



TMS2013

142nd Annual Meeting & Exhibition

**March 3-7, 2013 • Henry B. Gonzalez Convention Center
San Antonio, Texas, USA**

Technical Program

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2013 Young Leader Meet the Candidate Poster Session

Sponsored by: TMS: Young Leaders Committee

Program Organizers: Kinga Unocic, ORNL; Dongwon Shin, Oak Ridge National Laboratory; Dwayne Shirley, Texas Instruments, Inc.

Sunday PM
March 3, 2013

Room: 213 A&B
Location: Henry B. Gonzalez
Convention Center

Materials Master Student Looks for a Full-time Engineer Job: *Shuai Wan*¹; ¹Queen's University

Liquid Metal Batteries for Large Scale Energy Storage Applications: *Hojong Kim*¹; Donald Sadoway¹; ¹MIT

Computational Approaches for Multi-scale Design of Magnetostrictive Alloys *Galfenol: Abhishek Kumar*¹; ¹Aerospace Department

Nanomechanical Properties of Sulfonated Poly(Styrene-Isobutylene-Styrene) Triblock Copolymers: *Omar Movil-Cabrera*¹; ¹University of Puerto Rico - Mayaguez

Novel Methods of Synthesis of Metal Oxide Nanoparticles: *Sarah Kendrick*¹; ¹Material Advantage Clemson University

Dr Jennifer M R Tilley MEng (Hons) (Oxon) DPhil (Oxon): *Jennifer Tilley*¹; ¹University of Notre Dame

Modeling and Simulations for Quantitative Analyses: *Amy Wang*¹; ¹University of Antwerp

Understanding Protective Film Formation by Magnesium Alloys: *Hassan Elsentriecy*¹; Kinga Unocic¹; Michael Brady¹; Guang Ling Song¹; Harry Meyer III¹; James Keiser¹; Lawrence Anovitz¹; Gernot Rother¹; Jeffery Thomson¹; Mostafa Fayek²; Bruce Davis³; ¹Oak Ridge National Laboratory; ²University of Manitoba; ³Magnesium Elektron North America

Alloy Design and High Temperature Properties in TiAlNb(Cr,Mo) Alloys: *Glenn Bean*¹; ¹University of Florida

Investigation of Electromagnetic Acoustic Transduction-Based Processing of Mg Alloy Metal Matrix Nanocomposites: *Hunter Henderson*¹; ¹University of Florida

Carbon Encapsulated Platinum Nanoparticles: Growth, Characterization, and Applications: *Junchi Wu*¹; Nitin Chopra¹; ¹The University of Alabama

Graduate Student Looking for Post-doctoral Career Opportunities: *Chih-Pin Chuang*¹; ¹University of Tennessee

Investigations of Abnormal Grain Growth Phenomena: *Nicholas Pedrazas*¹; ¹University of Texas at Austin

Mechanics and Geometry in Soft Matter: from Morphogenesis to Bio-inspired Technology: *Zi Chen*¹; ¹Washington University in St. Louis

Microstructurally-Driven Materials Design of Magnesium Alloys: *Zachary Bryan*¹; ¹University of Florida

Systems Design of Smart, Multifunctional Materials by Integrating Computational Tools with Multiscale Characterization Methods: *Derek Hsen Dai Hsu*¹; ¹University of Florida

Tackling the Small Questions: *Julian Rosalie*¹; ¹National Institute for Materials Science

The Direct Production of Low Cost Titanium Powder from Magnesium Powder and Titanium Tetrachloride: *Amin Oliazadeh*¹; ¹Queen's University

Toughening in Shape Memory Alloy Reinforced Epoxy and Metal Matrix Composites: *Fatmata Barrie*¹; ¹University of Florida

Understanding the Deformation Behavior of Structural Metals and Alloys: *Aravindha Antoniswamy*¹; ¹University of Texas at Austin

2013 Functional Nanomaterials: Synthesis, Properties and Applications: Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Nanomaterials Committee

Program Organizers: Seong Jin Koh, University of Texas at Arlington; Nitin Chopra, University of Alabama; Jiyoung Kim, University of Texas at Dallas; Yuanbing Mao, University of Texas-Pan American; Ashwin Ramasubramaniam, University of Massachusetts; Gregory Thompson, University of Alabama

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -
Location: Henry B. Gonzalez
Convention Center

Funding support provided by: Qualcomm, Inc.

J-1: Development of CeO₂-yttria Stabilized Zirconia Nano Composite Electrolytes for Solid Oxide Fuel Cells: *Alka Gupta*¹; Shobit Omar¹; kantesh Balani¹; ¹I.I.T. Kanpur

J-2: Increased Efficiency of Organic Bulk Heterojunction Solar Cells on Flexible Substrates: *Hyung Woo Choi*¹; Barry O'Brian¹; Yong Kyun Lee¹; N Theodore²; T. Alford¹; ¹Arizona State University; ²Freescale Semiconductor Inc.

J-3: Influence of Deposition Condition on the Crystallinity and Hydrogen Storage Properties of Mg Thin Films: *Byoungsoo Ham*¹; Daniel Bufford¹; Xinghang Zhang¹; ¹Texas A&M University

J-4: Interfacial Growth of Polyaniline Nanofibers and Nanoparticles between Graphite Oxide Layers toward Electrochemical Energy Storage: *Jiahua Zhu*¹; Minjiao Chen¹; Suying Wei¹; Zhanhu Guo¹; ¹Lamar University

J-5: Three-Dimensional Oxide Core@shell Nanostructured Array for Electrochemical Energy Storage: *Xing Sun*¹; Yuanbing Mao¹; ¹University of Texas Pan-America

J-6: Magnetic Iron Oxide Nanoparticles Stabilized by Maleic Anhydride Grafted Polypropylene: *Qingliang He*¹; Suying Wei¹; Zhanhu Guo¹; ¹Lamar University

J-7: Magnetic Polystyrene Nanocomposites Reinforced with Iron Oxide Nanoparticles: *Xingru Yan*¹; Xi Zhang¹; Hongbo Gu¹; Suying Wei¹; Zhanhu Guo¹; ¹Lamar University

J-8: Magnetoresistive Conductive Polyaniline - Barium Titanate Nanocomposites with Negative Permittivity: *Xi Zhang*¹; Zhanhu Guo¹; Suying Wei¹; ¹Lamar University

J-9: Band Gap Narrowing of CdO Powder by Rare Earth Praseodymium Doping: *H.-Y. He*¹; ¹Shaanxi University of Science and Technology

J-10: Effect of the Heat Input on the Transformation of Retained Austenite on Transformation Induced Plasticity Steel TRIP Welded with Gas Metal Arc Welding Process for Automotive Parts: *Victor Lopez*¹; Saul Reyes; Gladys Perez¹; Arturo Reyes¹; Patricia Zambrano¹; Joaquin del prado¹; ¹Corporacion Mexicana de Investigacion en Materiales

J-11: Characterizing Structure of Ag Nanoparticles Buried inside Si and Accompanying Strain-relief Mechanism in Si by High Resolution TEM and RBS Channeling Analysis: *Michael Martin*¹; ¹Texas A&M University

J-12: Composition Analysis of Co-Doped Light-Emitting Polymer Nanocomposites: *Gail Moruza*¹; Hillary Benedict¹; Spencer Waizecker²; Kyle Gipson¹; ¹James Madison University; ²University of Virginia

J-13: Effect of Co Substitution on Microwave Absorption of BaFe₂O₁₉: *Abhishek Chauhan*¹; Vijaya Agrawala¹; Dharmendra Singh¹; ¹IIT Roorkee

J-14: Effect of Thickness on Optical Properties of ZnO:Al Nanofilms: *Dinesh Madhup*¹; Shanker Chimouriya¹; ¹NANOLAB

J-15: Effect of Various Compounds on the Nano-Structured Framework of Calcium Silicate: *Ozgul Taspinar*¹; Tugce Buyukyilmaz¹; Ayfer Altmisoglu¹; ¹Istanbul Technical Univ.

J-16: Green Catalyst of Nano Zirconia Doped ZnO: Synthesis, Characterization and Photo-Mineralization Under Visible Light: *Sudarkodi Raman*¹; Veena Ragupathy¹; Srimathi Krishnaswamy¹; Senthil S. Kumaar²; Ganapathi N. Subramanian³; Kang T.W³; ¹CENCON, Hindustan University; ²Advanced Materials Research Centre; ³QSRC, Dongguk University

J-17: Influence of the Clay Tipe, the Velocity and Time of Stirring on the Properties of Diverse Organophilic Clays: Francisco Mondelo Garcia¹; Liaqat Shah¹; Fabio Almeida¹; José Valín Rivero¹; Maria de Silva Valenzuela¹; *Francisco Valenzuela Diaz*¹; ¹Universidade de Sao Paulo

J-18: Photoluminescence in Quantum Nanoparticles of Indirect Gap Materials: *Karel Kral*¹; Miroslav Mensik²; ¹Inst. Phys. ASCR, v.v.i.; ²Institute of Macromolecular Chemistry, ASCR, v.v.i.

J-19: Photocatalytic Degradation of TOC by Fe₂O₃/TiO₂ Coated on Light Ceramic: *Ju Hua*¹; ¹Harbin Institute of Technology

J-20: Understanding the Size Control Mechanism for Pt/C Catalysts Made Using the Polyol Method: Pablo Favilla¹; Jorge Acosta¹; *Carlos Schvezov*²; Daniel Sercovich³; Juan Collet-Lacoste³; ¹CEDIT - CONICET; ²University of Misiones; ³National Atomic Energy Commission

J-21: Photoluminescence Properties of Hierarchical YBO₃:Eu³⁺ Nanostructures: *Sandeep Sohal*¹; Xianwen Zhang¹; Archis Marathe¹; V. V Kuryatkov¹; Marauo Davis¹; Louisa J Weeks¹; Jharna Chaudhuri¹; Mark Holtz¹; ¹Texas Tech University

J-22: Response of Nanoporous Palladium Thin Films to Hydrogen Gas: *Xu Jiang*¹; T. John Balk¹; ¹University of Kentucky

J-23: Applying Nano Technology To Remove Toxic H₂S Gase Compounds From Exuast Gases In Primary Aluminum Industry (Monte Carlo Simulation): *Mohsen Ameri*¹; Borzu Baharvand²; saeb Sadeghi²; ¹Aluminium; ²Almahdi-hormozal Aluminum Corporation

J-24: Model for Metallic Nanoparticles Production: A tool for Design Study: *Silvania Lopes*¹; Pierre Proulx²; Jean-Baptiste Gouriet¹; Patrick Rambaud¹; ¹von Karman Institute; ²University of Sherbrooke

J-25: Nano-Hybrid Organic-Inorganic Thin Films Using Molecular Layer Deposition (MLD): *Jie Huang*¹; Mingun Lee¹; Antonio Lucero¹; Jiyoung Kim¹; ¹University of Texas at Dallas

J-26: Nanocomposite Photocatalysts Containing TiO₂ for Destruction of Bacteria under Visible Light: *Qianqian Lu*¹; Yuanbing Mao¹; Jinbo Zhao¹; Pedro Rojas¹; ¹UTPA

J-27: Obtaining Microcapsules from PHB/Purified Brazilian Clay Nanonocomposites: Maria Silva-Valenzuela¹; Wang Hui²; Helio Wiebeck²; *Francisco Valenzuela-Diaz*²; ¹Centro Universitario Estacio Radial Sao Paulo; ²Universidade de Sao Paulo

J-28: Precursor Modification and Refluxing Effects on Titania Nanostructures Prepared Via Sol Gel Reflux Synthesis: *Sofia Javed*¹; Mohammad Mujahid¹; Mohammad Islam²; Muhammad Aftab Akram¹; ¹National University of Sciences and Technology Pakistan; ²Centre of Excellence for Research in Engineering Materials (CEREM) King Saud University, P.O.Box 800, Riyadh 11421, Saudi Arabia

J-29: Preparation and Growth Mechanism of Fibrous Nickel Cobaltite Spinel Particles: *Jing Zhan*¹; Chen Wang¹; Chuan-fu Zhang¹; ¹Central South University

J-30: Preparation of AlN-Y₂O₃ Nano-composite Powder Using Combustion Synthesized Precursor: *Aimin Chu*¹; Mingli Qin¹; Lin Zhang¹; Baorui Jia¹; Huifeng Lu¹; Xuanhui Qu¹; ¹University of Science and Technology Beijing

J-31: Preparation of Nanostructure Ni Fibers by Precipitation-Thermal Decomposition-Reduction Process: Zhang Chuanfu¹; *Yao Yonglin*¹; Zhan Jing¹; Wu Jianhui¹; Li Changjun¹; ¹Central South University

J-32: Room Temperature Ferromagnetism in Co-Incorporated TiO₂ Films Deposited on Single Crystalline Substrate: *Sudesh Sharma*¹; Sujeet Chaudhary²; Subhash C Kashyap²; ¹University of Petroleum and Energy Studies; ²Indian Institute of Technology Delhi

J-33: Ruthenium Grubbs' Catalyst Nanostructures Grown by UV-Excimer-Laser Ablation for Self-Healing Applications: *Brahim Aissa*¹; Federico Rosei¹; Nechache Riad¹; Emile Haddad²; Wes Jamroz²; Daniel Theriault³; ¹University of Quebec; ²MPB Technologies Inc.; ³University of Montreal

J-34: Study on EP Resin Modified Nano-Silica and Mechanical Properties of Composites: *Ju Hua*¹; An Shihui¹; Zhang Jin¹; Yang Liu¹; ¹Harbin Institute of Technology;

J-35: Surface Functionalization of Forcespun Nylon 6 Nanofibers Deposited with Silver and Copper Thin Films by Thermal Evaporation: Dorina Mihut¹; Karen Lozano¹; Luis Materon¹; Noe Flores¹; Roman Garcia¹; *Wenqian Zhao*¹; ¹The University of Texas Pan American

J-36: Synthesis and Luminescent Properties of Y₃Al₅O₁₂:Ce³⁺ Thin Film Phosphors Prepared by Pulsed Laser Deposition: *Kittessa Roro*¹; Francis Dejene²; Lekohololo Koao²; ¹Council for Scientific and Industrial research; ²University of Free State (Qwa-Qwa campus)

J-37: Synthesis and Properties of Multiferroic A₂BB'O₆@ABO₃ Core/Shell Nanocomposite: Andrix Arguelles¹; *Yesenia Cantu*¹; Yuanbing Mao¹; ¹University of Texas Pan-American

J-38: Synthesis of Visible-light-active Photocatalysts for Water Disinfection: *Hermes Chirino*¹; Jennifer Bravo¹; ¹UTPA

J-39: Porphyrin Functionalized Iron Oxide-Gold Core-Shell Nanoparticles: *Sandile Songca*¹; Oluwatobi Oluwafemi¹; Adeolu Eshilokun¹; ¹Walter Sisulu University

J-40: Effect of Temperature on Chemical Vapor Deposition Growth of Graphene on Cu: *Sirui Xing*¹; Wei Wu¹; Shin-Shem Pei¹; ¹University of Houston

J-41: High Performance on TiO₂, Nanotubes and Thin Film Based Biosensors for the Detection of Streptavidin: *Mingun Lee*¹; Antonio Lucero¹; Jie Huang¹; Jiyoung Kim¹; ¹University of Texas at Dallas

J-42: Thermal Conductivity and Specific Heat of Metallic Micro- and Nanowires: *Denis Myasishchev*¹; Josef Cepak¹; Mark Holtz¹; Jordan Berg¹; ¹Texas Tech University

J-43: Effect of Temperature on the Optical and Structural Properties of Hexadecylamine Capped ZnS Nanoparticles Using Zinc(II) N-ethyl-N-Phenyldithiocarbamate as Single Source Precursor: *Damian Onwudiwe*¹; *Oluwafemi Oluwatobi*¹; *Christien Strydom*¹; *Sandile Songca*¹; ¹Walter Sisulu University

J-44: Fast Triangular Gate Pulse Measurement Techniques for Intrinsic Electrical Characterization of Graphene Field-Effect Transistors: *Saungeun Park*¹; *Sangchul Lee*²; *Srikanth Jandhyala*¹; *Greg Mordt*¹; *Jang-Sik Lee*³; *Jiyoung Kim*¹; ¹The University of Texas at Dallas; ²Gwangju Institute of Science and Technology; ³Kookmin University

J-45: Single-Particle Placement Using DNA-Conjugated Nanoparticles: *Manouchehr Teimouri*¹; *Pradeep Bhadrachalam*¹; *Seong Jin Koh*¹; ¹The University of Texas at Arlington

J-46: Application of Martensitic Transformation Fundamentals to Select Appropriate Alloys for Grain Refining through Martensite Thermomechanical Treatment: *Peyman Behjati*¹; *Ahmad Kermanpur*¹; *Abbas Najafizadeh*¹; ¹Isfahan University of Technology

