of Dielectric Nonlinearity of Ferroelectric Ceramics: *Chunlin Fu*[1]; [1]Chongqing University of Science and Technology

12:10 PM
Effect of Annealing on Depletion Layer Width and Schottky Barrier Height of Pt/$Ba_{0.6}Sr_{0.4}TiO_3$ Interface: *Chunlin Fu*[1]; Wei Cai[1]; Fusheng Pan[1]; [1]Chongqing University of Science and Technology

12:30 PM
Formation of Nanocrystalline Structure in Metals by Severe Plastic Deformation: *Yoshikazu Todaka*[1]; M. Umemoto[1]; J. Li[1]; A. Yamazaki[1]; C. Wang[1]; J. Sasaki[1]; K. Tsuchiya[1]; [1]Toyohashi University of Technology

General Abstracts: Electronic, Magnetic, and Photonic Materials Division: ZnO Thin Films and Liquid Crystals

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS: Electronic Materials Committee, TMS: Electronic Packaging and Interconnection Materials Committee, TMS: Nanomaterials Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Thin Films and Interfaces Committee
Program Organizers: Long Qing Chen, Pennsylvania State University; Sung Kang, IBM Corporation

Thursday AM
March 1, 2007
Room: Oceanic 4
Location: Dolphin Hotel

Session Chairs: Yongmei Jin, Texas A&M University; Sung Kang, IBM T.J. Watson Research Center

9:00 AM
Investigation of Carrier Type Conversion of Post Annealed ZnO:P Thin Films as a Function of the Substrate Temperature: *Hyunsik Kim*[1]; Jean Erie[1]; Stephen Pearton[1]; David Norton[1]; Jau-Jiun Chen[2]; Fan Ren[2]; [1]Department of Materials Science and Engineering, University of Florida; [2]Department of Chemical Engineering, University of Florida

9:20 AM
The Effects of Nitrogen Doping on Structural and Electrical Properties of ZnO Thin Films: *Makoto Hirai*[1]; Ashok Kumar[1]; [1]University of South Florida

9:40 AM
Optical and Structural Properties of ZnO Thin Films Grown by Metalorganic Chemical Vapor Deposition: *William Fenwick*[1]; Tahir Zaidi[1]; Nola Li[1]; Shalini Gupta[1]; Zhe Feng[2]; Ian Ferguson[1]; [1]Georgia Institute of Technology; [2]Graduate Institute of Electro-Optical Engineering, National Taiwan University

10:00 AM
Magnetic and Structural Properties of Fe Doped ZnO Thin Films: *Soo-young Seo*[1]; Sun-hong Park[1]; Chang-ha Kwak[1]; Yong-byung Lee[1]; Seon-hyo Kim[1]; [1]Pohang University of Science and Technology

10:20 AM Break

10:50 AM
Phenomenal Dimension Neural Optimum for Nematic Liquid Crystal Display by Twisted Nematic Cell Gap: *Chia Fu Chang*[1]; Zou-ni Wan[1]; Chia-Hi Chen[1]; [1]Kun Shan University of Technology

11:10 AM
Quasielastic Phenomenological Isotropic Optimization Medium Simulation for Phenomenal Liquid Crystal: *Chia Fu Chang*[1]; Wi-Ci Chen[1]; Zou-ni Win[1]; [1]Kun Shan University of Technology

11:30 AM
Precipitation of a Barium Sulfate Nanoparticle Contrast Agent Using Microemulsions: *Matthew Meagher*[1]; Zhenyuan Zhang[2]; Ryan Roeder[2]; [1]Department of Chemical and Biomolecular Engineering; [2]Department of Aerospace and Mechanical Engineering

11:50 AM
Preparation and Characterization of Cu-coated Graphite by Electroless Copper Plating: *Liu Wei*[1]; Yao Guangchun[1]; Liu Yihan[1]; [1]Northeastern University

12:10 PM
Electrochemistry of the Electro-Deoxidation of Silicon Dioxide in CaCl2 and NaCl Melt: *Shulan Wang*[1]; [1]Northeastern University

General Abstracts: Materials Processing and Manufacturing Division: Processing and Microstructural Development

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS/ASM: Computational Materials Science and Engineering Committee, TMS: Global Innovations Committee, TMS: Nanomechanical Materials Behavior Committee, TMS/ASM: Phase Transformations Committee, TMS: Powder Materials Committee, TMS: Process Modeling Analysis and Control Committee, TMS: Shaping and Forming Committee, TMS: Solidification Committee, TMS: Surface Engineering Committee
Program Organizers: Fernand Marquis, Naval Postgraduate School; Ralph Napolitano, Iowa State University; Neville Moody, Sandia National Laboratories

Thursday AM
March 1, 2007
Room: Northern A2
Location: Dolphin Hotel

Session Chair: Neville Moody, Sandia National Laboratories

9:00 AM
Extrusion of a Solvated Polymer into a Moving Viscous Medium Allows Generation of 300nm Polymer Fibers via Hydrodynamic Focusing: *Henry Young*[1]; Murali Gorantla[1]; Sonya Boone[1]; Chad Clark[1]; Mostafa El-Ashry[1]; [1]Wright State University

9:25 AM
Alumina-Aluminum Titanate-Titania Nanocomposite Coating on 316L Stainless Steel for Biomedical Applications: *Leonardo Rocha*[1]; Samar Kalita[1]; [1]University of Central Florida

9:50 AM
Complex Biocompatible Nitinol Structures Enabled by Reactive Eutectic Brazing with Niobium: *J. W. Foltz*[1]; K. B. Low[1]; J. A. Shaw[2]; D. S. Grummon[1]; [1]Michigan State University; [2]University of Michigan

