Technical Meeting and Exhibition

MS&T16

MATERIALS SCIENCE & TECHNOLOGY

SALT PALACE CONVENTION CENTER | SALT LAKE CITY, UTAH USA
OCTOBER 23 – 27, 2016

TECHNICAL PROGRAM

Organizers:

The American Ceramic Society
www.ceramics.org

AIST
ASSOCIATION FOR IRON & STEEL TECHNOLOGY

ASM INTERNATIONAL

TMS
The Minerals, Metals & Materials Society

Co-sponsored by:

NACE INTERNATIONAL
The Worldwide Corrosion Authority®

	Day	Time	Room	Page
Measurement and Modeling of High Strain-rate Deformation				
Medium-to-high Strain Rate Deformation I	MON	AM	251A	50
Medium-to-high Strain Rate Deformation II	MON	PM	251A	70
Modeling of Multiscale Phenomena in Materials Processing and Advanced Manufacturing				
Process Modeling and Prediction of Process-Structure-Property Relationships	WED	PM	253B	133
Predicting Deformation, Damage, and Failure Through Multi-scale Modeling/Modeling of Microstructural Evolution	THU	AM	253B	150
Multi Scale Modeling of Microstructure Deformation in Material Processing				
Multi Scale Modeling of Microstructure Deformation in Material Processing I	MON	AM	252A-B	51
Multi Scale Modeling of Microstructure Deformation in Material Processing II	MON	PM	252A-B	71
Phase Stability, Diffusion Kinetics, and their Applications (PSDK-XI)				
Gibbs Session I	MON	PM	155D	72
Gibbs Session II	TUE	PM	155D	91
Tracer Session I	WED	AM	155D	113
General Session I	WED	PM	155C	135
Tracer Session II/ General Session II	WED	PM	155D	135
General Session III	THU	AM	155D	152
Symposium on Large Fluctuations and Collective Phenomena in Materials III				
Multicomponent and High Entropy Alloys	TUE	PM	250C	94
Metallic Glasses	WED	AM	250C	117
Granular Materials and Other Topics	WED	PM	250C	138
Crystals and Dislocations	THU	AM	250C	154
Symposium on Applications of Low Emittance Synchrotron X-ray Sources to Mesoscale Materials Studies				
Coherent Diffraction and Combined Techniques	TUE	PM	250D	94
Applications, Motivators, and Enabling Technologies	WED	AM	250D	117
Iron and Steel (Ferrous Alloys)				
Advanced High Strength Steel Design / Technological Exploitation				
AHSS and Sheet Steels I	MON	AM	155F	39
AHSS and Sheet Steels II	MON	PM	155E	61
AHSS and Sheet Steels III	TUE	PM	155F	80
Plate, Bar, and Structural Steels	WED	AM	155F	98
Stainless and High Alloy Steels	WED	PM	155F	121
Advances in Zinc-coated Sheet Steel Processing and Properties				
Advances in Zinc-coated Sheet Steel Processing and Properties	MON	AM	155D	41
Ferrous Metallurgy: From Past to Present				
Ferrous Metallurgy: Past to Present	MON	AM	155E	44

	Day	Time	Room	Page
Nanomaterials				
Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials				
Session I	TUE	PM	257B	82
Session II	WED	AM	257B	102
Session III	WED	PM	257B	126
Session IV	THU	AM	257B	143
Nanotechnology for Energy, Environment, Electronics, and Industry				
Session I	MON	AM	260A	52
Session II	MON	PM	260A	71
Session III	TUE	PM	260A	90
Responsive Functional Nanomaterials				
Responsive Functional Nanomaterials - General	MON	AM	260B	53
Responsive Nanomaterials Design	MON	PM	260B	73
Responsive Nanomaterials Synthesis and Applications	TUE	PM	260B	92
Processing and Product Manufacturing				
Advanced Manufacturing Technologies				
Advanced Manufacturing- Processes	WED	AM	150F	99
Advanced Manufacturing- Machines, Equipment and Systems	WED	PM	150F	122
Advanced Manufacturing- Materials	THU	AM	150F	142
Advances in Metal Casting Technologies				
Processing and Properties	MON	AM	150F	40
Steel Casting Technologies	MON	PM	150F	62
Avant-garde Developments in the Processing, Properties and Performance of Multifunctional Ceramic- and Metal-Matrix Composites				
General Processing, Thermal and Mechanical Properties of MMCs and CMCs	WED	PM	150D	124
Boron, Boron Coatings, Boron Compounds and Boron Nanomaterials: Structure, Properties, Processing, and Applications				
Coatings and Nanostructures	MON	PM	257B	62
Atomically Thin Boron	WED	AM	260B	101
Physical Properties	WED	PM	260B	124
Bulk Materials	THU	THU	260B	142
Construction and Building Materials for a Better Environment				
Session I	MON	AM	151B	42
Session II	MON	PM	151B	63

	Day	Time	Room	Page
S2P: Semi-solid Processing of Alloys and Composites				
Opening Session	MON	AM	151G	54
Session I	MON	AM	151A	54
Session II	MON	AM	151G	54
Session III	MON	PM	151A	74
Session IV	MON	PM	151G	74
Session V	TUE	PM	151A	92
Session VI	TUE	PM	151G	93
Session VII	WED	AM	151A	114
Session VIII	WED	AM	151G	115
Session IX	WED	AM	151A	115
Session X	WED	AM	151G	115
Session XI	WED	PM	151A	137
Session XII	WED	PM	151G	137
Scaling-up from the Laboratory: Strategies, Examples, Challenges, and/or Solutions for Advanced Metal Manufacturing				
Technology Scale-up Session I	MON	AM	155C	54
Technology Scale-up Session II	MON	PM	155C	74
Shaping and Forming of Composite Materials				
Shaping and Forming of Composite Materials	MON	AM	151C	55
Sintering and Related Powder Processing Science and Technologies				
Sintering and Grain Growth I	MON	AM	150E	55
High Temperature Materials	MON	PM	150E	75
Sintering & Grain Growth II	TUE	PM	150E	93
Field Assisted Sintering I	WED	AM	150E	115
Field Assisted Sintering II	WED	PM	150E	137
Sintering & Powder Processing	THU	AM	150E	153
Solid State Processing				
Solid State Processing: Friction Stir Processing Related Techniques and Other Solid State Processes	WED	AM	155C	116
The 8th International Symposium on Green and Sustainable Technologies for Materials Manufacturing and Processing				
Green Manufacturing I	MON	PM	151C	76
Green Manufacturing II	TUE	PM	151C	94
Green Materials Processing I	WED	AM	151C	118
Green Materials Processing II	WED	PM	151C	138

	Day	Time	Room	Page
Ultra High Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense, and Automotive Applications				
High Temperature Materials I	MON	AM	150A&B	57
High Temperature Materials II	MON	PM	150A&B	77
Bulk Metallic Glass / Shape Memory Alloys	TUE	PM	150A&B	95
Ultrafine Grained / Nanostructured Materials	WED	AM	150A&B	118
Composites / Hybrid / Graded Materials	WED	PM	150A&B	139
Special Topics				
Accelerated Insertion of Materials (AIM) Qualification				
Accelerated Insertion of Materials (AIM) Qualification I	MON	AM	150D	36
Accelerated Insertion of Materials (AIM) Qualification II	MON	PM	150D	58
Art and Cultural Heritage: Discoveries and Education				
Art and Cultural Heritage: Discoveries I	TUE	PM	251F	81
Art and Cultural Heritage: Education I	WED	AM	251F	100
Art and Cultural Heritage: Discoveries II	WED	PM	251F	123
Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET along the Way): The Elizabeth Judson Memorial Symposium				
Continuous Improvement of MSE Programs	MON	AM	258	43
Curricular Innovations and Computational Materials Science and Engineering	MON	PM	258	64
International Standards for Properties and Performance of Advanced Ceramics – 30 years of Excellence				
International Standards for Properties and Performance of Advanced Ceramics – 30 years of Excellence	WED	AM	254C	108
Materials Genome Initiative/Materials Today - Data Grand Challenge				
Materials Science and Engineering Data Grand Challenge	MON	AM	255E	48
Perspectives for Emerging Materials Professionals				
Perspectives for Emerging Materials Professionals I	MON	AM	251F	53
Perspectives for Emerging Materials Professionals II	MON	PM	251F	72
Town Hall Meeting on the National and International Materials Data Infrastructure				
Town Hall Meeting on the National and International Materials Data Infrastructure	WED	PM	251A	139

The technical program was finalized on September 9. Any changes or cancellations made after that date are reflected in the session signs. Session chairs are strongly encouraged to not adjust presentation times in the event of cancellations.

3D Graphene for Energy Conversion and Storage — 3D Graphene in Energy Storage I

Program Organizer: Yun Hu, Michigan Technological University

Monday AM
October 24, 2016

Room: 250B
Location: Salt Palace Convention Center

Session Chairs: Guozhong Cao, University of Washington; Yun Hu, Michigan Technological University

8:00 AM Keynote
High Power High Safety Battery with Li3V2(PO4)3 Cathode and Li4Ti5O12 Anode with 95% Energy Efficiency: *Guozhong Cao*[1]; [1]University of Washington

8:40 AM Invited
CVD Assembly of 3D Graphene and their Contribution for Lithium-sulfur Batteries with High Energy Density and Long Lifespan: *Qiang Zhang*[1]; [1]Tsinghua University

9:00 AM Invited
Well-defined Graphene-based Hybrids for Energy Storage Applications: *Linjie Zhi*[1]; Xianglong Li[1]; Bin Luo[1]; Bin Wang[1]; [1]National Center for Nanoscience and Technology of China

9:20 AM
Beyond Graphene Foam, a New Form of Three-dimensional Graphene for Supercapacitor Electrode: *Lu Zhang*[1]; Derek DeArmond[1]; Noe Alvarez[1]; Daoli Zhao[1]; Tingting Wang[1]; Guangfeng Hou[1]; Rachit Malik[1]; William Heineman[1]; Vesselin Shanov[1]; [1]University of Cincinnati

9:40 AM Keynote
Peanut Shell Hybrid Sodium Ion Capacitor with Extreme Energy: Power Rivals Lithium Ion Capacitors: *David Mitlin*[1]; [1]Clarkson University

10:20 AM Break

10:40 AM
Three-dimensional Graphene-based Materials for Flexible Electrochemical Supercapacitors: *Zheye Zhang*[1]; Shuai Wang[1]; [1]Huazhong University of Science & Technology

11:00 AM
Nanomorphology and Optical Characteristics of Wrinkled Graphene: *Suparnamaaya Prasad*[1]; Narsingh Singh[1]; [1]University of Maryland, Baltimore County

11:20 AM
Chemical Bonding in Graphene and Newly Predicted Two-dimensional Materials: *Ivan Popov*[1]; [1]Utah State University

3rd International Workshop of In-situ Studies with Photons, Neutrons and Electrons Scattering — Synchrotron Based Techniques and Measurements I

Program Organizers: Antonio Ramirez, The Ohio State University; Sudarsanam Babu, The University of Tennessee, Knoxville; Thomas Kannengiesser, BAM Federal Institute for Materials Research and Testing; Yu-ichi Komizo, Osaka University; Hidenori Terasaki, Kumamoto University; Andre Tschiptschin, University of Sao Paulo; Eren Kalay, METU

Monday AM
October 24, 2016

Room: 250E
Location: Salt Palace Convention Center

Session Chairs: Antonio Ramirez, The Ohio State University; Sudarsanam Babu, The University of Tennessee, Knoxville; Arne Kromm, BAM Federal Institute for Materials Research and Testing

8:00 AM Invited
Industrial Applications in the Fields of Materials Science at SPring-8 Today: *Yu-ichi Komizo*[1]; [1]Osaka University

8:40 AM
Advanced Thermo-mechanical Simulation Coupled with Synchrotron X-ray Scattering: *Antonio Ramirez*[1]; Guilherme Faria[1]; Leonardo Wu[2]; [1]The Ohio State University; [2]Brazilian Nanotechnology National Laboratory

9:00 AM
In-situ 3D Observation of Slip Events in a Zirconium Polycrystal: *Rulin Chen*[1]; Jonathan Lind[2]; Robert Suter[1]; [1]Carnegie Mellon University; [2]Lawrence Livermore National Laboratory

9:20 AM
In-situ study of Austenite Formation and Decomposition in Ti-stabilized Supermartensitic Stainless Steel: *Julian Escobar*[1]; Guilherme Faria[2]; Paulo Mei[1]; Antonio Ramirez[2]; [1]State University of Campinas, Unicamp; [2]The Ohio State Uniersity

9:40 AM
Study of a Novel Combination of Hot Stamping with Quenching and Partitioning Processing on High Strength Steels: *Edwan Anderson Ariza*[1]; Arthur Nishikawa[1]; André Paulo Tschiptschin[1]; [1]University of Sao Paulo

10:00 AM Break

10:20 AM Invited
Surface Effects on Cooling Induced Martensitic Transformation Temperatures Observed by Medium Energy (12KeV) In Situ X-ray Diffraction: *Guilherme Faria*[1]; Julian Escobar[2]; Antonio Ramirez[1]; [1]Dept. of Materials Science and Eng. - The Ohio State University; [2]Brazilian Nanotecnology Laboratory

11:00 AM
In-situ X-ray Characterization of the Thermal Stability of Expanded Austenite in a 316L Austenitic Stainless Steel: *Andre Tschiptschin*[1]; Carlos Pinedo[2]; Arthur Nishikawa[1]; Luis Varela[2]; [1]University of Sao Paulo; [2]University of Mogi das Cruzes

11:20 AM
Study of Phase Transformations in the ICHAZ of Grade 91 Weldment Using In-situ Synchrotron X-ray Diffraction: Kyle Stritch[1]; *Guilherme Abreu Faria*[1]; Boian Alexandrov[1]; Antonio Ramirez[1]; [1]The Ohio State University

11:40 AM
Observation of Martensite Formation by Combined Use of Synchrotron Diffraction and Dilatometry: *Arne Kromm*[1]; Thomas Kannengiesser[1]; [1]Bundesanstalt für Materialforschung und -prüfung (BAM)

Accelerated Insertion of Materials (AIM) Qualification — Accelerated Insertion of Materials (AIM) Qualification I

Program Organizers: Jiadong Gong, QuesTek Innovations; Greg Olson, Northwestern University; David Furrer, Pratt & Whitney

Monday AM
October 24, 2016

Room: 150D
Location: Salt Palace Convention Center

Session Chairs: Jiadong Gong, QuesTek Innovations LLC; Greg Olson, Northwestern University; David Furrer, Pratt & Whitney

8:00 AM Introductory Comments Leo Christodoulou: Accelerated Insertion of Materials (AIM): 15 Years Later

8:05 AM Invited
Accelerated Insertion of Materials (AIM): 15 Years Later:: *Leo Christodoulou*[1]; [1]The Boeing Company

8:45 AM Invited
Probabilistic Property Prediction: Strategic Data Fusion with Science Based Modeling: *D Gary Harlow*[1]; [1]Lehigh University

9:25 AM Invited
Ferrium S53, an AIM Case Study: *Charles Kuehmann*[1]; [1]SpaceX/Tesla

10:05 AM Break

10:25 AM Invited
Materials Innovation Case Study: QuesTek's Ferrium® M54® Steel for Hook Shank Application: *David Furrer*[1]; [1]Pratt & Whitney

11:05 AM Invited
AIM Qualification of Additively Manufactured Components: *Greg Olson*[1]; [1]Northwestern University

ACerS/NICE: Arthur L. Friedberg Ceramic Engineering Tutorial and Lecture

Monday AM
October 24, 2016

Room: 255B
Location: Salt Palace Convention Center

Session Chair: Ricardo Castro, University of California, Davis

9:00 AM Invited
Bioactive Glasses in Soft Tissue Repair. What Do We Know So Far?: *Aldo Boccaccini*[1]; [1]University of Erlangen-Nuremberg

Additive Manufacturing of Composites and Complex Materials — Frontiers in Additive Manufacturing

Program Organizers: Jonathan Spowart, Air Force Research Laboratory; Nikhil Gupta, New York University; Dirk Lehmhus, ISIS Sensorial Materials Scientific Centre

Monday AM
October 24, 2016

Room: 355E
Location: Salt Palace Convention Center

Session Chairs: Jonathan Spowart, Air Force Research Laboratory; Mark Benedict, Air Force Research Laboratory

8:00 AM Introductory Comments

8:10 AM Keynote
Enabling Additive Manufacturing Qualification: *Mark Benedict*[1]; [1]Air Force Research Laboratory

8:50 AM Question and Answer Period

9:00 AM Invited
Metallic Additive Manufacturing at the Army Research Laboratory: *Brandon McWilliams*[1]; Andrew Gaynor[1]; Larry Holmes[1]; [1]US Army Research Laboratory

9:40 AM
Knowns and Unknowns of the Current State, Future Trends, and Associated Implications of Additive Manufacturing: *Runze Huang*[1]; Diane Graziano[2]; Matthew Riddle[2]; Joe Cresko[3]; Eric Masanet[1]; [1]Northwestern University; [2]Argonne National Laboratory; [3]U.S. Department of Energy

10:00 AM
Securing the Cloud Based Additive Manufacturing Chain: Fei Chen[1]; Gary Mac[1]; *Nikhil Gupta*[1]; [1]New York University

10:20 AM Break

10:40 AM
Metal Powders and Powder Mixtures for Additive Manufacturing: Assessing their Processing Characteristics: Claus Aumund-Kopp[1]; *Dirk Lehmhus*[2]; Hong Ngoc Le[3]; Frank Petzoldt[1]; Matthias Busse[1]; [1]Fraunhofer Institute for Manufacturing Technology and Advanced Materials; [2]MAPEX Centre for Materials and Processes, University of Bremen; [3]University of Applied Sciences Bremerhaven

11:00 AM
Developing Additive Manufacturing Processes for Radome Fabrication: *Gerard Simon*[1]; [1]Air Force Research Laboratory

11:20 AM Invited
Topological Design for Additive Manufacturing of Cellular Material: Application to Energy Absorption Applications: Faris Tarlochan[1]; Tarek Shaban[1]; *Abdullah Baqir*[1]; Mohammed Hoque[1]; Yasser Al-Hamidi[2]; Bilal Mansoor[2]; [1]Qatar University; [2]Texas A & M University

11:40 AM
Additive Manufacturing of Composites with Anisotropic Heterogeneities: *Neal Brodnik*[1]; Katherine Faber[1]; [1]California Institute of Technology

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Stainless Steels Processing and Properties

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Monday AM
October 24, 2016

Room: 355D
Location: Salt Palace Convention Center

Session Chair: Todd Palmer, The Pennsylvania State University

8:00 AM
Process-structure-property Relationships in 304L Stainless Steel Produced by Directed Energy Deposition: Experimental Characterization and Modeling: *Zhuqing Wang*[1]; Todd Palmer[2]; Allison Beese[1]; [1]Department of Materials Science and Engineering, Pennsylvania State University; [2]Department of Materials Science and Engineering, Applied Research Laboratory, Pennsylvania State University

8:20 AM
Assessment of Residual Stress in Selective Laser Melted 17-4 PH Stainless Steel via Numerical Modeling and Neutron Diffraction: *Mohammad Masoomi*[1]; Aref Yadollahi[1]; Scott Thompson[1]; Nima Shamsaei[1]; Robert Winholtz[2]; Justin Milner[3]; [1]Mississippi State University; [2]University of Missouri; [3]National Institute of Standards and Technology

8:40 AM
Characterization of Selective Laser Melted 304L: *Wes Everhart*[1]; Paul Korinko[2]; Marissa Reigel[2]; Michael Morgan[2]; John Bobbitt[2]; [1]NNSA National Security Campus; [2]Savannah River National Laboratory

9:00 AM
Constitutive Property and Modeling of Additive Manufactured Stainless Steels: *Shuh Rong Chen*[1]; G. T. Gray[1]; Carl Cady[1]; Veronica Livescu[1]; Cameron Knapp[1]; John Carpenter[1]; [1]Los Alamos National Laboratory

9:20 AM
Investigation of the Solidification Effects of Microstructures of Laser Melted Stainless Steel: *Emre Özel*[1]; Hadi Mozaffari-Jovein[2]; Class Müller[3]; [1]University of Freiburg; Hochschule Furtwangen Campus Tuttlingen; [2]Hochschule Furtwangen Campus Tuttlingen; [3]University of Freiburg

9:40 AM
Microstructural Characterization of ExOne-printed and Liquid Phase Sintered Stainless Steel: *Christopher Allen*[1]; Mitra Taheri[1]; [1]Drexel University

10:00 AM Break

10:20 AM
Microstructural Evolution and Defect Control in 316L SS Components Fabricated via Laser Additive Manufacturing: *Baolong Zheng*[1]; James Haley[1]; Nancy Yang[2]; Joshua Yee[2]; Yizhang Zhou[1]; Enrique Lavernia[1]; Julie Schoenung[1]; [1]University of California; [2]Sandia National Laboratories

10:40 AM
Microstructure of Additively Manufactured 304L and 316L Stainless Steel Materials and Powder Feedstock: *Benjamin Morrow*[1]; Veronica Livescu[1]; Cameron Knapp[1]; John Carpenter[1]; George Gray[1]; [1]Los Alamos National Laboratory

11:00 AM
Process-structure-property Relationships for Selective Laser Melted 17-4 PH Stainless Steel: *Aref Yadollahi*[1]; Mohammad Masoomi[1]; Scott Thompson[1]; Nima Shamsaei[1]; [1]Mississippi State University

11:20 AM
Additive Manufacturing of Stainless Steel: Processing, Microstructure, and Material Properties: *Sudhakar Vadiraja*[1]; Penn Rawn[1]; Bryce Abstetar; Ronda Coguill[1]; Bruce Madigan[1]; [1]Montana Tech

11:40 AM
On the Limitations of Volumetric Energy Density as a Key Parameter to Describe Selective Laser Melting of 316L Stainless Steel: *Umberto Scipioni Bertoli*[1]; Alexander Wolfer[2]; Manyalibo Matthews[3]; Andrew Anderson[3]; Rose McCallen[3]; Kevin Wheeler[4]; Dogan Timucin[4]; Enrique Lavernia[1]; Jean-Pierre Delplanque[2]; Julie Schoenung[1]; [1]University of California, Irvine; [2]UC Davis; [3]Lawrence Livermore National Laboratory; [4]NASA Ames Research Center

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Understanding AM Processes

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Monday AM
October 24, 2016

Room: 355C
Location: Salt Palace Convention Center

Session Chair: Andrzej Wojcieszynski, ATI Powder Metals

8:00 AM Invited
Developing Fundamental Scaling Relationships for Size and Geometry in Directed Energy Deposition Processes: *Todd Palmer*[1]; [1]Penn State

8:40 AM
Additive Manufacturing of Metals: Differing Microstructures with Varying Builds: *Roberta Beal*[1]; Veronica Livescu[1]; George Gray[1]; Manny Lovato[1]; [1]Los Alamos National Laboratory

9:00 AM
The Effect of Beam Spot Size on Melt Pool Geometry in Direct Metal Additive Manufacturing Processes: *Zack Francis*[1]; Jack Beuth[1]; [1]Carnegie Mellon University

9:20 AM
Partitioning of Laser Energy during Directed Energy Deposition: *Frederick Lia*[1]; Joshua Park[1]; Jay Tressler[1]; Richard Martukanitz[1]; [1]ARL at the Pennsylvania State University

9:40 AM
Understanding the Impact of Hot Isostatic Pressing (HIP) Using Computed Tomography (CT) on Ti-6Al-4V Wall Structures Fabricated by Laser Based Directed Energy Deposition: *Jay Keist*[1]; Griffin Jones[1]; Todd Palmer[1]; [1]ARL at Penn State

10:00 AM Break

10:20 AM
Effect of Hot Isostatic Pressing on Mechanical Properties and Dimensional Accuracy of Intentionally Porous Ti6Al4V Parts Made by Selective Laser Melting: *Raya Mertens*[1]; Bart Boeckmans[1]; Lore Thijs[2]; Jan Van Humbeeck[1]; Jean-Pierre Kruth[1]; [1]KU Leuven; [2]3D Systems LayerWise

10:40 AM
The Effect of Processing Parameters on Surface Finish and Mechanical Behavior Of Additively Manufactured Metals: *Joy Gockel*[1]; [1]Wright State University

11:00 AM
Understanding the Microstructure Evolution of Additively Manufactured Ti-base Alloys, Composition and Processing Windows: *Michael Mendoza*[1]; Matthew Rolchigo[1]; Thomas Ales[1]; Richard Lesar[1]; Peter Collins[1]; [1]Iowa State University

11:20 AM
Development of a Diffusion Mobility Description and Its Implications for Additive Manufactured Titanium Alloys: *Greta Lindwall*[1]; Kil-Won Moon[1]; Nikolas Hrabe[1]; Carelyn Campbell[1]; [1]National Institute of Standards and Technology

11:40 AM
The Influence of Post-build Microstructure on the Electrochemical Behavior of Additively Manufactured 17-4 Stainless Steel: *Mark Stoudt*[1]; Richard Ricker[1]; Eric Lass[1]; Carelyn Campbell[1]; Lyle Levine[1]; [1]National Institute of Standards and Technology

Additive Manufacturing of Shape Memory, Superelastic Alloys and Multifunctional Materials — Session I

Program Organizers: Mohammad Elahinia, University of Toledo; Reginald Hamilton, The Pennsylvania State University; Haluk Karaca, University of Kentucky; Reza Mirzaeifar, Virginia Tech

Monday AM
October 24, 2016

Room: 355A
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM Invited
Additive Manufacturing of Functional Heusler Alloys: *Markus Chmielus*[1]; Erica Stevens[1]; Yuval Krimer[1]; Amir Mostafaei[1]; Jakub Toman[1]; [1]University of Pittsburgh

8:40 AM
3D-printing of Ni-based Shape Memory Alloys: *Shannon Taylor*[1]; Peter Mullner[2]; Ramille Shah[1]; David Dunand[1]; [1]Northwestern University; [2]Boise State University

9:00 AM
Effects of Fabrication Parameter of Selective Laser Melting on Microstructure and Shape Memory Response of Ni-rich NiTi: Soheil Saedi[1]; Ali Turabi[1]; Mohsen Taheri Andani[2]; *Mohammad Elahinia*[2]; Haluk Karaca[1]; [1]University of Kentucky; [2]The University of Toledo

9:20 AM
Selective Laser Melting of TiNi Auxetic Structures: *Moataz Attallah*[1]; Hany Hassanin[2]; Khamis Essa[1]; Sheng Li[1]; Nicholas Adkins[1]; [1]University of Birmingham; [2]Kingston University

9:40 AM
Microstructure and Superelasticity of NiTi Alloys Fabricated Using Laser Directed Energy Deposition: *Beth Bimber*[1]; Reginald Hamilton[1]; Jayme Keist[2]; Todd Palmer[2]; [1]Penn State; [2]ARL at Penn State

10:00 AM Break

10:20 AM
Selective Laser Melting of Shape Memory Ternary Alloys: Microstructural Development and Thermo-mechanical Properties: *Hollie Baker*[1]; Moataz Attallah[1]; Nick Adkins[1]; Hugh Hamilton[2]; Andrew Fones[2]; Miren Aristizabal[1]; [1]The University of Birmingham; [2]Johnson Matthey Technology Centre

10:40 AM
Additive Manufacturing of a Magnetic Shape-memory Alloy: Directed Energy Deposition and Post-processing: *Jakub Toman*[1]; Yuval Krimer[1]; Peter Müllner[2]; Markus Chmielus[1]; [1]University of Pittsburgh; [2]Boise State University

11:00 AM
The Effect of Microstructure on the Shape Memory Behavior in Selective Laser Melted Ni-rich NiTi Alloys: *Brian Franco*[1]; Gustavo Tapia[1]; Kubra Karayagiz[1]; Ji Ma[1]; Alaa Elwany[1]; Raymundo Arroyave[1]; Ibrahim Karaman[1]; [1]Texas A&M University

11:20 AM
Fe-Mn-Al-Ni Shape Memory Alloy Processed by Selective Laser Melting–microstructure and Pseudo-elastic Behavior: *Florian Brenne*[1]; Philipp Krooß[1]; Malte Vollmer[1]; Johannes Günther[1]; Dieter Schwarze[2]; Horst Biermann[3]; Thomas Niendorf[1]; [1]University of Kassel; [2]SLM Solutions GmbH; [3]TU Bergakademie Freiberg

Advanced Coatings for Wear and Corrosion Protection — Advanced Coatings for Wear and Corrosion Protection I

Program Organizers: Evelina Vogli, LiquidMetal Group Holdings, Inc.; Fei Tang, DNV GL; Homero Castaneda, Texas A&M; Qixin Zhou, University of Akron

Monday AM
October 24, 2016

Room: 253A
Location: Salt Palace Convention Center

Session Chair: Homero Castaneda, Texas A&M

8:00 AM
Obtaining of Wear-resistant Chrome Carbide Coatings under Self Propagating High Temperature Synthesis Conditions: Borys Sereda[1]; *Dmytro Sereda*[2]; [1]DSTU; [2]ZSEA

8:20 AM
Parameters Control of 09Cr3NiMo3VNbr Carburizing Steel Diffusion Layer in the Process of Thermochemical Treatment: *Valeriy Mishchenko*[1]; Oleksandr Meniailo[1]; Oleksandr Bagriichuk[1]; Oleksandr Bulakh[1]; [1]Zaporizhzhya National University

8:40 AM
Electrochemical Corrosion of Various HfB_2-ZrB_2 Solid Solutions: A Predictive Study: *Steven Sitler*[1]; Krishnan Raja[1]; Indrajit Charit[1]; [1]University of Idaho

9:00 AM
Characterization of Si Based Diffusion Coatings on Nb: *Ana Sofia D´Oliveira*[1]; Mariane Thomé[1]; [1]UFPR - Federal University of Paraná

9:20 AM
Corrosion Resistance of Metal Carbide Coatings on Steel Alloys: *Brandon Strahin*[1]; Devesh Dadhich Shreeram[1]; Jonathon Fouts[1]; Arindam Paul[1]; Shengxi Li[1]; Hongbo Cong[1]; Gary Doll[1]; [1]The University of Akron

9:40 AM
Tantalum and Tantalum-based Ceramic Coatings for Extremely Corrosive Environments: *Jacob Stiglich*[1]; Dean Gambale[1]; Brian Williams[1]; Therese Grundl[1]; [1]Ultramet

10:00 AM Break

10:20 AM
Molten Metal Corrosion Resistant Thermal Sprayed Coatings: *Evelina Vogli*[1]; Gabriel Santillan[1]; Anupam Ghildyal[1]; [1]MesoCoat

10:40 AM
Nanostructured Hard Coatings for Protecting Aircraft Engines from Solid Particle Erosion: *Qi Yang*[1]; [1]National Research Council of Canada

11:00 AM
Residual Stresses in a NiCrY Coating on a Powder Metal Disk Superalloy: *Tim Gabb*[1]; Richard Rogers[1]; James Nesbitt[1]; Robert Miller[1]; Susan Draper[1]; Jack Telesman[1]; Ivan Locci[2]; [1]NASA Glenn Research Center; [2]University of Toledo

11:20 AM
Laser Heating of NiCr- Al_2O_3 Composite Coating Made on Low Carbon Steel by Twin Gun Thermal Spray Process: *Manoj Rathod*[1]; Rohit Bardapurkar[1]; Shubham Mohod[1]; [1]College of Engineering Pune

Advanced High Strength Steel Design / Technological Exploitation — AHSS and Sheet Steels I

Program Organizers: Alla Sergueeva, The NanoSteel Company; Daniel Branagan, The NanoSteel Company; Kester Clarke, Colorado School of Mines

Monday AM
October 24, 2016

Room: 155F
Location: Salt Palace Convention Center

Session Chairs: Kip Findley, Colorado School of Mines; Charles Enloe, General Motors

8:00 AM
Materials Design for Quench and Partition Steels: *Amit Behera*[1]; Gregory Olson[1]; [1]Northwestern University

8:20 AM
Ultra-fine-grained Quenching and Partitioning (Q&P) Steel Produced by Near Ac3 Austenitizing: *Eun Jung Seo*[1]; Lawrence Cho[1]; Bruno C. De Cooman[1]; [1]GIFT,POSTECH

8:40 AM
Work Hardening Behavior in Medium Mn TRIP Steels: *Michael Callahan*[1]; Jean-Hubert Schmitt[1]; [1]CentraleSupelec

9:00 AM
Annealing Temperature Dependence of the Tensile Behavior of 6pt Mn Multi-phase TWIP-TRIP Steel: *Seonjong Lee*[1]; Sunmi Shin[2]; Minhyeok Kwon[2]; Bruno C De Cooman[2]; [1]GIFT / Material Design Laboratory; [2]Pohang University of Science and Technology/GIFT

9:20 AM
Dynamic and Static Recrystallization of V Micro-alloyed TWIP Steel: *Hojun Gwon*[1]; Sunmi Shin[1]; Bruno Charles De Cooman[1]; [1]GIFT, POSTECH

9:40 AM
The Influence of Phase Characteristics on the Cold Rollability of Medium-Mn Steels: *Binhan Sun*[1]; Fateh Fazeli[2]; Colin Scott[2]; Xiaojun Yan[3]; Zhiwei Liu[3]; Xiaoyu Qin[3]; Stephen Yue[1]; [1]McGill University; [2]CanmetMATERIALS, Natural Resources Canada; [3]Beihang University

10:00 AM Break

10:20 AM
Composition and Property Designing of TRIP and TWIP Steels: *Lin Li*[1]; Hu Jiang[1]; Tingdong Ren[1]; Yanlin He[1]; Wen Shi[1]; Mei Zhang[1]; [1]Shanghai University

10:40 AM
The Effect of MA Dispersed Morphology on Ductile Fracture Behavior in Bainite-MA Dual Phase Steels: *Junji Shimamura*[1]; Shunsuke Toyoda[1]; [1]JFE Steel Corporation

11:00 AM
Formation and Identification of Retained Austenite for TRIP Steel Properties: *Richard Fonda*[1]; C.R. Feng[1]; A.J. Levinson[1]; K.E. Knipling[1]; D.J. Rowenhorst[1]; X.J. Zhang[2]; [1]Naval Research Laboratory; [2]Naval Surface Warfare Center-Carderock Division

Advanced Materials for Harsh Environments — Advanced Materials for Harsh Environments I

Program Organizers: Gary Pickrell, Virginia Tech; Navin Manjooran, Siemens AG

Monday AM
October 24, 2016

Room: 254A
Location: Salt Palace Convention Center

Session Chairs: Gary Pickrell, Virignia Tech; Navin Manjooran, Siemens AG

8:00 AM Invited
Corrosion Behavior of Glass Seals with Crofer 22 APU Interconnect for the Planar Solid Oxide Fuel Cells: *Gurbinder Kaur*[1]; [1]Thapar University

8:40 AM
Advanced Materials Solutions for High-temperature Power Plant Valve Components: *John Shingledecker*[1]; Daniel Purdy[1]; [1]Electric Power Research Institute

9:00 AM
Electroceramic Composite Sensors for Monitoring Harsh-environment Energy Systems: Gunes Yakaboylu[1]; Rajalekshmi Chockalingam[1]; Katarzyna Sabolsky[1]; James Meyer[1]; *Edward Sabolsky*[1]; Jeffrey Bogan[2]; Margaret Raughley[2]; Joshua Sayre[2]; [1]West Virginia University; [2]HarbisonWalker International Technology Center

9:20 AM
Electrodeposition of Nickel-based Protective Coatings for High Temperature Electrochemical Systems: Mark King[1]; *Manoj Mahapatra*[1]; [1]University of Alabama at Birmingham

9:40 AM
Fatigue and Creep Crack Growth Mechanism Assessment in Inconel 718 at 650°C: *Halsey Ostergaard*[1]; Jamie Kruzic[1]; [1]Oregon State University

10:00 AM Break

10:20 AM
In Situ TEM Observations of Corrosion in Nanocrystalline Fe Films: *Josh Kacher*[1]; David Gross[2]; Khalid Hattar[3]; Ian Robertson[2]; [1]Georgia Tech; [2]University of Wisconsin, Madison; [3]Sandia National Laboratories

10:40 AM
Interface Stabilization for C/C-SiC Layered Composites by Placing 1-D Carbon Arrays: Baek Hyun Kim[1]; Hyunjeong Bae[1]; *Do-Kyun Kwon*[1]; [1]Korea Aerospace University

11:00 AM
Materials Characterization of Electroplated γ-ZnNi with Passivation Coatings: *Steven Volz*[1]; James Claypool[1]; Matthew O'Keefe; William Fahrenholtz[1]; [1]Missouri University of Science and Technology

Advances in Dielectric Materials and Electronic Devices — Dielectrics

Program Organizers: Amar Bhalla, The University of Texas at San Antonio; Ruyan Guo, The University of Texas at San Antonio; K. M. Nair, E.I.duPont de Nemours & Co, Inc; Danilo Suvorov, Jožef Stefan Institute; Rick Ubic, Boise State University

Monday AM
October 24, 2016

Room: 255F
Location: Salt Palace Convention Center

Session Chairs: Amar Bhalla, The University of Texas at San Antonio; Ruyan Guo, The University of Texas at San Antonio; Jose de los Santos Guerra, Universidade Federal de Uberlandia

8:00 AM Introductory Comments

8:20 AM Invited
Fractal Microelectronics within Nanotelectronics and Energy Correlation: *Vojislav Mitic*[1]; Ljubiša Kocic[2]; Steven Tidrow[3]; Hans Fecht[4]; [1]Faculty of Electronic Engineering, University of Niš; Institute of Technical Sciences of the Serbian Academy of Sciences and Arts ; [2]Faculty of Electronic Engineering, University of Niš; [3]Alfred University; [4] University of Ulm

8:40 AM Invited
Predicting A-site Cation Ordering in $Na_{(1-3x)/2}La_{(1+x)/2}TiO_3$: *Kevin Tolman*[1]; Rick Ubic[1]; [1]Boise State University

9:00 AM
An Empirical Model for Perovskite Tetragonality: *Kevin Tolman*[1]; Rick Ubic[1]; [1]Boise State University

9:20 AM Invited
Reducing the Search Space, Time and Cost, for Developing Materials and Devices: *Steven Tidrow*[1]; [1]Alfred University

9:40 AM
Bipolar Pt/HfOX/Ho:HfO2/TiN RRAM Device with Capacitance Switching: Yogesh Sharma[1]; Shojan Pavunny[2]; *Ram Katiyar*[2]; [1]University of Puerto Rico; [2]University of Puerto Rico

10:00 AM Break

10:20 AM Invited
Nature of BaTiO3 Nanocubes for Dielectric 3D Architectures: *Kazumi Kato*[1]; Ken-ichi Mimura[1]; Qiang Ma[1]; Zheng Liu[1]; Kyuichi Yasui[1]; [1]National Institute of Advanced Industrial Science and Technology

10:40 AM Invited
Novel Microwave Dielectric Ceramics with Ultra-low Sintering Temperatures: *Hong Wang*[1]; [1]Xi'an Jiaotong University

11:00 AM Invited
Influence of Processing and Microstructure on Dielectric Properties of Calcium Copper Titanate Ceramics: Disna Samarakoon[1]; Normal Govindaraju[1]; *Raj Singh*[1]; [1]Oklahoma State University

11:20 AM Invited
Enhancement of Energy Storage Density in $CaTiO_3$-Based Dielectric Ceramics: *Xiang Ming Chen*[1]; Hai Yang Zhou[1]; Xiao Na Zhu[1]; [1]Zhejiang University

11:40 AM
Combinatorial Studies of Scandium-aluminum Nitride Thin Films for Piezoelectric Applications: *Kevin Talley*[1]; Geoff Brennecka[1]; Andriy Zakutayev[2]; Dong Wu[1]; Corinne Packard[1]; [1]Colorado School of Mines; [2]National Renewable Energy Laboratory

Advances in Metal Casting Technologies — Processing and Properties

Program Organizers: Alan Druschitz, Virginia Tech; Laurentiu Nastac, The University of Alabama; Paul Sanders, Michigan Technological University

Monday AM
October 24, 2016

Room: 150F
Location: Salt Palace Convention Center

Session Chair: Laurentiu Nastac, The University of Alabama

8:00 AM
Process-based Cost Modeling of Metal Castings: The Cost Implications of Reducing Wall Thickness through Improved Manufacturing Processes: *Di Wu*[1]; Muhammad Farooq[1]; Richard Roth[1]; Randolph Kirchain[1]; [1]Massachusetts Institute of Technology

8:20 AM
Materials and Energy Saving in Foundries: *Hamid Ahmad Mehrabi*[1]; Mark Jolly[1]; Konstantinos Salonitis[1]; Emanuele Pagone[1]; [1]Cranfield University

8:40 AM
Influence of Water Quality on Rate of Quenching of Metals during Continuous Casting by Pneumatic and Hydraulic Sprays: *Umair Alam*[1]; Eckehard Specht[2]; [1]NED University of Engineering and Technology; [2]Institute of Fluid Dynamics and Thermodynamics, Otto Von Guericke University of Magdeburg

9:00 AM
Hydrogen Embrittlement Mitigation Techniques in High Strength Steel Manufacture: *Matthew Draper*[1]; Elaine Thomas[2]; Kyle Rackers[3]; Neil Fichtelberg[4]; Sreeramamurthy Ankem[1]; University of Maryland; [2]Bradken Tacoma; [3]Scot Forge; [4]Electric Boat

9:20 AM
Comparison of Conventional Open-Cell Aluminum Foam and Its Additively Manufactured Twin: Kristoffer Matheson[1]; Kory Cross[1]; Jayden Plumb[1]; Iman Javahery[1]; *Ashley Spear*[1]; [1]University of Utah

9:40 AM
Effect of Solution Treatment on Mechanical Behavior of Cast Superalloy: *Jianjun Tian*[1]; Yang Gao[1]; [1]Beijing Beiye Functional Materials Corporation

Advances in Zinc-coated Sheet Steel Processing and Properties — Advances in Zinc-coated Sheet Steel Processing and Properties

Program Organizers: Frank Goodwin, International Zinc Association; Joseph McDermid, McMaster University

Monday AM
October 24, 2016

Room: 155D
Location: Salt Palace Convention Center

Session Chair: Erika Bellhouse, ArcelorMittal Dofasco

8:00 AM
Surface Selective Oxide Reduction during Continuous Annealing of Advanced High Strength and Ultra-high Strength Steel Grades: *Lawrence Cho*[1]; Jong Han Oh[1]; Eun Jung Seo[1]; Myung Soo Kim[2]; Ki Cheol Kang[2]; Bruno C. De Cooman[1]; [1]GIFT, Postech; [2]POSCO Technical Research Center

8:20 AM
High Temperature Oxidation of Advanced High Strength Steel: *Mary Story*[1]; Bryan Webler[1]; [1]Carnegie Mellon University

8:40 AM
Oxidation Behavior of Steels Alloyed with Si and Mn for Galvanizing: *Mayra Rodríguez Pérez*[1]; Nelson Garza Montes de Oca[1]; Maribel de la Garza Garza[1]; Omar García Rincón[2]; [1]Universidad Autonoma de Nuevo Leon; [2]Ternium Mexico

9:00 AM
Evolution of Zn-Rich Phases during Austenitizing of Galvanized 22MnB5 Sheet Steel: *Zahra Ghanbari*[1]; John Speer[1]; [1]Colorado School of Mines

9:20 AM
Effect of Coating Thickness and Mg Content on Adhesion Strength and Corrosion Behavior of EML-PVD Alloy Coating on Steel Strip: *Woosung Jung*[1]; Chang Wook Lee[1]; Bruno De cooman[1]; [1]Graduate Institute of Ferrous Technology(GIFT)

9:40 AM
Corrosion Resistance and Mechanical Properties Zinc Coating Sheet Steels, Received in Conditions of Self-propagating High Temperature Synthesis: *Borys Sereda*[1]; Dmytro Sereda[2]; [1]DSTU; [2]ZSEA

10:00 AM
Internal Stresses and Processing Modeling for Galvanized and Galvannealed DP Steels: *Hongwei Ma*[1]; [1]WISCO

Ceramic Matrix Composites — Ceramic Fiber Composite Degradation

Program Organizers: J. P. Singh, U.S. Army Research Laboratory; Narottam Bansal, NASA Glenn Research Center; Jacques Lamon, CNRS; Sung Choi, Naval Air Systems Command

Monday AM
October 24, 2016

Room: 257B
Location: Salt Palace Convention Center

Session Chairs: Triplicane Parthasarathy, UES, Inc.; Marina Ruggles-Wrenn, Air Force Institute of Technology

8:00 AM Invited
Modeling Architecture-dependent Effects on Environmental Degradation of SiC-Fiber Reinforced CMCs: *Triplicane Parthasarathy*[1]; Qing Yang[2]; Brian Cox[3]; David Marshall[3]; Craig Przybyla[4]; Micahel Cinibulk[4]; [1]UES, Inc.; [2]University of Miami; [3]Teledyne Scientific; [4]Air Force Research Laboratory

8:40 AM Invited
Overview of Foreign Object Damage in Ceramic Matrix Composites: *Sung Choi*[1]; David Faucett[1]; Nesredin Kedir[1]; Joseph Hunt[1]; Luis Sanchez[1]; [1]Naval Air Systems Command

9:20 AM
Foreign Object Damage Behavior of a SiC/SiC Composite at Ambient Temperature at Cantilever Support Configuration: *David Faucett*[1]; Nesredin Kedir[1]; Sung Choi[1]; [1]NAVAIR

9:40 AM
Foreign Object Damage in SiC/SiC Fibrous Ceramics: *Nesredin Kedir*[1]; David Faucett[1]; Sung Choi[1]; [1]NAVAIR

10:00 AM Break

10:20 AM Invited
Mechanical Behavior of an Oxide: Oxide Ceramic Matrix Composite at Elevated Temperature in Air and in Steam: *Marina Ruggles-Wrenn*[1]; [1]Air Force Institute of Technology

11:00 AM
Engineered Matrix Composites: Design and Properties of the Engineered Matrix: *S. Raj*[1]; [1]NASA Glenn Research Center

11:20 AM
Influence of Impurity Inclusions on the Microstructure and Mechanical Properties of Titanium based Cermets (TiCN and TiN): *Munyadziwa Ramakokovhu*[1]; Mxolisi Shongwe[1]; [1]Tshwane University of Technology

11:40 AM
High-temperature Calcium-magnesium-aluminosilicate (CMAS) Interactions with Ytterbium Disilicate Environmental Barrier Coating Material: *Valerie Wiesner*[1]; Nathan Johnson[2]; David Scales[3]; Bryan Harder[1]; Narottam Bansal[1]; [1]NASA Glenn Research Center; [2]Colorado School of Mines; [3]University of Washington Seattle

Ceramic Optical Materials — Session I

Program Organizers: Yiquan Wu, Alfred University; Jas Sanghera, Naval Research Laboratory; Michael Squillante, RMD, Inc; Takunori Taira, Institute for Molecular Science

Monday AM
October 24, 2016

Room: 254C
Location: Salt Palace Convention Center

Session Chair: Yiquan Wu, Alfred University

8:00 AM Invited
Optical Ceramics for High Energy Lasers: *Woohong (Rick) Kim*[1]; Colin Baker[1]; Guillermo Villalobos[1]; Jesse Frantz[1]; Brandon Shaw[1]; Michael Hunt[1]; Bryan Sadowski[2]; Lynda Busse[1]; Shyam Bayya[1]; Darryl Boyd[1]; Ishwar Aggarwal[2]; Jasbinder Sanghera[1]; [1]Naval Research Laboratory; [2]Sotera Defense Solutions

8:40 AM Invited
Microstructure-property Relationships for Light Transmission, Absorption and Emission in Optical Ceramics: Elias Penilla[1]; Alex Dupuy[1]; Yasuhiro Kodera[1]; *Javier Garay*[2]; [1]University of California, Riverside; [2]University of California, San Diego

9:20 AM
Er:Y_2O_3+MgO Nanocomposites for Mid-IR Solid-state Lasers: *Victoria Blair*[1]; Zackery Fleischman[1]; Nicholas Ku[1]; Larry Merkle[1]; [1]Army Research Laboratory

9:40 AM
Crystal Fiber Lasers: *Woohong (Rick) Kim*[1]; Brandon Shaw[1]; Shyam Bayya[1]; Charles Askins[1]; John Peele[2]; Daniel Rhonehouse[3]; Jason Meyers[1]; Rajesh Thapa[2]; Steven Bowman[1]; Daniel Gibson[1]; Jasbinder Sanghera[1]; [1]Naval Research Laboratory; [2]Sotera Defense Solutions; [3]University Research Foundation

10:00 AM Break

10:20 AM Invited
Transparent, Fine-grained Polycrystalline Ceramics with Improved Properties: *Marina Pascucci*[1]; Mark Parish[1]; John Gannon[1]; [1]CeraNova Corporation

11:00 AM
Processing of Electro-optic Ceramics Using Current Activated Pressure Assisted Densification (CAPAD): *Alex Dupuy*[1]; Yasuhiro Kodera[1]; Javier Garay[2]; [1]UC Riverside; [2]University of California, San Diego

11:20 AM Invited
Polymer-derived Rare-earth-activated Silicon Based Oxynitride Phosphors: *Xuan Cheng*[1]; [1]Xiamen University

Construction and Building Materials for a Better Environment — Session I

Program Organizers: Henry Colorado, Universidad de Antioquia; Dileep Singh, Argonne National Laboratory; Flavio Silva, Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio); Gaurav Sant, University of California, Los Angeles

Monday AM
October 24, 2016

Room: 151B
Location: Salt Palace Convention Center

Session Chairs: Henry Colorado, Universidad de Antioquia; Flavio Silva, Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio)

8:00 AM Invited
Defect-induced Stiffening-strengthening-toughening Mechanisms in Complex, Layered Cementitious Materials: *Ning Zhang*[1]; [1]University of North Texas

8:40 AM
Magnetizable Concrete: A Composite Material Containing Ferrite Ceramics: *Ralph Lucke*[1]; Mauricio Esguerra[1]; [1]Magment UG

9:20 AM
Sub-micron Sized β-Dicalcium Silicates for Environmentally Conscious Cementitious Materials: *Scarlett Widgeon*[1]; Elizabeth Cisneros[2]; Rahul Sangodkar[2]; Mariané Silva de Miranda[3]; Flávio Rodrigues[3]; Bradley Chmelka[3]; [1]New Mexico Highlands University ; [2]University of California, Santa Barbara; [3]Universidade de Mogi dasCruces

10:00 AM
Chemical Effect on Compressive Strength of Concrete Incorporating with Rice Husk Ash: *Onkar Singh*[1]; Gurpreet Singh[1]; [1]Punjabi University

10:20 AM Break

10:40 AM
Mechanical and Corrosion Properties of Coconut Fibre Reinforced Concrete in Marine Environment: *Ameeq Farooq*[1]; Ahsan Saleem[1]; Nauman Tahir[1]; Ashar Alam[1]; Rafiq Ahmad[1]; [1]University of the Punjab

11:00 AM
Crystalline Phase Evolution of an Industrial Calcium Sulfoaluminate Cement as a Function of Its Oxide Ratios: *Ariel Berrio*[1]; Jorge Tobón[2]; [1]Cementos ARGOS; [2]Universidad Nacional

11:20 AM Invited
Calorimetry Study of High Early Strength Portland Cement Blended with Superfine Steel Dust: *Henry Colorado*[1]; Samuel Arango[2]; [1]Universidad de Antioquia UdeA; [2]Cementos Argos

Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET along the Way): The Elizabeth Judson Memorial Symposium — Continuous Improvement of MSE Programs

Program Organizers: Devarajan Venugopalan, University of Wisconsin-Milwaukee; Thomas Bieler, Michigan State University; Jeffrey Fergus, Auburn University; Janet Callahan, Boise State University; Ronald Gibala, University of Michigan; Lan Li, Boise State University; Laura Bartolo, Kent State University; Kathy Lu, Virginia Tech

Monday AM
October 24, 2016

Room: 258
Location: Salt Palace Convention Center

Session Chair: Dev Venugopalan, University of Wisconsin-Milwaukee

8:00 AM
Recent and Upcoming Changes in ABET Criteria: *Jeffrey Fergus*[1]; [1]Auburn University

8:20 AM
ABET Support for Continuous Improvement: *Danielle Baron*[1]; [1]ABET

8:40 AM
The Organic Development of an ABET Continuous Improvement Process: *Ben Church*[1]; Nidal Abu-Zahra[1]; [1]University of Wisconsin-Milwaukee

9:00 AM
ABET Diversity and Inclusion Listening Session: *Kristen Constant*[1]; [1]Iowa State University

9:30 AM
Change is Coming: *Janet Callahan*[1]; Jeffrey Fergus[2]; Angus Rockett[3]; William Mullins[4]; Dev Venugopalan[5]; [1]Boise State University; [2]Auburn University; [3]University of Illinois; [4]Office of Naval Research; [5]University of Wisconsin Milwaukee

10:00 AM Break

10:20 AM
Revisiting the Engineering Communications Program in the Materials Science and Engineering (MSE) Curriculum at Virginia Tech: *Christine Burgoyne*[1]; Robert Hendricks[1]; [1]Virginia Tech

10:40 AM
Using Mechanical Testing of Disposable Plastic Cups to Illustrate Processing-structure-property Relationships in an Introductory Materials Laboratory Course: *Kendra Erk*[1]; [1]Purdue University

11:00 AM
Understanding Current State of Materials Education for a Successful Career Tomorrow: *Kathy Lu*[1]; [1]Virginia Tech

11:20 AM
Methods for Increasing Student Engagement and Success in Introductory Materials Science Courses.: *Debbie Goodwin*[1]; Andrew Nydam[1]; [1]ASM Education Foundation

Degradation of Nonmetallic Materials — Degradation of Nonmetallic Materials

Program Organizers: John Howarter, Purdue University; Jessica Torrey, Bureau of Reclamation; Logan Kearney, Purdue University

Monday AM
October 24, 2016

Room: 250C
Location: Salt Palace Convention Center

Session Chair: John Howarter, Purdue University

8:00 AM
Informed Materials Design of Degradation Resistant Polymer Thin Films: *Logan Kearney*[1]; Michael Toomey[1]; John Howarter[1]; [1]Purdue University

8:20 AM
Effect of Carbon Nano-filler Addition on the Degradation of Epoxy Adhesive Joints Subjected to Hygrothermal Aging: Jojibabu Panta[1]; Janaki Ram Gabbita[1]; Abhijit Deshpande[1]; *Srinivasa Bakshi*[1]; [1]Indian Institute of Technology Madras

8:40 AM
Degradation of Mechanical Properties of Low Density Polyethylene under UV Radiation: *Ana Rodriguez*[1]; Georges Ayoub[2]; Bilal Mansoor[3]; Amine Benzerga[4]; [1]Texas A&M University, Texas A&M University at Qatar.; [2]American University of Beirut, Texas A&M University at Qatar; [3]Texas A&M University at Qatar.; [4]Texas A&M University

9:00 AM
Nanostructural Characterization of Ballistic Fibers Subjected to Hydrothermal and Ultrasonic Degradation: *Nelyan Lopez-Perez*[1]; Gamini Mendis[1]; John Howarter[1]; [1]Purdue University

9:20 AM
Long Term Solid State Investigations of Cementitious Waste Forms: *Matthew Asmussen*[1]; Jeff Serne[1]; Nikolla Qafoku[1]; [1]Pacific Northwest National Laboratory

Failure Analysis and Prevention — Fatigue and Fracture

Program Organizer: Burak Akyuz, ATS, Inc.

Monday AM
October 24, 2016

Room: 150G
Location: Salt Palace Convention Center

Session Chairs: Daniel Dennies, Metallurgical Consultant; Craig Schroeder, Element; Aaron Slager, Bell Helicopter

8:00 AM
Failure of a Trunnion Axle on a Hard-suspension, Multi-axle Trailer: *Joseph Lemberg*[1]; Eric Guyer[1]; [1]Exponent Failure Analysis Associates, Inc.

8:20 AM
Failure Analysis and Engineering Investigation of a Failed Tower Crane Turntable Weld That Led to a Crane Collapse: *Richard McSwain*[1]; William Carden[1]; Eric Van Iderstine[1]; L. Scott Marshall[1]; Leah Godwin[1]; [1]McSwain Engineering, Inc.

8:40 AM
Managing Cold Temperature and Brittle Fracture Hazards in Pressure Vessels: *Nicholas Cherolis*[1]; Daniel Benac[1]; [1]Baker Engineering and Risk Consultants, Inc.

9:00 AM
Analysis of In Vivo Tested Leads: *Margaret Bush*[1]; [1]Medtronic, Inc.

9:20 AM
Intergranular Fracture in a Plain Very Low Carbon Steel: *Donato Firrao*[1]; Paolo Matteis[1]; [1]Politecnico di Torino - DISAT

9:40 AM
Interface Microstructure in a Failed APMT/KHR45A Tubular Weld Joint after Service Exposure: *Ihho Park*[1]; Yunjo Ro[1]; Raghavan Ayer[1]; Junghoon Jeon[1]; Jae-woong Kim[2]; Youngsu Ji[2]; [1]SK innovation; [2]SK Energy

10:00 AM Break

10:20 AM
Extremely Low Cycle Fatigue Damage Mechanism, Fractographic Examination, and Life Prediction: *Mohammed Algarni*[1]; Yuanli Bai[1]; [1]University of Central Florida

10:40 AM
Examination of Three Fatigue Cracked Helicopter Main Transmission Gearbox Cases from Aggressive Operation, a Manufacturing Issue, and Fatigue Testing: *Aaron Slager*[1]; [1]Bell Helicopter

11:00 AM
Fatigue and Fracture of Bicycle Components: *Dan Grice*[1]; Brett Miller[2]; [1]Materials Evaluation and Engineering, Inc.; [2]IMR Test Labs

11:20 AM
Inclusion Orientation Effect on Rolling Contact Fatigue Crack Paths Observed by Laminography Using Synchrotron Radiation X-ray: *Yoshikazu Nakai*[1]; Daiki Shiozawa[1]; Shoichi Kikuchi[1]; Tomoya Obama[1]; Hitoshi Saito[1]; Taizo Makino[2]; Yutaka Neishi[2]; [1]Kobe University; [2]Nippon Steel & Sumitomo Metal Corporation

11:40 AM
Backup Roll Service Life Assessment: *Konstantin Redkin*[1]; Christopher Hrizo[1]; Kevin Marsden[1]; [1]WHEMCO Inc

Ferrous Metallurgy: From Past to Present — Ferrous Metallurgy: Past to Present

Program Organizer: Kester Clarke, Colorado School of Mines

Monday AM
October 24, 2016

Room: 155E
Location: Salt Palace Convention Center

Session Chair: Kester Clarke, Colorado School of Mines

8:00 AM Invited
The Age of Bessemer Steel: Charles Simcoe[1]; *Frances Richards*[1]; [1]ASM International

8:20 AM Invited
Historic Heavy Hydraulic Presses:Transitioning from Ferrous to Nonferrous Forgings: *Jon Tirpak*[1]; [1]FDMC

9:00 AM Invited
Advances in High-Temperature Microscopy: *Rian Dippenaar*[1]; [1]University of Wollongong

9:40 AM Invited
Quench Embrittlement:History and Importance in High Carbon Steels: *George Krauss*[1]; [1]Colorado School of Mines

10:20 AM Break

10:40 AM Invited
The Evolution of Ferrous Grain Size Control: Standards and Practice: *Robert Glodowski*[1]; [1]RJG Metallugical LLC

11:20 AM Invited
Widmanstätten Ferrite: From Meteorites to Rolling Mills: *John Jonas*[1]; [1]McGill University

Glass, Amorphous, and Optical Materials: Common Issues within Science & Technology — Optical Properties of Glass

Program Organizers: Steve W. Martin, Iowa State University; Gang Chen, Ohio University

Monday AM
October 24, 2016

Room: 255A
Location: Salt Palace Convention Center

Session Chair: Pierre Lucas, University of Arizona

8:00 AM Invited
Amorphous Thin Film Integrated Photonics: A Crystal-clear Future: *Juejun Hu*[1]; [1]Massachusetts Institute of Technology

8:40 AM Invited
Nanoparticle Formation and Optics in Glass Substrate Applications: *Ashtosh Ganjoo*[1]; Adam Polcyn[1]; James McCamy[1]; [1]PPG Industries

9:20 AM Invited
Tailoring Infrared Transmission Edge and Refractive Index Dispersion of Chalcogenide Glasses for Use in Infrared-transmitting Lens Applications: *Yong Gyu Choi*[1]; Jun Ho Lee[1]; Jeong Han Yi[1]; Woo Hyung Lee[1]; Ju Hyeon Choi[2]; Hye Jeong Kim[2]; [1]Korea Aerospace University; [2]Korea Photonics Technology Institute

10:00 AM Break

10:20 AM Invited
Surface Characteristics of Silica Glass Optical Fibers: *Minoru Tomozawa*[1]; [1]Rensselaer Polytechnic Institute

11:00 AM
Quantifying Optical Function Loss from Mechanical Abuse: *David Schoen*[1]; David Rolfe[1]; Erwin Lau[1]; Lucas Berla[1]; Evan Brown[1]; [1]Exponent, Inc.

11:20 AM Invited
Optical Glass Ceramics for GRIN: Engineering Microstructure for Optical Function: *Kathleen Richardson*[1]; [1]University of Central Florida

Heterogeneity during Plastic Deformation – Synergy between Experimental Investigation and Simulation — Plastic Interactions at the Atomistic and Nanoscale

Program Organizers: Stephen Niezgoda, The Ohio State University; David Fullwood, Brigham Young University

Monday AM
October 24, 2016

Room: 250F
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM
A Multiscale Modeling Study of the Onset of Flow Localization in Irradiated Iron: Moon Rhee[1]; Nathan Barton[1]; Tom Arsenlis[1]; *Jaime Marian*[2]; [1]LLNL; [2]University of California Los Angeles

8:20 AM
Deformation Mechanisms during High Speed Impaction of Ag Nanoparticles: *Tushar Chitrakar*[1]; Michael Becker[1]; John Keto[1]; Desiderio Kovar[1]; [1]The University of Texas at Austin

8:40 AM
Dislocation Nucleation at Grain Boundaries: *Ricky Wyman*[1]; David Fullwood[1]; Robert Wagoner[2]; Eric Homer[1]; [1]Brigham Young University; [2]The Ohio State University

9:00 AM
Development of Many-body Potentials for Al-TiN Nanolayered Composites: *Paul Simanjuntak*[1]; Ridwan Sakidja[1]; Caizhi Zhou[2]; [1]Missouri State University; [2]Missouri University of Science & Technology

9:20 AM Invited
Linking Nanoscale Deformation Mechanisms and Interfaces with Diffraction Profiles in Nanocrystalline Materials: Daniel Foley[1]; Shawn Coleman[2]; Mark Tschopp[2]; *Garritt Tucker*[1]; [1]Drexel University; [2]U.S. Army Research Laboratories

10:00 AM Break

10:20 AM
Exploring the Energy Landscape for Dislocation Motion in Tantalum: *Amit Samanta*[1]; Vasily Bulatov[1]; [1]Lawrence Livermore National Laboratory

10:40 AM
Plasticity-induced Restructuring of Nanocrystalline Grain Boundary Networks: *Jason Panzarino*[1]; Timothy Rupert[1]; [1]University of California Irvine

11:00 AM
The Influence of Elastic Anisotropy and the γ Surface in Cross Slip of Copper: *Ben Szajewski*[1]; Abigail Hunter[1]; Irene Beyerlein[1]; [1]Los Alamos National Laboratory

Innovative Processing and Synthesis of Ceramics, Glasses and Composites — Ceramic Processing I

Program Organizers: Narottam Bansal, NASA Glenn Research Center; Jitendra Singh, U.S. Army Research Laboratory; Scarlett Widgeon, New Mexico Highlands University ; Gabriela Mera, TU Darmstadt

Monday AM
October 24, 2016

Room: 255D
Location: Salt Palace Convention Center

Session Chairs: Ivar Reimanis, Colorado School of Mines; Yutaka Shinoda, Tokyo Institute of Technology

8:00 AM Invited
Fabrication of Highly Structure-controlled Ceramics by Advanced Powder Processing: *Yoshio Sakka*[1]; [1]NIMS

8:40 AM Invited
Inorganic Clusters and Nanorparticles in the Synthesis of Ceramics: *Alexandra Navrotsky*[1]; [1]University of California, Davis

9:20 AM Invited
Direct Observation of Solute Atoms and Interfaces in Covalent Bonded Materials: *Yuichi Ikuhara*[1]; Chunlin Chen[2]; Ryo Ishikawa[1]; Naoya Shibata[1]; Takashi Taniguchi[3]; [1]University of Tokyo; [2]Tohoku University; [3]NIMS

10:00 AM Break

10:20 AM Invited
Toughening of Transparent Magnesium Aluminate Spinel by Dissolution/ Precipitation of Alumina: *Ivar Reimanis*[1]; Aaron Miller[1]; Weiguo Miao[2]; [1]Colorado School of Mines; [2]Corning Incorporated

11:00 AM Invited
Novel Development of Ceramic Superplasticity: *Yutaka Shinoda*[1]; Fumihiro Wakai[1]; Takashi Akatsu[2]; [1]Tokyo Institute of Technology; [2]Saga University

11:40 AM
Nano-catalyst Impregnation Optimization of SOFC Electrodes Using Catechol Surfactants: *Ozcan Ozmen*[1]; John Zondlo[1]; Shiwoo Lee[2]; Gregory Hackett[3]; Harry Abernathy[3]; Edward Sabolsky[1]; [1]West Virginia University; [2]AECOM/GES; [3]US DOE-National Energy Technology Laboratory

Interfaces, Grain Boundaries and Surfaces from Atomistic and Macroscopic Approaches -- Fundamental and Engineering Issues — Structure & Chemistry of Interfaces I

Program Organizers: Wayne Kaplan, Technion - Israel Institute of Technology; Dominique Chatain, CNRS, Aix-Marseille University; John Blendell, Purdue University; Paul Wynblatt, Carnegie Mellon University

Monday AM
October 24, 2016

Room: 251B
Location: Salt Palace Convention Center

Session Chairs: John Blendell, Purdue; Wayne Kaplan, Technion - Israel Institute of Technology

8:00 AM Keynote
Grain Boundary Energy and Curvature Determined from Three-dimensional Microstructure Data: Xiaoting Zhong[1]; *Gregory Rohrer*[1]; [1]Carnegie Mellon University

8:40 AM Keynote
Grain Boundary Line Defects in Polycrystalline Al_2O_3 and their Dominant Role in High Temperature Phenomena: *Arthur Heuer*[1]; [1]Case Western Reserve University

9:20 AM Invited
Investigating the Interplay between Grain Boundary Facet Junctions and Interfacial Dislocations: *Douglas Medlin*[1]; K. Hattar[1]; J. Zimmerman[1]; F. Abdeljawad[1]; S. Foiles[1]; [1]Sandia National Labs

9:40 AM Keynote
A Phase Field Crystal Study of Defects in Multilayer Graphene: *Rachel Zucker*[1]; Mark Asta[1]; [1]University of California, Berkeley

10:20 AM Break

10:40 AM
Structural Characterization of Triangle-shaped Lattice Defects in 4H-SiC Epitaxial Layer: *Eita Tochigi*[1]; Hirofumi Matsuhata[2]; Hirotaka Yamaguchi[2]; Takashi Sekiguchi[3]; Yuichi Ikuhara[1]; [1]The University of Tokyo; [2]National Institute of Advanced Industrial Science and Technology; [3]National Institute for Materials Science

11:00 AM
An Efficient Algorithm for Determining the Minimum Energy Structures of Grain Boundaries: *Arash Dehghan Banadaki*[1]; Mark Tschopp[2]; Srikanth Patala[1]; [1]North Carolina State University; [2]U.S. Army Research Laboratory

11:20 AM
The Generating Algorithm for Coincidence Site Lattices in General Bravais Lattice Systems: *Srikanth Patala*[1]; Arash Banadaki[1]; [1]North Carolina State University

11:40 AM
The Effect of Oxygen Partial Pressure on Oxygen Transport Kinetics in Alumina Grain Boundaries: *Yan Wang*[1]; Helen Chan[1]; Jeffrey Rickman[1]; Martin Harmer[1]; [1]Lehigh University

International Symposium on Defects, Transport and Related Phenomena — Session I

Program Organizers: Sangtae Kim, University of California, Davis; Doreen Edwards, Alfred University; Tatsuya Kawada, Tohoku University; Manfred Martin, RWTH Aachen University

Monday AM
October 24, 2016

Room: 251E
Location: Salt Palace Convention Center

Session Chairs: Harry Tuller, MIT; Shu Yamaguchi, The University of Tokyo

8:00 AM Invited
Defects and Transport in Nanosized Particles: Novel In-situ Means for Investigation: *Harry Tuller*[1]; Philippe Knauth[2]; Sean Bishop[1]; [1]Massachusetts Institute of Technology ; [2]Aix Marseille Université

8:40 AM Invited
Surface Reactivity and Electronic/spin Structure of Nonstoichiometric Oxide Cathode: *Shu Yamaguchi*[1]; [1]The University of Tokyo

9:20 AM Invited
Proton Transport Properties of Mn Doped $CaZrO_3$ with Redox Protonation: *Yuji Okuyama*[1]; Shinya Nagamine[1]; Muneyuki Shibuya[1]; Akira Nakajima[1]; Naoki Matsunaga[1]; Go Sakai[1]; Tomoko Oshima[2]; Fusako Takahashi[2]; Koji Tsuneyoshi[2]; [1]University of Miyazaki; [2]TYK Corp.

10:00 AM Break

10:20 AM Invited
Non-stoichiometry and Isothermal Transport Properties of La0.1Sr0.9Co0.8Fe0.2O2.05+d: Ha-Ni Im[1]; *Sun-Ju Song*[1]; [1]Chonnam National University

11:00 AM Invited
Redox Capacity of Ultrathin CeO_2-d Depends Non-monotonically on Large Biaxial Strain: *William Chueh*[1]; [1]Stanford University

11:40 AM
Direct Measurement of Charge and Electrostatic Potential Distribution in Non-stoichiometric Nano Magnesium Aluminate Spinel: Mahdi Halabi[1]; Amit Kohn[2]; *Shmuel Hayun*[1]; [1]Department of Materials Engineering, Ben-Gurion University of the Negev, Israel.; [2]Department of Materials Science and Engineering, Tel Aviv University,Israel

Joining of Advanced and Specialty Materials (JASM XVIII) — Friction Stir Welding

Program Organizers: Boian Alexandrov, The Ohio State University; Mathieu Brochu, McGill University; Akio Hirose, Osaka University; Anming Hu, University of Tennessee; Peng He, Harbin Insitute of Technology; Darren Barborak, AZZ|WSI; Bingtao Li, AZZ WSI; Xinjin Cao, Institute for Aerospace Research

Monday AM
October 24, 2016

Room: 155B
Location: Salt Palace Convention Center

Session Chairs: Judy Schneider, University of Alabama in Huntsville; Yuri Hovanski, Pacific Northwest National Laboratory

8:00 AM Keynote
Friction Stir Welding: Benefits and Unique Issues: *Murray Mahoney*[1]; [1]Retired from Rockwell Scientific

8:40 AM
3D Visualization of Elemental Tracer Foils after Friction Stir Welding: *Richard Fonda*[1]; Amanda Levinson[1]; Keith Knipling[1]; [1]Naval Research Laboratory

9:00 AM
Interpretation of Friction Stir Welding Flow Paths: *Judith Schneider*[1]; Josef Cobb[2]; [1]University of Alabama at Huntsville; [2]Mississippi State University

9:20 AM
Joining Dissimilar Materials with Friction Stir Scribe Technology: *Piyush Upadhyay*[1]; Yuri Hovanski[1]; Saumyadeep Jana[1]; Leo Fifield[1]; [1]Pacific Northwest National Laboratory

9:40 AM
Joining of Polymer Composite to Advanced High Strength Steel by Friction Bit Joining Process: *Hoonmo Park*[1]; Yong Chae Lim[2]; Jong Khak Keum[2]; Junho Jang[1]; Zhili Feng[2]; [1]Hyundai Motor Company; [2]Oak Ridge National Lab

10:00 AM Break

10:20 AM Invited
Recent Developments on FSW of High Temperature Alloys: *Antonio Ramirez*[1]; [1]The Ohio State University

10:40 AM
Microstructural Evolution of Friction Stir Welded Steel Joints: *Yusei Maeda*[1]; Tomoki Matsuda[1]; Tomokazu Sano[1]; Akio Hirose[1]; Atsushi Takada[2]; Muneo Matsushita[2]; Naoya Hayakawa[2]; Kenji Oi[2]; [1]Osaka University; [2]Steel Research Laboratory, JFE Steel Corporation

11:00 AM
In-situ Microstructure Distribution during Friction Stir Welding of Austenite Stainless Steel: *Fengchao Liu*[1]; Tracy Nelson[1]; [1]Brigham Youg University

11:20 AM
Quantitative Microstructure Study of High Speed FSW Aluminum Alloy: *Jingyi Zhang*[1]; Piyush Upadhyay[2]; Yuri Hovanski[2]; David Field[1]; [1]Washington State University; [2]Pacific Northwest National Laboratory

11:40 AM
Enabling Curvilinear, Dissimilar Alloy Tailor-welded Blanks: *Yuri Hovanski*[1]; Piyush Upadhyay[1]; Dustin Marshall[2]; Thomas Luzanski[2]; [1]Pacific Northwest National Laboratory; [2]TWB Company

Light Metal Technology — Aluminum Technology

Program Organizer: Xiaoming Wang, Purdue University

Monday AM
October 24, 2016

Room: 150C
Location: Salt Palace Convention Center

Session Chairs: Qiang Zhu, General Research Institute for Non Ferrous Metals; Xiaoming Wang, Purdue University

8:00 AM Keynote
Advanced Light Metals and Manufacturing for Structural Applications: *Alan Luo*[1]; [1]The Ohio State University

8:40 AM Invited
Mechanical Properties of AlMgSi Alloys as a Function of Microstructure and Thermomechanical Processing: *Alexander Wimmer*[1]; [1]Neuman Aluminium

9:00 AM
Numerical Simulation and Experimental Validation of Hydroforming of Square Cups Using Cryorolled Aluminum Alloy Sheets: *Fitsum Feyissa*[1]; Ravi Digavali[2]; [1] Indian Institute of Technology Delhi,; [2]Indian Institute of Technology Delhi,

9:20 AM
Influence of Zirconium on the Growth of Al3Ti and TiB2 Particles in Aluminum Alloys: *Haibin Ma*[1]; Xingtao Liu[1]; Xiaoming Wang[1]; [1]Purdue University

9:40 AM Invited
Investigation of the Thermal Stability during Thermal Exposure of A201, 319s and 2618 Alloys: Junzhen Gao[1]; *Qiang Zhu*[1]; Daquan Li[1]; Yonglin Kang[2]; [1]General Research Institute for Nonferrous Metals; [2]University of Science and Technology Beijing

10:00 AM Break

10:20 AM
Constitutive Behavior of As-quenched Al-Cu-Mn Alloy Considering Influence of Casting Porosity: *Gang Wang*[1]; Wenguang Wang[1]; Yisen Hu[1]; Guannan Guo[2]; Yiming Rong[3]; [1]Institute of Manufacturing Engineering, Tsinghua University; [2]Worcester Polytenchnic Institute; [3]South University of Science and Technology

10:40 AM
Metallurgical Bonding between Cast-in Ferrous Inserts and Aluminum: *Carl Soderhjelm*[1]; Diran Apelian[1]; [1]Worcester Polytechnic Institute

11:00 AM Invited
Crystallographic and Evolution of Intermetallic Phases in Al-Fe Reactionin Soldering Region of the Die Casting of Aluminum Alloys: *Jie Song*[1]; Xiaoming Wang[2]; Tony DenOuDen[3]; Qingyou Han[2]; Yao Fu[4]; [1]Colorado School of Mines; [2]Purdue University; [3]Fiat Chrysler Automobiles; [4]Oak Ridge National Laboratory

11:20 AM Invited
Coupling Of Dislocations and Precipitates: Impact on the Mechanical Behavior of Ultrafine Grained Al–Zn–Mg Alloys: *Kaka Ma*[1]; Tao Hu[2]; Hanry Yang[3]; Troy Topping[4]; Ali Yousefiani[5]; Enrique J. Lavernia[6]; Julie Schoenung[6]; [1]Colorado State University; [2]University of California, Davis; University of California, San Diego; [3]University of California, Davis; Washington State University; [4]University of California, Davis; California State University; [5]Boeing Research and Technology; [6]University of California, Irvine; University of California, Davis

Materials Degradation in Supercritical CO_2 Power Cycles — High-temperature Oxidation in Supercritical CO_2

Program Organizers: Omer Dogan, DOE National Energy Technology Laboratory; Julie Tucker, Oregon State University; Briggs White, DOE National Energy Technology Laboratory

Monday AM
October 24, 2016

Room: 250D
Location: Salt Palace Convention Center

Session Chairs: Monica Kapoor, National Energy Technology Laboratory; Charles Lewinsohn, Ceramatec

8:00 AM
An Update on Oxidation and Carburization of Structural Alloys in Supercritical CO_2 for Transformational Fossil Energy Systems: *John Shingledecker*[1]; Steve Kung[1]; David Thimsen[1]; Brett Tossey[2]; Ian Wright[3]; Adrian Sabau[4]; [1]Electric Power Research Institute; [2]DNV-GL; [3]WrightHT; [4]Oak Ridge National Laboratory

8:20 AM
High Temperature Oxidation of Ni-base Alloys and Austenitic Stainless Steels in Supercritical CO2 for Power Systems Applications: *Gordon Holcomb*[1]; Ömer Dogan[1]; Casey Carney[2]; Kyle Rozman[1]; Jeffrey Hawk[1]; [1]National Energy Technology Laboratory; [2]National Energy Technology Laboratory and AECOM

8:40 AM
Effect of Pressure and Thermal Cycling on Compatibility in CO_2 for Concentrated Solar Power Applications: *Bruce Pint*[1]; R Brese[1]; J Keiser[1]; [1]Oak Ridge National Laboratory

9:00 AM
High-temperature Early Stage Oxidation of Alloy 617 in CO_2: *Richard Oleksak*[1]; John Baltrus[2]; Casey Carney[1]; Jinichiro Nakano[1]; Gordon Holcomb[1]; Ömer Dogan[1]; [1]National Energy Technology Laboratory, Albany, OR; [2]National Energy Technology Laboratory, Pittsburgh, PA

9:20 AM
Oxidation and Carburization of 9Cr Ferritic Alloys for the Structural Components of SC-CO2 Brayton Cycle: *Muhammet Arik*[1]; David Adam[1]; Jacop Mahaffey[1]; Andrew Brittan[1]; Mark Anderson[1]; Kumar[1]; [1]University of Wisconsin

9:40 AM
Effects of Various Coatings on Carburization Resistance of 316LN Stainless Steel in High Temperature S-CO2 Environment: Sung Hwan Kim[1]; Ho Jung Lee[1]; Obulan Subramanian Gokul[1]; *Changheui Jang*[1]; [1]KAIST

10:00 AM Break

10:20 AM
Supercritical CO_2 Round Robin Test Program Update: *Julie Tucker*[1]; [1]Oregon State University

10:40 AM
Corrosion Behavior of Iron-nickel-chrome Alloy in Supercritical CO_2: *Lucas Teeter*[1]; Benjamin Adam[1]; Jacob Mahaffey[2]; Mark Anderson[2]; Julie Tucker[1]; [1]Oregon State University; [2]University of Wisconsin-Madison

11:00 AM
Compatibility of Structural Alloys in Supercritical CO_2 for Concentrated Solar Power Energy Generation: *Robert Brese*[1]; [1]Oak Ridge National Laboratory; University of Tennessee

Materials Development for Nuclear Applications and Extreme Environments — Advanced Modeling in Nuclear Materials

Program Organizers: Raghunath Kanakala, University of Idaho; Nan Li, Los Alamos National Laboratory; Todd Allen, Idaho National Laboratory; Jake Amoroso, Savannah River National Laboratory; Aladar Csontos, Nuclear Regulatory Commission; Lingfeng He, Idaho National Laboratory; Yutai Katoh, Oak Ridge National Laboratory; Josef Matyas, Pacific Northwest National Laboratory; Amit Misra, University of Michigan; Raul Rebak, GE Global Research; Kumar Sridharan, University of Wisconsin

Monday AM
October 24, 2016

Room: 250A
Location: Salt Palace Convention Center

Session Chairs: Dane Morgan, University of Wisconsin - Madison; Darryl Butt, University of Utah

8:00 AM Invited
D. T. Rankin Award Lecture: Thermochemical Modeling of Nuclear Fuel and Its Use in Fuel Performance Codes: *Theodore Besmann*[1]; Benjamin Gaston[1]; Jacob McMurray[2]; Srdjan Simunovic[2]; Markus Piro[3]; [1]University of South Carolina; [2]Oak Ridge National Laboratory; [3]Canadian Nuclear Laboratories

8:40 AM Invited
Molecular Dynamics Simulation of Defect Production in FeCr Alloys: *Ram Devanathan*[1]; [1]Pacific Northwest National Laboratory

9:20 AM Invited
Precipitation Modeling in Nuclear Steels with Cluster Dynamics: *Dane Morgan*[1]; Huibin Ke[1]; Mahmood Mamivand[1]; Jia-Hong Ke[1]; Nicholas Cunningham[1]; Peter Wells[1]; G. Odette[1]; [1]University of Wisconsin - Madison

10:00 AM Break

10:20 AM
Development of a Multi-component (Al, Am, Fe, Ga, Ni, Pu, and U) CALPHAD Database for Complex Actinide-based Systems: *Aurelien Perron*[1]; Patrice Turchi[1]; Alexander Landa[1]; Benoit Oudot[2]; Brice Ravat[2]; Francois Delaunay[2]; [1]Lawrence Livermore National Laboratory; [2]CEA-Valduc

10:40 AM
Coupling Radiation Damage from Binary Collision Monte Carlo to Phase Field Microstructure Evolution: *Daniel Schwen*[1]; [1]Idaho National Laboratory

11:00 AM
Effects of the Two-temperature Model on Cascade Evolution in Ni and Ni-based Alloys: *Eva Zarkadoula*[1]; German Samolyuk[1]; William Weber[2]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

11:20 AM
Efficient Deterministic Simulation of Phonon Transport in Nuclear Materials: *Jackson Harter*[1]; Laura de Sousa Oliveira[2]; Aria Hosseini[2]; Todd Palmer[1]; P. Alex Greaney[2]; [1]Oregon State University; [2]University of California - Riverside

11:40 AM
CALPHAD Assessment of the Carbon-zirconium System: *Theresa Davey*[1]; Suzana G Fries[2]; Michael W Finnis[1]; [1]Imperial College London; [2]Ruhr-Universität Bochum

Materials Genome Initiative/Materials Today - Data Grand Challenge — Materials Science and Engineering Data Grand Challenge

Program Organizers: Charles Ward, Air Force Research Laboratory; James Warren, Nist; Alexis Lewis, National Science Foundation; Baptiste Gault, Max-Planck-Institut für Eisenforschung GmbH

Monday AM
October 24, 2016

Room: 255E
Location: Salt Palace Convention Center

Session Chairs: Charles Ward, Air Force Research Laboratory; James Warren, National Institute of Standards and Technology; Alexis Lewis, National Science Foundation; Joe d'Angelo, Elsevier Ltd.