J-48: Synthesis of Graphene/CuO Magnetic Nanocomposite via Solvothermal Processing: *Maryam Najafi*¹; *Ahmad Kermanpur*¹; *Abbas Najafizadeh*¹; ¹Isfahan University of Technology

J-47: Optimization of Titanium Dioxide Thin Film Biosensors for Streptavidin Detection: *Antonio Lucero*¹; *Mingun Lee*¹; *Jiyoung Kim*¹; ¹University of Texas at Dallas

J-52: Magnetocaloric Properties of Nanostructured Pr₂-xDyFe₁₇: *Lofli Bessais*¹; *Rym Guetari*¹; *Riadh Bez*²; *Bazil Cizmas*³; *Najeh Mliki*²; ¹CNRS; ²University of Tunis el Manar; ³Transilvania University of Brasov

J-50: Effect of Nb on the Formation of Nano/Ultrafine Grain Structure in a Low Carbon Steel by Thermomechanical Treatment: *Meisam Abbasi*¹; *Ahmad Kermanpur*¹; *Abbas Najafizadeh*¹; ¹Isfahan University of Technology

J-51: Effect of Phonon Emission and Absorption in Electron Tunneling through Double Quantum Dots: *Pradeep Bhadrachalam*¹; *Ramkumar Subramanian*¹; *Kyeongjae Cho*²; *Jiyoung Kim*²; *Seong Jin Koh*¹; ¹The University of Texas at Arlington; ²The University of Texas at Dallas

J-49: Detection of Ultra-Low Concentrations of DNA Molecules Using Nanoparticle-Based DNA Sensing: *Manouchehr Teimouri*¹; *Yalong Li*¹; *Seong Jin Koh*¹; ¹The University of Texas at Arlington

J-53: Effect of Ti on the Formation of Nano/Ultrafine Grain Structure in the 201L Austenitic Stainless Steel through Martensite Thermomechanical Treatment: *Saeed Sadeghpour*¹; *Ahmad Kermanpur*¹; *Abbas Najafizadeh*¹; ¹Isfahan University of Technology

4th International Symposium on High-Temperature Metallurgical Processing: Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS: Energy Committee, TMS: Materials Characterization Committee, TMS: Pyrometallurgy Committee

Program Organizers: Tao Jiang, Central South University; Jiann-Yang Hwang, Michigan Technological University; Phillip Mackey, Consultant; Onuralp Yücel, ITU; Guifeng Zhou, Wuhan Iron and Steel

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -
Location: Henry B. Gonzalez
Convention Center

O-1: Using of Spent Moulding Sands for Production of Burned Ceramic Building Materials: Influence for Environment: *József Danko*¹; *Mariusz Holtzer*¹; *Rafal Danko*¹; *Sylwia Zymankowska-Kumon*¹; ¹AGH University of Science and Technology

Aluminum Alloys: Fabrication, Characterization and Applications: Poster Session

Sponsored by: TMS Light Metals Division, TMS: Aluminum Processing Committee

Program Organizers: Zhengdong Long, Kaiser Aluminum; Subodh Das, Phinix LLC; Tongguang Zhai, University of Kentucky; William Golumbskie, Naval Surface Warfare Center

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -
Location: Henry B. Gonzalez
Convention Center

C-1: An Investigation on the Refinement Effect of Ti-6Al-4V on Fe-rich Hypo-eutectic Al-Si Alloys: *Tara Foroozan*¹; *Arash Maniee*¹; *Reza Taghiabadi*¹; ¹International University of Imam Khomeini

C-2: Characterization of the Developed Precipitates in Al-2 at.%Zn-x at.%Mg, (x=1.8, 2, 2.4, 3, 4.2): *Ghada Abbady*¹; *Nasser Afify*¹; *Abd-Elfattah Gaber*¹; ¹Assiut University

C-3: Design and Development of a Permanent Mould for the Production of Motor-Cycle Piston in Sedi-Enugu: *Emmanuel Nwonye*¹; *Chukwunwendu Ilochonwu*; ¹Scientific Equipment Development Institute

C-4: Development and Research of New Aluminum Alloys with Transition and Rare-Earth Metals and Equipment for Production of Wire for Electrotechnical Applications by Methods of Combined Processing: *Irina Matveeva*¹; *Viktor Frolov*¹; *Leonid Trifonenkov*¹; *Sergey Sidelnikov*²; *Nikolay Dovzhenko*²; ¹UC RUSAL; ²Siberian Federal University

C-5: Dynamic and Artificial Aging and Formation of Ultrafine Grained Structure in Aluminum Alloys During Severe Plastic Deformation: *Maxim Murashkin*¹; *Elena Bobruk*¹; *Vil Kazykhanov*¹; *Ruslan Valiev*¹; *Xavier Sauvage*²; ¹Ufa State Aviation Technical University; ²University of Rouen, CNRS UMR

C-6: Effect of Process Parameters on Centrifugally Cast Al-Si FGM: *Kiran Aithal*¹; *Vijay Desai*²; *Narendranath S*²; *Mukunda P G*¹; ¹Nitte Meenakshi Institute of Technology; ²National Institute of Technology Karnataka

C-7: Effects of Minor Sc Addition on the Microstructures and Mechanical Properties of Al-Zn-Mg-Cu Casting Aluminum Alloy: *Guangyu Yang*¹; Shaojun Liu¹; Wanqi Jie¹; ¹Northwestern Polytechnical University

C-8: Influence of Machining Parameters on Al-4.5Cu-TiC In-Situ Metal Matrix Composites: *Pradeep Jha*¹; Anand Kumar¹; Manas mahapatra¹; ¹IIT Roorkee

C-9: Microstructural and Mechanical Characterization of Al-TiC Composites Produced by Mechanical Alloying: *Elif Ozgun*¹; Lütfi Öveçoglu¹; ¹Istanbul Technical University

C-10: Microstructural and Mechanical Characterization of MIG Welded Aluminum Alloys Produced with Twin Roll Casting Technique: *Onur Birbasari*¹; Özgür Akçam²; Emrah Özdogru¹; Baris beyhan¹; ¹Assan Aluminum; ²GSILV-TR

C-11: Microstructural Evolution in an Al 6061/SiC Composite Processed through Cryorolling Followed by Annealing: *Jayaganthan R*¹; Nageswararao Palukuri¹; ¹IIT Roorkee

C-12: Microstructural Features of As-Cast Indium Activated Aluminum Sacrificial Anodes: Muhammed Pourgharibshahi¹; Mahmood Meratian¹; ¹Isfahan Uni of Tech

C-13: Nanostructured SPD-Processed Aluminum Alloys for Innovative Applications: *Ruslan Valiev*¹; Ilchat Sabirov²; Maxim Murashkin¹; Leonid Trifonenkov³; Evgeny Antipov⁴; ¹Ufa State Aviation Technical University; ²IMDEA Materials Institute; ³RUSAL ETC Ltd; ⁴Moscow State University

C-14: Study of Precipitation Behavior an Al-Cu Superalloy as a Function of Environmental Temperatures: E-Wen Huang¹; Ming-Hsien Wen¹; Cheng-Si Tsao²; Chun-Jen Su³; U-Ser Jeng³; ¹National Central University; ²Institute of Nuclear Energy Research, Taiwan; ³National Synchrotron Radiation Research Center, Taiwan

C-15: The Effect of Thermomechanical Aging of Aluminium – Copper Alloy (MATLAB Approach): *Adekunle Adegbola*¹; Ajibade Omotoyinbo²; Oladayo Olaniran²; Akeem Ghazali; Olugbenga Fashina¹; ¹The Polytechnic, Ibadan; ²Federal University of Technology, Akure

C-16: Thixoforming of A356 Aluminum Bipolar Plate: *Amir Bolouri*¹; Chung-gil Kang¹; ¹Pusan National University

C-17: Fatigue Behavior of Ultra Fine

grained of 5083-Al Alloy Produced by Cryorolling: *Dharmendra Singh*¹; Jayaganthan R¹; Palukuri Nageswara rao¹; ¹IIT Roorkee

C-18: Production Of Single Cylinder Engine Components through High Pressure Die Casting In Sedi Enugu: *Emmanuel Nwonye*¹; Chukwunwendu Ilohonwu¹; Okechukwu Nwajagu¹; ¹Scientific Equipment Development Institute

C-19: The Research of Tensile Shear Failure Load and Microstructure Characteristic of Friction-Stir-Spot-Welded 5083 Al-Mg Alloy: *Chia-Wei Lin*¹; ¹National Cheng Kung University

Biological Materials Science Symposium: Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS Structural Materials Division, TMS: Biomaterials Committee

Program Organizers: Candan Tamerler, University of Washington; Molly Gentleman, Texas A & M University; Po-Yu Chen, National Tsing Hua University; Kajal Mallick, University of Warwick; Rajendra Kumar Kasinath, University of Montana; Paul G. Allison, US Army Corp of Engineers

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -
Location: Henry B. Gonzalez
Convention Center

Funding support provided by: Biomaterials Program, National Science Foundation

Session Chair: To Be Announced

P-1: Characterization of a Portland Cement for Endodontic Material: *Carlos Elias*¹; Leticia Chaves de Souza¹; Hélio Lopes¹; ¹Instituto Militar de Engenharia

P-2: A Novel Porous Hydroxyapatite Scaffold Coated with Nanostructured Forsterite for Bone Tissue Engineering: *Adel Sheikhhosseini*¹; ¹IUT

P-3: Biocompatibility and Cytotoxicity Study of Ultra Fine Grained Ti-Nb-Zr-CPP Composites Fabricated by SPS Using HEMM Powders: Kee Woo¹; Kee-Do Woo¹; Min-Su Kim¹; Hyung-Sub Kang¹; *Kee-Do Woo*¹; ¹Chonbuk National University

P-4: The Effect of Fe and Si Additions to Ti-Nb-Ta-Zr Biocompatible Alloy on Mechanical Properties and Biocompatibility In Vitro: *Josef Stráský*¹; Petr Hrcuba¹; Ivana Kopova¹; Lucie Bacakova¹; Milos Janecek¹; ¹Charles University

P-5: Modifying Fluorescence Signal of the Photoactive Proteins on Metal Nanoparticles by Modular Peptides: *Esra Yuca*¹; Marketa Hnilova²; Turgay Kacar³; Ayten Yazgan Karatas³; Candan Tamerler²; ¹Department of Molecular Biology and Genetics, Yildiz Technical University, Turkey; ²GEMSEC, Department of Material Science and Engineering, University of Washington; ³Department of Molecular Biology and Genetics, Istanbul Technical University

P-6: Biocompatibility and Cytotoxicity Study of Ultra Fine Grained Ti-Nb-Zr-CPP Composites Fabricated by SPS Using HEMM Powders: Kee Woo¹; Kee-Do Woo¹; Min-Su Kim¹; Hyung-Sub Kang¹; *Kee-Do Woo*¹; ¹Chonbuk National University

P-7: Photoactive Proteins as Marker of Electrochemically Deposited Hydroxyapatite on Titania Nanotubes at Physiological Temperatures: *Sermin Utku*¹; Esra Yuca²; Eren Seckin³; Gultekin Goller³; Ayten Yazgan-Karatas³; Mustafa Urgen³; Candan Tamerler⁴; ¹Namik Kemal University; ²Yildiz Technical University; ³Istanbul Technical University; ⁴University of Washington

Deformation, Damage, and Fracture of Light Metals and Alloys: Poster Session

Sponsored by: TMS Light Metals Division, TMS/ASM: Mechanical Behavior of Materials Committee

Program Organizers: Ke An, Oak Ridge National Laboratory; Qizhen Li, University of Nevada, Reno

Monday PM
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D-1: Alloy Parts Heat Treatment Temperature Monitoring System:

*Tian Weiwei*¹; Cao Wenzhong¹; Wang Lei¹; ¹ Environmental & Chemical Engineering College of Nanchang University

D-2: Forging of Magnesium Alloy by Impulsive Energy at Room Temperature:

Liquan Ruan¹; Kazuyuki Hokamoto¹; *Yasuo Marumo*¹;

¹Kumamoto University

Fatigue and Fracture of Thin Films and Nanomaterials: Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee

Program Organizers: Megan Cordill, Erich Schmid Institute of Materials Science; Daniel Kiener, Montanuniversitaet Leoben; Xinghang Zhang, Texas A & M University; Daniel Gianola, University of Pennsylvania; Corinne Packard, Colorado School of Mines

Monday PM
Symposium Poster Area
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Funding support provided by: Hysitron, Inc., and Nanomechanics, Inc.

Session Chair: Megan Cordill, Erich Schmid Institute of Materials Science

K-1: Fabrication and Mechanical Behavior of Nanoporous Iridium:

*Lei Wang*¹; John Balk¹; ¹University of Kentucky

K-2: Fatigue Crack Nucleation in LIGA Nickel MEMS Thin Films:

*Wanliang Shan*¹; Yong Yang²; T. Hillie³; W. Jordann³; Wole Soboyejo¹; ¹Princeton University; ²the City University of Hong Kong; ³National Center for Nano-Structured Materials

K-3: In-Situ Fracture Studies of Thin Copper Films on Polymer Substrates:

*Vera Marx*¹; Christoph Kirchlechner¹; Ivo Zizak²; Megan Cordill¹; ¹Erich Schmid Institute of Materials Science; ²Helmholtz-Zentrum Berlin for Materials and Energy

K-4: In-Situ Fracture Toughness Testing of Small-Scale Bi-Embrittled Cu Bicrystals:

*Mark McLean*¹; Rick Vinci¹; ¹Lehigh University

K-5: In-Situ Monitoring of Thermally Induced Resistivity Changes in Silver Thin Films:

*Barbara De Maeyer*¹; Frederic Van Wontherghem¹; Joris Proost¹; ¹Université catholique de Louvain

K-6: Interfacial Fracture of Ductile Films from Compliant Substrates Using Stressed Overlayers:

*Megan Cordill*¹; Vera Marx²; Christoph Kirchlechner²; Ivo Zizak³; ¹Erich Schmid Institute of Materials Science; ²University of Leoben; ³Helmholtz-Zentrum Berlin für Materialien und Energie GmbH

K-7: Lifetime and Crack Initiation of FCC Materials in Small Scale under Multiaxial Cyclic Loading in the High and Very High Cycle Fatigue Regimes:

*Thomas Straub*¹; Tobias Kennerknecht²; Matthew Berwind¹; Yuri Lapusta³; Chris Eberl¹; ¹Karlsruhe Institute of Technology (KIT); ²Fraunhofer Institute for Mechanics of Materials (IWM); ³French Institute of Advanced Mechanics (IFMA)

K-8: Mechanical and Structural Properties of Silicon Carbide (SiC):

*M. Mamun*¹; A. Elmustafa¹; ¹Old Dominion University

K-9: Role of Oxygen Vacancies in Structural and Optical Properties of ZnO Sputtered Thin Films:

*Madiha Siddiqi*¹; Awais Ali²; Arshad Bhatti¹; ¹Comsats Institute of Information Technology Islamabad; ²Comsats Institute of Information technology Islamabad

K-10: A Comparison of Low Cycle Fatigue Behaviour of UFG Al Produced by Different Rolling Techniques:

*Shokoufeh Malekiani*¹; Peter Hodgson¹; Nicole Stanford¹; Timothy Hilditch¹; ¹Deakin University

Magnesium Technology 2013: Poster Session

Sponsored by: TMS Light Metals Division, TMS: Magnesium Committee

Program Organizers: Norbert Hort, Helmholtz-Zentrum Geesthacht; Suveen Mathaudu, US Army Research Office; Neale Neelameggham, IND LLC; Martyn Alderman, Magnesium Elektron

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -
Location: Henry B. Gonzalez
Convention Center

Session Chair: Eric Nyberg, Pacific Northwest National Laboratory

E-1: A Study of the Hot and Cold Deformation of Twin Rolled Cast Magnesium Alloy:

*Hesamaldin Askari*¹; John Young¹; David Field¹; Ghassan Kridli²; Hussein Zbib¹; ¹Washington State University; ²Texas A&M University at Qatar

E-2: A Systematic Assessment of the Mg-Zn-RE Alloy Systems:

Hailin Chen¹; *Qing Chen*¹; ¹Thermo-Calc Software AB

E-3: Characterization of Film Formation on Commercial and Model Magnesium Alloys:

*Kinga Unocic*¹; Hassan Elsentriecy¹; Michael Brady¹; Harry Meyer III¹; James Keiser¹; Lawrence Anovitz¹; Gernot Rother¹; Jeffery Thomson¹; Mostafa Fayek²; Guan-Ling Song²; Bruce Davis³; ¹ORNL; ²University of Manitoba; ³Magnesium Elektron Wrought Products North America