10:15 AM
Microstructural Development during Gas Tungsten Arc Welding (GTAW) of Silicon and Aluminum Based Transformation Induced Plasticity (TRIP) Steels: *Murugaiyan Amirthalingam*[1]; Marcel Hermans[2]; Ian Richardson[3]; [1]Netherlands Institute for Metals Research; [2]Delft University of Technology; [3]Netherlands Institute for Metals Research/Delft University of Technology

10:40 AM
Effect of CeO2 on the Preparation and Properties of Nickel-Plated Carbon Fiber Reinforced 2024 Alloy Matrix Composites: Tianjiao Luo[1]; *Guangchun Yao*[1]; Linli Wu[1]; Yihan Liu[1]; [1]Northeastern University

11:05 AM
Controlling Aspect Ratio of Aragonite Precipitated Calcium Carbonate at Low Temperature: *Woon Kyoung Park*[1]; Ji Whan Ahn[1]; Choon Han[2]; [1]Korea Institute of Geoscience and Mineral Resources; [2]KwangWoon University

11:30 AM
The Investigation on Bio-Oxidation of Arsenopyrite: *Li Qian*[1]; [1]Central South University

General Abstracts: Materials Processing and Manufacturing Division: Structure/Processing/ Properties Relationships

Sponsored by: The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS/ASM: Computational Materials Science and Engineering Committee, TMS: Global Innovations Committee, TMS: Nanomechanical Materials Behavior Committee, TMS/ASM: Phase Transformations Committee, TMS: Powder Materials Committee, TMS: Process Modeling Analysis and Control Committee, TMS: Shaping and Forming Committee, TMS: Solidification Committee, TMS: Surface Engineering Committee
Program Organizers: Fernand Marquis, Naval Postgraduate School; Ralph Napolitano, Iowa State University; Neville Moody, Sandia National Laboratories

Thursday AM
March 1, 2007
Room: Northern A1
Location: Dolphin Hotel

Session Chair: Stephanie Dean, Life Cycle Engineering

9:00 AM
Reliable and Accurate High-Performance Infrared Sensors for Aluminium and Non-Ferrous Metals Processing: Francois Reizine[1]; *Frank Conte*[1]; [1]American Sensors Corporation

9:25 AM
Reliability Excellence: A Case Study of Success for Commodity-Based Industry: *Paul Campbell*[1]; [1]Alcoa Inc.

9:50 AM
Rapid Assessment of Surface Treatment Effectiveness and Degradation by Direct Field Measurement: *Curtis Rideout*[1]; Scott Ritchie[1]; [1]Positron Systems, Inc.

10:15 AM
Damage and Performance Property Evaluations of Modified Asphalts Produced by a Novel Modification Technology: *Hossein Ajideh*[1]; Bryan Burris[2]; Hussain Bahia[3]; James Earthman[4]; [1]University of California, Irvine; [2]Petrochem Manufacturing, Inc.; [3]University of Wisconsin-Madison ; [4]Henry Samueli School of Engineering, University of California

11:05 AM
Surface Modification through CBN Cutting Tool in High Speed Machining: *Venkata Mandava*[1]; G. Janardhan[1]; Ramesh Nunna[2]; [1]Jawaharlal Nehru Technological University; [2]Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology

10:40 AM
Effect of Pre, Post Heat Treatment and also Wire on Mechanical Properties of AISI4130 Steels Welded by TIG Process: *Ali Emamian*[1]; [1]TWI

11:30 AM
Performance Characteristics of Superalloy Materials for High Temperature Resistance to the Hot Zone Components of Gas Turbine with F-Technology: *Ramarao Adapa*[1]; N. D. Reddy[2]; V. K. Sharma[3]; [1]GRIET; [2]Osmania University; [3]Jawaharlal Nehru Technological University

General Abstracts: Structural Materials Division: Nickel Alloys and High Temperature Materials II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Composite Materials Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS: High Temperature Alloys Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS/ASM: Nuclear Materials Committee, TMS: Product Metallurgy and Applications Committee, TMS: Refractory Metals Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Titanium Committee
Program Organizers: Rollie Dutton, US Air Force; Ellen Cerreta, Los Alamos National Laboratory

Thursday AM
March 1, 2007
Room: Europe 5
Location: Dolphin Hotel

Session Chair: Rollie Dutton, US Air Force

9:00 AM Introductory Comments

9:10 AM
Characterization of a Cobalt-Based Powder Alloy Laser Deposited on H-13 Hot Die Forging Tools: James Sears[1]; Jerrod Roalstad[1]; *Sudip Bhattacharya*[1]; Aaron Costello[1]; Stanley Howard[1]; [1]South Dakota School of Mines and Technology

9:30 AM
Erosion-Oxidation Behavior of Steels and HVOF Sprayed Ni20Cr, WC-20Cr7Ni and Cr3C2 -Ni20Cr Coatings: *Lalgudi Ramanathan*[1]; Olandir Correa[1]; Clarice Kunioshi[1]; Stela Fernandes[1]; [1]Instituto de Pesquisas Energéticas Nucleares - IPEN

9:50 AM
Life Assessments and the Safe Refurbishment of GTD-111 Components: *Zengmei Koenigsmann*[1]; [1]Chromalloy

10:10 AM
Non-Contact Measurement of the Creep of Niobium at 1985°C: Jonghyun Lee[1]; *Robert Hyers*[1]; Jan Rogers[2]; Thomas Rathz[3]; James Wall[4]; Hahn Choo[4]; Peter Liaw[4]; [1]University of Massachusetts; [2]NASA MSFC; [3]University of Alabama; [4]University of Tennessee

10:30 AM Break

10:50 AM
Thermal Stability of Newly Developed Ni-Base Superalloy Allvac® 718Plus®: *Wei-Di Cao*[1]; Erin McDevitt[1]; Richard Kennedy[1]; [1]ATI Allvac