8:00 AM Invited
Structure-based Energy Models from Simulated Al Grain Boundary Datasets: *Joshua Gomberg*[1]; Andrew Medford[1]; Surya Kalidindi[1]; [1]Georgia Institute of Technology

8:20 AM Invited
The Thermodynamic Scale of Inorganic Crystalline Metastability: *Wenhao Sun*[1]; Stephen Dacek[1]; Shyue Ping Ong[2]; Geoffroy Hautier[3]; Anubhav Jain[4]; Will Richards[1]; Anthony Gamst[2]; Kristin Persson[5]; Gerbrand Ceder[5]; [1]Massachusetts Institute of Technology; [2]University of California, San Diego; [3]Université Catholique de Louvain; [4]Lawrence Berkeley National Laboratory; [5]Lawrence Berkeley National Laboratory; University of California, Berkeley

8:40 AM Invited
Deceptively Simple and Endlessly Complicated: Machine Learning Prediction and Experimental Confirmation of Novel Heusler Compounds: *Anton Oliynyk*[1]; Erin Antono[2]; Taylor Sparks[3]; Leila Ghadbeigi[3]; Michael Gaultois[4]; Bryce Meredig[5]; Arthur Mar[1]; [1]University of Alberta; [2]Citrine Informatics ; [3]University of Utah; [4]University of Cambridge; [5]Citrine Informatics

9:00 AM Invited
Optimal Design of Atomic Crystalline Solids using Kernel Regression Property Prediction Models: *Bruno Abreu Calfa*[1]; John Kitchin[2]; [1]University of Wisconsin-Madison; [2]Carnegie Mellon University

9:20 AM Invited
Extraction of Process-Structure Linkages from Simulated Additive Manufacturing Microstructures Using a Data Science Approach: *Eva Popova*[1]; Theron Rodgers[2]; Xinyi Gong[1]; Ahmet Cecen[1]; Jonathan Madison[2]; Surya Kalidindi[1]; [1]Georgia Institute of Technology; [2]Sandia National Laboratory

9:40 AM Invited
Towards Shareable Materials Science: Cloud-Based Data-Driven Modeling for Fatigue Life Prediction in Ti-6Al-4V for Turbine Blade Applications: *Ayman Salem*[1]; Joshua Shaffer[1]; Richard Kublik[1]; Daniel Satko[1]; [1]Materials Resources LLC

Materials Issues in Nuclear Waste Management in the 21st Century — Advanced Waste Form Technologies and Waste Forms

Program Organizers: Josef Matyas, Pacific Northwest National Laboratory; Jake Amoroso, Savannah River National Laboratory; Isabelle Giboire, CEA Marcoule; Raghunath Kanakala, University of Idaho; Yutai Katoh, Oak Ridge National Laboratory; Stefan Neumeier, Forschungszentrum Juelich GmbH; David Shoesmith, Western University; Kumar Sridharan, University of Wisconsin; David Enos, Sandia National Laboratories; Charles Bryan, Sandia National Laboratories

Monday AM
October 24, 2016

Room: 251D
Location: Salt Palace Convention Center

Session Chairs: Josef Matyas, PNNL; Kevin Fox, SRNL

8:00 AM Invited
Advanced Waste Form Technologies with a Focus on Hot Isostatic Pressing: *Dan Gregg*[1]; Lou Vance[1]; [1]ANSTO

8:40 AM Invited
New Binders, New Trends, New Potentialities in Waste Cementation: *Fabien Frizon*[1]; Céline Cau dit Coumes[1]; David Lambertin[1]; Arnaud Pourlesquen[1]; [1]CEA

9:20 AM
Silver-functionalized Silica Aerogel for Highly Efficient Capture and Sequestration of Iodine from Low-activity Waste Off-gas Condensate: *Josef Matyas*[1]; Matthew Asmussen[1]; Nick Qafoku[1]; [1]Pacific Northwest National Laboratory

9:40 AM
Immobilisation of I in AgI Sodalite, $Ag_4Al_3Si_3O_{12}I$: *Lou Vance*[1]; Dan Gregg[1]; Charmaine Grant[1]; A Stopic[1]; Ewan Maddrell[2]; [1]ANSTO; [2]National Nuclear Laboratory

10:00 AM Break

10:20 AM Invited
Lead Vanadate Apatite for Immobilization of I-129: *Fengyuan Lu*[1]; Jianren Zhou[1]; Tiankai Yao[2]; Jie Lian[2]; Rodney Ewing[3]; [1]Louisiana State University; [2]Rensselaer Polytechnic Institute; [3]Stanford University

11:00 AM
Aqueous Synthesis of Iodide Sodalite: *Junghune Nam*[1]; Saehwa Chong[1]; John McCloy[1]; [1]Washington State University

11:20 AM
Incorporation of Ba in Al and Fe Pollucite: *Lou Vance*[1]; Dan Gregg[1]; Grant Griffith[1]; Paul Gaugliardo[2]; Charmaine Grant[1]; [1]ANSTO; [2]University of Western Australia

11:40 AM
Immobilisation Options for Exotic Carbide Fuels: *Claudia Gasparrini*[1]; Sarah May[2]; Peter Durham[2]; Simon Everall[2]; Daniel Shepherd[2]; Duncan Coppersthwaite[2]; William Edward Lee[1]; [1]Imperial College London; [2]National Nuclear Laboratory Preston

Materials Property Understanding through Characterization — Novel Techniques I

Program Organizers: Indrajit Dutta, Corning Incorporated; Brian Strohmeier, US Steel; Nicholas Smith, Corning Incorporated

Monday AM
October 24, 2016

Room: 251C
Location: Salt Palace Convention Center

Session Chair: Gerd Kaupp, University of Oldenburg

8:00 AM Invited
Quantitative Stage Mapping by WDS on an SEM: *Stephen Seddio*[1]; [1]Thermo Fisher Scientific

8:40 AM Invited
New Insights into Functional Materials from a Local Structural Viewpoint: *Helen Playford*[1]; Matthew Tucker[2]; [1]STFC ISIS Facility; [2]Spallation Neutron Source

9:20 AM
Towards Quantitative Transmission-SEM Imaging: *Jason Holm*[1]; Bob Keller[1]; [1]NIST

9:40 AM
Characterization of Residual Stress at the Microscale Using Photoluminescence Spectroscopy: *Thomas Buchheit*[1]; Raegan Johnson[1]; Melissa Teague[1]; Kevin Strong[1]; Steven Meserole[1]; David Tallant[1]; Kevin Ewsuk[1]; [1]Sandia National Laboratories

10:00 AM Break

10:20 AM
Study of Fatigue Crack Growth Analysis in Microalloyed Steel (38MnVS6) Using Digital Image Correlation: *Akshay Patil*[1]; Krishna Jonnalagadda[2]; Suraj Toppo[1]; [1]Bharat Forge Ltd.; [2]Indian Institute of Technology Bombay

10:40 AM
Effect of Tempering Temperature on the Microstructure, Mechanical and Magnetic Properties of 26NiCrMoV11-5 Steel: *Santosh Mane*[1]; Nityanand Prabhu[2]; Sagar Bapat[1]; Rajkumar Singh[1]; [1]Bharat Forge Limited; [2]Indian Institute of Technology Bombay

Materials Selection and Characterization for Corrosion Control — Materials Selection: Session I

Program Organizers: Ajit Mishra, Haynes International; Matthew Asmussen, Pacific Northwest National Laboratory; Eric Schindelholz, Sandia National Laboratories; Florent Bocher, Southwest Research Institute; Guang-Ling Song, Xiamen University; Jeffery Thomson, Oak Ridge National Lab; Kevin Lambrych, Ashland Performance Materials; Gary Coates, Nickel Institute / Garcoa Metallurgical; Raul Rebak, GE Global Research

Monday AM
October 24, 2016

Room: 253B
Location: Salt Palace Convention Center

Session Chairs: Matthew Asmussen, Pacific Northwest National Laboratory; Ajit Mishra, Haynes International

8:00 AM Keynote
Advanced Electrochemical, Spectroscopic and Microscopic Techniques for the Study of Corrosion Processes: *David Shoesmith*[1]; [1]Western University

8:40 AM
Role of Admixtures in Concrete during Corrosion of Rebar: Effect of Glycerol and Silica Formulations: *Robert Blair*[1]; Batric Pesic[1]; Krishnan Raja[1]; Ian Ehrsam[1]; Jacob Kline[1]; [1]University of Idaho

9:00 AM
Corrosion Analysis of Wire Cleaning Processes for Biological Use Wire: *Daniel Sullivan*[1]; Brad Burrows[1]; Eric Ross[1]; [1]EAG

9:20 AM
Materials Selection for Use in Concentrated Acids: *Ajit Mishra*[1]; [1]Haynes International

9:40 AM
Correlation of Grain Boundary Plane, Sensitization and Corrosion Resistance: *Matthew Hartshorne*[1]; Mitra Taheri[1]; [1]Drexel University

10:00 AM Break

10:20 AM Keynote
Diffusion Bonding of Ni-based Superalloys for Microchannel Heat Exchanger for Application in Supercritical CO_2 Cycles: *Monica Kapoor*[1]; Omer Dogan[1]; Kyle Rozman[1]; Jeffrey Hawk[1]; Rajesh Saranam[2]; Patrick McNeff[2]; Brian Paul[2]; [1]National Energy Technology Laboratory; [2]Oregon State University

11:00 AM
Calorimetry for Characterizing Aluminum Sensitization: *Nicholas Jones*[1]; Rebecca Stevens[2]; William Golumbfskie[1]; [1]Naval Surface Warfare Center, Carderock Division; [2]Naval Surface Warfare Center, Corona Division

11:20 AM
Painting Aluminum: Easier Said Than Done: *Cortney Crane*[1]; Eric Guyer[1]; [1]Exponent Failure Analysis Associates

11:40 AM
Corrosion Resistance of Transmission Pipeline Steel Coated with Five Types of Enamels: *Liang Fan*[1]; Fujian Tang[1]; Signo T. Reis[2]; Genda Chen[1]; Michael L. Koenigstein[2]; [1]Missouri University of Science and Technology; [2]Pro-Perma Engineered Coatings

Measurement and Modeling of Medium-to-high Strain Rate Deformation — Medium-to-high Strain Rate Deformation I

Program Organizers: Ivi Smid, Penn State; Tim Eden, Penn State; Susan Hill, University of Dayton Research Institute

Monday AM
October 24, 2016

Room: 251A
Location: Salt Palace Convention Center

Session Chair: Ivi Smid, Penn State

8:00 AM Introductory Comments

8:20 AM Invited
Experimental Verification and Computational Modeling for High Strain Rate Additive Manufacturing: *Danielle Cote*[1]; Baillie McNally[1]; Jeremy Schreiber[2]; Victor Champagne[3]; Richard Sisson[1]; [1]Worcester Polytechnic Institute; [2]Penn State Applied Research Lab; [3]Army Research Laboratory

8:40 AM
Measuring Dynamic Fracture Toughness Using a Digital Image Correlation: *Carl Cady*[1]; Cheng Liu[1]; Manuel Lovato[1]; Arthur Nobile[1]; [1]Los Alamos National Laboratory

9:00 AM
Wave Propagation in Ballistic Gelatin: *Ghatu Subhash*[1]; [1]University of Florida

9:20 AM
High Strain Rate Testing and Modeling of a Woven E-glass / Vinylester Composite in Dry and Saturated Conditions: David Hufner[1]; *Susan Hill*[2]; [1]General Dynamics Electric Boat; [2]University of Dayton Research Institute

9:40 AM
On the Rate and Temperature Dependent Evolution of Dislocation Density in BCC Crystals: *Ben Szajewski*[1]; Abigail Hunter[1]; Dean Preston[1]; [1]Los Alamos National Laboratory

10:00 AM Break

10:20 AM
Experimental Investigation of the Internal Heating of Metals in a Wide Range of Strain Rates Using Simultaneous Digital Image Correlation and High Speed Infrared Imaging: *Veli-Tapani Kuokkala*[1]; Jarrod Smith[2]; Jeremy Seidt[2]; Amos Gilat[2]; [1]Tampere University of Technology; [2]The Ohio State University

10:40 AM
A Molecular Dynamics Study of Dislocation Density Generation and Plastic Relaxation during Shock of Single Crystal Cu: *Mehrdad Mirzaei Sichani*[1]; Douglas Spearot[2]; [1]University of Arkansas; [2]University of Florida

Mechanochemical Synthesis and Reactions in Materials Science — Nanocrystalline Alloys and Composites

Program Organizers: Antonio Fuentes, Cinvestav del IPN; Laszlo Takacs, University of Maryland Baltimore County; Challapalli Suryanarayana, University of Central Florida; Jacques Huot, UQTR

Monday AM
October 24, 2016

Room: 155A
Location: Salt Palace Convention Center

Session Chairs: Challapalli Suryanarayana, University of Central Florida; Mamoru Senna, Keio University

8:00 AM Invited
Conferences in the History of Mechanochemical Processing: *Laszlo Takacs*[1]; [1]University of Maryland Baltimore County

8:40 AM Keynote
Mechanical Attrition as a Non-equilibrium Processing Method: Over 33 Years of Research at North Carolina State University: *Carl Koch*[1]; [1]North Carolina State University

9:20 AM
Influencing the Creep Behavior of Particle-reinforced Aluminium Matrix Composites (AMCs): *Steve Siebeck*[1]; Daisy Nestler[1]; Bernhard Wielage[1]; Guntram Wagner[1]; [1]TU Chemnitz

9:40 AM Invited
Synthesis and Characterization of Austenitic Stainless Steel Powder Alloys through Mechanical Alloying: *Ahmed Al-Joubori*[1]; C. Suryanarayana[1]; [1]University of Central Florida

10:00 AM
Mechanochemical Synthesis of Al-C Composits: *Hyunjoo Choi*[1]; [1]Kookmin University

10:20 AM Break

10:40 AM Keynote
A Novel Mechanochemical Route for Li-ion Friendly Nanomaterials: *Mamoru Senna*[1]; [1]Keio University

11:20 AM Invited
Application of Mechanical Alloying/Mechanochemistry for Synthesis of Functional and Structural Materials: *Dariusz Oleszak*[1]; [1]Warsaw University of Technology

11:40 AM
Ultrafast Synthesis of Copper Sulfides by Mechanochemistry: *Matej Baláž*[1]; Anna Zorkovská[1]; Nina Daneu[2]; Farit Urakaev[3]; Peter Baláž[1]; Zdenka Bujnáková[1]; Jaroslav Briancin[1]; [1]Institute of Geotechics; [2]Jožef Stefan Institute; [3]Sobolev Institute of Geology and Mineralogy, Russian Academy of Sciences

Multi Scale Modeling of Microstructure Deformation in Material Processing — Multi Scale Modeling of Microstructure Deformation in Material Processing I

Program Organizers: Lukasz Madej, AGH University of Science and Technology; Krzysztof Muszka, AGH Univeristy of Science and Technology; Danuta Szeliga, AGH University of Science and Technology

Monday AM
October 24, 2016

Room: 252A-B
Location: Salt Palace Convention Center

Session Chairs: Danuta Szeliga, AGH University of Science and Technology; Krzysztof Muszka, AGH University of Science and Technology

8:00 AM Invited
Microstructure as Data: Microstructure Quantification and Analysis for Materials Design: *Mark Tschopp*[1]; [1]Army Research Laboratory

8:40 AM
A Database of Elastic Properties of Biocompatible Ti-alloys Built from First-principles Calculations and CALPHAD Modeling Approach: *Cassie Marker*[1]; Shun-Li Shang[1]; Ji-Cheng Zhao[2]; Zi-Kui Liu[1]; [1]The Pennsylvania State University; [2]The Ohio State Universtiy

9:00 AM
Phase-field Approach for Three-dimensional Recrystallization and Grain Growth in Ti-Al Alloys Based on Crystal Plasticity Theory: *Arunabha Roy*[1]; Sriram Ganesan[1]; Susan Gentry[1]; Anna Trump[1]; John Allison[1]; Veera Sundararaghavan[1]; Katsuyo Thornton[1]; [1]University of Michigan at Ann Arbor

9:20 AM
Possibilities of Assessment Of strain Inhomogeneity in Ti Alloys Using Multiscale Modeling Approach: *Krzysztof Muszka*[1]; Lukasz Madej[1]; Brad Wynne[2]; [1]AGH Univeristy of Science and Technology; [2]The University of Sheffield

9:40 AM
Investigation of Neighborhood Effects on Crack Initiation Sites in Different Ti Microstructures.: *Vahid Tari*[1]; Michael Groeber[2]; Adam Pilchak[2]; Anthony Rollett[1]; [1]Carnegie Mellon University; [2]Air Force Research Laboratory (AFRL/RXCM)

10:00 AM Break

10:20 AM
Identification of the Fracture Model Based on Coupled Cellular Automata Finite Element Approach: *Konrad Perzynski*[1]; Yuriy Ososkov[2]; David S. Wilkinson[3]; Mukesh Jain[3]; Lukasz Madej[1]; [1]AGH University of Science and Technology; [2]US Steel Canada; [3]McMaster University

10:40 AM
Prediction of Crack Propagation in Single Crystal Material Using Fast Fourier Transform: *Sen Wang*[1]; Vahid Tari[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

11:00 AM
Modeling the ViscoPlastic Behavior of Commercial Aluminum Alloys as a Function of Recrystallized Grain Fractions and Texture: *Khaled Adam*[1]; David Field[1]; [1]WSU

11:20 AM
Cellular Automata Based Model of Microstructure Evolution during Hot Deformation of HSLA Steel: *Deepak Kundalkar*[1]; Rajkumar Singh[2]; Asim Tewari[1]; [1]Department of Mechanical Engineering, IIT Bombay; [2]Kalyani Center for Technology and Innovation

Nanotechnology for Energy, Environment, Electronics, Healthcare and Industry — Session I

Program Organizers: Navin Manjooran, Siemens AG; Gary Pickrell, Virginia Tech

Monday AM
October 24, 2016

Room: 260A
Location: Salt Palace Convention Center

Session Chairs: Gary Pickrell, Virginia Tech; Navin Manjooran, Siemens AG

8:00 AM Invited
Metal Oxide and Graphene Based Nanomaterials for Solar Cells Application: *Yoon-Bong Hahn*[1]; [1]Chonbuk National University

8:40 AM
CuO_x Impregnated on Shape Controlled CeO_2 Support and Their Catalytic Activity: *Shaikh Tofazzel Hossain*[1]; Ruigang Wang[1]; [1]Youngstown State University

9:00 AM
Disposable Optical Immunoaffintiy Biosensor with the Sensitivity of Photomultiplier Tube (PMT): *Jae-Chul Pyun*[1]; Byong-Gi Ahn[2]; Jae-Gwan Park[3]; Hong-Rae Kim[1]; Young-Wook Chang[1]; [1]Yonsei University; [2]Samsung Electronics; [3]Korea Institute of Science and Technology (KIST)

9:20 AM
Dopamine Sensor Using Cerium Oxide Immobilized on Highly Ordered Polymer Nanopillars: *Swetha Barkam*[1]; Madison Peppler[1]; Soumen Das[1]; Shashank Saraf[1]; Chao Li[1]; Jayan Thomas[1]; Sudipta Seal[1]; [1]University of Central Florida

9:40 AM
Eco-friendly Dyeing of Electrospun Cellulose Nanofibers with Reactive Dye: *Soudabeh Hajahmadi*[1]; [1]Najafabad Branch, Islamic Azad University

10:00 AM Break

10:20 AM
High Temperature Stability of Nano-scale Grains in Oxygen Free Fe-10Cr Powders: *Peiman Shahbeigi Roodposhti*[1]; Mostafa Saber[2]; Harold Brody[1]; Ronald Scattergood[3]; [1]University of Connecticut; [2]Portland State University; [3]North Carolina State University

10:40 AM
Interaction of DNA and RNA Molecules with Nanoclays that Have Potential for Use in Gene Therapy: *Archana Gujjari*[1]; [1]Texas State University

Next Generation Biomaterials — Session I

Program Organizers: Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Sharmila Mukhopadhyay, Wright State University; Sundeep Mukherjee, University of North Texas

Monday AM
October 24, 2016

Room: 259
Location: Salt Palace Convention Center

Session Chairs: Rajarshi Banerjee, University of North Texas; Leif Hermansson, Doxa AB

8:00 AM Invited
Additive Manufacturing of Functionally Graded Titanium Alloys for Biomedical Devices: Srinivas Aditya Mantri[1]; Trina Majumdar[2]; Calvin Mikler[1]; Tushar Borkar[3]; Chris Yannetta[1]; Rubens Caram[4]; Nick Birbilis[2]; *Rajarshi Banerjee*[1]; [1]University of North Texas; [2]Monash University; [3]Cleveland State University; [4]University of Campinas

8:40 AM
Development of Novel Implants with Embedded Therapeutics Using Additive Manufacture: *Parastoo Jamshidi*[1]; Sophie Cox[1]; Moataz Attallah[1]; Hany Hassanin[1]; Liam Grover[1]; Duncan Shepherd[1]; Owen Addison[1]; [1]University of Birmingham

9:00 AM
Electric Field-mediated Growth of Osteoblast on 3D Printed Ti-6Al-4V Alloy Porous Scaffolds under Dynamic Condition: *Alok Kumar*[1]; Krishna Chaitanya Nune[1]; Devesh Misra[1]; [1]University of Texas at El Paso

9:20 AM Invited
On Additive Manufacturing and Restoration of Tooth Cavities Using Chemically Bonded Ceramics - an Overview: *Leif Hermansson*[1]; [1]Doxa AB

10:00 AM Break

10:20 AM
Osteoblast Functions in Functionally Graded Ti-6Al-4V 3D Printed Mesh Structures: *Krishna Chaitanya Nune*[1]; Devesh Misra[1]; Li SJ[2]; Hao YL[2]; Yang R[2]; [1]University of Texas at El Paso; [2]Chinese Academy of Sciences

10:40 AM Invited
Advanced Freeze Casting for Mimetic Bone and Biomaterials: *Steven Naleway*[1]; Marc Meyers[2]; Joanna McKittrick[2]; [1]University of Utah; [2]University of California, San Diego

11:20 AM
Fabrication of Porous Bioabsorbable Magnesium Alloys: *Jennifer Scozzari*[1]; Marcus Young[1]; [1]University of North Texas

11:40 AM Invited
Bioactive Glass Hydrogel Composites Potential for Skeletal Tissue Repair: *Anthony Wren*[1]; [1]Alfred University

Perspectives for Emerging Materials Professionals — Perspectives for Emerging Materials Professionals I

Program Organizers: Rachel Bethancourt, Fitbit; Laura Jean Weidman, University of Maryland

Monday AM
October 24, 2016

Room: 251F
Location: Salt Palace Convention Center

Session Chair: Rachel Bethancourt, Emerging Professionals Committee

8:00 AM Invited
Engineering Survivor: Perspectives on Mid-career Job Moves, Layoffs, and Corporate Structure Changes: *Emily Kinser*[1]; [1]IBM/Yale University

8:40 AM Invited
How to Aim at a Career as a Leader in Industry and End up as a Happy Professor: *Richard Vinci*[1]; [1]Lehigh University

9:00 AM
Preparing for a Career in Materials Research: *Ying Chen*[1]; [1]Rensselaer Polytechnic Institute

9:20 AM Invited
Where Are You Headed? You Never Know. Follow Your Interest: *Jerome Klawitter*[1]; [1]Integra Life Sciences

9:40 AM Question and Answer Period

10:00 AM Panel Discussion

Phase Transformations in Ceramics: Science and Applications — Nanoscale Phenomena

Program Organizers: Pankaj Sarin, Oklahoma State University; Ivar Reimanis, Colorado School of Mines; Waltraud Kriven, University of Illinois at Urbana-Champaign

Monday AM
October 24, 2016

Room: 255C
Location: Salt Palace Convention Center

Session Chair: Waltraud Kriven, University of Illinois at Urbana-Champaign

8:00 AM Invited
Surface Energy is a Thermodynamic Driver for Phase Transformations in Nanoscale Materials: *Alexandra Navrotsky*[1]; [1]University of California, Davis

8:40 AM
Thermal Analysis and Calorimetry Applied to the Thermodynamic Studies of Phase Transformations in Ceramics and Glasses: *Kristina Lilova*[1]; Link Brown[1]; [1]Setaram Inc.

9:00 AM
Enhancement of the Electrocaloric Effect near the Diffuse Critical Point in Relaxor Ferroelectric Ceramics: *Zdravko Kutnjak*[1]; Nikola Novak[1]; Brigita Rozic[1]; Rasa Pirc[1]; [1]Jozef Stefan Institute

9:20 AM Invited
Emergence and Extinction of a New Phase during On-off Experiments Related to Flash Sintering of 3YSZ: *Rishi Raj*[1]; Jean-Marie Lebrun[1]; John Francis[1]; Kevin Seymour[1]; Waltrud Kriven[1]; [1]University of Colorado

10:00 AM Break

10:20 AM Invited
Nanoscale Phase Diagrams for Zirconia Based Systems: *Ricardo Castro*[1]; John Drazin[1]; Robson Grosso[2]; Eliana Muccillo[2]; [1]University of California, Davis; [2]IPEN

11:00 AM
Patterning Oxide Nanopillars at the Atomic Scale by Phase Transformation: *Chunlin Chen*[1]; Frank Lichtenberg[2]; Yuichi Ikuhara[3]; Johannes Georg Bednorz[4]; [1]Tohoku University; [2]ETH Zürich; [3]The University of Tokyo; [4]Zürich Research Laboratory

11:20 AM
Nanoscale Electrical Characterization of the Metal-insulator Transition in Vanadium Dioxide Thin Films: *James Steffes*[1]; Aliya Carter[1]; Raegan Johnson-Wilke[2]; Paul Clem[2]; Bryan Huey[1]; [1]University of Connecticut; [2]Sandia National Laboratory

11:40 AM
Shape Memory in Nano-sized Oxides: *Xiaoxing Ke*[1]; [1]Beijing University of Technology

Responsive Functional Nanomaterials — Responsive Functional Nanomaterials - General

Program Organizers: Jiahua Zhu, The University of Akron; Ziqi Sun, Queensland University of Technology; Liwen Mu, The University of Akron

Monday AM
October 24, 2016

Room: 260B
Location: Salt Palace Convention Center

Session Chairs: Ziqi Sun, Queensland University of Technology; Jiahua Zhu, The University of Akron

8:00 AM Break

8:40 AM Keynote
Enhancing Photovoltaic Response of Solar Cell Devices Using Nanomaterials: *John Bell*[1]; Hongxia Wang[2]; Aijun Du[2]; [1]The University of Akron; [2]Queensland University of Technology

9:20 AM
Assembling Freestanding Conductive Polymer Tube Arrays at Liquid/Liquid Interface: Tuo Ji[1]; Long Chen[1]; *Jiahua Zhu*[1]; [1]The University of Akron

9:40 AM Invited
Some Keys to Design/Propose New Functional Materials: *Taizo Sasaki*[1]; [1]National Institute for Materials Science

10:00 AM Break

10:20 AM Invited
Preparation of Thermosensitive Magnetic Surface Protein Imprinted Microsphere and Its Application for Protein Recognition: *Qiuyu Zhang*[1]; [1]Northwestern Polytechnical University

10:40 AM Invited
Engineering Iron Oxide Nanoparticles for Magnetic Imaging Applications: *Anna Cristina Samia*[1]; [1]Case Western Reserve University

11:00 AM Invited
Nanomagnetism Tunned by Crystal Facet Engineering: *Wenxian Li*[1]; Ziqi Sun[2]; Rongkun Zheng[3]; Xiangyuan Cui[3]; [1]Shanghai University; [2]Queensland University of Technology; [3]The University of Sydney

11:20 AM Invited
Development of Metal Nanoparticle as Direct Visible Light Photocatalyst for Numerous Organic Syntheses: *Sarina Sarina*[1]; Huai Yong Zhu[1]; [1]Queensland University of Technology

11:40 AM Invited
Wet Chemical Synthesis of High-performance Graphene-like Ultrathin 2D Metal Oxide Nanosheets: *Ziqi Sun*[1]; [1]Queensland University of Technology

S2P: Semi-solid Processing of Alloys and Composites — Opening Session

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Monday AM
October 24, 2016

Room: 151G
Location: Salt Palace Convention Center

Session Chairs: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

8:00 AM Keynote
Some Reflections On What Semi-Solid Processing Research has Taught Us: *Merton Flemings*[1]; [1]Massachusetts Institute of Technology

8:15 AM Keynote
Thixomolding at 25 Years: *Raymond Decker*[1]; [1]Thixomat, Inc

8:45 AM Keynote
Semi-solid Metal Processing from an Industrial Perspective: The Best is Yet to Come: *John Jorstad*[1]; [1]J L J Technologies Inc

9:25 AM Keynote
Modelling of Semi-Solid Processes: *Michael Modigell*[1]; [1]RWTH Aachen, Germany and GUTech Muscat, Saltante of Oman

S2P: Semi-solid Processing of Alloys and Composites — Session I

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Monday AM
October 24, 2016

Room: 151A
Location: Salt Palace Convention Center

Session Chair: Annalisa Pola, University of Brescia

10:30 AM
Comparison of Morphological Evolution of Al-7wt%Si-2.5wt%Cu Alloy Produced by Direct Chill Casting/Electromagnetic Stirring and ECAP: Luis Torres[1]; Cecilia Proni[1]; *Eugenio Zoqui*[1]; [1]University of Campinas

11:00 AM
Crystallisation and Ripening Phenomena in Semi-solid Steels: *Christoph Zang*[1]; Michael Modigell[1]; Annalisa Pola[2]; Torsten Volkmann[1]; [1]RWTH Aachen; [2]University of Brescia

11:30 AM
Deformation Behavior of Semi-solid ZCuSn10 Copper Alloy during Isothermal Compression: Jia Wang[1]; *Rongfeng Zhou*[2]; Han Xiao[1]; Dehong Lu[1]; Lu Li[2]; Dan BAI[1]; [1]College of Materials Science and Engineering, Kunming University of Science and Technology; [2]Research Center for Analysis and Measurement, Kunming University of Science and Technology

S2P: Semi-solid Processing of Alloys and Composites — Session II

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Monday AM
October 24, 2016

Room: 151G
Location: Salt Palace Convention Center

Session Chair: Mario Rosso, Politechnico di Torino

10:30 AM
Liquid-solid Microextrusion of Aluminium Alloy: *Jiming Zhou*[1]; Zhen Li[1]; Lehua Qi[1]; Xinkang Wang[1]; [1]Northwestern Polytechnical University

11:00 AM
Microstrucuture and Mechanical Properties of AlN Particles Reinforced Magnesium Matrix Composites with In-situ Synthesis Process: *Zhaohui Wang*[1]; Bo Li[1]; Xian Du[1]; Shubo Li[1]; Ke Liu[1]; Wenbo Du[1]; [1]Beijing University of Technology

11:30 AM
Microstructure and Properties of LPSO Phase Reinforced Mg Alloy Produced by Rheocasting: *Shulin Lü*[1]; Xiong Yang[1]; Shusen Wu[1]; Xiaogang Fang[1]; Jing Wang[1]; [1]Huazhong University of Science and Technology

Scaling-up from the Laboratory: Strategies, Examples, Challenges, and/or Solutions for Advanced Metal Manufacturing — Technology Scale-up Session I

Program Organizer: Babak Raeisinia, Novelis Global R&T Center

Monday AM
October 24, 2016

Room: 155C
Location: Salt Palace Convention Center

Session Chair: Babak Raeisinia, Novelis Global R&T Center

8:00 AM Introductory Comments - Babak Raeisinia

8:20 AM Invited
Materials Insertion Challenges in The Automobile Industry: *Paul Krajewski*[1]; [1]General Motors Company

9:00 AM Invited
Challenges of Transfer from Basic Research into Application of New Magnesium Alloys and Processes: *Karl Kainer*[1]; [1]Helmholtz-Zentrum Geesthacht

9:20 AM Invited
Scale-up of Innovative Forming Solutions from Scientific Fundamentals to Industrial Applications: *Marion Merklein*[1]; Julia Degner[1]; Michael Lechner[1]; Wolfgang Böhm[2]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg; [2]Neue Materialien Fürth GmbH

9:40 AM Invited
High-throughput Experimentation for Metallic Materials: *Ji-Cheng Zhao*[1]; [1]The Ohio State University

10:00 AM Break

10:20 AM Invited
Scale-up of GRCop: From Laboratory To Rocket Engines: *David Ellis*[1]; [1]NASA Glenn Research Center

11:00 AM Invited
Pilot-scale Accelerated Cooling Studies: *Matthias Militzer*[1]; Vladan Prodanovic[1]; Hans-Juergen Kirsch[2]; Roland Schorr[2]; Volker Schwinn[2]; [1]The University of British Columbia; [2]Dillinger Huette

11:20 AM Invited
Potentialities of Ultra Rapid Heat Treatments of Metallic Alloys: *Damien Fabregue*[1]; Veronique Massardier[1]; Armand Ngansop[1]; [1]MATEIS, INSA Lyon

11:40 AM Invited
Technology Scale-up in Metal Additive Manufacture: From a Coupon to a Product: *Moataz Attallah*[1]; Chunlei Qiu[1]; Khamis Essa[1]; R. Mark Ward[1]; [1]University of Birmingham

Semiconductor Heterostructures: Theory, Growth, Characterization, and Device Applications — Session I

Program Organizer: John Ayers, University of Connecticut

Monday AM
October 24, 2016

Room: 257A
Location: Salt Palace Convention Center

Session Chair: John Ayers, University of Connecticut

9:00 AM Introductory Comments

9:05 AM Invited
Epitaxial Strategies for Thermally Managed High-power Lasers and Photovoltaic Devices: *Ganesh Balakrishnan*[1]; Sadhvikas Addamane[1]; Emma Renteria[1]; Ahmad Mansoori[1]; Christopher Hains[1]; Darryl Shima[1]; [1]University of New Mexico

9:45 AM
Novel Circuit Model for InGaAs/GaAs (001) Strained-layer Heterostructures: *Tedi Kujofsa*[1]; John Ayers[1]; [1]University of Connecticut

10:05 AM Break

10:25 AM Invited
Thermodynamic Limits on III/V Alloys for Novel Heterostructures: Gerald Stringfellow[1]; [1]University of Utah

11:05 AM
Electrodeposited Cadmium Selenide Films for Advanced Photovoltaics: *Warren Rucker*[1]; Dunbar Birnie[1]; [1]Rutgers University

11:25 AM
Spatially-resolved Band Gap and Defect Level Measurement of Semiconducting Oxide Heterostructures Using High-resolution Electron Microscopy: *Derek Miller*[1]; Sheikh Akbar[1]; Pat Morris[1]; [1]Ohio State University

Shaping and Forming of Composite Materials — Shaping and Forming of Composite Materials

Program Organizers: Michael Miles, Brigham Young University; David Fullwood, Brigham Young University; Andrew George, Brigham Young University

Monday AM
October 24, 2016

Room: 151C
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM
Manufacturing Defects in Composite Sporting & Recreational Products: *Scott Beckwith*[1]; [1]BTG composites Inc. / SAMPE

8:20 AM
Resin Infusion/Liquid Composite Molding: Review of Last 35 Years and Going Forward: *Scott Beckwith*[1]; [1]BTG composites Inc. / SAMPE

8:40 AM
Mechanical Properties of Braided Reinforcement with Snap-cure Polyurethane Resins in RTM Processes: *Kyle Kinghorn*[1]; David Fullwood[1]; Andy George[1]; [1]BYU

9:00 AM
Voids in Composites: Process Modeling and Mechanical Effects: *Andrew George*[1]; Sanjay Sisodia[2]; David Fullwood[1]; [1]Brigham Young University; [2]Uppsala University

9:20 AM
Development of In-situ Monitoring Systems for the Thermoforming of Pre-preg Composite Laminates: *Patrick Land*[1]; David Branson[1]; Richard Crossley[1]; Svetan Ratchev[1]; [1]University of Nottingham

9:40 AM
Production and Characterisation of a Thermoformed Complexly Curved Component from Thermoplastic FRP/Metal Laminate: *Maik Trautmann*[1]; Daisy Nestler[1]; Erik Schmitteck[1]; Guntram Wagner[1]; Tomasz Osiecki[1]; Lothar Kroll[1]; [1]TU Chemnitz

Sintering and Related Powder Processing Science & Technologies — Sintering and Grain Growth I

Program Organizers: Ricardo Castro, University of California, Davis; Brady Butler, U.S. Army Research Laboratory; Olivia Graeve, University of California, San Diego; Eugene Olevsky, San Diego State University; Anders Eklund, Quintus Technologies, LLC.

Monday AM
October 24, 2016

Room: 150E
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM Invited
Coarsening, Densification, and Grain Growth during Sintering of Nano-sized Powders: A Perspective: *Zhigang Fang*[1]; Hongtao Wang[2]; Vineet Kumar[2]; [1]University of Utah; [2]Kennametal Inc

8:40 AM
Stability of Intergranular Films in MgO-doped Bayer Alumina: *Tobias Frueh*[1]; Elizabeth Kupp[1]; Charles Compson[2]; Joe Atria[2]; Gary Messing[1]; [1]The Pennsylvania State University; [2]Almatis, Inc.

9:00 AM
The Effects of Adding CuO and/or SiO_2 on Low-temperature Sintering, Microstructural Development and Dielectric Properties of TiO_2: *Jiuyuan Nie*[1]; Mingde Qin[1]; Naixie Zhou[1]; Jian Luo[1]; [1]University of California San Diego

9:20 AM Invited
Control Oxide Sintering with and without Grain Growth: *I-Wei Chen*[1]; [1]University of Pennsylvania

10:00 AM Break

10:20 AM Invited
Sintering Force behind the Viscous Sintering of Two Particles: *Fumihiro Wakai*[1]; Kota Katsura[1]; Shun Kanchika[1]; Yutaka Shinoda[1]; Takashi Akatsu[2]; Kazunari Shinagawa[3]; [1]Tokyo Institute of Technology; [2]Saga University; [3]Kagawa University

11:00 AM
Correlation between Particle Size and Grain Size Distributions in Single/Multiphase Ceramics: *Keyur Karandikar*[1]; Austin Travis[2]; Kenta Ohtaki[2]; Martha Mecartney[2]; Olivia Graeve[1]; [1]University of California, San Diego; [2]University of California, Irvine

Surface Properties of Biomaterials — Processing, Coating and Surface Modifications

Program Organizers: Amit Bandyopadhyay, Washington State University; Susmita Bose, Washington State University; Mukesh Kumar, Biomet Inc; Jason Langhorn, DePuy Synthes Joint Reconstruction; Venu Varanasi, Texas A & M University

Monday AM
October 24, 2016

Room: 355B
Location: Salt Palace Convention Center

Session Chair: Jason Langhorn, DePuy Synthes Joint Reconstruction

8:00 AM Invited
Superhydrophobic Surfaces for Blood Contacting Medical Devices: *Ketul Popat*[1]; [1]Colorado State University

8:40 AM
Electrochemical Deposition for Tuning Hydroxyapatite Morphology: *Nik Jindal*[1]; Manoj Mahapatra[1]; [1]UAB

9:00 AM
Long Term Silver Release Study Using Porous Titanium Implants with and without Surface Modification: *Anish Shivaram*[1]; Susmita Bose[1]; Amit Bandyopadhyay[1]; [1]Washington State University

9:40 AM Invited
Altering the Surface Chemistry of Silicon Nitride Bioceramics for Improved Osteointegration: *Ryan Bock*[1]; Bryan McEntire[1]; Wenliang Zhu[2]; Elia Marin[3]; Francesco Boschetto[3]; Alfredo Rondinella[3]; Yoshinori Marunaka[4]; Tetsyua Adachi[4]; Toshiro Yamamoto[4]; Narisato Kanamura[4]; Giuseppe Pezzotti[3]; B. Sonny Bal[1]; [1]Amedica Corporation; [2]Osaka University; [3]Kyoto Institute of Technology; [4]Kyoto Prefectural University of Medicine

10:00 AM Break

10:20 AM
Silicon and Magnesium Doped Hydroxyapatite Coatings on Titanium Alloy Implants: Enhanced In Vivo Osseointegration in Rat Femur Defect Model: Dongxu Ke[1]; *Sam Robertson*[1]; Amit Bandyopadhyay[1]; Susmita Bose[1]; [1]Washington State University

10:40 AM
Effects of Laser Etching on Cytotoxicity and Mechanical Properties of Polyetheretherketone: *Andrew Deceuster*[1]; Leijun Li[2]; [1]Weber State University; [2]University of Alberta

11:00 AM Invited
Reduced Metabolic Activity of Porphyromas Gingivalis on Silicon Nitride Bioceramics: Giuseppe Pezzotti[1]; Ryan Bock[2]; Bryan McEntire[2]; *Erin Jones*[2]; Marco Boffelli[1]; Wenliang Zhu[3]; Greta Baggio[1]; Leonardo Puppulin[4]; Tetsyua Adachi[4]; Toshiro Yamamoto[4]; Narisato Kanamura[4]; Yoshinori Marunaka[4]; B. Sonny Bal[2]; [1]Kyoto Institute of Technology; [2]Amedica Corporation; [3]Osaka University; [4]Kyoto Prefectural University of Medicine

11:20 AM
Biofilm Formation Behavior on Graphene in a Circulation-type Laboratory Biofilm Reactor: *Hideyuki Kanematsu*[1]; Akiko Ogawa[1]; Nobumitsu Hirai[1]; Katsuhiko Sano[2]; Michiko Yoshitake[3]; [1]National Institute of Technology, Suzuka College; [2]D&D Corporation; [3]National Institute for Materials Science

11:40 AM Invited
Electrophoretic Deposition as a Biofabrication Technique: *Aldo Boccaccini*[1]; [1]University of Erlangen-Nuremberg

Thermal Protection Materials and Systems — Thermal Protection Materials: Ablators and Ceramic Composites

Program Organizers: Sylvia Johnson, NASA Ames Research Center; Thomas Squire, NASA Ames Research Center; Jeff DeMange, University of Toledo

Monday AM
October 24, 2016

Room: 254B
Location: Salt Palace Convention Center

Session Chairs: Sylvia Johnson, NASA-Ames Research Center; Jeff DeMange, University of Toledo

8:20 AM
Determination of the Mechanical Properties of the ZURAM Ablative Material: *Thomas Reimer*[1]; Christian Zuber[1]; Jakob Rieser[1]; Thomas Rothermel[1]; [1]DLR

9:00 AM
Influence of Aerogel Morphology and Reinforcement Architecture on Gas Convection in Aerogel Composites: *Frances Hurwitz*[1]; Matthew Meyer[2]; Haiquan Guo[3]; Richard Rogers[1]; Jeff DeMange[4]; [1]NASA Glenn Research Center; [2]Universities Space Research Association (USRA); [3]Ohio Aerospace Institute; [4]University of Toledo

9:20 AM
In-situ Studies of the Pyrolysis of Phenolic Impregnated Carbon Ablator (PICA): *Brody Bessire*[1]; Timothy Minton[1]; [1]Montana State University

9:40 AM
Thermal Testing of Ablators in the NASA Johnson Space Center Radiant Heat Test Facility: *Steven Del Papa*[1]; [1]NASA

10:20 AM Break

10:40 AM
Characterization and Modeling of Microstructure-sensitive Damage Formation/Propagation in Ceramic Continuous Fiber Reinforced Ceramic Matrix Composites: *Craig Przybyla*[1]; Stephen Bricker[2]; Jeff Simmons[1]; Travis Whitlow[2]; Michael Braginsky[2]; Kaitlin Kollins[3]; [1]Air Force Research Laboratory; [2]University of Dayton Research Institute; [3]Southwest Ohio Council for Higher Education

11:00 AM
Silicon Carbide / Carbon Fibers for Use in Composites: *John Garnier*[1]; Ken Koller[1]; Shawn Perkins[1]; [1]Advanced Ceramic Fibers, LLC

11:20 AM
Unlocking the Thermal Protection Potential of Ceramic Matrix Composites: *Robert Cook*[1]; [1]Lancer Systems

Ultra High Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense, and Automotive Applications — High Temperature Materials I

Program Organizers: Ali Yousefiani, Boeing Research and Technology; Troy Topping, California State University, Sacramento

Monday AM
October 24, 2016

Room: 150A&B
Location: Salt Palace Convention Center

Session Chair: Ali Yousefiani, Boeing Research and Technology

8:00 AM
Niobium Based Alloys: Challenges and Breakthroughs: *Panayiotis Tsakiropoulos*[1]; [1]University of Sheffield

8:20 AM
Role of Composition and Processing in Increasing the Ductile Temperature Regime of Structural Mo-Si-B Materials: *Peter Marshall*[1]; Oliver Strbik[2]; [1]Imaging Systems Technology; [2]Deep Springs Technology

8:40 AM
The Development of Superalloys Reinforced by Gamma Prime and Gamma Double Prime Precipitates: *Paul Mignanelli*[1]; Nicholas Jones[1]; Mark Hardy[2]; Howard Stone[1]; [1]University of Cambridge; [2]Rolls-Royce plc

9:00 AM
Effects of Solution Heat Treatment Condition on Carbide Structure and Mechanical Properties of Cast Hastelloy X: *Joong Eun Jung*[1]; In Soo Kim[1]; Baig Gyu Choi[1]; Jeonghyeon Do[1]; Chang Yong Jo[1]; [1]Korea Institute of Materials Science

9:20 AM
Effect of Thermal Deformation on Forging Bar Microstructure and Properties of Inconel 718 Alloy
: *Yuehong Zhang*[1]; Qingzeng Wang[1]; Zixing Wang[1]; Jing Wu[1]; Pengchao Dai[1]; Peiyu Tian[1]; [1]Baosteel

9:40 AM
Room and Elevated Temperature Fatigue Life Improvement of ATI 718Plus Using UNSM Treatment: *Micheal Kattoura*[1]; Abhishek Telang[1]; Seetha Ramaiah Mannava[1]; Dong Qian[2]; Vijay Vasudevan[1]; [1]University of Cincinnati; [2]University of Texas at Dallas

10:00 AM Break

10:20 AM
ICME Design of High Entropy Alloys for High-temperature Applications: *James Saal*[1]; Jeff Doak[1]; Jason Sebastian[1]; Greg Olson[1]; [1]QuesTek Innovations

10:40 AM
Mechanical Properties of a High Coercivity FeCrCoMnNi High Entropy Alloy: *Christian Roach*[1]; Trevor Clark[1]; Suveen Mathaudhu[1]; [1]University of California, Riverside

11:00 AM
High-entropy FeNiMnAlCr Alloys: *I. Baker*[1]; Zhangwei Wang[1]; [1]Dartmouth College

3D Graphene for Energy Conversion and Storage — 3D Graphene in Energy Storage II

Program Organizer: Yun Hu, Michigan Technological University

Monday PM
October 24, 2016

Room: 250B
Location: Salt Palace Convention Center

Session Chairs: I-Wei Chen, University of Pennsylvania; Yun Hu, Michigan Technological University

2:00 PM Keynote
Mesoscopic 3D Tubular Graphenes: *I-Wei Chen*[1]; Fuqiang Huang[2]; [1]University of Pennsylvania; [2]Shanghai Institute of Ceramics

2:40 PM Keynote
Tailoring In-plane Pores in 3D Graphene for Highly Efficient Energy Storage: *Xiangfeng Duan*[1]; [1]UCLA

3:20 PM Keynote
Self-assembly of Chemically Modified Graphenes for Electrochemical Capacitors: *Gaoquan Shi*[1]; Miao Zhang[1]; [1]Tsinghua University

3:40 PM
Three-dimensional Architecture of Lithium-anodes Made from Graphite Fibers Coated with Thin-films of Silicon Oxycarbide: Design, Performance and Manufacturability: Ibrahim Saleh[1]; *Rishi Raj*[1]; [1]University of Colorado

4:00 PM
Ionic Interactions to Tune Mechanical and Electrical Properties of Hydrated Liquid Crystal Graphene Oxide Films: *Mohammad Javadi*[1]; [1]ACES

3rd International Workshop of In-situ Studies with Photons, Neutrons and Electrons Scattering — Neutrons Based and Other Techniques and Measurements

Program Organizers: Antonio Ramirez, The Ohio State University; Sudarsanam Babu, The University of Tennessee, Knoxville; Thomas Kannengiesser, BAM Federal Institute for Materials Research and Testing; Yu-ichi Komizo, Osaka University; Hidenori Terasaki, Kumamoto University; Andre Tschiptschin, University of Sao Paulo; Eren Kalay, METU

Monday PM
October 24, 2016

Room: 250E
Location: Salt Palace Convention Center

Session Chairs: Yu-ichi Komizo, Osaka University; Eren Kalay, METU

2:00 PM Invited
Imaging of Hydrogen in Steels with Neutrons: *Axel Griesche*[1]; Eitan Dabah[1]; Thomas Schaupp[1]; Beate Pfretzschner[1]; Thomas Kannengiesser[1]; [1]Federal Institute for Materials Research and Testing (BAM)

2:40 PM
In-situ Polarised Neutron Reflectometry during Thin Film Growth: *Wolfgang Kreuzpaintner*[1]; [1]Technische Universität München

3:00 PM
In-situ Raman Monitoring of Cu2ZnSnS4 (CZTS) Solar Absorber Material at Elevated Temperatures: Osama Awadallah[1]; *Zhe Cheng*[1]; [1]Florida International University

3:20 PM
Dynamic Response of Nanocrystalline and Ultrafine Grained Microstructures to Ion Irradiation: *Mert Efe*[1]; Osman El-Atwani[2]; Jonathan Hinks[3]; Jean Paul Allain[4]; [1]Middle East Technical University; [2]Drexel University; [3]University of Huddersfield; [4]University of Illinois at Urbana-Champaign

3:40 PM
Time-resolved WAXS Studies on the Formation and Dissolution of Polynuclear Aluminium Sulfates: *Anke Kabelitz*[1]; Franziska Emmerling[1]; [1]Federal Institute for Materials Research and Testing

Accelerated Insertion of Materials (AIM) Qualification — Accelerated Insertion of Materials (AIM) Qualification II

Program Organizers: Jiadong Gong, QuesTek Innovations; Greg Olson, Northwestern University; David Furrer, Pratt & Whitney

Monday PM
October 24, 2016

Room: 150D
Location: Salt Palace Convention Center

Session Chairs: Jiadong Gong, QuesTek Innovations LLC; Greg Olson, Northwestern University; David Furrer, Pratt & Whitney

2:00 PM Invited
Accelerated Materials and Processing in Defense in 2016: *Julie Christodoulou*[1]; [1]Office of Naval Research

2:40 PM Invited
A Regulatory Perspective on ICME and Model-enabled Certification: *Michael Gorelik*[1]; [1]Federal Aviation Administration

3:20 PM Invited
FDA's perspective on 3D Printing of Medical Devices: *Matthew Di Prima*[1]; [1]Food and Drug Administration

ACerS Richard M. Fulrath Award Session

Monday PM
October 24, 2016

Room: 255B
Location: Salt Palace Convention Center

Session Chair: Man Yan, OFS Laboratories

2:00 PM Invited
Ceramics/Polymer Hybrids and its Processing with Nano Pulsed Power Technology: *Tadachika Nakayama*[1]; [1]Nagaoka University of Technology

2:40 PM Invited
Material Design of Dielectric and Piezoelectric Materials with First-Principles Calculation: *Yoshiki Iwazaki*[1]; [1]Taiyo Yuden Co., Ltd.

3:00 PM Invited
A Future for Refractory Ceramic Technology Based on a Rich Past: *James Hemrick*[1]; [1]Reno Refractories, Inc.

3:20 PM Invited
Development of Dielectrics for Monolithic Ceramic Capacitor: *Tomoyuki Nakamura*[1]; [1]Murata Manufacturing Co., Ltd.

3:40 PM Invited
High Speed and Tomographic AFM of Functional Materials: *Bryan Huey*[1]; [1]University of Connecticut

Additive Manufacturing of Composites and Complex Materials — Metals and Metallic Composites

Program Organizers: Jonathan Spowart, Air Force Research Laboratory; Nikhil Gupta, New York University; Dirk Lehmhus, ISIS Sensorial Materials Scientific Centre

Monday PM
October 24, 2016

Room: 355E
Location: Salt Palace Convention Center

Session Chairs: Dirk Lehmhus, ISIS Sensorial Materials Scientific Centre; Matthias Lodes, University of Erlangen - ZMP

2:00 PM Invited
Selective Electron Beam Melting as AM Method for Complex Materials: *Matthias Lodes*[1]; Carolin Körner[1]; [1]University of Erlangen - ZMP

2:40 PM Invited
Laser Deposited In Situ TiC Reinforced Nickel Matrix Composites: 3D Microstructure and Tribological Properties: *Tushar Borkar*[1]; Prashanth Reddy Yennm[1]; John Sosa[2]; Thomas Scharf[3]; Jaimie Tiley[4]; Hamish Fraser[2]; Rajarshi Banerjee[3]; [1]Cleveland State University; [2]The Ohio State University; [3]University of North Texas; [4]Air Force Research Laboratory

3:00 PM
Laser Deposition of Zr/Alumina Composites and Functionally Graded Zr/Stainless Materials by Powder Injected Melting: Mehrdad Iravani[1]; Arshad Harooni[1]; *Adrian Gerlich*[1]; Amir Khajepour[1]; Ahmed Khalifa[2]; J.M. (Mitch) King[2]; [1]University of Waterloo; [2]Canadian Nuclear Laboratories

3:20 PM
Selective Laser Melting of FeCr24Ni7Si2 Steel: Processing: *Zhao Xiao*[1]; Yi Xin[1]; Liu Jie[1]; Song Bo[1]; Wei Song[1]; Shi Sheng[1]; [1]HUST

3:40 PM
Nanocrystalline TiC/316L Stainless Steel Matrix Nanocomposites Fabricated by Selective Laser Melting: Densification, Microstructure Evolution and Mechanical Properties: *Bandar AlMangour*[1]; Dariusz Grzesiak[2]; Jenn-Ming Yang[1]; [1]UCLA; [2]West Pomeranian University of Technology

4:00 PM
Investigation of Interfacial Bonding Strength and Fracture Behavior of Laser Deposited FV520B Steel: Shaopeng Wei[1]; *Gang Wang*[1]; Yiming Rong[2]; [1]Tsinghua University; [2]South University of Science and Technology of China

4:20 PM
Microstructure and Mechanical Properties of Stainless Steel Specimen Manufactured by Selectively Laser Sintering: Fei Chen[1]; Nikhil Gupta[1]; *Khaled Shahin*[2]; [1]NYU Tandon School of Engineering; [2]NYU Abu Dhabi

4:40 PM
Functionally Graded Material from Ti-6Al-4V to Invar: Experimental Characterization and CALPHAD Modeling: *Lourdes Bobbio*[1]; Richard Otis[1]; John Borgonia[2]; R. Dillon[2]; Bryan McEnerney[2]; Andrew Shapiro[2]; Zi-Kui Liu[1]; Allison Beese[1]; [1]Pennsylvania State University; [2]Jet Propulsion Laboratory

5:00 PM
On the Microstructure and Mechanical Properties of Al-Cu-Fe-Cr Quasicrystal and Al-Cu-Fe-Cr/Al Composite Materials Prepared by Selective Laser Melting: *Nan Kang*[1]; Yingqing Fu[2]; Pierre Coddet[1]; Hanlin Liao[1]; Christian Coddet[1]; [1]University of Technology Belfort-Montbeliard (UTBM); [2]Dalian Maritime University

5:20 PM
Microstructure and Residual Stress of a Selective Laser Melting Produced Al-50Si Alloy: Effect of Heat Treatments: *Nan Kang*[1]; Pierre Coddet[1]; Hanlin Liao[1]; Christian Coddet[1]; [1]University of Technology Belfort-Montbeliard (UTBM)

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Characterization Methods

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Monday PM
October 24, 2016

Room: 355C
Location: Salt Palace Convention Center

Session Chair: Ola Harrysson, North Carolina State University

2:00 PM Invited
Advanced Characterization of Additively Manufactured Materials Including Synchrotron–based 3D X-rays: *Anthony Rollett*[1]; Ross Cunningham[1]; Tugce Ozturk[1]; Sneha Narra[1]; Jack Beuth[1]; [1]Carnegie Mellon University

2:40 PM
Computed Tomography as a Tool for the Inspection of Metallic Additively Manufactured Components: A Review: Griffin Jones[1]; *Todd Palmer*[1]; [1]The Pennsylvania State University

3:00 PM
Defect Detection and Distribution Analysis for Metal Additive Manufacturing using micro CT: Opportunities and Challenges: *Mohsen Seifi*[1]; John Lewandowski[1]; [1]Case Western Reserve University

3:20 PM
Evaluating the Effect of Processing Parameter on Porosity in SLM Ti-6Al-4V via Synchrotron–based 3D X-ray Microtomography: *Ross Cunningham*[1]; Sneha Narra[1]; Jack Beuth[1]; Anthony Rollett[1]; [1]Carnegie Mellon University

3:40 PM
Multiple Testing Techniques and Multiple Conclusions in AM Metals: *Jay Carroll*[1]; Jeffrey Rodelas[1]; Lisa Deibler[1]; Bradley Jared[1]; Brad Boyce[1]; Bradley Salzbrenner[1]; John Laing[1]; Thomas Crenshaw[1]; David Adams[1]; Benjamin Reedlunn[1]; Bo Song[1]; Jack Wise[1]; Joseph Bishop[1]; Michael Maguire[1]; [1]Sandia National Laboratories

4:00 PM
Anisotropic Thermal Expansion Behavior of Ti-6Al-4V Components Fabricated by Lased Based Directed Energy Deposition Additive Manufacturing: *Jay Keist*[1]; Todd Palmer[1]; [1]ARL at Penn State

4:20 PM
Application of Digital Thread to Additive Manufacturing Systems: *Deborah Mies*[1]; [1]Granta Design, Ltd.

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Titanium: Processing and Properties

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Monday PM
October 24, 2016

Room: 355D
Location: Salt Palace Convention Center

Session Chair: Jack Beuth, Carnegie Mellon University

2:00 PM
An Experimental Investigation of Support Structure for Selective Laser Melting of Ti-6Al-4V: *Kai Zeng*[1]; J.J.S Dilip[2]; Haijun Gong[3]; Deepankar Pal[1]; Brent Stucker[1]; [1]3DSIM; [2]University of Louisville; [3]Georgia Southern University

2:20 PM
Analysis of Residual Stress Formation in Additive Manufacturing of Ti-6Al-4V: *Mauritz Möller*[1]; Dirk Herzog[1]; Tim Wischeropp[1]; Claus Emmelmann[1]; Christina Krywka[2]; Peter Staron[2]; Maximilian Munsch[3]; [1]Institute of Laser and System Technologies, Hamburg University of Technology; [2]Helmholtz-Zentrum Geesthacht, Max-Planck-Straße 1; [3]Implantcast GmbH, Lüneburger Schanze 26

2:40 PM
Anisotropic Spall Strength in Additively Manufactured Ti-6Al-4V: *David Jones*[1]; Roberta Beal[1]; Olivia Dippo[1]; Veronica Livescu[1]; George Gray[1]; [1]Los Alamos National Laboratory

3:00 PM
Effect of Welding Speed and Post Weld Heat Treatments in Laser Wire Deposition of Thin Ti-6Al-4V Deposits: Microstructure Characterization: *Nejib Chekir*[1]; Raynald Gauvin[1]; Nicolas Brodusch[1]; JJ Sixsmith[2]; Mathieu Brochu[1]; [1]McGill University; [2]Liburdi

3:20 PM
Role of Composition on the Microstructure and Texture Evolution of Additively Manufactured Beta-Ti Alloys: *Srinivas Aditya Mantri*[1]; Calvin Mikler[1]; Vishal Soni[1]; Deep Choudhuri[1]; Chris Yannetta[1]; Rajarshi Banerjee[1]; [1]University of North Texas

3:40 PM
Influence of Directed Energy Deposition Parameters on the Geometry, Distortion, Porosity, and Microstructure of Ti-6Al-4V: *David Corbin*[1]; Nathan Kistler[1]; Abdalla Nassar[1]; Edward Reutzel[1]; Allison Beese[1]; [1]Penn State University

4:00 PM
Microstructure Informatics Cloud Computing for Data Analytics of Titanium Additive Manufacturing: *Ayman Salem*[1]; Daniel Satko[1]; Joshua Shaffer[1]; Richard Kublik[1]; Mohsen Seifi[2]; John Lewandowski[2]; [1]Materials Resources LLC; [2]Case Western Reserve University

4:20 PM
Thermophysical Property Measurements of Ti-based liquid Metal Alloys by Electrostatic Levitation: *Jonathan Raush*[1]; Xiaoman Zhang[1]; Boliang Zhang[1]; Bin Zhang[1]; Shengmin Guo[1]; W.J. Meng[1]; Michael Sansoucie[2]; Jan Rogers[2]; [1]Louisiana State University; [2]NASA Marshall Space Flight Center

Additive Manufacturing of Shape Memory, Superelastic Alloys and Multifunctional Materials — Session II

Program Organizers: Mohammad Elahinia, University of Toledo; Reginald Hamilton, The Pennsylvania State University; Haluk Karaca, University of Kentucky; Reza Mirzaeifar, Virginia Tech

Monday PM
October 24, 2016

Room: 355A
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Peculiarities of Phase-structural Transformations at Nickel Titanium Intermetallide during Layerwise Selective Laser and Electron Beam Melting: *Igor Shishkovsky*[1]; Nina Kakovkina[1]; [1]Lebedev Physical Institute of Russian Academy of Sciences

2:40 PM
Bayesian Calibration of a Physics-based Precipitation Model for the Additive Manufacturing of Shape Memory Alloys: *Gustavo Tapia*[1]; Luke Johnson[1]; Brian Franco[1]; Kubra Karayagiz[1]; Alaa Elwany[1]; Raymundo Arroyave[1]; Ji Ma[1]; Ibrahim Karaman[1]; [1]Texas A&M University

3:00 PM
A Coupled Thermal and Precipitation Modeling for Selective Laser Melting Process: *Kubra Karayagiz*[1]; Luke Johnson[1]; Brian Franco[1]; Gustavo Tapia[1]; Alaa Elwany[1]; Ji Ma[1]; Ibrahim Karaman[1]; Raymundo Arroyave[1]; [1]Texas A&M University

3:20 PM
Phase and Kirkendall Void Evolution Study in Ti-coated Ni Wires via Ex Situ Annealing and In-situ X-ray Tomographic Microscopy Experiments: *Ashley Paz y Puente*[1]; Sarah Plain[1]; Dinc Erdeniz[1]; David Dunand[1]; [1]Northwestern University

3:40 PM
Effects of Aging on the Shape Memory Response of Selective Laser Melting Fabricated Ni-rich NiTi: Soheil Saedi[1]; Ali Turabi[1]; Narges Shayesteh[2]; Moghaddam[2]; Mohsen Taheri Andani[2]; *Mohammad Elahinia*; Haluk Karaca[1]; [1]University of Kentucky; [2]The University of Toledo

4:00 PM
Additive Manufacturing of Ferromagnetic Functional Parts Made from Ni-Mn-Ga Powders: *Matthew Caputo*[1]; C. Virgil Solomon[1]; Phi-Khanh Nguyen[2]; Ami Berkowitz[2]; [1]Youngstown State University; [2]University of California San Diego

4:20 PM
Inconel 625 Made by Directed Energy Deposition Additive Manufacturing: Measurement of Mechanical Behavior at Elevated Temperatures with In Situ Neutron Diffraction: *Allison Beese*[1]; Zhuqing Wang[2]; Alexandru Stoica[3]; Dong Ma[3]; [1]Pennsylvania State University ; [2]Pennsylvania State University; [3]Oak Ridge National Laboratory

Advanced Coatings for Wear and Corrosion Protection — Advanced Coatings for Wear and Corrosion Protection II

Program Organizers: Evelina Vogli, LiquidMetal Group Holdings, Inc.; Fei Tang, DNV GL; Homero Castaneda, Texas A&M; Qixin Zhou, University of Akron

Monday PM
October 24, 2016

Room: 253A
Location: Salt Palace Convention Center

Session Chairs: Evelina Vogli, MesoCoat Inc.; Fei Tang, DNV

2:00 PM
Novel Composite Overlay to Protect against Corrosive/Wear Conditions in Oil Processing Applications: *Gary Fisher*[1]; Tonya Wolfe[1]; [1]Alberta Innovates - Technology Futures

2:20 PM
Enameling Coating Technology of Pipes: *Signo Reis*[1]; Genda Chen[2]; Mike Koenigstein[1]; Liang Fan[2]; Fujian Tang[2]; [1]Roesch Inc; [2]Missouri University of Science and Technology

2:40 PM
Cyclic Delamination Rates in Fiber Backed Fluoropolymer Linings: Benjamin Gilmore[1]; Kyle Roberts[2]; George Fisher[2]; *Taylor Sparks*[1]; [1]University of Utah; [2]Fisher Company

3:00 PM
High Temperature Creep Performance of Graded Transition Joint Fabricated by High Density Infrared Plasma Arc Lamp: *Xinghua Yu*[1]; Joshua Caris[2]; Evelina Vogli[2]; Zhili Feng[1]; [1]Oak Ridge National Laboratory; [2]MesoCoat

3:20 PM
Multilayer Ceramic Coating for Corrosion (C3) Resistance of Nuclear Fuel Cladding: *Ece Alat*[1]; Arthur Motta[1]; Robert Comstock[2]; Jonna Partezana[2]; Douglas Wolfe[1]; [1]Pennsylvania State University; [2]Westinghouse Electric Co

3:40 PM
Application Temperature Smooths Coating to Improve Corrosion Resistance: *Michael Bonner*[1]; [1]Saint Clair Systems, Inc.

4:00 PM Invited
Environmentally Friendly Zinc Coatings by CermaClad Technology: *Joshua Caris*[1]; Evelina Vogli[1]; Anupam Ghildyal[1]; [1]MesoCoat

4:20 PM
REACH Compliant Functional Trivalent Chromium Electroplating: *Timothy Hall*[1]; Stephen Snyder[1]; E Jennings Taylor[1]; Maria Inman[1]; [1]Faraday Technology Inc.

Advanced High Strength Steel Design / Technological Exploitation — AHSS and Sheet Steels II

Program Organizers: Alla Sergueeva, The NanoSteel Company; Daniel Branagan, The NanoSteel Company; Kester Clarke, Colorado School of Mines

Monday PM
October 24, 2016
Room: 155E
Location: Salt Palace Convention Center

Session Chairs: Pello Uranga, CEIT; Emmanuel De Moor, ASPPRC Colorado School of Mines

2:00 PM
Hydrogen Embrittlement of Aluminized Ultra-high Strength Press Hardening Steel: Lawrence Cho[1]; *Dimas Hand Sulistiyo*[1]; Eun Jung Seo[1]; Kyoung Rae Cho[1]; Bruno C. De Cooman[1]; [1]GIFT, Postech

2:20 PM
3rd Generation AHSS: Geometry Insensitive Tensile Testing Methodology: *Grant Justice*[1]; Alla Sergueeva[1]; Andrew Frerichs[1]; Brian Meacham[1]; Sheng Cheng[1]; Daniel Branagan[1]; [1]The NanoSteel Company

2:40 PM
Phase Filed Study of Plastic Accommodation in Austenite Matrix during the Formation of Lath Martensite: *Junya Inoue*[1]; Taku Niino[1]; Akinori Yamanaka[2]; Mayumi Ojima[1]; Toshihiko Koseki[1]; [1]The University of Tokyo; [2]Tokyo University of Agriculture and Technology

3:00 PM
The Plastic Accommodation in Austenite Matrix during the Formation of Lath Martensite: *Taku Niino*[1]; Mayumi Ojima[1]; Shoichi Nambu[1]; Junya Inoue[1]; Toshihiko Koseki[1]; [1]The University of Tokyo

3:20 PM
Internal Stresses and Processing Modeling for Galvanized and Galvannealed DP Steels: *Hongwei Ma*[1]; [1]WISCO

3:40 PM
Effect of Al Content on the Microstructure and Tensile Properties of Ferritic Lightweight Steels: *Yunik Kwon*[1]; Alireza Zargaran[1]; Hansoo Kim[1]; Nack J. Kim[1]; [1]POSTECH

4:00 PM
Austenite to Ferrite Transformation in Single Crystal Fe Alloy Particles on Single Crystal MgO Substrate: *Shoichi Nambu*[1]; Rei Ikeda[1]; Junya Inoue[1]; Toshihiko Koseki[1]; [1]The University of Tokyo

4:20 PM
Effect of Induction Hardening Case Depth on Residual Stresses, Microstructural Phases and Fatigue Strength of 38MnVS6 Micro Alloyed Steel: *Dattaprasad Lomate*[1]; Asim Tewari[2]; Prashant Date[2]; Manoj Ukhande[1]; Girish Shegavi[1]; Raj Kumar Prasad Singh[1]; [1]Bharat Forge Ltd. India; [2]Indian Institute of Technology Bombay, Mumbai

Advanced Materials for Harsh Environments — Advanced Materials for Harsh Environments II

Program Organizers: Gary Pickrell, Virginia Tech; Navin Manjooran, Siemens AG

Monday PM
October 24, 2016
Room: 254A
Location: Salt Palace Convention Center

Session Chairs: Gary Pickrell, Virginia Tech; Navin Manjooran, Siemens AG

2:00 PM Invited
Reclaim of Medical X-ray Tube Targets Using W-Re CVD: Guillaume Huot[1]; *Ben Poquette*[1]; [1]Acerde

3:00 PM
Plasma Polymerized Terpinen-4-ol Thin Films: An Environment Friendly Step towards Marine Anti-fouling Coating: *Avishek Kumar*[1]; [1]James Cook University

3:20 PM
Microstructure and Electrica Properties of Doped Cabi2nb2o9-based High Temperature Piezoelectric Ceramics for Vibration Sensor: *Qiang Chen*[1]; Jianguo Zhu[1]; Jia Chen[1]; Jing Yuan[1]; [1]Sichuan University

3:40 PM
Removal and Separation of Metal Ions from the Chromium Plating Wastewater Using Persimmon Gel and Immobilized Microbe: *Takehiko Tsuruta*[1]; Tomonobu Hatano[1]; [1]Hachinohe Instituteof Technology

4:00 PM
Stable Nanocomposite Thin Films for Harsh Environment Wireless Surface Acoustic Wave Sensors: *Robert Lad*[1]; Robert Fryer[1]; David Stewart[1]; Anin Maskay[1]; Mauricio Pereira da Cunha[1]; [1]University of Maine

4:20 PM
System Integration of a Novel Solid-state Electrochemical NOx Sensor for Monitoring Exhaust: *Leta Woo*[1]; Frank Bell[1]; Mike Boettcher[1]; James Chee[1]; Joe Fitzpatrick[1]; Shawn Harding[1]; Brett Henderson[1]; Dave Lippoth[1]; Orlando Otero[1]; Matt Phee[1]; Lee Sorensen[1]; Victor Wang[1]; Joseph Winn[1]; Andrew Marshall[2]; Bob Novak[3]; Jaco Visser[3]; [1]CoorsTek Sensors; [2]Georgia Tech Research Institute; [3]Ford Motor Company

Advances in Dielectric Materials and Electronic Devices — Piezoelectrics

Program Organizers: Amar Bhalla, The University of Texas at San Antonio; Ruyan Guo, The University of Texas at San Antonio; K. M. Nair, E.I.duPont de Nemours & Co, Inc; Danilo Suvorov, Jožef Stefan Institute; Rick Ubic, Boise State University

Monday PM
October 24, 2016
Room: 255F
Location: Salt Palace Convention Center

Session Chairs: Steven Tidrow, Alfred University; Narsingh Singh, University of Maryland, Baltimore County

2:00 PM Invited
Closing the Performance Gap between Textured Piezoelectric Ceramics and Single Crystals: *Gary Messing*[1]; Yunfei Chang[1]; Beecher Watson[1]; Libby Kupp[1]; Mark Fanton[1]; Richard Meyer Jr[1]; [1]The Pennsylvania State University

2:20 PM
Towards Perfect Template Particle Alignment in Textured Ceramics: *Elizabeth Kupp*[1]; Beecher Watson[1]; Yunfei Chang[1]; Mark Fanton[2]; Richard Meyer[2]; Gary Messing[1]; [1]Penn State University; [2]Applied Research Laboratory

2:40 PM
Manufacturing Grain Textured Piezoelectric Ceramics: *Mark Fanton*[1]; Elizabeth Kupp[1]; Richard Meyer[1]; Beecher Watson[1]; Brian Weiland[1]; Yunfei Chang[1]; Gary Messing[1]; [1]Penn State University

3:00 PM
[001]c Textured PIN-PMN-PT Ternary Ceramics with Enhanced Piezoelectric Properties by Templated Grain Growth: *Yunfei Chang*[1]; Beecher Watson[1]; Elizabeth Kupp[1]; Mark Fanton[1]; Richard Meyer[1]; Gary Messing[1]; [1]Pennsylvania State University

3:20 PM
Structural, Optical, Dielectric, Ferroelectric and Charge Transport Studies on [KNbO3]1-x[(BaNi1/2Nb1/2O3-ä)]x Electroceramics: *Blanca Rosas*[1]; Shojan Pavunny[1]; Nora Ortega[1]; Alvaro Instan[1]; Ram Katiyar[1]; [1]University of Puerto Rico

3:40 PM
The Origin of High Piezoelectric Properties of KNN-based Ceramics: *Jianguo Zhu*[1]; Jiagang Wu[1]; Jie Xing[1]; Zhi Tan[1]; Qiang Chen[1]; [1]Sichuan University

Advances in Metal Casting Technologies — Steel Casting Technologies

Program Organizers: Alan Druschitz, Virginia Tech; Laurentiu Nastac, The University of Alabama; Paul Sanders, Michigan Technological University

Monday PM — Room: 150F
October 24, 2016 — Location: Salt Palace Convention Center

Session Chair: Alan Druschitz, Virginia Tech

2:00 PM
Flow Field Research on Bottom Argon Blowing of 40-ton Ladle: *Tongjun Zhou*[1]; Junzhan Liu[1]; Hui Luo[1]; [1]Baosteel Special Steel Co. , Ltd

2:20 PM
Study on Vertical Continuous Casting of M2 High Speed Steel: *Zhigang Zhao*[1]; Shengtao Qiu[1]; [1]National Engineering and Research Center for Continuous Casting Technology, Center Iron and Steel Institute

2:40 PM
Development of Medium-high Carbon Casing/Tubing for Direct Strip Production Complex (DSPC): *Tihe Zhou*[1]; Peng Zhang[1]; Kate Kuuskman[1]; Erminio Cerilli[1]; Kashif Rehman[1]; Sang-Hyun Cho[1]; Dan Burella[1]; [1]Essar Steel Algoma Inc.