E-4: Development of Texture in Mg-Zn Based Alloys:

Jong Youn Lee¹; Won Tae Kim²; Do Hyang Kim³; ¹Yonsei University; ²Cheongju University; ³Yonsei University

E-5: Ductility of Ultrafine Grained Magnesium Alloy:

*Nilesh Kumar*¹; Rajiv Mishra¹; ¹University of North Texas

E-6: Dynamic Grain Refinement in Nanostructured Mg Deformed at Cryogenic Temperatures:

*Baolong Zheng*¹; Yizhang Zhou¹; Suveen Mathaudhu²; Enrique Lavernia¹; ¹University of California, Davis; ²U.S. Army Research Office

E-7: Dynamic Precipitation during Hot Compression in Two Micro-Alloyed Mg-Al-Ca Alloys:

*Jing Su*¹; Abu Syed Humaun Kabir¹; In-Ho Jung¹; Steve Yue¹; ¹McGill

E-8: Effect of Alloying and Interfaces on the Mechanical Properties of Nano-Grained Mg-Ti₂AlC Composites: Babak Anasori¹; Michel Barsoum¹; ¹Drexel University

E-9: Effect of Ca and Si Additions on Microstructure of Mg-Al Based Magnesium Alloys: Ren Yinglei¹; Geng Ningning¹; ¹Shenyang University of Technology

E-10: Effect of Gadolinium and Yttrium Content on Microstructure and Strength of Mg-Li Alloys: Min Li¹; Yihan Liu¹; Guangchun Yao¹; Jun Cheng¹; Guoyin Zu¹; ¹Northeastern University

E-11: Effect of Grain Size on Tensile Twinning, Basal and Prismatic Slips Activation in Magnesium Alloys: Ebubekir Dogan¹; Sonia Razavi¹; Ibrahim Karaman¹; Karl Hartwig¹; Laszlo Kecskes²; Suveen Mathaudhu³; Vince Hammond²; ¹Texas A&M University; ²US Army Research Laboratory, Weapons and Materials Research Directorate, Aberdeen Proving Ground; ³US Army Research Laboratory, Army Research Office

E-12: Effect of Si Addition on Microstructure of As-Cast Mg-7Al-2.5Ca-0.4Mn-0.25Sr Alloy: Qiu Keqiang¹; He Ying¹; ¹Shenyang University of Technology

E-13: Effect of Si and Ca Additions on Microstructure of As-Cast Mg-5%Sn-0.5%Sr Alloy: You Junhua¹; Hao Shuai¹; ¹Shenyang University of Technology

E-14: Effect of Sr on Microstructure and Mechanical Properties of As-Cast Mg-8Zn-5Al-1Si Alloy: Ren Yinglei¹; Yang Shu¹; ¹Shenyang University of Technology

E-15: Effect of Temperature on the Deformation Behavior of Magnesium Single Crystals: Ming Zhe Bian¹; Hua Chul Jung¹; Kyung Hoon Lee²; Kwang Seon Shin¹; ¹Magnesium Technology Innovation Center, Seoul National University; ²Solution Lab

E-16: Effects of Alloying Elements on Microstructure and Mechanical Properties of Twin Roll Strip-Cast Mg-Al-X Alloys: Sang Jun Park¹; Hwa Chul Jung¹; Kyung Hoon Lee²; Kwang Seon Shin¹; ¹Magnesium Technology Innovation Center / Seoul National University; ²Solution Lab

E-17: Effects of Coating Conditions on the Properties of PEO Processed AZ31+Ca Magnesium Alloys: Sun Hwan Kwon¹; Hwa Chul Jung¹; Young Hee Park²; O Duck Kwon²; Kwang Seon Shin¹; ¹School of Materials Science and Engineering, Seoul National University; ²Research Division of Magnesium, Research Institute of Industrial Science and Technology

E-18: Effects of Heat Treatment on Microstructure and Mechanical Properties of As-Extruded Mg-5Sn-2Si-2Sr Alloy: You Jun-hua¹; Guo Qiang¹; ¹Shenyang University of Technology

E-19: Effects of P Addition on the Microstructure and Mechanical Properties of Mg-Al-Zn-Cu-xSi Alloy: Keqiang Qiu¹; Wang Xiaocheng¹; Junhua You¹; ¹Shenyang University of Technology

E-20: Effects of Sn and Si Addition on Discontinuous Precipitation in Mg-9Al-1Zn: TaeHee Cho¹; SeungHyun Oh¹; InChang Jung¹; YoungKyun Kim¹; WonTae Kim²; DoHyang Kim¹; ¹Yonsei University; ²Cheongju University

E-21: Electrodepositing Copper on AZ31 Magnesium Alloy Using Copper Hydroxide and Citrate: Zhu Ping¹; Wang You¹; Chen Yan¹; Zhou Ming¹; Zhou Jing¹; ¹Shanghai University

E-22: Electronic Structure and Properties of Stacking Faults of Mg-X Alloys: A First-Principles Study: William Wang¹; Shunli Shang¹; Yi Wang¹; Kristopher Darling²; Laszlo Kecskes²; Suveen Mathaudhu³; Xidong Hui⁴; Zi-Kui Liu¹; ¹The Pennsylvania State University; ²U.S. Army Research Laboratory; ³US Army Research Office; ⁴University of Science and Technology Beijing

E-23: Enhanced Room Temperature Sheet Formability of Mg Alloy AZ31 having Tilted-Basal Texture and Fine Grain Size: Dinakar Sagapuram¹; Wilfredo Moscoso²; Mert Efe¹; Srinivasan Chandrasekar¹; Kevin Trumble¹; ¹Purdue University; ²Pontificia Universidad Catolica Madre y Maestra

E-24: Evaluation of Microstructural Effect on Corrosion Behavior of Die-Casting AZ91D Magnesium Alloy: Heon Kang¹; Seung Won Kang¹; Byung Joon Yim¹; Donghyun Bae¹; ¹Yonsei University

E-25: Fabrication of Lotus-Type Porous Magnesium Containing In-Situ Mg₂Si Particles and Its Mechanical Properties: Mohsen Mohammadi Zahrani¹; Mahmood Meratian¹; Mahdi Hajhashemi¹; E. Mohammadi Zahrani²; ¹Isfahan University of Technology; ²The University of British Columbia

E-26: Final Assessment of Pre-Industrial Solid-State Route for High Performance Mg-System Alloys Production: Conclusion of the Green Metallurgy Eu Project: Fabrizio D'Errico¹; Franz Giger²; Gerardo Garces Plaza³; ¹Politecnico di Milano; ²Buhler AG; ³Centro Nacional de Investigaciones Metalúrgicas

E-27: Formation Kinetics and Characterization of Protective Layer over Magnesium Melt: Samar Emami¹; ¹Department of Metallurgical Engineering University of Utah

E-28: Friction Stir Welding of Magnesium Alloy Plate: Richard DeLorme¹; Sam Wei²; Jonathan Martin²; Jonathan Perrett²; Kyu Cho³; ¹Magnesium Elektron North America; ²TWI Technology Centre (Yorkshire) Ltd; ³US Army Research Laboratory

E-29: Hall-Petch Relations for Various Deformation Modes in a Mg Alloy: Diffraction Measurements and VPSC Modeling: Yi Wang¹; Hahn Choo¹; Yang Ren²; Sven Vogel³; ¹Univ of Tennessee; ²Argonne National Laboratory; ³Los Alamos National Laboratory

E-30: High Strength and Ductile Nanostructured Magnesium-Based Alloys and Nanocomposites: Marta Pozuelo¹; Wei Kao¹; Jenn-Ming Yang¹; ¹UCLA

E-31: Influence of Electron Energy Density on Surface Modification of AZ91 Magnesium Alloy Processed by High-Current Pulsed Electron Beam Irradiation: Mincai Li¹; Chuang Dong¹; Shengzhi Hao¹; ¹Dalian University of Technology

E-32: Influence of Hydrostatic Pressure on Porosity of Die-Cast Mg Alloys: Experimental and Numerical Studies: Ana Fernandez¹; Federico Sket¹; Jon Molina-Aldareguia¹; Teresa Pérez-Prado¹; Antoine Jérusalem¹; ¹IMDEA Materials Institute

E-33: Influence of Local Strain State on Twinning Behavior during Compression of AZ31 Magnesium Alloy: Hongtao Huang¹; Andy Godfrey¹; Wei Liu²; Qing Liu¹; ¹Tsinghua University, Beijing; ²Tsinghua University, Beijing; ³Tsinghua University, Beijing

E-34: Interactions of Dislocations with Grain Boundaries in Mg: Jian Wang¹; Irene Beyerlein¹; ¹Los Alamos National Laboratory

E-35: Investigation of Deformation Modes of Magnesium with Crystal Plasticity: Matthew Priddy¹; David McDowell¹; ¹Georgia Institute of Technology

E-36: Investigation of the Corrosion for Mg-Li-xGd-yY (x=7, 8, 9, 10, 11 wt%; y=1, 2, 3, 4, 5 wt%) Alloys: Min Li¹; Guangchun Yao¹; Jun Cheng¹; Yinhan Liu¹; Zhuokun Cao¹; ¹Northeastern University

E-37: Mechanical Behavior of Nanocrystalline Mg-9Li-3Al-2.5Sr alloy via Cryomilling and Spark Plasma Sintering: Yan Yang¹; Xiaodong Peng¹; Baolong Zheng²; Weidong Xie¹; Yizhang Zhou²; Enrique Lavernia²; ¹Chongqing University; ²University of California, Davis

E-38: Microstructural Analysis of Severe Plastic Deformed Twin Roll Cast AZ31 for the Optimization of Superplastic Properties: *John Young*¹; Hesam Askari¹; Michael Heiden¹; Yuri Hovanski²; Dave Field¹; Hussein Zbib¹; ¹Washington State University; ²Pacific Northwest National Laboratories

E-39: Microstructural Evolution of CaO-added AZ31 Mg Alloys: *Jiwon Jeong*¹; Jiseong Im¹; Minhyuk Kwon¹; Youn Bae Kang¹; Sang Ho Oh¹; ¹POSTECH

E-40: Microstructure Evaluation and Micro-Tensile Behavior of AZ31 Mg Alloy Processed by Equal-Channel Angular Pressing: *Jie Xu*¹; Jitraporn Wongsan-Ngam²; Mahmood Shirooyeh²; Debin Shan¹; Bin Guo¹; Terence Langdon²; ¹Harbin Institute of Technology; ²University of Southern California

E-41: Optimisation of the Process for Obtaining an UFG Structure in Mg Alloys: *Stanislav Rusz*¹; Lubomir Cizek¹; ¹VSB - Technical University of Ostrava

E-42: Prediction of Internal Stresses and Texture during Twin Dominated Plasticity in Mg and Mg Alloys: *Laurent Capolungo*¹; Stéphane Berbenni²; Pierre-Alexandre Juan¹; ¹Georgia Institute of Technology; ²CNRS

E-43: Preparation and Characterization of High-Purity Magnesia Powder by Direct Pyrolysis Process of Anhydrous Magnesium Chloride: *Niu Liping*¹; Zhang Ting'an¹; Zhou Aiping¹; Lv Guozhi¹; Dou Zhihe¹; Shi Guanyong¹; Jiang Xiaoli¹; ¹Northeastern University

E-44: Production of a Novel Bulk Nanostructured Mg-Li Alloy Exhibiting Superior Strength and Corrosion Resistance: *Wanqiang Xu*¹; Michael Ferry¹; ¹University of New South Wales

E-45: Resolving Dislocation and Twin Deformation Modes in AZ31: *David Fullwood*¹; Michael Miles¹; Timothy Ruggles¹; Travis Rampton¹; Raj Mishra¹; ¹Brigham Young University

E-46: Role of Icosahedral Phase in Enhancing the Strength of Mg-Sn-Zn-Al Alloy: *Youngkyun Kim*¹; Dohyung Kim²; Sungwoo Shon¹; Wontae Kim³; Dohyang Kim¹; ¹Yonsei University; ²Republic of Korea Air Force; ³Cheongju University

E-47: Statistics of Slip Avalanches in Simple Models for Slowly-Sheared Magnesium Alloys: *Karin Dahmen*¹; James Antonaglia²; Wei Wu³; Ke An⁴; Matthew Wraith²; Jonathan Uhl¹; Peter Liaw³; ¹University of Illinois at Urbana Champaign; ²University of Illinois at Urbana Champaign; ³University of Tennessee at Knoxville; ⁴Oak Ridge National Laboratory

E-48: Strain Rate Dependence of AM30 Magnesium Alloy: *Andrew Oppedal*¹; Wilburn Whittington¹; Haitham El Kadiri¹; Sven Vogel²; ¹Mississippi State University; ²Los Alamos National Laboratory

E-49: Study on Hydrogen Storage Properties of Nanostructured Mg-Re Particles Prepared through Arc Plasma Method: *Jianxin Zou*¹; Hao Guo¹; Si Zhou¹; Xiaoqin Zeng¹; Wenjiang Ding¹; ¹Shanghai Jiao Tong University

E-50: Study on the Hot Tearing Susceptibility of Mg-7Al-xCa-2Si-0.8Zn-0.5Sr-0.4Mn Heat-Resistant Magnesium Alloys: *You Junhua*¹; *Tao Siwei*¹; ¹Shenyang University of Technology

E-51: Study on the Hot Tearing Susceptibility of Mg-7Al-xCa-2Si-0.8Zn-0.5Sr-0.4Mn Heat-Resistant Magnesium Alloys: *You Junhua*¹; *Tao Siwei*¹; ¹Shenyang University of Technology

E-52: The Effect of Chemical Modification on Wear Behavior of Mg/Mg₂Si Composite: *Negin Maleki*¹; Mahmood Meratian¹; Masood Panjepour¹; Mohsen Mohammadi Zahrani¹; *Ehsan Mohammadi Zahrani*¹; ¹Department of Materials Engineering, Isfahan University of Technology

E-53: The Mechanical Behavior of Magnesium Alloys Subjected to Severe Plastic Deformation: *Amit Shyam*¹; Amit Pandey¹; Zhili Feng¹; William Peter¹; Sean Agnew²; Balasubramaniam Radhakrishnan¹; ¹Oak Ridge National Laboratory; ²University of Virginia

E-54: Twin Roll Casting and Rolling of an Aluminium Free Magnesium Strip: *Dietmar Letzig*¹; Joachim Wendt¹; Lennart Stutz¹; Gerrit Kurz¹; Karl Kainer¹; ¹Helmholtz-Zentrum Geesthacht GmbH

E-55: Waste Heat Recovery Opportunities in a Magnesium Silicothermic Reduction Plant: *James Sever*¹; ¹Nevada Clean Magnesium, Inc.