11:10 AM
Welding Ni Base Single Crystal Alloys: Microstructure Integrity to Enhance Mechanical Properties: *Zengmei Koenigsmann*[1]; [1]Chromalloy

General Abstracts: Structural Materials Division: Processing and Properties of Light Metals

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Advanced Characterization, Testing, and Simulation Committee, TMS: Alloy Phases Committee, TMS: Biomaterials Committee, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Composite Materials Committee, TMS/ASM: Corrosion and Environmental Effects Committee, TMS: High Temperature Alloys Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS/ASM: Nuclear Materials Committee, TMS: Product Metallurgy and Applications Committee, TMS: Refractory Metals Committee, TMS: Superconducting and Magnetic Materials Committee, TMS: Titanium Committee
Program Organizers: Rollie Dutton, US Air Force; Ellen Cerreta, Los Alamos National Laboratory

Thursday AM
March 1, 2007
Room: Europe 6
Location: Dolphin Hotel

Session Chair: Jay Tiley, Air Force Research Laboratory

9:00 AM Introductory Comments

9:10 AM
New Techniques for Detecting Early Fatigue Damage Accumulation in Aircraft Structural Components: *Curtis Rideout*[1]; David White[1]; [1]Positron Systems, Inc.

9:30 AM
The Role of Interstitials on the Dynamics of Deformation Twinning: Paul Oberson[1]; *Sreeramamurthy Ankem*[1]; [1]University of Maryland

9:50 AM
Application of Ultrasonic Nano-Crystalline Surface Modification on Structure and Fatigue Characteristics of Ti-6Al-4V Alloy: *Chang Lee*[1]; Young Pyoun[1]; In Park[1]; Jyung Park[1]; In Cho[1]; Chan Seok[1]; Jung Hong[1]; [1]Sun Moon University

10:10 AM
Fatigue Crack Initiation in an $\alpha + \beta$ Titanium Alloy at Ultrasonic Frequencies: *Christopher Szczepanski*[1]; Wayne Jones[1]; [1]University of Michigan

10:30 AM
Effect of Joint Strength on the Compressive Properties of Periodic Cellular Metals Fabricated by Resistance Brazing: *Eral Bele*[1]; Glenn Hibbard[1]; [1]University of Toronto

10:50 AM Break

11:10 AM
Tribological Performance of Boronized Ti6Al4V Alloy against Si3N4 Ball: *Erdem Atar*[1]; Huseyin Cimenoglu[1]; Eyup Kayali[2]; [1]Gebze Institute of Technology; [2]Istanbul Technical University

11:30 AM
Wear Behaviour of Al7075–50vol% SiCp Composites: *Eyup Kayali*[1]; Harun Mindivan[1]; Huseyin Cimenoglu[1]; [1]Istanbul Technical University

11:50 AM
Structural Behavior and Pressure Cycling Effect Studies of Li-Based Complex Hydrides: *Wen-Ming Chien*[1]; Joshua Lamb[1]; Dhanesh Chandra[1]; [1]University of Nevada - Reno

12:10 PM
Study on Preparation Technique of Pure Al Matrix Foam: Li Bing[1]; Yao Guang-Chun[1]; Wang Yong[1]; [1]Northeastern University of China

12:30 PM
The Effect of Grain Boundary Character Distribution on the Stress Corrosion Cracking Susceptibility of 2124 Aluminum Alloy: *Lisa Chan*[1]; Anthony Rollett[1]; Gregory Rohrer[1]; Hasso Weiland[2]; Soonwuk Cheong[2]; [1]Carnegie Mellon University; [2]Alcoa Technical Center

Innovations in Electrometallurgy: Session II

Sponsored by: The Minerals, Metals and Materials Society, TMS Extraction and Processing Division
Program Organizers: Adam Powell, Veryst Engineering LLC; Michael Free, University of Utah

Thursday AM Room: Oceanic 5
March 1, 2007 Location: Dolphin Hotel

Session Chair: Adam Powell, Veryst Engineering LLC

9:00 AM Invited
Electrochemical Reactors for Metal Recovery from Aqueous Halide Electrolyte Solutions: Chun-yee Cheng[1]; Richard Dawson[1]; *Geoff Kelsall*[1]; Anna Robson[1]; [1]Imperial College London

9:30 AM
An Examination of Ferric Ion Reduction in Sulfate Based Copper Electrowinning Electrolyte: Ravindra Bhide[1]; Jinshan Li[1]; *Michael Free*[1]; J. Miller[1]; J. Brent Hiskey[2]; [1]University of Utah; [2]University of Arizona

9:55 AM
The Effect of Organic Additive Properties on Morphology of Copper Electrodeposits from Halide Media: *Aphichart Rodchanarowan*[1]; [1]University of Utah

10:20 AM
Sn(II) Formation by Galvanostatic Electrolysis and Dissolution from Hydrochloric Acid Solution Containing High Concentrations of In(III) and Sn(IV): *Kazuya Koyama*[1]; Mikiya Tanaka[1]; Shinji Fujiwara[2]; Kunio Saegusa[2]; [1]National Institute of Advanced Industrial Science and Technology; [2]Sumitomo Chemical Company, Ltd

Innovations in Titanium Technology Symposium: Microstructure and Properties II

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Titanium Committee
Program Organizers: Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory; F. H. (Sam) Froes, University of Idaho

Thursday AM Room: Asia 3
March 1, 2007 Location: Dolphin Hotel

Session Chairs: Ibrahim Ucok, Concurrent Technologies Corporation; Catherine Wong, Naval Surface Warfare Center

9:00 AM Invited
Crack Growth, Microstructure and Texture in Ti-6Al-4V: David Dye[1]; *Ioannis Bantounas*[1]; Trevor Lindley[1]; [1]Imperial College

9:30 AM
Contribution of Environmental and Mean Stress Sensitivities to the Fatigue Performance of Mechanically Surface Treated Titanium Alloys: *Marcin Kocan*[1]; Lothar Wagner[1]; [1]Clausthal University of Technology