3:00 PM
Influence of Secondary Cooling Intensity Variation on Solidification Structure and Carbon Macro-segregation for GCr15 Continuously-cast Bloom: *Kun Dou*[1]; Zhenguo Yang[2]; Qing Liu[1]; Jung Wook Cho[3]; Hongbiao Dong[4]; [1]State Key Laboratory of Advanced Metallurgy, University of Science and Technology Beijing; [2]Special Steel Plants, Laiwu Iron and Steel Co., Ltd.; [3]Graduate Institute of Ferrous Technology (GIFT), Pohang University of Science and Technology (POSTECH); [4]Department of Engineering, University of Leicester

3:20 PM
Uneven Thermal Shrinkage of Wide-thick Continuous Casting Slab and Its Influence on Caster Taper: Chenhui Wu[1]; *Cheng Ji*[1]; Miaoyong Zhu[1]; [1]Northeastern University of China

3:40 PM
Control of the Precipitation Behavior of Ti and Nb Micro-alloyed Steels Slab Corner during Continuous Casting: Zhao-zhen Cai[1]; Zhen-yu Niu[2]; Jia-zhi An[2]; Miao-yong Zhu[2]; [1]Northeastern university; [2]Northeastern University

4:00 PM
Industrial Trial Practice of Slab Corners Microstructure Control: *Jingxin Song*[1]; Zhaozhen Cai[2]; Miaoyong Zhu[2]; Nailiang Cheng[1]; [1]Baosteel Meishan Company; [2]School of Metallurgy , Northeastern University

ASM Alpha Sigma Mu Lecture

Monday PM — Room: 155F
October 24, 2016 — Location: Salt Palace Convention Center

2:30 PM Invited
National Academy of Engineering Grand Challenges for Engineering: *A. D. Romig Jr.*[1]; [1]National Academy of Engineering

Boron, Boron Coatings, Boron Compounds and Boron Nanomaterials: Structure, Properties, Processing, and Applications — Coatings and Nanostructures

Program Organizers: Roumiana Petrova, New Jersey Institute of Tech; Jens Kunstmann, TU Dresden

Monday PM — Room: 257B
October 24, 2016 — Location: Salt Palace Convention Center

Session Chair: Roumiana Petrova, NJIT

2:00 PM Invited
Development of Hard Ni-W-B Nanocomposite Coatings: *Jiaqian Qin*[1]; Xinyu Zhang[2]; Panyawat Wangyao[3]; Yuttanant Boonyongmaneerat[1]; Sarintorn Limpanart[1]; Mingzhen Ma[4]; Riping Liu[2]; [1]Metallurgy and Materials Science Research Institute, Chulalongkorn University; [2]State Key Laboratory of Metastable Materials Science and Technology, Yanshan University; [3]Metallurgical Engineering Department, Faculty of Engineering, Chulalongkorn University; [4]State Key Laboratory of Metastable Materials Science and Technology, Yanshan University,

2:40 PM
Development of Protective Coatings Formulations Based on Boron for Units Operating at High Temperatures in Metallurgy: *Borys Sereda*[1]; Dmytro Sereda[2]; Irina Kryglyak[2]; [1]DSTU; [2]ZSEA

3:00 PM
Boron Nitride Coatings as Hydrogen Permeation Barriers: *Motonori Tamara*[1]; [1]University of Electro-Communications

3:20 PM Question and Answer Period

3:40 PM
Oxidative Unzipping and Transformation of High Aspect Ratio Boron Nitride Nanotubes into White Graphene Oxide Platelets: *Pranjal Nautiyal*[1]; Archana Loganathan[1]; Richa Agrawal[1]; Benjamin Boesl[1]; Chunlei Wang[1]; Arvind Agarwal[1]; [1]Florida International University

4:00 PM
Structural and Mechanical Properties of Spark Plasma Sintered Boron Nitride Nanoplatelets: *Archana Loganathan*[1]; Chris Rudolf[1]; Cheng Zhang[1]; Benjamin Boesl[1]; Arvind Agarwal[1]; [1]FIU

Ceramic Optical Materials — Session II

Program Organizers: Yiquan Wu, Alfred University; Jas Sanghera, Naval Research Laboratory; Michael Squillante, RMD, Inc; Takunori Taira, Institute for Molecular Science

Monday PM
October 24, 2016
Room: 254C
Location: Salt Palace Convention Center

Session Chair: Woohong (Rick) Kim, Naval Research Laboratory

2:00 PM Invited
Hot pressing of ZnS-CaLa2S4 Composite Infrared Optical Ceramics: Yiyu Li[1]; *Yiquan Wu*[1]; [1]Alfred University

2:40 PM Invited
Planar Waveguide YAG/RE:YAG/YAG Laser Ceramics Prepared by Non-aqueous Tape Casting and Vacuum Sintering: *Jiang Li*[1]; Lin Ge[1]; Yubai Pan[1]; Juntao Wang[2]; Qingsong Gao[2]; Tongyu Dai[3]; Baoquan Yao[3]; Weixue Li[4]; Heping Zeng[4]; [1]Shanghai Institute of Ceramics, Chinese Academy of Sciences; [2]Institute of Applied Electronics, China Academy of Engineering Physics; [3]National Key Laboratory of Tunable Laser Technology, Harbin Institute of Technology; [4]State Key Laboratory of Precision Spectroscopy, East China Normal University

3:20 PM Invited
Fabrication of Transparent MgAl2O4 Spinel : A Strategy for Enhancing the Transparency: *Ha-Neul Kim*[1]; Jin-Myung Kim[1]; Young-Jo Park[1]; Jae-Woong Ko[1]; Hai-Doo Kim[1]; [1]Korea Institute of Materials Science

4:00 PM
Influence of Residual Pore in the Powder on the Transmission of Y2O3 Ceramics: *Wook Ki Jung*[1]; Ho Jin Ma[1]; Yiyu Li[2]; Yiquan Wu[2]; Do Kyung Kim[1]; [1]KAIST; [2]New York State College of Ceramics, Alfred University

4:20 PM
Fabrication of Re:YAG Transparent Ceramics with Different Sintering Aids: Xingtao Chen[1]; Tiecheng Lu[2]; *Yiquan Wu*[1]; Jianqi Qi[2]; [1]Alfred University; [2]Sichuan University

Construction and Building Materials for a Better Environment — Session II

Program Organizers: Henry Colorado, Universidad de Antioquia; Dileep Singh, Argonne National Laboratory; Flavio Silva, Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio); Gaurav Sant, University of California, Los Angeles

Monday PM
October 24, 2016
Room: 151B
Location: Salt Palace Convention Center

Session Chairs: Henry Colorado, Universidad de Antioquia; Flavio Silva, Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio)

2:00 PM
Utilization of Thermal Plant Fly Ash as an Additive in Red Brick Production: *Serhat Acar*[1]; Burak Birol[1]; Muhlis Saridede[1]; [1]Yildiz Technical University

2:20 PM
Strength Behavior Of Reinforced Plastic Soil Cement Mix: *Karanbir Randhawa*[1]; Parneet Tiwana[2]; [1]Punjabi University Patiala; [2]Public Works Depatment

2:40 PM
Effect of Electric Arc Furnace Dust in Asphalt: *Yailuth Loaiza Lopera*[1]; Henry Colorado[1]; [1]Universidad de Antioquia

3:00 PM
Waste Form Screening Test Results of Secondary Low Activity Wastes (LAW) Using Ceramicrete Phosphate Ceramics: *Jose Gaviria*[1]; Henry Colorado[2]; Dileep Singh[3]; [1]UCLA; [2]Universidad de Antioquia; [3]Argonne National Laboratory

3:20 PM
Mechanical Properties of Juta Fiber Reinforced Geopolymers: *Ana Carolina Trindade*[1]; Paulo Henrique Borges[2]; Flávio Silva[1]; [1]Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio); [2]Centro Federal de Educação Tecnológica de Minas Gerais (CEFET-MG)

3:40 PM
Swelling of Superabsorbent Poly(Sodium-acrylate Acrylamide) Hydrogels and Influence of Chemical Structure on Internally Cured Mortar: *Matthew Krafcik*[1]; Kendra Erk[1]; [1]Purdue University

4:00 PM
Portland Cement Pastes Reinforced with Magnetite and Samarium Oxide: *Raul Florez*[1]; Henry Colorado[2]; Carlos Castano-Giraldo[3]; Ayodeji Alajo[1]; [1]Missouri University of Science and Technology; [2]Universidad de Antioquia ; [3]University of Science and Technology

Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET along the Way): The Elizabeth Judson Memorial Symposium — Curricular Innovations and Computational Materials Science and Engineering

Program Organizers: Devarajan Venugopalan, University of Wisconsin-Milwaukee; Thomas Bieler, Michigan State University; Jeffrey Fergus, Auburn University; Janet Callahan, Boise State University; Ronald Gibala, University of Michigan; Lan Li, Boise State University; Laura Bartolo, Kent State University; Kathy Lu, Virginia Tech

Monday PM
October 24, 2016

Room: 258
Location: Salt Palace Convention Center

Session Chairs: Janet Callahan, Boise State University; Jeffrey Fergus, Auburn University

2:00 PM
Freedom to Choose: The New Undergraduate Curriculum in Materials Science and Engineering at Penn State: *Robert Kimel*[1]; [1]Penn State University

2:20 PM
Developing a Framework for a Collaborative, Multi-disciplinary Senior Capstone Experience: *Chelsey Hargather*[1]; [1]New Mexico Institute of Mining and Technology

2:40 PM
Enhancing a Materials Selection Course by Integrating Elements of Materials Design: *Richard Neu*[1]; [1]Georgia Institute of Technology

3:00 PM
Thermodynamics Beyond Equilibrium: *Zi-Kui Liu*[1]; [1]The Pennsylvania State University

3:20 PM
The Texas A&M/IIMEC Summer School in Computational Materials Science: Materials Modeling across the Scales: *Raymundo Arroyave*[1]; Amine Benzerga[1]; Dimitris Lagoudas[1]; Ibrahim Karaman[1]; [1]Texas A & M University

3:40 PM
ICME Education at Northwestern: *Greg Olson*[1]; [1]Northwestern University & QuesTek Innovations LLC

4:00 PM
Incorporating Computational Modules in Undergraduate MSE Courses: *Katsuyo Thornton*[1]; Mark Asta[2]; [1]University of Michigan; [2]University of California, Berkeley

4:20 PM
Bringing Art into the Material Science Classroom: *Cindy Waters*[1]; [1]NCA&T State University

Failure Analysis and Prevention — Energy

Program Organizer: Burak Akyuz, ATS, Inc.

Monday PM
October 24, 2016

Room: 150G
Location: Salt Palace Convention Center

Session Chairs: Brad James, Exponent; Thomas Traubert, Engineering Design & Testing; Thomas Kozina, NTN America; Brett Miller, IMR Test Labs

2:00 PM
Failure Analysis of a Lithium-Ion Battery Fire Onboard a Boeing 787 Airplane: *Michael Budinski*[1]; [1]National Transportation Safety Board

2:20 PM
Case Study of a Natural Gas Pipeline Explosion Caused by a Combination of Manufacturing Defects and Environmental Factors: *Ryan Birringer*[1]; Alexander Hudgins[1]; Brad James[1]; [1]Exponent

2:40 PM
Frozen? Mothballs on Ice: *Porter Ritchie*[1]; [1]DNV GL

3:00 PM
Use of Hydrostatic Testing for Integrity Management of a Natural Gas Transmission Pipeline Containing Stress Corrosion Cracking: *Courtney Pape*[1]; Greg Quickel[1]; John Beavers[1]; [1]DNV GL

3:20 PM
The Challenges of Coiled Tubing Failure Analysis: *Michael Burns*[1]; Kevin Elliott[2]; Pankaj Kumar[1]; Travis Graham-Wright[2]; Austin Sutch[2]; [1]Stress Engineering Services, Inc.; [2]NOV Quality Tubing

3:40 PM
Analysis of Glass Superstrate/Substrate Fractures in Solar Panels: *John McNulty*[1]; David Schoen[1]; Evan Brown[1]; [1]Exponent, Inc.

4:00 PM
Investigation of a Faulted Turbine Generator: *Albert Rose*[1]; [1]Engineering Design and Testing

4:20 PM
Failure Analysis of Bolted Joints at Elevated Operating Temperatures in Gas Turbine: A Case Study of Creep of the Washers and Cracking of the Bolts: *Derek Gong*[1]; Paul Flynn[1]; [1]Rolls Royce Singapore Pte Ltd

4:40 PM
Actuator Spring Failures in the Oil and Gas Industry: *Richard Marques*[1]; Herman Amaya[1]; Christian Silva[1]; [1]One Subsea

Glass, Amorphous, and Optical Materials: Common Issues within Science & Technology — ACerS Alfred R. Cooper Award Session

Program Organizers: Steve W. Martin, Iowa State University; Gang Chen, Ohio University

Monday PM
October 24, 2016

Room: 255A
Location: Salt Palace Convention Center

Session Chair: C. Austen Angell, Arizona State University

2:00 PM Introductory Comments - Session Chair Professor C. Austen Angell

2:10 PM Invited
Where Inorganic Meets Organic in the Glassy State: Hybrid Glasses and Dental Cements: Neville Greaves[1]; [1]University of Cambridge

2:50 PM Presentation of the Award

3:00 PM Invited
Novel Approaches to Glass Optical Fibers: *Matthew Tuggle*[1]; [1]Clemson University

3:20 PM Presentation of the Award

3:30 PM Invited
Fractal Topological Character of the Structural Network and Ionic Conduction Pathways in Oxide Glasses: *Sabyasachi Sen*[1]; [1]University of California Davis

4:10 PM Invited
Origin of Thermo-mechanical Anomalies in Oxide Glasses and How To Control Them: *John Kieffer*[1]; [1]University Of Michigan

Heterogeneity during Plastic Deformation – Synergy between Experimental Investigation and Simulation — Deformation of Twinned and Martensitic Microstructures

Program Organizers: Stephen Niezgoda, The Ohio State University; David Fullwood, Brigham Young University

Monday PM
October 24, 2016

Room: 250F
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Effects of Martensite and Ferrite Properties on Hole Expansion Ratio of Dual Phase 980 Steel: *K.S. Raghavan*[1]; Xiaohua Hu[2]; Xin Sun[2]; [1]AK Steel Corporation; [2]Pacific Northwest National Laboratory

2:40 PM
Prediction of the Mechanical Response of DP980 Steel Incorporating a Realistic RVE: *Hyuk Jong Bong*[1]; Hojun Lim[2]; Myoung-Gyu Lee[3]; David Fullwood[4]; Eric Homer[4]; Robert. H. Wagoner[1]; [1]The Ohio State University; [2]Sandia national Lab; [3]Korea University; [4]Brigham Young University

3:00 PM
Strain Evolution in TBF 1180 Microstructures during In-situ Tension Testing: *Jeffrey Cramer*[1]; Tyson Mathis[1]; Michael Miles[1]; David Fullwood[1]; Eric Homer[1]; Tyson Brown[1]; Raja Mishra[1]; [1]Brigham Young University

3:20 PM Invited
Studying the Micromechanics of Martensitic Phase Transformations Using High Energy Diffraction Microscopy: *Aaron Stebner*[1]; [1]Colorado School of Mines

4:00 PM
Dislocation Density-based Modelling of Plastic Deformation of Lath Martensite: *Taku Niino*[1]; Shoichi Nambu[1]; Junya Inoue[1]; Toshihiko Koseki[1]; [1]The University of Tokyo

4:20 PM
Influence of Adjoining Twin Pairs on Subsequent Twinning and Detwinning in HCP Metals: *M. Arul Kumar*[1]; Irene Beyerelein[1]; Rodney McCabe[1]; Carlos Tome[1]; [1]Los Alamos National Laboratory

4:40 PM
Performance of Viscoplastic Self-Consistent Models in Reflecting Twin Activity in Mg Alloys: *Devin Adams*[1]; David Fullwood[1]; Marko Knezevic[2]; Stephen Niezgoda[3]; Irene Beyerlein[4]; Isaac Chelladurai[1]; Andrew Orme[1]; [1]Brigham Young University; [2]University of New Hampshire; [3]Ohio State University; [4]Los Alamos National Laboratory

Innovative Processing and Synthesis of Ceramics, Glasses and Composites — Ceramic Processing II

Program Organizers: Narottam Bansal, NASA Glenn Research Center; Jitendra Singh, U.S. Army Research Laboratory; Scarlett Widgeon, New Mexico Highlands University ; Gabriela Mera, TU Darmstadt

Monday PM
October 24, 2016

Room: 255D
Location: Salt Palace Convention Center

Session Chairs: Narottam Bansal, NASA Glenn Research Center; Scarlett Widgeon, New Mexico Highlands University

2:00 PM Invited
Low Temperature Synthesis of SiC, Si_3N_4 and SiAlON by Carbothermal Reduction or Nitridation of Geopolymers: Cengiz Bagci[1]; *Waltraud Kriven*[2]; [1]Hitit University and University of Illinois at Urbana-Champaign; [2]University of Illinois at Urbana-Champaign

2:40 PM
Plasma Deposition and Modification of Metal Oxide Nanosurfaces and Hetero-interfaces for Solar Harvesting Applications: *Sanjay Mathur*[1]; Yakup Gönüllü[1]; [1]University of Cologne

3:00 PM
Polyhedral Ceria Crystals Synthesized by KCl-LiCl Molten Salt Method: *Yuan-Pei Lan*[1]; Yousef Mohassab[2]; Bao-Qiang Xu[1]; Hong Yong Sohn[1]; [1]University of Utah; [2]University of Utah

3:20 PM
Thermally Conductive Aluminum Nitride Thick Films for High Power Electronic Packages: *Byung-Dong Hahn*[1]; Jong-Jin Choi[1]; Cheol-Woo Ahn[1]; Jong-Woo Kim[1]; Jungho Ryu[1]; Woon-Ha Yoon[1]; Dong-Soo Park[1]; [1]Korea Institute of Materials Science

3:40 PM
Toward Stress Engineered Ceramics via Processing-enabled Microstructural Design: *David Lipke*[1]; [1]Alfred University

4:00 PM
Formation of Anodic Nanoporous/Nanotubular Beryllium Oxide: Steven Sitler[1]; *Krishnan Raja*[1]; [1]University of Idaho

4:20 PM
Pistachio Shell Reinforced Iron Matrix Composites: *Mackenzie Jones*[1]; A. Aning[1]; Ibrahim Khalfallah[1]; Hesham Elmkharram[1]; [1]Virginia Tech

Interfaces, Grain Boundaries and Surfaces from Atomistic and Macroscopic Approaches -- Fundamental and Engineering Issues — Structure & Chemistry of Interfaces II

Program Organizers: Wayne Kaplan, Technion - Israel Institute of Technology; Dominique Chatain, CNRS, Aix-Marseille University; John Blendell, Purdue University; Paul Wynblatt, Carnegie Mellon University

Monday PM
October 24, 2016

Room: 251B
Location: Salt Palace Convention Center

Session Chairs: Dominique Chatain, CINaM-CNRS; Paul Wynblatt, Carnegie Mellon University

2:00 PM Keynote
Thermal Stability and Phase Transformation of Nanostructured Nb3O7(OH) Photocatalyst: Sophia Betzler[1]; *Christina Scheu*[2]; [1]Ludwig Maximilian University; [2]Max-Planck-Max-Planck-Institut fuer Eisenforschung GmbH

2:40 PM
Eigendecomposition and the Network Structure of Grain Boundaries in Polycrystals: *Oliver Johnson*[1]; [1]Brigham Young University

3:00 PM Keynote
Grain Boundary Structural Length Scales and their Effects upon Mobility: *Elizabeth Holm*[1]; Jonathan Humberson[1]; [1]Carnegie Mellon University

3:40 PM
Materials Databases: Grain Boundary Datasets for Quantifying Structure-property Relationships: *Mark Tschopp*[1]; Shawn Coleman[1]; Srikanth Patala[2]; Arash Banadaki[2]; Zachary Trautt[3]; [1]Army Research Laboratory; [2]North Carolina State University; [3]NIST

4:00 PM Invited
Probing Grain Boundaries to Determine the Thermal Stability Mechanisms of Nanocrystalline Ni-W: *Christopher Marvel*[1]; Kristopher Darling[2]; B. Hornbuckle[2]; Martin Harmer[1]; [1]Lehigh University; [2]U.S. Army Research Laboratory

International Symposium on Defects, Transport and Related Phenomena — Session II

Program Organizers: Sangtae Kim, University of California, Davis; Doreen Edwards, Alfred University; Tatsuya Kawada, Tohoku University; Manfred Martin, RWTH Aachen University

Monday PM
October 24, 2016

Room: 251E
Location: Salt Palace Convention Center

Session Chairs: Juergen Janek, Justus-Liebig-University; Igor Lubomirsky, Weizmann Institute of Science

2:00 PM Invited
Transport Properties, Interfacial Kinetics and Redox Behavior of Phosphate and Thiophosphate-based Lithium Solid Electrolytes: *Juergen Janek*[1]; Dominik Weber[1]; Kai Weldert[1]; Wolfgang Zeier[1]; [1]Justus-Liebig-University

2:40 PM Invited
Garnet-type Li Ion Conductors as Solid Electrolytes of Li Ion Battery: *Nakayama Masanobu*[1]; Randy Jalem[2]; [1]Nagoya Institute of Technology; [2]National Institute for Materials Science

3:20 PM Invited
Non-classical Electrostriction in Fluorites with a Large Concentration of Point Defects: *Igor Lubomirsky*[1]; [1]Weizmann Institute of Science

4:00 PM Invited
A Novel, Simpler Method to Measure the Chemical Diffusivity of a Mixed-conducting Compound: *Han-Ill Yoo*[1]; Taewon Lee[1]; [1]Seoul National University

Joining of Advanced and Specialty Materials (JASM XVIII) — Welding Metallurgy 1

Program Organizers: Boian Alexandrov, The Ohio State University; Mathieu Brochu, McGill University; Akio Hirose, Osaka University; Anming Hu, University of Tennessee; Peng He, Harbin Insitute of Technology; Darren Barborak, AZZ|WSI; Bingtao Li, AZZ WSI; Xinjin Cao, Institute for Aerospace Research

Monday PM
October 24, 2016

Room: 155B
Location: Salt Palace Convention Center

Session Chair: Boian Alexandrov, The Ohio State University

2:00 PM Invited
Application of Modeling Tools for Understanding the Microstructures and Performance of Engineering Alloys: *John DuPont*[1]; [1]Lehigh University

2:40 PM
Evaluation of Solidification Crack Susceptibility in Laser Beam Welds of Reduced Activation Ferritic/Martensitic Steel F82H: *Hiroaki Mori*[1]; Takaya Hitomi[1]; Hideki Mitsunari[1]; Masakazu Shibahara[2]; Hideo Sakasegawa[3]; Takanori Hirose[3]; Hiroyasu Tanigawa[3]; [1]Osaka University; [2]Osaka Prefecture University; [3]National Institutes for Quantum and Radiological Science and Technology

3:00 PM
Effect of Multiple Reweld Passes on the Solidification and Cracking Response of 304L Stainless Steel: *Jeffrey Rodelas*[1]; Charles Robino[1]; Michael Maguire[1]; [1]Sandia National Laboratories

3:20 PM
Applicability of Filler Metal 16-8-2 for Structural Welds in 304H and 347H Steels for High Temperature Service: *Carolin Fink*[1]; Huimin Wang[1]; Taylor Wyan[1]; Matthew Bowen[1]; Boian Alexandrov[1]; Jorge Penso[2]; [1]The Ohio State University; [2]Shell Global Solutions Inc.

3:40 PM
Evolution of Grain Boundary Coarsened Zones in INCONEL Alloy 740H: Daniel Bechetti[1]; *John DuPont*[1]; [1]Lehigh University

4:00 PM
Examination of Explosively Bonded Interfaces via Three-dimensional Reconstruction: *Olivia Underwood*[1]; Jonathan Madison[2]; Lisa Deibler[3]; Jeffrey Rodelas[4]; [1]Materials Mechanics, Sandia National Laboratories ; [2]Materials Mechanics, Sandia National Laboratories; [3]Materials Characterization & Performance, Sandia National Laboratories; [4]Metallurgy & Materials Joining, Sandia National Laboratories

4:20 PM
Microstructural Evolution of Simulated Heat Affected Zones in Cast Precipitation Hardened Stainless Steels 17-4 and 13-8+Mo: *Robert Hamlin*[1]; John DuPont[1]; [1]Lehigh University

Light Metal Technology — Magnesium Technology

Program Organizer: Xiaoming Wang, Purdue University

Monday PM
October 24, 2016

Room: 150C
Location: Salt Palace Convention Center

Session Chair: Dietmar Letzig, Helmholtz Zentrum Geesthacht

2:00 PM Invited
Twin Roll Casting and Rolling of Magnesium Strips: *Dietmar Letzig*[1]; Gerrit Kurz[1]; Jan Bohlen[1]; Sangbong Yi[1]; [1]MagIC - Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht

2:40 PM
Effect of Nano TiO2 on Tensile-compressive Asymmetry of Magnesium Nanocomposite: *Nasirudeen Ogunlakin*[1]; [1]King Fahd University of Petroleum and Minerals

3:00 PM
Evolution of Anelastic Behaviour and Twinning in Cyclic Loading for Extruded Magnesium Alloys: *Hossein Fallahi*[1]; Mohammad Tabarroki[2]; K.V. Yang[1]; Chris Davies[1]; [1]Monash University; [2]National Taiwan University

3:20 PM
Improvement of Ductility of Magnesium AZ31 Alloy Sheets Subjected to High Speed Rolling and Subsequent Annealing: *Jing Su*[1]; Abu S. H. Kabir[1]; Stephen Yue[1]; [1]McGill

3:40 PM
Orientation and Length Scale Effect in Deformation Mechanism in Pure Magnesium: *Ali Khosravani*[1]; Mohammed Cherkaoui[2]; Surya Kalidindi[1]; [1]Georgia Institute of Technology; [2]Mississippi State University

4:00 PM Invited
Recrystallization Behavior and Texture Evolution during Hot Deformation of Extruded ZK60 Magnesium Alloy: *Amir Hadadzadeh*[1]; Sugrib Kumar Shaha[1]; Mary Wells[1]; Hamid Jahed[1]; Bruce Williams[2]; [1]University of Waterloo; [2]CanmetMATERIALS, Natural Resources Canada

Materials Degradation in Supercritical CO_2 Power Cycles — Materials and Fabrication Issues for Components of Supercritical CO_2 Power Cycles

Program Organizers: Omer Dogan, DOE National Energy Technology Laboratory; Julie Tucker, Oregon State University; Briggs White, DOE National Energy Technology Laboratory

Monday PM
October 24, 2016

Room: 250D
Location: Salt Palace Convention Center

Session Chairs: Mathew Walker, Sandia National Laboratories; Richard Oleksak, National Energy Technology Laboratory

2:00 PM
Progress in Overcoming Materials Challenges with S-CO_2 Recompression Closed Brayton Cycles: *Matthew Walker*[1]; Alan Kruizenga[1]; Elizabeth Withey[1]; [1]Sandia National Laboratories (Livermore)

2:20 PM
Effect of Prior Exposure to sCO_2 on Threshold Crack Growth of Ni-superalloys: *Kyle Rozman*[1]; Omer Dogan[2]; Gordon Holcomb[2]; Jeffery Hawk[2]; Jay Kruzic[3]; [1]ORISE; [2]NETL; [3]Oregon State University

2:40 PM
Silicon Carbide Resistance to Corrosion in Supercritical CO_2 Environments: *Joseph Fellows*[1]; Charles Lewinsohn[1]; Bjorn Westman[2]; Julie Tucker[2]; [1]Ceramatec, Inc.; [2]Oregon State University

3:00 PM
High-temperature Mechanical and Corrosion Behavior of Transient-liquid-phase Bonded Haynes 230 and Haynes 282: *Venkata Rajesh Saranam*[1]; Monica Kapoor[2]; Omer Dogan[2]; Patrick McNeff[1]; Brian Paul[1]; [1]Oregon State University; [2]National Energy Technology Laboratory

3:20 PM
Characterization of Diffusion-bonded Fe- and Ni-based Alloys Exposed to High Temperature S-CO2 Environment: Ho Jung Lee[1]; Sung Hwan Kim[1]; Ji Ho Shin[1]; Sunghoon Hong[1]; *Changheui Jang*[1]; [1]KAIST

3:40 PM
High-temperature Oxidation of Diffusion Bonded Ni-based Superalloys in Supercritical CO_2 Cycle Conditions: *Omer Dogan*[1]; Casey Carney[2]; Richard Oleksak[1]; Corinne Disenhof[2]; Gordon Holcomb[1]; [1]DOE National Energy Technology Laboratory; [2]AECOM

4:00 PM
Corrosion Behavior of Austenitic Stainless Steels in Supercritical CO_2 Containing O2 and H2O: *Lucas Teeter*[1]; Nicolas Huerta[1]; Omer Dogan[1]; Margaret Ziomek-Moroz[1]; Corinne Disenhof[1]; Randal Thomas[1]; Julie Tucker[2]; [1]National Energy Technology Laboratory; [2]Oregon State University

4:20 PM
XPS Study of Incipient Corrosion Behavior of 347H in Supercritical CO_2 Power Cycle Environments: *Richard Oleksak*[1]; John Baltrus[2]; Lucas Teeter[1]; Nicolas Huerta[1]; Margaret Ziomek-Moroz[1]; Ömer Dogan[1]; [1]National Energy Technology Laboratory, Albany, OR; [2]National Energy Technology Laboratory, Pittsburgh, PA

Materials Development for Nuclear Applications and Extreme Environments — Accident Tolerant Fuels and Cladding Materials

Program Organizers: Raghunath Kanakala, University of Idaho; Nan Li, Los Alamos National Laboratory; Todd Allen, Idaho National Laboratory; Jake Amoroso, Savannah River National Laboratory; Aladar Csontos, Nuclear Regulatory Commission; Lingfeng He, Idaho National Laboratory; Yutai Katoh, Oak Ridge National Laboratory; Josef Matyas, Pacific Northwest National Laboratory; Amit Misra, University of Michigan; Raul Rebak, GE Global Research; Kumar Sridharan, University of Wisconsin

Monday PM
October 24, 2016

Room: 250A
Location: Salt Palace Convention Center

Session Chairs: Raul Rebak, GE Global Research; S. Sundaram, Alfred University

2:00 PM Invited
Annular Accident Tolerant Fuel with Disc Inserts: *Robert Mariani*[1]; Pavel Medvedev[1]; Douglas Porter[1]; [1]Idaho National Laboratory

2:40 PM
Reducing Risks in Nuclear Power Plants Operation by Using FeCrAl Alloys as Fuel Cladding: *Raul Rebak*[1]; Kurt Terrani[2]; Russ Fawcett[3]; William Gassmann[4]; [1]GE Global Research; [2]Oak Ridge National Laboratory; [3]Global Nuclear Fuels; [4]Exelon

3:00 PM Invited
Fabrication Development Efforts in Support of the Accident Tolerant Fuel Program: *Connor Woolum*[1]; Brian Durtschi[1]; Clint Baker[1]; Josh Daw[1]; Glenn Moore[1]; [1]Idaho National Laboratory

3:20 PM
New ODS FeCrAlYZr Alloys for Accident Tolerant Fuel Cladding: *Sebastien Dryepondt*[1]; Caleb Massey[2]; Josh Turan[1]; Dave Hoelzer[1]; Kinga Unocic[1]; Phil Edmondson[1]; [1]Oak Ridge National Laboratory; [2]University of TN

3:40 PM
Investigation of Pressure Resistance Welding for Thin-walled Accident Tolerant Fuel Claddings: *Nathan Jerred*[1]; Emmanuel Perez[1]; Jian Gan[1]; [1]Idaho National Laboratory

4:00 PM
Development of Zirconium-silicide Coating for Enhancement of Accident Tolerance of Zirconium-alloy LWR Cladding Material: *Hwasung Yeom*[1]; Benjamin Maier[1]; Steven Fronek[1]; Elliot Strand[1]; Robert Mariani[2]; David Bai[2]; Peng Xu[3]; Kumar Sridharan[1]; [1]University of Wisconsin-Madison; [2]Idaho National Laboratory; [3]Westinghouse Electric Company

4:20 PM
Fretting Studies of Accident Tolerant FeCrAl Cladding: *Christian Williams*[1]; Marut Pattanaik[2]; Sobhan Patnaik[1]; Raul Rebak[3]; Raghunath Kanakala[1]; [1]University of Idaho; [2]Arizona State University; [3]GE Global Research

Materials Issues in Nuclear Waste Management in the 21st Century — Waste Forms Development

Program Organizers: Josef Matyas, Pacific Northwest National Laboratory; Jake Amoroso, Savannah River National Laboratory; Isabelle Giboire, CEA Marcoule; Raghunath Kanakala, University of Idaho; Yutai Katoh, Oak Ridge National Laboratory; Stefan Neumeier, Forschungszentrum Juelich GmbH; David Shoesmith, Western University; Kumar Sridharan, University of Wisconsin; David Enos, Sandia National Laboratories; Charles Bryan, Sandia National Laboratories

Monday PM
October 24, 2016

Room: 251D
Location: Salt Palace Convention Center

Session Chairs: Dan Gregg, ANSTO; Jake Amoroso, SRNL

2:00 PM
Waste Forms for the Immobilization of Highly Enriched Uranium Waste Streams from Mo-99 Production: *Dan Gregg*[1]; Lou Vance[1]; Kylie Olufson[1]; Jessica Veliscek-Carolan[1]; Ian Watson[1]; Neil Webb[1]; Terry McLeod[1]; Miodrag Jovanovic[1]; Iveta Kurlapski[1]; Charmaine Grant[1]; Tim Palmer[1]; Kim Lu[1]; Gerry Triani[1]; [1]ANSTO

2:20 PM
Effect of Phase Assemblage and Chemical Speciation on the Durability of Multiphase Ceramics: *Jake Amoroso*[1]; Chris Dandeneau[1]; Kyle Brinkman[2]; Ming Tang[3]; [1]Savannah River National Laboratory; [2]Clemson University; [3]Los Alamos National Laboratory

2:40 PM
Cesium Immobilization in Zinc Doped Hollandite: *Robert Grote*[1]; Yun Xu[1]; Kyle Brinkman[1]; [1]Clemson University

3:00 PM
Nanoscale Investigation and Control of Radionuclides in Waste Management: *Eleonora Cali*[1]; Mary Ryan[1]; Luc Vandeperre[1]; Jiahui Qi[1]; [1]Imperial College London

3:20 PM
Liquid Secondary Waste: Waste Form Development: *Alex Cozzi*[1]; Katie Hill[1]; [1]Savannah River National Laboratory

3:40 PM
Low Temperature Waste Form Process Intensification: *Devon McClane*[1]; Kevin Fox[1]; Alex Cozzi[1]; [1]Savannah River National Laboratory

4:00 PM
Volumetric Stabilization of Ceramic Waste Forms: *Sean Locker*[1]; Braeden Clark[1]; S.K. Sundaram[1]; [1]Alfred University

4:20 PM
Structural Characterization and Cesium Retention of (Ba,Cr)-hollandites: *Priyatham Tumurugoti*[1]; Scott Misture[1]; Jake Amoroso[2]; S K Sundaram[1]; [1]Kazuo Inamori School of Engineering, Alfred University; [2]Savannah River National Laboratory, Aiken, SC

Materials Property Understanding through Characterization — Advanced Materials I

Program Organizers: Indrajit Dutta, Corning Incorporated; Brian Strohmeier, US Steel; Nicholas Smith, Corning Incorporated

Monday PM
October 24, 2016

Room: 251C
Location: Salt Palace Convention Center

Session Chair: Surojit Gupta, University of North Dakota

2:00 PM
AFM Based Nanoscale Structure-property Characterization of Nanoporous Organo-silicates: Gheorghe Stan[1]; Richard Gates[1]; Qichi Hu[2]; Kevin Kjoller[2]; Craig Prater[2]; *Sean King*[3]; [1]National Institute of Standards and Technology; [2]Anasys Instruments; [3]Intel Corporation

2:20 PM
p-Silicon based Microbolometer: *Asahel Banobre*[1]; Nuggehalli Ravindra[1]; [1]New Jersey Institute of Technology

2:40 PM
Study of Surface Passivation Behavior of Carrier Selective Contacts in Crystalline Si Solar Cells: *Haider Ali*[1]; Kristopher Davis[1]; Winston Schoenfeld[1]; [1]University of Central Florida

3:00 PM
Correlating the Surface Chemistry of Iron Based Mixed Metal Oxide to Its Performance as an Oxygen Evolution Reaction Catalyst: *Mackenzie Parker*[1]; Mary Lou Lindstrom[1]; Dev Chidambaram[1]; [1]University of Nevada, Reno

3:20 PM
Synthesis and Evaluation of Thermodynamic Properties of Transition Metal Oxide Based Sodium Ion Cathode Materials ($NaMO_2$; M = Mn, Fe, Co and Ni): *Radha Shivaramaiah*[1]; Sindhoora Tallapragada[1]; Alexandra Navrotsky[1]; [1]UC Davis

3:40 PM
X-ray Powder Diffraction Characterization of the Giant Unit Cell of the M8 Murataite Polytype: 8×8×8 Fluorite-type Superstructure: *Ryosuke Maki*[1]; Yoshikazu Suzuki[1]; [1]University of Tsukuba

4:00 PM
Electrochemical Synthesis and Properties of Carrageenan-doped Polypyrrole Films: *Ali Aldalbahi*[1]; [1]King Saud University

Materials Selection and Characterization for Corrosion Control — Materials Selection: Session II

Program Organizers: Ajit Mishra, Haynes International; Matthew Asmussen, Pacific Northwest National Laboratory; Eric Schindelholz, Sandia National Laboratories; Florent Bocher, Southwest Research Institute; Guang-Ling Song, Xiamen University; Jeffery Thomson, Oak Ridge National Lab; Kevin Lambrych, Ashland Performance Materials; Gary Coates, Nickel Institute / Garcoa Metallurgical; Raul Rebak, GE Global Research

Monday PM
October 24, 2016

Room: 253B
Location: Salt Palace Convention Center

Session Chairs: Eric Schindelholz, Sandia National Laboratory; Ajit Mishra, Haynes International

2:00 PM Keynote
Corrosion Behavior of Nuclear Waste Glasses in Geological Repository Systems: *James Neeway*[1]; [1]Pacific Northwest National Laboratory

2:40 PM
Mitigation of Stress Corrosion Cracking of Austenitic Alloys by Laser Shock Peening: *Bai Cui*[1]; Fei Wang[1]; Qiaofeng Lu[1]; Chenfei Zhang[1]; Qing Su[1]; Yongfeng Lu[1]; Michael Nastasi[1]; [1]University of Nebraska–Lincoln

3:00 PM
Corrosion Behavior of Nanocrystalline Al-M (M: Cr, Mn, Ti, Ta, Si, Ce and Mo) Alloys Produced via High-energy Ball Milling: *Javier Esquivel*[1]; Rajeev Gupta[1]; [1]The University of Akron

3:20 PM
Early Stage Oxidation of NiCrAl Alloys: *Evan Zeitchick*[1]; John Perepezko[1]; [1]University of Wisconsin - Madison

3:40 PM
Long-term Field Corrosion Monitoring in Supporting Structures of China Xiamen Xiangan Submarine Tunnel: *Xuan Cheng*[1]; Chaoyang Gong[1]; Xiaoyong He[1]; Yongwei Li[1]; Sizhe He[1]; Liuying Huang[1]; Ying Zhang[1]; Jiubin Chen[2]; Jianbin Zhang[2]; Chao Zeng[2]; [1]Xiamen University; [2]Xiamen Road and Bridge Construction Group Co. Ltd.

4:00 PM
Hardware Materials in Molten Carbonate Fuel Cell: *Ling Chen*[1]; Adam Franco[1]; Chao-yi Yuh[1]; [1]Fuel Cell Energy Inc

4:20 PM
Remarkable Oxidation Resistance Due to Nanocrystalline Structure of Fe-Cr Alloys: *RK Singh Raman*[1]; [1]Monash University

Materials Tribology — Materials Tribology

Program Organizers: Emad Omrani, University of Wisconsin - Milwaukee; Pradeep Menzes, UW-Milwaukee; Afsaneh Dorri Moghadam, University of Wisconsin- Milwaukee; Pradeep Rohatgi, University of Wisconsin-Milwaukee

Monday PM
October 24, 2016

Room: 250C
Location: Salt Palace Convention Center

Session Chairs: Pradeep Menzes, University of Nevada Reno; Emad Omrani, UW-Milwaukee; Afsaneh Dorri Moghadam, UW-Milwaukee

2:00 PM
Friction Behavior of Network-structured Carbon Nanotubes Coating on Pure Ti Plate: *Katsuyoshi Kondoh*[1]; Junko Umeda[1]; Hirofumi Miyaji[2]; Erika Nishida[2]; Bunshi Fugetsu[3]; [1]Osaka University; [2]Hokkaido University; [3]The University of Tokyo

2:20 PM
High Temperature Solid Particle Erosion of Thermal Spray Barrier Coatings: *Anderson Pukasiewicz*[1]; Wellington de Goes[1]; André Chicoski[2]; [1]Technological Federal University of Paraná; [2]Institutos LACTEC

2:40 PM
Recent Studies to Understand the Tribology of MAX Phases, MAXPOLs, and MRM (MAX Reinforced Metals): *Surojit Gupta*[1]; [1]University of North Dakota

3:00 PM
Wear Resistance of Metal Carbide Coatings on Steel Alloys: Brandon Strahin[1]; *Gary Doll*[1]; [1]The University of Akron

3:20 PM
Wear Properties of aluminium Alloy Processed by Friction Stir Process: *Kazeem Sanusi*[1]; Esther Akinlabi[1]; [1]University of Johannesburg

Measurement and Modeling of Medium-to-high Strain Rate Deformation — Medium-to-high Strain Rate Deformation II

Program Organizers: Ivi Smid, Penn State; Tim Eden, Penn State; Susan Hill, University of Dayton Research Institute

Monday PM
October 24, 2016

Room: 251A
Location: Salt Palace Convention Center

Session Chairs: Susan Hill, University of Dayton; Tim Eden, Penn State

2:00 PM Introductory Comments

2:20 PM
Assessing the Influence on Confinement Pressure and Strain Rate on Fracture Strength of Ceramics: *Ghatu Subhash*[1]; [1]University of Florida

2:40 PM
Investigation of Adiabatic Heat Rise and Its Effect on Flow Stresses and Microstructural Changes during High Strain Rate Deformation of Ti-6Al-4V Alloy: *Ashish Dawari*[1]; B Kashyap[2]; RKP Singh[1]; [1]Bharat Forge Ltd, Pune; [2]IIT Bombay

3:00 PM
Effect of Secondary Precipitate Phases on Cold Spray Particle Impact: *Jeremy Schreiber*[1]; Tim Eden[1]; Ivi Smid[1]; Danielle Belsito-Cote[2]; Baillie McNally[2]; Vic Champagne[3]; [1]Penn State; [2]WPI; [3]Army Research Laboratory

3:20 PM
Strain Rate Dependence of AM30 Magnesium Alloy: *Andrew Oppedal*[1]; Wilburn Whittington[1]; David Francis[1]; Mark Horstemeyer[1]; [1]Mississippi State University

3:40 PM
Unique Twinning in Orchestrated Deformation Mechanisms to Stiffen and Toughen Nacre under Impacts: *Jialin Liu*[1]; Zaiwang Huang[2]; Xiaodong Li[3]; Yue Qi[1]; [1]Michigan State University; [2]Central South University, China; [3]University of Virginia

Mechanochemical Synthesis and Reactions in Materials Science — Organic Compounds and 2D Nanomaterials

Program Organizers: Antonio Fuentes, Cinvestav del IPN; Laszlo Takacs, University of Maryland Baltimore County; Challapalli Suryanarayana, University of Central Florida; Jacques Huot, UQTR

Monday PM
October 24, 2016

Room: 155A
Location: Salt Palace Convention Center

Session Chair: Richard Blair, University of Central Florida

2:00 PM Invited
Composites of Drugs with Inorganic and Organic Excipients Obtained Using Mechanochemical Methods: *Tatyana Shakhtshneider*[1]; Svetlana Kuznetsova[2]; Rakesh Kumar[3]; Vladimir Boldyrev[1]; [1]Institute of Solid State Chemistry and Mechanochemistry; [2]Institute of Chemistry and Chemical Technology SB RAS; [3]National Metallurgical Laboratory

2:40 PM
Flexible Modification of Edge-functionalized Graphene: *Richard Blair*[1]; [1]University of Central Florida

3:20 PM Invited
Mechanochemical Synthesis of Nanostructured Aluminum Nitride: S.A. Rounaghi[1]; S. Scudino[2]; H. Eshghi[3]; A. Vyalikh[4]; D. E. P. Vanpoucke[5]; W. Gruner[2]; S. Oswald[2]; A.R. Kiani Rashid[3]; M. Samadi Khoshkhoo[2]; U. Scheler[6]; *Juergen Eckert*[7]; [1]Birjand University of Technology; [2]IFW Dresden, Institute for Complex Materials; [3]Ferdowsi University of Mashhad; [4]Institut für Experimentelle Physik, TU Bergakademie Freiberg; [5]Ghent University; [6]Leibniz-Institut für Polymerforschung Dresden e.V.; [7]Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; Montanuniversität Leoben

3:40 PM
Phase Transformations of Molecular and Pharmaceutical Compounds Induced by Mechanical Activation: *Marc Descamps*[1]; Jean François Willart[1]; Emeline Dudognon[1]; [1]University Lille1

4:00 PM
Thermodynamic Driving Force for Polymorph Formation in Mechanochemical Synthesis of Zeolitic Imidazolate Frameworks: *Zamirbek Akimbekov*[1]; Alexandra Navrotsky[1]; Tomislav Friščic[2]; Athanassios Katsenis[2]; [1]University of California, Davis; [2]McGill University

Multi Scale Modeling of Microstructure Deformation in Material Processing — Multi Scale Modeling of Microstructure Deformation in Material Processing II

Program Organizers: Lukasz Madej, AGH University of Science and Technology; Krzysztof Muszka, AGH Univeristy of Science and Technology; Danuta Szeliga, AGH University of Science and Technology

Monday PM
October 24, 2016

Room: 252A-B
Location: Salt Palace Convention Center

Session Chair: Lukasz Madej, AGH University of Science and Technology

2:00 PM Invited
Microstructural Deformation of High Carbon Steels and Irons: *Konstantin Redkin*[1]; Christopher Hrizo[1]; Isaac Garcia[1]; [1]WHEMCO Inc

2:40 PM
Modeling of Material Processing and Microstructure of Long Product: *Michael Kruse*[1]; [1]Friedrich Kocks GmbH & Co. KG

3:00 PM
A Continuum Dislocation Dynamics (CDD) Based Model on the Deformation Behavior of High Entropy Alloys: *Navid Kermanshahimonfared*[1]; Ioannis Mastorakos[1]; [1]Clarkson University

3:20 PM
Multi Scale Modeling of Elastic Deformation of Single Wall Carbon Nanotube (SWCNT) Networks: *Ankit Gupta*[1]; Elizabeth Holm[1]; [1]Carnegie Mellon University

3:40 PM
A Molecular Dynamics Study of Defects Produced by Displacement Cascades in bcc-Fe: *Maosheng Li*[1]; Chan Gao[2]; Hua Liang[3]; [1]Institute of Applied Physics and Computational Mathematics; [2]Institute of Nuclear Physics and Chemistry; [3]School of Graduate, China Academy of Engineering Physics

4:00 PM
Microstructure Modeling and Finite Element Analysis of Mechanical Properties of Spunlace Composite Laminates: *Zhe Tong*[1]; [1]Xi'an Jiaotong University

Nanotechnology for Energy, Environment, Electronics, Healthcare and Industry — Session II

Program Organizers: Navin Manjooran, Siemens AG; Gary Pickrell, Virginia Tech

Monday PM
October 24, 2016

Room: 260A
Location: Salt Palace Convention Center

Session Chairs: Gary Pickrell, Virginia Tech; Navin Manjooran, Siemens AG

2:00 PM Invited
Drug Loading Kinetics of Doxorubicin/Gentamicin Sulfate and the Cytocompatibilty of the Mesoporous Bioactive Glasses for the Targeted Bone Tumour Therapy: *Gurbinder Kaur*[1]; V. Kumar[2]; [1]Thapar University; [2]Sri Guru Granth Sahib World University

2:40 PM
Microbial Formation of Nanoparticles with Tailored Stoichiometry: *Akira Nordmeier*[1]; Dev Chidambaram[1]; [1]University of Nevada Reno

3:00 PM
Nanocarbon-infused Metals: A New Class of Covetic Materials for Energy Applications: *U. (Balu) Balachandran*[1]; Beihai Ma[1]; Stephen Dorris[1]; Rachel Koritala[1]; David Forrest[2]; [1]Argonne National Laboratory; [2]U. S. Department of Energy

3:20 PM
Nanosensors for Detecting Pollutants in Water: *Shobhan Paul*[1]; [1]Zetanostics Inc

3:40 PM
Wettability Analysis of Nanofiber Mats Prepared by the Forcespinning Method: *Edgar Munoz*[1]; [1]The University of Texas Rio Grande Valley

4:00 PM
Novel Tomographic AFM of Solar Cells for Nanoscale Photovoltaic Performance Mapping in 3-d: Justin Luria[1]; Yasemin Kutes[1]; Andrew Moore[2]; Lihua Zhang[3]; Kim Kisslinger[3]; Eric Stach[3]; *Bryan Huey*[1]; [1]University of Connecticut; [2]Colorado State University; [3]Brookhaven National Laboratory

4:20 PM
Optimization of Parameters for Controlled Titanium Dioxide Nanotubes for Functional Applications: *Umair Shah*[1]; Zia ur Rahman[1]; Hassnain Asgar[1]; Kashif Deen[2]; Waseem Haider[1]; [1]Central Michigan University; [2]University of British Columbia

Next Generation Biomaterials — Session II

Program Organizers: Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Sharmila Mukhopadhyay, Wright State University; Sundeep Mukherjee, University of North Texas

Monday PM
October 24, 2016

Room: 259
Location: Salt Palace Convention Center

Session Chairs: Sundeep Mukherjee, University of North Texas; Sharmila Mukhopadhyay, Wright State University

2:00 PM Invited
Tantalum Diffusion Coating for Increasing the Biocompatibility of Conventional Metal Implant Alloys: *Jacob Stiglich*[1]; Brian Williams[1]; Roger Narayan[2]; Therese Grundl[1]; [1]Ultramet; [2]UNC/NCSU

2:40 PM Invited
Hierarchical Carbon Scaffolds for Tissue Regeneration: Case Study with Muscle Cell Development: Akhil Patel[1]; Anil Karumuri[2]; Wenhu Wang[2]; Shilpaa Mukundan[1]; Vinayak Sant[1]; Shilpa Sant[1]; *Sharmila Mukhopadhyay*[2]; [1]University of Pittsburgh; [2]Wright State University

3:00 PM Invited
Nanoscale Structure and Modification of Biomaterials: *Federico Rosei*[1]; [1]INRS Energy, Materials and Telecommunications

3:40 PM Invited
Surface Texture and Wettability of Amorphous Metallic Biomaterials: Sanghita Mridha[1]; Ayyagari Aditya[1]; *Sundeep Mukherjee*[1]; [1]University of North Texas

4:00 PM Invited
Additive Manufacturing of Microscale and Nanoscale Structures for Medical Devices: *Roger Narayan*[1]; [1]UNC/NCSU Joint Department of Biomedical Engineering

4:20 PM
Nanoscale Surface Modification of Metallic Biomaterials for Orthopedic Applications: *Kaushik Chatterjee*[1]; [1]Indian Institute of Science

Perspectives for Emerging Materials Professionals — Perspectives for Emerging Materials Professionals II

Program Organizers: Rachel Bethancourt, Fitbit; Laura Jean Weidman, University of Maryland

Monday PM
October 24, 2016

Room: 251F
Location: Salt Palace Convention Center

Session Chair: Dharma Maddala, Emerging Professionals Committee

2:00 PM Invited
Career Strategic Planning, ASM, and Additive Manufacturing: *William Frazier*[1]; [1]Naval Air Systems Command

2:40 PM
Capitalizing on Success: How to Reclaim the Direction of Your Education and Career at the Undergraduate Level: *Emily Petersen*[1]; [1]Michigan Technological University

3:00 PM
Advice for Professional Engineering (PE) Licensure for Emerging Professionals: *Dan Grice*[1]; [1]Materials Evaluation and Engineering, Inc.

3:20 PM
Nanotechnology: Societal Impact and Policy Perspectives: *Sharmila Mukhopadhyay*[1]; [1]Wright State University

3:40 PM
Navigating the Professional World as a Materials Engineer: *Elizabeth Hoffman*[1]; [1]Savannah River National Laboratory

Phase Stability, Diffusion Kinetics, and Their Applications (PSDK-XI) — Gibbs Session I

Program Organizers: James Saal, QuesTek Innovations; Yu Zhong, Florida International University; Ji-Cheng Zhao, The Ohio State University; Nagraj Kulkarni, Knoxville, TN

Monday PM
October 24, 2016

Room: 155D
Location: Salt Palace Convention Center

Session Chairs: Carelyn Campbell, NIST; Afina Lupulescu, ASM International

2:00 PM Invited
CALPHAD: Not Just Another Phase: *Ursula Kattner*[1]; [1]National Institute of Standards and Technology

2:20 PM Invited
Alloy Phase Metastability and Microstructure Development: *John Perepezko*[1]; [1]University of Wisconsin-Madison

3:00 PM Invited
Harnessing the Gibbs Genome: From CALPHAD to Flight: *Greg Olson*[1]; [1]Northwestern University & QuesTek Innovations LLC

3:40 PM Invited
Industrial Applications of Multi-component Databases Developed by the CALPHAD Approach: *Fan Zhang*[1]; Jun Zhu[1]; Chuan Zhang[1]; Shuanglin Chen[1]; Weisheng Cao[1]; [1]CompuTherm, LLC

4:20 PM Invited
Multi-scale Modeling of Precipitation Reactions Using Phase-field Crystal: *Nana Ofori-Opoku*[1]; [1]NIST

Phase Transformations in Ceramics: Science and Applications — Transformation Mechanisms at the Atomic Scale

Program Organizers: Pankaj Sarin, Oklahoma State University; Ivar Reimanis, Colorado School of Mines; Waltraud Kriven, University of Illinois at Urbana-Champaign

Monday PM
October 24, 2016

Room: 255C
Location: Salt Palace Convention Center

Session Chair: Pankaj Sarin, Oklahoma State University

2:00 PM Invited
Transformations in Ceramics: *Lynnette D. Madsen*[1]; Ivy Kupec[2]; [1]National Science Foundation ; [2]National Science Foundation

2:20 PM Invited
Structural Characterization of Phase Transitions in 2-dimensional Oxides: *Scott Misture*[1]; [1]Alfred University

2:40 PM Invited
In-situ High Temperature Synchrotron Studies of Oxide Ceramics: *Waltraud Kriven*[1]; [1]University of Illinois at Urbana-Champaign

3:00 PM Invited
High Energy X-rays Tools for Probing Functional Materials: *Karena Chapman*[1]; [1]Argonne National Laboratory

3:20 PM
Mechanistic Understanding of Molten Carbonate Matrix Coarsening in Endurance Operation: *Arun Surendranath*[1]; Abdelkader Hilmi[1]; Chao-yi Yuh[1]; [1]Fuel Cell Energy Inc

3:40 PM
In-situ Phase Diagram Determination of the HfO_2-Ta_2O_5 Binary up to 3000°C: *Scott McCormack*[1]; Waltraud Kriven[1]; Sergey Ushakov[2]; Alexandra Navrotsky[2]; Richard Webber[3]; [1]University of Illinois Urbana-Champaign; [2]University of California Davis; [3]Materials Development, Inc.

Processing and Performance of Materials Using Microwaves, Electric and Magnetic Fields, Ultrasound, Lasers, and Mechanical Work – Rustum Roy Symposium — Session I

Program Organizers: Morsi Mahmoud, Karlsruhe Institute of Technology (KIT) & City for Scientific Research and Technological Applications (SRTA City); Dinesh Agrawal, Pennsylvania State University; Guido Link, Karlsruhe Institute of Technology; Motoyasu Sato, Chubu University; Rishi Raj, University of Colorado

Monday PM
October 24, 2016

Room: 255E
Location: Salt Palace Convention Center

Session Chairs: Morsi Mahmoud, Karlsruhe Institute of Technology (KIT) & City for Scientific Research and Technological Applications (SRTA City); Victoria Blair, Army Research Laboratory

2:00 PM Invited
Change of Energy Transfer Medium from High Temperature Gas to Microwave: *Kazuhiro Nagata*[1]; [1]Tokyo Institute of Technology

2:40 PM Invited
Studies, Building and the First Operation of Iron Making in a Microwave Gas Zonal Hybrid Furnace for Industry Scales: *Motoyasu Sato*[1]; Kazuhiro Nagata[1]; Pradeep Goyal[1]; Shivanand Borkar[1]; Dinesh Agrawal[1]; [1]Chubu University

3:20 PM
Microwave Sintering of Nuclear Ceramics: *Jérémy Croquesel*[1]; Sylvie Pillon[2]; François Valdivieso[3]; Sébastien Saunier[3]; [1]CEA DEN/DTEC/SECA/LFC; [2]CEA DEN/DTEC/SECA/LFC; [3]Ecole des Mines de Saint Etienne, laboratoire Georges Friedel, CNRS UMR 5307

3:40 PM
Microwave-assisted Synthesis by Carbothermal Reduction of ZrC-SiC Nanocomposites: Juan Pablo Yasnó[1]; *Ruth Kiminami*[1]; [1]Universidade Federal de São Carlos

4:00 PM
Effect of Laser Shock Peening (LSP) on AISI L6 Hot Work Tool Steel: *Sachin Patil*[1]; Valmik Bhawar[1]; Prakash Kattire[1]; Prashant date[2]; Rajkumar Singh[1]; [1]Bharat Forge; [2]IIT, BOMBAY

4:20 PM
Industrial Applications of Direct Current/Spark Plasma/Field Assisted Sintering; Large Components and Simultaneous Multi-part Operation.: *Luke Walker*[1]; [1]Thermal Technology

Responsive Functional Nanomaterials — Responsive Nanomaterials Design

Program Organizers: Jiahua Zhu, The University of Akron; Ziqi Sun, Queensland University of Technology; Liwen Mu, The University of Akron

Monday PM
October 24, 2016

Room: 260B
Location: Salt Palace Convention Center

Session Chairs: Liangliang Huang, University of Oklahoma; Liwen Mu, The University of Akron

2:00 PM Invited
Modulation of Electronic Structure by Strain in 2D BiOX(X=Cl,Br): *Weichang Hao*[1]; [1]Beihang University

2:20 PM Invited
Several Fundamental Issues in the Assembly and Integration of Nanowires for Electronics and Sensor Applications: *Zhiyong Gu*[1]; [1]University of Massachusetts Lowell

2:40 PM Invited
Theoretically Understanding on Carbon-based Nanomaterials for Energy Application: *Ting Liao*[1]; Debra Bernhardt[2]; Shixue Dou[3]; [1]The University of Akron; [2]University of Queensland; [3]University of Wollongong

3:00 PM
Boosting Energy Efficiency of Hierarchical Electrodes via Nano-interfacial Engineering: Long Chen[1]; Liwen Mu[1]; Tuo Ji[1]; *Jiahua Zhu*[1]; [1]The University of Akron

3:20 PM Invited
Durable Self-healing Superhydrophobic Coatings: *Huaiyuan Wang*[1]; Zhanjian Liu[1]; Yanji Zhu[1]; Liwen Mu[2]; Jiahua Zhu[2]; [1]Northeast Petroleum University; [2]The University of Akron

4:00 PM Invited
Study on the Microstructure and Properties of Bonding Interface in the Explosive Welded AZ31/1060 Composite Plate: *Suyuan Yang*[1]; Qiong Wu[1]; [1]Beijing Institute of Technology

3:40 PM Invited
Investigation of Vacancy-type Defects in Nanostructured Aluminum Alloys Processed by Severe Plastic Deformation: *Lihong Su*[1]; Cheng Lu[1]; Huijun Li[1]; Guanyu Deng[1]; Kiet Tieu[1]; [1]University of Wollongong

S2P: Semi-solid Processing of Alloys and Composites — Session III

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Monday PM
October 24, 2016

Room: 151A
Location: Salt Palace Convention Center

Session Chair: Helen Atkinson, University of Leicester

2:00 PM
Dynamic Recrystallization Behavior in Alpha Phase of Semi-solid Injection-molded AM60B Magnesium Alloy: Takehiko Yanagiya[1]; Yasuhiro Kishi[1]; Koji Kajikawa[2]; Takeshi Yamaguchi[1]; Ken Saito[1]; Shinji Tanaka[1]; [1]The Japan Steel Works, Ltd.; [2]The Japan steel works, Ltd.

2:30 PM
Effect of Chip Size on Semi-Solid Microstructure of AZ91D Magnesium Alloy Prepared by CRP Process: *Hong-Yu Xu*[1]; [1]Harbin University of Science and Technology

3:00 PM
Effect of Globular Microstructure on Cavitation Resistance of Aluminium Alloys: *Annalisa Pola*[1]; Lorenzo Montesano[1]; Ciro Sinagra[2]; Giovina La Vecchia[1]; Marcello Gelfi[1]; [1]University of Brescia; [2]Laminazione Sottile SpA

3:30 PM
Effects of Natural Ageing on T6 Heat Treated Rheocasts of 319S Aluminum Alloy: Kang Du[1]; *Qiang Zhu*[1]; Daquan Li[1]; [1]General Research Institute of Nonferrous Metals Beijing

4:00 PM
In-situ Observation of Semisolid Fe–2.5C–1.5Si Gray Cast Iron: *Davi Benati*[1]; Kazuhiro Ito[2]; Kazuyuki Kohama[2]; Hajime Yamamoto[2]; Eugenio Zoqui[1]; [1]University of Campinas; [2]Osaka University

S2P: Semi-solid Processing of Alloys and Composites — Session IV

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Monday PM
October 24, 2016

Room: 151G
Location: Salt Palace Convention Center

Session Chair: Pradip Dutta, IISC

2:00 PM
Controlling and Minimizing Blistering during T6 Heat Treating of Semi-solid Castings: Youfeng He[1]; Hongxin Lu[1]; *Stephen Midson*[2]; Daquan Li[1]; Qiang Zhu[1]; [1]General Research Institute for Non-Ferrous Metals; [2]The Midson Group

2:30 PM
Experimental Investigations on the Formation of Rosettes during Shear: *Siri Harboe*[1]; Michael Modigell[2]; Annalisa Pola[3]; [1]Aachener Verfahrenstechnik, RWTH Aachen University; [2]German University of Technology in Oman; [3]l'Università degli Studi di Brescia

3:00 PM
Fabrication of Metal Laminate Composites with Interface Reinforcement by Semi-solid Sintering: Mina Bastwros[1]; *Gap-Yong Kim*[1]; [1]Iowa State University

3:30 PM
Failure Behaviors of 2d-Cf/Mg Composites Fabricated by Liquid-solid Extrusion Following Vacuum Pressure Infiltration: *Lehua Qi*[1]; Shaolin Li[1]; Jiming Zhou[1]; [1]Northwestern Polytechnical University

4:00 PM
Filling, Feeding and Defect Formation of Thick-walled AlSi7Mg0.3 Semi-solid Castings: *Jorge Santos*[1]; Anders Jarfors[2]; Arne Dahle[2]; [1]Jönköping University ; [2]Jönköping University

Scaling-up from the Laboratory: Strategies, Examples, Challenges, and/or Solutions for Advanced Metal Manufacturing — Technology Scale-up Session II

Program Organizer: Babak Raeisinia, Novelis Global R&T Center

Monday PM
October 24, 2016

Room: 155C
Location: Salt Palace Convention Center

Session Chair: Babak Raeisinia, Novelis Global R&T Center

2:00 PM Invited
Use of Modeling Methods for Scale-up and Qualification: *David Furrer*[1]; [1]Pratt & Whitney

2:20 PM Invited
Process Modelling in Aluminium Sheet Production: *Juergen Hirsch*[1]; Kai Karhasuen[1]; [1]Hydro Aluminium Rolled Products GmbH

2:40 PM
Data-analytics Approach for Studying Structure-property Relationships in Functional Gradient Products: *Amit Verma*[1]; Roger French[1]; Jennifer Carter[1]; Steven Claves[2]; [1]Case Western Reserve University; [2]Alcoa Technical Center

3:00 PM Invited
Realizing the Vision MGI: The Construction, Deployment, and Implementation of the Materials Innovation Infrastructure: *James Warren*[1]; [1]NIST

3:20 PM Concluding Comments

Semiconductor Heterostructures: Theory, Growth, Characterization, and Device Applications — Session II

Program Organizer: John Ayers, University of Connecticut

Monday PM
October 24, 2016

Room: 257A
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Introductory Comments

2:05 PM Invited
Influence of Alloy Composition and Strain on Band Alignments at Semiconductor Heterostructures: *Rachel Goldman*[1]; [1]University of Michigan

2:45 PM
Film Stoichiometry, Intermixing and Surface Conditions in LAO/STO Hetero-interfaces: Richard Akrobetu[1]; Kevin Abbasi[1]; *Alp Sehirlioglu*[1]; [1]Case Western Reserve University

3:05 PM
Purification of Ga by Distillation during MBE Growth: *Kyungjean Min*[1]; David Johnson[1]; Kevin Trumble[1]; [1]Purdue University

3:25 PM
Complexity Involving Metallic Glass Formation during Sulfurization of Cu-Zn-Sn Oxide Precursors Using ppm Level H2S for Preparing CZTS Thin Films: Osama Awadallah[1]; *Zhe Cheng*[1]; [1]Florida International University

3:45 PM
Triple Junction Silicon Solar Cell With Step Graded Si1-xGex Layer: *Nji Raden Poespawati*[1]; Rizqy Pratama Rahman[1]; [1]Universitas Indonesia

4:05 PM Concluding Comments

Sintering and Related Powder Processing Science & Technologies — High Temperature Materials

Program Organizers: Ricardo Castro, University of California, Davis; Brady Butler, U.S. Army Research Laboratory; Olivia Graeve, University of California, San Diego; Eugene Olevsky, San Diego State University; Anders Eklund, Quintus Technologies, LLC.

Monday PM
October 24, 2016
Room: 150E
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Invited
A Finite Element Based Model to Validate Temperature Gradient Measurements in Electrical Insulator and Electrical Conductor Ceramics during Spark Plasma Sintering: *Erica Corral*[1]; [1]The University of Arizona

2:40 PM
Investigation the Effect of B4C Addition on Microstructure, Mechanical Properties and Oxidation Behavior of TZM Alloy Prepared by Spark Plasma Sintering: *Baris Yavas*[1]; Onuralp Yucel[1]; Filiz Sahin[1]; Gultekin Goller[1]; [1]Istanbul Technical University

3:00 PM
Zirconium Carbide by Spark Plasma Sintering: Densification Kinetics, Grain Growth and Thermal Properties: Xialu Wei[1]; *Eugene Olevsky*[1]; Christina Back[2]; Oleg Izhvanov[2]; Christopher Haines[3]; [1]San Diego State University; [2]General Atomics; [3]US Army Armament Research Development Engineering Center

3:20 PM Invited
Observation of Enhanced Mechanical Properties in Nanostructured Boron Carbide: *Chris Haines*[1]; Matthew DeVries[2]; John Pittari[3]; Kendall Mills[1]; Ghatu Subhash[2]; [1]US Army ARDEC; [2]University of Florida; [3]US Army Research Laboratory

4:00 PM
Reaction Spark Plasma Sintering of ZrB2-TiB2 Ultra High Temperature Ceramics and Their Solid Solutions: Karthiselva N[1]; B Murty[1]; *Srinivasa Bakshi*[1]; [1]Indian Institute of Technology Madras

4:20 PM
Microstructure Evolution and Consolidation Kinetics Prediction in Powder Materials during Field Assisted Sintering Technique: Sudipta Biswas[1]; Jogender Singh[2]; *Vikas Tomar*[1]; [1]Purdue University; [2]Penn State University

4:40 PM
Microstructure and Mechanical Properties of ZrC Ceramics Enhanced by TiC Particles and Graphene: *Burak Ocak*[1]; Onuralp Yucel[1]; Filiz Sahin[1]; Gultekin Goller[1]; [1]Istanbul Technical University

5:00 PM
Influence of TiC and/or ZrC Addition on Densification, Microstructure and Mechanical Properties of TZM Alloys Produced by SPS: *Cansinem Tüzemen*[1]; Onuralp Yucel[1]; Filiz Sahin[1]; Gultekin Goller[1]; [1]Istanbul Technical University

5:20 PM
Solid Solutions Formation of Tantalum Carbide-hafnium Carbide by Spark Plasma Sintering: *Cheng Zhang*[1]; Ankur Gupta[2]; Sudipta Seal[2]; Benjamin Boesl[1]; Arvind Agarwal[1]; [1]Florida International University; [2]University of Central Florida

5:40 PM
Study the Effect of Oxygen on the SPS of B4C by Applying the CALPHAD Approach: *Mohammad Asadikiya*[1]; Yu Zhong[1]; [1]Florida International University

Surface Properties of Biomaterials — 3D Printing and Tribology

Program Organizers: Amit Bandyopadhyay, Washington State University; Susmita Bose, Washington State University; Mukesh Kumar, Biomet Inc; Jason Langhorn, DePuy Synthes Joint Reconstruction; Venu Varanasi, Texas A & M University

Monday PM
October 24, 2016
Room: 355B
Location: Salt Palace Convention Center

Session Chair: Dinesh Katti, NDSU

2:00 PM
Additive In-situ 3D Printing of Gelatin-nanosilicate scaffolds for Rapid Bone Defect Healing: *Venu Varanasi*[1]; Taha Azimaie[1]; Phillip Kramer[1]; [1]Texas A & M University

2:20 PM
Iron and Silicon Doped 3D printed Tricalcium Phosphate Scaffolds: Enhanced In Vivo Bone Formation in Rat Femur Defect Model: *Sam Robertson*[1]; Dishary Banerjee[1]; Sahar Vahabzadeh[1]; Amit Bandyopadhyay[1]; Susmita Bose[1]; [1]Washington State University

2:40 PM Invited
Evolution of Mechanics of Cancer Cells on Tissue Engineered Scaffolds: *Dinesh Katti*[1]; Kalpana Katti[1]; MD. Shahjahan Molla[1]; [1]North Dakota State University

3:00 PM
In Vitro Degradation and Bioactivity of SrO Doped Magnesium Phosphate for Bone Tissue Engineering: *Bavya Devi Karuppasamy*[1]; Suman Kumar Mandal[1]; Mangal Roy[1]; [1]Indian Institute of Technology Kharagpur

3:20 PM
In Vitro and In Vivo Biocompatibility Evaluation of Laser Processed Co Based Alloys with and without Calcium Phosphate for Load Bearing Applications: *Anish Shivaram*[1]; Susmita Bose[1]; Amit Bandyopadhyay[1]; [1]Washington State University

3:40 PM
Surface Modification of Titanium Foams Produced by Freeze-casting to Enhance Osseointegration: *Silvia Murguia*[1]; Joshua Barclay[1]; Danieli Rodrigues[2]; Samir Aouadi[1]; Marcus Young[1]; [1]University of NorthTexas; [2]The University of Texas at Dallas

4:00 PM
Microstructure and Mechanical Properties of Heat Treated Ti-6Al-7Nb alloy: *Shimaa El-hadad*[1]; Ahmed Fityan[2]; Waleed Khalifa[3]; [1]Central Metallurgical Research and Development Institute; [2]Central Metallurgical Reserch and Development Institute; [3]Cairo University

4:20 PM
UHMWPE Wear Evaluations Using HT-CVD Alumina Coated CoCrMo in a Hip Simulation Study: *Jason Langhorn*[1]; Elizabeth Hippensteel[1]; [1]DePuy Synthes Joint Reconstruction

The 8th International Symposium on Green and Sustainable Technologies for Materials Manufacturing and Processing — Green Manufacturing I

Program Organizers: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST); Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center; Allen Apblett, Oklahoma State University; Marsha Bischel, Armstrong World Industries, Inc.; Surojit Gupta, University of North Dakota; Manish Mehta, National Center for Manufacturing Sciences (NCMS); Makio Naito, Osaka University; Richard Sisson, Worcester Polytechnic Institute, Center for Heat Treating Excellence; Hisayuki Suematsu, Nagaoka University of Technology; Yiquan Wu, Alfred University

Monday PM — Room: 151C
October 24, 2016 — Location: Salt Palace Convention Center

Session Chairs: Allen Apblett, Oklahoma State University; Jingyang Wang, Shenyang National Laboratory for Materials Science

2:00 PM Keynote
Sustainable Metal Production of Aluminum: Goodbye Smelting Plants; Hello Mini Mills: *Diran Apelian*[1]; Sean Kelly[1]; [1]Metal Processing Institute

2:40 PM Invited
Towards Sustainable Manufacturing by Using Novel Process-based Solutions: *A.K. Balaji*[1]; [1]The University of Utah

3:00 PM
Demonstration of Pilot Scale Lignin Isolation as a Part of a Cellulosic Sugar Production Facility: *Peter Cohen*[1]; Xhilin Xie[1]; Katerina Chagoya[1]; Demetri Chagoya[1]; Alan Felix[1]; Richard Blair[1]; [1]EK Laboratories

3:20 PM
A CFD Based Algorithm for Kinetics Analysis of the Reduction of Hematite Concentrate Particles by CO+H2 Gas Mixture in a Laminar Flow Reactor: *Deqiu Fan*[1]; Yousef Mohassab[2]; Mohamed Elzohiery[1]; Hong Yong Sohn[1]; [1]University of Utah; [2]University of Utah

3:40 PM
Effect of Halide Flux Addition in Molten Salts on the Production Efficiency of Critical Metals: Applications of Computational Thermodynamics to Molten Salt Design: Jae-Hong Shin[1]; *Joohyun Park*[1]; [1]Hanyang University

4:00 PM
Energy and Cost Savings in the Production of Titanium Metal Powder Using an Emerging Hydrometallurgical Process Route for the Purification of Titanium Slag, as Compared with the Chloride and Sulfate Processes: *Hyrum Lefler*[1]; Z. Zak Fang[1]; Peng Fan[1]; Ying Zhang[1]; [1]University of Utah

Thermal Protection Materials and Systems — Thermal Protection Materials: Special Materials and Applications

Program Organizers: Sylvia Johnson, NASA Ames Research Center; Thomas Squire, NASA Ames Research Center; Jeff DeMange, University of Toledo

Monday PM — Room: 254B
October 24, 2016 — Location: Salt Palace Convention Center

Session Chairs: Thomas Reimer, DLR; Wolfgang Fischer, AIRBUS Space GmbH

2:00 PM
Investigation of Effective Material Properties of Stony Meteorites: Parul Agrawal[1]; *Alexander Carlozzi*[2]; Katherine Bryson[3]; [1]ERC Corporation; [2]Analytical Mechanics Associates; [3]Bay Area Environmental Research Institute

2:40 PM
Tribological Studies of Dynamic Thermal Seals against Thermal Protection Materials: *Jeff DeMange*[1]; Shawn Taylor[1]; [1]University of Toledo

3:00 PM
TPS Development Areas and Methods for High-speed Propulsion: *Chris Kogstrom*[1]; [1]Orbital ATK

3:20 PM
Reducing Gasoline Evaporation from Vehicle Fuel Tanks by Thermal Insulating the Storage Tank: *David Horne*[1]; [1]Fatigue Engineering Technologies

3:40 PM
High Temperature Oxidation Behavior of Hafnium Carbide-tantalum Carbide Solid Solutions Prepared by Spark Plasma Sintering: *Cheng Zhang*[1]; Pranjal Nautiyal[1]; Benjamin Boesl[1]; Arvind Agarwal[1]; [1]Florida International University

4:00 PM
Tantalum and Tantalum-based Ceramic Coatings for Extremely Corrosive Environments: *Jacob Stiglich*[1]; Brian Williams[1]; Dean Gambale[1]; Therese Grundl[1]; [1]Ultramet

4:20 PM Panel Discussion - General discussion on TPS applications and testing

Ultra High Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense, and Automotive Applications — High Temperature Materials II

Program Organizers: Ali Yousefiani, Boeing Research and Technology; Troy Topping, California State University, Sacramento

Monday PM — Room: 150A&B
October 24, 2016 — Location: Salt Palace Convention Center

Session Chair: Austin Mann, Boeing Research and Technology

2:00 PM Invited
Effect of Vanadium on Microstructural Evolution and Creep Properties of Dilute Al-Er-Sc-Zr-Si Alloys: Dinc Erdeniz[1]; Wahaz Nasim[2]; Jahanzaib Malik[2]; Bilal Mansoor[3]; Georges Ayoub[4]; Ibrahim Karaman[2]; David Seidman[1]; *David Dunand*[1]; [1]Northwestern University; [2]Texas A&M University; [3]Texas A&M University at Qatar; [4]American University of Beirut

2:40 PM
An Optimized Dilute Al-Sc-Er-Zr-Si Alloy for High-temperature Applications: *Anthony De Luca*[1]; James Boileau[2]; Bita Ghaffari[2]; David Dunand[1]; David Seidman[1]; [1]Northwestern University; [2]Ford Motor Company

3:00 PM
Evolution of the a+ß Morphology during Thermo-mechanical Processing of Ti-6Al-4V Alloy: *Atul Patil*[1]; Santosh Kumar[2]; Ashish Dawari[2]; Afroz Shaikh[2]; Shreyas Kirwai[2]; Santosh Hosmani[2]; [1]Kalyani Centre for Technology & Innovation, Bharat Forge Ltd. ; [2]Kalyani Centre for Technology & Innovation, Bharat Forge Ltd.

3:20 PM
Increasing the Elevated-temperature Strength of a Beta Titanium Alloys Through Thermomechanically-induced Phase Tranformation: Vahid Khademi[1]; *Carl Boehlert*[1]; Masahiko Ikeda[2]; [1]Michigan State University; [2]Kansai University

3:40 PM
The Effects of Microstructural Features on the Fatigue Life of PM Ti-6Al-4V Produced by the HSPT Process: *Matt Dunstan*[1]; James Paramore[2]; Zhigang Zak Fang[1]; [1]University of Utah; [2]United States Army Research Laboratory

4:00 PM Invited
Tribological Property of Nitrogen Solute a-titanium Powder Material: *Katsuyoshi Kondoh*[1]; Yasuhiro Yamabe[1]; Hisashi Imai[1]; Junko Umeda[1]; [1]Osaka University

Ultra High Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense, and Automotive Applications — High Temperature Materials II

Program Organizers: Ali Yousefiani, Boeing Research and Technology; Troy Topping, California State University, Sacramento

Monday PM
October 24, 2016

Room: 150A&B
Location: Salt Palace Convention Center

Session Chair: Austin Mann, Boeing Research and Technology

2:00 PM Invited
Effect of Vanadium on Microstructural Evolution and Creep Properties of Dilute Al-Er-Sc-Zr-Si Alloys: Dinc Erdeniz[1]; Wahaz Nasim[2]; Jahanzaib Malik[2]; Bilal Mansoor[3]; Georges Ayoub[4]; Ibrahim Karaman[2]; David Seidman[1]; *David Dunand*[1]; [1]Northwestern University; [2]Texas A&M University; [3]Texas A&M University at Qatar; [4]American University of Beirut

2:40 PM
An Optimized Dilute Al-Sc-Er-Zr-Si Alloy for High-temperature Applications: *Anthony De Luca*[1]; James Boileau[2]; Bita Ghaffari[2]; David Dunand[1]; David Seidman[1]; [1]Northwestern University; [2]Ford Motor Company

3:00 PM
Evolution of the a+ß Morphology during Thermo-mechanical Processing of Ti-6Al-4V Alloy: *Atul Patil*[1]; Santosh Kumar[2]; Ashish Dawari[2]; Afroz Shaikh[2]; Shreyas Kirwai[2]; Santosh Hosmani[2]; [1]Kalyani Centre for Technology & Innovation, Bharat Forge Ltd. ; [2]Kalyani Centre for Technology & Innovation, Bharat Forge Ltd.