Materials Processing Fundamentals: Poster Session

Sponsored by: TMS Extraction and Processing Division, TMS: Process Technology and Modeling Committee

Program Organizers: Lifeng Zhang, University of Science and Technology Beijing; Antoine Allanore, Massachusetts Institute of Technology; Cong Wang, Saint-Gobain High Performance Materials; James Yurko, Materion Brush Beryllium and Composites; Justin Crapps, ExxonMobil

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -

Location: Henry B. Gonzalez
Convention Center

I-1: Luminescence Enhancement of Sky-blue ZnS:Tm Phosphor by Promoter Doping: *Su-Hua Yang*¹; Yin-Hsuan Ling¹; ¹National Kaohsiung University of Applied Sciences

I-2: Current Efficiency of Aluminum Electrolysis with Lower Cryolite Ratio and Temperatures: *Huanhuan Ma*¹; *Jilai Xue*²; Jigang Li²; Yanan Zhang¹; ¹TMS; ²University of Science and Technology Beijing

I-3: Effect of Thermal History on the Hot Ductility and Fracture Mechanisms of Low Carbon Peritectic Steel: *Zhihua Dong*¹; Dengfu Chen¹; Xing Zhang¹; Mujun Long¹; ¹Chongqing University

I-4: Influence of Coriolis Force on the Flow Field of Combined Top and Bottom Blown Converter: *Haiyan Tang*¹; Tongbo Zhang¹; Jingshe Li¹; Yongfeng Chen¹; ¹University of Science and Technology Beijing

I-5: Motion Characteristics of a Powder Particle through the Injection Device with Slats at Finite Reynolds Number: *Zhongfu Cheng*¹; Miaoyong Zhu¹; ¹Northeastern University

I-6: Study on Internal Cracks on Continuous Casting Slabs of AH36 Steel: *Shufeng Yang*¹; *Lifeng Zhang*¹; ¹University of Science and Technology Beijing

I-7: X-Ray Diffraction Measurement and Numerical Prediction of Residual Stresses in Laser Welding of High Strength Steel: *Wei Liu*¹; Fanrong kong¹; Radovan Kovacevic¹; ¹Southern Methodist University

I-8: Research on the Influence of Moulding Sand with Furan Resin on the Environment: *Mariusz Holtzer*¹; Rafal Danko¹; Artur Bobrowski¹; Sylwia Zymankowska-Kumon¹; Michal Kubecki²; ¹AGH University of Science and Technology; ²Institute for Ferrous Metallurgy

Microstructural Processes of Irradiated Materials: Recent Advances in Nuclear Materials Poster Session

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

Program Organizers: Thak Sang Byun, Oak Ridge National Laboratory; Dane Morgan, University of Wisconsin-Madison; Yasuyoshi Nagai, Tohoku University; Zhijie Jiao, University of Michigan-Ann Arbor; Christine Guéneau, CEA-Saclay

Monday PM Room: Park View Lobby -

Symposium Poster Area

March 4, 2013

Location: Henry B. Gonzalez Convention Center

Session Chairs: Dane Morgan, University of Wisconsin; Zhijie Jiao, University of Michigan

6:30 PM Introductory Comments

F-1: Investigation of Sink Efficiency of Cu/Nb Interface Via Precipitation Reactions in Cu-Ag Alloy Films under Ion Irradiation: *Xuan Zhang*¹; Robert Averback¹; Pascal Bellon¹; ¹UIUC

F-2: "Cherry-Pit" Nanostructures Induced by Irradiation in Immiscible Alloy Systems: *Shipeng Shu*¹; Brad Stumphy¹; Pascal Bellon¹; Robert Averback¹; ¹University of Illinois at Urbana-Champaign

F-3: Cavity Swelling in the Chinese RAFM Steel Irradiated with 196MeV Kr- Ions at Elevated Temperatures: *Tielong Shen*¹; Zhiguang Wang¹; ¹Institute of Modern Physics, Chinese Academy of Sciences

F-4: Dislocation Loop Microstructure of Proton Irradiated F-M Steel T91: *Cheng Xu*¹; Gary Was¹; ¹University of Michigan

F-5: Evolution of Copper-Rich Precipitates in Reactor Pressure Vessel Steels under High-Dose Irradiation: *Mikhail Sokolov*¹; Randy Nanstad¹; Michael Miller¹; ¹ORNL

F-6: TEM Characterization of Dislocation Loops and Precipitates in RPV Steels under Neutron and Charged Particle Irradiations: *Yuan Wu*¹; Takuya Yamamoto¹; Peter Wells¹; Nicholas Cunningham¹; Robert Odette¹; Kiyohiro Yabuuchi²; Akihiko Kimura²; James Cole³; ¹UCSB; ²Kyoto University; ³Idaho National Lab

F-7: Kinetic Simulations of Iron Chromium Alloys under Thermal Aging and Irradiation: *Oriane Senninger*¹; Frederic Soisson¹; Enrique Martinez²; Maylise Nastar¹; ¹CEA; ²Los Alamos National Laboratory

F-8: Modeling of Mn-Ni-Si-Cu Precipitation in Reactor Pressure Vessel Steels: *Huibin Ke*¹; Wei Xiong¹; George Odette²; Dane Morgan¹; ¹University of Wisconsin-Madison; ²University of California-Santa Barbara

F-9: Modeling of Radiation Induced Segregation in Non-Dilute Fe-Cr: *Katharina Vortler*¹; Leland Barnard²; Izabela Szlufarska¹; Dane Morgan¹; ¹Dept of Materials Science and Engineering, University of Wisconsin-Madison; ²Materials Science Program, University of Wisconsin - Madison

F-10: On the Effects of Helium-DPA Interactions on Microstructural Evolution in Tempered Martensitic Steels: A Summary of Dual Ion Irradiation Results and Comparisons with In Situ He Injection: *Takuya Yamamoto*¹; Yuan Wu¹; G. Robert Odette¹; Kiyohiro Yabuuchi²; Akihiko Kimura²; ¹Univ. California Santa Barbara; ²Kyoto University

F-11: On the Evolution of Ni-Si-Mn Dominated Phases and Solute Segregation in RPV Steels under Charged Particle Irradiation: *Peter Wells*¹; Takuya Yamamoto¹; Yuan Wu¹; Nicholas Cunningham¹; G. Odette¹; Kiyohiro Yabuuchi²; Akihiko Kimura²; ¹UC Santa Barbara; ²Kyoto University

F-12: A Kinetic Monte-Carlo Study of Self-Interstitial Atom Behavior near Edge Dislocation in a Metallic Crystal: *Tomoaki Suzudo*¹; Stanislas Golubov²; Alexander Barashev²; ¹Japan Atomic Energy Agency; ²Oak Ridge National Laboratory

F-13: Early Stage Irradiation Defects in F82H Model Alloys: *Shaosong Huang*¹; Koichi Sato¹; Mikio Horiki¹; Qiu Xu¹; Toshimasa Yoshiie¹; ¹Research Reactor Institute, Kyoto University

F-14: Effects of Normalizing Routes on Microstructures and Mechanical Properties of the 9Cr-0.5Mo-2W-V-Nb-B Steel: *Jong-Hyuk Baek*¹; Jun-Hwan Kim¹; Sung-Ho Kim¹; Chan-Bock Lee¹; ¹KAERI

F-15: Thermal Stability of He Bubbles in Nanostructured Ferritic Alloy 14YWT: Chad Parish¹; Kevin Teng¹; Philip Edmondson²; Qian Li¹; Yanwen Zhang¹; *Michael Miller*¹; ¹Oak Ridge National Laboratory; ²Oxford University

F-16: Effect of Yttrium on Irradiation Hardening of Ion Irradiated V-4Cr-4Ti Alloys: *Takeshi Miyazawa*¹; Takuya Nagasaka²; Yoshimitsu Hishinuma²; Takeo Muroga²; Hideo Watanabe³; ¹Graduate University for Advanced Studies; ²National Institute for Fusion Science; ³Research Institute for Applied Mechanics

F-17: Processing and Characteristics of High Toughness Nanostructured Ferritic Alloys: *Thak Sang Byun*¹; David Hoelzer¹; Ji Hyun Yoon²; Suk Hoon Kang²; Yong Bok Lee²; Stuart Maloy³; ¹Oak Ridge National Laboratory; ²Korea Atomic Energy Research Institute; ³Los Alamos National Laboratory

F-18: Bulk Fabrication and Characterization of Fe-Y2Ti2O7 Interfaces with the Specified Orientation Relationships Found in ODS Alloys: *Tiberiu Stan*¹; Yuan Wu¹; G. Robert Odette¹; Kurt Sickafus²; ¹University of California Santa Barbara; ²University of Tennessee

F-19: Investigation of the Anisotropic Behavior of Radiation Induced Segregation with Grain Boundary Type in 316L Stainless Steel: *Christopher Barr*¹; Greg Vetterick¹; Kinga Unocic²; Khalid Hattar³; Mitra Taheri¹; ¹Drexel University; ²Oak Ridge National Laboratory; ³Sandia National Laboratories

F-20: Irradiation Behavior of Plasma Nitrided Stainless Steel 316L: *Robert Balerio*¹; ¹Texas A&M University

F-21: Precipitates in Heavy-Ion Irradiated Stainless Steels at High Fluences: *Zhijie Jiao*¹; Gary Was¹; Anton van der Ven¹; Danny Edwards²; ¹University of Michigan; ²Pacific Northwest National Laboratory

F-22: In Situ Studies of Heavy Ion Irradiated Nanocrystalline Ni and 304L Stainless Steel: *C. Sun*¹; M. Song¹; K.Y. Yu¹; Y Chen¹; Mark Kirk²; M. Li²; H. Wang¹; K. Hartwig¹; X. Zhang¹; ¹Texas A&M University; ²Argonne National Laboratory

F-23: Vacancy Clustering in Zirconium and the Influence of Hydrogen from Ab Initio Calculations: *Celine Varvenne*¹; Olivier Mackain¹; Emmanuel Clouet¹; ¹CEA Saclay DEN/DMN/SRMP

F-24: GENESIS : An Open Platform for the Study and Nano Analysis (Atom Probe, SEM Cross Beam Station and MET (In Situ Straining, Temperature, Tomography) of Irradiation Effects in Radioactive Materials for Nuclear Application: *Philippe Pareige*¹; Bertrand Radiguet¹; Cristelle PAREIGE¹; ¹Rouen University

F-25: Thermal Resistance of UO2 Grain Boundaries under Extreme Radiation Conditions: *Tianyi Chen*¹; Di Chen¹; Lin Shao¹; ¹Texas A&M University

F-26: The Incorporation and Migration of a Single Xenon Atom in Cerium Oxide: *Yinbin Miao*¹; Wei-Ying Chen¹; Aaron Oaks¹; James F. Stubbins¹; ¹University of Illinois at Urbana-Champaign

F-27: Radiation Stability of Nanocrystalline Silicon Carbide: *Laura Jamison*¹; Beata Tyburska-Pueschel¹; Peng Xu²; Kumar Sridharan¹; Todd Allen¹; ¹University of Wisconsin-Madison; ²Westinghouse Electric Company

F-28: Ion Irradiation Damage Study on Titanium Aluminides: Young-won Kim¹; Stuart Maloy²; Ming Tang³; ¹UES-Materials & Processes; ²LANL; ³Los Alamos National Laboratory

F-29: Correlation between Fracture Toughness and Microstructure for Neutron Irradiation in Ceramics Materials: *Kouhei Tada*¹; Masashi Watanabe²; Tatsuo Shikama¹; ¹Touhoku University; ²Japan Atomic Energy Agency

Modeling and Experimental Validation of Multiscale Mechanical Behavior from Atomic Scale to Macro Scale: Poster Session

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS Structural Materials Division, TMS: Integrated Computational Materials Engineering Committee, TMS/ASM: Mechanical Behavior of Materials Committee, TMS: Nanomechanical Materials Behavior Committee, TMS: Process Technology and Modeling Committee, TMS: Shaping and Forming Committee

Program Organizers: Nathan Mara, Los Alamos National Laboratory; Jian Wang, Los Alamos National Laboratory; Brad Boyce, Sandia National Laboratories; Jennifer Carter, Case Western Reserve University; Anthony Rollett, Carnegie Mellon University; Jonathan Zimmerman, Sandia National Laboratories

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -
Location: Henry B. Gonzalez
Convention Center

Session Chair: Jian Wang, Los Alamos National Laboratory

G-1: A Defect Avalanche Approach To Characterize Inelastic Yield And Flow In Nanocrystalline Metals: *Shreevant Tiwari*¹; David McDowell¹; ¹Georgia Institute of Technology

G-2: Characterizing Deformation Behavior of Gum Metal: *Rohini Sankaran*¹; Velimir Radmilovic²; Daryl Chrzan¹; Andrew Minor¹; J.W. Morris¹; ¹University of California, Berkeley; ²University of Belgrade

G-3: Comparison of Volume-Based and Feature-Based Approaches to Material Property Distribution Prediction: *Daniel Sparkman*¹; Harry Millwater¹; ¹University of Texas at San Antonio

G-4: Computational Approaches for Multi-Scale Design of Magnetostrictive Alloys Galfenol: *Abhishek Kumar*¹; Veera Sundararaghavan¹; ¹Aerospace Department

G-5: Crystallographic Study of Zr Poisoning of Al-Ti-B Grain Refinement Using the Edge-to-Edge Matching Model: Yuan-chun Huang¹; Zheng-bing Xiao¹; Hong-yuan Zhu¹; ¹Central South University

G-6: Effects of Hot Compressive Dwell on Fatigue Crack Growth Behavior of Cast Aluminum Alloys: *Xiang Chen*¹; Diana Lados¹; Richard Pettit²; ¹Worcester Polytechnic Institute; ²Fracture Lab

G-7: In-Situ Observations and Simulation of Damage Accumulation during Plastic Deformation of Polycrystals: *Reeju Pokharell*¹; Anthony Rollett¹; Jonathan Lind¹; Xi Tan¹; Robert Suter¹; Shiu Fai Li²; Ricardo Lebensohn³; ¹CMU; ²Livermore National Lab; ³Los Alamos National Lab

G-8: Influence of Grain Boundary Structure on Interfacial Fracture under Tensile Loading: Cohesive Zone Model Informed by Atomistic Simulations: *Ilaksh Adlakha*¹; Kiran Solanki¹; Mark Tschopp²; ¹ASU; ²CAVS

G-9: Mechanical Behavior and Thermal Stability of Differently Oriented Nanotwinned Ag Films: *Daniel Bufford*¹; Haiyan Wang¹; Xinghang Zhang¹; ¹Texas A&M University

G-10: Mechanical Properties of Al-5182 Processed by Asymmetric Rolling: *Saeed Tamimi*¹; Augusto Lopes²; Jose Gracio¹; Edgar Rauch³; Said Ahzi⁴; Frederic Barlat¹; ¹TEMA, Mechanical Eng. Dep. University of Aveiro; ²Departamento de Engenharia Ceraâmica e do Vidro, Universidade de Aveiro; ³Génie Physique et Mécanique des Matériaux, ENSPG-INPG; ⁴Institute of Fluid and Solid Mechanics; IMFS, University of Strasbourg.

G-11: Multiscale Modeling and Experiments of Deformation of Nanoscale Metallic Multilayer Systems: *Niaz Abdolrahim*¹; Rachel Schoeppner¹; Ioannis Mastorakos¹; David Bahr¹; Hussein Zbib¹; ¹Washington State University

G-12: Plastic Deformation of a Nano-Precipitate Strengthened Ni-Base Alloy Investigated by Complementary In-Situ Neutron Diffraction Measurements and Molecular-Dynamics Simulations: E-Wen Huang¹; Yu-Lih Huang¹; Yu-Chieh Lo²; Wen-Jay Lee³; Peter Liaw⁴; ¹National Central University, Taiwan; ²Massachusetts Institute of Technology; ³National Center for High-Performance Computing; ⁴University of Tennessee

G-13: Simulation of Casting Process for Grinding Disc Seat: Qiu Keqiang¹; Zheng Nan¹; ¹Shenyang University of Technology

G-14: Spatially Resolved Acoustic Spectroscopy for Component-Scale Orientation Imaging: Case Studies in Alloys for Aerospace Propulsion Applications: *John Aveson*¹; Richard Smith²; Wenqi Li²; Jethro Coulson²; David Rugg³; Neil D'Souza³; Howard Stone¹; Steve Sharples²; ¹University of Cambridge; ²University of Nottingham; ³Rolls-Royce plc.