9:50 AM
Probabilistic Sensitivity Analysis of the Life-Limiting Mechanism in an α+β Titanium Alloy and Application to Fatigue Life Prediction: *Sushant Jha*[1]; Harry Millwater[2]; James Larsen[3]; [1]Universal Technology Corporation; [2]University of Texas, San Antonio; [3]US Air Force

10:10 AM
The Mean vs. Life-Limiting Behavior in Fatigue of an α+β Titanium Alloy: *Sushant Jha*[1]; James Larsen[2]; Reji John[2]; Andrew Rosenberger[2]; [1]Universal Technology Corporation; [2]US Air Force

10:30 AM Break

10:45 AM
High Temperature Oxidation of Ti3Al-4at%Nb Alloys: *Chris Williams*[1]; Ramana Reddy[1]; [1]University of Alabama

11:10 AM
Confocal Raman and AFM Evaluation of TiN Coatings Produced via Different Techniques: *Ali Arslan Kaya*[1]; Selda Ucuncuoglu[1]; Kerim Allahverdi[1]; [1]TUBITAK-Marmara Research Center

11:30 AM
Some Engineering Aspects of Thermohydrogen Treatment of Large Complex Titanium Alloy Castings: *Guoping Cao*[1]; Hai Nan[2]; Chengmu Xie[2]; [1]University of Wisconsin; [2]Beijing Institute of Aeronautical Materials

11:50 AM
High Temperature Behavior of Ultra-Fine Structured Ti(Al,O)/Al2O3 Composite Consolidated by Spark Plasma Sintering: *Jing Liang*[1]; Deliang Zhang[2]; Wei Gao[3]; L. G. Yu[4]; K. A. Khor[4]; [1]Titanox Development Ltd; [2]University of Waikato; [3]University of Auckland; [4]Nanyang Technological University

12:10 PM
Flame Spray Welding of NiCrBSi Powder Alloy on Titanium Alloy Substrate: *Xiaojing Xu*[1]; [1]Jiangsu University

Magnesium Technology 2007: Corrosion and Coatings

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Thursday AM Room: Southern 4
March 1, 2007 Location: Dolphin Hotel

Session Chairs: Eric Nyberg, Pacific Northwest National Laboratory; Robert McCune, Ford Motor Company

9:00 AM
The Influence of De-Icing Salts on Corrosion of Mg Alloys: Okechukwu Anopuo[1]; Carsten Blawert[1]; *Norbert Hort*[1]; Karl Kainer[1]; [1]GKSS Research Center

9:20 AM
Characterisation of the Corrosion Behaviour of Mg and Its Alloys with the Mini Cell System: *Claudia Fleck*[1]; M. Lucia Nascimento[1]; Wolf-Dieter Mueller[2]; [1]Technical University of Berlin; [2]Charité Berlin

9:40 AM
Corrosion and Microstructural Characterization of a Calcium-Containing Creep-Resistant Magnesium Alloy: *Yar-Ming Wang*[1]; Bob Powell[1]; Dusanka Radovic[1]; Vadim Rezhets[1]; Mridula Bharadwaj[1]; [1]General Motors Corporation

10:00 AM
Corrosion Behavior of AM50 Produced by Die Casting and Rolling: *Amir Eliezer*[1]; Paul Krajewski[2]; Adi Ben-Artzy[3]; Nir Moskovich[4]; [1]Sumi Shumoon College of Engineering; [2]General Motors Corporation; [3]Rotem Industries Ltd; [4]Dead Sea Magnesium Ltd.

10:20 AM
Boron-Based Lubricants for Magnesium in Transportation and Manufacturing Applications: *Ali Erdemir*[1]; Oyelayo Ajayi[1]; George Fenske[1]; [1]Argonne National Laboratory

10:40 AM Break

11:00 AM
Zinc-Calcium-Manganese Phosphate Chemical Conversion-Coating Treatment for Magnesium Alloys: Yongfeng Jiang[1]; *Yefeng Bao*[1]; [1]Hohai University

11:20 AM
Influence of Pulse Frequency on Plasma Electrolytic Oxidation Processes of Mg Alloy Surface: *Zhenmin Liu*[1]; Tian Qiu[1]; Wei Gao[1]; [1]University of Auckland

11:40 AM
Surface Modification of Magnesium by Micro Arc Oxidation: *Murat Baydogan*[1]; Mert Gunyuz[1]; Huseyin Cimenoglu[1]; Eyup Kayali[1]; [1]Istanbul Technical University

12:00 PM
Coating Adhesion for Mg Alloy ZE41A: *Richard Griffin*[1]; David Zuniga[1]; Milli Datta[1]; [1]Texas A&M University

12:20 PM
Infrared Proximity Sensor for Nondestructive Evaluation of an Environmentally Friendly Conversion Coating for Magnesium Alloys: *David Zuniga*[1]; Richard Griffin[1]; [1]Texas A&M University

Magnesium Technology 2007: Microstructure and Properties

Sponsored by: The Minerals, Metals and Materials Society, TMS Light Metals Division, TMS: Magnesium Committee
Program Organizers: Randy Beals, DaimlerChrysler; Neale Neelameggham, US Magnesium LLC; Mihriban Pekguleryuz, McGill University; Alan Luo, General Motors Corporation

Thursday AM — Room: Southern 5
March 1, 2007 — Location: Dolphin Hotel

Session Chairs: Norbert Hort, GKSS; Neale Neelameggham, US Magnesium LLC

9:00 AM
Measurement of Hall-Petch Constants in Pure Mg: *Gemma Mann*[1]; Carlos Caceres[1]; John Griffiths[2]; [1]University of Queensland; [2]CSIRO