3:20 PM
Increasing the Elevated-temperature Strength of a Beta Titanium Alloys Through Thermomechanically-induced Phase Tranformation: Vahid Khademi[1]; *Carl Boehlert*[1]; Masahiko Ikeda[2]; [1]Michigan State University; [2]Kansai University

3:40 PM
The Effects of Microstructural Features on the Fatigue Life of PM Ti-6Al-4V Produced by the HSPT Process: *Matt Dunstan*[1]; James Paramore[2]; Zhigang Zak Fang[1]; [1]University of Utah; [2]United States Army Research Laboratory

4:00 PM Invited
Tribological Property of Nitrogen Solute a-titanium Powder Material: *Katsuyoshi Kondoh*[1]; Yasuhiro Yamabe[1]; Hisashi Imai[1]; Junko Umeda[1]; [1]Osaka University

MS&T16 Plenary Lecture

Tuesday AM
October 25, 2016

Room: Ballroom E-J
Location: Salt Palace Convention Center

8:00 AM Introductory Comments

8:10 AM Plenary
ASM/TMS Distinguished Lecture in Materials and Society: Elegant Solutions Exploration and Outcomes that Matter: *Julie Christodoulou*[1]; [1]Office of Naval Research

8:50 AM Award Presentation

8:55 AM Introductory Comments

9:00 AM Plenary
ACerS Edward Orton Jr. Memorial Lecture: Designing Ceramics for Next-Generation Energy Storage Systems: *Bruce Dunn*[1]; [1]University of California, Los Angeles

9:40 AM Award Presentation

9:45 AM Introductory Comments

9:50 AM Plenary
AIST Adolf Martens Memorial Steel Lecture: Enhancing the Fatigue Performance of Steel: Have We Learned Anything from the Past?: *David Matlock*[1]; [1]Colorado School of Mines

10:30 AM Award Presentation

3D Graphene for Energy Conversion and Storage — 3D Graphene and Graphene Like Materials

Program Organizer: Yun Hu, Michigan Technological University

Tuesday PM
October 25, 2016

Room: 250B
Location: Salt Palace Convention Center

Session Chairs: Ling Zang, University of Utah; Yun Hu, Michigan Technological University

2:00 PM Invited
Perylene Diimide Modified Graphitic Carbon Nitride as Photocatalyst for Hydrogen Production from Water: *Ling Zang*[1]; [1]University of Utah

2:40 PM Keynote
3D Graphene for Dye-sensitized Solar Cells and Supercapacitors: *Yun Hu*[1]; Wei Wei[1]; Liang Chang[1]; [1]Michigan Technological University

3:20 PM Invited
Fuel Cell and Lithium Battery Membranes from the Assembly of Polymer Brush Nanoparticles: *Ilya Zharov*[1]; [1]University of Utah

3:40 PM Invited
Transport Properties of Metal-organic Graphene Analogues: *Vikram Deshpande*[1]; [1]University of Utah

4:00 PM Invited
Crystalline Three Dimensional Molybdenum Disulfides for Energy Generation and Storage Applications: *Amin Salehi-Khojin*[1]; [1]University Illinois at Chicago

3rd International Workshop of In-situ Studies with Photons, Neutrons and Electrons Scattering — Synchrotron Based Techniques and Measurements II

Program Organizers: Antonio Ramirez, The Ohio State University; Sudarsanam Babu, The University of Tennessee, Knoxville; Thomas Kannengiesser, BAM Federal Institute for Materials Research and Testing; Yu-ichi Komizo, Osaka University; Hidenori Terasaki, Kumamoto University; Andre Tschiptschin, University of Sao Paulo; Eren Kalay, METU

Tuesday PM
October 25, 2016

Room: 250E
Location: Salt Palace Convention Center

Session Chairs: Andre Tschiptschin, University of Sao Paulo; Eren Kalay, METU; Arne Kromm, BAM Federal Institute for Materials Research and Testing

2:00 PM Invited
Multi-scale and Multi-modal Studies of Phase Transformation and Microstructural Evolution Dynamics in Metal Alloys: *Amy Clarke*[1]; Seth Imhoff[2]; Damien Tourret[2]; John Gibbs[2]; James Mertens[2]; Younggil Song[3]; Alain Karma[3]; Kamel Fezzaa[4]; Joseph McKeown[5]; John Roehling[5]; Kevin Bladwin[2]; Theron Rodgers[6]; Jonathan Madison[6]; Frank Merrill[2]; pRad Team[2]; Michelle Espy[2]; James Hunter[2]; Terry Holesinger[2]; [1]Colorado School of Mines; [2]Los Alamos National Laboratory; [3]Northeastern University; [4]Advanced Photon Source, Argonne National Laboratory; [5]Lawrence Livermore National Laboratory; [6]Sandia National Laboratories

2:40 PM
Macroscopic Fronts of Localized Deformation in Tensioned Superelastic NiTi Wire Studied by In-situ 3D-XRD and FE Modelling: *Petr Sittner*[1]; Pavel Sedmák[2]; Jan Pilch[1]; Ludek Heller[1]; Jaromír Kopecek[1]; Jonathan Wright[3]; Petr Sedlák[4]; Miroslav Frost[4]; [1]Institute of Physics of the CAS; [2]FNSPE, CTU Prague; [3]ESRF; [4]Institute of Thermomechanics of the CAS

3:00 PM
Real-time X-ray Radiography for Hot Crack Detection during Welding: *Axel Griesche*[1]; Francis Twumasi Boateng[1]; Arne Kromm[1]; Thomas Kannengiesser[1]; Uwe Zscherpel[1]; Uwe Ewert[1]; [1]Federal Institute for Materials Research and Testing (BAM)

3:20 PM Invited
In-situ Characterization of Binary Marginal Glass Forming Alloys during Isochronal Crystallization: *Eren Kalay*[1]; Mustafacan Kutsal[1]; [1]METU

4:00 PM
Analysis of Short-range Order in Alloys: *Lewis Owen*[1]; Helen Playford[2]; Matthew Tucker[3]; Howard Stone[1]; [1]University of Cambridge; [2]ISIS Neutron and Muon Source; [3]Spallation Neutron Source

4:20 PM
Investigating the Effect of Stress on the $\alpha \rightarrow \sigma + \gamma_2$ Transformation in UNS32750 Super Duplex Stainless Steel: *Guilherme Faria*[1]; Leonardo Wu[2]; Antonio Ramirez[1]; [1]Welding Eng. Program, Dept. of Materials Science and Eng., OSU; [2]Brazilian Nanotecnology Laboratory

ACerS Frontiers of Science and Society — Rustum Roy Lecture

Tuesday PM
October 25, 2016

Room: 255B
Location: Salt Palace Convention Center

Session Chair: Dinesh Agrawal, Pennsylvania State University

1:00 PM Invited
Regenerative Engineering: A Convergence Approach to Next Generation Grand Challenges: *Cato Laurencin*[1]; [1]University of Connecticut

Additive Manufacturing of Composites and Complex Materials — Processing

Program Organizers: Jonathan Spowart, Air Force Research Laboratory; Nikhil Gupta, New York University; Dirk Lehmhus, ISIS Sensorial Materials Scientific Centre

Tuesday PM
October 25, 2016

Room: 355E
Location: Salt Palace Convention Center

Session Chairs: Nikhil Gupta, New York University; Joseph Muth, Harvard University

2:00 PM Introductory Comments

2:10 PM Keynote
Establishment, Vision, and Success Stories from America Makes - The National Additive Manufacturing Innovation Institute: *Jennifer Fielding*[1]; [1]AFRL/RXMS

2:50 PM Question and Answer Period

3:00 PM
Additive Manufacturing of Polymer Composites for Multifunctional Applications: *Michael Halbig*[1]; Mrityunjay Singh[2]; [1]NASA Glenn Research Center; [2]Ohio Aerospace Institute

3:20 PM
3D Printing of Hierarchical Ceramics: *Joseph Muth*[1]; Patrick Dixon[2]; Logan Woish[3]; Lorna Gibson[2]; Jennifer Lewis[4]; [1]Harvard University; [2]Massachusetts Institute of Technology; [3]Colorado School of Mines; [4]Harvard University - School of Engineering and Applied Science, Wyss Institute

3:40 PM
Hierarchically Reinforced Epoxy Based Functional Nanocomposites: *Ruel McKenzie*[1]; Hilmar Koerner[1]; [1]Air Force Research Laboratory

4:00 PM
Spatially Tailored Stimulus Response in Shape Memory Alloys: *Ji Ma*[1]; Brian Franco[1]; Kubra Karayagiz[1]; Gustavo Tapia[1]; Alaa Elwany[1]; Raymundo Arroyave[1]; Ibrahim Karaman[1]; [1]Texas A&M University

4:20 PM
Potential of Geometrically Defined Internal Structuring in Multi-material Additive Manufacturing Parts: *Dirk Lehmhus*[1]; Axel von Hehl[2]; Matthias Busse[3]; Hans-Werner Zoch[2]; [1]ISIS Sensorial Materials Scientific Centre; [2]Stiftung Institut für Werkstofftechnik (IWT); [3]Fraunhofer Institute for Manufacturing Technology and Advanced Materials

4:40 PM
Inkjet Printing of Three Dimensional Structures Using Metal Nanoparticles: Jayasheelan Vaithilingam[1]; *Ehab Saleh*[1]; Ricky Wildman[1]; Richard Hague[1]; Christopher Tuck[1]; [1]University of Nottingham

5:00 PM
Ultrasonic Filament Modeling: Metal Additive Manufacturing of Fully-Dense Materials at Room Temperature with In-process Tailoring of Microstructure Capability: *Anagh Deshpande*[1]; Keng Hsu[1]; [1]Arizona State University

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Effects of EBM Processing on Ti-6Al-4V

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Tuesday PM
October 25, 2016

Room: 355D
Location: Salt Palace Convention Center

Session Chair: Ulf Ackelid, Arcam AB

2:00 PM
Assessing the Tensile and Fatigue Properties of Ti-6Al-4V Produced from Electron Beam Melting: *Brian Hayes*[1]; John Porter[1]; Tim Hall[2]; Ken Davis[3]; [1]UES, Inc.; [2]Faraday Technology, Inc. ; [3]CalRAM, Inc.

2:20 PM
Fatigue Crack Initiation and Growth Behavior of EBM Ti-6Al-4V before and after Hot Isostatic Pressing: *Mohsen Seifi*[1]; Aref Yadollahi[2]; Nima Shamsaei[2]; Timothy Horn[3]; Ola Harrysson[3]; John Lewandowski[1]; [1]Case Western Reserve University; [2]Mississippi State University; [3]North Carolina State University

2:40 PM
Grain Refinement in Electron Beam Melt Fabricated Ti-6Al-4V via Hypoeutectic Boron Addition: *Zaynab Mahbooba*[1]; Timothy Horn[1]; Harvey West[1]; Peeyush Nandwana[2]; Andrzej Wojcieszynski[3]; Ola Harrysson[1]; [1]CAMAL; [2]Oak Ridge National Laboratory; [3]ATI Powder Metals

3:00 PM
Improved Parameters for Hot Isostatic Pressing of Ti-6Al-4V Additively Manufactured by Electron Beam Melting: *Ulf Ackelid*[1]; Fouzi Bahbou[1]; [1]Arcam AB

3:20 PM
Microstructure Evolution, Tensile Properties, and Fatigue Crack Growth Mechanisms in Ti-6Al-4V Fabricated by Electron Beam Melting: *Yuwei Zhai*[1]; Haize Galarraga[1]; Diana Lados[1]; Ryan Dehoff[2]; Michael Kirka[2]; Peeyush Nandwana[2]; [1]Worcester Polytechnic Institute, Integrative Materials Design Center; [2]Oak Ridge National Laboratory

3:40 PM
Post Processing of Electron Beam Fabricated Ti-6Al-4V via Hot Isostatic Pressing: *Peeyush Nandwana*[1]; William Peter[1]; Ryan Dehoff[1]; Anders Eklund[1]; Magnus Ahlfors[1]; Sudarsanam Babu[1]; [1]Oak Ridge National Laboratory

4:00 PM
Surface Finish Effects on Tensile Properties of EBM Manufactured Ti6Al4V: *Cesar Terrazas*[1]; Agustin Diaz[2]; [1]Addaero Manufacturing LLC; [2]REM Surface Engineering

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Laser Processing of Superalloys

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Tuesday PM
October 25, 2016

Room: 355C
Location: Salt Palace Convention Center

Session Chair: Andrzej Wojcieszynski, ATI Powder Metals

2:00 PM
Carbide Formation in Additive Manufacturing of Single-crystal Superalloy René N5 Processed through Scanning Laser Epitaxy: *Amrita Basak*[1]; Suman Das[1]; [1]Georgia Institute of Technology

2:20 PM
Effect of Heat Treatment on the Microstructure of MAR-M247 Fabricated through Scanning Laser Epitaxy: *Amrita Basak*[1]; Suman Das[1]; [1]Georgia Institute of Technology

2:40 PM
Effect of Process Parameters on the Melt Pool Geometry and Evolution of Porosity in Selective Laser Melting of Alloy IN625: *John Samuel Dilip Jangam*[1]; Ashabul Anam Md[1]; Pal Deepankar[1]; Stucker Brent[1]; [1]University of Louisville

3:00 PM
Selective Laser Melting of Alloy IN625: Effect of Build orientation on Microstructures and Mechanical Properties: Ashabul Anam Md[1]; *John Samuel Dilip Jangam*[1]; Pal Deepankar[1]; Stucker Brent[2]; [1]University of Louisville; [2]3D SIM

3:20 PM
Mechanical Properties and Microstructural Evaluation of Direct Metal Laser Sintered Inconel 625: *Michael Brand*[1]; Don Bucholz[1]; Cameron Knapp[1]; John Carpenter[1]; TD Burleigh[2]; [1]LANL; [2]New Mexico Institute of Mining and Technology

3:40 PM
Mechanical Properties of IN738LC Processed by Direct Metal Laser Melting (DMLM): *Thomas Etter*[1]; Fabian Geiger[1]; Felix Roerig[1]; [1]General Electric (Switzerland) GmbH

4:00 PM
Microstructure, Tensile Properties, and Fatigue Crack Growth Behavior in Inconel 718 Manufactured by Laser Engineered Net Shaping: *Yuwei Zhai*[1]; Diana Lados[1]; [1]Worcester Polytechnic Institute, Integrative Materials Design Center

4:20 PM
Experiments with a Thermal Model for Selective Laser Melting of IN718: *R Mark Ward*[1]; Miren Aristizabal[1]; Moataz Attallah[1]; [1]University of Birmingham

Advanced Coatings for Wear and Corrosion Protection — Advanced Coatings for Wear and Corrosion Protection III

Program Organizers: Evelina Vogli, LiquidMetal Group Holdings, Inc.; Fei Tang, DNV GL; Homero Castaneda, Texas A&M; Qixin Zhou, University of Akron

Tuesday PM
October 25, 2016

Room: 253A
Location: Salt Palace Convention Center

Session Chairs: Fei Tang, DNV GL; Evelina Vogli, MesoCoat Inc.

2:00 PM
Enhanced Barrier Properties of Polymer/Haydale's Plasma Processed Graphene Nano-composite Coatings: Chaudhry Usman[1]; Vikas Mittal[2]; *Brajendra Mishra*[3]; [1]Colorado School of Mines; [2]The Petroelum Institute Abu Dhabi; [3]Worcester Polytechnic Institute

2:20 PM
Electrochemical and Performance Testing of Nano Engineered-coatings Based on ANA Presence when Exposed to Corrosive Environment: *Tse-Ming Chiu*[1]; Benton Allen[2]; Emily Hunt[3]; Homero Castaneda[1]; [1]Texas A&M University; [2]Advanced NANO Solutions; [3]West Texas A&M University

2:40 PM
Development of Microcapsule Based Self-healing Coating for Corrosion Protection: *Sinuo Lang*[1]; Qixin Zhou[1]; [1]The University of Akron

3:00 PM
Electrodeposition and Characterization of Ni-alloy/Polymer Composite Coatings: *Devesh Dadhich Shreeram*[1]; Shengxi Li[1]; Hongo Cong[1]; Gary Doll[1]; [1]University of Akron

3:20 PM
Study of Epoxy Based Coatings for Anticorrosive and Photodegradable Retardation Phenomena under Different Environmental Conditions: *Jahangir Khan*[1]; Ameeq Farooq[1]; Talha Majeed[1]; Khadim Hussain[1]; Rafiq Ahmad[1]; [1]University of the Punjab

Advanced High Strength Steel Design / Technological Exploitation — AHSS and Sheet Steels III

Program Organizers: Alla Sergueeva, The NanoSteel Company; Daniel Branagan, The NanoSteel Company; Kester Clarke, Colorado School of Mines

Tuesday PM
October 25, 2016

Room: 155F
Location: Salt Palace Convention Center

Session Chairs: Yousef Mohassab, University of Utah; Qiulin Yu, Nucor Steel; Daniel Baker, General Motors

2:00 PM
3rd Generation AHSS: Mechanisms Enabling High Cold Formability: *Daniel Branagan*[1]; Andrew Frerichs[1]; Brian Meacham[1]; Sheng Cheng[1]; Alla Sergueeva[1]; [1]The NanoSteel Company

2:40 PM
Boron Segregation and Its Effects in Boron Containing Steels: *Kara Luitjohan*[1]; Volkan Ortalan[1]; David Johnson[1]; [1]Purdue University

3:00 PM
3rd Generation AHSS: Global vs Local Formability: *Andrew Frerichs*[1]; Brian Meacham[1]; Sheng Cheng[1]; Alla Sergueeva[1]; Daniel Branagan[1]; [1]The NanoSteel Company

3:20 PM
Development of Newly-designed Press Hardened Steel (PHS) for TSDR Processing Conditions: Jewoong Lee[1]; Sangho Han[1]; [1]POSCO

3:40 PM
3rd Generation AHSS: Pathway to Delayed Cracking Resistance: *Alla Sergueeva*[1]; Andrew Frerichs[1]; Brian Meacham[1]; Sheng Cheng[1]; Daniel Branagan[1]; [1]The NanoSteel Company

4:00 PM
DMAIC of Structural Steel Parts through FEM and DOE: *Roberto Gonzalez*[1]; Maria Jose Quintana[1]; Luis Felipe Verdeja[2]; [1]Universidad Panamericana; [2]Universidad de Oviedo

Advances in Dielectric Materials and Electronic Devices — Ferroics and Multiferroics I

Program Organizers: Amar Bhalla, The University of Texas at San Antonio; Ruyan Guo, The University of Texas at San Antonio; K. M. Nair, E.I.duPont de Nemours & Co, Inc; Danilo Suvorov, Jožef Stefan Institute; Rick Ubic, Boise State University

Tuesday PM
October 25, 2016

Room: 255F
Location: Salt Palace Convention Center

Session Chairs: Danilo Suvorov, Jožef Stefan Institute; Xiang Ming Chen, Zhejiang University

2:00 PM Invited
Processing of Magnetoelectric Particulate Composites with a Morphotropic Phase Boundary PZN-PT or PMN-PT Composition as Ferroelectric Phase: *Ducinei Garcia*[1]; Flavio Milton[1]; Claudia Fernandez[1]; Diego Viana[1]; Fabio Zabotto[1]; Alexandre Gualdi[1]; Paulo Camargo[1]; Adilson de Oliveira[1]; Ruth Kiminami[1]; José Eiras[1]; [1]Federal University of São Carlos

2:20 PM Invited
Decrypting the Origin of Ferroic States in Single-phase Multiferreic Magnetoelectric Materials: Guilherme Santos[1]; Igor Catellani[1]; Gabriel Perin[1]; Breno Oliveira[1]; Gustavo Dias[1]; Ivair Santos[1]; Ruyan Guo[2]; Amar Bhalla[2]; Jose Padilha[3]; *Luiz Cotica*[1]; [1]State University of Maringa; [2]Department of Electrical and Computer Engineering - University of Texas at San Antonio; [3]Federal University of Paraná

2:40 PM
Microstructure Analysis and Biological Application of Core-shell Magnetoelectric Nanoparticles: *Soutik Betal*[1]; Moumita Dutta[1]; Amit Saha[1]; Anand Ramasubramanian[1]; Arturo Ponce[1]; Amar Bhalla[1]; Ruyan Guo[1]; [1]University of Texas at San Antonio

3:00 PM
Magnetoeletric and Magnetodielectric Properties of (K0.5Na0.5)NbO3-(Co,Ni)Fe2O4 Particulate Composites: *Fabio Zabotto*[1]; Flavio Milton[1]; Bruno Laissener[1]; Alexandre Gualdi[1]; Paulo de Camargo[1]; Adilson De Oliveira[1]; José Eiras[1]; Ducinei Garcia[1]; [1]Federal University of São Carlos

3:20 PM
Ferroelectric Phase Transition and Low Temperature Relaxations in Tetragonal Tungsten Bronze Ceramics: *Xiaoli Zhu*[1]; Kun Li[1]; Xiao Qiang Liu[1]; Xiang Ming Chen[1]; [1]Zhejiang University

3:40 PM Invited
Photo-induced Electrical Properties of Silver Nanoparticles-embedded BiFeO3 Thin Films Prepared through a Solution-based Process: *Wataru Sakamoto*[1]; Rika Maruyama[1]; Isamu Yuitoo[2]; Teruaki Takeuchi[2]; Koichiro Hayashi[1]; Toshinobu Yogo[1]; [1]Nagoya University; [2]Waseda University

4:00 PM Invited
Recent Advances on the Multiferroic Properties of Pb(Zr1-xTix)O3–BaFe12O19 Composites: *Jose de los Santos Guerra*[1]; Ruyan Guo[2]; Amar Bhalla[2]; [1]Universidade Federal de Uberlandia; [2]The University of Texas at San Antonio

4:20 PM
Characterization of Doped Multiferroics-probed by Terahertz Transient Pulses: *Moumita Dutta*[1]; Soutik Betal[1]; Xomalin Peralta[1]; Amar Bhalla[1]; Ruyan Guo[1]; [1]University of Texas at San Antonio

Art and Cultural Heritage: Discoveries and Education — Art and Cultural Heritage: Education I

Program Organizers: Glenn Gates, Walters Art Museum; Darryl Butt, University of Utah

Tuesday PM
October 25, 2016
Room: 251F
Location: Salt Palace Convention Center

Session Chair: Glenn Gates, Walters Art Museum

2:00 PM Introductory Comments

2:20 PM
Teaching Glass Science and Technology with a Historical and Art Object Museum Collection: *Glen Cook*[1]; Kathryn Wieczorek[1]; [1]Corning Museum of Glass

2:40 PM
STEAM Initiatives at the Carlos Museum: Bringing Science into the Galleries and Cultural Heritage into the Classroom: *Renee Stein*[1]; Kathryn Etre[2]; Emily Farek[3]; Julia Commander[3]; [1]Carlos Museum, Emory University; [2]Mississippi Department of Archives and History; [3]Winterthur University of Delaware Program in Art Conservation

3:00 PM
The Baltimore SCIART Collaborative Research and Education Initiative: *Zeev Rosenzweig*[1]; [1]University of Maryland Baltimore County

3:20 PM
Engaging Students in a Transdisciplinary Educational and Research Experience: The Science of Art: *Darryl Butt*[1]; [1]Boise State University

3:40 PM
Conservation Education: Communicating Conservation through Chemistry Collaboration: *Danielle Montanari*[1]; Robyn Haynie[2]; Joel Harris[1]; [1]University of Utah Department of Chemistry; [2]Utah Museum of Fine Arts

4:00 PM
Engineering Technology History Wiki: An Engineering Society Educational Partnership: *Garry Warren*[1]; Michele Lawrie-Munro[1]; [1]AIME

4:20 PM
Crealab: A New Experience of Teaching, Research, and Development in Arts: *Gabriel Velez*[1]; Claudia Silva[1]; Henry Colorado[1]; [1]Universidad de Antioquia

ASM Edward DeMille Campbell Memorial Lecture

Tuesday PM
October 25, 2016
Room: 155F
Location: Salt Palace Convention Center

12:45 PM Invited
Extending the Range of the Glassy State; New insights from the Novel Properties of Metallic Glasses: *A. Greer*[1]; [1]University of Cambridge

Ceramic Matrix Composites — Environmental Effects and Fiber Degradation

Program Organizers: J. P. Singh, U.S. Army Research Laboratory; Narottam Bansal, NASA Glenn Research Center; Jacques Lamon, CNRS; Sung Choi, Naval Air Systems Command

Tuesday PM
October 25, 2016
Room: 254A
Location: Salt Palace Convention Center

Session Chairs: Jacques Lamon, CNRS; Randall Hay, Air Force Research Laboratory

2:00 PM Invited
Residual Strength of Hi Nicalon S Fibers and Tows after Slow Crack Growth at Intermediate Temperatures (600 – 800°C): *Jacques Lamon*[1]; [1]CNRS

2:40 PM Invited
Degradation Mechanisms and Models for SiC Fibers in Air, Steam, and Low pO2: *Randall Hay*[1]; Randall Corns[1]; Aric Ross[1]; Bridget Larson[1]; Paul Kazmierski[1]; [1]Air Force Research Laboratory

3:20 PM Invited
Effects of Boron on Oxidation of Sylramic SiC Fibers: *Elizabeth Opila*[1]; Bohuslava McFarlnad[1]; [1]University of Virginia

4:00 PM
Na2SO4 Salt-assisted Hot Corrosion of SiC Fibers: *Lucas Herweyer*[1]; Elizabeth Opila[1]; [1]University of Virginia Materials Science Engineering

Ceramic Optical Materials — Session III

Program Organizers: Yiquan Wu, Alfred University; Jas Sanghera, Naval Research Laboratory; Michael Squillante, RMD, Inc; Takunori Taira, Institute for Molecular Science

Tuesday PM — Room: 254C
October 25, 2016 — Location: Salt Palace Convention Center

Session Chair: R.-J. Xie, National Institute for Materials Science

2:00 PM Invited
Transparent Ceramic Scintillators and Optics: *Nerine Cherepy*[1]; Zachary Seeley[1]; Stephen Payne[1]; Ivy Jones[1]; Patrick Beck[1]; Erik Swanberg[1]; Daniel Schneberk[1]; Brian Wihl[1]; Nicholas Harvey[1]; Steven Hunter[1]; Peter Thelin[1]; Scott Fisher[1]; [1]Lawrence Livermore National Laboratory

2:40 PM
Hydrothermal Synthesis of $MgAl_2O_4$: *Daniel Kopp*[1]; Richard Riman[1]; [1]Rutgers, The State University of New Jersey

3:00 PM Invited
Transparent Phosphor-in-glass (PiG) Luminescent Materials for Solid State Laser Lighting: *R.-J. Xie*[1]; [1]National Institute for Materials Science

3:40 PM
Highly Translucent, High Strength Zirconia Ceramics with Nano-sized Tetragonal Domain: *Isao Yamashita*[1]; Yuya Machida[1]; Shouichi Yamauchi[1]; [1]Tosoh Corporation

4:00 PM Invited
Transparent Oxide Ceramics: Advanced Optical Windows to Next Generation Fiber Laser Hosts: *HeeDong Lee*[1]; [1]UES

Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials — Session I

Program Organizers: Gurpreet Singh, Kansas State University; Kathy Lu, Virginia Tech; Sanjay Mathur, University of Cologne; Eugene Olevsky, San Diego State University; Edward Gorzkowski, Naval Research Laboratory ; Menka Jain, University of Connecticut; Hidehiro Kamiya, Tokyo University of Agriculture and Technology; Bhanu Chauhan, William Paterson University; Haitao Zhang, UNC Charlotte; Bhanu Chauhan, William Paterson University

Tuesday PM — Room: 257B
October 25, 2016 — Location: Salt Palace Convention Center

Session Chairs: Gurpreet Singh, Kansas State University; Haitao Zhang, UNC-C

2:00 PM Invited
Control of Nanostructures and Interfaces in Excitonic Solar Cells: *Guozhong Cao*[1]; [1]University of Washington

2:40 PM
High Density Grafting of Poly(allylamine) Chains onto Graphene Oxide for Improved Mechanical and Thermal Properties of Epoxy Composites: *Megha Sahu*[1]; Ashok Raichur[1]; Om Prakash[2]; [1]Indian Institute of Science; [2]Boeing

3:00 PM Invited
Crumpled Graphene Balls for Energy and Lubrication Applications: *Jiaxing Huang*[1]; [1]Northwestern University

3:40 PM
Solution Based and Electrically Assisted Techniques for Formation of Graphene Oxide Coatings: *Clovis Weisbart*[1]; Srini Raghavan[1]; Krishna Muralidharan[1]; Barrett Potter[1]; [1]University of Arizona

4:00 PM Invited
Low-temperature Synthesis of Transition-metal Diborides Using Reactive Laminates: An Analysis Using First-principles Modeling and Nanocalorimetry Experiments: *Kejie Zhao*[1]; [1]Purdue University

4:40 PM Invited
Van der Waals Epitaxial Strain in Soft Inorganic Thin Films: Yiping Wang[1]; *Jian Shi*[1]; [1]Rensselaer Polytechnic Institute

5:20 PM
Deposition of TiO_2 and Antimony-doped Tin Oxide (ATO) Double Layer on a-Alumina Platelets for Conductive Pearlescent Pigment.: *Beyene Marelign*[1]; Hyun Min Lee[1]; Do Kyung Kim[1]; [1]KAIST

5:40 PM
3D Graphene Foam Reinforced Flexible Epoxy Composites: *Leslie Embrey*[1]; Pranjal Nautiyal[1]; Benjamin Boesl[1]; Arvind Agarwal[1]; [1]Florida International University

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Session I

Program Organizers: Albert T. Wu, National Central University; Iver Anderson, Ames Laboratory

Tuesday PM — Room: 257A
October 25, 2016 — Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Thermodynamic and Kinetic Constraints in Pb-Free Interconnect Design: *Carol Handwerker*[1]; John Holaday[1]; Kathlene Reeve[1]; Khoi-Nguyen Nguyen[1]; [1]Purdue University

2:40 PM
Computational Study of Low Volume Solder Interconnects for 3D Integrated Circuit Packaging: *Vahid Attari*[1]; Raymundo Arroyave[1]; Zachary J. Morgan[2]; Yongmei M. Jin[2]; [1]Texas A&M University; [2]Michigan Tech University

3:00 PM
Coupled Charge Conduction and Mass Diffusion in Solder Interconnects: *Zachary Morgan*[1]; Yongmei Jin[1]; Vahid Attari[2]; Raymundo Arróyave[2]; [1]Michigan Technological University; [2]Texas A&M University

3:20 PM
Effects of Sn Grain Orientation on the Microstructural Evolution of Cu Reinforced Sn-3.5Ag Composite Solder Joint under Current Stressing: Fu Guo[1]; *Yan Wang*[1]; Jing Han[1]; Limin Ma[1]; [1]Beijing University of Technology

3:40 PM
Interactions between Electromigration and Thermal Fatigue of Pb-free Interconnects: Guo Fu[1]; *Yong Zuo*[1]; Ma Limin[1]; Thomas R Bieler[2]; [1]Beijing University of Technology; [2]Michigan State University

4:00 PM
Effect of Indium Addition on Mitigating Whiskers in Electroplated Tin: Role of Oxide Layer: *Sherin Bhassyvasantha*[1]; Narjes Fredj[1]; S Das Mahapatra[2]; Indranath Dutta[2]; Bhaskar Majumdar[1]; [1]New Mexico Tech; [2]Washington State University

4:20 PM
The Variation of Grain Structure and the Enhancement of Shear Strength in SAC305-0.1Ni/Cu Solder Joint before and after Aging: *Collin Fleshman*[1]; [1]National Tsing Hua University

Failure Analysis and Prevention — Non-Metallic Materials

Program Organizer: Burak Akyuz, ATS, Inc.

Tuesday PM
October 25, 2016

Room: 150G
Location: Salt Palace Convention Center

Session Chairs: Ronald Parrington, Engineering Systems Inc.; Matthew Fox, National Transportation Safety Board; Guiru Nash, Electro-Motive Diesels, Inc.; Dale Alexander, Engineering Systems Inc.

2:00 PM
Plastic Fitting Knit Line Failure and Comparison to Laboratory-produced Fractures: *Ronald Parrington*[1]; [1]Engineering Systems Inc. (ESI)

2:20 PM
Polymer & Polymer Layer Impact Failure: *Andrew Havics*[1]; [1]pH2, LLC

2:40 PM
DSC and TGA: Tools for Analyzing the Thermal Characteristics of Polymers: *Amy Wells*[1]; William Carden[1]; Richard McSwain[1]; [1]McSwain Engineering, Inc

3:00 PM
Failure of Recreational Products: Case Studies: *Richard Baron*[1]; Amy Richards[1]; Matthew Mulherin[1]; [1]ESI

3:20 PM
Manufacturing Defect in a Composite Main Landing Gear Leg: *Matthew Fox*[1]; [1]National Transportation Safety Board

3:40 PM
Failure Analysis of Composite Aircrafts with Post-crash Fire: *Zhi-Ming Chen*[1]; [1]FAA

4:00 PM
Examination of Six Cracked Tempered Glass Windshields from the Same Helicopter: *Aaron Slager*[1]; [1]Bell Helicopter

Glass, Amorphous, and Optical Materials: Common Issues within Science & Technology — Structures of Glass I: Correlation to Physical Properties

Program Organizers: Steve W. Martin, Iowa State University; Gang Chen, Ohio University

Tuesday PM
October 25, 2016

Room: 255A
Location: Salt Palace Convention Center

Session Chair: Gang Chen, Ohio University

2:00 PM Invited
Structure and Properties of Na2O-TiO2-SiO2 Glasses: Role of Na and Ti on Modifying the Silica Network: Garth Scannell[1]; *Liping Huang*[1]; [1]Rensselaer Polytechnic Institute

2:40 PM
Thermal Stability and Microstructural Development of Sol Gel Derived TiO2.ZrO2 Systems: *Ali Goktas*[1]; [1]Dokuz Eylul University

3:00 PM
Hot Compression of ZnO-P2O5 Glasses: Structure-property Relations: *Saurabh Kapoor*[1]; Nadja Lönnroth[2]; Randall Youngman[2]; Sylwester Rzoska[3]; Michal Bockowski[3]; Morten Smedskjaer[1]; [1]Aalborg University; [2]Corning; [3]Polish Academy of Sciences

3:20 PM
Thickness and Density Effects in the Thermal Conductivity of Amorphous Alumina Thin Films Grown via Atomic Layer Deposition: *Kelsey Meyer*[1]; John Gaskins[1]; Mallory DeCoster[1]; Brandon Piercy[2]; Mark Losego[2]; Patrick Hopkins[1]; [1]University of Virginia; [2]Georgia Institute of Technology

3:40 PM
Densification of Glasses at the Glass Transition: Universal Behavior and Trends: *Morten Smedskjaer*[1]; [1]Aalborg University

4:00 PM Invited
Thirty-year Quest for Structure: Nucleation Relationships in Oxide Glasses: *Edgar Zanotto*[1]; Jefferson Tchusida[2]; José Schneider[3]; Hellmut Eckert[3]; [1]Federal University of Sao Carlos; [2]Federal University of Lavras; [3]University of Sao Paulo

4:40 PM
Elastic Properties and Activation Energy for Modifier Cation Migration in Mixed-network Former Glasses: *Weimin Wang*[1]; Brittany Curtis[2]; Randilynn Christensen[3]; Steve Martin[2]; John Kieffer[1]; [1]University of Michigan; [2]Iowa State University; [3]Iowa State University

5:00 PM
Understanding Structure-property Relationships in Amorphous Organo Silicates and Carbides Using Topological Constraint Theory: Bradley Nordell[1]; Michelle Paquette[1]; Anthony Caruso[1]; Masanori Sato[2]; Takemasa Fujiseki[2]; Hiroyuki Fujiwara[2]; *Sean King*[3]; [1]University of Missouri - Kansas City; [2]Gifu University; [3]Intel Corporation

5:20 PM
Effect of Spark Plasma Sintering Temperature and Pressure on Microstructural Phase Evolution in Consolidated Mechanically Alloyed Al Based Bulk Amorphous Alloy: Ram Maurya[1]; Asutosh Sahu[1]; *Tapas Laha*[1]; [1]Indian Institute of Technology Kharagpur

Heterogeneity during Plastic Deformation – Synergy between Experimental Investigation and Simulation — Advances in Experimental and Characterization Techniques

Program Organizers: Stephen Niezgoda, The Ohio State University; David Fullwood, Brigham Young University

Tuesday PM
October 25, 2016

Room: 250F
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Strain Localisation and the Ductility of HCP Alloys: *Joao Fonseca*[1]; Alberto Orozco-Caballero[1]; Feng Li[1]; Daniel Esque-de los Ojos[1]; [1]The University of Manchester

2:40 PM
Collecting In-situ HR-EBSD and DIC Data Simultaneously Stamping a Pattern Semi-transparent to Electrons: *Timothy Ruggles*[1]; Jacob Hochhalter[2]; Andrew Cannon[3]; Geoffery Bomarito[2]; [1]National Institute of Aerospace; [2]NASA Langley Research Center; [3]1900 Engineering, LLC

3:00 PM
Comparison of Strain Measurement Techniques for Tension Testing of Fine Nitinol Wires: *Janet Gbur*[1]; Benjamin Palmer[1]; John Lewandowski[1]; [1]Case Western Reserve University

3:20 PM
Deformation History of Individual Grains in Polycrystalline Mg-Y by In-situ 3D-XRD: *Leyun Wang*[1]; Zhonghe Huang[1]; Jun-Sang Park[2]; Sangbong Yi[3]; Erica Lilleodden[3]; [1]Shanghai Jiao Tong University; [2]Argonne National Laboratory; [3]Helmholtz-Zentrum Geesthacht

3:40 PM
Formability of Magnesium Alloy AZ31B from Room Temperature to 150° C: *Isaac Chelladurai*[1]; Andrew Orme[1]; Michael Miles[1]; David Fullwood[1]; John Carsley[2]; Raja Mishra[2]; [1]Brigham Young University; [2]General Motors

4:00 PM
Reference Selection for EBSD Based Grain Reference Orientation Deviation Maps: *Stuart Wright*[1]; Seiichi Suzuki[2]; Matthew Nowell[1]; [1]EDAX; [2]TSL Solutions K.K.

4:20 PM
Measurement of Strain Localization during Creep of a Polycrystalline Superalloy Using SEM-based Digital Image Correlation: *Connor Slone*[1]; Michael Mills[1]; [1]The Ohio State University

4:40 PM
Investigating the Heterogeneous Deformation of Polycrystalline Materials at the Mesoscale: *Zhe Chen*[1]; Samantha Daly[1]; [1]University of Michigan

5:00 PM
Investigation of Local Slip Heterogeneity in Al-Li Alloy 2195: *Wesley Tayon*[1]; Roy Crooks[2]; Jacob Hochhalter[1]; John Newman[1]; Ashley Spear[3]; [1]NASA Langley Research Center; [2]Black Laboratories, L.L.C.; [3]University of Utah

Innovative Processing and Synthesis of Ceramics, Glasses and Composites — SPS/Sintering

Program Organizers: Narottam Bansal, NASA Glenn Research Center; Jitendra Singh, U.S. Army Research Laboratory; Scarlett Widgeon, New Mexico Highlands University ; Gabriela Mera, TU Darmstadt

Tuesday PM
October 25, 2016

Room: 255D
Location: Salt Palace Convention Center

Session Chairs: Waltraud Kriven, University of Illinois at Urbana-Champaign; Gabriela Mera, Technical University of Darmstadt

2:00 PM Invited
Consolidation of Diamond-based Composite by SPS: *Takashi Goto*[1]; Hirokazu Katsui[1]; [1]Tohoku University

2:40 PM
Challenges in Spark Plasma Sintering of Cerium(IV) Oxide: *Anil Prasad*[1]; Linu Malakkal[2]; Lukas Bichler[1]; Jerzy Szpunar[2]; [1]University of British Columbia Okanagan; [2]University of Saskatoon

3:00 PM
High-strength Pseudobrookite-type $MgTi_2O_5$ by Spark Plasma Sintering: *Hyoung-Won Son*[1]; Ryosuke Maki[1]; Byung-Nam Kim[2]; Yoshikazu Suzuki[1]; [1]University of Tsukuba; [2]National Institute for Materials Science

3:20 PM
Synthesis of Textured Ultrahigh Temperature Ceramic Diborides Using Spark Plasma Forging: Karthiselva N[1]; B Murty[1]; *Srinivasa Bakshi*[1]; [1]Indian Institute of Technology Madras

3:40 PM
Influence of Hot-pressing Time on Phase Evolution of SHS Obtained Ti_2AlC Active Precursors Powders: *Leszek Chlubny*[1]; Jerzy Lis[1]; Paulina Borowiak[1]; Katarzyna Chabior[1]; [1]AGH-University of Science and Technology, Faculty of Materials Science and Ceramics

4:00 PM
Solid State Reactive Sintering for Proton Conducting Ceramics: *Jianhua Tong*[1]; [1]Clemson University

4:20 PM
Near-zero Volume-shrinkage in Reactive Sintering of Porous $MgTi_2O_5$ with Pseudobrookite-type Structure: *Yuta Nakagoshi*[1]; Jun Sato[2]; Masahumi Morimoto[2]; Yoshikazu Suzuki[1]; [1]University of Tsukuba; [2]Quantachrome Instruments Japan G.K.

4:40 PM
Increasing the Silicon Carbide Content in Laser Sintered Reaction Bonded Silicon Carbide: *Sebastian Meyers*[1]; Jef Vleugels[1]; Jean-Pierre Kruth[1]; [1]KU Leuven

Interfaces, Grain Boundaries and Surfaces from Atomistic and Macroscopic Approaches -- Fundamental and Engineering Issues — Properties A

Program Organizers: Wayne Kaplan, Technion - Israel Institute of Technology; Dominique Chatain, CNRS, Aix-Marseille University; John Blendell, Purdue University; Paul Wynblatt, Carnegie Mellon University

Tuesday PM
October 25, 2016

Room: 251A
Location: Salt Palace Convention Center

Session Chairs: Rachel Zucker, University of California, Berkeley; Greg Rohrer, Carnegie Mellon University

2:00 PM Keynote
Chemical Demixing and Thermal Stability of Supersaturated Nanocrystalline CuCr Alloys: Insights from Advanced TEM: *Gerhard Dehm*[1]; T. Harzer[1]; T. Dennenwaldt[2]; C. Freysoldt[1]; C.H. Liebscher[1]; [1]Max-Planck-Institut für Eisenforschung; [2]Ecole Polytechnique Fédérale de Lausanne

2:40 PM Invited
Grain-boundary Character Distribution and Correlations with Electrical and Optoelectronic Properties of CuInSe2 Thin Films: *Anthony Rollett*[1]; Daniel Abou-Ras[2]; Norbert Schäfer[2]; Gregory Rohrer[1]; [1]Carnegie Mellon University; [2]Helmholtz-Zentrum Berlin für Materialien und Energie

3:00 PM Invited
Origins of Residual Stress in Thin Films: Effects of the Microstructure and Growth Kinetics: *Eric Chason*[1]; Alison Engwall[1]; [1]Brown University

3:20 PM
Understanding the Role of Interfaces and Hierarchical Microstructure on the Behavior and Stability of Metallic Nanolaminates Using Atomistic Modeling: Daniel Foley[1]; *Garritt Tucker*[1]; [1]Drexel University

3:40 PM
Direct Correlation between Complexion Types and Grain Boundary Mechanical Behavior of Rare Earth Doped Magnesium Aluminate Spinel: *Fiona Yuwei Cui*[1]; Onthida Kosasang[1]; Animesh Kundu[1]; Richard Vinci[1]; [1]Lehigh University

4:00 PM Keynote
The Curious Role of Nickel in Ceramics for Energy Applications: *Ivar Reimanis*[1]; Amy Morrissey[2]; [1]Colorado School of Mines; [2]CoorsTek

Interfaces, Grain Boundaries and Surfaces from Atomistic and Macroscopic Approaches -- Fundamental and Engineering Issues — Properties B

Program Organizers: Wayne Kaplan, Technion - Israel Institute of Technology; Dominique Chatain, CNRS, Aix-Marseille University; John Blendell, Purdue University; Paul Wynblatt, Carnegie Mellon University

Tuesday PM
October 25, 2016

Room: 251B
Location: Salt Palace Convention Center

Session Chairs: Christina Scheu, Max-Planck-Institut für Eisenforschung GmbH; Eugen Rabkin, Technion - Israel Institute of Technology

2:00 PM
The Influence of Crystallographic Constraints on Percolation: *Jarrod Lund*[1]; Oliver Johnson[1]; [1]Brigham Young University

2:20 PM
Grain Boundary Engineering of Shape Memory Alloys for Enhanced Transformation Ductility: *Ying Chen*[1]; Rebecca Dar[1]; [1]Rensselaer Polytechnic Institute

2:40 PM
Grain and Domain Interfaces for Thermoelectric Oxide Materials: *Shuichi Funahashi*[1]; Clive Randall[2]; [1]Murata Mfg. Co., Ltd.; [2]Pennsylvania State University

3:00 PM
Determining Appropriate Representative Volume Element Sizes for Grain Boundary Networks: *Tyler Critchfield*[1]; Oliver Johnson[1]; [1]Brigham Young University

3:20 PM Keynote
Spin-polarized Two-dimensional Electron Gas at Ferroelectric Oxide Interfaces: *Xiaoqing Pan*[1]; [1]University of California - Irvine

4:00 PM Invited
The Role of the Water/Glass Interface on Material Properties: *Stephen Garofalini*[1]; [1]Rutgers University

4:20 PM
Simulated Migration of Incoherent Facets in Twin Grain Boundaries: *Jonathan Priedeman*[1]; David Olmsted[2]; Eric Homer[1]; [1]Brigham Young University; [2]University of California, Berkeley

International Symposium on Defects, Transport and Related Phenomena — Session III

Program Organizers: Sangtae Kim, University of California, Davis; Doreen Edwards, Alfred University; Tatsuya Kawada, Tohoku University; Manfred Martin, RWTH Aachen University

Tuesday PM
October 25, 2016

Room: 251E
Location: Salt Palace Convention Center

Session Chairs: Hitoshi Takamura, Tohoku University; Seok-Hyun Yoon, Samsung Electro-Mechanics Co., Ltd.,

2:00 PM Invited
Oxygen Storage and Transport Properties of CeO_2-ZrO_2-Based Oxides: Junki Tomita[1]; *Hitoshi Takamura*[1]; [1]Tohoku University

2:40 PM Invited
Electrical Conduction Behavior of $BaTiO_3$-Based Multi-layer Ceramic Capacitor under High Field Condition: *Seok-Hyun Yoon*[1]; [1]Samsung Electro-Mechanics Co., Ltd.,

3:20 PM Invited
Defects, Transport and Related Phenomena in Y-doped ZrO_2: *I-Wei Chen*[1]; [1]University of Pennsylvania

4:00 PM Invited
Properties of Proton-conducting Solid Oxide Electrolyte Required for Critically-high Electrical Efficiency of SOFCs: *Yoshio Matsuzaki*[1]; Yuuya Tachikawa[2]; Takaaki Somekawa[1]; Koki Sato[1]; Hiroshige Matsumoto[2]; Shunsuke Taniguchi[2]; Kazunari Sasaki[2]; [1]Tokyo Gas; [2]Kyushu University

Joining of Advanced and Specialty Materials (JASM XVIII) — Brazing and Ceramics Joining

Program Organizers: Boian Alexandrov, The Ohio State University; Mathieu Brochu, McGill University; Akio Hirose, Osaka University; Anming Hu, University of Tennessee; Peng He, Harbin Insitute of Technology; Darren Barborak, AZZ|WSI; Bingtao Li, AZZ WSI; Xinjin Cao, Institute for Aerospace Research

Tuesday PM — Room: 155B
October 25, 2016 — Location: Salt Palace Convention Center

Session Chair: Michael Halbig, NASA Glenn Research Center

2:00 PM Invited
Ductile Boron Bearing Welding Materials for TIG-braze and Weld Repair of Turbine Engine Components: *Mathieu Brochu*[1]; Yuan Tian[1]; Alexandre Gontcharov[2]; Paul Lowden[2]; Joe Liburdi[2]; [1]McGill Univeristy; [2]Liburdi Turbine Service

2:40 PM
Mechanical Properties of Ni-base Superalloy Brazed Joints for High Temperature Gas Turbine Applications: *Bryan Riggs*[1]; Boian Alexandrov[1]; Avraham Benatar[1]; Ray Xu[2]; [1]The Ohio State University; [2]Rolls-Royce Corporation

3:00 PM
Characterization of Joints Formed Using an Air Braze Joining Process for Silicon Carbide and Silicon Nitride Substrates: *Joseph Fellows*[1]; Charles Lewinsohn[1]; [1]Ceramatec, Inc.

3:20 PM
Weldability of Titanium Alloy Using Transient Liquid Phase Diffusion Bonding Method: *AHM Rahman*[1]; Issam Abu-Mahfouz[1]; [1]Penn State Harrisburg

3:40 PM
Interface Characterization in Alumina Joints Brazed Using Ag-Cu-Ti Alloys: Kun-Lin Lin[1]; Mrityunjay Singh[2]; *Rajiv Asthana*[3]; [1]National Nano Device Laboratories Hsinchu 300, Taiwan; [2]Ohio Aerospace Institute, Cleveland, OH ; [3]University of Wisconsin-Stout

4:00 PM
Fundamental Issues of Wetting and Interfacial Reactions during Joining of Ceramics by Brazing Alloys: *Fiqiri Hodaj*[1]; [1]Grenoble Institute of Technology

Light Metal Technology — Titanium Technology

Program Organizer: Xiaoming Wang, Purdue University

Tuesday PM — Room: 150C
October 25, 2016 — Location: Salt Palace Convention Center

Session Chair: Zak Fang, University of Utah

2:00 PM Invited
Low Temperature Molten Salt (LTMS) De-oxygenation of Titanium and Its Alloys: *Yang Xia*[1]; Zhigang Fang[1]; Pei Sun[1]; Ying Zhang[1]; Tuoyang Zhang[1]; Michael Free[1]; [1]University of Utah

2:40 PM Invited
Influence of Mn Content on Phase Constitution and Heat-treatment Behavior of Ti-Mn-Fe-Al Alloys: *Masahiko Ikeda*[1]; Masato Ueda[1]; [1]Kansai University

3:20 PM
Sliding Wear Characteristics of Sintered Ti6Al4V Alloy as a Function of Holding Time: *Adewale Adegbenjo*[1]; Elsie Nsiah-Baafi[1]; Mxolisi Shongwe[1]; Mercy Ramakokovhu[1]; Peter Olubambi[2]; Johannes Herman Potgieter[3]; [1]Institute for NanoEngineering Research, Department of Chemical, Metallurgical and Materials Engineering, Tshwane University of Technology; [2]Department of Chemical Engineering Technology, University of Johannesburg, Johannesburg; [3]School of Chemical and Metallurgical Engineering, University of The Witwatersrand

4:20 PM
Microstructure and Mechanical Properties of $Al_2O<sub)3SF/Mg-RE Composites Fabricated by Pressureless Infiltration and Semi-Solid Densification: *Jian Liu*[1]; Wuxiao Wang[1]; [1]Xi'an University of Technology

3:40 PM Invited
Hot Deformation Behavior of a High-temperature Titanium Alloy with Initial Thick Lamellar Microstructure: *Hui Li*[1]; Zhanglong Zhao[1]; Hongzhen Guo[1]; Tianhong Mao[2]; Peng Zhang[2]; [1]Northwestern Polytechnical University; [2]China National Erzhong Group Co.

Materials and Processes for CO2 Capture, Conversion and Sequestration — Sorbent and Metal-Organic Framework Materials

Program Organizers: Kevin Huang, University of South Carolina; Winnie Wong-Ng, NIST; Lan Li, Boise State University

Tuesday PM — Room: 151B
October 25, 2016 — Location: Salt Palace Convention Center

Session Chairs: Lan (Samantha) Li, Boise State Univeristy ; Kevin Huang, Univeristy of South Carolina

2:00 PM Introductory Comments

2:10 PM Invited
Sorbent Slurries for Precombustion CO_2 Capture: *Jeffrey Culp*[1]; Fan Shi[1]; Nicholas Siefert[1]; David Hopkinson[1]; [1]National Energy Technology Laboratory

2:30 PM Invited
Materials for High-temperature Capture of CO_2: *Steven Milne*[1]; Faith Bamiduro[1]; Sergio Ramírez Solís[1]; Robert Bloom[1]; Valerie Dupont[1]; Ming Zhao[2]; [1]University of Leeds; [2]Tsinghua University

2:50 PM Invited
Review of In-situ Diffraction CO_2 Capture Studies Using Porous Materials: *Winnie Wong-Ng*[1]; Jeffrey Culp[2]; YuSheng Chen[3]; Igor Levin[1]; Hui Wu[1]; James Kaduk[4]; [1]NIST; [2]AECOM, National Energy Technology Laboratory (NETL); [3]University of Chicago; [4]Illinois Institute of Technology

3:10 PM Invited
Carbon Dioxide Chemical Fixation on Metal-organic Framework Platforms: *Wenyang Gao*[1]; Shengqian Ma[1]; [1]University of South Florida

3:30 PM Invited
Microporous Metal-organic Frameworks for CO_2 Separation and Capture: Mechanistic Insights from Neutron Scattering and Computational Modeling: *Wei Zhou*[1]; [1]National Institute of Standards & Technology

3:50 PM Invited
Density Functional Theory Study of the Flexible Metal-organic Framework Material Ni-BPene: *Eric Cockayne*[1]; Andres Correa Hernandez[2]; Lan Li[2]; [1]NIST; [2]Boise State University

Materials Development for Nuclear Applications and Extreme Environments — Processing and Microstructure Analysis of Nuclear Materials

Program Organizers: Raghunath Kanakala, University of Idaho; Nan Li, Los Alamos National Laboratory; Todd Allen, Idaho National Laboratory; Jake Amoroso, Savannah River National Laboratory; Aladar Csontos, Nuclear Regulatory Commission; Lingfeng He, Idaho National Laboratory; Yutai Katoh, Oak Ridge National Laboratory; Josef Matyas, Pacific Northwest National Laboratory; Amit Misra, University of Michigan; Raul Rebak, GE Global Research; Kumar Sridharan, University of Wisconsin

Tuesday PM
October 25, 2016

Room: 250A
Location: Salt Palace Convention Center

Session Chairs: Yutai Katoh, Oak Ridge National Laboratory; Robert Mariani, Idaho National Laboratory

2:00 PM Invited
Development of Advanced Ferritic Steels for Fast Reactor Applications: *Stuart Maloy*[1]; Osman Anderoglu[1]; Tarik Saleh[1]; Mychailo Toloczko[2]; Thak-Sang Byun[2]; Curt Lavender[2]; G. Robert Odette[3]; Dave Hoelzer[4]; [1]Los Alamos National Laboratory; [2]PNNL; [3]UCSB; [4]ORNL

2:40 PM
Microstructures and Strength of Early Nuclear Grade SiC/SiC Composite after Very High Fluence Neutron Irradiation: *Yutai Katoh*[1]; Takaaki Koyanagi[1]; Takashi Nozawa[2]; Hiroyasu Tanigawa[2]; [1]Oak Ridge National Laboratory; [2]Japan Atomic Energy Agency

3:00 PM
Identification of Ag-rich Phase in TRISO Fuels by Using Atom Probe Tomography: *Yaqiao Wu*[1]; Isabella van Rooyen[2]; Jatuporn Burns[1]; James Madden[2]; Haiming Wen[3]; [1]Boise State University; [2]Idaho National Laboratory; [3]Idaho State University

3:20 PM
Characterization of the Effects of Carbide Precipitates and Spinodal Decomposition on Thermal Aging Embrittlement of Cast Duplex Stainless Steels: *Samuel Schwarm*[1]; Sarah Mburu[1]; R. Prakash Kolli[1]; Daniel Perea[2]; Sreeramamurthy Ankem[1]; [1]University of Maryland, College Park; [2]Pacific Northwest National Laboratory

3:40 PM
Effect of Crystallographic Texture on Creep Rupture Behaviour of 9Cr-1Mo Steel: *Arya Chatterjee*[1]; Pranabananda Modak[1]; Abhijit Ghosh[1]; Rahul Mitra[1]; Debalay Chakrabarti[1]; [1]Indian Institute of Technology Kharagpur

4:00 PM
Ti-Al-C MAX Phase Coatings for Accident Tolerant Fuels: Ben Maier[1]; *Hwasung Yeom*[1]; Greg Johnson[1]; Jennifer Porto[1]; Peng Xu[2]; Ed Lahoda[2]; Brenda Garcia-Diaz[3]; Luke Olson[3]; Michael Martinez-Rodriguez[3]; Hector Colon-Mercado[3]; Kumar Sridharan[1]; [1]University of Wisconsin - Madison; [2]Westinghouse Electric Company; [3]Savannah River National Laboratory

4:20 PM
Synthesis, Sintering, and Hydrothermal Corrosion Studies of Advanced Multiphase Actinide Fuels: *Jennifer Watkins*[1]; Brian Jaques[1]; Darryl Butt[1]; [1]Boise State University

Materials Issues in Nuclear Waste Management in the 21st Century — Stability of Waste Forms

Program Organizers: Josef Matyas, Pacific Northwest National Laboratory; Jake Amoroso, Savannah River National Laboratory; Isabelle Giboire, CEA Marcoule; Raghunath Kanakala, University of Idaho; Yutai Katoh, Oak Ridge National Laboratory; Stefan Neumeier, Forschungszentrum Juelich GmbH; David Shoesmith, Western University; Kumar Sridharan, University of Wisconsin; David Enos, Sandia National Laboratories; Charles Bryan, Sandia National Laboratories

Tuesday PM
October 25, 2016

Room: 251D
Location: Salt Palace Convention Center

Session Chairs: David Shoesmith, Western University; S.K. Sundaram, Alfred University

2:00 PM Invited
Microbial Impacts on Materials Containing Radioactive Waste: *Charles Turick*[1]; [1]Savannah River National Laboratory

2:40 PM
Performance of Tc and I Getters in Cementitious Waste Forms: *Matthew Asmussen*[1]; James Neeway[1]; Amanda Lawter[1]; Nikolla Qafoku[1]; [1]Pacific Northwest National Laboratory

3:00 PM
A Model for the Corrosion of Spent Nuclear Fuel within a Failed Nuclear Waste Container: *David Shoesmith*[1]; Linda Wu[2]; Nazhen Liu[1]; Zack Qin[1]; [1]Western University; [2]Canadian Nuclear Laboratories

3:20 PM
Corrosion Behavior of 410 SS/Ceramic Composite Waste Forms: *Xin Chen*[1]; J. Ernesto Indacochea[2]; William Ebert[3]; [1]University of Illinois at Chicago and Argonne National Laboratory ; [2]University of Illinois at Chicago; [3]Argonne National Laboratory

3:40 PM
Electrochemical Corrosion Behavior of an HT9 Based Alloyed Waste Form: *Vineeth Kumar Gattu*[1]; William Ebert[2]; Terry Cruse[2]; J Ernesto Indacochea[3]; [1]University of Illinois-Chicago; [2]Argonne National Laboratory; [3]University of Illinois at Chicago

4:00 PM
Electrochemical Studies of Lanthanide Chlorides in Molten Eutectic LiCl-KCl: *Vickram Singh*[1]; Dev Chidambaram[1]; [1]University of Nevada, Reno

4:20 PM
Radiation Stability and Chemical Durability of Cerium Substituted Zirconolite ($CaZrTi_2O_7$) and Pyrochlore ($Nd_2Ti_2O_7$): *Braeden Clark*[1]; S. Sundaram[1]; Jake Amoroso[2]; [1]Alfred University; [2]Savannah River National Laboratory

Materials Property Understanding through Characterization — Advanced Materials II

Program Organizers: Indrajit Dutta, Corning Incorporated; Brian Strohmeier, US Steel; Nicholas Smith, Corning Incorporated

Tuesday PM
October 25, 2016

Room: 251C
Location: Salt Palace Convention Center

Session Chair: Indrajit Dutta, Corning Incorporated

2:00 PM Invited
Surface Characterization for Understanding the Tribology of Polymer Matrix Composites (PMCs) Fabricated by Additive Manufacturing: *Surojit Gupta*[1]; Ross Dunnigan[1]; [1]University of North Dakota

2:40 PM
Thermodynamic Stability of MAX and MXene Phases: *Geetu Sharma*[1]; Dawei Feng[1]; Michael Naguib[2]; Yuri Gogotsi[3]; Alexandra Navrotsky[1]; [1]University of California, Davis; [2]Oak Ridge National Laboratory; [3]Drexel University

3:00 PM
Optical Properties of Passivation Layers on Black Silicon: *Sita Rajyalaxmi Marthi*[1]; Nuggehalli Ravindra[1]; [1]New Jersey Institute of Technology

3:20 PM
Thermochemistry of Simplest Metal Organic Frameworks: Metal Formates $[M(HCOO)_2]\cdot XH_2O$ (M = Mg, Mn, Co, Ni and Zn): *G. P. Nagabhushana*[1]; Alexandra Navrotsky[1]; [1]University of California, Davis

3:40 PM
Thermo-mechanical Properties of Organomodified Kaolin Used as Filler in Natural Rubber Nanocomposites: *Chinedum Mgbemena*[1]; Arr Menon[2]; [1]Federal University of Petroleum Resources; [2]National Institute for Interdisciplinary Science and Technology (CSIR),

4:00 PM
Optical Properties and Temperature Dependence of Energy Gap of Transition-metal Dichalcogenides: *Sushant Rassay Fnu*[1]; Weitao Tang[1]; Nuggehalli Ravindra[1]; [1]New Jersey Institute of Technology

Materials Property Understanding through Characterization — Metals I

Program Organizers: Indrajit Dutta, Corning Incorporated; Brian Strohmeier, US Steel; Nicholas Smith, Corning Incorporated

Tuesday PM
October 25, 2016

Room: 252A-B
Location: Salt Palace Convention Center

Session Chair: Nicholas Smith, Corning Incorporated

2:00 PM
Clarification of Strengthening and Fracture Behavior of the Nb-Hf-Ti Alloy C-103: *Francisco Coury*[1]; Andre Costa e Silva[2]; Claudio Kiminami[3]; Noah Philips[4]; John Foltz[4]; Michael Kaufman[1]; [1]Colorado School of Mines; [2]Universidade Federal Fluminense; [3]Universidade Federal de São Carlos; [4]ATI Specialty Alloys and Components

2:20 PM
Depth-sensing Cyclic Nanoindentation of Gum Metal: *Meysam Haghshenas*[1]; Vineet Bhakhri[2]; Robert Klassen[2]; Shigeru Kuramoto[3]; [1]University of North Dakota; [2]Western University; [3]Ibaraki University

2:40 PM
Effects of Thermal Processing Variations on Microstructure and High Cycle Fatigue of Beta-STOA Ti-6Al-4V: *Byron McArthur*[1]; Michael Kaufman[1]; Robert Field[1]; [1]Colorado School of Mines

3:00 PM
Fracture of Mesocrystalline FeGa Alloys through DIC: *Nicholas Jones*[1]; Yared Amanuel[1]; Jazalyn Dukes[1]; Kariann Vander Pol[1]; [1]Naval Surface Warfare Center, Carderock Division

3:20 PM
Impeder Selection for Optimizing Heat Input during High Frequency: *Olexandra Tupalo*[1]; Lesley Frame[1]; [1]Thermatool Corp

3:40 PM
Microstructural Characterization of Sub-surface Deformation in Machined Ti-6Al-4V under Varying Cutting Fluid Application: Nithin Rangasamy[1]; *A.K. Balaji*[1]; [1]The University of Utah

4:00 PM
Effect of Cryogenic Quenching on Microstructure and Microhardness of Rapidly Solidified Grey Cast Iron: *Olamilekan Oloyede*[1]; Robert F. Cochrane[1]; Andrew M. Mullis[1]; [1]University of Leeds

Materials Selection and Characterization for Corrosion Control — Materials Selection: Session III

Program Organizers: Ajit Mishra, Haynes International; Matthew Asmussen, Pacific Northwest National Laboratory; Eric Schindelholz, Sandia National Laboratories; Florent Bocher, Southwest Research Institute; Guang-Ling Song, Xiamen University; Jeffery Thomson, Oak Ridge National Lab; Kevin Lambrych, Ashland Performance Materials; Gary Coates, Nickel Institute / Garcoa Metallurgical; Raul Rebak, GE Global Research

Tuesday PM
October 25, 2016

Room: 253B
Location: Salt Palace Convention Center

Session Chairs: Raul Rebak, General Electric; Gary Coates, Nickel Institute; Ajit Mishra, Haynes International

2:00 PM Keynote
The Galvanic Corrosion between Steel and Carbon Fiber Reinforced Polymer: *Chi Zhang*[1]; Dajiang Zheng[1]; Guang-Ling Song[1]; Yang Guo[2]; Ming Liu[2]; Hamid Kia[2]; [1]Xiamen University; [2]GM R&D

2:40 PM
Threshold Chloride Concentration for Passivity Breakdown of Mg-Zn-Gd-Nd-Zr Alloy (UNS M12310) in Basic Solution: Jakraphan Ninlachart[1]; *Krishnan Raja*[1]; [1]University of Idaho

3:00 PM
Mechanism of Magnesium Corrosion Poisoning through Alloying: *Krista Limmer*[1]; Joseph Labukas[1]; Michael Garvey[2]; Santanu Chaudhuri[2]; Jan Andzelm[1]; [1]U.S. Army Research Laboratory; [2]Illinois Applied Research Institute

3:20 PM
Corrosion Behaviour of AZ31 in Highly Alkaline Environment: *Somi Doja*[1]; Lukas Bichler[1]; Simon Fan[2]; [1]University of British Columbia - Okanagan; [2]ZincNyx

3:40 PM
Comparative Studies of the Corrosion Potentials of Three Proprietary Micro Alloyed Steels in Aerated Brine Solutions: *Lawrence Onyeji*[1]; Girish Kale[1]; Bijan Kermani[1]; [1]University of Leeds

4:00 PM
Influence of Deformation Temperature on Mechanical and Corrosion Property of 6082-Al Alloy: *Nikhil Kumar*[1]; Devasri Fuloria[1]; Sunkulp Goel[1]; R. Jayaganthan; [1]IIT Roorkee

Mechanochemical Synthesis and Reactions in Materials Science — Materials for Hydrogen Production and Storage

Program Organizers: Antonio Fuentes, Cinvestav del IPN; Laszlo Takacs, University of Maryland Baltimore County; Challapalli Suryanarayana, University of Central Florida; Jacques Huot, UQTR

Tuesday PM
October 25, 2016
Room: 155A
Location: Salt Palace Convention Center

Session Chairs: Jacques Huot, Universite du Quebec a Trois-Rivieres; Sabrina Sartori, University of Oslo and UNIK

2:00 PM Invited
Nanostructured Materials for Hydrogen Technology: *Thomas Klassen*[1]; Nils Bergemann[1]; Ragle Raudsepp[2]; Charline Wolpert[2]; Claudio Pistidda[1]; Mauricio Schieda[1]; Martin Dornheim[1]; Maria Villa Vidaller[2]; [1]Helmholtz-Zentrum Geesthacht; [2]Helmut Schmidt University Hamburg

2:40 PM Invited
Hydrogen Sorption Enhancement in Cold Rolled $LaNi_5$, $CaNi_5$, and Mg_2Ni: Manuel Tousignant[1]; *Jacques Huot*[1]; [1]UQTR

3:00 PM Invited
Mechanochemical Synthesis of Materials for Hydrogen Storage: *Sabrina Sartori*[1]; [1]University of Oslo and UNIK

3:20 PM
Reversible Hydrogen Storage Properties of Mg-Ag-Al Ternary Alloys Prepared by Mechanical Milling: *Yanshan Lu*[1]; Hui Wang[2]; Jiangwen Liu[2]; Liuzhang Ouyang[2]; Min Zhu[2]; Chengshang Zhou[1]; Zhigang Zak Fang[1]; [1]Department of Metallurgical Engineering, The University of Utah; [2]School of Materials Science and Engineering and Guangdong Provincial Key Laboratory of Advanced Energy Storage Materials, South China University of Technology

3:40 PM Invited
Quaternary Mg-based Transition-metal Complex Hydrides Produced by Reactive Milling: *Stefano Deledda*[1]; Olena Zavorotynska[1]; Bjørn Hauback[1]; [1]IFE

4:00 PM Invited
Mechanochemical Metathesis: A Highly Selective and Effective Route for Alane (AlH3) Synthesis under Ambient Conditions: *Shalabh Gupta*[1]; Vitalij Pecharsky[1]; Ihor Hlova[1]; Jennifer Goldston[1]; Marek Pruski[1]; Takeshi Kobayashi[1]; [1]Ames Laboratory

4:20 PM Invited
Reversible Hydrogenation of Ball Milled Mixtures of Magnesium Triborane and Group I Hydrides to Mix Metal Borohydrides: *Craig Jensen*[1]; Marina Chong[1]; Tom Autrey[2]; Shin-ichi Orimo[3]; [1]University of Hawaii; [2]Pacific Northwest National Laboratory; [3]Tohoku University

Nanomaterials Working in the Near-infrared: Biomedical Applications — Novel Methods & Materials´ Characterization

Program Organizers: Antonio Benayas, Institut National de la Recherche Scientifique; Luis Carlos, Universidade de Aveiro; Fiorenzo Vetrone, Intitut national de la recherche scientifique; Marta Quintanilla, CICbiomagune; Daniel Jaque García, Universidad Autónoma de Madrid; Artiom Skripka, Institut National de la Recherche Sscientifique

Tuesday PM
October 25, 2016
Room: 258
Location: Salt Palace Convention Center

Funding support provided by: Millipore Sigma and Photon etc.

Session Chairs: Marta Quintanillla, CIC biomaGUNE; Daniel Heller, Memorial Sloan-Kettering Cancer Center; Fiorenzo Vetrone, INRS-EMT

2:00 PM Introductory Comments

2:10 PM Keynote
Hyperspectral Optical Imaging Beyond 1000 nm: *Mikhail Berezin*[1]; [1]Washington University School of Medicine

2:50 PM Invited
Super-thin RVO_4 (R = Y, Gd, Lu) Nanoparticles Doped with Rare-earths: Preparations and Optical Properties in NIR: Dragana Jovanovic[1]; Slobodan Dolic[1]; *Miroslav Dramicanin*[1]; [1]University of Belgrade

3:10 PM Invited
Spectroscopic Properties of Red Persistent Nanophosphors Stimulated with Infrared Laser Irradiation: Mariusz Stefanski[1]; Robert Tomala[1]; Lukasz Marciniak[1]; Wieslaw Strek[1]; *Dariusz Hreniak*[1]; Jakub Cichos[2]; Marco Pedroni[3]; Fabio Piccinelli[3]; Marco Bettinelli[3]; Adolfo Speghini[3]; [1]Institute of Low Temperature and Structure Research; [2]Faculty of Chemistry, University of Wroclaw; [3]Dipartimento di Biotecnologie, Università di Verona and INSTM, UdR Verona

3:30 PM
Semiconductor and Upconversion Nanocrystals with NIR Emission: Spectroscopic Properties and Surface Group Analysis: C. Würth[1]; M. Kaiser[1]; R. Schneider[1]; M. Kraft[1]; S. Leubner[2]; N. Gaponik[2]; A. Eychmüller[2]; S. Wilhelm[3]; T. Hirsch[3]; *Ute Resch-Genger*[1]; [1]BAM Federal Institute for Material Research and Testing; [2]Technical University of Dresden; [3]University of Regensburg

3:50 PM Invited
Near Infrared (NIR) Absorbing and Emitting Colloidal Luminescent Nanocrystals: *Venkataramanan Mahalingam*[1]; [1]Indian Institute of Science Education and Research Kolkata

Nanotechnology for Energy, Environment, Electronics, Healthcare and Industry — Session III

Program Organizers: Navin Manjooran, Siemens AG; Gary Pickrell, Virginia Tech

Tuesday PM
October 25, 2016

Room: 260A
Location: Salt Palace Convention Center

Session Chairs: Gary Pickrell, Virginia Tech; Navin Manjooran, Siemens AG

2:00 PM Introductory Comments

2:40 PM
Microbial Synthesis of Highly Catalytic Nanoparticles: *Sarah Yang*[1]; Dev Chidambaram[1]; Akira Nordmeier[1]; [1]University of Nevada, Reno

3:00 PM
Percolative Nanoparticle-enhanced Films and Capacitor Devices: *Andrew Sherman*[1]; Haixong Tang[1]; [1]Powdermet Inc

3:20 PM
Silver Nanoparticles Supported on Carbon Nanotube Carpets: Influence of Surface Functionalization: *Sharmila Mukhopadhyay*[1]; Anil Karumuri[1]; Dhawal Oswal[1]; [1]Wright State University

3:40 PM
Synthesis and Properties of Heavy Metal Chalcogenides for Use as Advanced High Tech Optoelectronic Devices: *Rahul Jain*[1]; Vinay Verma[2]; [1]RIET greater noida; [2]Sharda University

4:00 PM
Synthesis, Characterization and Enhanced Photocatalytic Degradation Efficiency of Co Doped CuO Nanoparticles: *Aarti Sharma*[1]; RajKumar Dutta[1]; [1]Indian Institute of Technology Roorkee

4:20 PM
Thermal Stability of Nanostructured Materials: *Ibrahim Momohjimoh*[1]; [1]King Fahd University of Petroleum and Minerals

4:40 PM
Variation of Thermal Diffusivity of Copper Matrix Composites Using Graphene-dispersed Composite Powders: *Hyo-Soo Lee*[1]; Sang-Woo Kim[1]; [1]KITECH

5:00 PM
New Routes for Old Pals: Triple RE^{3+}-Doped $NaGdF_4$ Fluorescent Nanoprobes for In Vitro (980nm-VIS) Imaging and Potential In Vivo (793nm-NIR) All Optical Monitoring: *Antonio Benayas*[1]; Wagner da Silva[2]; Blanca del Rosal[3]; Karla Josefina Santacruz[4]; Ratneshwar Lal[5]; Francisco Sanz[3]; Fiorenzo Vetrone[1]; [1]Institut national de la recherche scientifique; [2]Universidade Federal de Alagoas; [3]Universidad Autónoma de Madrid; [4]Universidad de Sonora; [5]University of California San Diego

Next Generation Biomaterials — Session III

Program Organizers: Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Sharmila Mukhopadhyay, Wright State University; Sundeep Mukherjee, University of North Texas

Tuesday PM
October 25, 2016

Room: 259
Location: Salt Palace Convention Center

Session Chairs: Mohamed Rahaman, Missouri University of Science and Technology; Kalpana Katti, North Dakota State University; Enrico Bernardo, University of Padova

2:00 PM Invited
Development of Osseointegrated Implants and Antimicrobial Technologies: *Dustin Williams*[1]; Roy Bloebaum[2]; [1]University of Utah; [2]University of Utah/ VA Medical Center

2:40 PM Invited
Evaluating Mechanisms of Metastasis of Cancer Using a 3D Bone-mimetic Model: *Kalpana Katti*[1]; MD Shahjahan Molla[1]; Dinesh Katti[1]; [1]North Dakota State University

3:20 PM Invited
Direct Ink Writing of Bioactive Silica-bonded Calcite Scaffolds from a Preceramic Polymer and Fillers: *Enrico Bernardo*[1]; Laura Fiocco[1]; Hamada Elsayed[1]; Devis Bellucci[2]; Valeria Cannillo[2]; Rainer Detsch[3]; Aldo Boccaccini[3]; [1]University of Padova; [2]University of Modena and Reggio Emilia; [3]University of Erlangen-Nuremberg

4:00 PM Invited
Silicon Nitride Implants with Complex Structures Created by Robocasting: *Mohamed Rahaman*[1]; Santuan Zhao[1]; Wei Xiao[1]; Sonny Bal[2]; Bryan McEntire[3]; Darin Ray[3]; [1]Missouri University of Science and Technology; [2]University of Missouri - Columbia; [3]Amedica Corporation

Panel Discussion on Advanced Manufacturing — Collaborative Research Programs and Advances in Biomanufacturing

Program Organizer: Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering

Tuesday PM
October 25, 2016

Room: 355B
Location: Salt Palace Convention Center

2:00 PM Introductory Comments - Collaborative Research Programs- Moderated by Frank Gayle, FASM. This section of the panel discussion will focus on collaborative programs for materials and processing research. Speakers will provide overviews about different types of programs and how they are driving innovation advanced manufacturing. Each speaker will give a brief presentation with plenty of time devoted to discussion and Q&A.

2:10 PM Invited
Successful Partnerships Between Academia and Industry: *Diran Apelian*[1]; [1]Metal Processing Institute at Worcester Polytechnic Institute

2:25 PM Invited
Collaborative Program to Accelerate Materials Deployment for Additive Manufacturing via Multi-Scale Modeling: *Pamir Alpay*[1]; [1]University of Connecticut

2:40 PM Invited
Collaborative Programs at the State and Regional Level

3:00 PM Panel Discussion on Collaborative Research Programs; Moderated by Frank Gayle, FASM

3:20 PM Introductory Comments - Biofabrication / Biomanufacturing- Moderated by Roger Narayan, FASM. This section of the panel discussion will focus on advances in biofabrication and biomanufacturing. Speakers will provide overviews about recent developments and areas of promise for commercial application. Each speaker will give a brief presentation with plenty of time devoted to discussion and Q&A.