G-15: Strengthening Mechanisms of Highly Textured Cu/Co Multilayers: *Yue Liu*¹; Youxing Chen¹; Kaiyuan Yu¹; Haiyan Wang¹; Xinghang Zhang¹; ¹Texas A&M University

G-16: The Small-scale Deformation Behaviour of Tungsten: *James Gibson*¹; David Armstrong¹; Steve Roberts¹; ¹Oxford University

G-17: In Situ Virtual Diffraction Analysis of Alumina during Ion Bombardment: *Shawn Coleman*¹; Wesley Barrows¹; Douglas Spearot¹; ¹University of Arkansas

G-18: Mechanical Behaviors of Nanostructures of Low Melting Temperature Metals as Revealed by Synchrotron Laue X-ray Microdiffraction: *Arief Budiman*¹; M. Burek²; L. Berla³; D. Jang⁴; M. Kunz⁵; N. Tamura⁵; William Nix³; Julia Greer⁴; Ting Tsui²; ¹Los Alamos National Laboratory (LANL); ²University of Waterloo; ³Stanford University; ⁴California Institute of Technology; ⁵Advanced Light Source (ALS)

G-19: Understanding {112} Slip in Tantalum: *Jonathan Zimmerman*¹; Lucas Hale¹; Christopher Weinberger¹; ¹Sandia National Laboratories

G-20: Modeling Interfaces in Solids: From Atomic Scale to Meso/Macro-Scale: *Jian Wang*¹; Keonwook Kang¹; Ruifeng Zhang¹; Haijian Chu¹; Caizhi Zhou¹; Irene Beyerlein¹; ¹Los Alamos National Laboratory

G-21: A Thermomechanical Damage Inelastic Model For Amorphous Polymers: *David Francis*¹; Mark Horstemeyer¹; Jean-Luc Bouvard¹; ¹Mississippi State University

Nanostructured Materials for Lithium Ion Batteries and for Supercapacitors: Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Energy Conversion and Storage Committee

Program Organizer: David Mitlin, University of Alberta and NINT NRC

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -
Location: Henry B. Gonzalez
Convention Center

N-1: Use of Nanostructured Sn Thin Film Anodes for Lithium Ion Batteries: Deniz Polat¹; Ozgul Keles; ¹ITU

Neutron and X-Ray Studies of Advanced Materials VI: Centennial and Beyond: Poster Session

Sponsored by: TMS Structural Materials Division, TMS/ASM: Mechanical Behavior of Materials Committee

Program Organizers: Rozaliya Barabash, Oak Ridge National Laboratory; Xun-Li Wang, City University of Hong Kong; Jaimie Tiley, US Air Force Research Laboratory; Gernot Kostorz, ETH Zurich; Brent Fultz, California Institute of Technology; Peter Liaw, Univ of Tennessee

Monday PM
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H-1: Characterization by X-Ray Diffraction (XRD) of Heat Input Effect on the Transformation of Retained Austenite on Transformation Induced Plasticity Steel TRIP Welded with Gas Metal Arc Welding Process: Victor Lopez¹; saul reyes¹; gladys perez¹; arturo reyez¹; patricia zambrano²; Joaquin Del prado³; ¹Corporacion Mexicana de Investigacion en Materiales; ²FIME; ³metalsa

H-2: Texture Evolution during the Processing of 3.0% Silicon Steel with 0.5%Al and 2.5%Al: Jin Long Liu¹; Yu Hui Sha¹; Fang Zhang¹; Liang Zuo¹; ¹Northeastern University

H-3: The Competition between the Stress Relaxation and Load Transfer in NiAl-Strengthened Iron-Based Alloys: Zhiqian Sun¹; Shenyang Huang²; Zhenke Teng³; Gian Song¹; Gongyao Wang¹; Peter Liaw¹; ¹The University of Tennessee; ²GE Global Research; ³United States Steels Automotive Center

H-4: Formation of Cube and Goss Texture after Primary Recrystallization in Electrical Steels: Jin Long Liu¹; Yu Hui Sha¹; Ke Hu¹; Fang Zhang¹; Liang Zuo¹; ¹Northeastern University

H-5: Micro-Deformation Mechanisms of a Dendrite/Zr-Based Bulk-Metallic-Glass Composite Subjected to Plastic Deformation: E-Wen Huang¹; Jer-Yi Liao¹; Yu-Lih Huang¹; Peter Liaw²; Junwei Qiao³; Philip Withers⁴; ¹National Central University; ²University of Tennessee; ³Taiyuan University of Technology; ⁴University of Manchester

Pb-free Solders and Emerging Interconnect and Packaging Technologies: Poster Session

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Electronic Packaging and Interconnection Materials Committee

Program Organizers: Nikhilesh Chawla, Arizona State University; Srinivas Chada, Whirlpool; Darrel Frear, Freescale Semiconductor; John Elmer, LLNL; Tae-Kyu Lee, Cisco Systems; Yan Li, Intel; Laura Turbini, Research In Motion; Kwang-Lung Lin, National Cheng Kung University; Sohoon Yoo, Korea Institute of Industrial Technology

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Room: Park View Lobby -
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M-1: Asymmetrical Growth of Intermetallic Compounds Due to Thermomigration of Cu in Molten SnAg Solder: Yi-Sa Huang¹; Chih Chen¹; ¹National Chiao Tung University

M-2: Characterization of Microstructure and Sn Crystal Orientation Evolution in Large-Area Lead-Free Solder Joints in High Temperature Packaging Applications: Bite Zhou¹; G Muralidharan²; Kanth Kurumadalli²; Andrew Kercher²; Chad Parish²; Scott Leslie³; Thomas Bieler¹; ¹Michigan State University; ²Oak Ridge National Laboratory; ³Powerex Inc

M-3: EBSD Study of Electromigration Damage in Idealized SnAgCu 305 Interconnects Containing a Ni Layer: Xioranny Linares¹; Chris Kinney¹; Kyu-oh Lee²; John Morris¹; Linda Dada¹; ¹UC Berkeley; ²Intel Corporation

M-4: Effects of Microstructure on Temperature Distribution in Sn-based Pb-free Solder Joints under Direct Current Stressing: Xu Zhang¹; KN Subramanian²; Andre Lee²; Fu Guo³; ¹Beijing University of Technology; ²Michigan State University; ³Beijing University of Technology

M-5: Evaluation of Mechanical Properties in the Solder Joint with Ameliorated Nickel-Iron Alloy Films UBM during Thermal Treatments: Hsiu-Min Lin¹; Jenq-Gong Duh¹; ¹Materials Science and Engineering, National Tsing Hua University

M-6: Evolution of Resistance across Eutectic Sn-Bi Solder Joints under Simultaneous Thermal Cycling and Current Stressing: Yong Zuo¹; Limin Ma¹; KN Subramanian²; Andre Lee²; Fu Guo³; ¹Beijing University of Technology; ²Michigan State University

M-7: Evolution of Tin Whiskers during Thermal Cycling: Ying Wang¹; Carol Handwerker¹; John Blendell¹; ¹Purdue University

M-8: Fracture Behavior of Simulated SnAgCu Solder Micro-Bump Joints: Effects of Process and Service Conditions: Zhe Huang¹; Uttara Sahaym¹; Indranath Dutta¹; Ganesh Subbarayan²; Rajen Sidhu³; ¹Washington State University; ²Purdue University; ³Intel Corporation

M-9: Interfacially Engineered Micro and Nano-Scale Cu-In Composites for High Heat Flux Thermal Interface Materials Applications: Kathryn Mireles¹; Jia Liu¹; Uttara Sahaym¹; Indranath Dutta¹; Mukul Renavikar²; Rajen Sidhu²; Ravi Mahajan²; ¹Washington State University; ²Intel Corporation

M-10: Joint Properties of Sn-58Bi Solder Bumps on Flexible Substrate: Min Su Kim¹; Yong-Ho Ko¹; Sehoon Yoo¹; Jeong-Han Kim¹; Chang-Woo Lee¹; ¹Korea Institute of Industrial Technology

M-11: Mechanical Property and Fracture Behavior of High Temperature Pb-Free Solder: *Hsiu Chen Tu*¹; Kwang-Lung Lin¹; ¹National Cheng Kung University

M-12: Mechanisms of Creep Deformation in Pure Sn Solder Joints: K. Lee; John Morris; *Fay Hua*¹; ¹Intel Corporation

M-13: Metastable Phases in Sn-Ni Solders: *Sergey Belyakov*¹; Christopher Gourlay¹; ¹Imperial College London

M-14: Observation of Deformation Twin in Lead-Free Solder Joints and Its Formation Mechanism: *Huili Xu*¹; Choong-Un Kim¹; Tae-Kyu Lee²; Thomas Bieler³; ¹University of Texas at Arlington; ²Cisco System Inc.; ³Michigan state university

M-15: Sn-Co/Ag and Sn-Co/Cu Interfacial Reactions with/without Electromigration: *Chia-ming Hsu*¹; Sinn-wen Chen¹; Jui-shen Chang¹; ¹National Tsing Hua University

M-17: Hillock Nucleation from Thermally-Cycled Large-Grain Pb-Free Solder Films: *Carol Handwerker*¹; John Koppes; Pylin Sarobol; Wei-Hsun Chen; John Blendell¹; ¹Purdue University

M-16: Effect of Intermetallic Reaction Characteristics on Reliabilities of Fine Pitch Solder Microbump: *Young-Bae Park*¹; Jong-Jin Park¹; Sung-Hyuk Kim¹; Jong-Myung Park¹; ¹Andong National University

M-18: Stress/Strain Analysis and Anisotropic Effects on Whisker Formation in Thermally-Cycled Tin Films: *Wei-Hsun Chen*¹; Ying Wang¹; Pylin Sarobol¹; John Koppes¹; John Blendell¹; Carol Handwerker¹; ¹Purdue University

M-19: Structural Size Effects on the Mechanical Behavior of Different Phases of Sn-3.5Ag Solder Joints: *Ousama Abdelhadi*¹; Leila Ladani¹; ¹University of Alabama

M-20: Study of Fast Phase Transformation of Ni-Sn Intermetallic Compounds during Electromigration Test in Fine-Pitch Microbumps: *Yuan-Wei Chang*¹; Yi-Sa Huang¹; Chih Chen¹; Nicholas Kao²; Eason Chen²; Daniel Lee²; J.Y. Juang²; ¹National Chiao Tung University; ²Siliconware Precision Industries Co., Ltd.

M-21: Thermomigration Induced Fast Dissolution of Interstitial Ni in Three-Dimensional Integrated Circuits Packaging: *Yzu-Yang Lin*¹; Fan-Yi Ouyang¹; Wei-Cheng Juh¹; ¹National Tsing Hua University

M-22: Tin Nanoparticles Based Solder Paste for Low Temperature Processing: *Alfredo Díaz-González*¹; Pedro Quintero-Aguiló¹; ¹University of Puerto Rico at Mayaguez

Recent Developments in the Processing, Characterization, Properties, Performance and Applications of Metal Matrix Composites: Poster Session

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

Program Organizers: Martin Pech-Canul, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional; Zariff Chaudhury, Materion Corporation; Golam Newaz, Wayne State University

Monday PM
Symposium Poster Area
March 4, 2013

Room: Park View Lobby -

Location: Henry B. Gonzalez Convention Center

Session Chairs: Zariff Chaudhury, Materion Corporation; Martin Pech-Canul, CINVESTAV IPN SALTILLO

L-1: Wear Characteristics of Aluminum Matrix Nanocomposites with Ce-TZP/Al₂O₃ Nanocomposite Produced by Powder Metallurgy at Different Sintering Temperatures: Niloofar Soltani¹; Amin Bahrami²; *Martin Pech-Canul*³; ¹Sharif University of Technology; ²Razi Metallurgical Research Center; ³Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional-Unidad Saltillo

L-2: The Effect of Ti on Mechanical Properties of Extruded In-Situ Al-15% Mg₂Si Composite: Niloofar Soltani¹; Amin Bahrami²; *Martin Pech-Canul*³; Ahmad Razaghian⁴; Masoud Emamy⁵; ¹Sharif University of Technology; ²Razi Metallurgical Research Center; ³Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional-Unidad Saltillo; ⁴Imam Khomeini International University; ⁵University of Tehran

General Poster Session: General Poster Session

Monday PM
Poster Area
March 4, 2013

Room: Park View Lobby - General

Location: Henry B. Gonzalez Convention Center

A-1: Dual-scale Plastic Deformation Behavior of High Nitrogen Duplex Stainless Steel by Multiscale in-situ Experiments: *Yong-Min Kim*¹; Yong Seok Choi¹; Tae Ho Lee²; Dong-Ik Kim³; Kyu Hwan Oh¹; Heung Nam Han¹; ¹Seoul National University; ²Korea Institute of Materials Science; ³Korea Institute of Science and Technology

A-2: An Investigation of the Corrosion Behavior of AM60B-xZn(x=0.5-2.0wt%) Alloys with Salt Spray Test: Min-Seok Moon¹; *Myung-Han Yoo*¹; Kee-Do Woo²; Shin-Jae Kang²; Joon-Hyuk Song¹; Je-Ha Oh¹; ¹Chonbuk National University, Jeonju Institute of Machinery Carbon Composites; ²Chonbuk National University

A-3: A Study on Structural Integrity of the Carbody in Railway Rolling Stocks: *Sung Cheol Yoon*¹; Sung Hyuk Park¹; Joon Hyung Ryu¹; Hee Up Lee¹; Kyoung Chang Park²; ¹Korea Railroad Research Institute; ²Hyundai Rotem Company

A-4: Application of Non-stationary Thermal Model for Simulation and Investigation of Heat and Refining Processes of Ti During EBMR: *Katia Vutova*¹; Veliko Donchev¹; Vania Vassileva¹; Dinesh Amalnerkar²; Nagegownivari Munirathnam²; Tirthalli Prakash²; ¹Institute of electronics, Bulgarian Academy of Sciences; ²Centre for Materials for Electronics Technology (C-MET)

A-5: A Study for Microstructures of Inconel 690 Used in Heat-Transfer Tube for Nuclear Power Plant Steam Generators during Cold-Working Process: *Ji Haeng Heo*¹; Seon-jin Kim¹; Gyeongsu Shin¹; Jaeyong Yun¹; ¹Hanyang University,

A-6: Effect of Heat Treatment Environment on the Properties of Cold Sprayed Cu-15at.%Ga Coating Material for Sputtering Target: *Kee-Ahn Lee*¹; Byung-Chul Choi¹; Hyung-Jun Kim²; ¹Andong National University; ²RIST

A-7: Effect of Heat Treatment Environment on the Densification of Cold Sprayed Ti Coating Layer: *Ji-Sang Yu*¹; Hyung-Jun Kim²; Ik-Hyun Oh³; *Kee-Ahn Lee*¹; ¹Andong National University; ²RIST; ³KITECH

A-8: A Study on the Stress Test of Truck Frames for Gondola Car: *Sung Cheol Yoon*¹; Jeongguk Kim¹; ¹Korea Railroad Research Institute

A-9: Effect of Ca or CaO Addition on Microstructure and Thermal Conductivity of Mg-4Al-2Sn Alloys: *Gun Young Oh*¹; Hyun Kyu Lim¹; Young-Ok Yoon¹; Shae K. Kim¹; ¹KITECH

A-10: Characterization of Precipitation in an Al-Mg-Mn-Cu Alloy: *Yasuhiro Aruga*¹; ¹Kobe Steel, Ltd.

A-11: Effect of CaO Addition on the Oxidation Resistance of AZ91D Eco-Mg Alloys: *Jin-Kyu Lee*¹; Hyung-Jo Yoo¹; Sung-Min Park¹; Shae K. Kim²; ¹HMK CO., LTD; ²KITECH

A-12: Effect of Interface Phases between Copper Circuit and AAO Layers for Enhancing Peel Strength: *Hyo-Soo Lee*¹; ¹KITECH

A-13: Effect of Interface Phases between Copper Circuit and AAO Layers for Enhancing Peel Strength: *Hyo-Soo Lee*¹; ¹KITECH

A-14: Bistable Morphing Structures: Geometric and Mechanistic Determination: *Zi Chen*¹; Qiaohang Guo²; Carmel Majidi³; Wenzhe Chen⁴; David Srolovitz⁵; Mikko Haataja⁶; ¹Washington University in St. Louis; ²Fujian University of Technology; ³Carnegie Mellon University; ⁴Fuzhou University; ⁵Institute of High Performance Computing; ⁶Princeton University

A-15: Combustion of Aluminum Powder Compacts due to Dynamic High-Strain-Rate Loading: *Jennifer Breidenich*¹; Michael Clemenson²; Nick Glumac²; Naresh Thadhani¹; ¹Georgia Institute of Technology; ²University of Illinois Urbana-Champaign

A-16: Determination of Undercooled Liquid Heat Capacities by Levitation Drop Calorimetry: *Carl Tackes*¹; Ralph Napolitano¹; ¹Iowa State University/Ames Laboratory

A-17: A Study on the Structural Design of the Car Body for Freight Car: *Sung Cheol Yoon*¹; Jeongguk Kim¹; ¹Korea Railroad Research Institute

A-18: Effect of Aging Treatment on the Mechanical Properties of 6082 Al Wrought Alloy: *Young-Ok Yoon*¹; Hyun Kyu Lim¹; Shae K. Kim¹; ¹Korea Institute of Industrial Technology

A-19: Effect of Microstructure on Creep Resistance of LPSO Phase-Containing Mg-Zn-Gd Extruded Alloys: *Yuri Jono*¹; Michiaki Yamasaki¹; Yoshihito Kawamura¹; ¹Kumamoto University

A-20: Effect of Aging Time on Microstructure and Mechanical Properties of Al2Ca Added Diecast Al-11%Si-1.6%Cu-Mg Alloy: *Gil Yong Yeom*¹; Young Ok Yoon¹; Hyun Kyu Lim¹; Shae K. Kim¹; ¹Korea Institute of Industrial Technology

A-21: Effect of Aging Time on Microstructure and Mechanical Properties of Diecast Al-10Si-2Cu-0.3Mg Alloy: *Shae K. Kim*¹; ¹Korea Institute of Industrial Technology

A-22: Mechanical Properties of Radio Frequency Plasma Assisted Chemical Vapor Deposited Diamond-Like Carbon (DLC) Thin Films: *M. Mamun*¹; D. Stegall¹; M. Korwin-Pawlowski²; A. Elmustafa¹; ¹Old Dominion University; ²Université du Québec en Outaouais

A-23: Composite Materials Reinforced By Basalt and Carbon Hybrid Fibers: *Nikoloz Chikhradze*¹; Guram Abashidze¹; Levan Japaridze¹; ¹Mining Institute/Georgian Technical University

A-24: Application of Fast Scanning Calorimetry in the Rapid Solidification of Tin Particles Embedded in Al Matrix: *Weipeng Zhang*¹; Bingge Zhao¹; Qijie Zhai¹; Yulai Gao¹; ¹School of Materials Science and Engineering, Shanghai University