9:20 AM
3D Characterization of Beta-Phases AZ91D cy Synchrotron-Radiation Based Microtomography: Frank Witte[1]; Jens Fischer[2]; Michael Störmer[2]; *Norbert Hort*[2]; [1]Hannover Medical School; [2]GKSS Research Center

9:40 AM
Threshold Stress during Tensile and Compressive Creep in AE42 Magnesium Alloy: *Hajo Dieringa*[1]; Norbert Hort[1]; Karl Ulrich Kainer[1]; [1]GKSS Research Center

10:00 AM
Analysis of the Creep Response of the AE44 Magnesium Alloy between 100 and 150°C: *Enrico Evangelista*[1]; Stefano Spigarelli[1]; Mohamad ElMehtedi[1]; Marcello Cabibbo[1]; [1]University of Ancona

10:20 AM
Creep Behavior of Permanent Mold Cast Mg-Al-Ca Based Alloys: *Nicholas Saddock*[1]; Akane Suzuki[1]; Jessica TerBush[1]; Tresa Pollock[1]; Wayne Jones[1]; [1]University of Michigan

10:40 AM Break

11:00 AM
Microstructure Study of Pure Mg and Mg-Al at Various Stages of Creep Using EBSD: *Takanori Sato*[1]; Barry Mordike[2]; Jian-Feng Nie[3]; Milo Kral[1]; [1]University of Canterbury; [2]Institut für Werkstoffkunde und Werkstoftechnik, TU Clausthal; [3]Monash University

11:20 AM
Microstructure and Hardness of Mg-Sn-Zn Alloys with Various Heat Treatments: *Taisuke Sasaki*[1]; Keiichiro Ohishi[2]; Tadakatsu Ohkubo[2]; Toshiji Mukai[2]; Kazuhiro Hono[2]; [1]University of Tsukuba; [2]National Institute for Materials Science

11:40 AM
Aging Characteristics and Mechanical Properties of Cast and Wrought Mg-11Gd-2Nd-0.5Zr Alloys: Kaiyun Zheng[1]; Jie Dong[1]; Xiaoqin Zeng[1]; Wengjiang Ding[1]; [1]Shanghai Jiao Tong University

12:00 PM
Microstructural Investigations of Mg-Al Alloys Containing Small Amounts of SiC Nucleants: *Yuanding Huang*[1]; Norbert Hort[1]; Okechukwu Anopuo[1]; Gabriele Vidrich[2]; Andreas Schiffl[3]; Yi-Lin Liu[4]; [1]GKSS Research Centre; [2]Clausthal University of Technology; [3]ARC Leichtmetallkompetenzzentrum Ranshofen GmbH; [4]Risø National Laboratory

12:20 PM
The Microstructural Evolution of Hot Worked and Annealed Magnesium Alloys: *Aiden Beer*[1]; Matthew Barnett[1]; [1]Deakin University

12:40 PM
Mechanical Properties and Texture of Hot Extruded Magnesium Alloys via RCP Process in Using Coarse Raw Powder: *Katsuyoshi Kondoh*[1]; Kenshi Kawabata[1]; Hideki Oginuma[1]; [1]Osaka University

Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies: Materials for Solar Cells and Photovoltaic Systems

Sponsored by: The Minerals, Metals and Materials Society, ASM International, TMS Structural Materials Division, TMS/ASM: Corrosion and Environmental Effects Committee
Program Organizers: Zhenguo "Gary" Yang, Pacific Northwest National Laboratory; Michael Brady, Oak Ridge National Laboratory; K. Scott Weil, Pacific Northwest National Laboratory; Yong-Ho Sohn, University of Central Florida

Thursday AM — Room: Asia 2
March 1, 2007 — Location: Dolphin Hotel

Session Chairs: Beatriz Roldan Cuenya, University of Central Florida; Prabhat Kumar, HC Starck Inc

9:00 AM Invited
Routes to Formation of $CuIn_xGa_{1-x}Se_2$ Thin Film Absorbers for Photovoltaics: *Timothy Anderson*[1]; Woo Kyoung Kim[1]; Suku Kim[1]; Seokhyun Yoon[1]; Chih-Hung Chang[2]; Jianyun Shen[1]; E. Andrew Payzant[3]; [1]University of Florida; [2]Oregon State Unversity; [3]Oak Ridge National Laboratory

9:35 AM
Electrical and Structural Properties of Nanocrystalline Silicon Intrinsic Layers for Nanocrystalline Silicon Solar Cells Prepared by Very High Frequency Plasma Chemical Vapor Deposition: *Prabhat Kumar*[1]; Feng Zhu[1]; Josh Gallon[2]; Arun Madan[3]; [1]Colorado School of Mines; [2]MVSystems Inc.; [3]MVSystems Inc. and Colorado School of Mines

10:00 AM
Novel Materials for Use as Photoelectrodes for Hydrogen Production in Photoelectrochemical Cells: *Alex Stavrides*[1]; Augusto Kunrath[1]; Jian Hu[1]; Richard Treglio[2]; Ari Feldman[2]; Bjorn Marsen[3]; Brian Cole[3]; Eric Miller[3]; Arun Madan[1]; [1]MVSystems, Inc.; [2]Colorado School of Mines; [3]Hawaii Natural Energy Institute

10:25 AM
Novel Titania Based Photo Anodes with Increased Photo Catalytic Activity for Water Splitting: *Vishal Mahajan*[1]; Krishnan Raja[1]; Manoranjan Misra[1]; [1]University of Nevada

10:45 AM
Preparation of Highly Efficient Nanocrystallized Photocatalysts for the Production of Hydrogen from a Solar Powered Thermochemical Water Splitting Cycle: *Cunping Huang*[1]; Nazim Muradov[1]; Ali T-Raissi[1]; [1]Florida Solar Energy Center