3:30 PM Invited
Enhanced Alginate Based Hydrogels for Biofabrication: *Aldo Boccaccini*[1]; [1]University of Erlangen-Nuremberg

3:40 PM Invited
Processing of Biomaterials: *Federico Rosei*[1]; [1]INRS

3:50 PM Invited
Hierarchical Self-Assembly and Self-Organization in the Design of Bioactive Materials: *Candan Tamerler*[1]; [1]University of Kansas

4:00 PM Invited
Biomineralization Routes to Nanocomposite Biomaterials Design: *Kalpana Katti*[1]; [1]North Dakota State University

4:10 PM Panel Discussion on Biofabrication and Biomanufacturing; Moderated by Roger Narayan, FASM

Phase Stability, Diffusion Kinetics, and Their Applications (PSDK-XI) — Gibbs Session II

Program Organizers: James Saal, QuesTek Innovations; Yu Zhong, Florida International University; Ji-Cheng Zhao, The Ohio State University; Nagraj Kulkarni, Knoxville, TN

Tuesday PM
October 25, 2016
Room: 155D
Location: Salt Palace Convention Center

Session Chairs: Carelyn Campbell, NIST; Afina Lupulescu, ASM International

2:00 PM Invited
Applications of Multicomponent Databases to the Improvement of Steel Processing and Design: *Andre Costa E Silva*[1]; [1]EEIMVR - Universidade Federal Fluminense - IBQN

2:40 PM Invited
Development of Thermodynamic Databases for Multicomponent Oxide and Sulfide Systems for Applications in Metallurgy: *Sergei Decterov*[1]; Denis Shishin[2]; Evgueni Jak[2]; [1]École Polytechnique de Montréal; [2]the University of Queensland

3:20 PM Invited
Data Infrastructure for Materials Data Discoverability and Reliability: *Ken Kroenlein*[1]; [1]NIST

3:40 PM Invited
Ab Initio-aided Thermodynamics of Rare Earth-based Alloys: *Patrice Turchi*[1]; Per Söderlind[1]; Alexander Landa[1]; Aurélien Perron[1]; [1]Lawrence Livermore National Laboratory

4:20 PM Invited
Thermodynamic Modeling Using Small Data: *Suzana Fries*[1]; [1]ICAMS, Ruhr University Bochum

Phase Transformations in Ceramics: Science and Applications — Prediction and Simulation

Program Organizers: Pankaj Sarin, Oklahoma State University; Ivar Reimanis, Colorado School of Mines; Waltraud Kriven, University of Illinois at Urbana-Champaign

Tuesday PM
October 25, 2016
Room: 255C
Location: Salt Palace Convention Center

Session Chair: Ivar Reimanis, Colorado School of Mines

2:00 PM Invited
Prediction of Diffusionless Phase Transformations for Complex Crystal Structures: *Randall Hay*[1]; [1]Air Force Research Laboratory

2:40 PM
Simulation of Crystallization Kinetics in Amorphous Oxide Thin Films: *Mahyar M. Moghadam*[1]; Peter Voorhees[1]; [1]Northwestern University

3:00 PM Invited
The Application of the CALPHAD Approach on YSZ: *Yu Zhong*[1]; Mohammad Asadikiya[1]; [1]Florida International University

3:20 PM
A Thermodynamic Approach on the Chemical Stability of Lanthanum Chromite-based Perovskite with Yttrium-stabilized Zirconia: *Hooman Sabarou*[1]; Yu Zhong[1]; [1]Florida International University

3:40 PM Invited
Understanding Phase Transformations in Ceramics with Density Functional Theory Computations: *Sanjay V. Khare*[1]; Z.T.Y. Liu[1]; Yuejian Wang[2]; X. Zhou[3]; Cora Lind-Kovacs[1]; [1]University of Toledo; [2]Oakland University; [3]University of Maryland at College Park

4:00 PM
First Principles Investigation of the Atomic Scale Mechanism for the θ-Alumina to α-Alumina Phase Transformation: *Krista Limmer*[1]; Jennifer Elward[1]; Victoria Blair[1]; Christopher Rinderspacher[1]; [1]U.S. Army Research Laboratory

4:20 PM
Deformation Mechanisms of Yttria-stabilized Tetragonal Zirconia Nanopillars: *Ning Zhang*[1]; Mohsen Asle Zaeem[1]; [1]Missouri University of Science and Technology

Processing and Performance of Materials Using Microwaves, Electric and Magnetic Fields, Ultrasound, Lasers, and Mechanical Work – Rustum Roy Symposium — Session II

Program Organizers: Morsi Mahmoud, Karlsruhe Institute of Technology (KIT) & City for Scientific Research and Technological Applications (SRTA City); Dinesh Agrawal, Pennsylvania State University; Guido Link, Karlsruhe Institute of Technology; Motoyasu Sato, Chubu University; Rishi Raj, University of Colorado

Tuesday PM
October 25, 2016

Room: 255E
Location: Salt Palace Convention Center

Session Chairs: Kazuhiro Nagata, Tokyo Institute of Technology; Hideyuki Kanematsu, Suzuka National College of Technology

2:00 PM Invited
Thermal and Microstructure Instabilities of Ceramics under A DC Voltage: *I-Wei Chen*[1]; [1]University of Pennsylvania

2:40 PM Invited
Magnetic Alignment of Rare Earth Doped Alumina Grains in an Epoxy Matrix: A Proof of Concept Study: *Victoria Blair*[1]; Carli Moorehead[1]; Nicholas Ku[1]; Krista Limmer[1]; Raymond Brennan[1]; [1]Army Research Laboratory

3:20 PM
Formation of Micro-textured Alumina Bodies under Applied Magnetic Field: *Carli Moorehead*[1]; Victoria Blair[2]; Raymond Brennan[2]; [1]Drexel University; [2]US Army Research Laboratory

3:40 PM
Microwave Sintering of Nanocrystalline PMN-PT/Fe2CoO4 Biphasic Composites and Their Dielectric and Magnetoelectric Properties: Claudia Fernandez[1]; Ducinei Garcia[1]; *Ruth Kiminami*[1]; [1]Universidade Federal de São Carlos

4:00 PM
Microwaves Crystallization of Lithium Aluminum Germanium Phosphate Glass-ceramics Using 30 GHz Processing: *Morsi Mahmoud*[1]; Cui Yuantao[2]; Sarfaz Ahmad[2]; Magnus Rohde[2]; Carlos Ziebert[2]; Guido Link[2]; Hans Seifert[2]; [1]Karlsruhe Institute of Technology (KIT), City for Scientific Research and Technological Applications (SRTA City); [2]Karlsruhe Institute of Technology

4:20 PM
High Frequency MW Sintering of Calcium Phosphate Based Constructs: *Mohamad Hassan*[1]; Guido Link[2]; Morsi Mahmoud[2]; Ahmed Abd El-Fattah[1]; Sherif Kandil[1]; [1]Alexandria Univeristy; [2]Karlsruhe Institute of Technology (KIT)

Responsive Functional Nanomaterials — Responsive Nanomaterials Synthesis and Applications

Program Organizers: Jiahua Zhu, The University of Akron; Ziqi Sun, Queensland University of Technology; Liwen Mu, The University of Akron

Tuesday PM
October 25, 2016

Room: 260B
Location: Salt Palace Convention Center

Session Chair: Weichang Hao, Beihang University

2:00 PM Keynote
Actuation of Liquid Metal Marbles: *Kourosh Kalantar-zadeh*[1]; Arnan Michell[1]; Khashayar Khoshmanes[1]; Shi-Yang Tang[1]; [1]RMIT

2:40 PM Invited
Amino Acids Adsorption on Graphene Oxide, Titanium Dioxide and their Nanocomposite: *Liangliang Huang*[1]; Mykola Seredych[2]; Teresa Bandosz[3]; [1]University of Oklahoma ; [2]The City College of New York ; [3]The City College of New York

3:00 PM Invited
Break and Reform Chemical Bonds in Energy Materials by Electrons: *Bin Wang*[1]; [1]The University of Oklahoma

3:20 PM Invited
Influence of Solute (Impurity) Atoms on Microstructure and Deformation Mechanisms of Nanostructured Pure Titanium: *Guanyu Deng*[1]; Yan Chong[1]; Nahoko Saji[1]; Ruixiao Zheng[1]; Tilak Bhattacharjee[1]; Yu Bai[1]; Akinobu Shibata[1]; Nobuhiro Tsuji[1]; [1]Kyoto University

3:40 PM
SiOx Nanoflowers and Nanobangles Grown under Atmospheric Pressure: *Yimin Cui*[1]; [1]Beihang University

4:00 PM
Development of Lead Free Organometallic Solid State Perovskite Solar Cell: Pritam Dey[1]; *Tanmoy Maiti*[1]; [1]IIT Kanpur

S2P: Semi-solid Processing of Alloys and Composites — Session V

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Tuesday PM
October 25, 2016

Room: 151A
Location: Salt Palace Convention Center

Session Chair: Sagren Govender, CSIR

2:00 PM
Macro-Observation of the Interface of the Al-22%Si-Cu/Al-7%Si-MG Bi-Metal Parts Fabricated by Thixoforging: *Zhao Yang*[1]; [1]Central South University

2:30 PM
Semi-solid Processing and Properties of Re-containing Mg Alloys: *Shusen Wu*[1]; Xiaogang Fang[1]; Shulin Lv[1]; Li Zhao[1]; Jing Wang[1]; [1]Huazhong University of Science and Technology

3:00 PM
Research on Fabrication and Semisolid Processing of Semisolid Slurries of 7075 Aluminum Matrix Composites Reinforced with Nano-sized SiC Particles: *Jufu Jiang*[1]; Ying Wang[1]; Shoujing Luo[1]; [1]Harbin Institute of Technology

3:30 PM
Effects of Grain Refiner on the Microstructural Evolution during Making Semi-solid Slurry of the A357 Alloy: *Liang Xiaokang*[1]; Zhu Qiang[2]; [1]General Research Institute for Nonferrous Metal ; [2]General Research Institute for Nonferrous Metal

4:00 PM
Effect of Mushy-state Rolling on Microstructure and Tensile Creep Behaviour of Al4.5Cu ALLOY and In-situ Al4.5Cu-5TiB2 Composite: *Rahul Mitra*[1]; Siddhalingeshwar G.[2]; Monalisa Mandal[1]; Madhusudan Chakraborty[1]; [1]Indian Institute of Technology; [2]BVB College of Engineering and Technology

S2P: Semi-solid Processing of Alloys and Composites — Session VI

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Tuesday PM
October 25, 2016

Room: 151G
Location: Salt Palace Convention Center

Session Chair: Qiang Zhu, General Research Institute for Nonferrous Metals

2:00 PM
A Review on Thixoforming of High Melting Point Alloys: *Ahmed Rassili*[1]; [1]University of Liège

2:30 PM
A Novel Method for Semi-Solid Casting of Hypereutectic Gray Cast Iron in Expendable Mold: *Behzad Niroumand*[1]; [1]Isfahan University of Technology

3:00 PM
The Interface Morphology of Thixo-joined Dissimilar Steels: *Mohammed Alshekhly*[1]; [1]Management & Science University (MSU)

3:30 PM
Time-dependent Thixoforming of H11 Steel and the Effects of Forming Conditions on Segregation of Liquid Phase: *Yi Meng*[1]; Sumio Sugiyama[2]; Jun Yanagimoto[2]; [1]Chongiqng University; [2]The University of Tokyo

4:00 PM
Development of Unconventional Processing of Steels in Semi-Solid State: *Bohuslav Masek*[1]; David Aišman[1]; Filip Vancura[1]; Martin F. - X. Wagner[2]; Hana Jirková[1]; Katerina Rubesova[1]; Katerina Opatova[1]; [1]University of West Bohemia; [2]Technische Universität Chemnitz

Sintering and Related Powder Processing Science & Technologies — Sintering & Grain Growth II

Program Organizers: Ricardo Castro, University of California, Davis; Brady Butler, U.S. Army Research Laboratory; Olivia Graeve, University of California, San Diego; Eugene Olevsky, San Diego State University; Anders Eklund, Quintus Technologies, LLC.

Tuesday PM
October 25, 2016

Room: 150E
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Challenges, Progress and Perspectives of Nanosintering: *Boris Feigelson*[1]; James Wollmershauser[1]; Kedar Manandhar[2]; [1]Naval Research Laboratory; [2]ASEE Postdoctoral Fellow

2:40 PM Invited
Compacting Nanocrystalline Iron-alloy Powders by High Pressure Torsion and Spark Plasma Sintering: *Reiner Kirchheim*[1]; Christine Borchers[1]; Marie Tiegel[1]; Zenji Horita[2]; Kaveh Edalati[2]; [1]University of Goettingen; [2]WPI-Institute, I2CNER

3:20 PM
Grain Growth of Nano-grained Tungsten Powders during Sintering: *Brady Butler*[1]; Jonathan Ligda[2]; Scott Middlemas[2]; James Paramore[2]; [1]U.S. Army Research Laboratory; [2]ORISE Research Participant

3:40 PM Invited
Sintering in Nanocrystalline Alloys Favoring Grain Boundary Segregation and Second Phase Precipitation: *Christopher Schuh*[1]; [1]MIT

4:20 PM Invited
Geometrical and Structural Activity in Sintering of Uniaxially Cold Compacted Metallic Powders: *Alberto Molinari*[1]; Elisa Torresani[1]; Silvia Baselli[1]; [1]University of Trento

5:00 PM
High-pressure High-temperature Gasket Material for Polycrystalline Diamond Synthesis: *Colton Fox*[1]; [1]University of Utah

5:20 PM
In-situ Neutron Scattering upon Sintering of Titanium Alloy Powder Compacts: *Klaus-Dieter Liss*[1]; Gang Chen[2]; Peng Cao[3]; [1]Australian Nuclear Science and Technology Organisation; [2]Northwest Institute for Nonferrous Metal Research; [3]The University of Auckland

Surface Properties of Biomaterials — Bioactivity and Biocompatibility

Program Organizers: Amit Bandyopadhyay, Washington State University; Susmita Bose, Washington State University; Mukesh Kumar, Biomet Inc; Jason Langhorn, DePuy Synthes Joint Reconstruction; Venu Varanasi, Texas A & M University

Tuesday PM
October 25, 2016

Room: 355A
Location: Salt Palace Convention Center

Session Chair: Venu Varanasi, Texas A & M Health Science Center

2:00 PM
Material Replacement to Reduce Protein Loss during Hemodialysis: Patrick Nichols[1]; Jeffrey Bates[1]; *Taylor Sparks*[1]; [1]University of Utah

2:20 PM Invited
Genetically Engineered Materials Building upon Biomimetic Interfaces: *Candan Tamerler*[1]; [1]University of Kansas

2:40 PM Invited
Developing New Biomaterials Surfaces that the FDA will Approve for Implantation: *Thomas Webster*[1]; [1]Northeastern University

3:00 PM
Effect of Topography on Corrosion Rate and Biocompatibility of a Mg Alloy as a Biomaterial: Aydin Tahmasebifar[1]; Said Kayhan[1]; *Muammer Koç*[2]; Zafer Evis[1]; [1]Middle East Technical University; [2]Hamad Bin Khalifa University

3:20 PM
Hydroxyapatite Precipitation on Cast and Forged Ti-6Al-4V and Ti-6Al-7Nb Alloys: *Mahmoud Abdel-salam*[1]; shimaa El-hadad[2]; Waleed Khalifa[3]; [1]Cairo University, Faculty of Engineering; [2]Central Metallurgical Research and Development Institute; [3]Cairo University

3:40 PM
Study of Osteoblast Cells on Different Morphologies of Titanium Dioxide Nanotubes: Umair Shah[1]; *Waseem Haider*[1]; Zia Rahman[1]; Hassnain Asgar[1]; Kashif Deen[2]; [1]Central Michigan University; [2]University of British Columbia

4:00 PM
An Exploration of Plastic Deformation Dependence of Cell Viability and Adhesion in Metallic implant Materials: *Benay Uzer*[1]; Demircan Canadinc[1]; [1]Koc University

Symposium on Applications of Low Emittance Synchrotron X-ray Sources to Mesoscale Materials Studies — Coherent Diffraction and Combined Techniques

Program Organizers: Robert Suter, Carnegie Mellon University; Dean Haeffner, Argonne National Laboratory

Tuesday PM
October 25, 2016

Room: 250D
Location: Salt Palace Convention Center

Session Chair: Dean Haeffner, Advanced Photon Source

2:00 PM Introductory Comments

2:20 PM Invited
A High-energy Microscope at the Upgraded Advanced Photon Source: *Jonathan Almer*[1]; Sarvjit Shastri[1]; [1]Argonne National Laboratory

3:00 PM Invited
Revolutions in Coherent X-ray Sources Will Enable Dynamic Nanometer Scale Strain Imaging in Structural Materials: *Richard Sandberg*[1]; Saryu Fensin[1]; Ross Harder[2]; John Barber[1]; Richard Sheffield[1]; Edward Kober[1]; Reeju Pokharel[1]; Ricardo Lebensohn[1]; Cris Barnes[1]; [1]Los Alamos National Laboratory; [2]Argonne National Laboratory

3:40 PM
Opportunities for Materials Science with New 3D Bragg Ptychography Methods.: *Stephan Hruszkewycz*[1]; [1]Argonne National Laboratory

4:00 PM
Coherent Diffractive Imaging of Defect Dynamics in Nanoparticles: *Andrew Ulvestad*[1]; [1]Argonne National Laboratory

4:20 PM Invited
Process and Performance Control at the Mesoscale and the MaRIE Project: *Mark Bourke*[1]; [1]Los Alamos National Laboratory

Symposium on Large Fluctuations and Collective Phenomena in Materials III — Multicomponent and High Entropy Alloys

Program Organizers: Xie Xie, The University of Tennessee; Karin Dahmen, University of Illinois at Urbana Champaign; Peter Liaw, University of Tennessee; Yong Zhang, University of Science and Technology Beijing

Tuesday PM
October 25, 2016

Room: 250C
Location: Salt Palace Convention Center

Session Chairs: Karin Dahmen, University of Illinois Urbana-Champaign; Peter Liaw, University of Tennessee

2:00 PM Invited
Atomic and Electronic Basis for the Serration Behavior of Ultrastrong BCC Refractory High Entropy Alloys: *William Yi Wang*[1]; Jinshan Li[1]; Shun-Li Shang[2]; Yi Wang[2]; Kristopher Darling[3]; Xie Xie[4]; Oleg Senkov[5]; Laszlo Kecskes[3]; Xidong Hui[6]; Karin Dahmen[7]; Peter Liaw[4]; Zi-Kui Liu[2]; [1]Northwest Polytechnical University; [2]The Pennsylvania State University; [3]US Army Research Laboratory; [4]The University of Tennessee; [5]Air Force Research Laboratory; [6]University of Science and Technology Beijing; [7]University of Illinois at Urbana Champaign

2:40 PM
Heat-treatment Effect on the Serrated Flows in AlxCoCrFeNi (x = 0.1, 0.3, 0.5, and 0.7) High-entropy Alloys (HEAs): Haoyan Diao[1]; Chih-Hsiang Kuo[2]; James Brechtl[2]; Steven Zinkle; Karin Dahmen[3]; *Peter Liaw*[2]; [1]The University of Tennessee ; [2]The University of Tennessee; [3]University of Illinois at Urbana-Champaign

3:00 PM Invited
Atomistic Clustering-ordering Mechanisms and Computational Design of Multicomponent Alloys: *Ganesh Balasubramanian*[1]; [1]Iowa State University

3:40 PM
Dislocation Activities during Deformation in High Entropy Alloy at Cryogenic Environment: *J.P. Liu*[1]; Zhang Yong[1]; [1]University of Science and Technology Beijing

4:00 PM Invited
Serration Behavior in High-entropy Alloys: *Yong Zhang*[1]; [1]University of Science and Technology Beijing

4:40 PM
The Study of Serrated Plastic Flow in Refractory High Entropy Alloys: *Shuying Chen*[1]; Chien-Chang Juan[2]; Jien-Wei Yeh[2]; Karin Dahmen[3]; Peter Liaw[1]; [1]University of Tennessee; [2]National Tsing Hua University; [3]University of Illinois at Urbana Champaign

The 8th International Symposium on Green and Sustainable Technologies for Materials Manufacturing and Processing — Green Manufacturing II

Program Organizers: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST); Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center; Allen Apblett, Oklahoma State University; Marsha Bischel, Armstrong World Industries, Inc.; Surojit Gupta, University of North Dakota; Manish Mehta, National Center for Manufacturing Sciences (NCMS); Makio Naito, Osaka University; Richard Sisson, Worcester Polytechnic Institute, Center for Heat Treating Excellence; Hisayuki Suematsu, Nagaoka University of Technology; Yiquan Wu, Alfred University

Tuesday PM
October 25, 2016

Room: 151C
Location: Salt Palace Convention Center

Session Chairs: Yiquan Wu, Alfred University; Manabu Fukushima, National Institute of Advanced Industrial Science and Technology (AIST)

2:00 PM Invited
A Zero-waste Approach for Concrete, Water, Heat and Electricity: *Richard Riman*[1]; [1]Rutgers University

2:40 PM Invited
Green Synthetic Methods or Molybdates Based On Bimetallic Complexes: *Allen Apblett*[1]; Ahmed Moneeb[1]; Abdulaziz Bagabas[2]; Abdulah Alabdulrahman[2]; [1]Oklahoma State University; [2]King Abdulaziz City for Science and Technology

3:00 PM
Direct N_2O Decomposition Catalysts Based on Lanthanum Silicate: *Naoyoshi Nunotani*[1]; Ryosuke Nagai[1]; Nobuhito Imanaka[1]; [1]Osaka University

3:20 PM
Degradation and Corrosion Mechanism of MgO-C Refrcatory during a Ferro-manganese Processing: *Yongsug Chung*[1]; [1]Korea Polytechnic University

3:40 PM
Utilization of Blast Furnace Flue Dust as Reductant for Iron Nugget Production: *Burak Birol*[1]; [1]Yildiz Technical University

4:00 PM
Production Review of Direct Reduced Iron (DRI) Process from Magnetite Concentrates as an Alternative to CO2 Reduced Emission Gas Product.: Edgar Blanco[1]; *Brian Arista*[1]; [1]FLSmidth Minerals

Ultra High Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense, and Automotive Applications — Bulk Metallic Glass / Shape Memory Alloys

Program Organizers: Ali Yousefiani, Boeing Research and Technology; Troy Topping, California State University, Sacramento

Tuesday PM
October 25, 2016
Room: 150A&B
Location: Salt Palace Convention Center

Session Chair: Robert Dillon, NASA Jet Propulsion Laboratory

2:00 PM Invited
Developing Structural Applications for Bulk Metallic Glasses and Composites: *Douglas Hofmann*[1]; Scott Roberts[1]; [1]NASA JPL/Caltech

2:40 PM Invited
Enabling Ultra-low Temperature Mechanisms with Bulk Metallic Glass Alloys: *Robert Dillon*[1]; John Paul Borgonia[1]; Scott Roberts[1]; Douglas Hofmann[1]; Andrew Kennett[1]; Bryan Mcenerney[1]; Andrew Shapiro-Scharlotta[1]; [1]JPL

3:20 PM
High Throughput Measurements of Mechanical Properties in a Ti-based Bulk Metallic Glass-matrix Composite at Different Length Scales: *Ali Khosravani*[1]; Rene Diaz[1]; Douglas Hofmann[2]; Naresh Thadhani[1]; Surya Kalidindi[1]; [1]Georgia Institute of Technology; [2]NASA Jet Propulsion Laboratory/California Institute of Technology

3:40 PM
Spall Response of Titanium-based Bulk Metallic Glasses and Composites of Varying Crystallinity: *Rene Diaz*[1]; Manny Gonzales[1]; Greg Kennedy[1]; David Scripka[1]; Ali Khosravani[1]; Surya Kalidindi[1]; Douglas Hofmann[2]; Naresh Thadhani[1]; [1]Georgia Institute of Technology; [2]NASA Jet Propulsion Laboratory

4:00 PM
Effects of Aging and Cyclic Heat Treatment on Room Temperature Superelasticity in Oligocrystalline Fe-Mn-Al-Ni Shape Memory Wires: *Hande Ozcan*[1]; Ji Ma[1]; Jeffrey Brown[2]; Ibrahim Karaman[1]; [1]Texas A&M University; [2]Dynalloy

4:20 PM
Effects of Aging and Shape Memory Response on Ultra-high Strength/ Temperature NiTiHfPd SMAs: *Soheil Saedi*[1]; Guher Toker[1]; Osman Ozbulut[2]; Haluk Karaca[1]; [1]University of Kentucky; [2]University of Virginia

Zirconia Based Materials for Cutting Edge Technology — Session I

Program Organizers: Hasan Gocmez, Dumlupinar University; Yuji Hotta, National Institute of Advanced Industrial Science and Technology; Sudipta Seal, University of Central Florida; Hirotaka Fujimori, Yamaguchi University; Cihangir Duran, Yildirim Beyazit University; Kohei Soga, Tokyo University of Science; Takashi Shirai, Nagoya Institue of Technology; Hilmi Yurdakul, TeknoCeram

Tuesday PM
October 25, 2016
Room: 254B
Location: Salt Palace Convention Center

Session Chairs: Hasan Gocmez, Dumlupinar University; Yuji Hotta, National Institute of Advanced Industrial Science and Technology (AIST); Hirotaka Fujimori, Yamaguchi University

2:00 PM Invited
Shape Memory Zirconia: Micro-scale Properties to Macro-scale Applications: *Christopher Schuh*[1]; [1]MIT

2:40 PM Invited
Low Temperature Plastic Flow and Grain Boundary Structure in Nanocrystalline Tetragonal Zirconia Polycrystal (TZP): *Hidehiro Yoshida*[1]; Koji Matsui[2]; Yuichi Ikuhara[3]; [1]National Institute for Materials Science; [2]Tosoh Corporation; [3]The University of Tokyo

3:20 PM
Fabrication of Transparent ZrO2 and Its Applications: *Yasuhiro Kodera*[1]; Guillermo Aguilar[1]; Javier Garay[2]; [1]University of California Riverside; [2]University of California San Diego

3:40 PM
Colloidal Processing and Sintering of ZrO2 Nano Powders: *Cihangir Duran*[1]; Hasan Göçmez[2]; Yuji Hotta[3]; Kimiyasu Sato[4]; Koji Watari[4]; [1]Yildirim Beyazit University; [2]Dumlupinar University; [3]National Institute of Advanced Industrial Science and Technology ; [4]National Institute of Advanced Industrial Science and Technology

4:00 PM
Materials Design for Photonic Applications of Zirconia Based Material: *Kohei Soga*[1]; [1]Tokyo University of Science

4:20 PM
Anelastic and Dielectric Relaxation of 8 mol% Yttria Stabilized Zirconia: Peipei Gao[1]; Amy Bolon[1]; Edgar Lara-Curzio[2]; Andrew Payzant[2]; An Ke[2]; Zorica Brankovic[3]; Goran Brankovic[3]; *Miladin Radovic*[1]; [1]Texas A&M University; [2]Oak Ridge National Laboratory; [3]University of Belgrade

Additive Manufacturing for Surface Engineering of Materials — Session I

Program Organizers: Sandip Harimkar, Oklahoma State University; Arvind Agarwal, Florida International University; Benjamin Boesl, Florida International University ; Hitesh Vora, Oklahoma State University

Wednesday AM
October 26, 2016

Room: 355B
Location: Salt Palace Convention Center

Session Chairs: Arvind Agarwal, Florida International University; Sandip Harimkar, Oklahoma State University

8:00 AM Invited
Microstructural Observation of Inconel 718 Cladding Fabricated by Pulsed Laser Additive Manufacturing: *Mathieu Brochu*[1]; Yuan Tian[1]; Alberto Muniz[1]; [1]McGill University

8:40 AM
Thermal Spray for Additive Manufacturing: *Dale Moody*[1]; Peter Foy[1]; [1]Plasma Powders and Systems Inc.

9:00 AM
Additive Manufacturing for AV-8B Engine Repair at FRC East: *Stephen Brown*[1]; [1]ARL Penn State

9:20 AM
Development of 3D Printing Process for Engineering Graphene Reinforced Poly (Lactic Acid) Composite with Superior Surface Wear Resistance: *Pranjal Nautiyal*[1]; Jenniffer Bustillos[1]; Daniela Zambrano[1]; Benjamin Boesl[1]; Arvind Agarwal[1]; [1]Florida International University

9:40 AM Invited
Additive Manufacturing of Al-Si Alloy Coating on AZ91 Magnesium Alloy Using Cold Metal Transfer Welding: Tanmay Waghmare[1]; Rajeev G[1]; Viswanathan R[1]; Lakshman Neelakantan[1]; *Srinivasa Bakshi*[1]; [1]Indian Institute of Technology Madras

10:00 AM Break

10:20 AM
Cold Spray Coating as a Tool for Additive Repair/Refurbishment of Al Alloy Components: *Sundararajan Govindan*[1]; Naveen Chavan[2]; [1]Indian Institute of Technology Madras; [2]International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

10:40 AM
Ni Based Alloy Additive Manufacturing with CMT Welding: *Ana Sofia D´Oliveira*[1]; Henrique Zenere[1]; Bernhard Guimarães[1]; Luiz Felipe Beltzac[1]; Paulo Okimoto[1]; [1]UFPR - Federal University of Paraná

Additive Manufacturing of Composites and Complex Materials — Techniques

Program Organizers: Jonathan Spowart, Air Force Research Laboratory; Nikhil Gupta, New York University; Dirk Lehmhus, ISIS Sensorial Materials Scientific Centre

Wednesday AM
October 26, 2016

Room: 355E
Location: Salt Palace Convention Center

Session Chairs: Bilal Mansoor, Texas A&M University at Qatar; Ruel McKenzie, Air Force Research Laboratory

8:00 AM
Thermoset Cross-linking Effects on Interlayer Bond Strength of Fused Filament Fabrication Parts: *Andrew Abbott*[1]; Robyn Bradford[1]; Gyaneshwar Tandon[1]; Hilmar Koerner[2]; Katie Thorp[2]; Patricia Hubbard[3]; Roger Avakian[3]; [1]UDRI; [2]USAF; [3]PolyOne

8:20 AM Invited
Interlaminar Strengthening of Multidirectional Laminates Using Additive Manufacturing: Md Shariful Islam[1]; *Pavana Prabhakar*[2]; [1]The University of Texas at El Paso; [2]University of Wisconsin-Madison

8:40 AM
Passive Multi-feed Mixing of Complex Fluids for 3-D Direct Write Assembly: *Ruel McKenzie*[1]; Hilmar Koerner[1]; [1]Air Force Research Laboratory

9:00 AM
Microstructure Design of Novel Composite Lanthanum Zirconate-yttria Stabilized Zirconia Based Thermal Barrier Coatings: Xingye Guo[1]; Zhe Lu[2]; Sung-Hoon Jung[2]; Yeon-Gil Jung[2]; Li Li[3]; James Knapp[3]; *Jing Zhang*[1]; [1]Indiana University - Purdue University Indianapolis; [2]Changwon National University; [3]Praxair Surface Technologies Inc.

9:20 AM
Additive Manufacturing of SiCN Ceramic Matrix for SiC Fiber Composites by Flash Pyrolysis of Nanoscale Polymer Films: *Rishi Raj*[1]; Setareh Azarnoush[1]; [1]University of Colorado

9:40 AM
Binder Jetting of Si3N4-based Composite Ceramics with Different Porosity: L.N. Rabinsky[1]; A.V. Ripetsky[1]; S.A. Sitnikov[1]; *Yury Solyaev*[1]; R.M. Kahramanov[1]; [1]Moscow Aviational Institute

10:00 AM Break

10:20 AM Invited
Engineered and Low Cost Filler Based Lightweight Composites: *Vasanth Chakravarthy Shunmugasamy*[1]; Yasser Al-Hamidi[1]; Bilal Mansoor[1]; [1]Texas A&M University at Qatar

10:40 AM
Alloy Design Multicomponent Hardmetal Alloy for Additive Manufacturing: *Kai-Chun Chang*[1]; An-Chou Yeh[1]; Chen-Wei Li[1]; Jien-Wei Yeh[1]; Su-Jien Lin[1]; Che-Wei Tsai[1]; [1]National Tsing Hua University

11:00 AM
Investigations on Additively Generated Micro-scale, Open-pore Components Based on a Multi-material: *Florian Hengsbach*[1]; Peter Koppa[1]; Martin Holzweißig[2]; Kay-Peter Hoyer[1]; Thomas Tröster[1]; Mirko Schaper[1]; [1]Paderborn University; [2]Benteler Automobiltechnik GmbH

11:20 AM
Additive Manufacturing of High-entropy Alloy Reinforced Aluminum Matrix Composites: *G.M. Karthik*[1]; G.D. Janaki Ram[1]; Ravi Sankar Kottada[1]; [1]Indian Institute of Technology Madras

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Characteristics of AM Superalloys/Components Manufactured by AM

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Wednesday AM
October 26, 2016

Room: 355D
Location: Salt Palace Convention Center

Session Chairs: Sudarsanam Babu, University of Tennessee; Shawn Kelly, EWI

8:00 AM
Characterization of MAR-M247 Fabricated by Electron Beam Melting: *Kinga Unocic*[1]; Alfred Okello[1]; Michael Massey[1]; Michael Kirka[1]; Ryan Dehoff[1]; [1]ORNL

8:20 AM
Effect of Microstructure on the Creep Behavior of Inconel 718 Manufactured via Electron Beam Melting: *Alfred Okello*[1]; Michael Kirka[1]; Kinga Unocic[1]; Ryan Dehoff[1]; [1]Oak Ridge National Laboratory

8:40 AM
Microstructure Characterization and Monotonic Properties of Inconel 718 Manufactured Through Electron Beam Melting in the As-built and Post-processed States: *Michael Kirka*[1]; Kinga Unocic[1]; Ryan Dehoff[1]; Suresh Babu[2]; Alfred Okello[1]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

9:00 AM
Comparison of the Processing Space for Laser-deposited Inconel 625 and 17-4 Stainless Steel: *Colt Montgomery*[1]; Jack Beuth[1]; Shawn Moylan[2]; [1]Carnegie Mellon University; [2]National Institute of Standards and Technology

9:20 AM
Impact of Fe content and Post Processing on Properties of Additively Manufactured Solid Solution Strengthened Nickel Based Alloys: *Zakariya Khayat*[1]; Todd Palmer[1]; [1]Applied Research Lab Penn State University

9:40 AM
Supersolidus Liquid Phase Sintering of Inconel 718: *Peeyush Nandwana*[1]; Amy Elliott[1]; William Peter[1]; Sudarsanam Babu[1]; [1]Oak Ridge National Laboratory

10:00 AM Break

10:20 AM
Fabricating and Characterizing Additively Manufactured Heat Exchanger Tubing: *Paul Korinko*[1]; Haley KcKee[2]; John Bobbitt[1]; Sudarsanam Babu[3]; Frederick List[4]; [1]Savannah River National Laboratory; [2]NNSA National Security Campus; [3]University of TN Knoxville; [4]Oak Ridge National Laboratory

10:40 AM
Manufacturing of W-band Vacuum Electronic Devices with Electron Beam Melting: *John Ledford*[1]; Harvey West[1]; Timothy Horn[1]; [1]CAMAL

11:00 AM
Damage Development in Thin Walled Selective Laser Melted Structures: *Jonas Saarimäki*[1]; Johan Moverare[1]; Håkan Brodin[2]; [1]Linköping University; [2]Siemens Industrial Turbomachinery AB

11:20 AM
Effects of Nickel Superalloy Composition and Geometry in EBM on Microstructure: *Curtis Frederick*[1]; Suresh Babu[1]; Michael Kirka[1]; [1]UTK

11:40 AM
Reliability Estimation of Additive Manufacturing Process Parameters Using Surrogate Modeling: *Azadeh Keshtgar*[1]; Kelvin Leung[1]; Nagaraja Iyyer[1]; [1]TDA

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Modeling of AM Processes

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Wednesday AM
October 26, 2016

Room: 355C
Location: Salt Palace Convention Center

Session Chair: Anthony Rollett, Carnegie Mellon University

8:00 AM
ICME Approach to the Materials Challenges in Additive Manufacturing of Metals: *Jiadong Gong*[1]; David Snyder[1]; Gregory Olson[2]; [1]QuesTek Innovations; [2]Northwestern University

8:40 AM
A Composable Simulation Framework for Microstructure and Mechanical Properties Prediction for Metallic Additive Manufacturing Processes: *Nachiket Patil*[1]; Deepankar Pal[1]; Pradeep Chalavadi[1]; Chong Teng[1]; Kai Zeng[1]; Brent Stucker[1]; [1]3DSIM,LLC

9:00 AM
Materials Based Spatio-temporal Decoupling for the Prediction of Non-linear Thermomechanical Phenomenon in Metal Additive Manufacturing Processes: *Deepankar Pal*[1]; Sally Xu[2]; Samuel Dilip Jangam[1]; Chong Teng[2]; Brent Stucker[2]; [1]University of Louisville; [2]3DSIM

9:20 AM
Predictive Modeling of Grain Growth in Laser-based Additive Manufacturing of Austenitic Stainless Steel: *Wenda Tan*[1]; [1]University of Utah

9:40 AM
A Partial Solution to Modeling the Anisotropic
Material Properties of Fused Deposition Modeling ABS - Part 1 of 2: *Ross Fischer*[1]; Keenan Jewkes[1]; Scott Kessler[1]; [1]Colorado Mesa University

10:00 AM Break

10:20 AM
Spatial Control of AM Solidification Microstructure across Multiple Alloys and Processes: *Sneha Narra*[1]; Jack Beuth[1]; [1]Carnegie Mellon University

10:40 AM
Phase Field Modeling of Solidification Microstructure during Laser Sintering of Inconel 625: *Supriyo Ghosh*[1]; Jonathan Guyer[1]; [1]National Institute of Standards and Technology

11:00 AM
Simulating Metal Additive Manufacturing Microstructures with Kinetic Monte Carlo: *Theron Rodgers*[1]; Jonathan Madison[1]; Veena Tikare[1]; [1]Sandia National Laboratories

11:20 AM
Site Specific Texture Control In EBAM Process Using Numerical Modeling and Optimization Techniques Aided by High Performance Computing: *Narendran Raghavan*[1]; Ryan Dehoff[2]; John Turner[2]; Srdjan Simunovic[2]; Michael Kirka[2]; Neil Carlson[3]; Sudarsanam Babu[1]; [1]University of Tennessee Knoxville; [2]Oak Ridge National Laboratory; [3]Los Alamos National Laboratory

11:40 AM
Continuum Modelling of Solidification during Additive Manufacturing: *Ramanarayan Hariharaputran*[1]; David T Wu[1]; [1]Institute of High Performance Computing, Agency for Science, Technology and Research, Singapore

Additive Manufacturing: In-situ Process Monitoring, Defect Detection and Control — Directed Energy Deposition and Related Technologies

Program Organizers: Ulf Ackelid, Arcam AB; Ian D. Harris, EWI; Andrzej Wojcieszynski, ATI Powder Metals; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harrysson, North Carolina State University; Rodney Boyer, Monash University

Wednesday AM
October 26, 2016

Room: 355A
Location: Salt Palace Convention Center

Session Chair: Sudarsanam Babu, University of Tennessee

8:00 AM
Effect of Process Parameters on the Deposit Geometry of Directed Energy Deposits: Jay Christ[1]; *Niyanth Sridharan*[1]; Ralph Dinwiddie[2]; Sudaranam Babu[1]; Ryan Dehoff[2]; Anil Chaudhary[3]; Brian Jordan[2]; [1]University of Tennessee Knoxville; [2]Oak Ridge National Lab; [3]Applied Optimization

8:20 AM
Feedback Control of Blown-powder Additive Deposition: *R Mark Ward*[1]; Luke Carter[1]; Thomas Kosche[2]; Nicholas Adkins[1]; [1]University of Birmingham; [2]BCTGmbh

8:40 AM
Optical Emissions Monitoring of Directed Energy Deposition and Powder Bed Fusion: *Abdalla Nassar*[1]; Alexander Dunbar[1]; Edward Reutzel[1]; Jared Blecher[2]; [1]Penn State University; [2]3D Systems

9:00 AM
In Situ Monitoring of Directed Energy Deposition: *Cameron Knapp*[1]; Thomas Lienert[1]; John Carpenter[1]; Desiderio Kovar[2]; [1]Los Alamos National Laboratory; [2]University of Texas at Austin

9:20 AM
Thermal Measurements of Process and Microstructural Validation for Ti-6Al-4V and Inconel 625 Material: *Frederick Lia*[1]; Joshua Park[1]; Michael Gouge[1]; Jayme Keist[1]; Panagiotis Michaleris[1]; Richard Martukanitz[1]; [1]ARL at the Pennsylvania State University

9:40 AM
Towards Real-time Regulation of Build Geometry in a Directed Energy Deposition Process Using Vision-based Feedback Control: *Dustin Seltzer*[1]; Jeff Schiano[1]; Abdalla Nassar[1]; Edward Reutzel[1]; [1]Penn State University

10:00 AM Break

10:20 AM
Distortion Analysis and Reduction for Layerwise Additive Manufacturing Processing by a Laminated Layerwise Analytical Model and Tool: *Jinquan Cheng*[1]; [1]Composite Solutions and Digital Manufacturing LLC

10:40 AM
Integrated Process Monitoring Physics-based Modeling Approach for Uncertainty Quantification in Metal-based Additive Manufacturing: *Alaa Elwany*[1]; Raymundo Arroyave[1]; Ibrahim Karaman[1]; Ji Ma[1]; Gustavo Tapia[1]; Brian Franco[1]; Kubra Karayagiz[1]; [1]Texas A&M University

11:00 AM
Thermal Control to Achieve Consistent and Uniform Mechanical Properties: *James Craig*[1]; Edward Reutzel[2]; Abdalla Nassar[2]; [1]Stratonics, Inc.; [2]ARL/Penn State University

11:20 AM
The Effect of Global Heat Control on Melt Pool Temperature and Size: *James Craig*[1]; Sarah Kuntz[2]; [1]Stratonics, Inc.; [2]Wright State Institute

Advanced High Strength Steel Design / Technological Exploitation — Plate, Bar, and Structural Steels

Program Organizers: Alla Sergueeva, The NanoSteel Company; Daniel Branagan, The NanoSteel Company; Kester Clarke, Colorado School of Mines

Wednesday AM
October 26, 2016

Room: 155F
Location: Salt Palace Convention Center

Session Chairs: Keith Taylor, SSAB; Amar De, ArcelorMittal

8:00 AM
Influence of Composition and Processing on the Strength and Torsional Ductility of High Strength Steel Wire: *Christina Ciganik*[1]; John Speer[1]; Kip Findley[1]; Walther Van Raemdonck[2]; [1]Advanced Steel Processing and Products Research Center; [2]N.V. Bekaert S.A.

8:20 AM
Precipitation Strengthening by Induction Treatment in High Strength Low Carbon Microalloyed Hot Rolled Plates: Gorka Larzabal[1]; *Nerea Isasti*[1]; Beatriz Pereda[1]; Jose Rodriguez-Ibabe[1]; Pello Uranga[1]; [1]CEIT and Tecnun (University of Navarra)

8:40 AM
Validation of an Indirect Technique to Quantify the Amount of Niobium in Solution Prior to Hot Rolling: Gorka Larzabal[1]; Leire Garcia-Sesma[1]; Beatriz Pereda[1]; Pello Uranga[1]; Marcelo Rebellato[2]; Beatriz López[1]; *Jose Rodriguez-Ibabe*[1]; [1]CEIT and Tecnun (University of Navarra); [2]RMS

9:00 AM
Effect of Heat Treatment on the Strength and Toughness Matching of High Strength and High Toughness Low Alloy Cast Steel
: *Yang Gao*[1]; Yongji Niu[1]; Zhenrui Li[1]; Shifeng Shi[1]; [1]Beijing Beiye Functional Materials Corporation

9:20 AM
Phase Reversion-induced Nanograined/Ultrafine-grained (NG/UFG) Low Carbon Microalloyed Steel: Low Temperature Superplasticity: *Venkata Sai Challa*[1]; Yashwanth Injeti[1]; Devesh Misra[1]; Jun Hu[2]; Lin-Xiu Du[2]; [1]University of Texas at El Paso; [2]Northeastern University

9:40 AM
Advanced Strong and Ductile Low Alloy Multiphase Steels with Superior Work Hardening Capability: *Abhinav Varshney*[1]; Sandeep Sangal[1]; Kallol Mondal[1]; [1]IIT Kanpur

10:00 AM Break

10:20 AM
The Impact of Processing on Structure-property Relationship in Ultrahigh Strength Nb-Ti Microalloyed Steels: Venkata Sai Challa[1]; *Venkata Natarajan*[1]; Devesh Misra[1]; Michael Mulholland[2]; Dmitri Sidorenko[2]; Jack Hartmann[2]; [1]University of Texas at El Paso; [2]ArcelorMittal Global R&D

10:40 AM
Thermomechanical Process Development of a Ferrite-bainite 540MPa HR Steel for Automotive Use, the Impact of the Run Out Table Technology: *Lucia Nares Candia*[1]; Omar García[1]; Roberto Bruna[2]; César Villanueva[1]; Daniel Vázquez[1]; [1]Ternium México; [2]Ternium Siderar

11:00 AM
Effect of Austempering Temperature and Time on Mechanical Properties of SAE 9260 Steel: *Ranjit Dalwatkar*[1]; [1]Bharat Forge Ltd India

11:20 AM
Application of High Strength and Ultra-High Strength Steel Tubes in Structural Sections: Mechanical Properties and Micro-Structure: *Fatemeh Javidan*[1]; Amin Heidarpour[1]; Xiao-Ling Zhao[1]; Christopher Hutchinson[1]; [1]Monash University

11:40 AM
Effect of Magnesium Addition on Inclusion Size Distribution in OCTG Steel: Linzhu Wang[1]; Li Jingshe[1]; Yang Shufeng[1]; Zhang Shuo[1]; *Wang Yang*[1]; [1]University of Science and Technology Beijing

Advanced Manufacturing Technologies — Advanced Manufacturing- Processes

Program Organizer: Muammer Koc, HBKU / Qatar Foundation

Wednesday AM
October 26, 2016

Room: 150F
Location: Salt Palace Convention Center

Session Chair: Muammer Koc, HBKU / QF

8:00 AM Introductory Comments

8:10 AM
Finite Element Analysis and Simulation of the Manufacturing Process of Hot Formed Vessel Heads: Fatima Mendez[1]; *Roberto Ramirez*[1]; Ricardo Araiza[1]; Miguel Quiñones[2]; [1]University of Monterrey; [2]Melter, S.A. de C.V.

8:30 AM
Numerical Simulation and Experimental Validation of Hydroforming of Square Cups Using Cryorolled Aluminum Alloy Sheets: *Fitsum Feyissa*[1]; Ravi Digavali[1]; [1]IIT Delhi

8:50 AM
Rapid Heat Treatment Process Using Microwaves-A Novel Approach: Swaminathan G[1]; *Prasanna Venkatesh P R*[1]; Rajendra Prasad A[1]; [1]Sri Sairam Engineering College

9:10 AM
Sustainable Electrochemical Machining for Metal Recovery, Elimination of Waste, and Minimization of Water Usage: *Brian Skinn*[1]; Savidra Lucatero[1]; Stephen Snyder[1]; EJ Taylor[1]; Timothy Hall[1]; Heather McCrabb[1]; Holly Garich[1]; Maria Inman[1]; [1]Faraday Technology, Inc.

9:50 AM
The Profile Correction Module: A Whole New Approach to Coil Coating: *Michael Bonner*[1]; [1]Saint Clair Systems, Inc.

10:10 AM Break

10:30 AM
Research on the Cutting Thermodynamic Behavior of High-strength Large-thickness Offshore Jack-up Platform Leg Rack: Zhou Hong[1]; [1]Jiangsu University of Science and Technology

10:50 AM
Diffusion Bonding in Advanced Manufacturing Process Chains: *Simon Jahn*[1]; Felix Gemse[1]; Steffen Dahms[1]; Udo Broich[2]; Jan Pfeiffer[2]; [1]ifw Jena; [2]PVA LWT

11:30 AM
Wear and Hardness Properties of Surface Modification of Copper Alloy Processed by Friction Stir Process: *Kazeem Sanusi*[1]; Esther Akinlabi[1]; [1]University of Johannesburg

11:50 AM
Advanced Manufacturing Investments by the DOE EERE Advanced Manufacturing Office: *David Hardy*[1]; [1]DOE EERE AMO

Advancements in In-situ Electron Microscopy Characterization — Combining In-situ Electron Microscopy with Advanced Mapping

Program Organizers: Khalid Hattar, Sandia National Laboratories; Josh Kacher, Georgia Tech; Daniel Gianola, University of California, Santa Barbara; Judith Yang, University of Pittsburgh; Amith Darbal, AppFive LLC

Wednesday AM
October 26, 2016

Room: 253A
Location: Salt Palace Convention Center

Session Chairs: Daniel Gianola, University of California, Santa Barbara; Amith Darbal, AppFive

8:00 AM Invited
Cross-correlative Precession Electron Diffraction: Atom Probe Tomography Study of Solute Segregation in Grain Boundaries: Xuyang Zhou[1]; Xiao-xiang Yu[1]; Tyler Kaub[1]; Richard Martens[1]; *Gregory Thompson*[1]; [1]University of Alabama

8:40 AM
Simulated Kikuchi Diffraction from Atomistic Structures: *Adam Herron*[1]; Eric Homer[1]; Douglas Spearot[2]; Shawn Coleman[3]; [1]Brigham Young University; [2]University of Florida; [3]U.S. Army Research Laboratory

9:00 AM
Examination of Grain Boundary Character Evolution in Copper through In-situ Annealing in SEM and TEM: *Asher Leff*[1]; Brandon Runnels[2]; Austin Nye[1]; Ryan Demott[1]; Irene Beyerlein[3]; Mitra Taheri[1]; [1]Drexel University; [2]University of Colorado Colorado Springs; [3]Los Alamos National Laboratory

9:20 AM Invited
Real-time Mapping of Nanoscale Functionality Utilizing Advanced Scanning Diffraction: *Jim Ciston*[1]; [1]Lawrence Berkeley National Laboratory

10:00 AM Break

10:20 AM Invited
A Study of Texture and Phase Evolution during Grain Growth of Nanocrystalline Ni Thin Films by In-situ and Precession Electron Diffraction Microscopy: Szu-Tung Hu[1]; Shreyas Rajasekhara[2]; Khalid Hattar[2]; *Paulo Ferreira*[1]; [1]University of Texas at Austin; [2]Sandia National Laboratories

11:00 AM
Influence of Noise Generating Factors on Cross Correlation EBSD Measurement of GNDs: *Landon Hansen*[1]; David Fullwood[1]; Brian Jackson[1]; Stuart Wright[2]; Marc De Graef[3]; Eric Homer[1]; Robert Wagoner[4]; [1]Brigham Young University; [2]EDAX; [3]Carnegie Mellon University; [4]Ohio State University

11:20 AM
In-situ TEM Study of the Initial Oxidation Behavior of Zirconium under High Humidity Environments: *Wayne Harlow*[1]; Mitra Taheri[1]; [1]Drexel University

11:40 AM
An In-situ TEM Observation on the Stability of Al0.3CoCrFeNi High Entropy Alloys under High Temperature Oxidation Environments: *Elaf Anber*[1]; Wayne Harlow[1]; Haoyan Diao[2]; Peter Liaw[2]; Mitra Taheri[1]; [1]Drexel University; [2]The University of Tennessee Knoxville,

Advances in Dielectric Materials and Electronic Devices — Ferroics and Multiferroics II

Program Organizers: Amar Bhalla, The University of Texas at San Antonio; Ruyan Guo, The University of Texas at San Antonio; K. M. Nair, E.I.duPont de Nemours & Co, Inc; Danilo Suvorov, Jožef Stefan Institute; Rick Ubic, Boise State University

Wednesday AM
October 26, 2016

Room: 255F
Location: Salt Palace Convention Center

Session Chairs: Rick Ubic, Boise State University; Luiz Cotica, State University of Maringa; Vojislav Mitic, University of Nis, Faculty of Electronic Engineering; Ivair Santos, State University of Maringá

8:00 AM Invited
Growth Peculiarities of PMN-PT Thin Films Prepared with Pulsed-laser Deposition: *Danilo Suvorov*[1]; Urška Gabor[1]; Matjaž Spreitzer[1]; [1]Jožef Stefan Institute

8:20 AM Invited
Anomalous Magnetic Behavior in BiFeO3-PbTiO3 Multiferroic Nanoparticles: *Ivair Santos*[1]; Valdirlei Freitas[2]; Taiana Bonadio[2]; Ricardo Miyahara[2]; Luiz Cotica[1]; José Eiras[3]; Fabiano Yokaichyia[4]; Ruyan Guo[5]; Amar Bhalla[5]; [1]State University of Maringá; [2]State University of West-Center; [3]Federal University of São Carlos; [4]Helmholtz Zentrum Berlin fur Materialien und Energie; [5]University of Texas at San Antonio

8:40 AM
Effects of Crystallographic Texture in Bi-based Piezoelectric Thin Films: *Austin Fox*[1]; Brady Gibbons[1]; [1]Oregon State University

9:00 AM
Combinatorial Synthesis of Piezoelectrics Using an Inkjet Printer: *Fred Marlton*[1]; Owen Standard[1]; John Daniels[1]; [1]University of New South Wales

9:20 AM
Synthesis and Properties of Nanostructured BiFeO3 Ceramics Obtained under Extreme Conditions: *Ivair Santos*[1]; Eduardo Volnistem[2]; Gustavo Dias[2]; Luiz Cotica[2]; Diego Viana[3]; Ducinei Garcia[3]; José Eiras[3]; Ruyan Guo[1]; Amar Bhalla[1]; [1]University of Texas at San Antonio; [2]State University of Maringá; [3]Federal University of São Carlos

9:40 AM Invited
Induced High-temperature Relaxor Behavior in Intrinsically Ferroelectric Bismuth and Lead Based Complex Oxides: *Akansha Dwivedi*[1]; [1]IIT BHU

10:00 AM Break

10:20 AM Invited
Environmental Friendly Strontium Titanate Based Double Perovskites for High Temperature Thermoelectric Power Generation: *Tanmoy Maiti*[1]; [1]IIT Kanpur

10:40 AM
Synthesis and Properties of Lead-free BNBT-based PTCR Thermistor Ceramics: *Jörg Töpfer*[1]; Daniel Mächler[1]; [1]Univ. Appl. Sciences Jena

11:00 AM
Recent Development of Perovskite-based Composite Ceramics for High Temperature Thermistor Applications: *Bo Zhang*[1]; Qing Zhao[1]; Aimin Chang[1]; [1]Xinjiang Technical Institute of Physics & Chemistry of CAS

11:20 AM
Rapidly Transient Electronic Systems Using Stress Engineered Glass: *Gregory Whiting*[1]; [1]Palo Alto Research Center

11:40 AM
Bulk Relaxor Ferroelectric Ceramics as Refrigerant Elements in a Dielectric Cooling Device: *Zdravko Kutnjak*[1]; Uros Plaznik[2]; Andrej Kitanovski[3]; Brigita Rozic[1]; Barbara Malic[1]; Hana Ursic[1]; Marko Vrabelj[1]; Qiming Zhang[4]; [1]Jozef Stefan Institute; [2]University of Ljubljana; [3]University of Ljubljana ; [4]The Pennsylvania State University

Art and Cultural Heritage: Discoveries and Education — Art and Cultural Heritage: Discoveries I

Program Organizers: Glenn Gates, Walters Art Museum; Darryl Butt, University of Utah

Wednesday AM
October 26, 2016

Room: 251F
Location: Salt Palace Convention Center

Session Chair: Darryl Butt, University of Utah

8:30 AM Introductory Comments

8:40 AM Invited
Fracture on Marble-adhesive Interfaces of Restored Art Structures: *Ting Tan*[1]; Nima Rahbar[2]; Carolyn Riccardelli[3]; George Wheeler[4]; Wole Soboyejo[5]; [1]The University of Vermont; [2]Worcester Polytechnic Institute; [3]Metropolitan Museum of Art; [4]Superstructures-Engineers and Architects; [5]Princeton University

9:00 AM
Role of Patina in the Construction of the Poetic Image of Colombian Sculpture of 20th Century: Claudia Silva[1]; Henry Colorado[1]; *Gabriel Velez*[1]; [1]Universidad de Antioquia

9:20 AM
Using Supercritical Carbon Dioxide to Rehydrate Oven Dried Samples of Modern and Historic Wood with and without the Use of a Co-solvent: *Georgina Hammond*[1]; [1]University of Birmingham

9:40 AM
A Materials Scientist in a Geologist's World: Using Petrography to Study Ancient Roman Ceramics: *Alison Trachet*[1]; [1]University of Florida

10:00 AM
Characterization of 11th C AD Bismuth Containing Lusterwares from Uzbekistan and Kazakhstan: *Sean Arnold*[1]; Pamela Vandiver[1]; [1]University of Arizona

10:20 AM Break

10:40 AM
Reverse Engineering Ancient Greek Ceramics: *Patricia McGuiggan*[1]; Sanchita Balachandran[1]; Matt Hyleck[2]; [1]Johns Hopkins University; [2]Baltimore Clayworks

11:00 AM
Characterization of Native Copper Refining through Optical Metallography of the Copper Oxide Phase: Megan Godby[1]; *Karl Rundman*[2]; Paul Sanders; [1]Michigan Technological University; [2]Retired

11:20 AM
Studying Plating Thickness and Base Material Composition of Modern Silver-plated Cultural Heritage Objects Using a Handheld X-ray Fluorescence Spectrometer: *Matthew Carl*[1]; Marcus Young[1]; [1]University of North Texas

11:40 AM
Thermal Spray in Art & Architecture: *Dale Moody*[1]; Peter Foy[1]; [1]Plasma Powders and Systems Inc.

Boron, Boron Coatings, Boron Compounds and Boron Nanomaterials: Structure, Properties, Processing, and Applications — Atomically Thin Boron

Program Organizers: Roumiana Petrova, New Jersey Institute of Tech; Jens Kunstmann, TU Dresden

Wednesday AM
October 26, 2016

Room: 260B
Location: Salt Palace Convention Center

Session Chair: Jens Kunstmann, TU Dresden

8:00 AM Invited
Synthesis of Atomically Thin Boron Films on Metal Substrates: *Guoan Tai*[1]; [1]Nanjing University of Aeronautics and Astronautics

8:40 AM Invited
Deciphering Multi-center Bonding in Boron Chemistry: *Alexander Boldyrev*[1]; [1]Utah State University

9:20 AM Invited
Synthesis of Borophenes: Anisotropic, Two-dimensional Boron Polymorphs: *Andrew Mannix*[1]; Xiang-Feng Zhou[2]; Brian Kiraly[1]; Joshua Wood[3]; Diego Alducin[4]; Benjamin Myers[3]; Xiaolong Liu[3]; Brandon Fisher[5]; Ulises Santiago[4]; Jeffrey Guest[5]; Miguel Yacaman[4]; Arturo Ponce[4]; Artem Oganov[6]; Mark Hersam[3]; Nathan Guisinger[5]; [1]Northwestern University/Argonne National Laboratory; [2]Nankai University; [3]Northwestern University; [4]University of Texas San Antonio; [5]Argonne National Laboratory; [6]Skolkovo Institute of Science and Technology

10:00 AM Break

10:20 AM Invited
Realization of Two-dimensional Boron Sheets: *Hui Li*[1]; [1]Institute of Physics, Chinese Acadamey of Sciences

11:00 AM
Energy Decomposition Analysis of 2D Boron Crystals from First Principles: Tomasz Tarkowski[1]; Jacek Majewski[1]; *Nevill Gonzalez Szwacki*[1]; [1]University of Warsaw

11:20 AM Invited
Nanosheets of MgB_2 as a New Class of 2D Semiconductor: Bo Xu[1]; *Scott Beckman*[1]; [1]Washington State University

Ceramic Matrix Composites — Processing and Properties of Ceramic Composites

Program Organizers: J. P. Singh, U.S. Army Research Laboratory; Narottam Bansal, NASA Glenn Research Center; Jacques Lamon, CNRS; Sung Choi, Naval Air Systems Command

Wednesday AM
October 26, 2016

Room: 254A
Location: Salt Palace Convention Center

Session Chairs: Sung Choi, Naval Air Systems Command; Ramasis Goswami, Naval Research Laboratory

8:00 AM
Microstructures and Properties of Al/Al_2O_3 Multilayers: *Ramasis Goswami*[1]; Chandra Pande[1]; [1]Naval Research Laboratory

8:20 AM
Processing Optimization and Improved Tribological Performance of Si3N4/Ti(C,N) Nanocomposite under Low Hertzian Stress: *Jow-Lay Huang*[1]; Ching-Huan Lee[1]; Horng-Hwa Lu[2]; [1]National Cheng Kung University; [2]National Chin-Yi University of Technology

8:40 AM
Processing and Elevated Temperature Mechanical Properties of ZrB2/ZrB2-C Laminates: *Connor Wittmaier*[1]; William Fahrenholtz[1]; Greg Hilmas[1]; [1]Missouri University of Science and Technology

9:00 AM
Microstructure and Mechanical Properties of Metal-ceramic Composites Produced through In-situ Partial Reduction: *Kevin Anderson*[1]; Richard Vinci[1]; Helen Chan[1]; [1]Lehigh University

9:20 AM
Synthesis of Nanocrystalline Ultrahigh Temperature Tantalum Hafnium Carbide Solid Solution Powders and Related Nanocomposites: *Paniz Foroughi*[1]; Zhe Cheng[1]; [1]Florida International University

9:40 AM
Self-healing Function of Mullite-based Composites at High Temperatures: *Makoto Nanko*[1]; Hai Pham[1]; [1]Nagaoka University of Technology

10:00 AM Break

10:20 AM
Carbon Nanotube and In-situ Titanium Carbide Reinforced Titanium Diboride Matrix Composites Synthesized by Reactive Spark Plasma Sintering: Karthiselva N[1]; *Srinivasa Bakshi*[1]; [1]Indian Institute of Technology Madras

10:40 AM
Effect of SiC Content on Thermal and Ablation Properties of Pressureless Sintered ZrB2-based Ultrahigh Temperature Ceramic Composites: *Rahul Mitra*[1]; Manab Mallik[2]; Ansu Kailath[3]; Kalyan Ray[1]; [1]Indian Institute of Technology; [2]National Institute of Technology; [3]National Metallurgical Laboratory, Jamshedpur

11:00 AM
Compaction Plasticity of Ceramic Spray Dried Granules to Form Microstructural Uniformity and Green Strength: *Ian Maher*[1]; [1]Rutgers University

11:20 AM
Microstructure Evaluation of Extruded Titanium Dioxide: *Mustafa Al-Azzawi*[1]; [1]Rutgers University

11:40 AM
Study on the Characteristic and Effect of the Nickel Ferrite Spinel Cermet as Al Electrolysis Inert Anode: *Yihan Liu*[1]; Xiaomeng Zhao[1]; [1]Northeastern University

Computational Design of Ceramics and Glasses — Disordered Materials and Irradiation Effects

Program Organizers: Mathieu Bauchy, University of California, Los Angeles; Liping Huang, Rensselaer Polytechnic Institute; Peter Kroll, University of Texas at Arlington

Wednesday AM
October 26, 2016

Room: 252A-B
Location: Salt Palace Convention Center

Session Chairs: Emanuela Del Gado, Georgetown University; Roland Pellenq, MIT-CNRS

8:00 AM Invited
Mesoscale Modeling of Laser-induced Crystallization of Amorphous Ge: Luis Sandoval[1]; Celia Reina[2]; *Jaime Marian*[3]; [1]Los Alamos National Laboratory; [2]University of Pennsylvania; [3]University of California Los Angeles

8:40 AM Invited
Development of Potentials for Molecular Dynamics Simulations of Multi-component Glasses: Siddharth Sundararaman[1]; Simona Ispas[2]; Walter Kob[2]; *Liping Huang*[1]; [1]Rensselaer Polytechnic Institute; [2]Universite Montpellier 2

9:20 AM
Modeling and Simulation of Amorphous Silicon Boron Nitride Ceramics: *Peter Kroll*[1]; Atreyi Dasmahapatra[1]; [1]University of Texas at Arlington

9:40 AM
Ab-initio Modeling, Thermochemistry, and GIPAW-NMR Calculations of HfO2-Na2O-SiO2 Glasses: *Ilia Ponomarev*[1]; Peter Kroll[1]; [1]University of Texas at Arlington

10:00 AM Break

10:20 AM Invited
Computer Simulation of Swift Heavy Ion Irradiation Damage in Nuclear Fuel: *Ram Devanathan*[1]; Weilin Jiang[1]; [1]Pacific Northwest National Laboratory

11:00 AM Invited
Irradiation-induced Damage in Minerals: Influence of the Atomic-topology: *N M Anoop Krishnan*[1]; Bu Wang[1]; Gaurav Sant[2]; Mathieu Bauchy[1]; [1]Physics of AmoRphous and Inorganic Solids Laboratory (PARISlab), University of California Los Angeles; [2]Laboratory for the Chemistry of Construction Materials, University of California Los Angeles

11:40 AM
Coupled Effects of Nuclear and Electronic Energy Loss in Ceramics Under Irradiation: *Eva Zarkadoula*[1]; Yanwen Zhang[1]; William Weber[2]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials — Session II

Program Organizers: Gurpreet Singh, Kansas State University; Kathy Lu, Virginia Tech; Sanjay Mathur, University of Cologne; Eugene Olevsky, San Diego State University; Edward Gorzkowski, Naval Research Laboratory ; Menka Jain, University of Connecticut; Hidehiro Kamiya, Tokyo University of Agriculture and Technology; Bhanu Chauhan, William Paterson University; Haitao Zhang, UNC Charlotte; Bhanu Chauhan, William Paterson University

Wednesday AM
October 26, 2016

Room: 257B
Location: Salt Palace Convention Center

Session Chair: Kathy Lu, Virginia Tech

8:00 AM Invited
Metastable-stable Phase Diagrams in the Zirconia-scandia System for Controlled Synthesis on a Nanoscale: *Hirotaka Fujimori*[1]; Masatomo Yashima[2]; Masahiro Yoshimura[3]; [1]Yamaguchi University; [2]Tokyo Institute of Technology; [3]National Cheng Kung University

8:40 AM
On the Possibility of Using Sintering to Synthesize Materials with Low Structural Defects for Opto-electronic Applications: *Amit Samanta*[1]; Andrew Lange[2]; Hasti Majidi[2]; Selim Elhadj[1]; [1]Lawrence Livermore National Laboratory; [2]University of California, Davis

9:00 AM
Commercial Processing of Aluminum Composites with Nano Alumina Reinforcement: *William Harrigan*[1]; [1]Gamma Technology, LLC

9:20 AM Invited
Polar Surface Domains Strontium Titanate Surfaces: Yisi Zhu[1]; Paul Salvador[1]; *Gregory Rohrer*[1]; [1]Carnegie Mellon University

10:00 AM Break

10:20 AM
Two-stage Sintering of Nano-sized Yttria Stabilized Zirconia with Polymer Sphere Generated Porosity: *Edward Gorzkowski*[1]; Scooter Johnson[1]; James Wollmershauser[1]; Stephanie Wimmer[1]; [1]Naval Research Laboratory

10:40 AM
Nanoparticle Doping for High Energy Fiber Lasers: *Colin Baker*[1]; Joseph Friebele[1]; Woohong (Rick) Kim[1]; Charles Askins[1]; John Peele[2]; Barbara Marcheschi[1]; Jasbinder Sanghera[1]; Jun Zhang[3]; Radha Pattnaik[3]; Larry Merkle[3]; Mark Dubinskii[3]; Youming Chen[3]; Iyad Dajani[4]; Cody Mart[5]; [1]Naval Research Laboratory; [2]Sotera Defense Solutions; [3]Army Research Laboratory; [4]Air Force Research Laboratory; [5]University of Arizona

11:00 AM
Laser Assisted Synthesis of Ligand Free Nanostructures for Sensing Applications: *Komal Bagga*[1]; Ronan McCann[1]; Robert Groarke[1]; Brian Freeland[1]; Mercedes Vazquez[1]; Dermot Brabazon[1]; [1]Dublin City University

11:20 AM
Controlled Growth of Regular MoO3 Nanoribbons and MoO3-based Heterostructures: Soheil Razmyar[1]; *Haitao Zhang*[1]; [1]UNC Charlotte

11:40 AM Invited
Zero Grain Boundary Energy Ceramics: *Ricardo Castro*[1]; Nazia Nafzin[1]; [1]University of California, Davis

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Session II

Program Organizers: Albert T. Wu, National Central University; Iver Anderson, Ames Laboratory

Wednesday AM
October 26, 2016

Room: 257A
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM Invited
Heat-Free Soldering Using Undercooled Metals: Simge Cinar[1]; Ian Tevis[1]; Jiahao Chen[1]; *Martin Thuo*[1]; [1]Iowa State University

8:40 AM
Subgrain Rotation of Single-crystal Solder Joints at Symmetrical Locations of a BGA Component under Thermal Shock: Fu Guo[1]; *Shihai Tan*[1]; Jing Han[1]; [1]Beijing University of Technology

9:00 AM
β-Sn Grain Formation in Aluminum-modified Lead-free Solder Alloys: *Kathlene Reeve*[1]; Iver Anderson[2]; Carol Handwerker[1]; [1]Purdue University; [2]Ames Laboratory

9:20 AM
Early Stages of Formation and Growth of the Cu6Sn5 Compound during Soldering Reactions between Liquid Sn-based Alloys and a Cu Substrate: Oleksii Liashenko[1]; Sabine Lay[1]; *Fiqiri Hodaj*[1]; [1]Grenoble Institute of Technology

9:40 AM
Development of Metal-coated Carbon Nanotubes Reinforced Tin Composite by Ultra-sonication Assisted Melting Process and Characterization: *Md Muktadir Billah*[1]; Quanfang Chen[1]; [1]University of Central Florida

10:00 AM
On the Growth Kinetics of Cu6Sn5 Phase during Reaction between a Supercooled Sn-Cu Solder Alloy and Cu Substrate: Role of the Physic State of the Solder: Oleksii Liashenko[1]; *Fiqiri Hodaj*[1]; [1]Grenoble Institute of Technology

10:20 AM Break

10:40 AM
A Study on Thermal Shock Property of Cu-filled through Silicon Via: Ma Limin[1]; *Zhao Xuewei*[1]; Guo Fu[1]; [1]Beijing University of Technology

11:00 AM
Study of the Solid-state Diffusion of Bismuth in Tin Using Electron Probe Microanalysis (EPMA): *Andre Delhaise*[1]; Doug Perovic[1]; [1]University of Toronto

11:20 AM
Investigation on Subgrain Rotation Behavior in Lead-free Solder Joints during Thermal Fatigue Using EBSD In-situ Observation Technique: *Jing Han*[1]; Fu Guo[1]; Jianping Liu[1]; [1]Beijing University of Technology

Energy Storage VI: Materials, Systems and Applications Symposium — Li-ion Batteries

Program Organizers: Xingbo Liu, West Virginia University; Keeyoung Jung, Research Institute of Industrial Science and Technology (RIST); Yang-Tse Cheng, University of Kentucky

Wednesday AM
October 26, 2016

Room: 250B
Location: Salt Palace Convention Center

Session Chair: Xingbo Liu, West Virginia University

8:00 AM
Biomass-based Carbon Fibers for Energy Applications: *Ryan Paul*[1]; Xuliang Dai[1]; Shadab Shaikh[1]; [1]GrafTech International Holdings Inc.

8:20 AM
Carbon Coated Prelithiated Silicon Nanoparticles as Anode for Next Generation Lithium Ion Batteries: *Qianran He*[1]; Maziar Ashuri[1]; Satyanarayana Emani[1]; Leon Shaw[1]; [1]Illinois Institute of Technology

8:40 AM
Engineered Silicon/Graphite Composite as High-energy Anode Material for Lithium-ion Batteries: *Maziar Ashuri*[1]; Qianran He[1]; Satyanarayana Emani[1]; Leon Shaw[1]; [1]Illinois Institute of Technology (IIT)

9:00 AM
Investigation of Li Spatial Distribution inside Bulk Li-Mg Alloy Electrode after Delithiation Using Neutron Imaging
: Yuxuan Zhang[1]; *Ravi Chandran*[1]; Hassina Bilheux[2]; Madhu Jagannathan[1]; [1]University of Utah; [2]Oak Ridge National Laboratory

9:20 AM
Understanding the Degradation of Electrodes in Lithium Based Battery Systems: *Gabrielle Bachand*[1]; Dev Chidambaram[1]; [1]University of Nevada, Reno

9:40 AM Invited
Stability Investigation of Li Solid Electrolytes against Metallic Lithium: *Kuan-Zong Fung*[1]; Shu-Yi Tsai[1]; Chung-Ta Ni[1]; [1]National Cheng Kung University

10:20 AM Break

10:40 AM
Thermodynamic Investigations of Lithium Battery Materials: *Hans Seifert*[1]; Maren Lepple[1]; Damian Cupid[1]; Carlos Ziebert[1]; [1]Karlsruhe Institute of Technology (KIT)

11:00 AM
The Potential of Si Micro-porous/Micro-columnar Structures as High Capacity Anodes for Li-ion Batteries: Madhusudan Jagannathan[1]; *Bhaskar Vadlamani*[1]; K.S.Ravi Chandran[1]; [1]Metallurgical Engineering

Failure Analysis and Prevention — Complex and Historical Cases

Program Organizer: Burak Akyuz, ATS, Inc.

Wednesday AM
October 26, 2016

Room: 150G
Location: Salt Palace Convention Center

Session Chairs: Joseph Lemberg, Exponent; Jonathan Trenkle, Exponent; Debbie Aliya, Aliya Analytical; Andrew Havics, PH2LLC; Charles White, Kettering University; Amber Dalley, Consultant; Michael Budinski, National Transportation Safety Board; Pierre Dupont, Schaeffler Belgium

8:00 AM Invited
Recent Findings in the DB Cooper Skyjacking: *Alan Stone*[1]; [1]ASTON Metallurgical Services Co., Inc.

8:20 AM
Failures of a Different Sort: *Charles White*[1]; [1]Kettering University

8:40 AM
Failure of Integrity Management in Recent Major US Pipeline Accidents: *Michael Budinski*[1]; [1]National Transportation Safety Board

9:00 AM
Brittle Fracture of Structural Steel in an Earthquake Damaged Building: *Milo Kral*[1]; [1]University of Canterbury

9:20 AM
Historical Failure: Aloha Airlines In-flight Structural Failure: *Joe Epperson*[1]; [1]NTSB

9:40 AM
The Great Names of the Strength of Materials over the Ages: *Pierre Dupont*[1]; [1]Schaeffler Belgium Sprl/Bvba

10:00 AM Break

10:20 AM Invited
Contributing Factors in the Flint, Michigan, Lead Contaminated Drinking Water Crisis: *Debbie Aliya*[1]; [1]Aliya Analytical, Inc.

10:40 AM
The Hojack Swing Bridge: Metallurgical and Structural Analysis: *Ronald Parrington*[1]; Daniel Stange; Kevin Mesyef[1]; [1]Engineering Systems Inc. (ESI)

11:00 AM
The Rainham Chemical Works Explosion: A 100th Anniversary Perspective: *Meredith Sellers*[1]; Amy Richards[2]; [1]Exponent ; [2]Engineering Systems Incorporated

11:20 AM
Materials Curiosities over the Ages in the Rolling Elements & Sliding Bearing Industry: *Pierre Dupont*[1]; [1]Schaeffler Belgium Sprl/Bvba

11:40 AM
How Different Laboratories Can Obtain Various Results in the Same Case of Failure?: *Fabienne Delaunois*[1]; Victor Ioan Stanciu[1]; Véronique Vitry[1]; [1]UMONS Faculté Polytechnique FPMs

Gas/Metal Reactions, Diffusion and Phase Transformation during Heat Treatment of Steel — Session I

Program Organizer: Liang He, Air Products and Chemicals Inc.

Wednesday AM
October 26, 2016

Room: 155E
Location: Salt Palace Convention Center

Session Chair: Liang He, Air Products and Chemicals

8:00 AM Introdutory Comments - Brief introduction of the symposium, the first persentation will start around 8:20 a.m.

8:20 AM
Martensitic Martensite-to-austenite Transformation during Low-temperature Nitridation of 15-5 PH Martensitic Stainless Steel: *Amirali Zangiabadi*[1]; Frank Ernst[1]; Arthur Heuer[1]; [1]Case Western Reserve University

8:40 AM Invited
Modeling Surface Engineering Processes in Steels: *Richard Sisson*[1]; [1]Worcester Polytechnic Institute, Center for Heat Treating Excellence

9:00 AM
The Effect of Hardenability Variation on Deformation of Spiral Bevel Gear in Die Quenching Process: Yingtao Zhang[1]; *Gang Wang*[2]; Lin Yang[3]; Wankai Shi[1]; Zhichao (Charlie) Li[4]; [1]Chongqing University; [2]Beijing Key Lab of Precision/ Ultra-precision Manufacturing Equipments and Control; [3]China FAW Group Corporation R&D Center; [4]DANTE Solutions, Inc.

9:20 AM
Modelling the Evolution of Composition and Stress-Depth Profiles in Expanded Austenite during Gaseous Nitriding of Austenitic Stainless Steel: *Marcel A.J. Somers*[1]; [1]Technical University of Denmark

9:40 AM
An Enhancement to the Low Pressure Carburizing Simulation: *Lei Zhang*[1]; Richard Sisson[1]; [1]WPI

10:00 AM Break

10:20 AM
Tempering of High Strength Air Cooled Steel: *Ashish Supare*[1]; Vinayak Pawar[1]; Shital Jadhav[1]; Amol Gujar[1]; Rajkumar Singh[1]; [1]Bharat Forge Ltd

10:40 AM
The Effects of Induction and Furnace Tempering Parameters on the Microstructure, Mechanical Properties and Fatigue Performance of Quenched and Tempered AISI 4140 Steel: *Xiaoqing Cai*[1]; Lesley Frame[2]; Yuan Lu[1]; Richard Sisson[1]; [1]Worcester Polytechnic Institute ; [2]Thermatool Corp.

Glass, Amorphous, and Optical Materials: Common Issues within Science & Technology — Structures of Glass II: Simulations and Experiments

Program Organizers: Steve W. Martin, Iowa State University; Gang Chen, Ohio University

Wednesday AM
October 26, 2016

Room: 255A
Location: Salt Palace Convention Center

Session Chair: Liping Huang, RPI

8:00 AM Invited
Glass and Glass-ceramic Lithium Ion Solid State Electrolytes: Integrated Computational and Experimental Studies: *Jincheng Du*[1]; [1]University of North Texas

8:40 AM Invited
Novel Methods for Modeling Amorphous Materials: *David Drabold*[1]; [1]Ohio University

9:20 AM
Structures And Properties of Boroaluminosilicate Glasses from Molecular Dynamics Simulations: *Lu Deng*[1]; Jincheng Du[1]; [1]University of North Texas

9:40 AM
Surface Structure Features of Sodium Borosilicate Glasses from Molecular Dynamics Simulations: *Mengguo Ren*[1]; Jincheng Du[1]; [1]University of North Texas

10:00 AM Break

10:20 AM Invited
Structural Contributions to Fragility in Network Glasses: *Pierre Lucas*[1]; Bruno Bureau[2]; Ozgur Gulbiten[3]; [1]University of Arizona; [2]University of Rennes; [3]Corning Inc

11:00 AM Invited
NMR and Topological Constraints in Borophosphate and Borosilicate Glasses: *Randall Youngman*[1]; Christian Hermansen[2]; Morten Smedskjaer[2]; Yuanzheng Yue[2]; [1]Corning Incorporated; [2]Aalborg University

11:40 AM Invited
Glass Forming Limits: A Simple Model Based on Short and Intermediate Range Structural Groups: *Steve Feller*[1]; [1]Coe College

Heterogeneity during Plastic Deformation – Synergy between Experimental Investigation and Simulation — Synergy Between Experiment and Simulation I

Program Organizers: Stephen Niezgoda, The Ohio State University; David Fullwood, Brigham Young University

Wednesday AM
October 26, 2016

Room: 250F
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM Invited
Comparisons of 3D Orientation Mapping with Simulation Using a Spectral Method for Tensile Deformation of Zr: *Anthony Rollett*[1]; Jon Lind[2]; Reeju Pokharel[3]; Robert Suter[1]; [1]Carnegie Mellon University; [2]Lawrence Livermore National Laboratory; [3]Los Alamos National Laboratory

8:40 AM
Insights on Shear Band Behavior in BMGMCs from FFT-based Continuum Modeling: *Stephen Niezgoda*[1]; Nichael Gibbons[1]; Emmanuelle Marquis[2]; Katharine Flores[3]; Wolfgang Windl[1]; [1]The Ohio State University; [2]University of Michigan Ann Arbor; [3]Washington University in St. Louis

9:00 AM
Correlating Dislocation Configuration to Deformation Behavior in Additive Manufactured IN718 and Ti-6Al-4V: *Yung Suk Yoo*[1]; Todd Book[2]; Michael Sangid[2]; Josh Kacher[1]; [1]Georgia Institute of Technology; [2]Purdue University

9:20 AM
Deformation at Grain Boundaries in Oligocrystalline Metals: *Ying Chen*[1]; Mingjie Li[1]; [1]Rensselaer Polytechnic Institute

9:40 AM Invited
High Throughput Experimental Exploration of Structure-processing-property Relationships in Structural Metal Alloys: *Surya Kalidindi*[1]; [1]Georgia Institute of Technology

10:20 AM Break

10:40 AM
Recent Progress in the Concurrent Atomistic-continuum Method and Its Applications to Nano- and Microscale Metal Plasticity: *David McDowell*[1]; Shuozhi Xu[1]; Liming Xiong[2]; Youping Chen[3]; [1]Georgia Institute of Technology; [2]Iowa State University; [3]University of Florida

11:00 AM
Study of β-tin Plasticity by Instrumented-indentation Testing: *Zhuowen Zhao*[1]; Aritra Chakraborty[1]; Martin Crimp[1]; Thomas Bieler[1]; Philip Eisenlohr[1]; [1]Michigan State University

11:20 AM
Using a Machine Learning Approach to Predict Stress Hotspots: *Ankita Mangal*[1]; Elizabeth Holm[1]; [1]Carnegie Mellon University

High Temperature Corrosion of Structural Materials — Corrosion of Fe-base Alloys/Ni, Cr and FCC Alloys

Program Organizers: Kinga Unocic, ORNL; Raul Rebak, GE Global Research

Wednesday AM
October 26, 2016

Room: 250E
Location: Salt Palace Convention Center

Session Chairs: Kinga Unocic, ORNL; Raul Rebak, GE Global Research

8:00 AM Invited
The Mechanism of FeCrAl Nitridation-initiation and Progression Revealed by Experiment and Theory: *Christine Geers*[1]; Vedad Babic[1]; Itai Panas[1]; [1]Chalmers Technical University

8:40 AM
Factors Affecting the Internal Oxidation Rate of Two-phase Alloys: Stephen Kachur[1]; *Bryan Webler*[1]; [1]Carnegie Mellon University

9:00 AM
Evaluation of Fe-Cr Alloys in Steam and Air: *Kinga Unocic*[1]; Raul Rebak[1]; Bruce Pint[1]; [1]ORNL

9:20 AM
Effects of Scale Thickness and Surface Roughness on Scale Spallation in Plain Carbon and Si Contained Steel: *Deuk Jung Kim*[1]; [1]POSCO

9:40 AM
Effect of $CaSO_4$-CaO Stability on the Deposit-induced Corrosion of Second Generation Superalloys: *Patrick Brennan*[1]; Brian Gleeson[1]; [1]University of Pittsburgh

10:00 AM Break

10:20 AM Invited
Modelling Oxidation Induced Microstructural Changes and Lifetime Limits of Thin-walled Components of FCC Alloys in the Temperature Range 900 – 1050°C: *Aleksandra Jalowicka*[1]; Ran Duan[1]; Kinga A. Unocic[2]; Bruce A. Pint[2]; Pawel Huczkowski[1]; Anton Chyrkin[1]; Daniel Grüner[1]; Willem J. Quadakkers[1]; [1]Forschungszentrum Juelich GmbH; [2]Oak Ridge National Laboratory

11:00 AM
Evaluation of Corrosion Performance of Candidate Materials for High Temperature Power Plants: *David Rodriguez*[1]; Dev Chidambaram[1]; [1]University of Nevada Reno

11:20 AM
An Initial Evaluation of the Effect of Process Parameters on High Temperature Coking Resistance on Chromia and Alumina Forming Alloys: *Lizeth Ortiz*[1]; Benjamin Church[1]; James Myers[2]; Elmer Prenzlow[1]; [1]University of Wisconsin-Milwaukee; [2]MetalTek International

11:40 AM
High Temperature Corrosion in Multi-oxidant Environments: *Satia Soltanattar*[1]; Brian Gleeson[1]; [1]University of Pittsburgh

ICME Accelerated Materials Discovery in Process & Product Development — ICME Accelerated Materials Discovery in Process & Product Development

Program Organizers: Weizhou Li, Caterpillar Inc ; Justin Mach, Caterpillar Inc.; Yu-Ping Yang, EWI; Sundeep Mukherjee, University of North Texas

Wednesday AM
October 26, 2016

Room: 251A
Location: Salt Palace Convention Center

Session Chairs: Weizhou Li, Caterpillar Inc.; Justin Mach, Caterpillar Inc.