A-25: Copper Nanopillars under High Strain Rates: *Henry A. Colorado*¹; Artemio Navarro¹; Sergey Prikhodko¹; Sunnel Kodambaka¹; Jenn-Ming Yang¹; Nasr Ghoniem¹; Vijay Gupta¹; ¹University of California, Los Angeles

A-26: Nanoindentation Investigation of the Reactive Pulsed Laser Deposited Superconducting Niobium Nitride Thin Films: *M. Mamun*¹; A. Farha¹; Y. Ufuktepe²; S. Kimura³; T. Hajiri⁴; K. Imura⁴; F. Karadag²; H. Elsayed-Ali¹; A. Elmustafa¹; ¹Old Dominion University; ²Cukurova University; ³UVSOR Facility; ⁴Nagoya University

A-27: Nanomechanical Investigation of Femtosecond Pulsed Laser Deposited InN on Si(100): *M. Mamun*¹; M. Hafez¹; H. Elsayed-Ali¹; A. Elmustafa¹; ¹Old Dominion University

A-28: Kinetic Study of Recovery of Iron from Cassiterite Ore: *Martin Ogwuegbu*¹; *Gerald Onyedika*¹; ¹Federal University of Technology, Owerri

A-29: Evaluation of Fracture Toughness by Nanoindentation: *Reza Mirshams*¹; ¹University of North Texas

A-30: Electrical and Electrochemical Characterization of Lithium Ion Cells: *Jorge Acosta*¹; Pablo Favilla¹; *Carlos Schvezov*²; Juan Collet-Lacoste³; ¹CEDIT - CONICET Fellow; ²University of Misiones; ³National Atomic Energy Commission

A-31: Microstructural Characterization and Analysis of Cold Spray Al Alloys: *Baillie McNally*¹; Danielle Belsito¹; Victor Champagne²; Richard Sisson¹; ¹Worcester Polytechnic Institute; ²Army Research Lab

A-32: Fatigue Characteristics of CNT Reinforced Al Composite Materials for Automotive Applications: *Jong Kook Lee*¹; Byung Ho Min¹; Hoon Mo Park¹; Do Suck Han¹; ¹Hyundai Motor

A-33: Modeling of a Displacive Transformation within Continuous Displacement Cluster Variation Method: *Naoya Kiyokane*¹; Tetsuo Mohri¹; ¹Hokkaido University

A-34: Highly Porous Mo with Interconnected Pore Channels Synthesized from Camphene/MoO₃ Slurry by Freeze-Drying Process: *Myung-Jin Suk*¹; Si-Young Chang²; Sung-Tag Oh³; ¹Kangwon National University; ²Korea Aerospace University; ³Seoul National University of Science and Technology

A-35: High Temperature Oxidation Behavior of Fe-Cr-Al Alloy Powder Porous Metal and Strip: *Seon-Hui Lim*¹; Jae-Sung Oh¹; Man-Ho Park²; Kwon-Oh Oh²; *Kee-Ahn Lee*¹; ¹Andong National University; ²Alantum(Co.)

A-36: Get Ready: *Ji Haeng Heo*¹; Seon Jin Kim¹; Gyeong su Shin¹; Jaeyong Yun¹; ¹Hanyang University

A-37: Effect of W on the Thermal Stability of γ' Precipitate in Two Experimental Inconel 740: *Gyeong Su Shin*¹; Ji Haeng Heo¹; Jae Yong Yun¹; Seon Jin Kim¹; ¹Hanyang Univ.

A-38: Effect of Shape Memory Transformation Media in Ex-Situ BMG Matrix Composites: Hyeon Seok Oh¹; *Wook Ha Ryu*¹; Jin Kyu Lee²; Yeon Wook Kim³; Eun Soo Park¹; ¹Seoul National University; ²Kongju National University; ³Keimyung University

A-39: Fabrication of Sintered-Body Ti-pd from Hydride Dehydride Ti Powder for Machine Tool and Its Mechanical Properties: Ik-Hyun Oh¹; *Hyun-Kuk Park*¹; Jung-Han Ryu¹; Jun-Ho Jang¹; ¹KITECH / Automotive Components Center

A-40: Effects of Carrier Gases on the Microstructures and Properties of Ti Coating Layers Manufactured through the Cold spraying: Myeong-Ju Lee¹; Ji-Sang Yu¹; Hyung-Jun Kim²; *Kee-Ahn Lee*¹; ¹Andong National University; ²RIST

A-41: Improvement in Wear Resistance of Carbon Steels Induced by Pulsed Electron Beam Surface Treatment: *Kemin Zhang*¹; ¹Shanghai University of Engineering Science

A-42: Investigation of Optimum Cementation Conditions of Ruthenium with Experimental Design: *Bihter Zeytuncu*¹; M.Hakan Morcali¹; O.Halil Çelik¹; Onuralp Yucel¹; ¹Istanbul Technical University

A-43: Improved Performance of Metal-Based Dye-Sensitized Solar Cells by Introducing a TiN Nanocrystalline Thin Film: *Wei-Lun Tai*¹; Fan-Yi Ouyang¹; ¹National Tsing Hua University

A-44: Hot Working Behaviour of As-Cast Mg-4Sn-2Ca Alloy: K. Suresh¹; *Pitcheswara Kamineni*¹; Y.V.R.K. Prasad²; Norbert Hort³; ¹City University of Hong Kong; ²processingmaps.com; ³Helmoltz-Zentrum Geesthacht

A-45: Effects of Aluminum Content and Plate Thickness on the Microstructure and Tensile Properties in AM Series Magnesium Alloys: *Erin Deda*¹; Mei Li²; Jacob Zindel²; Xin Sun³; John Allison¹; ¹University of Michigan; ²Ford Motor Company; ³Pacific Northwest National Laboratory

A-46: Grain-Refinement and Dispersion Hardening of Ferritic Steel Surface through Friction Stir Processing: *Yoshihisa Kimoto*¹; Toru Nagaoka¹; Hiroyuki Watanabe¹; Masao Fukusumi¹; Yoshiaki Morisada²; Hidetoshi Fujii²; ¹Osaka Municipal Technical Research Institute; ²Joining and Welding Research Institute, Osaka University

A-47: Monitoring of Railway Braking Characteristics: *Jeongguk Kim*¹; Sung Cheol Yoon¹; ¹Korea Railroad Research Institute

A-48: Microstructures and Hardness Properties for β -Phase Ti-24Nb-4Zr-8Sn Alloy Fabricated by Electron Beam Melting: *J. Hernandez*¹; S.J. Li²; E. Martinez¹; L. Murr¹; X. Pan³; K. Amato¹; X.Y. Cheng²; F. Yang²; C.A. Terrazas¹; E. Rodriguez¹; S.M. Gaytan¹; Y.L. Hao²; R. Yang²; F. Medina¹; R.B. Wicker¹; ¹University of Texas at El Paso; ²Institute of Metal Research; ³Dalian University of Technology

A-49: Precipitation Hardening Effect of Ti-Al-Mo-Fe Alloy: *Dong-Geun Lee*¹; Yongtai Lee¹; Chenglin Li²; Xujun Mi²; Wenjun Ye²; ¹Korea Institute of Materials Science; ²General Research Institute for Nonferrous Metals

A-50: The Inoculation of Chromium White Cast Iron: *Dariusz Kopycinski*¹; ¹AGH University of Science and Technology

A-51: Some Aspects of Workability of Engineering Materials: *Bashir Raddad*¹; Abdulbaset Frefer²; Mohee Abdel-Rahman²; Ali Tajouri²; ¹University of Al Fateh, Mechanical Department; ²University of Tripoli

A-52: The Behavior of Boride Compounds in High Elastic Aluminum Alloy Using In-Situ Reaction: *Hoonmo Park*¹; Hoodam Lee¹; Kyungmoon Lee¹; Taegyu Lee¹; Hyuk Kang¹; Do-Suck Han¹; ¹Hyundai motors

A-53: Observation of Texture Evolution in AZ31 Magnesium Alloy during Plane Strain Deformation and Static Recrystallization: *Keunho Lee*¹; Jun-Ho Park¹; Yong-Min Kim¹; Kyung Il Kim¹; Dong-Ik Kim¹; Kyu Hwan Oh¹; Heung Nam Han¹; ¹Seoul National University

A-54: Used Foundry Sand Reclamation in New Vibratory Unit: *Rafal Danko*¹; Jozef Danko¹; Mariusz Holtzer¹; ¹AGH University of Science and Technology

A-55: Non-isothermal Kinetics Research of the Pellet under High Reduction Potential: *Zuo Haibin*¹; Jiao Kexin¹; Xu Runsheng¹; Zhang Jianliang¹; ¹USTB

A-56: Performance Degradation Due to Practical Operating Stresses and Post-Fabrication Measures to Improve Stability in Mixed Oxide Thin Film Transistors: *Andrew Knight*¹; Rajitha Vemuri²; Muhammad Hasin²; N Theodore³; Aprillya Lanz¹; Terry Alford²; ¹Norfolk State University; ²Arizona State University; ³Freescale Semiconductor Inc.

A-57: The High Temperature Oxidation Behavior of Ni-Cr-Al Powder Porous Metal: Jae-Sung Oh¹; Sung-Hwan Choi¹; Man-Ho Park²; *Kee-Ahn Lee*¹; ¹Andong National University; ²Alantum (Co)

A-58: Oxidation Behavior of Nb-Modified MAR-M247 Superalloy at 1000°C in Air: *Renato Baldan*¹; Carlos Nunes¹; Gilberto Coelho¹; ¹USP - University of São Paulo

A-59: The Use of Conductive Carbon Nanotubes/Polymer Nonwoven Nanofiber Composites as Shielding Materials for Electromagnetic Interference and Radiation Shielding: *George Garza*¹; Alfonso Salinas¹; Mataz Alcoutlabi¹; Karen Lozano¹; ¹The University of Texas Pan American

A-60: Organic Coatings To Prevent Molten Aluminium Water Explosions: *Alex Lowery*¹; Joe Roberts²; ¹Wise Chem LLC; ²Pyrotek Inc

A-61: Poly Methyl Methacrylate-Halloysite Composite Nanofibers Prepared via Forcespinning: *Aileen McCleaf*¹; Ram Thapa¹; Karen Lozano¹; ¹The University of Texas Pan American

A-62: Recrystallization and Grain Growth in Binary Titanium-Aluminum Alloys: *Anna Colletti*¹; John Allison¹; ¹University of Michigan

A-63: Real-Time Diagnostics on Attritor Mill: Towards a Better Scale-Up Model: *Priya Radhi Santhanam*¹; Edward Dreizin¹; ¹New Jersey Institute of Technology

A-64: Reduction of Pellets of Basic Oxygen Furnace (BOF) Dust Using Hydrogen: *Eduardo Junca*¹; Girely Rodrigues¹; Victor Telles¹; Denise Espinosa¹; Jorge Tenório¹; ¹University of São Paulo

A-65: Thermal Mechanical Fatigue Crack Growth from Laser Drilled Holes in Single Crystal Material: Raymond Kersey¹; *Alexander Staroselsky*¹; ¹Pratt & Whitney

A-66: Assessment of the Addition of Electric Arc Furnace Dust in Hot Metal at a Temperature of 1500°Celsius: *Vicente Sobrinho*¹; Jose Oliveira¹; Estefano Vieira¹; Victor Telles²; Felipe Grillo²; Jorge Alberto Tenorio²; Denise Espinosa²; ¹IFES; ²USP

A-67: Title: Investigation of the Very High Cycle Fatigue Behavior of Binary Ti-Al Alloys by Ultrasonic Fatigue: *Sinsar Hsie*¹; James Jones¹; John Allison¹; ¹University of Michigan

A-68: Chemical Synthesis to Obtain Ceramic Pigments: *Oscar Restrepo*¹; Edgar Chavarriaga¹; ¹National University of Colombia

A-69: Study of pH Dependent Redox Potential of Cerium Oxide Nanoparticles: *Shashank Saraf*¹; Ajay Karakoti²; Swetha Barkam¹; Sudipta Seal¹; ¹University of Central Florida; ² Pacific Northwest National Lab

A-70: Thermographic Nondestructive Evaluation of Railway Bogies: *Jeongguk Kim*¹; ¹Korea Railroad Research Institute

A-71: An Assessment of the Maximum Entropy Production Rate for the Prediction of Solidification Bifurcations during Directional Solidification.: *Yaw Bensah*¹; J Sekhar¹; ¹University of Cincinnati

A-72: Transformation Sequence in Bitumen Quenched 0.4C Dual Phase Steel: *Hakeem Amuda*¹; Adeolu Adeolu Adesoji¹; ¹University of Lagos

A-73: Characterization and Corrosion Behavior of Oxide Layer on Mg Alloy Via Plasma Electrolytic Oxidation in Two Different Electrolytes: *Young Gun Ko*¹; Kang Min Lee²; Ki Ryong Shin²; In Jun Hwang²; Dong Hyuk Shin²; ¹Yeungnam University; ²Hanyang University

A-74: Influence of Pulse Frequency on Surface Properties in Titanium Via Plasma Electrolytic Oxidation Process: You Chan Jung¹; Sang Il Yoon¹; In Jun Hwang¹; *Young Gun Ko*²; Dong Hyuk Shin¹; ¹Hanyang University; ²Yeungnam University

A-75: Nitinol Commercialization Accelerator – Ohio Third Frontier: *Janet Gbur*¹; John R Lewandowski¹; Hossein Lavvafi¹; Melissa Young²; David Schwam¹; James McGuffin-Cawley¹; Michael Nathal³; Santo Padula IP¹; John J Lewandowski¹; ¹Case Western Reserve University; ²Cleveland Clinic; ³NASA Glenn Research Center

A-76: Production of Nanostructured ZnFe2O4 Particles via Ultrasonic Spray Pyrolysis Method: *Kamil Burak Dermenci*¹; Burcak Ebin; Sebahattin Gurmen; ¹Anadolu University

A-77: Development of Novel Thermally Stable Mo-Based Metallic Glasses: *Jin Woo Kim*¹; Eun Soo Park¹; Joon Seok Kyeong²; Do Hyang Kim²; ¹Seoul National University; ²Yonsei University

A-78: Nanomechanical Properties of Zirconium Processed by Means of Surface Mechanical Attrition Treatment: *Conghui Zhang*¹; Yaomian Wang¹; Xiaomei He¹; ¹Xi'an University of Architecture and Technology

A-79: In Situ SEM Investigation on Deformation Behavior of a Dual Phase Stainless Steel: *Enyu Guo*¹; Tao Jing¹; ¹Tsinghua University

A-80: Salvinia sp Applied to AMD Treatment: Equilibrium Time and Biomass Characterization: *Flávia Silva*¹; Erika Gusmão²; Daniella Buzzi³; Ivo Schneider⁴; José Oliveira²; Denise Espinosa³; Jorge Tenório³; ¹Polytechnic School of São Paulo University; ²Instituto Federal do Espírito Santo; ³Polytechnic School of São Paulo University; ⁴Universidade Federal do Rio Grande do Sul

A-81: Beyond Hume-Rothery Rules in Al-Based Approximants and Quasicrystals: *Jean-Marie Dubois*¹; ¹Institut Jean Lamour

A-82: Physical Properties of Thermoelectric Zinc Antimonide Using First-Principles Calculations: *Philippe Jund*¹; Kinga Niedziolka¹; Xiaoma Tao²; Jean-Claude Tedenac¹; ¹Université Montpellier 2 - ICGM; ²College of Physical Science and Technology

A-83: The Electron Per Atom Ratios of Ideal Metallic Glasses Unveiled by Cluster-Resonance Model: *Chuang Dong*¹; Guang Han¹; Jianbing Qiang¹; Yingmin Wang¹; Qing Wang¹; Peter Häussler²; ¹Dalian University of Technology; ²Chemnitz University of Technology

A-84: Tight Binding Understanding of Carbon Defects in Steel: *Nicholas Hatcher*¹; Georg Madsen¹; Ralf Drautz¹; ¹ICAMS, Ruhr-Universität Bochum

A-85: First-principles Models for Phase Stability of Ternary Fe-Cr-Ni Alloys: *Duc Nguyen-Manh*¹; Marek Muzyk¹; Mikhail Lavrentiev¹; Sergei Dudarev¹; ¹Culham Centre for Fusion Energy

A-86: Structural Vacancies in Titanium Oxycarbides from First-principles Calculations: Bo Jiang¹; GeGe Zhou¹; Kai Huang¹; Hongmin Zhu¹; ¹USTB

A-87: Stabilizing Materials' Chemistry by Implementation of Real-time Elemental Laser-induced Breakdown Spectroscopy (LIBS) Analyzer: *Michael Gaff*¹; Yoni Groisman¹; Alexander Baryshnikov²; ¹Laser Distance Spectrometry; ²Icon Steel

A-88: Effect of Sintering Temperature on Densification Behavior of Spark Plasma Sintered Molybdenum: *Gultekin Goller*¹; Filiz Sahin¹; Fatih Denizalp¹; Onuralp Yucel¹; ¹Istanbul Technical University

Biological Materials Science Student Poster Session

Sponsored by: TMS Structural Materials Division, TMS: Biomaterials Committee

Program Organizers: Candan Tamerler, University of Washington; Molly Gentleman, Texas A&M University; Po-Yu Chen, National Tsing Hua University; Kajal Mallick, University of Warwick; Rajendra Kasinath, Montana Tech of the University of Montana; P. G. Allison, US Army Engineer Research & Development Center

Monday PM
& Young Leader Poster Area
March 4, 2013

Room: Park View Lobby - Student
Location: Henry B. Gonzalez
Convention Center

SB-1: Bioactive Protein Based Ceria-PLGA 3D Scaffold for Tissue Regeneration: *Swetha Barkam*¹; Biman Mandal²; Soumen Das¹; Sudipta Seal¹; ¹University of Central Florida; ²Indian Institute of Technology Guwahati

SB-2: Influence of Anodization on Morphology, Hydrogen Evolution, pH, Cytotoxicity and Electrochemical Properties of Mg Alloys/MMCs: *Puneet Gill*¹; Norman Munroe¹; Ryszard Rokicki²; ¹Florida International University; ²Electrobright

SB-3: Laboratory Equipment for Implant Material Testing: Tribocorrosion of Load Bearing Joints - Test Methodology, Analysis and Validation: *Ali Tabeshian*¹; Dan Persson²; Steven Savage³; Ragnhild Aune¹; ¹Norwegian University of Science and Technology; ²SWEREA KIMAB AB; ³Swedish Defense Research Agency (FOI)

SB-4: Comparison of Nacre and Bioinspired Nanocomposites Using In-Situ SEM Mechanical Characterization: *Omar Rodriguez-Negron*¹; Robert Moser²; Paul Allison²; Kevin Torres-Cancel²; Mei Chandler²; Charles Weiss²; James Jordon³; J. Schirer⁴; ¹UPRM/ ARMY ERDC; ²Army ERDC; ³University of Alabama; ⁴Hysitron Inc.