Materials Processing under the Influence of External Fields: Session V

Sponsored by: The Minerals, Metals and Materials Society, TMS: Aluminum Committee, TMS: Magnesium Committee, TMS: Solidification Committee
Program Organizers: Qingyou Han, Oak Ridge National Laboratory; Gerard Ludtka, Oak Ridge National Laboratory; Qijie Zhai, Shanghai University

Thursday AM
March 1, 2007
Room: America's Seminar
Location: Dolphin Hotel

Session Chairs: Edward Ripley, BWXT Y-12 National Security Complex; Dinesh Agrawal, Pennsylvania State University

9:00 AM Introductory Comments

9:05 AM Invited
"Who Says You Can't Microwave a Fork?" - Microwaving Metal Processing at Y-12: *Edward Ripley*[1]; [1]BWXT Y-12 National Security Complex

9:35 AM
On the Effect of Applied Microwave Energy on the C-Co-W Phase Diagram: *Michael Gao*[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

10:00 AM Invited
Atmoplas™: A New Microwave Process: *Satyendra Kumar*[1]; D. Kumar[1]; R. Peelamedu[1]; M. Demchak[1]; D. Seccombe[1]; [1]BTU International

10:30 AM Invited
Materials Processing in Microwave E and H Fields: *Dinesh Agrawal*[1]; Jiping Cheng[1]; Y. Fang[1]; R. Roy[1]; [1]Pennsylvania State University

11:00 AM Break

11:10 AM Invited
Steel Production with Microwave Assisted Electric Arc Furnace Technology: *Jiann-Yang Hwang*[1]; Xiaodi Huang[1]; Shangzhao Shi[1]; [1]Michigan Technological University

11:40 AM
A Review of Materials Processing in Microwave Systems: *Holly Shulman*[1]; [1]Ceralink Inc

12:10 PM
Microstructure Prediction and Experiment for Aluminium Alloy 2014 during Hot Ring Rolling Process: *Jian Lan*[1]; Lin Hua[1]; [1]Wuhan University of Technology

12:35 PM
Study on Microstructure Evolution of Aluminium Alloy 2014 Conical Ring in Hot Rolling: *Hua Lin*[1]; Jia Gengwei[1]; [1]Wuhan University of Technology

1:00 PM
Study on Fracture of Aluminium Alloy 2014 Conical Ring in Hot Rolling under Different Temperature: Jia Wei[1]; *Hua Lin*[1]; [1]Wuhan Unversity of Technology

Microstructural Processes in Irradiated Materials: Defect Clusters and Fundamental Radiation Effects

Sponsored by: The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS/ASM: Nuclear Materials Committee
Program Organizers: Charlotte Becquart, University of Lille; Gary Was, University of Michigan; Brian Wirth, University of California

Thursday AM
March 1, 2007
Room: Europe 8
Location: Dolphin Hotel

Session Chairs: To Be Announced

9:00 AM
Dynamics of Nanometer-Sized Interstitial-Type Dislocation Loops in Iron by In Situ TEM: *Kazuto Arakawa*[1]; Hirotaro Mori[1]; [1]Osaka University

9:35 AM
TEM Characterization of Defects in Fe: A Simulation Point of View: *Robin Schaeublin*[1]; Amuthan Ramar[1]; Ari Harjunmaa[2]; [1]Centre de Recherches en Physique des Plasmas-Ecole Polytechnique Federale de Lausanne; [2]University of Helsinki

9:55 AM
Vacancy and Vacancy Cluster Properties in bcc Transition Metals Investigated by Density Functional Theory: Charlotte Becquart[1]; *Christophe Domain*[2]; [1]LMPGM, UMR 8517; [2]EDF

10:15 AM
Self-Interstitial Defects in hcp Metals from First Principles: New Structures and Migration Paths: *Guillaume Vérité*[1]; François Willaime[1]; Chu Chun Fu[1]; [1]CEA Saclay

10:35 AM Break

10:50 AM
The Effect of Interface Structure on the Reduction of Radiation Damage in CuNb Multilayers: *Michael Demkowicz*[1]; Richard Hoagland[1]; Amit Misra[1]; Yun-Che Wang[1]; [1]Los Alamos National Laboratory

11:10 AM
Grain Growth in Nanocrystalline Metal Thin Films under In Situ Ion-Beam Irradiation Viewed as a Thermal Spike Phenomenon: Experiment vs. Theory: *Djamel Kaoumi*[1]; A. Motta[1]; R. Birtcher[2]; [1]Pennsylvania State University; [2]Argonne National Laboratory

11:30 AM
Molecular Dynamics Simulation of Radiation Damage in Uranium Dioxide: *Taku Watanabe*[1]; Srinivasan Srivilliputhur[2]; Susan Sinnott[1]; Blas Uberuaga[2]; James Tulenko[3]; Robin Grimes[4]; Marius Stan[2]; Stuart Maloy[2]; Simon Phillpot[1]; [1]Department of Materials Science and Engineering, University of Florida; [2]Los Alamos National Laboratory; [3]Department of Nuclear and Radiological Engineering, University of Florida; [4]Department of Materials, Imperial College

11:50 AM
A Modified Hard-Sphere Model for the Viscosity of Irradiated U-Si and U-Al Alloys: *Jeffrey Rest*[1]; [1]Argonne National Laboratory

12:10 PM
Influence of Delta-Phase Metastability on the Radiation Damage Properties of Plutonium-Gallium Alloys: *Steven Valone*[1]; Michael Baskes[1]; Richard Martin[2]; [1]Los Alamos National Laboratory/MST-8; [2]Los Alamos National Laboratory/T-12

Structural Materials Division Symposium: Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch: Microstructure and Mechanical Properties of Nanostructured Materials