8:00 AM
A Multi-scale Approach to Correlating Microstructure, Properties and Performance of Multiphase Steels: Daniel Gerbig[1]; Allan Bower[1]; Louis Hector Jr[2]; *Ankit Srivastava*[3]; [1]Brown University; [2]General Motors; [3]Texas A&M University

8:20 AM
ICME Investigation of Electrical Conductivity of Al-Zn-Ni Alloys for Precipitation Hardening: *Oladeji Fadayomi*[1]; Rachel Clarke[1]; Violet Thole[1]; Gregory Odegard[1]; Paul Sanders[1]; [1]Michigan Tech University

8:40 AM
Computational Simulation and Physical Validation of Welded Aluminum Structures: *Charles Fisher*[1]; Matthew Sinfield[1]; Kim Tran[1]; William Golumbfskie[1]; Gary Margelowsky[1]; [1]Naval Surface Warfare Center

9:00 AM
Integrated Computational Materials Engineering for the Discovery of New Classes of Materials: *Jake Graser*[1]; [1]University of Utah

9:20 AM Invited
ICME Accelerated the Design of Welded Structures and the Development of Additive Manufacturing Process: *Yu-Ping Yang*[1]; Jerry Gould[1]; Mahdi Jamshidinia[1]; Paul Boulware[1]; Shawn Kelly[1]; [1]EWI

10:00 AM Break

10:20 AM
Design, Creep Performance, and Deformation Behavior of an Eta-phase Strengthened Nickel Base Alloy for Advanced Power Applications: *Paul Sanders*[1]; Walter Milligan[1]; Calvin White[1]; John Shingledecker[2]; [1]Michigan Technological University; [2]Electric Power Research Institute

10:40 AM
Computational Design and Processing of Titanium Metal Matrix Composites in Ti-B-X System: *Ahmed Degnah*[1]; Vikas Jindal[2]; Anthony Sanders[1]; K. S. Ravi Chandran[1]; [1]University of Utah; [2]Indian Institute of Technology (BHU)

11:00 AM
ICME Design of γ' Strengthened Co-based Superalloys: Current Capabilities and Future Needs: *Eric Lass*[1]; [1]National Institute of Standards and Technology

11:20 AM
Integrated Computational Development of Induction Heat Treatment Process for Automotive Axle Shafts: Valentin Nemkov[1]; *B. Lynn Ferguson*[2]; Rob Goldstein[3]; Zhichao Li[2]; [1]Fluxtrol, Inc.; [2]DANTE Solutions, Inc.; [3]Fluxtrol, Inc

11:40 AM Invited
Accelerated Development of Advanced Metallic Alloys by Thin-film Approach: Ayyagari Aditya[1]; Sanghita Mridha[1]; *Sundeep Mukherjee*[1]; [1]University of North Texas

Innovative Processing and Synthesis of Ceramics, Glasses and Composites — Polymer-Derived Ceramics I

Program Organizers: Narottam Bansal, NASA Glenn Research Center; Jitendra Singh, U.S. Army Research Laboratory; Scarlett Widgeon, New Mexico Highlands University ; Gabriela Mera, TU Darmstadt

Wednesday AM
October 26, 2016

Room: 255D
Location: Salt Palace Convention Center

Session Chairs: Rajendra Bordia, Clemson University; Tobias Schaedler, HRL Laboratories

8:00 AM Invited
Molecular Design of Nitrides as Single-phase Ceramics and Nanocomposite Structures for Energy Applications: *Samuel Bernard*[1]; Abhijeet Lale[1]; Umit Demirci[1]; [1]CNRS-European Membrane Institute

8:40 AM Invited
Molecular Approach towards Advanced Silicon-based Ceramics: Synthesis, Properties and Applications: *Zhaoju Yu*[1]; [1]Xiamen Univeristy

9:20 AM
Advanced Polymer-derived Ceramics with a Controlled Nanocarbon-phase: *Gabriela Mera*[1]; Emanuel Ionescu[1]; Ralf Riedel[1]; [1]TU Darmstadt, Institut für Materialwissenschaft

9:40 AM
Ceramics with Unique Pore Structures via Freeze Casting of Preceramic Polymers: *Maninpat Naviroj*[1]; Paolo Colombo[2]; Katherine Faber[3]; [1]Northwestern University; [2]University of Padova; [3]California Institute of Technology

10:00 AM Break

10:20 AM Invited
Additive Manufacturing of Polymer-derived Ceramics: Zak Eckel[1]; Scott Biesboer[1]; Kenneth Cante[1]; John Martin[1]; Jacob Hundley[1]; *Tobias Schaedler*[1]; [1]HRL Laboratories, LLC

11:00 AM Invited
Polymer Derived Composite Ceramic Coatings and Joints: Processing, Properties and Performance: *Rajendra Bordia*[1]; Quan Li[1]; Kaishi Wang[2]; [1]Clemson University; [2]Aerospace Research Institute of Materials and Processing Technology

11:40 AM
Shrinkage Crack Evolution during 1st Pyrolysis in Polymer Impregnation and Pyrolysis Processing of Ceramic Matrix Composites: *Natalie Larson*[1]; Carlos Levi[1]; Frank Zok[1]; [1]University of California, Santa Barbara

Interfaces, Grain Boundaries and Surfaces from Atomistic and Macroscopic Approaches -- Fundamental and Engineering Issues — Wetting & Adsorption I

Program Organizers: Wayne Kaplan, Technion - Israel Institute of Technology; Dominique Chatain, CNRS, Aix-Marseille University; John Blendell, Purdue University; Paul Wynblatt, Carnegie Mellon University

Wednesday AM
October 26, 2016

Room: 251B
Location: Salt Palace Convention Center

Session Chairs: Gerhard Dehm, Max-Planck-Institut für Eisenforschung GmbH; Wayne Kaplan, Technion - Israel Institute of Technology

8:00 AM Keynote
Agglomeration of Kinetically Constrained Thin Metal Films: *Klaus van Benthem*[1]; [1]University of California, Davis

8:40 AM Invited
Capillarity in Pressure Infiltration Part I: Experimental: Gionata Schneider[1]; Alain Léger[1]; Ludger Weber[1]; *William Craig Carter*[2]; Andreas Mortensen[1]; [1]Ecole Polytechnique Fédérale de Lausanne (EPFL); [2]MIT

9:00 AM Invited
Capillarity in Pressure Infiltration Part II: Modeling: George Varvanides[1]; Gionata Schneider[2]; Andreas Mortensen[2]; *William Craig Carter*[1]; [1]MIT; [2]Ecole Polytechnique Fédérale de Lausanne (EPFL)

9:20 AM
Dewetting Transitions of Au/Ni Bilayer Films: *Xi Cen*[1]; Andrew Thron[2]; Klaus van Benthem[3]; [1]University of California Davis,Dept of Chemical Engrg and Materials Science; [2]University of California Davis CHMS; [3]University of California Davis, Dept of Chemical Engineering and Materials Science

9:40 AM
Faceting Model for Σ3 Grain Boundaries: Testing the Hypothesis: *Dustin Doty*[1]; Oliver Johnson[1]; Eric Homer[1]; [1]Brigham Young University

10:00 AM Break

10:20 AM Invited
Heteroepitaxial Recrystallization in γ-γ‘ Nickel Base Superalloys: *Nathalie Bozzolo*[1]; Marie-Agathe Charpagne[1]; [1]MINES ParisTech

10:40 AM Invited
Interface Stabilization and Epitaxy of Rutile and α -PbO_2 Polymorphs of MO_2 Dioxides on Columbite-structured Substrates: Julia Wittkamper[1]; Gregory Rohrer[1]; *Paul Salvador*[1]; [1]Carnegie Mellon University

11:00 AM Invited
Wetting Dynamics of Liquid Lead on Silica-patterned Iron: *Marie-Laurence Giorgi*[1]; Moustapha Diallo[1]; Hervé Duval[1]; Jean-Michel Mataigne[2]; Alexey Koltsov[3]; [1]CentraleSupélec; [2]ArcelorMittal ; [3]ArcelorMittal

11:20 AM Keynote
Synthesis of Hollow Metal Nanostructures by Surface Diffusion Induced Bulk Intermixing: *Eugen Rabkin*[1]; Nimrod Gazit[1]; Leonid Klinger[1]; Gunther Richter[2]; [1]Technion; [2]Max Planck Institute for Intelligent Systems

International Standards for Properties and Performance of Advanced Ceramics – 30 years of Excellence — International Standards for Properties and Performance of Advanced Ceramics – 30 years of Excellence

Program Organizers: Michael Jenkins, Bothell Engineering and Science Technologies; Jonathan Salem, NASA

Wednesday AM
October 26, 2016

Room: 254C
Location: Salt Palace Convention Center

Session Chairs: Jonathan Salem, NASA Glenn Research Center; Michael Jenkins, Bothell Engineering and Science Technologies

8:00 AM Introductory Comments

8:05 AM Invited
ASTM Committee C28: International Standards for Properties and Performance of Advanced Ceramics: 30 years of Excellence: *Jonathan Salem*[1]; Michael Jenkins[2]; [1]NASA-Glenn Research Center; [2]Bothell Engineering and Science Technologies

8:45 AM
ASTM Subcommittee C28.01 Mechanical Properties & Reliability: *Michael Jenkins*[1]; [1]Bothell Engineering and Science Technologies

9:05 AM
ASTM Subcommittee C28.03 Physical Properties & NDE: Matthias Thommes[1]; [1]Quantachrome Instruments

9:25 AM
ASTM Subcommittee C28.04 Applications: Randy Stafford[1]; [1]Cummins Inc.

9:45 AM
ASTM Subcommittee C28.07 Ceramic Matrix Composites: Andrew Wereszczak[1]; [1]Oak Ridge National Laboratory

10:05 AM Break

10:25 AM Introductory Comments

10:30 AM
Activities in ISO/TC206 Fine Ceramics: *Shuji Sakaguchi*[1]; [1]AIST

10:50 AM
Choice of Flaw Type for Slow Crack Growth Testing: *Jonathan Salem*[1]; [1]NASA

11:10 AM Question and Answer Period

11:20 AM Concluding Comments

International Symposium on Defects, Transport and Related Phenomena — Session IV

Program Organizers: Sangtae Kim, University of California, Davis; Doreen Edwards, Alfred University; Tatsuya Kawada, Tohoku University; Manfred Martin, RWTH Aachen University

Wednesday AM
October 26, 2016

Room: 253B
Location: Salt Palace Convention Center

Session Chairs: Koji Amezawa, Tohoku University; Klaus-Dieter Becker, TU Braunschweig

8:00 AM Invited
Investigation on SOFC Cathodic Reaction by Using Patterned Thin Film Model Electrode: *Koji Amezawa*[1]; Yoshinobu Fujimaki[1]; Yusuke Shindo[1]; Takashi Nakamura[1]; Keiji Yashiro[1]; Fumitada Iguchi[1]; Hiroo Yugami[1]; Tatsuya Kawada[1]; [1]Tohoku University

8:40 AM
High-temperature ^{57}Fe Mössbauer Study of Mixed Ionic–electronic Conducting $(Ba_{0.5}Sr_{0.5})(Co_{0.8}Fe_{0.2})O_{3-d}$: Piotr Gaczynski[1]; Anja Harpf[2]; Jürgen Boer[2]; Robert Kircheisen[2]; Ralf Kriegel[2]; *Klaus-Dieter Becker*[1]; [1]TU Braunschweig; [2]Fraunhofer Institute for Ceramic Technologies and Systems IKTS

9:00 AM
Electrochemical Capacitance at a Ni/YSZ Boundary as a Measure of Utilization Thickness of a Ni-YSZ Cermet Electrode: *Tatsuya Kawada*[1]; Mirai Takeda[1]; Keiji Yashiro[1]; Shin-ichi Hashimoto[1]; [1]Tohoku University

9:20 AM Invited
Ionic Conduction Modification in Nanoscale Proton-conducting Oxide Heterostructures Prepared by Pulsed Laser Deposition: Stefan Nikodemski[1]; Jianhua Tong[2]; Joseph Berry[3]; Phillip Parilla[3]; David Ginley[3]; *Ryan O'Hayre*[1]; [1]Colorado School of Mines; [2]Clemson University; [3]National Renewable Energy Laboratory

10:00 AM Break

10:20 AM
Ab initio Modelling of the Cation Diffusion in $La_{1-x}Sr_xMnO_{3\pm d}$ and Yttria-stabilized Zirconia for SOFC Applications: *Yueh-Lin Lee*[1]; Yuhua Duan[1]; Dane Morgan[2]; Dan Sorescu[1]; Harry Abernathy[1]; [1]U.S. Department of Energy, National Energy Technology Laboratory; [2]University of Wisconsin-Madison

10:40 AM
Sintering Behavior of Transition Metal (Ni or Co) Doped Fully Stabilized Zirconia: *Clay Hunt*[1]; David Driscoll[1]; Stephen Sofie[1]; [1]Montana State University

11:00 AM
On the Conductivity Maximum in Rare Earth-doped Ceria: *Manfred Martin*[1]; [1]RWTH Aachen University

Joining of Advanced and Specialty Materials (JASM XVIII) — Dissimilar Metal Welds and Overlays

Program Organizers: Boian Alexandrov, The Ohio State University; Mathieu Brochu, McGill University; Akio Hirose, Osaka University; Anming Hu, University of Tennessee; Peng He, Harbin Insitute of Technology; Darren Barborak, AZZ|WSI; Bingtao Li, AZZ WSI; Xinjin Cao, Institute for Aerospace Research

Wednesday AM
October 26, 2016

Room: 155B
Location: Salt Palace Convention Center

Session Chairs: Darren Barborak, AZZ WSI; Boian Alexandrov, The Ohio State University

8:00 AM Invited
Life Extension of Pressurized Components by Structural Weld Overlays: *Darren Barborak*[1]; [1]AZZ|WSI

8:40 AM
Low Alloy Steel Welds in X65 Pipes Internally Clad with Nickel-based Alloy: Process Development and Mechanical Testing: *Evan O'Brien*[1]; Boian Alexandrov[1]; [1]The Ohio State University

9:00 AM
Minimization of Carbon Diffusion and Thermal Stresses in Dissimilar Metal Welds in Nuclear Applications by the Development of Novel Functionally Graded Transition Joints: *Jonathan Galler*[1]; John DuPont[1]; [1]Lehigh University

9:20 AM
Metallurgical Characterization of Dissimilar Metal Welds in Grade F65 Steel to Grade F22 Steel Overlaid with Low Alloy Steel Filler Metal: *Ryan Buntain*[1]; Boian Alexandrov[1]; [1]The Ohio State University

9:40 AM
Microestructural Evolution of Dissimilar Metal Weld at 475°C: *Ivan Mendoza-Bravo*[1]; [1]Instituto Tecnologico de Veracruz

10:00 AM Break

10:20 AM
Precipitation Behavior during Welding of Ni-base Precipitation Strengthened Alloys 282 and 718.: *Graciela Penso*[1]; Boian Alexandrov[1]; [1]The Ohio State University

10:40 AM
Development of Graded Transition Joints for Avoiding Dissimilar Metal Weld Failures: *Allison Fraser*[1]; [1]Lehigh Universiy

11:00 AM
Optimization of Induction Bending Parameters for DMW Overlays: *Rex Alexandre*[1]; Boian Alexandrov[1]; [1]The Ohio State University

11:20 AM
Metallurgical Characterization of Super Duplex Stainless Steel & Nickel Alloy Dissimilar Metal Welds: *Emeric Suma*[1]; [1]The Ohio State University

11:40 AM
To Design of Welding Procedure to Avoid Delayed Cracking Phenomenon in ASTM A335 P22 Material: *Fahad Riaz*[1]; Muhammad Kamran[1]; Adil Ashraf[1]; Nauman Aslam[1]; Tahir Ahmad[1]; [1]University of the Punjab Lahore

Materials and Processes for CO2 Capture, Conversion and Sequestration — Physical and Electrochemical Carbon Dioxide Capture and Sequestration

Program Organizers: Kevin Huang, University of South Carolina; Winnie Wong-Ng, NIST; Lan Li, Boise State University

Wednesday AM
October 26, 2016

Room: 151B
Location: Salt Palace Convention Center

Session Chairs: Kevin Huang, University of South Carolina; Winnie Wong-Ng, National Institute of Standards and Technology

8:00 AM Invited
Development of Mixed Matrix Membranes for CO_2 Separation: *Anne Marti*[1]; Jeff Culp[1]; Surendar Venna[1]; David Hopkinson[1]; [1]National Energy and Technology Laboratory (NETL)

8:20 AM Invited
Hybrid Polymer/Inorganic Membrane Process for CO_2 Capture from Natural Gas Power Generation: *Tim Merkel*[1]; Xiaotong Wei[2]; [1]MTR; [2]Sabic

8:40 AM
Carbon Dioxide Capture of Different Oxides Measured by STA-PulseTA™-MS: *Ekkehard Post*[1]; Melinda Tucker[2]; [1]NETZSCH Geraetebau GmbH; [2]NETZSCH Instruments North America, LLC

9:00 AM Invited
Carbo Dioxide Sorption in Manganese Dioxide Octahedral Molecular Sieves: *Izaak Williamson*[1]; Eric Nelson[1]; Lan Li[1]; [1]Boise State University

9:20 AM Invited
Stabilizing Porous Silver Matrix with Atomic Layer Deposition ZrO2 for Carbon Dioxide Separation and Dry Reforming of Methane: *Peng Zhang*[1]; Jingjing Tong[1]; Kevin Huang[1]; [1]University of South Carolina

9:40 AM Invited
Electrochemical Capture and Conversion of Carbon Dioxide in Molten Salts: *Huayi Yin*[1]; Dihua Wang[2]; [1]MIT; [2]Wuhan University

10:00 AM Break

10:20 AM Invited
Catalyst and Reactor Engineering for Carbon-neutral CO_2 Conversion: *Christopher Matranga*[1]; Douglas Kauffman[1]; Sonia Hammache[1]; Congjun Wang[1]; [1]US DOE- NETL

10:40 AM
Electrochemical Dealloying Derived Mixed Electronic and Carbonate Ion Conductor (MECC) Membrane for CO2 Separation: *Jie Fang*[1]; [1]University of South Carolina

11:20 AM
Qualitative Estimation of the Leakage Rate of Sequestered Carbon-dioxide by a Continuum-scale Model of Flow through Porous Media: *Shriram Srinivasan*[1]; [1]University of Alberta

11:00 AM Invited
Dynamic Characterization of Clays for CO_2 Storage Using Molecular Dynamics Simulations and X-ray Scattering Methods: *Greeshma Gadikota*[1]; [1]Princeton University

Materials Development for Nuclear Applications and Extreme Environments — Processing and Monitoring of Nuclear Materials

Program Organizers: Raghunath Kanakala, University of Idaho; Nan Li, Los Alamos National Laboratory; Todd Allen, Idaho National Laboratory; Jake Amoroso, Savannah River National Laboratory; Aladar Csontos, Nuclear Regulatory Commission; Lingfeng He, Idaho National Laboratory; Yutai Katoh, Oak Ridge National Laboratory; Josef Matyas, Pacific Northwest National Laboratory; Amit Misra, University of Michigan; Raul Rebak, GE Global Research; Kumar Sridharan, University of Wisconsin

Wednesday AM
October 26, 2016

Room: 250A
Location: Salt Palace Convention Center

Session Chairs: Andrei Gribok, Idaho National Laboratory; Nan Li, Los Alamos National Laboratory

8:00 AM Invited
Online Monitoring of Passive Components and Structures in Nuclear Power Plants: From Offline Periodic Inspections to Online Real Time Surveillance: *Andrei Gribok*[1]; Vivek Agarwal[1]; [1]Idaho National Laboratory

8:40 AM Invited
Influence of Compositional Changes on Defect Evolution in Advanced Alloys: *Hongbin Bei*[1]; Ke Jin[1]; Chenyang Lu[2]; Mohammad W. Ullah[1]; Laurent K Beland[1]; Dilpuneet Aidhy[3]; Lumin Wang[2]; William Weber[4]; Roger Stoller[1]; G. Malcolm Stocks[1]; Yanwen Zhang[1]; [1]Oak Ridge National Laboratory; [2]University of Michigan; [3]University of Wyoming; [4]Oak Ridge National Laboratory; University of Tennessee

9:20 AM
Pyrolytic Carbon Coatings on Oxide and Carbide Microspheres: *Igor Usov*[1]; Miles Beaux II[1]; Douglas Vodnik[1]; Graham King[1]; Kevin Hubbard[1]; Bryan Bennett[1]; Reuben Peterson[1]; Erik Luther[1]; Dasari Rao[1]; [1]Los Alamos National Laboratory

9:40 AM
Oxide Dispersion Strengthened Steel and Silicon Carbide Composite Cladding Materials: *Kathy Lu*[1]; Zhihao Hu[1]; Kaijie Ning[1]; [1]Virginia Tech

10:00 AM Break

10:20 AM
Long Duration CVD Fabrication of Mo Tubes for Nuclear Fuel Cladding: *Miles Beaux*[1]; Terry Holesinger[1]; Graham King[1]; Douglas Vodnik[1]; Bryan Bennett[1]; Reuben Peterson[1]; Stuart Maloy[1]; Igor Usov[1]; [1]Los Alamos National Laboratory

10:40 AM
Role of Interfaces on Microstructural Stability of Cu-Nb Nanocomposites Subjected to High Pressure Torsion: *Timothy Lach*[1]; Pascal Bellon[2]; Robert Averback[2]; Elvan Ekiz-Stumphy[2]; Julia Ivanisenko[3]; [1]Pacific Northwest National Laboratory; [2]University of Illinois at Urbana-Champaign; [3]Karlsruhe Institute of Technology

11:00 AM
Stabilization of $Zr_{n+1}AlC_n$ MAX Phases; Issues and Achievements: *Eugenio Zapata-Solvas*[1]; Stavros R. G. Christopoulos[2]; Mike E. Fitzpatrick[2]; Alexander Chroneos[2]; William E. Lee[1]; [1]Imperial College London; [2]Coventry University

Materials Issues in Nuclear Waste Management in the 21st Century — Immobilization of Radioactive Wastes into Glass

Program Organizers: Josef Matyas, Pacific Northwest National Laboratory; Jake Amoroso, Savannah River National Laboratory; Isabelle Giboire, CEA Marcoule; Raghunath Kanakala, University of Idaho; Yutai Katoh, Oak Ridge National Laboratory; Stefan Neumeier, Forschungszentrum Juelich GmbH; David Shoesmith, Western University; Kumar Sridharan, University of Wisconsin; David Enos, Sandia National Laboratories; Charles Bryan, Sandia National Laboratories

Wednesday AM
October 26, 2016

Room: 251D
Location: Salt Palace Convention Center

Session Chairs: Carol Jantzen, SRNL; Jaime George, PNNL

8:00 AM Invited
Peraluminous Glassy Matrices for Fission Products and Actinides Conditioning: *Nadia Pellerin*[1]; Victor Piovesan[2]; Babacar Diallo[1]; Valérie Montouillout[1]; Mathieu Allix[1]; Rachelle Omnée[1]; Isabelle Giboire[2]; [1]CNRS; [2]CEA Marcoule

8:40 AM Invited
Role of Platinum Group Metals on Rheological and Electrical Properties of Nuclear Glass: *Muriel Neyret*[1]; Jean Puig[1]; Caroline Hanotin[1]; Agnès Grandjean[1]; Mohammed Malki[2]; Philippe Marchal[3]; [1]CEA Marcoule; [2]CNRS/CEMHTI; [3]CNRS/LRGP-GEMICO

9:20 AM
Effect of Anions on Sulfur Solubility in Low-Activity Waste Glass: *Tongan Jin*[1]; Dongsang Kim[1]; Brigitte Weese[1]; Michael Schweiger[1]; Albert Kruger[2]; [1]Pacific Northwest National Laboratory; [2]U.S. Department of Energy, Office of River Protection

9:40 AM
Rare-earth Solubility Limits in Simplified Borosilicate Glass: *Isabelle Giboire*[1]; Ines PONSOT[1]; Hélène NONNET[1]; Myriam CHARTIER[1]; [1]CEA Marcoule

10:00 AM Break

10:20 AM
Nepheline Crystallization Kinetics in Simulated High Level Waste Glasses: *Anthony McWilliams*[1]; Devon McClane[1]; Jake Amoroso[1]; Kevin Fox[1]; Albert Kruger[2]; [1]Savannah River National Laboratory; [2]Office of River Protection

10:40 AM
The Effect of Composition on the Local Structure of Alkali Alumino Borosilicate Model Glasses for Comparison with Hanford High-level Waste Glasses: *Jose Marcial*[1]; Muad Saleh[1]; John McCloy[1]; [1]Washington State University

11:00 AM
Crystal Accumulation Studies for Nuclear Waste Melters: *Kevin Fox*[1]; Mark Fowley[1]; Donald Miller[1]; Albert Kruger[2]; [1]Savannah River National Laboratory; [2]US DOE Office of River Protection

11:20 AM
Identification of Reactions during Melting of Low-activity Waste Glasses by Evolved Gas Analysis: *Jaime George*[1]; Dongsang Kim[1]; Carmen Rodriguez[1]; Michael Schweiger[1]; Albert Kruger[2]; [1]Pacific Northwest National Laboratory; [2]Office of River Protection

11:40 AM
Revised Models for the Defense Waste Processing Facility (DWPF): *Carol Jantzen*[1]; Cory Trivelpiece[1]; T.B. Edwards[1]; [1]Savannah River National Laboratory

Materials Property Understanding through Characterization — Novel Techniques II

Program Organizers: Indrajit Dutta, Corning Incorporated; Brian Strohmeier, US Steel; Nicholas Smith, Corning Incorporated

Wednesday AM
October 26, 2016

Room: 251C
Location: Salt Palace Convention Center

Session Chair: Helen Playford, STFC ISIS Facility

8:00 AM Invited
Magnetic Resonance, Computational, and Multi-modal Approaches for Characterization of Advanced Materials: *Karl Mueller*[1]; Vijayakumar Murugesan[1]; Kee Sung Han[1]; Jianzhi Hu[1]; Layla Medhi[1]; Eric Walter[1]; Nancy Washton[1]; [1]Pacific Northwest National Laboratory

8:40 AM Invited
Advanced Structural and Dynamical Characterization of Inorganic Solids with Nuclear Magnetic Resonance Spectroscopy: *Sabyasachi Sen*[1]; [1]University of California at Davis

9:20 AM Invited
High Sensitivity LEIS Provides New Perspectives on the Surface Properties of Solids: *Himanshu Jain*[1]; [1]Lehigh University

10:00 AM Break

10:20 AM Invited
ISO-standards for (nano)Indentations Must Be Changed for Being Compatible with Physics: *Gerd Kaupp*[1]; [1]University of Oldenburg

11:00 AM Invited
Grain Boundary Chemistry Using Atom probe Tomography and Correlative Microscopy: *Katherine Rice*[1]; Yimeng Chen[1]; Ty Prosa[1]; [1]CAMECA Instruments, Inc.

Mechanochemical Synthesis and Reactions in Materials Science — Inorganic Compounds

Program Organizers: Antonio Fuentes, Cinvestav del IPN; Laszlo Takacs, University of Maryland Baltimore County; Challapalli Suryanarayana, University of Central Florida; Jacques Huot, UQTR

Wednesday AM
October 26, 2016

Room: 155A
Location: Salt Palace Convention Center

Session Chairs: Peter Balaz, Institute of Geotechnics, Slovak Academy of Sciences; Vladimir Sepelak, Karlsruhe Institute of Technology

8:00 AM Invited
Mechanochemical Reactions and Syntheses of Oxides: *Vladimir Sepelak*[1]; [1]Karlsruhe Institute of Technology

8:40 AM Invited
Mechanosynthesis, Microstructure and Ion Dynamics of Ceramic Fluoride Ion Conductors: *Andre Düvel*[1]; Dean Sayle[2]; Paul Heitjans[1]; [1]Leibniz Universität Hannover; [2]University of Kent

9:00 AM Invited
Investigating Local Disorder in Mechanically Milled Titanate Pyrochlores: A Neutron Total Scattering Approach: *Jacob Shamblin*[1]; Zhiling Dun[1]; Eric O'Quinn[1]; Antonio Fuentes[2]; Haidong Zhou[1]; Maik Lang[1]; [1]University of Tennessee; [2]Cinvestav Unidad Saltillo

9:20 AM
Original Setup for In-situ Mechanochemistry: *Voraksmy Ban*[1]; Nikolay Tumanov[2]; Yolanda Sadikin[3]; Yaroslav Filinchuk[2]; Radovan Cerný[3]; Nicola Casati[1]; [1]Paul Scherrer Institute; [2]Université catholique de Louvain; [3]University of Geneva

9:40 AM
Formation of Weakly Bound Oxygen Atoms during the Mechanical Activation of MoO3: Mikhail Sivak[1]; *Andrey Streletskiy*[1]; [1]Semenov Institute of Chemical Physics, RAS

10:00 AM Break

10:20 AM Invited
Quo Vadis Mechanochemistry: Insight into Chalcogenide Science and Technology: *Peter Balaz*[1]; [1]Institute of Geotechnics

11:00 AM Invited
Ball Milling as a Way to Produce Magnetic and Magnetocaloric Materials: *Javier Blázquez*[1]; Luis Moreno-Ramírez[1]; Jhon Ipus[1]; Victorino Franco[1]; Alejandro Conde[1]; [1]University of Sevilla

11:20 AM
XRD, and XPS Study of Mechanochemical Reactions in the Cu_2S-CuS-Sb_2S_3 System: *Francisco Lopez-Cota*[1]; Antonio F. Fuentes[1]; José Díaz-Guillén[2]; Patricia Quintana[3]; Isidro González-Panzo[3]; [1]Cinvestav Unidad Saltillo; [2]División de Estudios de Posgrado e Investigación, Instituto Tecnológico de Saltillo; [3]Department of Applied Physics, Cinvestav Unidad Mérida

11:40 AM
Surface Characterization of Activated Chalcopyrite Particles via the FLSmidth ROL Process. Part 1: Electron Microscope Investigations: *Adam Karcz*[1]; Anne Juul Damø[1]; Jytte Boll Illerup[1]; Sara Rocks[2]; Kim Dam-Johansen[1]; David Chaiko[2]; [1]Technical University of Denmark; [2]FLSmidth

Multifunctional Oxides — Advanced Characterization

Program Organizers: Quanxi Jia, Los Alamos National Laboratory; Chonglin Chen, University of Texas at San Antonio; Judith MacManus-Driscoll, University of Cambridge; Xiaoqing Pan, University of California - Irvine

Wednesday AM
October 26, 2016

Room: 255C
Location: Salt Palace Convention Center

Session Chairs: Jon Ihlefeld, Sandia National Laboratories; Chunrui Ma, Xi'an Jiaotong University

8:00 AM Invited
Backscattered Scanning Electron Microscopy Domain Imaging of Ferroelectric Films: *In Operando* Ferroelectric Domain Structure Characterization: *Jon Ihlefeld*[1]; Joseph Michael[1]; Bonnie McKenzie[1]; David Scrymgeour[1]; Jon-Paul Maria[2]; Elizabeth Paisley[1]; [1]Sandia National Laboratories; [2]North Carolina State University

8:20 AM Invited
Chemical Imaging and Quantification of Self-assembled Vertically Aligned Nanocomposite Thin Films by Advanced Scanning Transmission Electron Microscopy: *Ping Lu*[1]; Jon Ihlefeld[1]; Wei Pan[1]; [1]Sandia National Laboratories

8:40 AM Invited
Picometer-scale Measurements of Ferroelectric Surface Reconstruction by Annular Bright Field Imaging: *Peng Gao*[1]; [1]Peking University

9:00 AM
Ordered-oxygen-vacancy-driven Room-temperature Ferroelectricity and Magnetoelectricity in Single Phase Ferromagnetic $LaBaCo_2O_5$+d Films: *Chunrui Ma*[1]; Ming Liu[1]; Yurong Yang[2]; Erik Enriquez[3]; Shangyong Bao[3]; Yuan Lin[4]; Zheng Li[5]; Cewen Nan[5]; Amar Bhalla[3]; Ruyan Guo[3]; Song Xia[1]; Lu Lu[1]; Jiangbo Lu[1]; Hongjian Zhao[6]; Xiangming Chen[6]; Laurent Bellaiche[2]; Chonglin Chen[3]; [1]Xi'an Jiaotong University; [2]University of Arkansas; [3]University of Texas at San Antonio; [4]University of Electronic Science & Technology of China; [5]Tsinghua University; [6]Zhejiang University

9:20 AM Invited
Electrical Control of Magnetism Induced by Interfacial Orbital Reconstruction: *Cheng Song*[1]; Bin Cui[1]; Feng Pan[1]; [1]Tsinghua University

9:40 AM
Facile Preparation of Mixed Nickel Oxide Catalysts for the Oxygen Evolution Reaction: *Mary Lou Lindstrom*[1]; Mackenzie Parker[1]; Dev Chidambaram[1]; [1]University of Nevada Reno

10:00 AM Break

10:20 AM Invited
Precision Magnetic Characterization and Imaging of Multi-functional Oxide Heterostructures with Sagnac Interferometer-based MOKE Microscope: *Jing Xia*[1]; [1]University of California, Irvine

10:40 AM
Physical Property Relationships with Electromagnetism in Spinel Ferrites Developed Using the Spin-spray Deposition Method: *Nicole Ray*[1]; William Petuskey[1]; [1]Arizona State University

11:00 AM
Growth Mechanisms in the Synthesis of Hierarchical Nanostructures of Magnetite Using Spin Spray Deposition: *Kaushik Sridhar Vadari Venkata*[1]; Nicole Ray[2]; William Petuskey[2]; [1]School for Engineering of Matter, Transport & Energy, Arizona State University; [2]School of Molecular Sciences, College of Liberal Arts and Sciences, Arizona State University

Nanomaterials Working in the Near-infrared: Biomedical Applications — Probes & Nanothermometry I

Program Organizers: Antonio Benayas, Institut National de la Recherche Scientifique; Luis Carlos, Universidade de Aveiro; Fiorenzo Vetrone, Intitut national de la recherche scientifique; Marta Quintanilla, CICbiomagune; Daniel Jaque García, Universidad Autónoma de Madrid; Artiom Skripka, Institut National de la Recherche Sscientifique

Wednesday AM — Room: 260A
October 26, 2016 — Location: Salt Palace Convention Center

Funding support provided by: Millipore Sigma and Photon etc.

Session Chairs: Antonio Benayas, INRS; James Adair, PennState University

8:00 AM Keynote
Molecular Imaging with near Infrared Nanoparticles: *Jianghong Rao*[1]; [1]Stanford University

8:40 AM Invited
Optical Nanothermometers Based on Core@Shell Alkaline-earth Nanoparticles Activated with Lanthanide Ions: *Adolfo Speghini*[1]; [1]University of Verona

9:00 AM
Lanthanide-doped Nanoparticles as Candidates for Thermal Imaging in the Biological Windows: *Marta Quintanilla*[1]; Juan Jose Giner-Casares[1]; Fiorenzo Vetrone[2]; Luis Liz-Marzan[1]; [1]CIC BiomaGUNE; [2]Institut National de la Recherche Scientifique

9:20 AM Invited
Towards Development of High-quality Near-infrared Emitting Quantum Dots: *Fuqiang Ren*[1]; Dongling Ma[1]; [1]EMT-INRS

9:40 AM Keynote
Carbon Nanotube Photoluminescence for Bioanalytical Measurements: *Daniel Heller*[1]; [1]Memorial Sloan-Kettering Cancer Center

10:20 AM Break

10:40 AM Invited
Increasing Sensitivity of NIR Operating Luminescence Thermometers to the Maximum: *Lukasz Marciniak*[1]; Artur Bednarkiewicz[1]; Wieslaw Strek[1]; [1]Institute of Low Temperature and Structure Research PAS

11:00 AM Invited
Nanoperovskites Doped with Nd3+ or Ho3+ Ions as Optical Thermal Sensor in the near Infrared: M.A. Hernández-Rodríguez[1]; A.D. Lozano-Gorrín[1]; V. Lavín[1]; *Inocencio Martín*[1]; U.R. Rodríguez-Mendoza[1]; [1]Universidad de La Laguna

11:20 AM
Applications of Gold Nanoparticles in Infrared Nerve Stimulation: *Paul Stoddart*[1]; [1]Swinburne University of Technology

11:40 AM
Materials Playing a Role on Fighting Cancer (and Other Outstanding Scientific & Societal Progresses from CIHR, CCS and BCSC): *Antonio Benayas*[1]; [1]Institut National de la Recherche Scientifique

Next Generation Biomaterials — Session IV

Program Organizers: Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Sharmila Mukhopadhyay, Wright State University; Sundeep Mukherjee, University of North Texas

Wednesday AM
October 26, 2016

Room: 259
Location: Salt Palace Convention Center

Session Chairs: Jamie Kruzic, Oregon State University; Donglu Shi, University of Cincinnati

8:00 AM Invited
Bioactive Materials Releasing Biologially Active Ions: Li and Nb Doped 45S5 Bioactive Glasses: *Aldo Boccaccini*[1]; Valentina Miguez-Pacheco[1]; Rainer Detsch[1]; [1]University of Erlangen-Nuremberg

8:40 AM Invited
Biomimetic Coatings Using Simulated Body Fluids: A Status Review: *Sarit B. Bhaduri*[1]; Yufu Ren[1]; [1]University of Toledo

9:20 AM Invited
In Vivo Evaluation of Novel Amorphous Silicon Oxynitrophosphide Implant Coatings for Rapid Bone Healing: *Venu Varanasi*[1]; Azhar Ilyas[1]; Pranesh Aswath[2]; Harry Kim[3]; Phillip Kramer[1]; [1]Texas A & M University; [2]University of Texas at Arlington; [3]Texas Scottish Rite Hospital

9:40 AM Invited
In Vitro Depth-dependent Hyperthermia of Human Mammary Gland Adenocarcinoma: *Donglu Shi*[1]; Yu Zhang[1]; Andrew Dunn[1]; [1]University of Cincinnati

10:20 AM Break

10:40 AM Invited
Novel Bioactive Glass Containing Dental Composites for Slowing Secondary Caries: *Jamie Kruzic*[1]; Dmytro Khvostenko[1]; Jack Ferracane[2]; Thomas Hilton[2]; John Mitchell[3]; [1]Oregon State University; [2]Oregon Health & Science University; [3]Midwestern University

11:20 AM
Fabrication of Zinc Doped Magnesium Silicate Ceramics for Orthopaedic Applications: *Bavya Devi Karuppasamy*[1]; Mangal Roy[1]; [1]Indian Institute of Technology Kharagpur

11:40 AM
Effect of Pretreatment on Microarc Oxidation of Magnesium: Characteristics, Corrosion Resistance and Bioactivity: *Sankara Narayanan TSN*[1]; Min Ho Lee[1]; [1]Chonbuk National University

12:00 PM
Physically Crosslinked Injectable Composites for Bone Tissue Engineering: Mohamad Hassan[1]; Shaimaa Mohamad[1]; Ahmed El-Tawila[1]; *Ahmed Abd El-Fattah*[1]; Sherif Kandil[1]; [1]Alexandria Univeristy

Phase Stability, Diffusion Kinetics, and Their Applications (PSDK-XI) — Tracer Session I

Program Organizers: James Saal, QuesTek Innovations; Yu Zhong, Florida International University; Ji-Cheng Zhao, The Ohio State University; Nagraj Kulkarni, Knoxville, TN

Wednesday AM
October 26, 2016

Room: 155D
Location: Salt Palace Convention Center

Session Chairs: Nagraj Kulkarni, Knoxville, TN; Ji-Cheng Zhao, Ohio State

8:00 AM Introductory Comments

8:10 AM Invited
Diffusion in Metals and Intermetallics: *Helmut Mehrer*[1]; [1]University of Muenster

8:50 AM Invited
Assessment of Tracer and Collective Diffusion in Multicomponent Alloys with Application to High Entropy Alloys: *Graeme Murch*[1]; Irina Belova[1]; [1]The University of Newcastle

9:30 AM Invited
Progress on Prediction of Tracer Diffusion Coefficients: *Zi-Kui Liu*[1]; [1]The Pennsylvania State University

10:10 AM Break

10:30 AM Invited
Diffusion of Mass in Multicomponent Liquid Alloys: *Andreas Meyer*[1]; [1]DLR German Aerospace Center

11:10 AM Invited
Grain Boundary Diffusion Studied by Radiotracer Diffusion: *Sergii Divinsky*[1]; [1]University of Münster

Processing and Performance of Materials Using Microwaves, Electric and Magnetic Fields, Ultrasound, Lasers, and Mechanical Work – Rustum Roy Symposium — Session III

Program Organizers: Morsi Mahmoud, Karlsruhe Institute of Technology (KIT) & City for Scientific Research and Technological Applications (SRTA City); Dinesh Agrawal, Pennsylvania State University; Guido Link, Karlsruhe Institute of Technology; Motoyasu Sato, Chubu University; Rishi Raj, University of Colorado

Wednesday AM
October 26, 2016

Room: 255E
Location: Salt Palace Convention Center

Session Chairs: Motoyasu Sato, Chubu University; I-Wei Chen, University of Pennsylvania

8:00 AM Invited
Comprehending Microwave-enhanced Isothermal Process Kinetics in Ceramic Processing: *Boon Wong*[1]; [1]Retired

8:40 AM Invited
In-situ Emission Spectrophotometric Analysis of Oxides Irradiated with Microwave: *Jun Fukushima*[1]; Hirotsugu Takizawa[1]; [1]Tohoku University

9:20 AM
Microstructural Characterization of In-situ Microwave Cast of Al-7039 Alloy: *Radha Raman Mishra*[1]; Apurbba Kumar Sharma[1]; [1]Indian Institute of Technology Roorkee

9:40 AM
Advanced Laser Surface Processing of Lightweight Alloys: *Kendrick Mensink*[1]; Guillermo Aguilar[1]; Suveen Mathaudhu[1]; [1]University of California Riverside

10:00 AM Break

10:20 AM
The Critical Role of Ceramics in the Microwave Heating of Copper Metal Powder: *Morsi Mahmoud*[1]; Julia Wagner[2]; Guido Link[2]; Manfred Thumm[2]; [1]Karlsruhe Institute of Technology (KIT), City for Scientific Research and Technological Applications (SRTA City); [2]Karlsruhe Institute of Technology

10:40 AM
Influence of Laser Parameter on Surface Microstecture Modification of Ti-6Al-4V: *Pavan Sutar*[1]; [1]Bharat Forge

11:00 AM
Synthesis of Bulk Nanostructured Titanium Monoboride (TiB) Ceramic Synthesized by Electric Field Activated Sintering: *Jun Du*[1]; K. S. Ravi Chandran[1]; Anthony Sanders[1]; [1]University of Utah

11:20 AM
Enhanced Durability of Metallic Materials through Thermal Engineered Laser Shock Peening: *Yiliang Liao*[1]; [1]University of Nevada, Reno

Recent Development in Additive Manufacturing: Process and Equipment Development and Applications — Modeling, Process Design & Manufacturing Process in Additive Manufacturing

Program Organizers: Jing Zhang, Indiana University - Purdue University Indianapolis; Balraj Mani, New Jersey Institute of Technology; Johannes Homa, Lithoz GmbH; Kim Brand, 3D Parts Manufacturing, LLC; Xinghua Yu, Oak Ridge National Laboratory; Yeongil Jung, Changwon National University; Nuggehalli Ravindra, New Jersey Institute of Technology

Wednesday AM
October 26, 2016

Room: 258
Location: Salt Palace Convention Center

Session Chairs: Balraj Mani, New Jersey Institute of Technology; Nuggehalli Ravindra, New Jersey Institute of Technology

8:00 AM
Microstructure Analysis of 15-5PH Stainless Steel Powders and Direct Metal Laser Sintered Components: Jing Zhang[1]; Yi Zhang[1]; Bin Hu[2]; Yeon-Gil Jung[3]; Zhe Lu[3]; Je-Hyun Lee[3]; *Linmin Wu*[1]; [1]Indiana University - Purdue University Indianapolis; [2]Dartmouth College; [3]Changwon National University

8:20 AM
Macro Scale Thermal Modeling in Additive Manufacturing: *Tom Stockman*[1]; Judith Schneider[1]; [1]University of Alabama Huntsville

8:40 AM
Modeling of Powder Bed Manufacturing Defects: *Mustafa Megahed*[1]; Hans-Wilfried Mindt[1]; Olivier Desmaison[1]; Alonso Peralta[2]; James Neumann[2]; [1]ESI Group; [2]Honeywell Aerospace

9:00 AM
Depleted Uranium Wire Manufacturing Process Development for EBAM Feedstock: *Daniel Coughlin*[1]; Kester Clarke[1]; Rodney McCabe[1]; Jeffrey Scott[1]; David Alexander[1]; [1]Los Alamos National Laboratory

9:20 AM
The Metalysis Process: Alloy Design Opportunities for Additive Manufacturing: *Ian Mellor*[1]; Greg Doughty[1]; Matthew Piper[1]; Terri Ellis[1]; Kartik Rao[1]; James Deane[1]; [1]Metalysis Ltd.

9:40 AM
Additive Manufacturing of Large Scale Metal Parts by Combination of Lamination Technology and Diffusion Bonding: *Jan Pfeiffer*[1]; Simon Jahn[2]; Udo Broich[1]; Felix Gemse[2]; [1]PVA LWT; [2]ifw Jena

10:00 AM Break

10:20 AM Keynote
Additive Manufacturing in the Metals, Minerals, and Materials Community: Past, Present, and Exciting Future: *Edward Herderick*[1]; [1]GE

11:00 AM
Selective Laser Melting of an Aluminium Alloy Blended with Pure Silicon to Control the Coefficient of Thermal Expansion: Luke Carter[1]; Theresa Hanemann[2]; *Nicholas Adkins*[1]; [1]University of Birmingham; [2]Karlsruher Institute of Technology

11:20 AM
Selective Laser Melting of Components with Thick Section through In-situ Shelling: *Nicholas Adkins*[1]; Luke Carter[1]; Chunlei Qiu[1]; Khamis Essa[1]; Moataz Attallah[1]; [1]University of Birmingham

11:40 AM
Fundamental Research on 2D Electron Beam Powder Melting and Beam/Powder Interactions: *Paul Carriere*[1]; Stephen Yue[1]; [1]McGill University

S2P: Semi-solid Processing of Alloys and Composites — Session VII

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Wednesday AM
October 26, 2016

Room: 151A
Location: Salt Palace Convention Center

Session Chair: Veronique Favier, Ensam PrisTech

8:00 AM
Rheo-diecasting AZ91D Magnesium Alloy Using Enthalpy Equilibrium Electromagnetic-stirring Process: *Xiaoli Zhang*[1]; [1]Jiangsu University of Science and Technology

8:30 AM
Development of Semi-Solid Die Casting Product Design and Die Design Technology for Aluminium Alloy Clamp: Chen Song[1]; Zhang Fan[1]; He Youfeng[1]; *Li Daquan*[1]; Zhu Qiang[1]; [1]General Research Institute for Non-ferrous Metals (GRINM)

9:00 AM
Thixocasting of Al-7% Si Alloy Billets Prepared by Ultrasonic Treatment: *Waleed Khalifa*[1]; Yoshiki Tsunekawa[2]; [1]Cairo University; [2]Toyota Technological Institute

9:30 AM
Reducing Porosity Defects and Production Costs in Die Casting Using GISS Technology: *J. Wannasin*[1]; K.M. Yoon[2]; B.J. Jung[2]; C.U. Lee[2]; M.S. Kim[3]; J.S. Park[3]; M.C. Flemings[4]; [1]GISSCO Co., Ltd.; [2]Hyundai Motor Company; [3]LG Electronics Inc.; [4]Massachusetts Institute of Technology

S2P: Semi-solid Processing of Alloys and Composites — Session VIII

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Wednesday AM
October 26, 2016
Room: 151G
Location: Salt Palace Convention Center

Session Chair: Michael Modigell, GUtech

8:00 AM
Effect of Slurry Temperature Distribution on Semi-solid Die Casting: Wenying Qu[1]; *Fan Zhang*[1]; Jiaojiao Wang[1]; Xiaogang Hu[1]; Qiang Zhu[1]; [1]General Research Institute for Non-ferrous Metals

8:30 AM
Numerical Simulation of Thixo-co-extrusion of 7075/AZ91D Double-Layer Tubes: Xiaowei Li[1]; *Kaikun Wang*[1]; Fei Yin[2]; Jinlong Fu[1]; [1]University of Science and Technology Beijing; [2]YangZhou HongFu Aluminum Co., Ltd.

9:00 AM
Rheological Behavior and Fluidity of Semi-Solid SiCp/A357 Composites with Different SiC Addition Levels: *Zhifeng Zhang*[1]; [1]General Research Institute for Nonferrous Metals

9:30 AM
Rheological Properties of Liquid Metals and Semisolid Materials at Low Solid Fraction: *Marialaura Tocci*[1]; Christoph Zang[2]; Ines Cadorniga Zueco[3]; Annalisa Pola[1]; Michael Modigell[4]; [1]University of Brescia - Italy; [2]RWTH Aachen University; [3]Technical University of Madrid; [4]GUtech - German University of Technology

S2P: Semi-solid Processing of Alloys and Composites — Session IX

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Wednesday AM
October 26, 2016
Room: 151A
Location: Salt Palace Convention Center

Session Chair: Behzad Niroumand, Isfahan University of Technology

10:30 AM
The Kinetics of Melting: Liquid Fraction Versus Time: *Helen Atkinson*[1]; Duyao Zhang[1]; Hongbiao Dong[1]; [1]University of Leicester

11:00 AM
Tensile Behavior of Semi-solid C38 LTT Steel: *Khalil Traidi*[1]; Veronique Favier[2]; Philippe Lestriez[3]; karl debray[3]; laurent langlois[4]; Nicolas Ranc[2]; Michel Saby[5]; Philippe Mangin[1]; [1]IRT-M2P; [2]PIMM, ENSAM; [3]GRESPI/Reims University; [4]LCFC, ENSAM; [5]ASCOMETAL

11:30 AM
Alloy Design for Semi Solid Metal Forming: *Gonasagren Govender*[1]; [1]The Council for Scientific and Industrial Research (CSIR)

S2P: Semi-solid Processing of Alloys and Composites — Session X

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Wednesday AM
October 26, 2016
Room: 151G
Location: Salt Palace Convention Center

Session Chair: Andreas Alexandrou , University of Cyprus

10:30 AM
Application of Multiphase Modelling in Semi-solid Die Casting: Xiaogang Hu[1]; Qiang Zhu[1]; *Fan Zhang*[1]; [1]General Research Institute for Nonferrous Metals

11:00 AM
Behaviour of Semisolid Slurry Flow through a Channel: *Sudip Simlandi*[1]; Nilkanta Barman[1]; Himadri Chattopadhyay[1]; Raunak Joshi[1]; Saikat Roy Chowdhury[1]; [1]Jadavpur University

11:30 AM
Determining True Material Constants of Semisolid Slurries from Rotational Rheometer Data: Eva-Athena Economides[1]; Andreas Alexandrou[1]; *Georgios Georgiou*[1]; Michael Modigell[2]; [1]University of Cyprus; [2]German University of Technology in Oman

Sintering and Related Powder Processing Science & Technologies — Field Assisted Sintering I

Program Organizers: Ricardo Castro, University of California, Davis; Brady Butler, U.S. Army Research Laboratory; Olivia Graeve, University of California, San Diego; Eugene Olevsky, San Diego State University; Anders Eklund, Quintus Technologies, LLC.

Wednesday AM
October 26, 2016
Room: 150E
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM
Study on A Low Temperature Sintering Process for Manufacturing Bulk Ultrafine Grained Tungsten: *Chai Ren*[1]; Z. Zak Fang[1]; Huan Zhang[1]; Dean Buchenauer[2]; Robert Kolasinski[2]; Mark Koopman[1]; [1]University of Utah; [2]Sandia National Laboratories

8:20 AM Invited
High Strength Mg-alloys via Powder Metallurgy: Current Results and Future Opportunities: *Suveen Mathaudhu*[1]; [1]University of California Riverside

9:00 AM
Spark Plasma Sintering of Tungsten Powder: Densification Mechanism and Mechanical Properties: Geuntak Lee[1]; *Eugene Olevsky*[1]; Joanna McKittrick[2]; Eugene Ivanov[3]; [1]San Diego State University; [2]University of California, San Diego; [3]Tosoh SMD Inc.

9:20 AM
On the Effect of Electric Field during Spark Plasma Sintering: A "Faraday Cage" Approach: *Anil Prasad*[1]; Somi Doja[1]; Lukas Bichler[1]; [1]University of British Columbia Okanagan

9:40 AM
Spark Plasma Sintering and Largescale Manufacturability of Nuclear Fuel Pellets: *Ghatu Subhash*[1]; [1]University of Florida

10:20 AM Break

10:40 AM Invited
Structural and Functional Materials via Spark Plasma Sintering: *Joseph Poon*[1]; [1]University of Virginia

11:20 AM
The Usage of Heat Explosion to Synthesize Intermetallic Compounds and Alloys: *Karina Belokon*[1]; Yuriy Belokon[1]; [1]Zaporozhye State Engineering Academy

Solid State Processing — Solid State Processing: Friction Stir Processing Related Techniques and Other Solid State Processes

Program Organizers: Richard Fonda, Naval Research Laboratory; Yuri Hovanski, Pacific Northwest National Laboratory

Wednesday AM
October 26, 2016

Room: 155C
Location: Salt Palace Convention Center

Session Chair: Richard Fonda, Naval Research Laboratory

8:00 AM Invited
Friction Stir Processing of 304L Stainless Steel: *Michael Miles*[1]; Tracy Nelson[1]; Cameron Gunter[1]; Fengchao Liu[1]; Lionel Fourment[2]; [1]Brigham Young University; [2]CEMEF - Mines ParisTech

8:20 AM
Microstructure and Mechanical Properties of Friction Stir Processed Kanthal APMT Alloy: *Anumat Sittiho*[1]; Vedavyas Tungala[2]; Indrajit Charit[1]; Rajiv Mishra[2]; [1]University of Idaho; [2]University of North Texas

8:40 AM
Microstructural Evolution and High Strain Rate Behavior of Solid State Additive Manufactured Inconel 625: *Paul Allison*[1]; Oscar Rivera[1]; Omar Rodriguez[1]; Brian Jordon[1]; Jianqing Su[2]; Nanci Hardwick[2]; [1]University of Alabama; [2]Aeroprobe Corporation

9:00 AM
Investigation of Process Parameters for Friction Stir Processing (FSP) of Ti-6Al-4V Alloy: *Sandip Chougule*[1]; Digvijay Sheed[1]; Nithyanand Prabhu[2]; Bhagwati Kashyap[2]; Kaushal Jha[3]; Rajkumar singh[1]; [1]Bharat Forge Ltd. Pune India; [2]Indian Institute of Technology Bombay; [3]Bhabha Automic Research Centre Mumbai

9:20 AM
Effect of Friction Stir Processing Parameters on Microstructure and Mechanical Properties of Aluminium 6063 Alloy
: Jaswinder Kumar[1]; *Kulbir Sandhu*[2]; [1]Govt. Industrial Training Institute; [2]Punjabi University

9:40 AM
Creating High-property Fine/Ultrafine-grained Metallic Materials via Friction Stir Processing: *Z.Y. Ma*[1]; Peng Xue[1]; Bolu Xiao[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

10:00 AM Break

10:20 AM
Equal Channel Angular Extrusion (ECAE) of FeCo-2V Soft Magnetic Alloy: *Donald Susan*[1]; Jeff Rodelas[1]; Blythe Clark[1]; Ibrahim Karaman[2]; Taymaz Jozaghi[2]; [1]Sandia National Laboratories; [2]Texas A&M University

10:40 AM
Experimental Study of the Effect of Flyer Thickness and Impact Angle on Interface Structure of Impact Welds: *Taeseon Lee*[1]; Anupam Vivek[1]; Glenn Daehn[1]; [1]The Ohio State University

11:00 AM
Hybrid Extrusion-machining Method for Single-stage Processing of Fine-grained Magnesium Alloy Sheet: *Dinakar Sagapuram*[1]; Kevin Trumble[2]; Srinivasan Chandrasekar[2]; [1]Texas A&M University; [2]Purdue University

11:20 AM
Microstructural Evolution and Mechanical Properties of Mechanically Alloyed and Sintered Fe-1.4 wt.%C Alloy: *Ibrahim Khalfallah*[1]; Alex Aning[1]; [1]Virginia Tech

11:40 AM
Some Study on the Milling Parameters Optimization in the Direct Carburization of WO3 by Mechanical Alloying: *Véronique Vitry*[1]; Victor Ioan Stanciu[1]; Fabienne Delaunois[1]; [1]UMONS Faculté Polytechnique FPMs

Surface Protection for Enhanced Materials Performance: Science, Technology, and Application — Thermal and Environmental Barrier Coatings

Program Organizers: Kang Lee, NASA Glenn Research Center; Yutaka Kagawa, The University of Tokyo; Dongming Zhu, NASA Glenn Research Center; Rodney Trice, Purdue University; Daniel Mumm, University of California-Irvine; Mitchell Dorfman, Oerlikon Metco (US) Inc.; Christian Moreau, Concordia University

Wednesday AM
October 26, 2016

Room: 251E
Location: Salt Palace Convention Center

Session Chairs: Kang Lee, Rolls-Royce; Rodney Trice, Purdue University

8:00 AM Invited
Advancement of Enhanced Thermal Barrier Coatings by Innovative SPS Processing: *Xinqing Ma*[1]; Peter Ruggiero[1]; [1]Surface Technologies Division, Curtiss-Wright

8:40 AM
Characteristics of Thermal Barrier Coatings in ZrO_2-La_2O_3-Gd_2O_3 Systems Fabricated by Suspension Plasma Spray: Sujin Lee[1]; Seongwon Kim[1]; Yoon-Suk OH[1]; Sung-Min Lee[1]; *Hyung-Tae KIM*[1]; Byung-Koog Jang[2]; [1]Korea Institute of Ceramic Engineering and Technology; [2]National Institute of Materials Science

9:00 AM
Accelerated Aging Of Yttria-stabilized Zirconia Thermal Barrier Coatings In High Water Vapor Content, Elevated Temperature Environments: Timothy Montalbano[1]; Robert Vaßen[2]; *Daniel Mumm*[1]; [1]University of California-Irvine; [2]Forschungszentrum Jülich GmbH

9:20 AM
Comparative Study of the Resistance of Yttrium Aluminum Garnet (YAG) and Yttria Stabilized Zirconia (YSZ) Coatings to Calcium-magnesium Alumino- silicate (CMAS): *Rishi Kumar*[1]; Eric Jordan[1]; Maurice Gell[1]; [1]University of Connecticut

9:40 AM
Cyclic Durability Testing of Thermal Barrier Coatings with CMAS Application: Effect of CMAS Deposition Mechanism: Alan Harris[1]; *Eric Jordan*[1]; [1]University of Connecticut

10:00 AM Break

10:20 AM
Microstructure Evolution and Durability of Advanced Environmental Barrier Coating Systems for SiC/SiC Ceramic Matrix Composites: *Dongming Zhu*[1]; Terry McCue[1]; Laura Evans[1]; [1]NASA Glenn Research Center

10:40 AM
Surface Strain Distribution of EBC Layer on SiC/SiC Substrate under Mechanical Loading Conditions: *Yutaka Kagawa*[1]; [1]The University of Tokyo

11:00 AM
Degradation of High Temperature Abradable Coating Systems in High Water Vapor Turbine Environments: *Kara Phillips*[1]; Daniel Mumm[1]; [1]University of California, Irvine

11:20 AM
Production and Characterization of CYSZ/Al2O3 Thermal Barrier Coatings with Functionally Graded Design: *Fatih Kirbiyik*[1]; Gültekin Göller[1]; [1]Istanbul Technical University

11:40 AM
Effect of Processing Parameters on APS and HVOF Flashcoat Deposition of TBC Coatings: Anderson Pukasiewicz[1]; Irene de Araújo[2]; Gustavo Sucharski[3]; *Rodolpho Vaz*[2]; [1]Federal University of Technology - Paraná; [2]Institutos LACTEC; [3]Federal University of Paraná

Symposium on Applications of Low Emittance Synchrotron X-ray Sources to Mesoscale Materials Studies — Applications, Motivators, and Enabling Technologies

Program Organizers: Robert Suter, Carnegie Mellon University; Dean Haeffner, Argonne National Laboratory

Wednesday AM
October 26, 2016

Room: 250D
Location: Salt Palace Convention Center

Session Chair: Robert Suter, Carnegie Mellon University

8:00 AM Invited
"Routine" Hard X-ray Imaging at the Deep Nanoscale: *Yong Chu*[1]; Hanfei Yan[1]; Evgeny Nazaretski[1]; Xiaojing Huang[1]; Sabastian Kalbfleisch[1]; Kenneth Lauer[1]; Wen Hu[1]; Li Li[1]; Mingyuan Ge[1]; Nathalie Bouet[1]; Juan Zhou[1]; Weihe Xu[1]; Petr Ilinski[1]; [1]Brookhaven National Laboratory

8:40 AM Invited
Multiscale Movies of Microstructure Evolution: *Henning Poulsen*[1]; Hugh Simons; Anders Jakobsen; Sonja Ahl; Jin Zhang; Wolfgang Pantleon; Søren Schmidt; P. Cook[2]; C. Detlefs[3]; [1]Risoe DTU; [2]ESFR; [3]ESRF

9:20 AM Invited
Understanding the Performance of Structural Materials using High Energy X-rays: *Matthew Miller*[1]; [1]Cornell University

10:00 AM Break

10:20 AM
Combining Experiment and Simulation for the Characterization of Semiconducting Heterostructures Using Coherent X-ray Nanodiffraction: *Anastasios Pateras*[1]; Joonkyu Park[1]; Jack Tilka[1]; Youngjun Ahn[1]; Martin Holt[2]; Paul Evans[1]; [1]University of Wisconsin-Madison; [2]Argonne National Laboratory

10:40 AM
Scalable Manufacturing Processes for X-Ray Optics: *Timothy Hall*[1]; Brian Skinn[1]; [1]Faraday Technology Inc.

11:00 AM
In-situ X-ray Scattering Studies of Mesoporous Materials under Extreme Conditions: *Robert Mayanovic*[1]; Sonal Dey[1]; Ridwan Sakidja[1]; Zhongwu Wang[2]; Manik Mandal[3]; Kai Landskron[3]; [1]Missouri State University; [2]Cornell High Energy Synchrotron Source; [3]Lehigh University

11:20 AM Invited
Physical Thermo-mechanical Simulation in a Synchrotron Beam: The Materials Oscilloscope: *Klaus-Dieter Liss*[1]; [1]Australian Nuclear Science and Technology Organisation

11:40 AM
A Deep, Coherent View of Integrated Circuits: Fast X-ray Ptychography to See Nanoscale Detail without Wafer Thinning: Junjing Deng[1]; Si Chen[2]; Young Hong[1]; Youssef Nashed[2]; Tom Peterka[2]; Anthony Levi[3]; John Damoulakis[3]; *Chris Jacobsen*[2]; [1]Northwestern University; [2]Argonne National Laboratory; [3]University of Southern California

Symposium on Large Fluctuations and Collective Phenomena in Materials III — Metallic Glasses

Program Organizers: Xie Xie, The University of Tennessee; Karin Dahmen, University of Illinois at Urbana Champaign; Peter Liaw, University of Tennessee; Yong Zhang, University of Science and Technology Beijing

Wednesday AM
October 26, 2016

Room: 250C
Location: Salt Palace Convention Center

Session Chairs: Yong Zhang, University of Science and Technology Beijing; Keith Chan, Hong Kong Polytechnic University

8:00 AM Invited
Plastic Deformation Behavior of Double-side-notched Bulk Metallic Glasses: S.H. Cheng[1]; *KC Chan*[1]; [1]The Hong Kong Polytechnic University

8:40 AM Invited
Dynamic Mechanical Relaxations in Metallic Glasses: *Jichao Qiao*[1]; Jean-Marc Pelletier[1]; Yao Yao[1]; [1]Northwestern Polytechnical University

9:20 AM Invited
Mechanical Behavior of Nanoglasses: *Tao Feng*[1]; [1]Nanjing University of Science and Technology

10:00 AM Break

10:20 AM Invited
Modeling Intermittent Plastic Strain Accumulation in Metallic Glasses as a Jump Markov Process: Sohan Kale[1]; *Dansong Zhang*[1]; Martin Ostoja-Starzewski[1]; [1]University of Illinois at Urbana-Champaign

11:00 AM Invited
Correlation between Serrated-flow Behavior and the Amorphous Structure of Metallic Glasses: *Jingli Ren*[1]; [1]Zhengzhou University

11:40 AM Invited
Loading Force Dependent Plastic Dynamics Transition of Chaotic and Self –organized Critical States in Ni62Nb38 Metallic Glass: D.X. Han[1]; *Gang Wang*[1]; J.L. Ren[2]; I. Hussain[1]; S.X. Song[3]; H. Xu[1]; K.C. Chan[4]; Q.J. Zhai[1]; [1]Shanghai University; [2]Zhengzhou University; [3]Shanghai Jiao Tong University; [4]The Hongkong Polytechnic University

The 8th International Symposium on Green and Sustainable Technologies for Materials Manufacturing and Processing — Green Materials Processing I

Program Organizers: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST); Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center; Allen Apblett, Oklahoma State University; Marsha Bischel, Armstrong World Industries, Inc.; Surojit Gupta, University of North Dakota; Manish Mehta, National Center for Manufacturing Sciences (NCMS); Makio Naito, Osaka University; Richard Sisson, Worcester Polytechnic Institute, Center for Heat Treating Excellence; Hisayuki Suematsu, Nagaoka University of Technology; Yiquan Wu, Alfred University

Wednesday AM
October 26, 2016

Room: 151C
Location: Salt Palace Convention Center

Session Chairs: Lisa Rueschhoff, Purdue University; Hisayuki Suematsu, Nagaoka University of Technology

8:00 AM Invited
Controlling Factors Aiming for High Performance SiC Polycrystalline Fiber: *Toshihiro Ishikawa*[1]; HIroshi Oda[2]; [1]Tokyo University of Science, Yamaguchi; [2]Ube Industries, Ltd.

8:20 AM
On the Development of Novel Multifunctional MAXPOL Composites: *Sujan Ghosh*[1]; Surojit Gupta[1]; [1]University of North Dakota

8:40 AM
High Temperature Stability of Carbonate Cement: *Daniel Kopp*[1]; Richard Riman[1]; [1]Rutgers, The State University of New Jersey

9:00 AM
Effects of Molten Salts on Mg Reduction in Titanium Powder Production: *Tuoyang Zhang*[1]; Zak Fang[1]; Ying Zhang[1]; Yang Xia[1]; Zhe Huang[1]; Pei Sun[1]; [1]The University of Utah

9:20 AM
Effect of Raw Powder Characteristics on Thermal Conductivity and Mechanical Properties of Sintered Reaction Bonded Silicon Nitride: *Jae-Woong Ko*[1]; Mi-Nu Kim[1]; Jin-Myung Kim[1]; Ha-Neul Kim[1]; Young-Jo Park[1]; [1]Korea Institute of Materials Science

9:40 AM
Silicon Nitride with High Thermal Conductivity for Power-module Substrate Applications: *Jin-Myung Kim*[1]; Ha-Neul Kim[1]; Young-Jo Park[1]; Jae-Woong Ko[1]; [1]Korea Institute of Materials Science

10:00 AM Break

10:20 AM
Low Temperature Sintering of Silicon Carbide Ceramics with Ternary or Quaternary Additives: *Young-Wook Kim*[1]; Jung-Hye Eom[1]; Yu-Kwang Seo[1]; [1]University of Seoul

10:40 AM
Porous Nano-SiC as High Temperature Thermal Insulator: Role of Nanoscale Phonon Engineering: *Jingyang Wang*[1]; [1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, China

11:00 AM
Relationship between Properties and Morphologies of Gelation Freeze Casted Ceramics: *Manabu Fukushima*[1]; Hideki Hyuga[1]; Tatsuki Ohji[1]; Yu-ichi Yoshizawa[1]; [1]National Institute of Advanced Industrial Science and Technology (AIST)

11:20 AM
New Techniques for Old Materials: Mechanochemical Synthesis and Advanced Processing of Lanthanide and Chalcogenide Compounds: *Gordon Alanko*[1]; Brian Jaques[1]; Darryl Butt[1]; [1]Boise State University

11:40 AM Invited
Development Of Stoneware Body Formulation Suitable For Fast Firing: *Lalit Sharma*[1]; ChanderShekar Prasad[1]; [1]CSIR-Central Glass & Ceramic Research Institute

Ultra High Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense, and Automotive Applications — Ultrafine Grained / Nanostructured Materials

Program Organizers: Ali Yousefiani, Boeing Research and Technology; Troy Topping, California State University, Sacramento

Wednesday AM
October 26, 2016

Room: 150A&B
Location: Salt Palace Convention Center

Session Chairs: Ali Yousefiani, Boeing Research and Technology; Troy Topping, California State University, Sacramento

8:00 AM Invited
Investigation of Cryomilled Ultrafine Grain Al Alloy Response to Corrosive Environments: *Troy Topping*[1]; [1]California State University, Sacramento

8:40 AM Invited
Ultrafine Grained Precipitation Hardened Aluminum Alloys and Influence of Addition of Ceramic Reinforcement: *Kaka Ma*[1]; [1]Colorado State University

9:20 AM
Microstructural Evolution and Mechanical Behavior of an Al-Si Hypo-eutectic Alloy Subjected to Various Severe Plastic Deformation Methods: *Jose Immanuel Rajan*[1]; Sushanta Panigrahi[1]; [1]Indian Institute of Technology Madras

9:40 AM
Studies on Dispersion of Nano-dispersoids and Mechanical Properties of Al 2.99Cu-1wt%.Al_2O_3 Bulk Nanocomposites Produced by a Novel Two Step Ultrasonic Cavitation Based Technique: *Vishwanatha Hire Math*[1]; Jayakumar Eravelly[1]; Cheruvu Kumar[1]; Sudipto Ghosh[1]; [1]Indian Institute of Technology

10:00 AM Break

10:20 AM Invited
Microstructural Stability: The Next Frontier for Nanocryatlline Materials: *Suveen Mathaudhu*[1]; [1]University of California Riverside

11:00 AM
Mechanical Performance and Thermal Stability of Gradient Structured Aluminum Alloys: *Sina Shahrezaei*[1]; Suveen Mathaudhu[1]; [1]University of California, Riverside

Zirconia Based Materials for Cutting Edge Technology — Session II

Program Organizers: Hasan Gocmez, Dumlupinar University; Yuji Hotta, National Institute of Advanced Industrial Science and Technology; Sudipta Seal, University of Central Florida; Hirotaka Fujimori, Yamaguchi University; Cihangir Duran, Yildirim Beyazit University; Kohei Soga, Tokyo University of Science; Takashi Shirai, Nagoya Institue of Technology; Hilmi Yurdakul, TeknoCeram

Wednesday AM
October 26, 2016

Room: 254B
Location: Salt Palace Convention Center

Session Chairs: Cihangir Duran, Yildirim Beyazit University; Sudipta Seal, University of Central Florida; Kohei Soga, Tokyo University of Science

8:00 AM Invited
Master Sintering Curves of Green Bodies of Y_2O_3 Stabilized ZrO_2 Powders: *Junichi Tatami*[1]; Yusuke Suzuki[1]; [1]Yokohama National University

8:40 AM
Microwave Forming of Carbon Fiber Reinforced Thermosetting Plastic Using ZrO2 Mold with Low Thermal Conductive Property: *Yuji Hotta*[1]; Daisuke Shimamoto[1]; Yuichi Tominaga[1]; [1]National Institute of Advanced Industrial Science and Technology

9:00 AM
Metastable-stable Phase Diagrams in the Zirconia-scandia System: *Hirotaka Fujimori*[1]; Masatomo Yashima[2]; Masahiro Yoshimura[3]; [1]Yamaguchi University; [2]Tokyo Institute of Technology; [3]National Cheng Kung University

9:20 AM
Ceramics Mold for the Novel Rapidly Forming Method of Carbon Fiber Reinforced Thermoplastics with Microwave-irradiation: *Daisuke Shimamoto*[1]; Yuichi Tominaga[1]; Yuji Hotta[1]; [1]Advanced Industrial Science and Technology (AIST)

9:40 AM
Direct Write Manufacturing of Mixed Potential Gas Sensors: *Angelica Benavidez*[1]; Lok-kun Tsui[1]; Wenxia Li[2]; Samy Palanisamy[2]; Fernando Garzon[3]; [1]University of New Mexico; [2]ESL ElectroScience; [3]University Of New Mexico/ Sandia National Laboratories

10:00 AM Break

10:20 AM
Zirconia Nanocrystals: Effect of Metal Precursor on the Crystalline Phase and Surface Chemistry: *Katrien De Keukeleere*[1]; Jonathan De Roo[1]; Pascal Van Der Voort[1]; José Martins[1]; Isabel Van Driessche[1]; [1]Ghent University

10:40 AM
Characterization of Hydrothermal Ageing of Zirconia Using a "Locati-like" Method: *Laurent Gremillard*[1]; Jerome Chevalier[1]; [1]INSA-Lyon

11:00 AM
Synthesis and Characterization of ZrO_2 Thin Films and Nano Powders for Corrosion Inhibition and Optical Applications: *M S Dharmaprakash*[1]; [1]BMS College of Engineering

11:20 AM
Microstructure and Tribological Behaviour of ZrO_2 Reinforced AISI 304 Austenitic Stainless Steel: *Babatunde Obadele*[1]; Mxolisi Shongwe[2]; Peter Olubambi[1]; Matsobane Ramashala[2]; [1]University of Johannesburg; [2]Tshwane University of Technology

ACerS Robert B. Sosman Lecture

Wednesday PM
October 26, 2016

Room: 255B
Location: Salt Palace Convention Center

Session Chair: Xingbo Liu, West Virginia University

1:00 PM Invited
Programmable Assembly of Colloidal Suspensions: *Jennifer Lewis*[1]; [1]Harvard University

Additive Manufacturing for Surface Engineering of Materials — Session II

Program Organizers: Sandip Harimkar, Oklahoma State University; Arvind Agarwal, Florida International University; Benjamin Boesl, Florida International University ; Hitesh Vora, Oklahoma State University

Wednesday PM
October 26, 2016

Room: 355B
Location: Salt Palace Convention Center

Session Chair: Sandip Harimkar, Oklahoma State University

2:00 PM Invited
Automatic Finishing of Metal AM Components: *Ola Harrysson*[1]; Richard Wysk[1]; Matt Frank[2]; Harshad Srinivasan[1]; Carter Keough[1]; [1]North Carolina State University; [2]Iowa State University

2:40 PM Invited
Build Surface Analysis and Process Effects in Powder-bed Electron Beam Additive Manufacturing: *Kevin Chou*[1]; Bo Cheng[1]; [1]University of Alabama

3:20 PM
Robust, HF Free, and Water Based Polishing and Finishing Process for Complex Shapes: *Timothy Hall*[1]; Stephen Snyder[1]; Heather McCrabb[1]; Holly Garich[1]; E. Jennings Taylor[1]; [1]Faraday Technology Inc.

3:40 PM Break

4:00 PM
New Technology Increased Metal Fatigue Life 20-Times in Lab Tests: *David Horne*[1]; [1]Faigue Egineering & Technologies

4:20 PM
Laser-aided Additively Manufactured Transition Metal Intermetallic Coating on Aluminum to Enhance Functional Properties: *Hitesh Vora*[1]; Ravi Shanker Rajamure[2]; Anurag Roy[3]; Srinivasan Srivilliputhur[2]; G. Sundararajan[4]; Rajarshi Banerjee[2]; Narendra Dahotre[2]; [1]Oklahoma State University; [2]University of North Texas; [3]Indian Institute of Technology, Banaras Hindu University; [4]Indian Institute of Technology, Chennai

4:40 PM
Microstructural Effect on Corrosion and Tribological Properties of Fe Based Metallic Glass Coating Synthesized by Air Plasma Spraying: Swadipta Roy[1]; Atanu Banerjee[2]; Pavan Bijalwan[2]; Monojit Dutta[2]; *Tapas Laha*[1]; [1]Indian Institute of Technology Kharagpur; [2]Tata Steel, India

5:00 PM
Obtaining Ultimate Functionalities in 3D-printed Cellular Ti-6Al-4V Mesh Structures: *Krishna Chaitanya Nune*[1]; Devesh Misra[1]; Li SJ[2]; Hao YL[2]; Yang R[2]; [1]University of Texas at El Paso; [2]Chinese Academy of Sciences

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — AM Processes and Post-deposition Treatment

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Wednesday PM
October 26, 2016

Room: 355C
Location: Salt Palace Convention Center

Session Chair: Timothy Horn, North Carolina State University

2:00 PM
High Density Monolithic Alloy Parts via Additive Manufacturing Using the Binder Jetting Process: *Howard Kuhn*[1]; [1]University of Pittsburgh

2:40 PM
The Effect of Aging Treatment on Mechanical Properties of Powder-bed Binder-jet Printed Alloy 625 Nickel Superalloy Parts: *Erica Stevens*[1]; Amir Mostafaei[1]; Markus Chmielus[1]; [1]University of Pittsburgh

3:00 PM
Establishing Post-build Heat Treatment for Age-hardened Additive-manufactured Alloys: Benjamin Seitz[1]; Michael Kirka[2]; *Richard Neu*[1]; [1]Georgia Institute of Technology; [2]Oak Ridge National Laboratory

3:20 PM
Laser Additive Manufacturing Processing of a Mixture of Iron and Nickel Powders: *Joseph Strauss*[1]; [1]HJE Company, Inc.

3:40 PM Break

4:00 PM
Structure / Property (Constitutive and Dynamic Strength / Damage) Characterization of Additively Manufactured (AM) 304L SS Produced Using Four Different AM Build Methods: *George Gray*[1]; John Carpenter[1]; Cameron Knapp[1]; Veronica Livescu[1]; Carl Trujillo[1]; David Jones[1]; [1]Los Alamos National Laboratory

4:20 PM
Fe – Al Intermetallic Cellular Structures Produced by Laser Engineered Net Shaping (LENS): Krzysztof Karczewski[1]; *Marek Polanski*[1]; Zbigniew Bojar[1]; [1]Military University of Technology

4:40 PM
Microstructure and Mechanical Properties of WC/Co Hardmetal Fabricated by SLM 3D Printing with Spray Granulated Powders: *Chao-Jung Chen*[1]; Che-Wei Tsai[1]; An-Chou Yeh[1]; Su-Jien Lin[1]; Jien-Wei Yeh[1]; [1]National Tsing Hua University

5:00 PM
Microstructure and Mechanical Properties of WC-Co/FeCoNi Manufactured by Selective Laser Sintering: *Chi Peng Chiang*[1]; An-Chou Yeh[1]; Su-Jien Lin[1]; Jien-Wei Yeh[1]; Che-Wei Tsai[1]; [1]National Tsing Hua University

5:20 PM
Surface Texture and Microstructure of Overhanging Structures in Laser Powder Bed Fusion Additive Manufacturing: *Jason Fox*[1]; Shawn Moylan[1]; Brandon Lane[1]; Mark Stoudt[1]; Thien Phan[1]; Lyle Levine[1]; [1]National Institute of Standards and Technology

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Powder Characteristics and Recycling

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Wednesday PM
October 26, 2016

Room: 355D
Location: Salt Palace Convention Center

Session Chair: Andrzej Wojcieszynski, ATI Powder Metals

2:00 PM
NiCr-Alloy Powder Reuse and Testing Results in Additive Manufacturing: Larry Somrack[1]; *Melissa Gorris*[1]; William Jarosinski[2]; [1]NSL Analytical Services, Inc.; [2]Praxair Surface Technoligy, Inc.