SB-5: Gold Nanoprobes for Detection of Mycobacteria Species: Filiz Sayar¹; *Farzaneh Moghtader*¹; Erhan Piskin¹; ¹Hacettepe University

SB-6: Rotating Bending and Flex Bending Fatigue of Oxide-Finished Nitinol Wire: *Janet Gbur*¹; John J Lewandowski¹; ¹Case Western Reserve University

SB-7: Additive Manufactured Porous Titanium Implants: Sintering Protocols: *Ahmad Basalah*¹; Esmaeili Shahrzad¹; Ehsan Toyserkani¹; ¹University of Waterloo

SB-8: Development of Hot-Rolled Co-Cr-W-Based Alloys for CAD/CAM Dentistry: *Kenta Yamanaka*¹; Manami Mori²; Koji Kuramoto¹; Emi Onodera¹; Akihiko Chiba¹; ¹Tohoku University; ²NISSAN ARC, LTD.

SB-9: Tensile Behavior of Major and Minor Ampullate Silks from *Latrodectus Hesperus* (Black Widow) Spider: *Antony Kirubanandham*¹; Sandeep Basu²; Bennett Addison³; Jeff Yarger³; Nikhilesh Chawla¹; ¹Arizona State University; ²Agilent, Chandler, AZ; ³Department of Chemistry, Arizona State University, Tempe, AZ 85287

SB-10: Wettability, Cytocompatibility and Tribology of Functionalized Carbon Nanotube and Al₂O₃ Reinforced Ultra High Molecular Weight Polyethylene Biocomposite: *Anup Patel*¹; Kantesh Balani¹; ¹IIT-Kanpur

SB-11: Mechanical and Tribological Properties of Antibacterial ZnO-UHMWPE Biocomposites: *Rajeev Sharma*¹; Ambreen Nisar¹; Kantesh Balani¹; ¹IIT Kanpur

SB-12: Synthesis and Characterization of Metal-doped Hydroxyapatite Based Antimicrobial Agent: *Muhammad Aftab Akram*¹; Sofia Javed¹; Asif Mehmood¹; Mohammad Mujahid¹; ¹National University of Sciences and Technology Pakistan

SB-13: The Use of New Titanium-based Alloys as Functionally Graded Biomaterials for Dental Implantology: *Nicolas Gozdecki*¹; Frederic Prima¹; ¹Ecole Nationale Supérieure de Chimie de Paris

SB-14: Surface Engineering Approaches for Enhanced Wear and Osseointegration Properties of Ti-35Nb-7Zr-5Ta Orthopedic Alloy: *Pavani Kami*¹; Sanket Dahotre¹; Sushanth Reddy¹; Soumya Nag¹; Thomas Scharf¹; Narendra Dahotre¹; Rajarshi Banerjee¹; ¹University of North Texas

SB-15: Metal Binding Fluorescent Proteins for Bio-Imaging and Bio-Sensing Applications: Banu Taktak Karaca¹; Elif Karaca¹; Esra Yuca²; Bulent Balta¹; Mehmet Sarikaya³; Candan Tamerler³; ¹Molecular Biology and Genetics Department and MOBGAM, Istanbul Technical University, Istanbul, Turkey; ²Molecular Biology and Genetics Department, Yildiz Technical University, Istanbul, Turkey; ³Materials Science and Engineering Department and GEMSEC, University of Washington, Seattle, WA, US

SB-16: Antimicrobial Activity on Calcium Phosphate Coated Nanotubular Titanium Surfaces by Modular Chimeric Peptides: *Hilal Yazici*¹; Gizem Habib²; Deniz Yucsoy¹; Burak Caliskan²; Sermin Utku²; Mustafa Urgen²; Candan Tamerler¹; ¹University of Washington; ²Istanbul Technical University

SB-17: Nano-Scale Mechanical Behavior of Hydrogels: A Molecular Dynamic Study: *Hossein Salahshoor*¹; Nima Rahbar¹; Mazdak Tootkaboni²; ¹Worcester Polytechnic Institute; ²University of Massachusetts Dartmouth

SB-18: Langmuir Blodgett Film Deposition of Gold Nanoparticles on Glass Using Self Organization of Bi-Functional Peptides: *Nur Mustafaoglu*¹; Marketa Hnilova²; Candan Tamerler²; Mustafa Urgen³; ¹Department of Chemical and Biomolecular Engineering, University of Notre Dame; ²GEMSEC, Genetically Engineered Materials Science and Engineering Center, Department of Materials Science and Engineering, University of Washington; ³Department of Metallurgical and Materials Engineering, Istanbul Technical University

SB-19: Bio-structural analysis and modeling: the Paddlefish rostrum as a structure for bioinspiration: *Jeremiah Deang*¹; ¹Mississippi State University

SB-20: Effect of Surface Treatments on Titanium Alloys: *Maria Hernandez*¹; Zia ur Rahman¹; Luis Pompa¹; Waseem Haider¹; ¹University of Texas Pan American

SB-21: Influence of Surface Treatments on 316L Stainless Steel: *Suzanna White*¹; Kevin Corona¹; Luis Pompa¹; Waseem Haider¹; ¹University of Texas Pan American

SB-22: The Impact of Austenitic Stainless Steel Grain Structure from Nano-Grained Regime to Coarse-Grained Regime on Osteoblast Functions using a Novel Metal Deformation-Annealing Sequence: *Krishna Chaitanya Nune*¹; Devesh Misra¹; Pavan Venkata Surya Challa¹; ¹University of Louisiana at Lafayette

SB-23: Bisphosphonate functionalized gold nanoparticles enable enhanced detection of breast microcalcifications: *Lisa Cole*¹; Tracy Vargo-Gogola²; Ryan Roeder¹; ¹University of Notre Dame; ²Indiana University School of Medicine - South Bend

EMPMD 2013 Technical Division Student Poster Contest - Undergraduate

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Young Leaders Committee

Monday PM
& Young Leader Poster Area
March 4, 2013
Room: Park View Lobby - Student
Location: Henry B. Gonzalez
Convention Center

SPU-1: Indium-Zinc Oxide TFT Device Performance Under Combined Bias and Thermal Stressing and Effects of Post-Fabrication Annealing: *Sebastian Husein*¹; Rajitha Vermuri¹; Terry Alford¹; ¹Arizona State University

SPU-2: Photoelectrochemical Studies of Hydroxyphosphate and Hydroxysulfate Minerals for Solar Hydrogen Production: *Reed Wittman*¹; Man Li¹; Ran Zhao¹; Qian Cheng¹; Candace Chan¹; ¹Arizona State University

SPU-3: Pressure Contact Examinations of Superconducting Persistent Joints: *Courtney Pape*¹; Max Davey¹; Michael Kuldell¹; ¹The Ohio State University

SPU-4: Correlation of Pressure to Bonding Capabilities Using Novel Heat Treatment Methods in Prototype Sn-Bi Alloys: *W. Tuttle*¹; Charles Fisher¹; Michele Manuel¹; ¹University of Florida

SPU-5: Ab-Initio Calculation of Thermoelectric Material Properties: *Mark Hornak*¹; Mike Williard¹; Rodney Jones¹; ¹The Ohio State University

EMPMD 2013 Technical Division Student Poster Contest - Graduate

Sponsored by: TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Young Leaders Committee

Monday PM
& Young Leader Poster Area
March 4, 2013
Room: Park View Lobby - Student
Location: Henry B. Gonzalez
Convention Center

SPG-6: Research on Prediction of the Stability of Partially Stabilized Zirconia Baeds on LM-BP Neural Network: *Li Dongbo*¹; Peng Jinhui²; Guo Shenghui²; ¹Yunnan Copper Industry Co., LTD; ²Kunming University of Science and Technology

SPG-7: Interfacial Reactions Between Au-Ge Eutectic Solders and Cu Substrates: *Hao-miao Chang*¹; Bo-Hsun Hsu¹; Shih-kang Lin¹; ¹National Cheng Kung University

SPG-8: Supersaturation and Phase Stability of Pb-Sn Alloys Under Current Stressing: *Chao-kuei Yeh*¹; Shih-kang Lin¹; ¹National Cheng Kung University

SPG-9: Nanocrystalline FeNiCoO Particles - Ultrasonic Spray Pyrolysis Method (USP): cigdem toparli¹; Burçak Ebin¹; *Sebahattin Gurmen*¹; ¹Istanbul technical university

SPG-10: Nanomechanical Properties of Sulfonated Poly(Styrene-Isobutylene-Styrene) Triblock Copolymers: Omar Movil-Cabrera¹; Agnes Padovani¹; ¹University of Puerto Rico - Mayaguez

SPG-11: Liquidus Projection of the Sn-In-Ag-Zn Quaternary System: Jui-Shen Chang¹; Sinn-wen Chen¹; Chia-ming Hsu¹; Wang-ting Chiu¹; Che-wei Hsu¹; Ru-bo Chang¹; ¹National TsingHua University

SPG-12: Production and Characterization of Nano-Crystalline Spherical Copper-Indium (Cu-In) Alloys by Ultrasonic Spray Pyrolysis and Hydrogen Reduction (USP-HR): Ramazan Apaydin¹; Burçak Ebin¹; *Sebahattin Gürmen*¹; ¹Istanbul Technical University

SPG-13: Electrochemical Capacitance of Iron Oxide Based Nanotubular Electrodes: Abraham Jurovitzki¹; ¹University of Utah

SPG-14: Effects on Microstructure and Magnetic Properties of Modified Thermomagnetic Annealing and Heat Treatments on Commercial Alnico Magnet Alloys: Haley Dillon¹; Lin Zhou¹; Iver Anderson¹; R. William McCallum¹; Matthew Kramer¹; Steve Constantinides²; Andriy Palasyuk¹; ¹Ames Laboratory; ²Arnold Magnetic Technologies

SPG-15: Grain Boundary Engineering (GBE) of Nickel 200: Olivia Underwood¹; Jeff Evans¹; ¹University of Alabama in Huntsville

EPD 2013 Technical Division Student Poster Contest - Undergraduate

Sponsored by: TMS Extraction and Processing Division, TMS: Young Leaders Committee

Monday PM & Young Leader Poster Area March 4, 2013	Room: Park View Lobby - Student Location: Henry B. Gonzalez Convention Center
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SPG-18: Synthesis and Characterization of PtAg@Pt Multiply Twinned Structure Core-shell Nanoparticles: Subarna Khanal¹; Danial Bahena¹; J. J. Velázquez Salazar¹; Miguel Jose-Yacamán¹; ¹UTSA

SPU-16: Porosity and Percolation in Sintered Recycled Glass for Polluted Soil Filtering: Gerardo Nazario¹; Wesley Cuadrado¹; Jasmine Figueroa¹; Liliana Hernández¹; Andrea López¹; O. Marcelo Suárez¹; ¹University of Puerto Rico at Mayaguez

EPD 2013 Technical Division Student Poster Contest - Graduate

Sponsored by: TMS Extraction and Processing Division, TMS: Young Leaders Committee

Monday PM & Young Leader Poster Area March 4, 2013	Room: Park View Lobby - Student Location: Henry B. Gonzalez Convention Center
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SPG-19: Fabrication and Characterization of Nanoporous Aluminum via Selective Dissolution of Al-Zn Alloys: Elvin Estremera¹; O. Marcelo Suarez¹; Arturo Hernandez-Maldonado¹; ¹University of Puerto Rico

SPG-17: Slag Solidification Modeling: Dmitri Nassyrov¹; In-Ho Jung¹; ¹McGill University

SPG-20: Direct Titanium Powder Production Through the Use of Pre-Conditioned Magnesium Powder: Amin Oliazadeh¹; Boyd Davis¹; John Peacey¹; ¹Queen's University

LMD 2013 Technical Division Student Poster Contest - Undergraduate

Sponsored by: TMS Light Metals Division, TMS: Young Leaders Committee

Monday PM & Young Leader Poster Area March 4, 2013	Room: Park View Lobby - Student Location: Henry B. Gonzalez Convention Center
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SPU-21: Effects of Boron and Zinc on Impact Tests of Al-B-Zn Alloy: Marcos Corchado¹; Fernando Reyes-Tirado¹; Oscar Suarez¹; ¹University of Puerto Rico-Mayaguez

SPU-22: Biodegradation Behavior and Mechanical Properties of a Mg-Sc-Y Alloy for Degradable Implant Applications: Maria Di Bonaventura¹; Ida Svensson Berglund¹; Michele Manuel¹; ¹University of Florida

SPU-23: Global Electrochemical Techniques to Characterize Localized Corrosion Behavior on Aluminum Alloys: Joseph Croteau¹; ¹Boise State University

SPU-24: Reconstruction and Visualization of Three-Dimensional Particle Distribution and Morphology in Magnesium Metal Matrix Composites: Cody Heitman¹; Hunter Henderson¹; Zachary Bryan¹; Orlando Rios²; Gail Mackiewicz Ludtka²; Alexander Melin²; Michele Manuel¹; ¹University of Florida; ²Oak Ridge National Laboratory

LMD 2013 Technical Division Student Poster Contest - Graduate

Sponsored by: TMS Light Metals Division, TMS: Young Leaders Committee

Monday PM & Young Leader Poster Area March 4, 2013	Room: Park View Lobby - Student Location: Henry B. Gonzalez Convention Center
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SPG-25: Microstructural Evolution of ZEK100 Mg Alloy Sheets During Friction Stir Spot Welding: Rogie Rodriguez¹; James Jordon¹; ¹The University of Alabama

SPG-26: Electronic Structure and Properties of Stacking Faults of Mg-X Alloys: A First-principles Study: William Wang¹; Shunli Shang¹; Yi Wang¹; Kristopher Darling²; Laszlo Kecskes²; Suveen Mathaudhu³; Xidong Hui⁴; Zi-Kui Liu¹; ¹The Pennsylvania State University; ²US Army Research Laboratory; ³US Army Research Office; ⁴University of Science and Technology Beijing

SPG-27: On the Processing of Aluminum Wires Treated with Diboride Nanoparticles and their Electrical and Mechanical Properties: David Florian-Algarin¹; O. Marcelo Suarez¹; Alexandra Padilla¹; ¹University of Puerto Rico Mayaguez(UPRM)

SPG-28: Simulating Hot Forming of Light-weight Alloy Sheets: Alexander Carpenter¹; Aravindha Antoniswamy¹; John Lee¹; Louis Hector²; Jon Carter²; Eric Taleff¹; ¹University of Texas at Austin; ²General Motors

MPMD 2013 Technical Division Student Poster Contest - Undergraduate

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Young Leaders Committee

Monday PM Room: Park View Lobby - Student & Young Leader Poster Area
March 4, 2013 Location: Henry B. Gonzalez Convention Center