Sponsored by: The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Chemistry and Physics of Materials Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Xinghang Zhang, Texas A&M University; Yuntian Zhu, Los Alamos National Laboratory; Michael Rigsbee, North Carolina State University; C. Suryanarayana, University of Central Florida; Haiyan Wang, Texas A&M University; C. T. Liu, Oak Ridge National Laboratory

Thursday AM
March 1, 2007

Room: Asia 5
Location: Dolphin Hotel

Session Chairs: Xinghang Zhang, Texas A&M University; Donald Brenner, North Carolina State University

9:00 AM Invited
Response of Sub-Nanometer Structures in Metallic Glass to Pressure and Stresses: *Evan Ma*[1]; [1]Johns Hopkins University

9:20 AM
Microstructure and Properties of Vacuum Hot Pressing SiC/TiCuNiSn Bulk Nanocomposites: *Pee-Yew Lee*[1]; Chia-Chun Wu[1]; [1]National Taiwan Ocean University

9:35 AM
Synthesis of High-Density Refractory Metal/Metallic Glass Nano-Composites: *Dan Sordelet*[1]; Min Ha Lee[1]; Ryan Ott[1]; [1]Ames Laboratory

9:50 AM Invited
Deformation-Induced Grain Agglomeration in Nanocrystalline Ni: *Scott Mao*[1]; Zhiwei Shan[1]; Jörg Wiezorek[2]; James Knapp[3]; David Follstaedt[3]; Eric Stach[4]; [1]Mechanical Engineering, University of Pittsburgh; [2]Materials Science and Engineering, University of Pittsburgh; [3]Sandia National Laboratories; [4]School of Materials Engineering, Purdue University

10:10 AM
Plastic Deformation in Nanocrystalline Ni: *Xiao-Lei Wu*[1]; En Ma[2]; [1]Institute of Mechanics, Chinese Academy of Sciences; [2]Johns Hopkins University

10:25 AM
Microstructural Defects in Shocked Nanocrystalline Ni: *Hussam Jarmakani*[1]; Eduardo Bringa[2]; Marc Meyers[1]; [1]University of California-San Diego; [2]Lawrence Livermore National Laboratory

10:40 AM Break

10:50 AM Invited
Atomic-Continuum Simulations of Metal Contacts under High Electro-Magnetic Stress: *Donald Brenner*[1]; [1]North Carolina State University

11:10 AM
Atomic Modeling of the Influence of Lead Impurities on the Stability, Structure and Mechanical Properties of Three-Dimensional Nanostructured Aluminum: *Yojna Purohit*[1]; Seonhee Jang[1]; Douglas Irving[1]; Clifford Padgett[1]; Ronald Scattergood[1]; Donald Brenner[1]; [1]North Carolina State University

11:25 AM Invited
High Strength and Ductile Bulk Nanostructured Titanium Alloys: *Jurgen Eckert*[1]; [1]Darmstadt University of Technology

11:45 AM
Mechanical Properties of UFG Iron with Non-Equilibrium and Equilibrium Grain Boundaries: *Julia Ivanisenko*[1]; Kejing Yang[2]; Maxim Murashkin[3]; Askar Kilmametov[3]; Ruslan Valiev[3]; Hans Fecht[2]; [1]Forschungszentrum Karlsruhe; [2]Ulm University; [3]Ufa State Aviation Technical University

12:00 PM
Experimental Evidences of Transition Behavior in Nanocrystalline Metals: *Hongqi Li*[1]; Hahn Choo[1]; Fereshteh Ebrahimi[2]; Tarik Saleh[3]; Ulrich Lienert[4]; Peter Liaw[1]; Yang Ren[4]; [1]University of Tennessee; [2]University of Florida; [3]Los Alamos National Laboratory; [4]Argonne National Laboratory

12:15 PM
Cold Spray Deposition of Nanocrystalline Metals and Composites: *Leonardo Ajdelsztajn*[1]; Bertrand Jodoin[2]; Enrique Lavernia[1]; [1]University of California Davis; [2]University of Ottawa

12:30 PM
Functionally Graded Boron-Carbide Nanocomposites for Advanced Armor Applications: *Dustin Hulbert*[1]; Dongtao Jiang[1]; Umberto Anselmi-Tamburini[2]; Amiya Mukherjee[1]; [1]University of California; [2]University of Pavia

12:45 PM Concluding Comments by Carl Koch

General Poster Session

Monday-Wednesday
February 26, 2007 Location: Dolphin Hotel

Al-Cu Joining: Influence of Various Surface Treatments of Al by Laser: *Vamsi Balla*[1]; Amit Bandyopadhyay[1]; [1]Washington State University

Deformation Behavior of 7003 Al Wrought Alloy in the Semisolid State: *Shae Kim*[1]; Young-Ok Yoon[1]; [1]Korea Institute of Industrial Technology

Deformation Behavior of 7075 Al Wrought Alloy in the Semisolid State: *Young-Ok Yoon*[1]; Shae Kim[1]; [1]Korea Institute of Industrial Technology

Development of Trivalent Chromium Plating Electrolyte and Plating Process for Automotive Parts: *Beomsuck Han*[1]; [1]Korea Automotive Technology Institute

Effects of Alumina Additions on Sintering Behavior of $Ce_{0.8}Sm_{0.2}O_{1.9}$ Ceramics Synthesized by Pechini Method: *Joo-Sin Lee*[1]; Kwang-Hoon Choi[1]; Dat Quach[2]; Vladimir Kodash[2]; Joanna Groza[2]; [1]Kyungsung University; [2]University of California

Effects of CaO and Ca on Oxidation and Ignition Resistance of Pure Mg: *Seong-Ho Ha*[1]; Lee Jin Kyu[1]; Hyung-Ho Jo[1]; Shae Kim[1]; [1]Korea Institute of Industrial Technology

Effects of $MgO-Na_2O-P_2O_5$ Doping on Flexural Properties of Beta-Tricalcium Phosphate (ß-TCP) Bioceramics: *Robert Fleming*[1]; Samar Kalita[1]; [1]University of Central Florida