2:20 PM
On the Effect of Metal Powder Recyclability for Build Quality and Process Optimization in SLM 3D Printing: *Vicki Barbur*[1]; Juan Valencia[1]; Kenneth Sabo[1]; [1]Concurrent Technologies Corporation

2:40 PM
The Influence of Powder Reuse on the Properties of Nickel Super-alloy 718 in Laser Powder Bed Additive Manufacturing: *Hengfeng Gu*[1]; Harvey West[1]; Zaynab Mahbooba[1]; Chris Ledford[1]; Ola Harrysson[1]; Tim Horn[1]; [1]CAMAL

3:00 PM
Ti6Al4V Selective Laser Melted : Impact of Powder Bed Characteristics on Geometrical Stability: *Matthieu Régnière*[1]; Sébastien Saunier[1]; Philippe Bertrand[2]; Christophe Desrayaud[1]; [1]Ecole des Mines de Saint Etienne; [2]Ecole Nationale Ingénieurs Saint Etienne

3:20 PM
Effect of Hall Flow Characterization on Built Properties of SLM Part: *Satyajeet Sharma*[1]; [1]Oerlikon Metco

3:40 PM Break

4:00 PM
Effects of Powder Feedstock Quality on γ -TiAl Parts Fabricated via Electron Beam Melting: *Peeyush Nandwana*[1]; Ryan Dehoff[1]; William Peter[1]; [1]Oak Ridge National Laboratory

4:20 PM
Influence of Powder Characteristics on the Structural Integrity of High Purity Tungsten Produced via Selective Laser Melting: Amanda Field[1]; Luke Carter[1]; *Nicholas Adkins*[1]; M Gorley[2]; Moataz Attallah[1]; [1]University of Birmingham; [2]Culham Science Centre

4:40 PM
Low-cost Spherical Ti Alloy Powders for Additive Manufacturing: *Pei Sun*[1]; Z. Zak Fang[1]; Yang Xia[1]; Ying Zhang[1]; Chengshang Zhou[1]; [1]University of Utah, Dept of Metallurgical Engineering

5:00 PM
DEM Modeling of Powder Spreading in the Powder Bed Fusion Process and Empirical Correlations: *Justin Whiting*[1]; Michelle Bernhardt[2]; Stephen Geer[2]; [1]NIST; [2]University of Arkansas

Additive Manufacturing: In-situ Process Monitoring, Defect Detection and Control — Laser Beam Powder Bed Fusion and Related Technologies

Program Organizers: Ulf Ackelid, Arcam AB; Ian D. Harris, EWI; Andrzej Wojcieszynski, ATI Powder Metals; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harrysson, North Carolina State University; Rodney Boyer, Monash University

Wednesday PM
October 26, 2016

Room: 355A
Location: Salt Palace Convention Center

Session Chair: Ola Harrysson, North Carolina State University

2:00 PM
3D Analysis in Laser Beam Melting Based on Real-time Process Monitoring: *Thomas Toeppel*[1]; Philipp Schumann[2]; Marie-Christin Ebert[2]; Tobias Bokkes[2]; Kerstin Funke[1]; Michael Werner[1]; Fabian Zeulner[2]; Florian Bechmann[2]; Frank Herzog[2]; [1]Fraunhofer Institute for Machine Tools and Forming Technology IWU; [2]Concept Laser GmbH

2:20 PM
Correlating In-process Statistical Data Collected during SLM to As-built Material Properties, Microstructure, and Residual Stress: *Nathan Levkulich*[1]; Gregory Loughnane[1]; John Middendorf[1]; Nathan Klingbeil[1]; [1]Wright State University

2:40 PM
Correlation of Defect Structures and a Voxelized Representation of Powder Bed Fusion Process Conditions: Sean Donegan[1]; Michael Groeber[2]; Edwin Schwalbach[2]; *Mark Benedict*[2]; [1]BlueQuartz; [2]Air Force Research Laboratory

3:00 PM
Defect Formation Mapping and Targeted Process Optimisation in Selective Laser Melted IN738LC Ni-base Superalloy: *Rachel Jennings*[1]; Mark Ward[1]; Moataz Attallah[1]; [1]University of Birmingham

3:20 PM
Linking Post-process NDT to In-process Monitoring Data for SLM Quality Control and Defect Detection in Ti-6Al-4V: *Gregory Loughnane*[1]; John Middendorf[2]; Nathan Levkulich[1]; Nathan Klingbeil[1]; [1]Wright State University; [2]Advratech, LLC

3:40 PM Break

4:00 PM
On the Requirements for Model-based Thermal Control of Melt Pool Geometry in Laser Powder Bed Fusion Additive Manufacturing: *Jason Fox*[1]; Felipe Lopez[1]; Brandon Lane[1]; Ho Yeung[1]; Steven Grantham[1]; [1]National Institute of Standards and Technology

4:20 PM
Surface Temperature Distribution and Melt Pool Behavior during Selective Laser Melting Process for Inconel 718: *Toshi-Taka Ikeshoji*[1]; Hideki Kyogoku[1]; Masahiro Araki[2]; Makiko Yonehara[1]; Kazuya Nakmura[3]; [1]Kindai University; [2]Technology Research Association for Future Additive Manufacturing; TRAFAM; [3]Technology Research Association for Future Additive Manufacturing; TRAFAM

4:40 PM
Identification of Sub-surface Defects in Parts Produced by Additive Manufacturing, Using Laser Generated Ultrasound: *Sarah Everton*[1]; Phill Dickens[2]; Chris Tuck[2]; Ben Dutton[3]; [1]University of Nottingham and Manufacturing Technology Centre; [2]University of Nottingham; [3]Manufacturing Technology Centre

5:00 PM
Monitoring of Humidity in Laser Based Powder Bed Fusion Systems: *Simon Jahn*[1]; Stefan Szemkus[1]; Robert Kahlenberg[1]; [1]ifw Jena

Advanced High Strength Steel Design / Technological Exploitation — Stainless and High Alloy Steels

Program Organizers: Alla Sergueeva, The NanoSteel Company; Daniel Branagan, The NanoSteel Company; Kester Clarke, Colorado School of Mines

Wednesday PM
October 26, 2016

Room: 155F
Location: Salt Palace Convention Center

Session Chairs: Yousef Mohassab, University of Utah; Qiulin Yu, Nucor Steel

2:00 PM
Statistical Analysis of Heritage Data of 9Cr-steels, Using a Robust, Open-source, Data Analytics Design Approach: *Amit Verma*[1]; Mohamed Elsaeiti[1]; Laura Bruckman[1]; Roger French[1]; Jennifer Carter[1]; Vyacheslav Romanov[2]; Jeffrey Hawk[3]; [1]Case Western Reserve University; [2]National Energy Technology Laboratory, Pittsburgh PA; [3]National Energy Technology Laboratory, Albany OR

2:20 PM
In-situ Assessment of Strain-induced Martensitic Transformation in 10% Nickel Multi-phase Steels during Dynamic Compression: *Paul Lambert*[1]; Caleb Hustedt[1]; Andrew Leong[1]; Daniel Casem[2]; Nicholas Sinclair[3]; Xian Zhang[4]; Todd Hufnagel[1]; [1]Johns Hopkins University; [2]US Army Research Laboratory, Aberdeen Proving Ground; [3]Argonne National Laboratory; [4]Carderock Division, Naval Surface Warfare Center

2:40 PM
Effect of Solute Partitioning on the Sensitization Resistance of AISI 321 and 347 Stainless Steels: Ihho Park[1]; Yunjo Ro[1]; Jaehydeok Shim[1]; *Raghavan Ayer*[1]; Jaewoong Kim[1]; Jingak Nam[1]; [1]SK Innovation

3:00 PM
Spherical Nanoindentation Investigation on Martensitic Fe-Ni Steel, Effects of Carbon Content and Length Scale: *Ali Khosravani*[1]; Lutz Morsdorf[2]; C. Cem Tasan[3]; Surya Kalidindi[1]; [1]Georgia Institute of Technology; [2]Max-Planck-Institut für Eisenforschung; [3]Massachusetts Institute of Technology

3:20 PM Break

3:40 PM
Effect of Heat Treatment Paths on the Microstructure and Tensile Properties of High Cr Containing Ultrahigh Strength Steels: *Gyeongbae Park*[1]; Yunik Kwon[1]; K. H. Kwon[2]; Nack J. Kim[1]; [1]POSTECH; [2]RIST

4:00 PM
Synergistic Alloying Effect on Comprehensive Performances of the High Strength Stainless Steel: *Jialong Tian*[1]; Wei Wang[1]; [1]Institute of Metal Research

4:20 PM
Influence of Heat Treatment on Microstructure and Mechanical Performance of 9Cr-1Mo-VN Steel: *Chao Wang*[1]; Qingquan Zhang[1]; Zhenrui Li[1]; Mingyang Li[1]; Yu Cao[1]; [1]Beijing Beiye Functional Materials Corporation

Advanced Manufacturing Technologies — Advanced Manufacturing- Machines, Equipment and Systems

Program Organizer: Muammer Koc, HBKU / Qatar Foundation

Wednesday PM — Room: 150F
October 26, 2016 — Location: Salt Palace Convention Center

Session Chair: Muammer Koc, HBKU / Qatar Foundation

2:00 PM Introductory Comments

2:10 PM
Magnetic Field Assisted Assembly Machine: Design and Implementation: *Yan Liu*[1]; Nuggehalli Ravindra[1]; [1]New Jersey Institute of Technology

2:50 PM
The Novel Use of Acoustic Emission Monitoring during Proof-testing of Ceramic Spinal Implants: *Bryan McEntire*[1]; Darin Ray[1]; Ramaswamy Lakshminarayanan[2]; Obdulia Ley[3]; [1]Amedica Corporation; [2]Corning, Inc.; [3]Mistras Group, Inc.

3:30 PM Break

3:50 PM
Numerical Analysis of Raceway Combustion under Different Operating Conditions in a Blast Furnace: Bin Wu[1]; Haibo Ma[1]; Guangwu Tang[1]; Tyamo Okosun[1]; Armin Silaen[1]; *Chenn Zhou*[1]; [1]Center for Innovation through Visualization and Simulation

4:10 PM
Repair Processes for Forging Dies and Their Testing and Impact: *Pavel Podany*[1]; Michal Duchek[1]; Martina Koukolikova[1]; [1]COMTES FHT a.s.

4:30 PM Question and Answer Period

Advanced Materials for Oil and Gas Applications - Performance and Degradation — Combating Corrosion in Oil & Gas Applications

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Xi Shan, GE Oil & Gas; Maria Sawford, ATI Powder Metals; Paal Bratland, OneSubsea Company; Mariano Iannuzzi, GE Oil & Gas; Yellapu Murty, MC Technologies LLC

Wednesday PM — Room: 250D
October 26, 2016 — Location: Salt Palace Convention Center

Session Chairs: Yellapu Murty, MC Technologies; Xi Shan, GE Oil & Gas

2:00 PM Invited
Hydrogen Induced Stress Cracking of Duplex Stainless Steel under Cathodic Protection in Seawater: Historical Overview and Lessons Learned: *Roy Johnsen*[1]; [1]Norwegian University of Science and Technology

2:40 PM Invited
Hydrogen Induced Cracking in X70 Pipeline Steels: *Mary O'Brien*[1]; Kip Findley[1]; John Speer[1]; [1]Colorado School of Mines

3:20 PM Break

3:40 PM Invited
Advancements in High Strength Copper-nickel-tin Spinodal Alloy Mill Products: Christopher Damschroder[1]; *Fritz Grensing*[1]; William Nielsen[1]; Diane Nielsen[1]; [1]Materion Performance Alloys

4:20 PM
Development of C125 Steel Casing for Mildly Sour Crude Oil and Gas Environments: *Riad Asfahani*[1]; [1]U. S. Steel Research & Technology

4:40 PM
AF955 (UNS N09955): A New Ni-base Alloy for Oil and Gas Applications: Luca Foroni[1]; Stanley Gregory[2]; *Tom Grubach*[2]; Carlo Malara[1]; [1]Foroni SpA; [2]Foroni Metals of Texas

5:00 PM
Microstructure, Mechanical Properties and Hydrogen-induced Cracking Susceptibility of Novel Cu-modified Pipeline Steels: Xianbo Shi[1]; Wei Yan[1]; Wei Wang[1]; Zhenguo Yang[1]; *Yiyin Shan*[1]; Ke Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

Advancements in In-situ Electron Microscopy Characterization — In-situ Electron Microscopy in Complex Enviroments

Program Organizers: Khalid Hattar, Sandia National Laboratories; Josh Kacher, Georgia Tech; Daniel Gianola, University of California, Santa Barbara; Judith Yang, University of Pittsburgh; Amith Darbal, AppFive LLC

Wednesday PM
October 26, 2016

Room: 253A
Location: Salt Palace Convention Center

Session Chairs: Judith Yang, University of Pittsburgh; Josh Kacher, Georgia Tech

2:00 PM
Crystallization Kinetics of Phase Change Materials Measured with Dynamic Transmission Electron Microscopy: Mark Winseck[1]; Huai-Yu Cheng[2]; Geoffrey Campbell[3]; *Melissa Santala*[1]; [1]Oregon State University; [2]Macronix International Co., Ltd.; [3]Lawrence Livermore National Laboratory

2:20 PM
Nano-scale Spatio-temporal Resolution In-situ TEM and Numerical Modeling of Rapid Solidification in Al Alloys after Laser Melting: *Jorg Wiezorek*[1]; Joseph McKeown[2]; Kai Zweiacker[1]; Can Liu[1]; Thomas LaGrange[3]; Bryan Reed[4]; Geoffrey Campbell[2]; [1]University of Pittsburgh; [2]Lawrence Livermore National Laboratory; [3]EPFL; [4]Intergated Dynamic Electron Solutions, Inc

2:40 PM
Time-resolved Atomic-scale Chemical Imaging for Study of Dynamic PhaseTransformation in Li-rich Layered Cathode Materials: *Ping Lu*[1]; Pengfei Yan[2]; Chong-Min Wang[2]; [1]Sandia National Labs; [2]Pacific Northwest National Laboratory

3:00 PM Invited
3D Characterization of Al5083 Spall by Micro-CT and In-situ Femtosecond Laser - FIB: *Tomoko Sano*[1]; Jonathan Ligda[1]; Timothy Walter[1]; Jennifer Sietins[1]; Cyril Williams[1]; [1]US Army Research Laboratory

3:20 PM Break

3:40 PM Invited
In-situ Liquid Imaging of Nanoparticles in the Scanning Transmission Electron Microscope: Katherine Jungjohann[1]; Lucas Parent[1]; Patricia Abellan[1]; Taylor Woehl[1]; *Ilke Arslan*[2]; [1]University of California-Davis; [2]Pacific Northwest National Laboratory

4:20 PM
TEM In-situ Cantilever Testing to Assess Grain Cohesion in Irradiated ODS: *Kayla Yano*[1]; Janelle Wharry[1]; [1]Boise State University

Art and Cultural Heritage: Discoveries and Education — Art and Cultural Heritage: Discoveries II

Program Organizers: Glenn Gates, Walters Art Museum; Darryl Butt, University of Utah

Wednesday PM
October 26, 2016

Room: 251F
Location: Salt Palace Convention Center

Session Chair: Henry Colorado, Universidad de Antioquia

2:00 PM
Contextualising Çadir Höyük: A Cross-disciplinary Investigation into Use Patterns and Long Term Glass Alteration: *Hallie Meredith*[1]; Erik Fergerstrom[1]; John McCloy[1]; [1]Washington State University

2:20 PM
Eighth Century CE Window Glass from Sardis in Western Turkey: *Kayli McArthur*[1]; Pamela Vandiver[2]; [1]University of Arizona

2:40 PM
Reverse Engineering the Physical Chemistry of Making Egyptian Faience with the Cementation Process: *Magnum Pina*[1]; Pamela Vandiver[1]; [1]University of Arizona

3:00 PM
Swedish Vitrified Forts: Ironmaking, Building Technology, & Long-term Glass Degradation: *John McCloy*[1]; Jamie Weaver[1]; Rolf Sjöblom[2]; Peter Kresten[3]; Eva Hjärthner-Holdar[4]; Erik Ogenhall[4]; David Peeler[5]; Albert Kruger[6]; [1]Washington State University; [2]Luleå University of Technology; [3]Retired; [4]Arkeologerna och Geoarkeologiskt Laboratorium; [5]Pacific Northwest National Laboratory; [6]Department of Energy - Office of River Protection

3:20 PM Break

3:40 PM
Study Ancient Pigment Structure by Using Advanced Characterization Techniques: *Yaqiao Wu*[1]; Jatuporn Burns[1]; Darryl Butt[1]; Glenn Gates[2]; [1]Boise State University; [2]The Walters Art Museum

4:00 PM
The Analysis and Characterization of Iron Based Pigments on Corinthian Polychrome Ceramics: *Catherine Klesner*[1]; Jay Stephens[1]; Pamela Vandiver[1]; [1]University of Arizona

4:20 PM
Non-destructive Methods Using in Paintings on Traditional Temple Heritage in Taiwan: Chen-Fu Wang[1]; *Lin-ya Kung*[1]; Chih-Ming Chou[2]; Chun-Yu Chen[2]; [1]National Yunlin University of Science and Technology, Yunlin, Taiwan; [2]Institute of Cultural Heritage, Bureau of Cultural Heritage ,Ministry of Culture, Taiwan

4:40 PM
Fique and Luffa Fibers in Arts: *Henry Colorado*[1]; Gabriel Velez[1]; Claudia Silva[1]; [1]Universidad de Antioquia

Avant-garde Developments in the Processing, Properties and Performance of Multifunctional Ceramic- and Metal-matrix Composites — General Processing, Thermal and Mechanical Properties of MMCs and CMCs

Program Organizers: Martin Pech-Canul, Cinvestav IPN- Unidad Saltillo; Golam Newaz, Wayne State University; Zariff Chaudhury, Eaton's Crouse Hinds Division

Wednesday PM
October 26, 2016

Room: 150D
Location: Salt Palace Convention Center

Session Chair: Martin Pech-Canul, Cinvestav IPN Saltillo

2:00 PM
A Review of Iron Based Syntactic Foams Synthesized by Metal Powder Injection Molding (MIM): Dung Luong[1]; *Dirk Lehmhus*[2]; Nikhil Gupta[1]; Joerg Weise[3]; [1]New York University; [2]ISIS Sensorial Materials Scientific Centre; [3]Fraunhofer Institute for Manufacturing Technology and Advanced Materials

2:20 PM
The Effect of Functionalization on Microstructure and Mechanical Properties of Multiwalled Carbon Nanotubes Reinforced Aluminium Nanocomposite Synthesized by Spark Plasma Sintering: *Lavish Singh*[1]; Akash Oraon[1]; Tapas Laha[1]; [1]Indian Institute of Technology Kharagpur

2:40 PM
Tailored Copper-alumina Composites Using an In-situ Partial Reduction Process: *Michael Kracum*[1]; Zhiyang Yu[1]; Richard Vinci[1]; Martin Harmer[1]; Helen Chan[1]; [1]Lehigh University

3:00 PM
Development of Wear Resistant WC Metal Matrix Composites Consolidated via Laser-assisted Cold Spray: *Aaron Birt*[1]; Diran Apelian[1]; [1]Worcester Polytechnic Institute

3:20 PM Break

3:40 PM
Mechanical Properties of Aluminum 7075/Ni43Co7Mn39Sn11 Composite Consolidated via Spark Plasma Sintering of Powder Precursors: *Nick Barta*[1]; Ibrahim Karaman[1]; [1]Texas A&M University

4:00 PM
Microstructure and Mechanical Properties of Carbonized Rice Husk Nanoparticles Reinforced Al-Cu-Mg Alloy Composite: *Suleiman Hassan*[1]; Johnson Agunsoye[1]; Victor Aigbodion[2]; [1]University of Lagos; [2]University of Nigeria

4:20 PM
Properties of Microwave Sintered Al-Cu Metal Matrix Composites: *Abdul Shakoor*[1]; Penchal Reddy Matli[1]; Fareeha U[1]; Mohamed Ama[2]; [1]Qatar University, Doha, Qatar; [2]Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering, Suez University

4:40 PM
Synthesis and Thermo-mechanical Properties of Nickel Composite Reinforcement with TiC Particles: *Mariano Braulio-Sánchez*[1]; Carlos A. Leon-Patiño[1]; Ena A. Aguilar-Reyes[1]; Egberto Bedolla-Becerril[1]; [1]Universidad Michoacana de San Nicolás de Hidalgo

5:00 PM
Potentialities and Limitations of Functional Ceramic-matrix Composites: *Martin Pech-Canul*[1]; Socorro Valdez[2]; José Flores-García[1]; Ana Leal-Cruz[3]; [1]Cinvestav IPN- Unidad Saltillo; [2]UNAM; [3]Universidad de Sonora

5:20 PM
The Modified Central Paradigm of Materials Science and Engineering in the Recycling of Metal-matrix Composites: *Martin Pech-Canul*[1]; Socorro Valdez[2]; [1]Cinvestav IPN- Unidad Saltillo; [2]UNAM

Boron, Boron Coatings, Boron Compounds and Boron Nanomaterials: Structure, Properties, Processing, and Applications — Physical Properties

Program Organizers: Roumiana Petrova, New Jersey Institute of Tech; Jens Kunstmann, TU Dresden

Wednesday PM
October 26, 2016

Room: 260B
Location: Salt Palace Convention Center

Session Chair: Roumiana Petrova, New Jersey Institute of Technology

2:00 PM Invited
Thermal Transport through Individual Boron-based Nanostructures and their Contacts: *Deyu Li*[1]; [1]Vanderbilt University

2:40 PM Invited
Recent Progresses in Understanding Boron Phase Diagram and Peculiar Properties of Boron Allotropes: *Tadashi Ogitsu*[1]; [1]Lawrence Livermore National Laboratory

3:20 PM Break

3:40 PM Invited
Practical Insights Obtained from the Theoretical Analysis of Boron Nanotubes, Boron Sheets and Alpha-tetragonal Boron: *Jens Kunstmann*[1]; [1]TU Dresden

4:20 PM Invited
Thermoelectric Properties and Carrier Control of Metal Borides: *Masatoshi Takeda*[1]; [1]Nagaoka University of Technology

5:00 PM
Synthesis and Thermal Stability of Boron Based High-temperature Thermoelectric Materials: *Muhammad Imam*[1]; Ramana Reddy[1]; [1]The University of Alabama

Ceramic Matrix Composites — Additive Manufacturing and Ceramic Fiber Composites

Program Organizers: J. P. Singh, U.S. Army Research Laboratory; Narottam Bansal, NASA Glenn Research Center; Jacques Lamon, CNRS; Sung Choi, Naval Air Systems Command

Wednesday PM
October 26, 2016

Room: 254A
Location: Salt Palace Convention Center

Session Chairs: Rishi Raj, University of Colorado; Michael Cinibulk, Air Force Research Laboratory

2:00 PM Invited
Additive Manufacturing of Ceramics Enabled by Flash Pyrolysis of Polymer Precursors with Nanoscale Layers: *Rishi Raj*[1]; Luca Zoli[1]; Setareh Azarnoush[1]; [1]University of Colorado

2:40 PM Invited
Constituent Development for Higher-temperature Capable Ceramic Matrix Composites: *Michael Cinibulk*[1]; [1]AFRL

3:20 PM
Interplay of Temperature, Composition, and Geometry on the Crystallization of Polymer Derived Ceramics for CMC Manufacturing: *David Poerschke*[1]; Frederick Lauten[2]; Carlos Levi[1]; [1]University of California Santa Barbara; [2]Physical Sciences Incorperated

3:40 PM Break

4:00 PM
Mechanisms of Reactive Alloy Melt Infiltration for Ceramic Composite Matrices: *Rebecca Reitz*[1]; Frank Zok[1]; Carlos Levi[1]; [1]University of California Santa Barbara

4:20 PM
Processing and Testing of Ultrahigh Temperature Fiber-reinforced Ceramic and Metal Matrix Composites: *Jacob Stiglich*[1]; Brian Williams[1]; Jerry Brockmeyer[1]; Victor Arrieta[1]; Therese Grundl[1]; [1]Ultramet

4:40 PM
A Model for the Numerical Simulation of Liquid Silicon Infiltration into Porous Carbon/Carbon Preforms: *Khurram Iqbal*[1]; [1]Dalian University of Technology

Ceramic Optical Materials — Session IV

Program Organizers: Yiquan Wu, Alfred University; Jas Sanghera, Naval Research Laboratory; Michael Squillante, RMD, Inc; Takunori Taira, Institute for Molecular Science

Wednesday PM
October 26, 2016

Room: 254C
Location: Salt Palace Convention Center

Session Chair: Javier Garay, University of California San Diego

2:00 PM Invited
Novel Material Ceramics for Femtosecond Lasers: *Akira Shirakawa*[1]; Shotaro Kitajima[1]; Ken-ichi Ueda[1]; [1]University of Electro-Communications

2:40 PM
High Strength Transparent Spinel by Microwave Sintering: *Shyam Bayya*[1]; Guillermo Villalobos[1]; Michael Hunt[1]; Woohong (Rick) Kim[1]; Benjamin Rock[1]; Bryan Sadowski[1]; Jasbinder Sanghera[1]; [1]Naval Research Laboratory

3:00 PM
Fracture Toughness of Rare Earth Doped Magnesium Aluminate Spinel: *Fiona Yuwei Cui*[1]; Animesh Kundu[1]; Richard Vinci[1]; [1]Lehigh University

3:20 PM
Fabrication of Polycrystalline BaCl2 Scintillators by the Hot-forging Technique: Taylor Shoulders[1]; Gregory Bizarri[2]; Edith Bourret[2]; *Romain Gaume*[1]; [1]University of Central Florida; [2]Lawrence Berkeley National Laboratory

3:40 PM Break

4:00 PM
Multi-layer Transparent Ceramic/Polymer Armor: *Guillermo Villalobos*[1]; Michael Hunt[1]; Bryan Sadowski[2]; Robert Miklos[2]; Shyam Bayya[1]; Woohong Kim[1]; Jasbinder Sanghera[1]; [1]US Naval Research Lab; [2]Sotera Defense Solutions

4:20 PM Invited
Optical and Mechanical Properties of Y_2O_3-MgO Nanocomposite Synthesized by Sol-gel Combustion and Hot-press Sintering: Ho Jin Ma[1]; Wook Ki Jung[1]; *Do Kyung Kim*[1]; [1]KAIST

4:40 PM
Scale Up of Spinel Windows for High Energy Laser Systems: *Shyam Bayya*[1]; Colin Baker[1]; Guillermo Villalobos[1]; Woohong (Rick) Kim[1]; Michael Hunt[1]; Bryan Sadowski[2]; Ishwar Aggarwal[2]; Raouf Loutfy[3]; Juan Sepulveda[3]; Tim Lowe[3]; Jasbinder Sanghera[3]; [1]Naval Research Laboratory; [2]Sotera Defense Solutions; [3]MER Corp.

Computational Design of Ceramics and Glasses — Ceramics Materials – Structure and Properties

Program Organizers: Mathieu Bauchy, University of California, Los Angeles; Liping Huang, Rensselaer Polytechnic Institute; Peter Kroll, University of Texas at Arlington

Wednesday PM
October 26, 2016

Room: 252A-B
Location: Salt Palace Convention Center

Session Chairs: Liping Huang, Rensselaer Polytechnic Institute; Peter Kroll, University of Texas at Arlington

2:00 PM Invited
A Metamodeling Approach for Parameter Sensitivity Analysis and Uncertainty Quantification in a Boron-carbide Interatomic Potential: *Mark Tschopp*[1]; Efrain Hernandez[1]; Shawn Coleman[1]; Souma Chowdhury[2]; [1]Army Research Laboratory; [2]University of Buffalo

2:40 PM
Effect of M Site Alloying on the Solid Solution Behaviour of (Ti,V,Zr,Hf)2AlC MAX Phases Using High Throughput Ab-initio Methods: *Anjana Talapatra*[1]; Thien Duong; Woongrak Son[1]; Miladin Radovic[1]; Raymundo Arroyave[1]; [1]Texas A&M University

3:00 PM
On the Calculation of (Ti,Cr)2AlC Phase Diagram: A First-principles Approach: *Thien Duong*[1]; Anjana Talapatra[1]; Woongrak Son[1]; Raymundo Arroyave[1]; Miladin Radovic[1]; [1]Texas A&M University

3:20 PM Break

3:40 PM
Magnetic Properties of Rare-earth Doped Alumina from First Principles: *Krista Limmer*[1]; Jennifer Elward[1]; Christopher Rinderspacher[1]; [1]U.S. Army Research Laboratory

4:00 PM
Ripplocations: A Novel Defect in Layered Materials: Jacob Gruber[1]; Andrew Lang[1]; Justin Griggs[1]; Mitra Taheri[1]; Michel Barsoum[1]; *Garritt Tucker*[1]; [1]Drexel University

4:20 PM
Effects of Dislocation and Phase Transformation on Evolution of Nano-Cracks and Voids in Yttria-stabilized Zirconia Nanopillars: *Ning Zhang*[1]; Mohsen Asle Zaeem[1]; [1]Missouri University of Science and Technology

4:40 PM
Effect of A Element on Mechanical Properties of Ti3(SixAl1-x)C2: *Woongrak Son*[1]; Anjana Talapatra[1]; Thien Duong[1]; Miladin Radovic[1]; Raymundo Arroyave[1]; [1]Texas A&M University

5:00 PM
First Principles (DFT) Calculation of Elastic Constants of Ti_3B_4: *Somnaang Rou*[1]; Ravi Chandran[1]; [1]University of Utah

Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials — Session III

Program Organizers: Gurpreet Singh, Kansas State University; Kathy Lu, Virginia Tech; Sanjay Mathur, University of Cologne; Eugene Olevsky, San Diego State University; Edward Gorzkowski, Naval Research Laboratory ; Menka Jain, University of Connecticut; Hidehiro Kamiya, Tokyo University of Agriculture and Technology; Bhanu Chauhan, William Paterson University; Haitao Zhang, UNC Charlotte; Bhanu Chauhan, William Paterson University

Wednesday PM
October 26, 2016

Room: 257B
Location: Salt Palace Convention Center

Session Chairs: Haitao Zhang, UNC-C; Edward Gorzkowski, Naval Research Laboratory

2:00 PM
Imprint Lithography of ZnO-PMMA Hybrids: *Kathy Lu*[1]; Michelle Gervasio[1]; [1]Virginia Tech

2:20 PM Invited
1D Optoelectronics of Organic Nanofibers Self-assembled from Pi-conjugated Molecules: *Ling Zang*[1]; [1]University of Utah

3:00 PM
Controlled Synthesis and Assembly of Hollow CeO_2 Nanotubes: *Elizabeth Zell*[1]; Ruigang Wang[1]; [1]Youngstown State University

3:20 PM Break

3:40 PM Invited
Polyethyleneimine-fatty Acid Complexes as Polymeric Dispersants for Tuning the Stability of Multicomponent Dense Non-aqueous Suspensions: *Motoyuki Iijima*[1]; Yasuhiro Kawaharada[1]; Naoki Okamura[1]; Junichi Tatami[1]; [1]Yokohama National University

4:20 PM
SiCO Aerogels and their Performance in Environmental and Energy Applications: *Susana Aguirre-Medel*[1]; Peter Kroll[1]; [1]University of Texas at Arlington

4:40 PM Invited
Size Effects from Nanoindention to Microindentation in Microcrystalline and Nanocrystalline Ceramics: *James Wollmershauser*[1]; Boris Feigelson[1]; Edward Gorzkowski[1]; Kathryn Wahl[1]; [1]Naval Research Laboratory

5:20 PM
Pyrolysis of Agricultural Waste to Form Nano-structures of SiC and Si_3N_4: *Edward Gorzkowski*[1]; Syed Qadri[1]; Ramasis Goswami[1]; Jerry Feng[1]; Bhakta Rath[1]; [1]Naval Research Laboratory

5:40 PM
Fabrication of Transparent and Fluorescent Sialon Bulk Ceramics Composed of Nano-sized Grains: *Junichi Tatami*[1]; Takuma Takahashi[2]; Motoyuki Iijima[1]; [1]Yokohama National University; [2]Kanagawa Academy of Science and Technology

Emerging Interconnect and Pb-free Materials for Advanced Packaging Technology — Session III

Program Organizers: Albert T. Wu, National Central University; Iver Anderson, Ames Laboratory

Wednesday PM
October 26, 2016

Room: 257A
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM
Binder Chemistry Control of Electrically Conductive Adhesives for Inducing Low Temperature Sintering Ag Micro-fillers: *Masahiro Inoue*[1]; Yoshiaki Sakaniwa[1]; Yasunori Tada[1]; [1]Gunma University

2:20 PM
Direct Bonding of AlN-to-metal Utilizing Sintering of Ag Nanoparticles Derived from Ag_2O Microparticles: *Keita Motoyama*[1]; Tomokazu Sano[1]; Akio Hirose[1]; [1]Osaka University

2:40 PM
Liquid Solid Diffusion (LSD) Bonding: Joint Structure and Bonding Method: *Andreas Larsson*[1]; Torleif Tollefsen[2]; Ole Martin Løvvik[3]; Knut Aasmundtveit[4]; [1]Techni AS; [2]TEGma AS; [3]SINTEF Materials and Chemistry; [4]University College of Southeast Norway

3:00 PM
Retardation of Intermetallic Compounds Growth Rate via Zn Doping in Under-bump Metallization in Low Reflow Temperature Bi-33In/Cu-xZn Micro-bump: *Rui-Wen Song*[1]; [1]National Tsing Hua University

3:20 PM Break

3:40 PM
Joint Properties of Diffusion Barrier for Medium-temperatureThermoelectric Materials: *Hsien Chien Hsieh*[1]; Albert T. Wu[1]; [1]National Central University

4:00 PM
Role of Ultrathin-Ni(P) Layer in ENEPIG Metallization in Ultrathin-ENEPIG/SAC305/OSP Cu Solder Joints under Thermocycling Stress: *Tzu-Ting Chou*[1]; Cheng-Ying Ho[1]; Wei-Yu Chen[1]; Cristine Jill Lee[1]; Jenq-Gong Duh[1]; [1]National Tsing Hua University

4:20 PM
Evaluation of the Joint Property for N-type Bi2Te3 Thermoelectric Module: *Wen-Chih Lin*[1]; Ying-Sih Li[1]; Albert T. Wu[1]; [1]National Central University

4:40 PM
Updated Research on a High Temperature Sn/Cu-Ni Composite Solder Paste: *Stephanie Choquette*[1]; Iver Anderson[1]; [1]Ames Lab

5:00 PM
Fabrication of Cu@Sn Core-Shell Structure Preform and Application in High Temperature Bonding: Tianqi Hu[1]; *Hongtao Chen*[1]; [1]Harbin Institute of Technology Shenzhen Graduate School

Energy Storage VI: Materials, Systems and Applications Symposium — Sodium and Flow Batteries

Program Organizers: Xingbo Liu, West Virginia University; Keeyoung Jung, Research Institute of Industrial Science and Technology (RIST); Yang-Tse Cheng, University of Kentucky

Wednesday PM
October 26, 2016

Room: 250B
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM
High-voltage Cathode Materials for Sodium Batteries: *Prabeer Barpanda*[1]; [1]The University of Tokyo

2:20 PM
Molecular Dynamics Simulations of Na_2S + SiS_2 Glassy Solid Electrolytes: Steve Martin[1]; Clarence King[2]; *Soumik Banerjee*[2]; Scott Beckman[2]; Aniruddha Dive[2]; [1]Iowa State University; [2]Washington State University

2:40 PM
$Na_3Zr_2(SiO_4)_2(PO_4)$ Prepared by a Solution-assisted Solid State Reaction: *Sahir Naqash*[1]; Ma Qianli[2]; Frank Tietz[3]; Olivier Guillon[3]; [1]A. Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research, Materials Synthesis and Processing B. Jülich Aachen Research Alliance, JARA-Energy. C. Helmholtz-Institute Münster,; [2]Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research, Materials Synthesis and Processing; Jülich Aachen Research Alliance, JARA-Energy;Helmholtz-Institute Münster, c/o Forschungszentrum Jülich GmbH; [3]Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research, Materials Synthesis and Processing;Jülich Aachen Research Alliance, JARA-Energy;Helmholtz-Institute Münster, c/o Forschungszentrum Jülich GmbH

3:00 PM
Stretching Carbon Too Thin: A DFT Investigation on the Structure and Theoretical Limits of Carbon as a Next Generation NIB Anode: Michelle Dolgos[1]; Xiulei Ji[1]; *Alex Greaney*[2]; Clement Bommier[1]; Wesley Surta[1]; [1]Oregon State University; [2]UC Riverside

3:20 PM Break

3:40 PM
The Influence of Aliovalent Ion Doping on NASICON for High Conductive Solid Electrolyte: *Se Woon Jung*[1]; Joo-Hyung Kim[1]; Seung Hwan Jo[2]; Do Kyung Kim[1]; [1]KAIST; [2]Ulsan Technopark New Energy Technical Institute

4:00 PM
Accelerating the Kinetics of Vanadium Redox Flow Battery: *James Mulcahy*[1]; Kodi Summers[1]; Dev Chidambaram[1]; [1]University of Nevada, Reno

4:20 PM
Redox Flow Batteries: Novel Constituent Component Designs for Superior Performance: *Vicki Barbur*[1]; Daniel Markiewicz[1]; Paul Brezovec[1]; [1]Concurrent Technologies Corporation

Failure Analysis and Prevention — High Performance Vehicles/Corrosion

Program Organizer: Burak Akyuz, ATS, Inc.

Wednesday PM
October 26, 2016

Room: 150G
Location: Salt Palace Convention Center

Session Chairs: Tim Jur, Engineering Design & Testing; Bill Carden, McSwain Engineering; Robert O'Shea, Applied Materials Technology Inc; Erik Mueller, National Transportation Safety Board; Dan Grice, Materials Evaluation and Engineering, Inc.; Erhan Ulvan, Acuren Group Inc.; Gary White, ISHPI

2:00 PM
Analysis of a Rear Axle Assembly on an Open Class Dragster: *Tim Jur*[1]; [1]Engineering Design & Testing Corp

2:20 PM
Drag Racing/High Performance Rollover and Crash Protection Structures: Their Evolution from WWII to Present: *Chris Spies*[1]; [1]Engineering Design & Testing

2:40 PM
Failure Analysis of a Main-mast Hydraulic Backstay Adjuster Piston Rod from a High Performance, Long Range Sailing Yacht: *William Carden*[1]; L. Scott Marshall; Richard McSwain[1]; [1]McSwain Engineering, Inc.

3:00 PM
Investigation and Analysis of a High Performance Wake Boarding Boat Accident Using Instrumentation and Data Acquisition: William Carden[1]; *Eric Van Iderstine*[1]; Richard McSwain[1]; [1]McSwain Engineering, Inc.

3:20 PM Break

3:40 PM
Processing Factors Affecting Material Performance in Marine Environments: *Christopher Misorski*[1]; [1]Mercury Marine

4:00 PM
Short Case Studies from Work Supporting Marine Surveyor Insurance Investigations: *Debbie Aliya*[1]; [1]Aliya Analytical, Inc.

4:20 PM
Graphitic Corrosion and the Spectre of Disintegrating Aged Water Pipe Systems: *Anthony Yurko*[1]; Tim Jur[1]; Ron Windham[1]; [1]Engineering Design & Testing Corp.

4:40 PM
Investigation and Remediation of a Complex Failure of a High Strength Steel Fan Midshaft from a GEnx Engine: *Erik Mueller*[1]; Wesley Pridemore[2]; [1]National Transportation Safety Board; [2]GE Aviation

5:00 PM
Study of the Stainless Steel Corrosion in Pharmaceutical Facilities: Development and Incidence: *Fabienne Delaunois*[1]; François Tosar[2]; Frédéric Groulard[3]; [1]UMONS Faculté Polytechnique FPMs; [2]TECHNOCHIM-UMONS; [3]TECHNOCHIM

Gas/Metal Reactions, Diffusion and Phase Transformation during Heat Treatment of Steel — Session II

Program Organizer: Liang He, Air Products and Chemicals Inc.

Wednesday PM
October 26, 2016

Room: 155E
Location: Salt Palace Convention Center

Session Chair: Lei Zhang, Worcester Polytechnic Insitute

2:00 PM
The Effect of Chemical Composition in Austenite and Austenite Grain Size on Hardenability of Steels: *Yuan Lu*[1]; Haixuan Yu[1]; Xiaoqing Cai[1]; Richard D. Sisson, Jr.[1]; [1]Worcester Polytechnic Institute

2:20 PM
Nanoscale Analyses of Thermally Stable Austenite Intercritically Precipitated in a Transformation: Toughened Low-carbon Martensitic Steel via 3D Atom-probe Tomography: *Divya Jain*[1]; Dieter Isheim[1]; Xian Zhang[2]; David Seidman[1]; [1]Northwestern University; [2]Naval Surface Warfare Center, Carderock Division

2:40 PM
Increased Strength Multi-phase Steels as a Result of Heat Treatment of Automobile Wheels: *Borys Sereda*[1]; Dmytro Sereda[2]; Oleg Cherneta[1]; [1]DSTU; [2]ZSEA

3:00 PM
A Microstructural Study of RA330 and Aluminized RA330 in a Gas Carburizing Furnace: *Anbo Wang*[1]; Richard Sisson[1]; [1]WPI

3:20 PM Break

3:40 PM
A Study of Fishscale Resistance in Boron Microalloyed Low Carbon Al-killed Enameling Steel for Compact Strip Production (CSP) Steel Mill: *Nikhil Yellakara*[1]; [1]Steel Dynamics Inc.

4:00 PM
Hot Shortness Failures in 18x2h4ma Steel Grade in Sulphur Atmosphere during Hot Working: *Vinayak Pawar*[1]; [1]Bharat Forge Ltd

4:20 PM
Oxidation Behaviour of Fe-C-Mn-Si Alloy in Reheating Furnace: *Yonghoon Choi*[1]; Dong-Woo Suh[1]; [1]GIFT, POSTECH

Glass, Amorphous, and Optical Materials: Common Issues within Science & Technology — Electrical Properties of Glass

Program Organizers: Steve W. Martin, Iowa State University; Gang Chen, Ohio University

Wednesday PM
October 26, 2016

Room: 255A
Location: Salt Palace Convention Center

Session Chair: David Drabold, Ohio University

2:00 PM Invited
Analysis of the Electronic Conductivity of Vanadate Glasses for Use in Resistive Plate Calorimeter Particle Detectors: *Mario Affatigato*[1]; [1]Coe College

2:40 PM Invited
Chalcogenide Glass Structured Films for Nanoscale Memories and Devices: *Tomas Wagner*[1]; Bo Zhang[1]; Max Fraenkl[1]; Gang Chen[2]; [1]University of Pardubice; [2]University of Ohio

3:20 PM
Optimization of Glass Properties for Neutrino Detection: Experimental Validation of MD Simulation Results: *Ruhil Dongol*[1]; S.K. Sundaram[1]; [1]Alfred University

3:40 PM Break

4:00 PM Invited
Basic Science of Memristors Based on Amorphous Chalcogenides: *Gang Chen*[1]; [1]Ohio University

4:40 PM Invited
Interaction of Ge-Se Films with Ions: Structural Studies and Application for Memory Arrays Formation: *Maria Mitkova*[1]; Tyler Nichol[1]; Muhammad Rizwan Lativ[1]; Mahesh Ailavajhala[1]; [1]Boise State University

5:00 PM Invited
Density Fluctuations in Single-Component Glasses: *Adrian Wright*[1]; [1]University of Reading

Heterogeneity during Plastic Deformation – Synergy between Experimental Investigation and Simulation — Advances in Numerical Techniques and Constitutive Modeling

Program Organizers: Stephen Niezgoda, The Ohio State University; David Fullwood, Brigham Young University

Wednesday PM
October 26, 2016

Room: 250F
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Practical Methodology for Inverse Design Exploration of Fatigue Resistant Ti Alloys: *David McDowell*[1]; Matthew Priddy[1]; Jordan Weaver[2]; Noah Paulson[1]; Soumya Mohan[1]; Donald Shih[3]; Surya Kalidindi[1]; [1]Georgia Institute of Technology; [2]Los Alamos National Laboratory; [3]Boeing Research and Technology

2:40 PM
Developing a Crystal Plasticity Model Based on the Discrete Element Method: *Agnieszka Truszkowska*[1]; Qin Yu[1]; P. Alex Greaney[2]; T. Matthew Evans[1]; Jamie Kruzic[1]; [1]Oregon State University; [2]University of California — Riverside

3:00 PM
An Approach to Develop Hansel-spittel Constitutive Equation during Ingot Breakdown Operation of Low Alloy Steels: *Kanwal Chadha*[1]; davood shahriari[1]; Mohammad Jahazi[1]; [1]ETS

3:20 PM
Stress Concentration and Redistribution at/near Grain Boundaries during Dynamic Recrystallization: An Integrated Modeling Study: *Pengyang Zhao*[1]; Thaddeus Song En Low[1]; Yunzhi Wang[1]; Stephen Niezgoda[1]; [1]The Ohio State University

3:40 PM Break

4:00 PM
Predicting the Bauschinger Effect in Aged Aluminum Alloys: Wei Gan[1]; Hyuk Jong Bong[2]; Hojun Lim[3]; Richard Boger[4]; Frederic Barlat[5]; *Robert Wagoner*[2]; [1]Medtronic; [2]The Ohio State University; [3]Sandia National Laboratories; [4]Simulia Central Region, Cincinnati Office; [5]Pohang University of Science and Technology

4:40 PM
Exploring the Effects of Grain Size on Dislocation Interactions and Hardening Using Phase Field Dislocation Dynamics: *William Joost*[1]; Abigail Hunter[2]; Irene Beyerlein[2]; [1]U.S. Department of Energy; [2]Los Alamos National Laboratory

5:00 PM
Meso-scale Interactions between Bulk Dislocations and Grain Boundaries in FCC and BCC Metals: *David Fullwood*[1]; Landon Hansen[1]; HyukJong Bong[1]; Ricky Wyman[1]; Austin Foster[1]; Eric Homer[1]; Robert Wagoner[1]; [1]Brigham Young University

5:20 PM
Designing Heterogeneous Nano-microstructures to Improve Mechanical Properties: *Mehdi Hamid Vishkasougheh*[1]; Hao Lyu[1]; Hussein Zbib[1]; [1]Washington State University

High Temperature Corrosion of Structural Materials — High Temperature Oxidation of Various Systems

Program Organizers: Kinga Unocic, ORNL; Raul Rebak, GE Global Research

Wednesday PM
October 26, 2016

Room: 250E
Location: Salt Palace Convention Center

Session Chairs: Carlos Levi, University of California, Santa Barbara; Aleksandra Jalowicka, Forschungszentrum Juelich GmbH; Raul Rebak, GE Global Research

2:00 PM Invited
High-temperature Oxidation Behavior and Mechanism of Ti2AlC and Ti2AlN MAX Phases: *Bai Cui*[1]; Fei Wang[1]; Ting Lou[1]; William Lee[2]; [1]University of Nebraska–Lincoln; [2]Imperial College London

2:40 PM
On the Oxidation Mechanisms of High-temperature Intermetallic MAX Phases: *Ridwan Sakidja*[1]; Zachary Leuty[1]; [1]Missouri State University

3:00 PM
High Temperature Investigation of Zirconium Alloys in Air: *Sirak Mekonen*[1]; Patrick Price[1]; Brian Jaques[1]; Isabella van Rooyen[2]; Darryl Butt[1]; [1]Boise State University; [2]Idaho National Laboratory

3:20 PM
Early Stage of Oxidation of Mo3Si by In-situ Environmental TEM: Ahmet Gulec[1]; Matthew Taylor[2]; Aram Yoon[3]; Jian-Min Zuo[3]; *John Perepezko*[2]; Laurence Marks[1]; [1]Northwestern University; [2]University of Wisconsin-Madison; [3]University of Illinois

3:40 PM Break

4:00 PM
Effect of Zr Addition on Oxidation Behavior of Mo-Si-B Alloys in Dry and Moist Environments: *Rahul Mitra*[1]; Nandkishor Kumar[1]; Jayanta Das[1]; [1]Indian Institute of Technology

4:20 PM
High Temperature Oxidation Studies of FeSiGe: *Jonathan Valenzuela*[1]; Wade Jensen[1]; Jerrold Floro[1]; Elizabeth Opila[1]; [1]University of Virginia

4:40 PM Invited
Developing Gas Atomization with In-situ Controlled Oxidation to Simplify ODS Alloy Preparation: *Iver Anderson*[1]; Tyler Slinger[2]; Emma White[1]; [1]Ames Laboratory; [2]Iowa State University

Innovative Processing and Synthesis of Ceramics, Glasses and Composites — Polymer-Derived Ceramics II

Program Organizers: Narottam Bansal, NASA Glenn Research Center; Jitendra Singh, U.S. Army Research Laboratory; Scarlett Widgeon, New Mexico Highlands University ; Gabriela Mera, TU Darmstadt

Wednesday PM
October 26, 2016

Room: 255D
Location: Salt Palace Convention Center

Session Chairs: Ralf Riedel, Technical University of Darmstadt; Erico Bernardo, University of Padova

2:00 PM Invited
Effect of Boron Incorporation on the Phase Composition and High-temperature Behavior of Polymer-derived Silicon Carbide: Sarabjeet Kaur[1]; *Gabriela Mera*[1]; Ralf Riedel[1]; Emanuel Ionescu[1]; [1]TU Darmstadt

2:40 PM Invited
Porous Bioceramics from Preceramic Polymers and Engineered Fillers: *Enrico Bernardo*[1]; Laura Fiocco[1]; Hamada Elsayed[1]; Mirko Sinico[1]; Paolo Colombo[1]; [1]University of Padova

3:20 PM Break

3:40 PM
Composites with In-situ Grown CNTs in Porous Polymer Derived SiOC Ceramics: *Quan Li*[1]; Xueyuan Tang[2]; Yuqing Peng[3]; Kaishi Wang[4]; Rajendra Bordia[1]; [1]Clemson University; [2]Xiamen University; [3]Shanghai University; [4]Aerospace Research Institute of Materials and Processing Technology

4:00 PM Invited
From Pottery to Battery: Polymer-derived Ceramic Energy Storage Materials: *Ralf Riedel*[1]; Magdalena Graczyk-Zajac[1]; [1]TU Darmstadt

4:40 PM
Thermal Stability and Electrical Conductivity of Carbon-enriched Silicon Oxycarbide: *Kathy Lu*[1]; Donald Erb[1]; [1]Virginia Tech

5:00 PM
Structure, Interfaces, and NMR Studies characterizing the Impact of "Free" Carbon in Silicon Oxycarbide Ceramics: John Nimmo[1]; Ilia Ponomarev[1]; *Peter Kroll*[1]; [1]University of Texas at Arlington

Interfaces, Grain Boundaries and Surfaces from Atomistic and Macroscopic Approaches -- Fundamental and Engineering Issues — Wetting & Adsorption II

Program Organizers: Wayne Kaplan, Technion - Israel Institute of Technology; Dominique Chatain, CNRS, Aix-Marseille University; John Blendell, Purdue University; Paul Wynblatt, Carnegie Mellon University

Wednesday PM
October 26, 2016

Room: 251B
Location: Salt Palace Convention Center

Session Chairs: Dan Lewis, Rensselaer Polytechnic Institute; Dominique Chatain, CINaM-CNRS

2:00 PM Keynote
Grain Boundary Segregation in Nanocrystalline Alloys: Case Study of Platinum-gold: *Stephen Foiles*[1]; Ping Lu[1]; Christopher O'Brien[1]; Nicolas Argibay[1]; Michael Chandross[1]; Fadi Abdeljawad; Blythe Clark[1]; Brad Boyce[1]; [1]Sandia National Laboratories

2:40 PM Invited
Exploring the Thermal Stability of Nanocrystalline Fe-Mg Alloys: *Dor Amram*[1]; Christopher Schuh[1]; [1]Massachusetts Institute of Technology

3:00 PM Invited
Surface and Grain Boundary Segregation of Hydrogen and Its Effect on the Ideal Work of Fracture of Iron and Nickel: *Reiner Kirchheim*[1]; [1]University of Goettingen

3:20 PM Break

3:40 PM
Complexion Diagrams and Phonon Engineering: *Jeffrey Rickman*[1]; Helen Chan[1]; Martin Harmer[1]; Jian Luo[2]; [1]Lehigh University; [2]University of California, San Diego

4:00 PM
Atomistic Simulation of Grain Boundary Structures and Complexion Transitions: *Shengfeng Yang*[1]; Naixie Zhou[1]; Tao Hu[1]; Jian Luo[1]; [1]University of California, San Diego

4:20 PM
Carbon Adsorption, Segregation and Diffusion on Grain Boundaries Emerging on the Surface of BCC Iron: *El Tayeb Bentria*[1]; Normand Mousseau[2]; Charlotte Becquart[1]; Othmane Bouhali[1]; Fadwa El Mellouhi[3]; [1]Hamad Bin Khalifa University ; [2]Département de physique Université de Montréal,; [3]Hamad Bin Khalifa University

4:40 PM
The Mechanics and Thermodynamics of Interfacial Complexions in Transition Metal Alloys: *Timothy Rupert*[1]; [1]University of California, Irvine

5:00 PM
An Atomistic and Continuum Approach to Dopant Segregation and Embrittlement at Molybdenum Grain Boundaries: *Zihan Xu*[1]; Richard Tran[1]; Naixie Zhou[1]; Balachandran Radhakrishnan[1]; Jian Luo[1]; Shyue Ping Ong[1]; [1]University of California - San Diego

Joining of Advanced and Specialty Materials (JASM XVIII) — Welding Metallurgy 2

Program Organizers: Boian Alexandrov, The Ohio State University; Mathieu Brochu, McGill University; Akio Hirose, Osaka University; Anming Hu, University of Tennessee; Peng He, Harbin Insitute of Technology; Darren Barborak, AZZ|WSI; Bingtao Li, AZZ WSI; Xinjin Cao, Institute for Aerospace Research

Wednesday PM
October 26, 2016

Room: 155B
Location: Salt Palace Convention Center

Session Chairs: Hiroaki Mori, Osaka University; Leijun Li, University of Alberta

2:00 PM
Role of Inter-critical Heat-affected Zone in Type IV Cracking of Grade 91 Pipe Steel Weldments: *Yiyu Wang*[1]; Leijun Li[1]; [1]University of Alberta

2:20 PM
Explanation of the Presence of Ferrite in the Simulated ICHAZ Microstructure of Grade 91 Steel: Kyle Stritch[1]; *Boian Alexandrov*[1]; [1]The Ohio State University

2:40 PM
Investigation of the Effect of Composition on the Cracking Susceptibility of P91 Steels HAZ: *Guilherme Faria*[1]; John Sieffert[2]; Boian Alexandrov[1]; Antonio Ramirez[1]; [1]Dept. of Materials Science and Eng. - The Ohio State University; [2]Electric Power Research Institute

3:00 PM
Diffusion and Phase Transformations during Dissimilar Metal Welding of Grade 91 Steel: *Michael Kuper*[1]; Boian Alexandrov[1]; D Burgess[2]; Michael Mills[1]; [1]The Ohio State University; [2]GE Power

3:20 PM Break

3:40 PM
Ferrite Control in Type 410 Stainless Steel: *David Stone*[1]; Boian Alexandrov[2]; Jorge Penso[3]; [1]The Ohio State University ; [2]The Ohio State University; [3]Shell Global Solutions

4:00 PM
Stress Relief Cracking in Precipitation Strengthened Alloys: *Rishi Kant*[1]; John DuPont[1]; [1]Lehigh University

4:20 PM
Effect of Secondary Phases on the Corrosion Behaivour of Duplex Alloys Subjected to Natural Seawater: *Doris Ivette Villalobos Vera*[1]; [1]Instituto Tecnológico de Veracruz

4:40 PM
Phase Transformations and Mechanical Properties of the Heat-affected Zone in 10 wt% Nickel Steel: *Erin Barrick*[1]; John DuPont[1]; [1]Lehigh University

5:00 PM
Laser Beam Weld for Thin-walled FeCrAl Cladding for Accident Tolerant Fuel: *Jian Gan*[1]; Nathan Jerred[1]; Emmanuel Perez[1]; DC Haggard[1]; Corrie Nichol[1]; Haiming Wen[1]; [1]Idaho National Laboratory

Materials and Processes for CO2 Capture, Conversion and Sequestration — Carbon Dioxide Conversion

Program Organizers: Kevin Huang, University of South Carolina; Winnie Wong-Ng, NIST; Lan Li, Boise State University

Wednesday PM
October 26, 2016

Room: 151B
Location: Salt Palace Convention Center

Session Chairs: Winnie Wong-Ng, National Institute of Standards and Technology; Lan (Samantha) Li, Boise State University

2:00 PM Invited
Mixed In and Electron Conducting Membranes for Electrochemical Carbon Capture and Conversion: *Kevin Huang*[1]; [1]University of South Carolina

2:20 PM
Box-Behnken Design Based Optimization of Production of Magnesium Hydroxide from Serpentinite for CO_2 Mineralization: *Qing Zhao*[1]; Chengjun Liu[1]; Maofa Jiang[1]; Baokuan Li[1]; Henrik Saxén[1]; Ron Zevenhoven[1]; [1]Northeastern University

2:40 PM
Pulsed FARADAYIC® ElectroDeposition of Carbon Dioxide Reduction Electrocatalysts: *Brian Skinn*[1]; Steven Brown[2]; Sujat Sen[2]; Tim Hall[1]; Stephen Snyder[1]; Fikile Brushett[2]; E Taylor[1]; Holly Garich[1]; Maria Inman[1]; [1]Faraday Technology, Inc.; [2]Massachusetts Institute of Technology

3:00 PM
The Study of Catalysts Based on Intermetallic NiAl Alloys: *Karina Belokon*[1]; Yuriy Belokon[1]; [1]Zaporozhye State Engineering Academy

3:20 PM Concluding Comments

Materials Development for Nuclear Applications and Extreme Environments — Zircaloy and Corrosion in Nuclear Materials

Program Organizers: Raghunath Kanakala, University of Idaho; Nan Li, Los Alamos National Laboratory; Todd Allen, Idaho National Laboratory; Jake Amoroso, Savannah River National Laboratory; Aladar Csontos, Nuclear Regulatory Commission; Lingfeng He, Idaho National Laboratory; Yutai Katoh, Oak Ridge National Laboratory; Josef Matyas, Pacific Northwest National Laboratory; Amit Misra, University of Michigan; Raul Rebak, GE Global Research; Kumar Sridharan, University of Wisconsin

Wednesday PM
October 26, 2016

Room: 250A
Location: Salt Palace Convention Center

Session Chairs: Lingfeng He, Idaho National Laboratory; Jake Amoroso, Savannah River National Laboratory

2:00 PM Invited
Understanding Hydride Formation in Alpha-Zr at the Atomic Scale: *Yongfeng Zhang*[1]; Chao Jiang[1]; Xianming Bai[1]; Jianguo Yu[1]; Simon Phillpot[2]; Michele Fullarton[2]; Mark Noordhoek[3]; [1]Idaho National Lab; [2]University of Florida; [3]University of South Carolina

2:40 PM Invited
Surface Modification of Zircaloy-4 for Isotope Producing Target Designs: *Walter Luscher*[1]; David Senor[1]; Kenneth Geelhood[1]; Stan Pitman[1]; Kevin Clayton[2]; [1]Pacific Northwest National Laboratory; [2]Idaho National Laboratory

3:20 PM Break

3:40 PM
Corrosion Behavior of U3Si2 in Pressurized Water at 300°C: *Lingfeng He*[1]; Jason Harp[1]; Rita Hoggan[1]; Adrian Wagner[1]; [1]Idaho National Laboratory

4:00 PM
Effect of Crack-tip Stress Field on Delayed Hydride Cracking: *Pritam Chakraborty*[1]; S. Bulent Biner[1]; Daniel Schwen[1]; Sebastien Teysseyre[1]; [1]Idaho National Laboratory

4:20 PM
Controlling the Permeability of Corrosion Inducing Ions in the Concrete by Nano-viscosity Modifiers: An EIS Study: *Krishnan Raja*[1]; Batric Pesic[1]; Jacob Kline[1]; Robert Blair[1]; Ian Ehrsam[1]; [1]University of Idaho

4:40 PM
Atomistic Simulations of Dislocations in Zirconium Alloys: *Cong Dai*[1]; Levente Balogh[1]; Zhongwen Yao[1]; Mark Daymond[1]; [1]Queen's University

5:00 PM
Experimental Solubility of Lanthanides in Liquid Sodium: *Jeremy Isler*[1]; Jinsuo Zhang[1]; Robert Mariani[2]; [1]The Ohio State University; [2]Idaho National Laboratory

Materials Issues in Nuclear Waste Management in the 21st Century — Immobilization and Capture of Radionuclides/Radiation Effects

Program Organizers: Josef Matyas, Pacific Northwest National Laboratory; Jake Amoroso, Savannah River National Laboratory; Isabelle Giboire, CEA Marcoule; Raghunath Kanakala, University of Idaho; Yutai Katoh, Oak Ridge National Laboratory; Stefan Neumeier, Forschungszentrum Juelich GmbH; David Shoesmith, Western University; Kumar Sridharan, University of Wisconsin; David Enos, Sandia National Laboratories; Charles Bryan, Sandia National Laboratories

Wednesday PM
October 26, 2016

Room: 251D
Location: Salt Palace Convention Center

Session Chairs: Alex Cozzi, SRNL; Cory Trivelpiece, Savannah River National Laboratory

2:00 PM
Rhenium Partitioning in Simplified Low-activity Waste Glass Feed: *Brigitte Weese*[1]; Tongan Jin[1]; Dongsang Kim[1]; Mike Schweiger[1]; Albert Kruger[2]; [1]Pacific Northwest National Laboratory; [2]U.S. Department of Energy, Office of River Protection

2:20 PM
Volatilization of Alkali Perrhenates from Sulfate and Nitrate Salt Mixtures: *Jaime George*[1]; Dongsang Kim[1]; Michael Schweiger[1]; Albert Kruger[2]; [1]Pacific Northwest National Lab; [2]Office of River Protection

2:40 PM
Use of X-Ray Tomography to Elucidate Cold Cap Structure in Waste Glass Melter: *Donna Guillen*[1]; Lisa Mitchell[1]; Tetsuji Yano[2]; Albert Kruger[3]; [1]Idaho National Laboratory; [2]Tokyo Institute of Technology; [3]U.S. Department of Energy

3:00 PM
XTractite: An Inorganic Ion-exchange Material for Sorption of Radionuclides: *Allen Apblett*[1]; Cory Perkins[1]; Nick Materer[1]; Evgueni Kadassov[2]; [1]Oklahoma State University; [2]XploSafe

3:20 PM Break

3:40 PM Invited
Effects of α-Radiation on a Disposal of Spent Nuclear Fuel: *Akira Kitamura*[1]; [1]Japan Atomic Energy Agency

4:20 PM Invited
Characterization of Radiation Effects in Complex-oxide Nuclear Waste Forms: New Application of Neutron Total Scattering Techniques: *Maik Lang*[1]; Jacob Shamblin[1]; Cameron Tracy[2]; Sarah Finkeldei[3]; Dirk Bosbach[3]; Rodney Ewing[2]; [1]University of Tennessee; [2]Stanford University; [3]Forschungszentrum Jülich

Materials Property Understanding through Characterization — Glass

Program Organizers: Indrajit Dutta, Corning Incorporated; Brian Strohmeier, US Steel; Nicholas Smith, Corning Incorporated

Wednesday PM
October 26, 2016

Room: 251C
Location: Salt Palace Convention Center

Session Chair: Nicholas Smith, Corning Incorporated

2:00 PM Invited
New Solid State Glassy Electrolytes Enabled through New Mixed Glass Former Chermistries: *Steve W. Martin*[1]; [1]Iowa State University

2:40 PM Invited
Analysis of Advanced Display Glass Materials by XPS, ToF-SIMS, and LEIS, Including a Statistical Analysis of These Data: *Matthew Linford*[1]; Cody Cushman[1]; Brandon Sturgell[1]; Barry Lunt[1]; Nicholas Smith[2]; [1]Brigham Young University; [2]Corning Incorporated

3:20 PM Break

3:40 PM
An Evaluation of Fracture Toughness and Fatigue Crack Growth Behaviour of Die Steels: *Santosh Kumar*[1]; Atul Patil[1]; Sachin Patil[1]; Pravin Jadhav[1]; Shreyas Kirwai[1]; Rajkumar P Singh[1]; [1]Bharat Forge Limited

4:00 PM
Multi-instrument Depth Profiling of Advanced Glass Materials: *Cody Cushman*[1]; Brandon Sturgell[1]; Barry Lunt[1]; Nicholas Smith[1]; Matthew Linford[1]; [1]Brigham Young University

4:20 PM
Properties and Microstructure of $Sc2O_3$ Doped a/ß-SiAlON Ceramics: Yasemin Cetin[1]; Sinem Baskut[1]; *Servet Turan*[1]; [1]Anadolu University

4:40 PM
Electrocatalytic Activity of A2B2O7 (A = Y3+, Ln3+; B = Ti4+, Zr4+) Oxides in Alkaline Media for the Oxygen Reduction Reaction: *Maria Valdes Ibarra*[1]; K.P. Padmasree[1]; A F.Fuentes[1]; I. Alonso-Lemus[1]; F.J. Rodríguez-Varela[1]; [1]CINVESTAV

Mechanochemical Synthesis and Reactions in Materials Science — Highly Energetic Materials and Reactions

Program Organizers: Antonio Fuentes, Cinvestav del IPN; Laszlo Takacs, University of Maryland Baltimore County; Challapalli Suryanarayana, University of Central Florida; Jacques Huot, UQTR

Wednesday PM
October 26, 2016

Room: 155A
Location: Salt Palace Convention Center

Session Chairs: Alexander Mukasyan, University of Notre Dame; Andrey Streletskiy, N.N.Semenov Institute of Chemical Physics RAS

2:00 PM Invited
Mechanochemical Preparation of Reactive and Energetic Materials: *Edward Dreizin*[1]; [1]NJIT

2:40 PM Invited
Combustion Synthesis: Mechanically Induced Nanostructured Materials: *Alexander Mukasyan*[1]; [1]University of Notre Dame

3:20 PM Break

3:40 PM Invited
The Nature of High Reactivity of Metal/Oxides Based Nanocomposites, Prepared by Mechanical Activation: *Andrey Streletskiy*[1]; [1]N.N.Semenov Institute of Chemical Physics RAS

4:20 PM
In-situ Monitoring of Mechanochemically-stimulated Self-propagating Reactions in the Lanthanides: *Gordon Alanko*[1]; Brian Jaques[1]; Darryl Butt[1]; [1]Boise State University

4:40 PM
Mechanically Activated Combustion Synthesis of Silicides and Borides: Sergio Cordova[1]; Armando Delgado[1]; Alan Esparza[1]; *Evgeny Shafirovich*[1]; [1]The University of Texas at El Paso

5:00 PM
Metathetical Reactions in the Ti-B-N System: *Joshua Pauls*[1]; Alexander Mukasyan[1]; [1]University of Notre Dame

Modeling of Multi-Scale Phenomena in Materials Processing and Advanced Manufacturing — Process Modeling and Prediction of Process-Structure-Property Relationships

Program Organizers: Adrian Sabau, Oak Ridge National Laboratory; Anthony Rollett, Carnegie Mellon University; Laurentiu Nastac, The University of Alabama; Mei Li, Ford Motor Company; Ashley Spear, University of Utah

Wednesday PM
October 26, 2016

Room: 253B
Location: Salt Palace Convention Center

Session Chairs: Anthony Rollett, Carnegie Mellon University; Mei Li, Ford Motor Company; Ashley Spear, University of Utah

2:00 PM Invited
Bayesian Calibration of Surrogate Models for Uncertainty Quantification in Additive Manufacturing: *Alexander Wolfer*[1]; Umberto Scipioni Bertoli[2]; Kevin Wheeler[3]; Dogan Timucin[3]; Manyalibo Matthews[4]; Andrew Anderson[4]; Rose McCallen[4]; Enrique Lavernia[2]; Julie Schoenung[2]; Jean-Pierre Delplanque[1]; [1]University of California, Davis; [2]University of California, Irvine; [3]NASA Ames Research Center; [4]Lawrence Livermore National Laboratory

2:20 PM
Quantifying the Material-model Form Error for Welded and Additively-manufactured Structures Using Multiscale a Posteriori Error-estimation Techniques: *Joseph Bishop*[1]; Judith Brown[1]; [1]Sandia National Laboratories

2:40 PM
The Effects of Material Property Assumptions in Selective Laser Melting Simulations: *Chong Teng*[1]; Chris Robinson[1]; Vijay Jagdale[2]; Scott Crynock[3]; Deepankar Pal[1]; Brent Stucker[1]; [1]3DSIM, LLC; [2]United Technologies Research Center; [3]National Center for Defense Manufacturing & Machining America Makes

3:00 PM
Image Driven Machine Learning Methods for Microstructure Recognition: *Elizabeth Kautz*[1]; Aritra Chowdhury[1]; Daniel Lewis[1]; Bulent Yener[1]; [1]Rensselaer Polytechnic Institute

3:20 PM Break

3:40 PM Invited
Microstructure Predictions from a Macro-scale Casting Model: *John Gibbs*[1]; Seth Imhoff[1]; Damien Tourret[1]; Neil Carlson[1]; Amy Clarke[1]; [1]Los Alamos National Laboratory

4:00 PM
Biased Flows in Slab Molds Induced by Slide Gates and Their Correction through SEN Design: *Valentin Cedillo*[1]; Rodolfo Morales[1]; Ismael Calderon Ramos[2]; Javier Guarneros Guarneros[3]; [1]Instituto Politécnico Nacional; [2]Universidad Autónoma de Cohauila; [3]Tecnologico de Estudios Superiores de Ecatepec

4:20 PM
Fast Determination of Critical Buckling Condition under Welding with Computational Analysis: *Jiangchao Wang*[1]; [1]Huazhong University of Science and Technology

4:40 PM
Thermal and Flow Behavior of Melt Pool during Selective Laser Melting of AlSi10Mg Powder in Point Exposure Laser Scan Pattern: *Pingmei Tang*[1]; Dengfu Chen[1]; Xueping Ding[2]; Sheng Yu[1]; Xuanming Duan[2]; Mujun Long[1]; [1]Chongqing University; [2]Chongqing Institute of Green and Intelligent Technology

Multifunctional Oxides — Novel Synthesis I

Program Organizers: Quanxi Jia, Los Alamos National Laboratory; Chonglin Chen, University of Texas at San Antonio; Judith MacManus-Driscoll, University of Cambridge; Xiaoqing Pan, University of California - Irvine

Wednesday PM
October 26, 2016

Room: 255C
Location: Salt Palace Convention Center

Session Chairs: Xiaoli Tan, Iowa State University; Erik Enriquez, Los Alamos National Laboratory

2:00 PM Invited
Enhancements in Piezoelectric and Ferroelectric Properties via Nanostructuring: Linghan Ye[1]; Ryan Cordier[1]; Zachary Thatcher[1]; James Steffes[1]; Ryan Keech[2]; Smitha Shetty[2]; Susan Trolier-McKinstry[2]; John Heron[3]; *Bryan Huey*[1]; [1]University of Connecticut; [2]Pennsylvania State University; [3]University of Michigan

2:20 PM Invited
Manipulating Growth and Functional Properties in Oxide Nanocomposites: *Aiping Chen*[1]; Erik Enriquez[1]; Wenrui Zhang[2]; Leigang Li[2]; Haiyan Wang[2]; Judith MacManus-Driscoll[3]; Quanxi Jia[1]; [1]Los Alamos National Laboratory; [2]Texas A&M University; [3]University of Cambridge

2:40 PM Invited
Multifunctional Properties of Bismuth-alkali-based Perovskite Oxides: Xiaoming Liu[1]; Zhongming Fan[1]; *Xiaoli Tan*[1]; [1]Iowa State University

3:00 PM Invited
Novel Perpendicular Exchange Bias in Epitaxial Nanocomposite Films through Vertical Interfacial Coupling: Wenrui Zhang[1]; Meng Fan[1]; Jie Jian[1]; Aiping Chen[2]; Yuanyuan Zhu[1]; Ping Lu[3]; Quanxi Jia[2]; Li Chen[1]; Jijie Huang[1]; Xinghang Zhang[4]; Judith L. MacManus-Driscoll[5]; *Haiyan Wang*[4]; [1]Texas A&M University; [2]Los Alamos National Laboratory; [3]Sandia National Laboratories; [4]Purdue University; [5]University of Cambridge

3:20 PM Break

3:40 PM Invited
The Role of Defects on the Electronic and Magnetic Properties of High-Tc Superconducting Films: Jaume Gazquez[1]; Roger Guzman[1]; Rohan Mishra[2]; Cesar Magen[3]; Juan Salafranca[4]; Stephen Pennycook[5]; Sokrates Pantelides[6]; *Maria Varela*[7]; [1]Institut de Ciència de Materials de Barcelona - CSIC; [2]Washington University in St. Louis; [3]Universidad de Zaragoza; [4]Oak Ridge National Laboratory & Universidad Complutense de Madrid, Spain; [5]National University of Singapore; [6]Vanderbilt University; [7]Universidad Complutense de Madrid & Oak Ridge National Laboratory

4:00 PM
Room Temperature Evolution of SrFeO3-d Structural and Transport Properties: *Erik Enriquez*[1]; Aiping Chen[1]; Zachary Harrell[2]; Xujie Lu[1]; Paul Dowden[1]; Chonglin Chen[2]; Quanxi Jia[1]; [1]Los Alamos National Laboratory; [2]University of Texas at San Antonio

4:20 PM
Ultrahigh Energy Density and Enhanced Breakdown Strength of Lead-free $BaTiO_3$-based Multilayer Heterostructures by Interface Engineering: *Ming Liu*[1]; Chonglin Chen[2]; [1]Xi'an Jiaotong University; [2]University of texas at san antonio

Nanomaterials Working in the Near-infrared: Biomedical Applications — Therapy & Imaging

Program Organizers: Antonio Benayas, Institut National de la Recherche Scientifique; Luis Carlos, Universidade de Aveiro; Fiorenzo Vetrone, Intitut national de la recherche scientifique; Marta Quintanilla, CICbiomagune; Daniel Jaque García, Universidad Autónoma de Madrid; Artiom Skripka, Institut National de la Recherche Sscientifique

Wednesday PM
October 26, 2016

Room: 260A
Location: Salt Palace Convention Center

Funding support provided by: Millipore Sigma and Photon etc.