SPU-29: Influence of Electrode Design on Electrochemical Impedance Response in Oil to Improve Engine Life: Sanjeev Acharya¹; Michael Hurley¹; ¹Boise State University

SPU-30: Atomistic Simulation of Ion Bombardment on Alpha and Gamma Alumina: Wesley Barrows¹; Shawn Coleman¹; Douglas Spearot¹; ¹University of Arkansas

SPU-31: Molecular Dynamics Simulations of Tensile Deformation of Single Layer and Bulk MoS₂: Joseph Simpson¹; James Stewart¹; Douglas Spearot¹; ¹University of Arkansas

SPU-32: Phase Transformations in High Strength Welds: Tiffany Trykowski¹; Melisse Aspery¹; Gabriel Henschen¹; Andrew Kerr¹; ¹The Ohio State University

SPU-33: Stand Up Paddleboard Design: Jessica West¹; Laura Thornton¹; Matthew Dunnead¹; ¹Ohio State University

SPU-34: Characterization of Nanocrystalline W-based Alloys: Megan Beck¹; Steven Livers¹; ¹Boise State University

SPU-35: Effect of Processing on Corrosion Behavior of Case Hardened Aerospace Bearing Steels: Veronica Rafla¹; ¹Boise State University

SPU-36: Processing and Mechanical Characterization of a NbB₂/Al Composite: Neshma Lopez¹; Jose Moreno¹; O. Marcelo Suarez¹; ¹University of Puerto Rico - Mayaguez

SPU-37: Sensitivity of Interfacial Energy on Transformation Kinetics in Structural Alloys: Michael Kovarik¹; Beth Yoak¹; Erik Bowdish¹; ¹The Ohio State University

SPU-38: Thin-wall Fluidity Spiral: Kerry Bisset¹; ¹UAB Materials Engineering

SPU-39: Dynamic Recrystallization of Stainless Steel 316L: A Comparison of Experimental Results to Computer Simulation: Megan Beck¹; Koyuki Fritchman¹; ¹Boise State University

SPU-40: Oxidation Study of Cerium Monosulfide Powder: Sumit Tamrakar¹; Darryl Butt¹; Brian Jaques¹; Joshua Kane¹; ¹Boise State University

MPMD 2013 Technical Division Student Poster Contest - Graduate

Sponsored by: TMS Materials Processing and Manufacturing Division, TMS: Young Leaders Committee

Monday PM Room: Park View Lobby - Student & Young Leader Poster Area
March 4, 2013 Location: Henry B. Gonzalez Convention Center

SPG-41: Microstructural Characterization of Grey Cast Iron: Arul Varman¹; ¹Indian Institute of Technology-Madras

SPG-42: Fabrication of Hierarchical Arrays of sub-30nm Vertically Aligned, Amorphous Silicon-Oxide Nano-wires: Taiwo Alabi¹; Suman Das¹; Dajun Yuan¹; ¹Georgia Institute of Technology

SPG-43: Application of Fast Scanning Calorimetry in the Rapid Solidification of Tin Particles Embedded in AL Matrix: Weipeng Zhang¹; Bingge Zhao¹; Qijie Zhai¹; Yulai Gao¹; ¹Shanghai University

SPG-44: Cold Spray Modeling: A Computation Method for Predicting Bulk Properties of Cold Sprayed Deposits: Luke Bassett¹; ¹Worcester Polytechnic Institute

SPG-45: Creep Analysis of Heterogenous Microstructure of Grade 91 Steel Using Stress Relaxation Method: Bishal Silwal¹; Jacob Walker¹; Leijun Li¹; ¹Utah State University

SPG-46: Laser Ablation of Cold Sprayed Aluminum: Aaron Birt¹; ¹Worcester Polytechnic Institute

SPG-47: Solidification Characteristics of Fe-Mn Alloy During Near-Rapid Solidification: Yuanyi Guo¹; Ke Xie¹; Wenbin Xia¹; Shichao Zhao¹; Changjiang Song¹; Qijie Zhai¹; ¹Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University

SPG-48: The Oxidation of Steel as a Result of Heating Processes: Christina Sobotka¹; ¹Montanuniversitaet Leoben

SPG-49: 3D Reconstruction of Prior Beta Grain Orientations in Friction Stir Processed Ti-6Al-4V: Adam Shiveley¹; Adam Pilchak¹; Michael Groeber¹; Jay Tiley¹; ¹United States Air Force

SPG-51: Ultra-fine Grained Microstructure in 9310 Steel: Thomas Kozmel¹; Sammy Tin¹; ¹Illinois Institute of Technology

SPG-50: Controlled Rotation and Collection of Electron Backscattered Diffraction Patterns from Round Bar Test Samples: Kevin Shiveley II¹; Adam Shiveley¹; Jay Tiley¹; ¹United States Air Force

SPG-52: Liquidus Projection of the Ternary Thermoelectric Co-Sb-Ga System: Yuan-Chun Chien¹; Sinn-wen Chen¹; Jui-shen Chang¹; G. Snyder²; ¹National Tsing Hua University; ²Materials Science, California Institute of Technology

SPG-53: Vanadium Carbide Formation and Stabilization for High Strength Steel Applications: Krista Limmer¹; Julia Medvedeva¹; ¹Missouri S&T

SPG-54: On the Fabrication of Sputtering Aluminum Targets Containing AlB₂ Particles and Their Use in the Deposition of Thin Films: Ulises Barajas¹; Sugeily Flores¹; O. Marcelo Suárez¹; ¹University of Puerto Rico

SMD 2013 Technical Division Student Poster Contest - Undergraduate

Sponsored by: TMS Structural Materials Division, TMS: Young Leaders Committee

Monday PM Room: Park View Lobby - Student
& Young Leader Poster Area
March 4, 2013 Location: Henry B. Gonzalez
Convention Center

SPU-55: Hydroxyapatite-Polyurethane Composite Biomaterial: Monica Hadley¹; Luke Carpenter¹; Josh Enmark¹; ¹The Ohio State University

SPU-56: Infiltration and Characterization of Ceramic Freeze Casted Scaffolds for Nuclear Fuel Application: Thomas Gage¹; Clarissa Yablinsky¹; Ulrike Wegst¹; Todd Allen¹; ¹University of Wisconsin-Madison

SPU-57: Controlled Growth of Ultrathin Molecular Films: Jason Leszczewicz¹; Edward Kintzel¹; ¹Western Kentucky University

SMD 2013 Technical Division Student Poster Contest - Graduate

Sponsored by: TMS Structural Materials Division, TMS: Young Leaders Committee

Monday PM Room: Park View Lobby - Student
& Young Leader Poster Area
March 4, 2013 Location: Henry B. Gonzalez
Convention Center

SPG-58: Parametric Study of Si and Cu Infiltration Dynamics with a Transient Contact Angle in a C/C Composite: Khurram Iqbal¹; ¹Dalian University of Technology

SPG-59: Effect of Alloying Elements and Spark Plasma Sintering Parameters on Nano-dispersion Formation in Nanostructured Ferritic Steels: Somayeh Pasebani¹; Indrajit Charit¹; ¹University of Idaho

SPG-60: Delayed Hydride Cracking in Zirconium Alloys: William Sames¹; John Martinez¹; Ryan Brito¹; Sean McDeavitt¹; ¹Texas A&M University

SPG-61: Radiation Stability of Nanocrystalline Silicon Carbide: Laura Jamison¹; Beata Tyburska-Pueschel¹; Peng Xu²; Kumar Sridharan¹; Todd Allen¹; ¹University of Wisconsin-Madison; ²Westinghouse Electric Company

SPG-62: Structural Evolution and Phase Transformation in Ni₅₀-xMn₃₉Sn₁₁+x Alloys: Wu Wang¹; Jinke Yu¹; Sichuang Xue¹; Qijie Zhai¹; Hongxing Zheng¹; Hongxing Zheng¹; ¹Shanghai University

SPG-63: Ab-initio Study of Energetics and Stability of Ni-X (X=Be, Al, Ti, Mn, Zn) Intermetallic Compounds: Nikolas Antolin¹; Oscar Restrepo¹; Wolfgang Windl¹; ¹Ohio State University

SPG-64: Microstructural Characterization of Melt-spun Ti_{51.5}Ni_{48.5} Ribbons: Sichuang Xue¹; Wu Wang¹; Jinke Yu¹; Qijie Zhai¹; Hongxing Zheng¹; ¹Shanghai University

SPG-65: Austenite Stability during Low Cycle Fatigue of Advanced Steels: Greg Lehnhoff¹; Kip Findley¹; ¹Colorado School of Mines

SPG-66: Characterization of Discontinuous Cellular Carbide Precipitation in INCONEL® 740H: Andrea Casias¹; Greg Lehnhoff¹; Kip Findley¹; Chester Van Tyne¹; ¹Colorado School of Mines

SPG-67: Synthesis and Properties of Hollow Metallic Glass Micro-trusses: Jan Rys¹; Dongchan Jang¹; Tobias Schaedler²; Alan Jacobsen²; William Carter²; Julia Greer¹; ¹California Institute of Technology; ²HRL Laboratories Limited Liability Company

SPG-69: On the Determination of Tortuosity Index of Polyimide Foam for Aerospace Applications: Sugeily Flores-Bonano¹; Félix Rodríguez-Ruiz¹; O. Suárez¹; Walter Silva-Araya¹; ¹University of Puerto Rico - Mayagüez

SPG-68: Stochastic Analysis Based on Weibull Statistics Assisted by Artificial Neural Network Simulations in Concretes containing Fly Ash, Micro/Nano-SiO₂ under Indirect Tension: Luis Zapata¹; Genock Portela¹; Marcelo Suarez¹; ¹University of Puerto Rico, Mayagüez College of Engineering

SPG-71: Thermal, Microstructural, and Mechanical Characterization of NiTiHf Shape Memory Alloys with Aluminum Additions: Derek Hsen Dai Hsu¹; Fatmata Barrie¹; Hunter B. Henderson¹; B. Chad Hornbuckle²; Gregory B. Thompson²; Michele V. Manuel¹; ¹University of Florida; ²The University of Alabama

SPG-70: Fabrication and Characterization of Chitin-carbon Nanotube Composites: Sugeily Soto¹; O. Marcelo Suarez¹; Deborah Marty¹; ¹University of Puerto Rico

EMPMD 2013 Technical Division Young Professional Poster Contest

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March 4, 2013 Location: Henry B. Gonzalez
Convention Center

YP-1: Innovative Production Method of Ultra High Strength Aluminum Matrix Nanocomposite Foams: Khalil Khalil¹; ¹King Saud University

YP-2: Fatigue-induced Grain Coarsening and its Influence on the Electrical Resistance of Cu Films on Polyimide: Oleksandr Glushko¹; Megan Cordill²; ¹University of Leoben; ²Erich Schmid Institute

EPD 2013 Technical Division Young Professional Poster Contest

Sponsored by: TMS Extraction and Processing Division, TMS: Young Leaders Committee

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& Young Leader Poster Area
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YP-3: Researches Regarding the Structure Investigations on New Materials of the Composite Type: Ilie Butnariu¹; ¹University Politehnica Bucharest

YP-4: Looping Sulfide Oxidation™ Process for the Production of Molybdenum Oxides from Molybdenite: Joseph Lessard¹; Esra Cankaya-Yalcin¹; Daniel Gribbin¹; ¹Orchard Material Technology, LLC

YP-5: A Review of Energy Use in Fine Grinding: *Jan de Bakker*¹;
¹BBA, Inc

YP-6: Calcium-Bismuth Electrodes for Large-Scale Energy Storage (Liquid Metal Batteries): *Hojong Kim*¹; Dane Boysen¹; Takanari Ouchi¹; Donald Sadoway¹; ¹MIT

YP-7: Information Sharing as a Remedy to Demand Amplification in Supply Chains: *matloub hussain*¹; ¹Abu Dhabi University

YP-8: Sustainable Materials Extraction: *Rachel DeLucas*¹; Antoine Allanore¹; ¹Massachusetts Institute of Technology

LMD 2013 Technical Division Young Professional Poster Contest

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YP-9: Friction Stir Back Extrusion (FSBE) of Lightweight Alloys: *Fadi Abu-Farha*¹; ¹Clemson University

YP-10: TEM and SAXS: Partners for Stereological Analysis: *Julian Rosalie*¹; Brian Pauw¹; ¹National Institute for Materials Science

MPMD 2013 Technical Division Young Professional Poster Contest

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Convention Center

YP-11: Investigation of Secondary Hardening in MP35N Using Analytical Scanning Transmission Electron Microscopy: *Dan Sorensen*¹; William Gerberich²; K. Andre Mkhoyan²; ¹Medtronic Neuromodulation; ²University of Minnesota, Department of Chemical Engineering and Materials Science

YP-12: Optimization of Thermal Properties of Copper-Diamond Composites via Interface Engineering: *Vikas Sinha*¹; Jonathan Spowart²; ¹Air Force Research Laboratory; UES, Inc.; ²Air Force Research Laboratory

YP-13: Ternary Eutectic Growth of Nanostructured Thermoelectric Ag-Pb-Te Materials: *Hsin-Jay Wu*¹; Wei-jian Foo²; Sinn-wen Chen¹; G. Snyder³; ¹National Tsing Hua university; ²National University of Singapore; ³California Institute of Technology

YP-14: Synthesis of Ti-TiC Nanocomposites by In-situ Reaction Sintering of Ti-Carbon Mixtures: *Srinivasa Bakshi*¹; Vasanthakumar K¹; Karthiselva N¹; ¹Indian Institute of Technology Madras

YP-15: Processing, Fabrication and Testing of Bulk Metallic Glass Composite Hardware: *Douglas Hofmann*¹; ¹NASA JPL/Caltech

YP-16: Nanocrystal Formation From an Amorphous Precursor: *Eren Kalay*¹; Matthew Kramer²; ¹METU; ²Ames Laboratory US DOE

SMD 2013 Technical Division Young Professional Poster Contest

Sponsored by: TMS Structural Materials Division, TMS: Young Leaders Committee

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YP-17: Structure and Properties of the Y₂O₃/Fe Interface using First Principles Calculations: *Samrat Choudhury*¹; Christopher Stanek¹; Blas Uberuaga¹; ¹Los Alamos National Laboratory

YP-18: Effects of Fe and Co Substitutions by Ni in La-Ni-O Perovskite-Type Oxides in Reforming of Methane with CO₂ and O₂: *Alireza Jahangiri*¹; Hassan Pahlavanzadeh²; Hamidreza Aghabozorg³; Jafar Towfighi²; ¹Ottawa University; ²Tarbiat Modares University; ³Research Institute of Petroleum Industry

YP-19: New Insight into the Mechanism of Irradiation-Assisted Stress Corrosion Cracking: *Bai Cui*¹; Ian Robertson¹; ¹University of Illinois at Urbana-Champaign

YP-21: In Situ Characterization of Grade 92 Steel during Tensile Deformation Using High Energy X-ray Diffraction and Small Angle X-ray Scattering: *Leyun Wang*¹; Meimei Li¹; Jonathan Almer¹; ¹Argonne National Laboratory

YP-22: Interfacial Fracture of Ductile Films from Compliant Substrates Using Stressed Overlayers: *Megan Cordill*¹; ¹Erich Schmid Institute of Materials Science

YP-23: Substructural Observations in Magnesium: *Benjamin Morrow*¹; Rodney McCabe¹; Ellen Cerreta¹; Carlos Tomé¹; ¹Los Alamos National Laboratory

YP-24: Fatigue Properties of Small Scale Materials: *Olivier Pierron*¹; ¹Georgia Institute of Technology

YP-25: Microscale Observations on the Definitions of Elastic Limit and Yield Point: *Amit Pandey*¹; Robert Wheeler²; Amit Shyam¹; ¹ORNL; ²MicroTesting Solutions LLC

YP-26: The Effect of Prior Exposures on the Notched Fatigue Behavior of Disk Superalloy ME3: *Chantal Sudbrack*¹; Susan Draper¹; Timothy Gorman²; Jack Telesman¹; Tim Gabb¹; David Hull¹; Daniel Perea³; Daniel Schreiber³; ¹NASA Glenn Research Center; ²University of Dayton (NASA USRP); ³Pacific Northwest National Laboratory

YP-27: In-situ Probing of Microscopic Deformation Kinetics in Advanced High-Strength Steels: *Zhenzhen Yu*¹; Rozaliya Barabash¹; Oleg Barabash²; Wenjun Liu³; Zhili Feng¹; ¹Oak Ridge National Laboratory; ²University of Tennessee; ³Argonne National Laboratory

YP-28: Competition between Average and Local Properties of a Grain Boundary in Spall Processes: *Saryu Fensin*¹; Steven Valone¹; Ellen Cerreta¹; George Gray¹; ¹Los Alamos National Laboratory