Examination of Thiol Adsorption on Zn-Terminated and O-Terminated ZnO Substrates: *Patrick Sadik*[1]; David Norton[1]; [1]University of Florida

Fabrication and Reliability Evaluation of Au-Sn Flip Chip Solder Joint: *Jeong-Won Yoon*[1]; Hyun-Suk Chun[1]; Ja-Myeong Koo[1]; Seung-Boo Jung[1]; [1]Sungkyunkwan University

Fabrication of Fe Nanoparticles by Direct Electrochemical Reduction from Fe2O3 Nanoparticles: *Won-Kyu Han*[1]; Jung Ho Baik[1]; So Jin Kim[1]; Chung Man Choi[1]; Sung Goon Kang[1]; [1]Hanyang University

Laser Surface Modifications of Alumina Ceramic for Applications in Precision Grinding of Materials: *Sandip Harimkar*[1]; Narendra Dahotre[1]; [1]University of Tennessee

Metal Ion Doped Beta-Tricalcium Phosphate Bioceramic with Improved Properties: *Alton Davenport*[1]; Samar Kalita[1]; [1]University of Central Florida

Microstructural Characteristics and Mechanical Properties of Thixoextruded 2024 Al Wrought Alloy: *Dong-In Jang*[1]; Young-Ok Yoon[1]; Shae Kim[1]; Hyung-Ho Jo[1]; [1]Korea Institute of Industrial Technology

Microstructural Evolution of 7075 Al Wrought Alloy for Thixoextrusion Process: *Young-Ok Yoon*[1]; Dong-In Jang[1]; Shae Kim[1]; Hyung-Ho Jo[1]; [1]Korea Institute of Industrial Technology

Notch Toughness of a Cu-Based Bulk Metallic Glass: *Matthew Freels*[1]; Peter Liaw[1]; Gongyao Wang[1]; [1]University of Tennessee, Knoxville

On the Phase Diagram and Thermodynamics of the Al-Nd-Ni System: A Combined Approach of Experiments, CALPHAD and First-Principles Calculations: *Michael Gao*[1]; Michael Widom[1]; Gary Shiflet[2]; Marek Mihalkovic[1]; [1]Carnegie Mellon University; [2]University of Virginia

Phase Equilibria Study and Thermodynamic Assessment of the Al-Ce-Co System Assisted by First-Principles Energy Calculations: *Michael Gao*[1]; Necip Unlu[2]; Marek Mihalkovic[1]; Michael Widom[1]; Gary Shiflet[2]; [1]Carnegie Mellon University; [2]University of Virginia

Porous Titanium Electrodes for Microbial Fuel Cell (MFC) Applications: David Beeler[1]; Leroy Long[1]; Emily Henderson[1]; Daniel Young[1]; *Raghavan Srinivasan*[1]; [1]Wright State University

Reaction of Co Phase in the WC-Co Coatings with Molten Zinc: Byeog-Geun Seong[1]; Sung-Hee Kwon[2]; Kyoo-Young Kim[3]; *Kee-Ahn Lee*[2]; [1]Research Institute Science & Technology; [2]Andong National University; [3]POSTECH

Recovery of Pd(II) and Pt(IV) Ions by Introducing SCN- Soft Ligand with Tannin Gel: *Yoshio Nakano*[1]; Yeon Ho Kim[1]; [1]Tokyo Institute of Technology

Reprocessing of Silicon Carbide-Based Inert Matrix Fuels: *Soraya Benitez*[1]; Ronald Baney[1]; James Tulenko[1]; [1]University of Florida

Stress Rupture Property of Inconel 718 Alloy: *Ji Soo Kim*[1]; Chong Soo Lee[1]; [1]Pohang University of Science and Technology

Study of Hot Deformation Behavior of Ti-6Al-4V Alloy with Widmanstätten Microstructure by Artificial Neural Networks: N. Reddy[1]; *Chan Hee Park*[1]; [1]Pohang University of Science and Technology

The Effect of Composition of Carbon Fibre on the Mechanical and Morphological Properties of PA6/Carbon Composite: *Albert Ude*[1]; Husna Azhari[1]; [1]National University of Malaysia Bangi

Unique Absorption Features and Determination of the Optical Band Gap of UO_2: Bolko von Roedern[1]; *Thomas Meek*[2]; [1]National Renewable Energy Laboratory; [2]University of Tennessee

X-Ray Absorption near Edge Structure Analysis of Chromium Oxynitride Thin Films: *Jun Inoue*[1]; Tadachika Nakayama[1]; Tsuneo Suzuki[1]; Hisayuki Suematsu[1]; Weihua Jiang[1]; Koichi Niihara[1]; [1]Nagaoka University of Technology

***In-Situ* Chemical Oxidation of Soil Contaminated by Benzene, Lead and Cadmium**: Marcia Bragato[1]; *Jorge Tenorio*[1]; [1]Escola Politecnica-Universidade de Sao Paulo

Development and Validation of High Performance Thick Thermal Barrier Coating (TBC) for Application on Turbine Components: *Gabriele Rizzi*[1]; A. Scrivani[1]; [1]Turbocoating

Development of CVD Overaluminising Method on Different Conicraly Bond Coats Deposited by Low Pressure Plasma Spray (LPPS), High Velocity Oxygen Fuel (HVOF) and Air Plasma Spray (APS): *Gabriele Rizzi*[1]; A. Scrivani[1]; [1]Turbocoating

Self-Organized Periodic Array of Single Crystal Oxide Nano Islands: *L. Zimmerman*[1]; Michael Rauscher[1]; S. Dregia[1]; J. Lee[1]; S. Akbar[1]; [1]Ohio State University

A

Abbaschian, R 42
Abdel, E 101
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