Session Chairs: Kohei Soga, Tokyo University of Science; Víctor Lavín della Ventura, Universidad de La Laguna; Fiorenzo Vetrone, INRS-EMT

2:00 PM Keynote
PhotoImmunoNanoTherapy (PINT): A New Therapy for Cancer through Enhanced STEM Cell Differentiation Based on Infra-red Photon Therapy with Inorganic Nanoparticles: *James Adair*[1]; Gail Matters[1]; Mark Kester[2]; Gary Clawson[1]; Xiaomeng Tang[1]; Welley Loc[1]; Sam Linton[1]; Christopher McGovern[1]; [1]Penn State University; [2]University of Virginia

2:40 PM Invited
MRI-Active Gd(III)-doped Gold Nanomatryoskha Theranostic System: *Oara Neumann*[1]; Valeria Marangoni[2]; Caterina Kaffes[3]; Hui Zhang[1]; Sandra Bishnoi[1]; Ciceron Ayala-Orozco[1]; Luke Henderson[1]; Valtencir Zucolotto[2]; Jim Bankson[3]; Peter Nordlander[1]; Naomi Halas[1]; [1]Rice University; [2]University of Sao Paulo; [3]The University of Texas M.D. Anderson Cancer Center

3:00 PM Invited
Cytoskeletal Response of Cervical Cancer Cells to In Vitro Plasmonic Photothermal Therapy: *Karla Santacruz-Gomez*[1]; Fernando Terán Arce[2]; Ratnesh Lal[3]; [1]Universidad de Sonora; [2]University of Arizona; [3]University of California in San Diego

3:20 PM Break

3:40 PM Keynote
Non-invasive Brain Functional Imaging in the Second Near-infrared Window: *Guosong Hong*[1]; Hongjie Dai[2]; [1]Harvard University; [2]Stanford University

4:20 PM Invited
Multi-functional Nanoparticles for Image-guided Photothermal Therapy: *Chun Li*[1]; [1]The University of Texas MD Anderson Cancer Center

4:40 PM Invited
Intratumoral Thermal Reading during Photo-thermal Therapy by Multifunctional Fluorescent Nanoparticles: *Elisa Carrasco*[1]; Blanca del Rosal[2]; Francisco Sanz-Rodríguez[2]; Ángeles Juarranz de la Fuente[2]; Patricia Haro Gonzalez[2]; Ueslen Rocha[3]; Kagola Upendra Kumar[3]; Carlos Jacinto[3]; José García Solé[2]; Daniel Jaque[2]; [1]Durham University; [2]Universidad Autónoma Madrid; [3]Universidad Federal de Alagoas

Next Generation Biomaterials — Session V

Program Organizers: Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Sharmila Mukhopadhyay, Wright State University; Sundeep Mukherjee, University of North Texas

Wednesday PM
October 26, 2016

Room: 259
Location: Salt Palace Convention Center

Session Chairs: Perena Gouma, SUNY Stony Brook; Antonio Benayas, Institut National de la Recherche Scientifique

2:00 PM Invited
Electrospun Biomedical Nanotechnologies: *Perena Gouma*[1]; [1]SUNY Stony Brook

2:40 PM
The Synergy of Conventional Ceramic Forming and Electronic Device Manufacturing Process to Develop Hermetic High Density Feedthroughs for Miniature Implantable Medical Devices: *Abhishek Patnaik*[1]; John Antalek[1]; [1]Morgan Advanced Materials

3:00 PM
High Temperature Anodization of Magnesium Based Alloys for Controlling Degradation in Physiological Environment: *Zia Rahman*[1]; Waseem Haider[1]; [1]Central Michigan University

3:20 PM Break

3:40 PM
Improving the Flexural Mechanical Properties of Bioactive Glass (13-93) Scaffolds for Structural Bone Repair: *Mohamed Rahaman*[1]; Wei Xiao[1]; Mohsen Asle Zaeem[1]; Sonny Bal[2]; [1]Missouri University of Science and Technology; [2]University of Missouri-Columbia

4:00 PM
Processing and Characterization of Silicon Nitride Bioceramics: *Bryan McEntire*[1]; Alan Lakshminarayanan[2]; Prabhakar Thirugnanasambandam[3]; Jacob Seitz-Sampson[1]; Ryan Bock[1]; David O'Brien[1]; [1]Amedica Corporation; [2]Corning, Inc.; [3]Prismatik Dentalcraft, Inc,

4:20 PM
II Biological Window All-optical Imaging Players: A General Prospective and a Multifunctional Newcomer: *Antonio Benayas*[1]; Elisa Carrasco[2]; Blanca del Rosal[3]; Fuqiang Ren[1]; Eva Hemmer[4]; Dongling Ma[1]; Fiorenzo Vetrone[1]; [1]Institut National de la Recherche Scientifique; [2]University of Durham; [3]UAM; [4]University of Ottawa

4:40 PM
Electrochemical Laboratory Biofilm Reactor and Its Validity: *Hideyuki Kanematsu*[1]; Chisei Kato[1]; Nobumitsu Hirai[1]; Akiko Ogawa[1]; Takeshi Kogo[1]; [1]National Institute of Technology, Suzuka College

Phase Stability, Diffusion Kinetics, and Their Applications (PSDK-XI) — General Session I

Program Organizers: James Saal, QuesTek Innovations; Yu Zhong, Florida International University; Ji-Cheng Zhao, The Ohio State University; Nagraj Kulkarni, Knoxville, TN

Wednesday PM
October 26, 2016

Room: 155C
Location: Salt Palace Convention Center

Session Chairs: James Saal, QuesTek Innovations; Yu Zhong, Florida International University

2:00 PM Invited
Refractory Cathode Materials for Solid Oxide Fuel Cells: Deniz Cetin[1]; *Srikanth Gopalan*[1]; [1]Boston University

2:40 PM Invited
Modeling Diffusion Induced Kinetic Demixing in $LaCoO_3$ Oxygen Permeation Membrane: Na Ta[1]; *Ming Chen*[2]; Lijun Zhang[1]; Weimin Chen[1]; Christodoulos Chatzichristodoulou[2]; Peter Vang Hendriksen[2]; Yong Du[1]; [1]Central South University; [2]Technical University of Denmark

3:20 PM
The Thermodynamic Investigation of the Effect of CO_2 to the Stability of LSCF-6428: Shadi Darvish[1]; *Yu Zhong*[1]; [1]Florida International University

3:40 PM Break

4:00 PM
Phase Equilibria of Rare-earth-zirconium-silicon Oxide Systems: *Najeb Abdul-Jabbar*[1]; David Poerschke[1]; Cian Gabbett[2]; Carlos Levi[1]; [1]University of California, Santa Barbara; [2]Trinity College, Dublin

4:20 PM
Thermal Stability Analysis of Nanostructured Mg-Al Thin Films: *Rama Sesha Vemuri*[1]; Libor Kovarik[1]; Arun Devaraj[1]; Giridhar Nandipati[1]; Suveen Mathaudhu[1]; Aashish Rohatgi[1]; [1]Pacific Northwest National Laboratory

4:40 PM
Quantitative Analysis of (La0.8Sr0.2)0.98MnO3±d Electronic Conductivity Using CALPHAD Approach: *Shadi Darvish*[1]; Yu Zhong[1]; [1]Florida International University

5:00 PM
Diffusion and Ion Conduction in Oxide Glasses: *Helmut Mehrer*[1]; [1]University of Muenster

5:20 PM
Numerical Approach to Obtaining Thermal Degradation Kinetics for 3D Compact Binder Removal: *Joseph Prati*[1]; M. Matthewson[1]; Rich Haber[1]; [1]Rutgers University

5:40 PM
Self Learning Kinetic Monte Carlo Simulations of Si diffusion in High-Si-steels: *Giridhar Nandipati*[1]; Rama Sesha Vemuri[1]; Suveen Mathaudhu[2]; Aashish Rohatgi[1]; [1]Pacific Northwest National Laboratory; [2]Pacific Northwest National Laboratory; University of California, Riverside

Phase Stability, Diffusion Kinetics, and Their Applications (PSDK-XI) — Tracer Session II/ General Session II

Program Organizers: James Saal, QuesTek Innovations; Yu Zhong, Florida International University; Ji-Cheng Zhao, The Ohio State University; Nagraj Kulkarni, Knoxville, TN

Wednesday PM
October 26, 2016

Room: 155D
Location: Salt Palace Convention Center

Session Chairs: Nagraj Kulkarni, Knoxville, TN; Ji-Cheng Zhao, Ohio State

2:00 PM Invited
Tracer Diffusion in Homogeneous and Inhomogeneous Materials: *Manfred Martin*[1]; [1]RWTH Aachen University

2:40 PM Invited
A New Combined Tracer and Interdiffusion Experimental Approach: *Irina Belova*[1]; Esin Schulz[2]; Graeme Murch[1]; Yongho Sohn[2]; [1]University of Newcastle; [2]University of Central Florida

3:20 PM
Tracer Diffusion in Equiatomic FCC High Entropy Alloys: Mayur Vaidya[1]; Simon Trubel[2]; Josua Kottke[2]; B.S. Murty[1]; Gerhard Wilde[2]; *Sergii Divinsky*[2]; [1]Department of Metallurgical & Materials Engineering, Indian Institute of Technology Madras; [2]University of Münster

3:40 PM Break

4:00 PM Invited
Developing and Sharing a Reference Tracer Diffusivity Database: *Carelyn Campbell*[1]; [1]National Institute of Standards and Technology

4:40 PM
Multicomponent Diffusion Kerf Couples for Tracer Diffusion and Genomic Data: *Nagraj Kulkarni*[1]; [1]Knoxville, TN

5:00 PM
Reliable Evaluation of Both Impurity Coefficients and Interdiffusion Coefficients Using a Forward-simulation Method: *Ji-Cheng Zhao*[1]; Qiaofu Zhang[1]; Zhangqi Chen[1]; Wei Zhong[1]; [1]The Ohio State University

Processing and Performance of Materials Using Microwaves, Electric and Magnetic Fields, Ultrasound, Lasers, and Mechanical Work – Rustum Roy Symposium — Session IV

Program Organizers: Morsi Mahmoud, Karlsruhe Institute of Technology (KIT) & City for Scientific Research and Technological Applications (SRTA City); Dinesh Agrawal, Pennsylvania State University; Guido Link, Karlsruhe Institute of Technology; Motoyasu Sato, Chubu University; Rishi Raj, University of Colorado

Wednesday PM
October 26, 2016

Room: 255E
Location: Salt Palace Convention Center

Session Chairs: Jun Fukushima, Tohoku University; Ruth Kiminami, Universidade Federal de São Carlos

2:00 PM Invited
Effects of Alternating Electromagnetic Field and Ultrasonic Sound Wave on Biofilm Formation in Some Aqueous Environments: *Hideyuki Kanematsu*[1]; Senshin Umeki[2]; Nobumitsu Hirai[1]; Akiko Ogawa[1]; Kazuyuki Tohji[2]; [1]National Institute of Technology, Suzuka College; [2]Graduate Schools of Environmental Studies, Tohoku University

2:40 PM Invited
Crystallization of Rare-earth Aluminosilicate Glasses Using Microwave and Conventional Processing: *Hans Seifert*[1]; Sarfraz Ahmad[1]; Morsi Mahmoud[1]; [1]Karlsruhe Institute of Technology (KIT)

3:20 PM Break

3:40 PM
Magnetocaloric Performance Improvement of Non-stoichiometric Ni2MnGa Heusler Alloys through Mechanical Work: *Michael McLeod*[1]; Zafer Turgut[2]; Bhaskar Majumdar[1]; [1]New Mexico Tech; [2]Wright Patterson AFB

4:00 PM
Sublimation of Porous Materials with Distributed Sources of Energy and Self Sublimation and Freezing: *Rahul Basu*[1]; [1]VTU

4:20 PM
Thermal and Ionic Conductivity Characterizations of Lithium Aluminum Germanium Phosphate Glass-ceramics: *Morsi Mahmoud*[1]; Cui Yuantao[2]; Magnus Rohde[3]; Carlos Ziebert[3]; Hans Seifert[3]; [1]Karlsruhe Institute of Technology (KIT), City for Scientific Research and Technological Applications (SRTA City); [2]Karlsruhe Institute of Technology; [3]Karlsruhe Institute of Technology

Recent Development in Additive Manufacturing: Process and Equipment Development and Applications — Defects, Inspection and Prediction of Quality in Additive Manufacturing

Program Organizers: Jing Zhang, Indiana University - Purdue University Indianapolis; Balraj Mani, New Jersey Institute of Technology; Johannes Homa, Lithoz GmbH; Kim Brand, 3D Parts Manufacturing, LLC; Xinghua Yu, Oak Ridge National Laboratory; Yeongil Jung, Changwon National University; Nuggehalli Ravindra, New Jersey Institute of Technology

Wednesday PM
October 26, 2016

Room: 258
Location: Salt Palace Convention Center

Session Chairs: Nuggehalli Ravindra, New Jersey Institute of Technology; Jing Zhang, Indiana University - Purdue University Indianapolis

2:00 PM Keynote
Hot Cracking in SLM-produced Inconel 738LC: Origins and Remedy: *Eric Jägle*[1]; Lin Lu[1]; Dierk Raabe[1]; [1]Max-Planck-Institut für Eisenforschung

2:40 PM
Effects of Beta Grain Orientation and Defects on Fracture and Fatigue of As-deposited and HIP EBM Powder Bed Fusion Ti-6Al-4V: *Mohsen Seifi*[1]; Behrang Poorganji[2]; Ayman Salem[3]; John Lewandowski[1]; [1]Case Western Reserve University; [2]Eaton Research and Innovation Center; [3]Materials Resources LLC

3:00 PM
Flexible Heat Treatment of AM Material in a HIP: Anders Eklund[1]; *Magnus Ahlfors*[2]; [1]Quintus Technologies, LLC.; [2]Quintus Technologies AB

3:20 PM Break

3:40 PM
Interfacial Bonding Quality Prediction and Improvement for Fusion Deposition Modeling by Layerwise Additive Manufacturing Analytical Block Technique: *Jinquan Cheng*[1]; [1]Composite Solutions and Digital Manufacturing LLC

4:00 PM
Quantifying Accuracy in Additive Manufacturing Processes through Standardized Test Structures: *Jason Weaver*[1]; Justin Zsiros[1]; Michael Miles[1]; Tracy Nelson[1]; [1]Brigham Young University

4:20 PM
Tri- Comparative Analysis of Physical Properties of Porous Titanium with a Computed Topography Technique: Cindy Waters[1]; *Stephen Ajinola*[1]; [1]NCA&T State University

4:40 PM
Effect of Build Parameters on the Variation in Mechanical Properties of Fused Deposition Modeled ABS: *Alex Cress*[1]; Ozgur Keles[1]; [1]San Jose State University

S2P: Semi-solid Processing of Alloys and Composites — Session XI

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Wednesday PM
October 26, 2016

Room: 151A
Location: Salt Palace Convention Center

Session Chair: Pascal Cote, STAS Inc.

2:00 PM
Ultrasonic Rheo-Diecasting of A383 Aluminum Alloy: Waleed Khalifa[1]; Yoshiki Tsunekawa[2]; *Shimaa El-hadad*[3]; [1]Cairo University; [2]Toyota Technological Institute; [3]Central Metallurgical Research and Development Institute

2:30 PM
Microstructure and Rheological Properties of Semi-solid 7075 Slurries Using SEED Rheocasting Process: *X. Grant Chen*[1]; Qinfu Zhao[1]; Amir Bolouri[1]; Pascal Côté[2]; [1]University of Quebec at Chicoutimi; [2]Société des Technologies de l'Aluminium du Saguenay Inc.

3:00 PM
Microstructure Evolution and Coarsening Mechanism of 7075 Semi-solid Aluminum Alloy Predeformed by ECAP Method: Jinlong Fu[1]; *Kaikun Wang*[1]; Xiaowei Li[1]; [1]Univiersity of Science and Technology Beijing

3:30 PM
Thixoforming of Mixed Electron 21 and WE43B Magnesium Granules: *Lukasz Rogal*[1]; [1]Institute of Metallurgy and Materials Science

4:00 PM
Semi-solid Manufacturing of Bulk Metallic Glass Matrix Composites: *Douglas Hofmann*[1]; Scott Roberts[1]; [1]NASA JPL/Caltech

S2P: Semi-solid Processing of Alloys and Composites — Session XII

Program Organizers: Ahmed Rassili, CRM Group; Stephen Midson, The Midson Group

Wednesday PM
October 26, 2016

Room: 151G
Location: Salt Palace Convention Center

Session Chair: John Jorstad, J. L. J. Technologies Inc.

2:00 PM
A New Rheo-HPDC Process with Air-cooled Stirring Rod Device for Wireless Base Station Shells of Al-8Si Alloy: *Mingfan Qi*[1]; Yonglin Kang[1]; Guoming Zhu[1]; Yangde Li[2]; Weirong Li[2]; [1]University of Science and Technology Beijing; [2]Dongguan EONTEC Corporation, Ltd.

2:30 PM
Thixo-Forging of an Appropriative Alloy for Scroll Production: *Zhifeng Zhang*[1]; [1]General Research Institute for Nonferrous Metals

3:00 PM
Study of Forming Mechanism of Non-filling Holes in Blades of Semi-solid Cast Impellers: Hongxing Lu[1]; *Qiang Zhu*[1]; Youfeng He[1]; Fan Zhang[1]; Daquan Li[1]; [1]General Research Institute for Non-Ferrous Metals

3:30 PM
Development and Achievements OF SSM Processes for High Performance Components: *Mario Rosso*[1]; Ildiko Peter[1]; Ivan Gattelli[2]; [1]POLITECNICO di Torino; [2]ATS

4:00 PM
Manufacturing and Fatigue Verification of Several Different Components Made by Semi-solid Processing of Aluminium TX630 Alloy: *Madeleine Bladh*[1]; Bengt Johannesson[1]; Patrik Nordberg[2]; Johannes Winklhofer[3]; [1]Volvo Group Trucks Technology; [2]Duranord AB; [3]SAG MOTION GmbH

Sintering and Related Powder Processing Science & Technologies — Field Assisted Sintering II

Program Organizers: Ricardo Castro, University of California, Davis; Brady Butler, U.S. Army Research Laboratory; Olivia Graeve, University of California, San Diego; Eugene Olevsky, San Diego State University; Anders Eklund, Quintus Technologies, LLC.

Wednesday PM
October 26, 2016

Room: 150E
Location: Salt Palace Convention Center

Session Chair: To Be Announced

2:00 PM Invited
Flash Sintering: How Does the Flash Start and What Are the Densification Mechanisms and Field Effects?: Yuanyao Zhang[1]; Jiuyuan Nie[1]; *Jian Luo*[1]; [1]UCSD

2:40 PM
Flash Sintering: *Rishi Raj*[1]; [1]University of Colorado

3:00 PM
Flash Sintering of α-Al_2O_3, $MgAl_2O_4$ and 8 mol% Y_2O_3 Stabilized ZrO_2 Composites: *David Kok*[1]; Shikhar Jha[2]; Rishi Raj[2]; Martha Mecartney[1]; [1]University of California, Irvine; [2]University of Colorado, Boulder

3:20 PM Break

3:40 PM
Phase Evolution, Microstructure and Properties of Porcelains Using Field Enhanced Sintering: *Wirat Lerdprom*[1]; Eugenio Zapata-Solvas[1]; Doni Jayaseelan[1]; William Lee[1]; [1]Imperial College London

4:00 PM Invited
Energy Coupled to Matter for Field-assisted Sintering of Materials: *Raymond Brennan*[1]; Brandon McWilliams[1]; Victoria Blair[1]; Jian Yu[1]; Nicholas Ku[1]; Michael Kornecki[1]; [1]U.S. Army Research Laboratory

4:40 PM
Microwave Assisted Consolidation of Titanium and Titanium Alloy Powder Compacts: *Ben Rock*[1]; M. Ashraf Imam[1]; Tony Zahrah[1]; [1]George Washington University

5:00 PM Invited
Porous Materials by Spark Plasma Sintering Using Different Approaches: *Dina Dudina*[1]; Vyacheslav Mali[1]; Alexander Anisimov[1]; Arina Ukhina[2]; Andrei Brester[2]; Boris Bokhonov[2]; [1]Lavrentyev Institute of Hydrodynamics SB RAS; [2]Institute of Solid State Chemistry and Mechanochemistry SB RAS

Surface Protection for Enhanced Materials Performance: Science, Technology, and Application — Environmental Protection Coatings

Program Organizers: Kang Lee, NASA Glenn Research Center; Yutaka Kagawa, The University of Tokyo; Dongming Zhu, NASA Glenn Research Center; Rodney Trice, Purdue University; Daniel Mumm, University of California-Irvine; Mitchell Dorfman, Oerlikon Metco (US) Inc.; Christian Moreau, Concordia University

Wednesday PM
October 26, 2016

Room: 251E
Location: Salt Palace Convention Center

Session Chairs: Dongming Zhu, NASA; Yutaka Kagawa, The Univesity of Tokyo

2:00 PM Invited
Aluminizing of Austenitic Stainless Steels: *Vilupanur Ravi*[1]; Michell Aranda[1]; Daniel Navarro[1]; [1]California State Polytechnic University, Pomona

2:40 PM
Influence of the Deposition Parameters on Characteristics of Electrodeposited Zinc Coatings: *Mohammad Umar Farooq Khan*[1]; Rajeev Gupta[1]; [1]The University of Akron

3:00 PM
Isothermal and Cyclic Oxidation of Cold-sprayed NiCoCrAlTaY Coating on CMSX-4 Superalloys: *Deliang Guo*[1]; Bertrand Jodoin[1]; [1]University of Ottawa

3:20 PM Break

3:40 PM
Microstructure Characterization and Fatigue Performance of Coated 31V Alloy: *Sebastien Dryepondt*[1]; Beth Armstrong[1]; Ying Zhang[2]; [1]Oak Ridge National Laboratory; [2]TN Technological Uni.

4:00 PM
Protective Coating on Solid Oxide Fuel Cell Interconnects: HongPeng He[1]; *Sofiane Benhaddad*[1]; Chen Chen[1]; Dale Steedman[1]; [1]Fuel Cell Energy

4:20 PM
Synthesis and Performance Evaluation of $MnCo_2O_4$ Spinel Layer with Different Precursor Powders: *Jiahong Zhu*[1]; Joseph Simpson[1]; Yutian Yu[1]; [1]Tennessee Technological University

Symposium on Large Fluctuations and Collective Phenomena in Materials III — Granular Materials and Other Topics

Program Organizers: Xie Xie, The University of Tennessee; Karin Dahmen, University of Illinois at Urbana Champaign; Peter Liaw, University of Tennessee; Yong Zhang, University of Science and Technology Beijing

Wednesday PM
October 26, 2016

Room: 250C
Location: Salt Palace Convention Center

Session Chairs: Egami Takeshi, University of Tennessee; Zi-Kui Liu, The Pennsylvania State University

2:00 PM Invited
Collective Local Dynamics in Liquids, Colloids and Polymers: *Takeshi Egami*[1]; Wei-Ren Chen[2]; [1]University of Tennessee; [2]Oak Ridge National Laboratory

2:40 PM Invited
A Master Equation for Force Distributions in Dense Granular Materials: *Kuniyasu Saitoh*[1]; [1]Tohoku University

3:20 PM Break

3:40 PM Invited
Avalanches in Jammed Granular Materials: *Hisao Hayakawa*[1]; Michio Otsuki[2]; [1]Kyoto University; [2]Shimane University

4:20 PM Invited
Thermodynamics of Critical Phenomena: Fluctuation and Anomaly: *Zi-Kui Liu*[1]; [1]The Pennsylvania State University

5:00 PM Invited
Stick-slip Friction of Polymer Gels Having Controlled Surface Asperities: *Tetsuo Yamaguchi*[1]; Yoshinori Sawae[1]; [1]Kyushu University

The 8th International Symposium on Green and Sustainable Technologies for Materials Manufacturing and Processing — Green Materials Processing II

Program Organizers: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST); Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center; Allen Apblett, Oklahoma State University; Marsha Bischel, Armstrong World Industries, Inc.; Surojit Gupta, University of North Dakota; Manish Mehta, National Center for Manufacturing Sciences (NCMS); Makio Naito, Osaka University; Richard Sisson, Worcester Polytechnic Institute, Center for Heat Treating Excellence; Hisayuki Suematsu, Nagaoka University of Technology; Yiquan Wu, Alfred University

Wednesday PM
October 26, 2016

Room: 151C
Location: Salt Palace Convention Center

Session Chairs: Surojit Gupta, University of North Dakota; Tadachika Nakayama, Nagaoka Univ of Technology

2:00 PM Invited
Processing Composite Stable Porous Silicon (SPS) as an Anode for Lithium Ion Battery: *Indrajit Dutta*[1]; Brian Kent[1]; David Baker[1]; Brett Abel[1]; [1]Corning Incorporated

2:20 PM
Two Step Pressurization in Pulsed Electric Current Sintering of MoO_3 for Production of Radioactive Isotopes: *H. Sueamtsu*[1]; M. Seki[1]; S. Sato[1]; M. Nanko[1]; K. Tsuchiya[2]; K. Nishikata[2]; T. Suzuki[1]; T. Nakayama[1]; K. Niihara[1]; [1]Nagaoka University of Technololgy; [2]Japan Atomic Energy Agency

2:40 PM
New Thoughts on Electric Field-related Sintering Behavior in Dielectric Sr5(PO4)3F Crystals: Yin Liu[1]; *Yiquan Wu*[1]; [1]Alfred University

3:00 PM
Innovative Low Magnetic Field Orientation Process for Fabrication of C-axis Oriented Si3N4 Ceramics by Using Multilayered-graphene Coated â-Si3N4 Particle: *Takuma Takahashi*[1]; Mariko Sado[2]; Nanako Sugimoto[2]; Junichi Tatami[2]; Motoyuki Iijima[2]; [1]Kanagawa Academy of Science and Technology; [2]Yokohama National University

3:20 PM Break

3:40 PM Invited
Stereolithographic Additive Manufacturing of Ceramic Components with Micro Geometric Patterns: *Soshu Kirihara*[1]; [1]Osaka University

4:00 PM
Titania Nanosheet Production by An Inexpensive Green Process: *Allen Apblett*[1]; Cody Cannon[1]; [1]Oklahoma State University

4:20 PM
Extrusion and Tape Casting Based Production Processes for New Lightweight Kiln Furniture: *Uwe Scheithauer*[1]; Eric Schwarzer[1]; Tassilo Moritz[1]; Alexander Michaelis[1]; [1]Fraunhofer Institute for Ceramic Technologies and Systems IKTS

4:40 PM
Room-temperature and Low-pressure Injection Molding of Silicon Nitride Aqueous Suspensions: *Lisa Rueschhoff*[1]; Jeffrey Youngblood[1]; Rodney Trice[1]; [1]Purdue University

5:00 PM
A Parametric Study on the Hydrolysis of Titanic Acid in HCl Solution for Synthesis of TiO2 with Controlled Particle Sizes and Morphology: *Zhe Huang*[1]; Ying Zhang[1]; Zhigang Fang[1]; Hyrum Lefler[1]; Tuoyang Zhang[1]; Lu Yang[1]; [1]University of Utah

Town Hall Meeting on the National and International Materials Data Infrastructure — Town Hall Meeting on the National and International Materials Data Infrastructure

Program Organizers: James Warren, National Institute of Standards and Technology; Charles Ward, Air Force Research Laboratory

Wednesday PM
October 26, 2016

Room: 251A
Location: Salt Palace Convention Center

Session Chairs: James Warren, National Institute of Standards and Technology; Charles Ward, Air Force Research Laboratory

2:00 PM Introductory Comments ---- A special session has been scheduled at MS&T'16 to discuss the current national and international landscape of the materials data sharing infrastructure. Discussion topics will include the latest tools and processes for data capture, curation, dissemination, and discovery as well as efforts to integrate materials and manufacturing data into broader engineering systems. The Town Hall Meeting is part of the "ICME Accelerated Materials Discovery in Process & Product Development" symposium.

2:10 PM Invited
Materials Data Infrastructure: Current Status and Update on NIST Data Programs: *James Warren*[1]; [1]National Institute of Standards and Technology

2:15 PM Invited
The Materials Commons and the PRISMS Center at the University of Michigan: *James Warren*[1]; [1]National Institute of Standards and Technology

2:20 PM Invited
Center for Hierarchical Materials Design (CHiMaD) and the Materials Data Facility: *James Warren*[1]; [1]National Institute of Standards and Technology

2:25 PM Invited
The National Data Service (NDS) and the Timely and Trustworthy Curating and Coordinating Data Framework (T2C2) Project: *Steve Konstanty*[1]; [1]University of Illinois at Urbana-Champaign

2:30 PM Invited
Integrated Collaborative Environment (ICE) for Materials Research: *Matthew Jacobsen*[1]; [1]Air Force Research Laboratory

2:35 PM Invited
The Materials Project: *Patrick Huck*[1]; [1]Lawrence Berkeley National Laboratory

2:40 PM Invited
Citrination Platform: *Bryce Meredig*[1]; [1]Citrine Informatics

2:45 PM Invited
The Institute for Data Intensive Engineering and Science (IDIES): *K Ramesh*[1]; [1]Johns Hopkins University

2:50 PM Question and Answer Period

Ultra High Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense, and Automotive Applications — Composites / Hybrid / Graded Materials

Program Organizers: Ali Yousefiani, Boeing Research and Technology; Troy Topping, California State University, Sacramento

Wednesday PM
October 26, 2016

Room: 150A&B
Location: Salt Palace Convention Center

Session Chair: Troy Topping, California State University, Sacramento

2:00 PM
On the Development of MRMs (MAX Reinforced Metals) for Multifunctional Applications: *Faisal AlAnazi*[1]; Sujan Ghosh[1]; Surojit Gupta[1]; [1]University of North Dakota

2:20 PM
Hierarchically Structured Nanocomposites: Scalable Ceramic Bearing Technology: *Andrew Sherman*[1]; Joe Hensel[1]; [1]Powdermet Inc

2:40 PM
Fabrication of Metal Matrix Syntactic Foams with a Laser Additive Manufacturing Process: *Myranda Spratt*[1]; J Newkirk[1]; K Chandrashekhara[1]; [1]Missouri University of Science and Technology

3:00 PM
Temperature Dependent Damping Properties of Ferroelectric Ceramic-reinforced Metal-Matrix Composites: Liwei Geng[1]; *Zachary Morgan*[1]; Yongmei Jin[1]; Stephen Kampe[1]; [1]Michigan Technological University

3:20 PM Break

3:40 PM
Microstructure and Mechanical Properties of Heat Treated TiC-steel Matrix Composite: *Seong Hoon Kim*[1]; Dong-Woo Suh[1]; [1]GIFT, POSTECH

4:00 PM
Optimization of Powder Metallurgy (P/M) Route for Fabrication of Metal Matrix Composites Reinforced by Ultra High Temperature Ceramics: *Babak Jahani*[1]; Mehhdi Salimi Jazi[1]; Fardad Azarmi[1]; [1]North Dakota State University

4:20 PM
Processing of Ball–milled Ni – 50%Fe Base Alloy System Using Spark Plasma Sintering: *Mxolisi Shongwe*[1]; [1]Tshwane University of Technology

Zirconia Based Materials for Cutting Edge Technology — Session III

Program Organizers: Hasan Gocmez, Dumlupinar University; Yuji Hotta, National Institute of Advanced Industrial Science and Technology; Sudipta Seal, University of Central Florida; Hirotaka Fujimori, Yamaguchi University; Cihangir Duran, Yildirim Beyazit University; Kohei Soga, Tokyo University of Science; Takashi Shirai, Nagoya Institue of Technology; Hilmi Yurdakul, TeknoCeram

Wednesday PM
October 26, 2016

Room: 254B
Location: Salt Palace Convention Center

Session Chairs: Miladin Radovic, Texas A&M University; Takashi Shirai, Nagoya Insitute of Technology; Taylor Sparks, University of Utah

2:00 PM Invited
Electrically Driven Microstructure Evolutions in Cubic and Tetragonal YSZ: *I-Wei Chen*[1]; [1]University of Pennsylvania

2:40 PM
Zirconia Green Body Sintering Investigated by Dilatometry and Laser Flash Analysis: *Ekkehard Post*[1]; Melinda Tucker[2]; [1]NETZSCH Geraetebau GmbH; [2]NETZSCH Instruments North America

3:00 PM
Thermal Properties and Fabrication of Low Thermal Conductivity ZrO_2 Composites: *Byung-Koog Jang*[1]; SeongWon Kim[2]; Yoon-Suk Oh[2]; Hyung-Tae Kim[2]; [1]National Institute for Materials Science; [2]Korea Institute of Ceramic Engineering and Technology

3:20 PM Break

3:40 PM
In-situ Synthesis of ZrB_2-SiC Based Ceramics from ZrO_2-B_4C-SiC System by Spark Plasma Sintering Technique: Burcu Yilmaz[1]; Kübra Gürcan[1]; *Erhan Ayas*[1]; [1]Anadolu University

4:00 PM
Measurement of Electronic Conductivity in 8YSZ Using an Embedded Electrode: *Lei Zhang*[1]; Liangzhu Zhu[1]; Anil Virkar[1]; [1]University of Utah

4:20 PM
Use of Yttria-stabilized Zirconia for Potentiometric Measurements at Low Temperatures: Alexander Szendrei[1]; *Taylor Sparks*[1]; Anil Virkar[1]; [1]University of Utah

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — AM Processing of Light Metals

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Thursday AM
October 27, 2016

Room: 355C
Location: Salt Palace Convention Center

Session Chair: Frank Medina, EWI

8:00 AM
Defect Characterization in Powder Bed AM Aluminum: *Lisa Deibler*[1]; Jeff Rodelas[1]; Jay Carroll[1]; [1]Sandia National Laboratories

8:20 AM
Design of an ODS-TiAl Alloy for Additive Manufacturing Technologies: Christoph Kenel[1]; Karl Dawson[2]; Georgia Dasargyri[1]; Thomas Bauer[3]; Alberto Colella[4]; Adriaan Spierings[3]; Gordon Tatlock[2]; *Christian Leinenbach*[1]; [1]Empa-Swiss Federal Laboratories for Materials Science and Technology; [2]University of Liverpool; [3]Inspire AG - Innovation Center for Additive Manufacturing Switzerland; [4]MBN Nanomaterialia S.p.A.

8:40 AM
Characterisation of Additive Manufactured Aluminum-based alloy Periodic Cellular Structures (PCS): *Florian Gallien*[1]; Adriaan Spierings[2]; Andrew Norman[3]; Andreas Mortensen[4]; Volker Gass[1]; [1]EPFL-Swiss Space Center; [2]Inspire AG; [3]ESA; [4]EPFL-LMM

9:00 AM
Mechanical Properties of Selective Laser Melted Al-12Si Alloy: *Jyoti Suryawanshi*[1]; K. G. Prashanth[2]; J. Eckert[2]; U. Ramamurty[1]; [1]Indian Institute of Science, Bangalore; [2]Institute for Complex Materials

9:20 AM
Microstructure Control in Additive Manufacturing of Aluminum Alloys: *Hunter Martin*[1]; Brennan Yahata[1]; Eric Clough[1]; Jacob Hundley[1]; Tobias Schaedler[1]; Tresa Pollock[2]; [1]HRL Laboratories; [2]University of California, Santa Barbara

9:40 AM
Relationship between Porosity Size and Fatigue Life Distributions of AlSi10Mg Parts Produced by Selective Laser Melting: *Ming Tang*[1]; Petrus Pistorius[1]; [1]Carnegie Mellon University

10:00 AM Break

10:20 AM
Solidification Microstructure and Mechanical Properties Development due to Selective Laser Melting of AlSi10Mg Alloy: *Moataz Attallah*[1]; Michael Loretto[1]; Noriko Read[1]; Uriel Tradowsky[2]; Wei Wang[1]; Jan White[1]; [1]University of Birmingham; [2]Institut für Werkstoffwissenschaften,

10:40 AM
The Role of Melting Pool Boundary in the Determination of Mechanical Property of Al Alloys Made by Selective Laser Melting: *Yafeng Yang*[1]; Ma Qian[2]; Milan Brandt[2]; [1]Institute of Processing Engineering, Chinese Academy of Science; [2]RMIT University

Additive Manufacturing of Metals: Microstructure, Material Properties, and Product Performance — Microstructure and Properties Control

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Ulf Ackelid, Arcam AB; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harryson, North Carolina State University; Ian D. Harris, EWI; Rodney Boyer, RBBTi Consulting

Thursday AM
October 27, 2016

Room: 355D
Location: Salt Palace Convention Center

Session Chair: Richard Martukanitz, Pennsylvania State University

8:00 AM Invited
On the Role of Microstructure on the Fatigue Performance of Additively Manufactured Components: *Thomas Niendorf*[1]; Stefan Leuders[2]; Andre Riemer[2]; Johannes Guenther[3]; Florian Brenne[1]; [1]University of Kassel; [2]University of Paderborn; [3]TU Bergakademie Freiberg

8:40 AM
Impact of Atomization and Processing Conditions on the Heat Treatment Response of Additively Manufactured 17-4 Stainless Steel: *Scott Meredith*[1]; Jared Blecher[2]; Todd Palmer[1]; Rich Martukanitz[1]; [1]Applied Research Lab, Penn State; [2]3D Systems

9:00 AM
Influence of Grain Structure on the Mechanical Properties of Electron Beam Melted Inconel 718: *Michael Kirka*[1]; Kinga Unocic[1]; Alfred Okello[1]; Ryan Dehoff[1]; Ralph Dinwiddie[1]; Yousub Lee[1]; Naren Raghavan[2]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

9:20 AM
Microstructural and Surface Defects Found in Additive Manufactured Titanium Components: *Julius Bonini*[1]; Joan Morra[1]; Kaitlyn Mazza[1]; [1]Lucideon M + P

9:40 AM
Drop-weight Impact Properties of an Additively Manufactured Re-entrant Auxetic Cellular Structure: Geometrical and Material Effects: Amer Beharic[1]; Rafael Rodriguez Egui[1]; *Li Yang*[1]; [1]University of Louisville

10:00 AM Break

10:20 AM
Evaluation of Structure and Properties of 4340 Steel Produced by the DMLS Process: *Elias Jelis*[1]; Rajendra Sadangi[2]; Michael Hespos[2]; Jamal White[2]; Matthew Clemente[2]; Nuggehalli Ravindra[3]; [1] U.S Army, ARDEC, Picatinny Arsenal; [2]U.S Army, ARDEC, Picatinny Arsenal; [3]New Jersey Institute of Technology

10:40 AM
Mechanical Properties of Hastelloy X Fabricated by Electron Beam Melting: *Sebastien Dryepondt*[1]; Mike Kirka[1]; Ryan Dehoff[1]; [1]Oak Ridge National Laboratory

11:00 AM
Microstructural Characterization of As-Manufactured and Heat Treated Electron Beam Melted Inconel 718: *Dunyong Deng*[1]; Jonas Saarimäki[1]; Hans Söderberg[2]; Ru Lin Peng[1]; Håkan Brodin[3]; Johan Moverare[1]; [1]Linkoping University; [2]Sandvik AB; [3]Siemens Industrial Turbomachinery AB

11:20 AM
Properties of 316L Austenitic Stainless Steel Additively Manufactured Using Laser Metal Deposition Method: *Kosuke Sasaki*[1]; Tomokazu Sano[1]; Akio Hirose[1]; Go Obara[2]; Takashi Obara[2]; Naotada Okada[2]; Miki Mori[2]; [1]Graduate School of Engineering, Osaka University; [2]Corporate Manufacturing Engineering Center, Toshiba Corporation

Additive Manufacturing: In-situ Process Monitoring, Defect Detection and Control — Electron Beam Powder Bed Fusion and Related Technologies

Program Organizers: Ulf Ackelid, Arcam AB; Ian D. Harris, EWI; Andrzej Wojcieszynski, ATI Powder Metals; Sudarsanam Babu, The University of Tennessee, Knoxville; Ola Harrysson, North Carolina State University; Rodney Boyer, Monash University

Thursday AM
October 27, 2016

Room: 355A
Location: Salt Palace Convention Center

Session Chair: Ulf Ackelid, Arcam AB

8:00 AM Invited
Layer-Wise Thermal Feedback Control of Ti64 Electron Beam Melting: Brian Fisher[1]; Shakerur Ridwan[2]; Jorge Mireles[2]; *Jack Beuth*[1]; Ryan Wicker[2]; [1]Carnegie Mellon University; [2]University of Texas at El Paso

8:40 AM
Development and Validation of a Numerical Model of Electron Beam Additive Manufacturing Using In-situ Thermographic Measurements: *Yousub Lee*[1]; Ralph Dinwiddie[1]; Michael Kirka[1]; Narendran Raghavan[2]; John Turner[1]; Ryan Dehoff[1]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

9:00 AM
In Situ Temperature Measurement during the Electron Beam Melting Process of Inconel 718: *Ralph Dinwiddie*[1]; Michael Kirka[1]; Ryan Dehoff[1]; Larry Lowe[1]; Garry Marlow[1]; [1]Oak Ridge National Laboratory

9:20 AM
In-Situ Observations of Chimney Pore Formation during Electron-Beam Additive Manufacturing: *Zachary Cordero*[1]; Ralph Dinwiddie[1]; Ryan Dehoff[1]; [1]Oak Ridge National Laboratory

9:40 AM
Automated Computer Vision System for Characterizing AM Powder Feedstock and Build Quality: *Harshvardhan Jain*[1]; Brian DeCost[1]; Ross Cunningham[1]; Anthony Rollett[1]; Elizabeth Holm[1]; [1]Carnegie Mellon University

10:00 AM
Using Machine Vision and Machine Learning to Explore and Evaluate a Large Dataset of AM Powder Feedstock Images: *Brian DeCost*[1]; Elizabeth Holm[1]; [1]Carnegie Mellon University

Advanced Manufacturing Technologies — Advanced Manufacturing- Materials

Program Organizer: Muammer Koc, HBKU / Qatar Foundation

Thursday AM
October 27, 2016

Room: 150F
Location: Salt Palace Convention Center

Session Chair: Muammer Koc, HBKU / Qatar Foundation

8:00 AM Introductory Comments

8:20 AM
Pronounced Effects of Minor Addition of Zr in the Properties of a Spray Formed Cu-Al-Ni-Mn Shape Memory Alloy: Régis Cava[1]; *Piter Gargarella*[1]; Eric Mazzer[1]; Vinícius Pedrosa[1]; Claudemiro Bolfarini[1]; Walter Botta[1]; Claudio Kiminami[1]; [1]Federal University of S. Carlos

9:00 AM
A Study on Peripheral Recrystallization of Hot Extruded AA6XXX and AA7XXX Aluminum Alloys: *Yiwei Sun*[1]; Kevin Trumble[1]; David Johnson[1]; [1]Purdue University

9:20 AM
Use of MgO-C Wasted Bricks as Steelmaking Fluxing Additions: *Mohammed Tayeb*[1]; Othman AlZeghaibi[1]; [1]SABIC Metals SBU

10:00 AM Break

10:20 AM
Optimization of Filler Materials for Large Forging Dies: *Michal Duchek*[1]; Martina Koukolikova[1]; Jana Niznanska[1]; Miroslav Majer[2]; [1]COMTES FHT; [2]Czech Precision Forge

10:40 AM
Effect of Starting Microstructure on the Graphite Dispersion Size, Formed after Graphitising Anneal of High Si and Al Medium Carbon Steel: *Aqil Inam*[1]; David Edmonds[2]; Rik Brydson[2]; [1]University of the Punjab; [2]University of Leeds

11:00 AM Question and Answer Period

Advanced Materials for Oil and Gas Applications - Performance and Degradation — Manufacturing of Materials for Oil & Gas Industry

Program Organizers: Andrzej Wojcieszynski, ATI Powder Metals; Xi Shan, GE Oil & Gas; Maria Sawford, ATI Powder Metals; Paal Bratland, OneSubsea Company; Mariano Iannuzzi, GE Oil & Gas; Yellapu Murty, MC Technologies LLC

Thursday AM
October 27, 2016

Room: 250D
Location: Salt Palace Convention Center

Session Chairs: Paal Bratland, OneSubsea Company; Maria Sawford, ATI Powder Metals

8:00 AM Invited
Material Challenges in Oil and Gas Exploration and Production: *Rashmi Bhavsar*[1]; Paal Bratland[2]; [1]Schlumberger; [2]OneSubsea

8:40 AM
Additive Manufacturing in Oil & Gas Drilling: Alloy Systems, Properties & Application Prospects: *Krutibas Panda*[1]; [1]Halliburton

9:00 AM
Spray Formed Boron-containing Super Duplex Stainless Steel: *Juliano Soyama*[1]; Thiago Pama Lopes[1]; Claudio Kiminami[1]; Walter Botta[1]; Claudemiro Bolfarini[1]; [1]Federal University of S. Carlos

9:20 AM
Design and Thermo-mechanical Processing of Steel Grade APIX70 PSL2 for Use in Line-pipe at Oil&Gas Industry: *Adriana Berlanga*[1]; [1]Ternium

Boron, Boron Coatings, Boron Compounds and Boron Nanomaterials: Structure, Properties, Processing, and Applications — Bulk Materials

Program Organizers: Roumiana Petrova, New Jersey Institute of Tech; Jens Kunstmann, TU Dresden

Thursday AM
October 27, 2016

Room: 260B
Location: Salt Palace Convention Center

Session Chair: Jens Kunstmann, TU Dresden

8:00 AM Invited
Experimental and Theoretical Studies of the Hard Materials A2MB2 (A, M: Transition Metals): *Boniface Fokwa*[1]; [1]University of California, Riverside

8:40 AM Invited
New Intermetallic Phases in the Ternary Al/Ga-Ni-B and Al-Pd-B Systems: *Andreas Leithe-Jasper*[1]; Qiang Zheng[1]; Yurii Prots[1]; Walter Schnelle[1]; Roman Gumeniuk[2]; Yuri Grin[1]; [1]MPI-CPfS; [2]TU Bergakademie Freiberg

9:20 AM
Compressing Amorphous Boron Nitride at High-pressure: Ab-initio Molecular Dynamic Simulations: *Peter Kroll*[1]; [1]University of Texas at Arlington

9:40 AM
Understanding Size and Morphology Control of Boron Carbide Ceramic Powders Synthesized via Carbothermal Reduction Reaction: *Paniz Foroughi*[1]; Zhe Cheng[1]; [1]Florida International University

10:00 AM Break

10:20 AM
Boron Carbide Synthesize via ICP method: *Celaletdin Ergun*[1]; Selim Parlakyigit[1]; [1]Istanbul Technical University

10:40 AM
Sintering of B4C at Relatively Low Temperatures: *Ramasis Goswami*[1]; Syed Qadri[1]; James Wollmerhauser[1]; Noam Bernstein[1]; [1]Naval Research Laboratory

11:00 AM
Rising R-curve Behavior in Nanostructured Titanium Boride: *Anthony Sanders*[1]; Ahmed Degnah[1]; Ravi Chandran[1]; [1]University Of Utah

Computational Design of Ceramics and Glasses — Interfaces, Mesoscale, and Continuum

Program Organizers: Mathieu Bauchy, University of California, Los Angeles; Liping Huang, Rensselaer Polytechnic Institute; Peter Kroll, University of Texas at Arlington

Thursday AM
October 27, 2016

Room: 252A-B
Location: Salt Palace Convention Center

Session Chairs: Mathieu Bauchy, University of California, Los Angeles; Jaime Marian, University of California, Los Angeles

8:00 AM Invited
C-S-H Across Length Scales: From Nano to Micron: *Roland Pellenq*[1]; Katerina Ioannidou[1]; Franz-Josef Ulm[1]; Emanuela Del Gado[2]; [1]MIT-CNRS; [2]Georgetown University

8:40 AM Invited
The Crucial Effect of Early-stage Gelation on the Mechanical Properties of Cement Hydrates: *Emanuela Del Gado*[1]; Katerina Ioannidou[2]; Jure Dobnikar[3]; Daan Frenkel[4]; Lunna Li[4]; Matej Kanduc[5]; [1]Georgetown University; [2]MIT; [3]Beijig University of Chemical Technology; [4]University of Cambridge; [5]Helmholtz-Zentrum Berlin

9:20 AM Invited
Micro-structural Stress Modeling of Brittle Materials for Enhanced Performance and Reliability: *Melissa Teague*[1]; Thomas Buchheit[1]; Raegan Johnson[1]; Kevin Ewsuk[1]; [1]Sandia National Laboratories

10:00 AM Break

10:20 AM Invited
Computational Investigation of Interfaces in SiCO Ceramics: *Peter Kroll*[1]; [1]University of Texas at Arlington

11:00 AM
First Principle Study on Effect of Surface Adsorption and Non-stoichiometry on the Workfunction of ZnO Surfaces: *Wei Sun*[1]; Yun Li[1]; Jitendra Jha[1]; Nigel Shepherd[1]; Jincheng Du[1]; [1]University of North Texas

11:20 AM
Computational Design of Zirconium (Zr) Based Multiphase Ceramic Materials for Improved Strength and Toughness Properties: Md. Kayser[1]; Sheikh Ferdous[1]; *Ashfaq Adnan*[1]; [1]University of Texas at Arlington

11:40 AM
The Thermodynamic Investigation of the Effect of CO_2 to the Stability of (La0.8Sr0.2)0.98MnO3±d: *Shadi Darvish*[1]; Yu Zhong[1]; [1]Florida International University

Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials — Session IV

Program Organizers: Gurpreet Singh, Kansas State University; Kathy Lu, Virginia Tech; Sanjay Mathur, University of Cologne; Eugene Olevsky, San Diego State University; Edward Gorzkowski, Naval Research Laboratory ; Menka Jain, University of Connecticut; Hidehiro Kamiya, Tokyo University of Agriculture and Technology; Bhanu Chauhan, William Paterson University; Haitao Zhang, UNC Charlotte; Bhanu Chauhan, William Paterson University

Thursday AM
October 27, 2016

Room: 257B
Location: Salt Palace Convention Center

Session Chairs: Edward Gorzkowski, Naval Research Laboratory; Sanjay Mathur, University of Cologne

8:00 AM
Hydrothermal Synthesis of Copper Sulfides for Controlled Morphology and Composition: *Jing Liu*[1]; Zihe Ren[1]; Jingyang Wang[2]; Edouard Asselin[1]; [1]The University of British Columbia; [2]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

8:20 AM
Synthesis, Processing and Characterization of Oxide-Metal Exchange-Coupled Powder and Bulk 3D Nanocomposites for Permanent Magnetic Applications: *Aleksey Volodchenkov*[1]; Yasuhiro Kodera[1]; Javier Garay[2]; [1]University of California, Riverside; [2]University of California, San Diego

8:40 AM
Microstructure and Mechanical Properties of Electrodeposited Ni-W Alloys: *Denise Yin*[1]; Christopher Marvel[1]; Richard Vinci[1]; Martin Harmer[1]; [1]Lehigh University

9:00 AM
Molecular Dynamics Simulations of Glancing Angle Deposition of Polymer Nanoparticles: *David Kessler*[1]; Marriner Merrill[1]; [1]Naval Research Laboratory

9:20 AM
Preparation and Characterization of Poly (meta-phenylene isophthalamide) Microporous Membranes by Coaxial Electrospinning: *Weiwang Chen*[1]; Wenguo Weng[1]; [1]Tsinghua University

9:40 AM Invited
Stress-induced Synthesis and Processing of Functionally Designed Nanomaterials: *Hongyou Fan*[1]; [1]Sandia National Laboratories

10:20 AM Break

10:40 AM
Synthesis of Magnéli Phases Nano-titanium Suboxides by Thermal Plasma: Baoqiang Xu[1]; *Yousef Mohassab*[2]; Yuanpei Lan[1]; Hong Yong Sohn[1]; [1]University of Utah; [2]University of Utah

11:00 AM
Tailored Carbide Powder Morphologies: Synthesis and Mechanisms of Formation: *Tianqi Ren*[1]; Olivia Graeve[1]; [1]University of California, San Diego

11:20 AM
Large-scale Production of Three-dimensionally Tailored Nanofibrous Carbon Components Using Vapor-phase Deposition: *Roger Welsh*[1]; David Edwards[1]; Mark Atwater[1]; [1]Millersville University

11:40 AM
New Approach to Multifunctional Supramolecular Gels: *Bhanu Chauhan*[1]; Daniela Artiga[1]; Aarti Patel[1]; Erika Castelar[1]; [1]William Paterson University

Energy Storage VI: Materials, Systems and Applications Symposium — Other Innovative Energy Storage Systems

Program Organizers: Xingbo Liu, West Virginia University; Keeyoung Jung, Research Institute of Industrial Science and Technology (RIST); Yang-Tse Cheng, University of Kentucky

Thursday AM
October 27, 2016
Room: 250B
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM
Calorimetry Studies of High Temperature Thermal Storage Materials Used in Concentrated Solar Power (CSP) Systems: *Kristina Lilova*[1]; Link Brown[1]; [1]Setaram Inc.

8:20 AM
Encapsulation Strategy for Metallic Phase Change Materials Used for High-temperature Heat Storage: *Selmar Binder*[1]; Sophia Haussener[1]; [1]EPFL

8:40 AM
The Design and Performance of Metal Hydride Based Thermal Batteries: *Yanshan Lu*[1]; Chengshang Zhou[1]; Zhigang Zak Fang[1]; Min Zhu[2]; [1]Department of Metallurgical Engineering, The University of Utah; [2]School of Materials Science and Engineering and Guangdong Provincial Key Laboratory of Advanced Energy Storage Materials, South China University of Technology

9:00 AM
Reaction between LiBH4 and MgH_2 Induced by High-energy Ball Milling: *Zhao Ding*[1]; Leon L. Shaw[1]; [1]Illinois Institute of Technology

9:20 AM
Development of Highly Conductive Metal-containing Monolithic Hybrid Ceramics for Energy Applications: *Prabu Moni*[1]; Maurício Goraiebe Pollachini[1]; Michaela Wilhelm[1]; Kurosch Rezwan[1]; [1]University of Bremen

9:40 AM
Use of Embedded Electrodes to Resolve Anode and Cathode Electrode Polarizations in Proton Exchange Membrane Fuel Cells: *Alex Szendrei*[1]; Taylor Sparks[1]; Anil Virkar[1]; [1]University of Utah

Failure Analysis and Prevention — Tools and Techniques

Program Organizer: Burak Akyuz, ATS, Inc.

Thursday AM
October 27, 2016
Room: 150G
Location: Salt Palace Convention Center

Session Chairs: James Lane, Professional Analysis and Consulting; Mark Hood, Hood Engineering, LLC; Nicholas Cherolis, Baker Engineering and Risk Consultants; Jake Auliff, Danfoss Power Solutions (US) Company

8:00 AM Invited
Scanning Electron Microscopy/Energy Dispersive X-Ray Spectrometry (SEM/EDS) Elemental Microanalysis: Accuracy and Precision Beyond My Wildest Dreams!: *Dale Newbury*[1]; Nicholas Ritchie[1]; [1]National Institute of Standards and Technology

8:20 AM Invited
SEM Sample Chamber Secrets Revealed by On-X Backscatter: *Alan Stone*[1]; [1]ASTON Metallurgical Services Co., Inc.

8:40 AM Invited
SEM/EDS Elemental Microanalysis, Remarkably Quantitative, but Easy to Break: Cautions in Using Analytical Software: *Dale Newbury*[1]; Nicholas Ritchie[1]; [1]National Institute of Standards and Technology

9:00 AM
Analyzing Food Packaging with SEM/EDS and Raman Spectroscopy: *John Konopka*[1]; [1]Thermo Fisher Scientific

9:20 AM
Confocal Laser Scanning Microscopy of Fracture Surfaces and Fine Features of Aerospace Components: *Matthew Johnson*[1]; [1]Rolls-Royce Corporation

9:40 AM
Nanoscratch Characterization of Opaque Thin Films: *Lucas Berla*[1]; Evan Brown[1]; [1]Exponent

10:00 AM Break

10:20 AM
Use of Metallographic Replicas for Non-destructive Evaluation of Microstructure in Historical Ferrous Metal Building Structures: *Debbie Aliya*[1]; [1]Aliya Analytical, Inc.

10:40 AM
The Remaining Life Assessment of High Temperature Service Exposed Component by Metallographic Technique: *Dwarka Sahu*[1]; [1]JSW Steel Limited

11:00 AM
Use of Nonlinear Optics for Determination of Imminent Failure: *James Patterson*[1]; Shawn Averett[1]; Alex Farnsworth[1]; Steven Stanley[1]; [1]Brigham Young University

11:20 AM
On the Use of "Smart" Tools for Failure Detection & Prevention in Machineries: *Pierre Dupont*[1]; [1]Schaeffler Belgium Sprl/Bvba

11:40 AM
Remaining Life Assessment of Turbomachinery: *Donald Norsworthy*[1]; [1]VeriTech Labs, LLC

Gas/Metal Reactions, Diffusion and Phase Transformation during Heat Treatment of Steel — Session III

Program Organizer: Liang He, Air Products and Chemicals Inc.

Thursday AM
October 27, 2016

Room: 155E
Location: Salt Palace Convention Center

Session Chair: Christopher Mulligan, US Army ARDEC, Benét Laboratories

8:00 AM
Corrosion and Fatigue Behavior of ASTM A723 High-strength Steel Treated with a Zn-alloy Thermo-diffusion Coating: *Christopher Mulligan*[1]; Gregory Vigilante[1]; [1]U.S. Army ARDEC, Benét Laboratories

8:20 AM
Microstructural Characterisation and Transformation Mechanism of Inverse Bainite in Fe-0.8C-1Cr-1Mn Steel: *Rangasayee Kannan*[1]; Yiyu (Jason) Wang[1]; Leijun Li[1]; [1]Department of Chemical and Materials Engineering, University of Alberta

8:40 AM
Effects of Controlled Cooling during a Hot Rolling Process on the Mechanical Properties of Medium Carbon Steel: *Haley Doude*[1]; Dmitry Tsvetkov[2]; Hongjoo Rhee[1]; Andrew Oppedal[1]; [1]Mississippi State University; [2]Steel Dynamics, Inc.

9:00 AM
Study of Texture and Phase Transformation in an Experimental Duplex Stainless Steel during Rolling at Different Temperature: *Mohammad Masoumi*[1]; Francisco Reis[1]; Hamilton de Abreu[1]; [1]Universidade Federal do Ceara

9:20 AM
Understanding the Microstructure and Yield Strength Evolution during Coiling of a Direct Strip Casted Low Carbon Low Niobium Steel: *Thomas Dorin*[1]; Nicole Stanford[2]; Peter Hodgson[1]; [1]Deakin University; [2]Monash University

Glass, Amorphous, and Optical Materials: Common Issues within Science & Technology — Crystallization and Glass Transition of Glass Forming Melts

Program Organizers: Steve W. Martin, Iowa State University; Gang Chen, Ohio University

Thursday AM
October 27, 2016

Room: 255D
Location: Salt Palace Convention Center

Session Chair: Steve Martin, Iowa State University

8:00 AM Invited
Structure and Crystallization in Silicate Melts and Minerals: *John McCloy*[1]; [1]Washington State University

8:40 AM Invited
Single Crystal Growth from Glass via Solid-solid Transformation: Dmytro Savytskii[1]; Volkmar Dierolf[1]; *Himanshu Jain*[1]; [1]Lehigh University

9:20 AM Invited
Some New Twists on the Road to Understanding the Glass Transition in Condensed Matter, with Some Emphasis on ΔCp: C. Austen Angell[1]; [1]Arizona State University

10:00 AM Break

10:20 AM Invited
Compositional Dependence of Crystallization in Sodium Aluminosilicate Glasses: Ambar Deshkar[1]; Yaqoot Shaharyar[1]; Jose Marcial[2]; John McCloy[2]; *Ashutosh Goel*[1]; [1]Rutgers-The State University of New Jersey; [2]Washington State University

11:00 AM Invited
Grand Challenges in Glass Science: *John Mauro*[1]; [1]Corning Incorporated

Glass, Amorphous, and Optical Materials: Common Issues within Science & Technology — Mechanical Properties of Glass

Program Organizers: Steve W. Martin, Iowa State University; Gang Chen, Ohio University

Thursday AM
October 27, 2016

Room: 255A
Location: Salt Palace Convention Center

Session Chair: John Kieffer, University of Michigan

8:00 AM Invited
Two-point Bend Studies of Silicate Glass Strength and Fatigue: *Richard Brow*[1]; Erica Ronchetto[1]; Zhongzhi Tang[1]; [1]Missouri S&T

8:40 AM
Local Mechanical Properties of Compressive Stress Layer in Ion-exchanged Glass Measured Using Microcantilever Beam Specimens: *Junichi Tatami*[1]; Saho Fujita[1]; Motoyuki Iijima[1]; Tsukaho Yahagi[2]; Takuma Takahashi[2]; [1]Yokohama National University; [2]Kanagawa Academy of Science and Technology

9:00 AM
Predicting Fragmentation of Ion-exchanged Glass: *Kevin Strong*[1]; Thomas Buchheit[1]; Rajan Tandon[1]; S. Jill Glass[1]; Gregory Whiting[2]; [1]Sandia National Laboratories; [2]Palo Alto Research Center

9:20 AM
Correlating Structure and Mechanical Properties for Submicron Amorphous Silica Spheres: *Stefan Romeis*[1]; Patrick Herre[1]; Mirza Mackovic[2]; Jochen Schmidt[1]; Jonas Paul[1]; Dominique de Ligny[3]; Erdmann Spiecker[2]; Wolfgang Peukert[1]; [1]Institute of Particle Technology, Friedrich-Alexander-Universität Erlangen-Nürnberg; [2]Institute of Micro- and Nanostructure Research, Friedrich-Alexander-Universität Erlangen-Nürnberg; [3]Institute of Glass and Ceramics, Friedrich-Alexander-Universität Erlangen-Nürnberg

9:40 AM Invited
Strengthened Glass vs. Sapphire for Personal Electronic Communication Devices: *Arun Varshneya*[1]; Peter Bihuniak[2]; [1]Saxon Glass Technologies, Inc.; [2]Hidden Point Consulting

10:20 AM Break

10:40 AM
Water Sensitivity and Indentation Behavior of 20R2O·10Al2O3·70SiO2 Glasses: *Timothy Gross*[1]; [1]Corning Inc.

11:00 AM
Structure and Mechanical Properties of Compressed Sodium Aluminosilicate Glasses: *Tobias Bechgaard*[1]; Ashutosh Goel[2]; Randall Youngman[3]; John Mauro[3]; Sylwester Rzoska[4]; Michal Bockowski[4]; Lars Jensen[1]; Morten Smedskjaer[1]; [1]Aalborg University; [2]Rutgers, The State University of New Jersey; [3]Corning Incorporated; [4]Polish Academy of Sciences

Heterogeneity during Plastic Deformation – Synergy between Experimental Investigation and Simulation — Synergy Between Experiment and Simulation II

Program Organizers: Stephen Niezgoda, The Ohio State University; David Fullwood, Brigham Young University

Thursday AM
October 27, 2016

Room: 250F
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM Invited
Simulating Heterogeneous Deformation in Experimentally Characterized Microstructures in Commercial Purity Ti and a Ti Alloy: *Thomas Bieler*[1]; Harsha Phukan[1]; Chen Zhang[1]; Martin Crimp[1]; Philip Eisenlohr[1]; Carl Boehlert[1]; Leyun Wang[2]; Jonathan Lind[3]; Robert Suter[4]; Peter Kenesei[5]; Jun-Sang Park[5]; Ruxing Xu[5]; Wenjun Liu; Wenjun Liu[5]; [1]Michigan State University; [2]Shanghai Jiao Tong University; [3]Lawrence Livermore National Laboratory; [4]Carnegie Mellon University; [5]Argonne National Laboratory

8:40 AM
Influence of Grain Size and Crystallographic Orientation on Localized Plastic Strain Distribution in Polycrystalline Beta Titanium Alloys: Vahid Khademi[1]; Thomas Bieler[1]; Masahiko IKEDA[2]; *Carl Boehlert*[1]; [1]Michigan State University; [2]Kansai University

9:00 AM
Recrystallized Grain Size Distribution and Mechanical Response of Formed Components in Incoloy 800H: *Catherine Bishop*[1]; Shaun Mucalo[1]; Milo Kral[1]; [1]University of Canterbury

9:20 AM Invited
Microstructure and Mechanical Behavior of HCP/BCC Bulk Nanolaminate Composites Produced by Accumulative Roll Bonding: *Nathan Mara*[1]; Daniel Savage[2]; John Carpenter[1]; Rodney McCabe[1]; Thomas Nizolek[1]; Nan Li[1]; Sven Vogel[1]; Marko Knezevic[2]; Irene Beyerlein[1]; [1]Los Alamos National Laboratory; [2]University of New Hampshire

10:00 AM Break

10:20 AM
Experimental, Analytical & Numerical Studies on the Relation between R-value & Earing Profile in Deep Drawing: *Soheil Bakhshivash*[1]; Bagher MohammadSadeghi[1]; Farhad Rahimi[1]; Meysam Haghshenas[2]; [1]Iran University of Science & Technology; [2]University of North Dakota

10:40 AM
Study of Residual Stress in a Ti-7Al Alloy: *Kamalika Chatterjee*[1]; Armand Beaudoin[1]; [1]University of Illinois at Urbana-Champaign

High Temperature Corrosion of Structural Materials — Coatings and High Temperature Oxidation/Molten Salt Exposures and Other Testings

Program Organizers: Kinga Unocic, ORNL; Raul Rebak, GE Global Research

Thursday AM
October 27, 2016

Room: 250E
Location: Salt Palace Convention Center

Session Chairs: Bai Cui, University of Nebraska–Lincoln; David Shifler, Office of Naval Research; Kinga Unocic, ORNL

8:00 AM Invited
An Integrated Approach to the Problem of Silicate Attack on High Temperature Coatings: David Poerschke[1]; R. Wesley Jackson[1]; *Carlos Levi*[1]; [1]University of California, Santa Barbara

8:40 AM
Oxidation and Hot Corrosion Performance of Electrodeposited MCrAlY Coatings: *Ying Zhang*[1]; Brian Bates[2]; Jason Witman[2]; Jason Steward[2]; Sebastien Dryepondt[3]; Bruce Pint[3]; [1]Tennessee Technological University ; [2]Tennessee Technological University; [3]Oak Ridge National Laboratory

9:00 AM
Electrodeposited Inconel and Stellite like Coatings for Improved Corrosion Resistance in Biocombustors: *S. Lucatero*[1]; T. Hall[1]; E. Taylor[1]; M. Inman[1]; B. Skinn[1]; H. McCrabb[1]; [1]Faraday Technology, Inc.

9:20 AM
Near-surface Damage of Alloy 617 with and without Barrier Layers during Static and Cyclic Creep Deformation at 800°C in Impure He Environments.: *Alfred Okello*[1]; J Jones[2]; [1]Oak Ridge National Laboratory; [2]University of Michigan

9:40 AM
Life Extension of High Temperature Structural Alloys by Surface Engineering in Carburizing Atmospheres: *Anbo Wang*[1]; Richard Sisson, Jr.[1]; [1]Worcester Polytechnic Institute

10:00 AM Break

10:20 AM
Solubilities of Oxides in Molten Na_2SO_4: An Insight into Hot Corrosion: *Kliah Soto Leytan*[1]; Daniel Mumm[1]; [1]University of California-Irvine

10:40 AM
Stability of Cr Based Alloys in ZnCl2-based Molten Salts at High Temperature: *Pierre Lucas*[1]; Angharad Edwards[1]; Venkateswara Manga[1]; Krishna Muralidharan[1]; Pierre Deymier[1]; [1]University of Arizona

11:00 AM
Corrosion Behavior of Structural Materials for Use in Solar Thermal Molten Salt Power Plants: *Kodi Summers*[1]; Dev Chidambaram[1]; [1]University of Nevada, Reno

11:20 AM
Modeling the Kinetic Processes during Internal Oxidation of a Binary System: A Phase-field Approach: *Tianle Cheng*[1]; You-Hai Wen[2]; Jeffrey Hawk[2]; [1]National Energy Technology Laboratory / AECOM; [2]National Energy Technology Laboratory

11:40 AM
Developments of the Thermogravimetry Technique for High Temperature Oxidation and Corrosion Testing of Materials: *Kristina Lilova*[1]; Link Brown[1]; [1]Setaram Inc.

Interfaces, Grain Boundaries and Surfaces from Atomistic and Macroscopic Approaches -- Fundamental and Engineering Issues — Kinetics

Program Organizers: Wayne Kaplan, Technion - Israel Institute of Technology; Dominique Chatain, CNRS, Aix-Marseille University; John Blendell, Purdue University; Paul Wynblatt, Carnegie Mellon University

Thursday AM
October 27, 2016
Room: 251B
Location: Salt Palace Convention Center

Session Chairs: Dor Amram, MIT; Klaus van Benthem, University of California, Davis

8:00 AM Keynote
Stress Relaxation in Tin Thin Films: From Whiskers to Grain Growth: *Carol Handwerker*[1]; John Blendell[1]; Ying Wang[1]; Wei-Hsun Chen[1]; B.G. Yoo[2]; Oliver Kraft[2]; Stefano Curiotto[3]; Dominique Chatain[3]; Maureen Williams[4]; [1]Purdue University; [2]Karlsruhe Institute of Technology; [3]Aix Marseille Université; [4]National Institute of Standards and Technology

8:40 AM Invited
Modeling the Effect of Adsorption on the Kinetics of Grain Growth: *Dan Lewis*[1]; [1]Rensselaer Polytechnic Institute

9:00 AM Invited
Grain Growth Transitions in Perovskite Ceramics: *Wolfgang Rheinheimer*[1]; Michael Hoffmann[1]; [1]Karlsruhe Institute of Technology

Joining of Advanced and Specialty Materials (JASM XVIII) — Micro and Nano Joining

Program Organizers: Boian Alexandrov, The Ohio State University; Mathieu Brochu, McGill University; Akio Hirose, Osaka University; Anming Hu, University of Tennessee; Peng He, Harbin Insitute of Technology; Darren Barborak, AZZ|WSI; Bingtao Li, AZZ WSI; Xinjin Cao, Institute for Aerospace Research

Thursday AM
October 27, 2016
Room: 155B
Location: Salt Palace Convention Center

Session Chairs: Peng He, Harbin Institute of Technology; Tomokazu Sano, Osaka University

8:00 AM Invited
Soldering and Brazing Microelectronic Components without Thermal Damage: *Timothy Weihs*[1]; [1]Johns Hopkins University

8:40 AM Invited
Stereolithographic Additive Manufacturing of Metal Photonic Crystals for Terahertz Wave Modulation: *Soshu Kirihara*[1]; [1]Osaka University

9:00 AM
A Preliminary Research of Microstructure and Properties of Li-Ti Ferrite Joints Fabricated by Brazing Technique with Bismuthate Glass Solder: *Peng He*[1]; [1]Harbin Insitute of Technology

9:20 AM
Deposition of Reactive Multilayer Films for Nanojoining: *Ying Ma*[1]; Hong Li[1]; Anming Hu[1]; [1]Beijing University of Technology

9:40 AM
Optimization of Formate Coating Conditions on Cu Powder and Its Application for Solid-state Bonding of Cu/Cu Interface and Persistence of Reformed Layer: *Shunya Saijo*[1]; Shinji Koyama[1]; [1]Gunma University

10:00 AM Break

10:20 AM Invited
Atomistic Simulations on the Sintering of Cu-Ag Core-shell Structures: Part 1 Theory and Approach: *Seungha Shin*[1]; Jiaqi Wang[1]; [1]University of Tennessee

10:40 AM
Reduction Behavior of CuO Paste during Cu-to-Cu Bonding: Takafumi Yao[1]; *Tomokazu Sano*[1]; Tomoki Matsuda[1]; Akio Hirose[1]; Katsunori Ishii[1]; Chiaki Morikawa[2]; Atsushi Ohbuchi[2]; Hisashi Yashiro[2]; [1]Osaka University; [2]Rigaku Corporation

11:00 AM
Bonding of Al Alloy Utilizing Instantaneous Melting by Multiple-reactions Combining Combustion Synthesis with Thermite Reaction: *Tomoki Matsuda*[1]; Tomokazu Sano[1]; Akio Hirose[1]; [1]Osaka University

11:20 AM
Room Temperature Molecular Dynamics Simulations on the Sintering of Cu-Ag Core-shell Structures: Nanoparticles and Nanowires: *Jiaqi Wang*[1]; Seungha Shin[1]; [1]University of Tennessee

11:40 AM
High Performance Micro-supercapacitors on Flexible Polyimide Sheets Using Femtosecond Laser Writing and Au Coating: *Anming Hu*[1]; Shutong Wang[1]; Yongchao Yu[1]; Denzel Bridges[1]; Delong Ma[1]; Guoying Feng[2]; [1]University of Tennessee; [2]Sichuan University

Joining of Advanced and Specialty Materials (JASM XVIII) — Welding Processes and Weld Properties

Program Organizers: Boian Alexandrov, The Ohio State University; Mathieu Brochu, McGill University; Akio Hirose, Osaka University; Anming Hu, University of Tennessee; Peng He, Harbin Insitute of Technology; Darren Barborak, AZZ|WSI; Bingtao Li, AZZ WSI; Xinjin Cao, Institute for Aerospace Research

Thursday AM
October 27, 2016
Room: 155C
Location: Salt Palace Convention Center

Session Chairs: Judy Schneider, University of Alabama in Huntsville; Zhenzhen Yu, Metallurgical and Materials Engineering

8:00 AM Invited
Dissimilar Friction Welding of Stainless Steel to 1018 Steel: *Zhenzhen Yu*[1]; Nathan Switzner[1]; Michael Eff[2]; Thomas Lienert[3]; Stephen Liu[1]; [1]Colorado School of Mines; [2]EWI; [3]Los Alamos National Laboratory

8:20 AM
Dissimilar Friction Welding of Titanium Alloy to Nickel Alloy Using Insert Metal: *Tomo Ogura*[1]; Takahiro Matsumura[1]; Tomoya Imai[1]; Kazuyoshi Saida[1]; [1]Osaka University

8:40 AM
Fatigue Behaviour of AL-6XN Super Austenitic Stainless Steel Welds: *Iván Cortés-Cervantes*[1]; Víctor López-Morelos[1]; Yukio Miyashita[2]; Carlos León[1]; Alberto Ruiz[1]; [1]Instituto de Investigación en Metalurgia y Materiales; [2]Nagaoka University of Technology

9:00 AM
Characterization of Fatigue Damage in Dissimilar Friction Stir Welded Aluminum-to-Magnesium alloys: H. Rao[1]; *JB Jordon*[1]; W Yuan[2]; [1]The University of Alabama; [2]Hitachi America Ltd.

9:20 AM
Improvement of Fatigue Properties of Laser-welded 2024-T3 Aluminum Alloy Using Femtosecond Laser Peening: *Takayuki Eimura*[1]; Tomokazu Sano[1]; Akio Hirose[1]; Seiichirou Tsutsumi[1]; Masami Mizutani[1]; Yousuke Kawahito[1]; Seiji Katayama[1]; Kazuto Arakawa[2]; Ayumi Shiro[3]; Takahisa Shobu[3]; Kiyotaka Masaki[4]; Yuji Sano[5]; [1]Osaka University; [2]Shimane University; [3]Japan Atomic Energy Agency; [4]Okinawa National College of Technology; [5]Toshiba Corporation

9:40 AM
Factors Affecting Grain Size in High Frequency Welding: *Lesley Frame*[1]; Olexandra Tupalo[1]; [1]Thermatool Corp.

10:00 AM Break

10:20 AM
Microstructure-property Relations in Arc Welded High Strength Low Alloy Steel Plates for Haul Truck Applications: Emanuel Santos[1]; Adrian Gerlich[1]; *Sashank Nayak*[2]; [1]University of Waterloo; [2]Hitachi Construction Truck Manufacturing Ltd.

10:40 AM
Finite Element Analysis of Groove Shrinkage in Muti-pass Circumferential Welding with Narrow Gap: *Hisashi Serizawa*[1]; Ryosuke Doi[1]; Hidekazu Murakawa[1]; [1]Osaka University

11:00 AM
Three-dimensional Numerical Simulations of Keyhole Behavior and Molten Pool Dynamics in Laser Welds Based on Thermal-hydraulic: *Qiaofeng Zhou*[1]; Katsuma Horio[1]; Fumikazu Miyasaka; Hiroaki Mori[1]; Masami Mizutani[1]; Yosuke Kawahito[1]; Seiji Katayama[1]; [1]Osaka University

11:20 AM
Effect of Hydrogen Dissolution on Advanced Welding Flux Design for High Strength Steels: *Sunghoon Chung*[1]; Il Sohn[1]; [1]Yonsei University, Seoul

11:40 AM
Optimization of Electron Beam Welding Parameters for Ti-6Al-4V Alloy by Using Taguchi Method: *Sandeep Thakare*[1]; N Prabhu[2]; Rajkumar Singh[1]; [1]Bharat Forge Limited; [2]Indian Institute of Technology Bombay

Materials Development for Nuclear Applications and Extreme Environments — Irradiation Effects in Nuclear Materials

Program Organizers: Raghunath Kanakala, University of Idaho; Nan Li, Los Alamos National Laboratory; Todd Allen, Idaho National Laboratory; Jake Amoroso, Savannah River National Laboratory; Aladar Csontos, Nuclear Regulatory Commission; Lingfeng He, Idaho National Laboratory; Yutai Katoh, Oak Ridge National Laboratory; Josef Matyas, Pacific Northwest National Laboratory; Amit Misra, University of Michigan; Raul Rebak, GE Global Research; Kumar Sridharan, University of Wisconsin

Thursday AM — Room: 250A
October 27, 2016 — Location: Salt Palace Convention Center

Session Chairs: Raghunath Kanakala, University of Idaho; Cory Trivelpiece, Savannah River National Laboratory

8:00 AM Invited
Polygonization in Nuclear Materials: *Thierry Wiss*[1]; Oliver Dieste[1]; Rudy Konings[1]; Vincenzo Rondinella[1]; Ondrej Benes[1]; Jean-Yves Colle[1]; Dragos Staicu[1]; Paul Van Uffelen[1]; Mara Marchetti[1]; Fabiola Cappia[1]; Joe Somers[1]; [1]European Commission - JRC-ITU

8:40 AM
Helium Retention in Various Grades of Tungsten: *Chase Taylor*[1]; Osman El-Atwani[2]; James Frishkoff[2]; Wayne Harlow[2]; Mitra Taheri[2]; [1]Idaho National Laboratory; [2]Drexel University

9:00 AM
Damage Accumulation in Ni-based Concentrated Solid-solution Alloys under Prolonged Irradiation: *Mohammad W. Ullah*[1]; Yanwen Zhang[1]; William J. Weber[1]; [1]Oak Ridge National Laboratory

9:20 AM
Neutron Irradiation of Ti3AlC2 -Ti5Al2C3 and Ti3SiC2 Materials: *Caen Ang*[1]; Chad Parish[1]; Chinthaka Silva[1]; Chunghao Shih[2]; Steven Zinkle[3]; Yutai Katoh[1]; [1]ORNL; [2]General Atomics; [3]University of Tennessee

9:40 AM
Characterizing Ion Irradiation Damage in Structural Metals using Spherical Nanoindentation Stress-Strain Curves: *Jordan Weaver*[1]; Cheng Sun[1]; Siddhartha Pathak[2]; Yongqiang Wang[1]; Ashley Reichardt[3]; Peter Hosemann[3]; Nathan Mara[1]; [1]Los Alamos National Laboratory; [2]University of Nevada Reno; [3]University of California Berkeley

10:00 AM Break

10:20 AM
Cluster Evolution in F/M Alloys upon Neutron, Proton, and Self-ion Irradiation: *Matthew Swenson*[1]; Janelle Wharry[1]; [1]Boise State University

10:40 AM
Thermal Conductivity of Multiphase Ceramics for an Inert Matrix Fuel: *Austin Travis*[1]; Keyur Karandikar[2]; Andrew Nelson[3]; Olivia Graeve[2]; Martha Mecartney[1]; [1]University of California, Irvine; [2]University of California, San Diego; [3]Los Alamos National Laboratory

11:00 AM
Effects of Ion-irradiation Damage on Mechanical Behavior in Silicon Carbide: *Helen Pratt*[1]; David Armstrong[2]; Steve Roberts[3]; [1]Department of Materials, University of Oxford ; [2]Department of Materials, University of Oxford; [3]Department of Materials, University of Oxford; Culham Centre for Fusion Energy

11:20 AM
Radiation Damage Behavior in Multiphase Ceramics: *Kenta Ohtaki*[1]; Maulik Patel[2]; Christina Trautmann[3]; Martha Mecartney[1]; [1]University of California, Irvine; [2]University of Tennessee, Knoxville; [3]Technische Universität, Darmstadt

11:40 AM
Irradiation Induced Defects in Titanium Dioxide for Energy Storage Applications: *Kassiopeia Smith*[1]; Claire Xiong[1]; Darryl Butt[1]; Janelle Wharry[1]; [1]Boise State University

12:00 PM
Grain Boundary Dependence of Radiation Induced Damage in Nanocrystalline Nickel and Nickel-chromium Thin Films: *James Nathaniel*[1]; Mitra Taheri[1]; Khalid Hattar[2]; Asher Leff[1]; Osman El-Atwani[1]; [1]Drexel University; [2]Sandia National Laboratory

Materials Issues in Nuclear Waste Management in the 21st Century — The Impact of Extended Dry Storage on Used Nuclear Fuel

Program Organizers: Josef Matyas, Pacific Northwest National Laboratory; Jake Amoroso, Savannah River National Laboratory; Isabelle Giboire, CEA Marcoule; Raghunath Kanakala, University of Idaho; Yutai Katoh, Oak Ridge National Laboratory; Stefan Neumeier, Forschungszentrum Juelich GmbH; David Shoesmith, Western University; Kumar Sridharan, University of Wisconsin; David Enos, Sandia National Laboratories; Charles Bryan, Sandia National Laboratories

Thursday AM
October 27, 2016

Room: 251D
Location: Salt Palace Convention Center

Session Chairs: David Enos, Sandia National Laboratories; Charles Bryan, Sandia National Laboratories

8:00 AM
Chemical and Physical Environment on the Surface of SNF Interim Storage Canisters: *Charles Bryan*[1]; David Enos[1]; [1]Sandia National Laboratories

8:20 AM
Understanding the Risk of Chloride Induced Stress Corrosion Cracking of Interim Storage Containers for the Dry Storage of Spent Nuclear Fuel: Residual Stresses in Typical Welded Containers: *David Enos*[1]; Charles Bryan[1]; [1]Sandia National Laboratories

8:40 AM
Chloride-induced Stress Corrosion Cracking (CISCC) Aging Management Guidelines and Inspection Capabilities: *Shannon Chu*[1]; Jeremy Renshaw[1]; [1]Electric Power Research Institute

9:00 AM
An Integrated Computational Materials Engineering (ICME) Model of Chloride Induced Stress Corrosion Cracking in Dry Canister Storage Systems of Spent Nuclear Fuel: *Jifeng Zhao*[1]; Jiadong Gong[1]; Ricardo Komai[1]; [1]QuesTek

9:20 AM
Modeling the Long Term Degradation of Used Nuclear Fuel Canisters: *Ram Devanathan*[1]; Philip Jensen[1]; [1]Pacific Northwest National Laboratory

9:40 AM
Key Data Gaps in Assessing the Chloride Induced Stress Corrosion Cracking of Interim Storage Containers for Spent Nuclear Fuel: *David Enos*[1]; Charles Bryan[1]; [1]Sandia National Laboratories

10:00 AM Break

10:20 AM
SCC Detection and Life Predication for Nuclear Waste Management Using PGAA and NAA: *Zeev Shayer*[1]; Jason Brookman[1]; [1]Colorado School of Mines

10:40 AM
Innovative Approaches to Marine Atmospheric Stress Corrosion Cracking Inspection, Evaluation and Modeling in Used-fuel Dry Storage Canisters: *David Olson*[1]; Zeev Shayer[1]; Stephen Liu[1]; Zhenzhen Yu[1]; Korukonda Murty[2]; Nilesh Kumar[2]; Djamel Kaoumi[3]; Sylvain Depinoy[3]; Brian Anderson[4]; Timothy Ulrich[5]; Charles Bryan[6]; David Enos[6]; Jonathan Almer[7]; Jeffery Johns[8]; Donald Lewis[8]; [1]Colorado School of Mines; [2]North Carolina State University; [3]University of South Carolina; [4]Brigham Young University; [5]Los Alamos National Laboratory; [6]Sandia National Laboratory; [7]Argonne National Laboratory; [8]CB&I

11:00 AM
Estimating Bounding Corrosion Pit Sizes on Stainless Steel SNF Interim Storage Canisters: *Charles Bryan*[1]; David Enos[1]; Remi Dingreville[1]; [1]Sandia National Laboratories

Materials Property Understanding through Characterization — Metals II

Program Organizers: Indrajit Dutta, Corning Incorporated; Brian Strohmeier, US Steel; Nicholas Smith, Corning Incorporated

Thursday AM
October 27, 2016

Room: 251C
Location: Salt Palace Convention Center

Session Chair: Indrajit Dutta, Corning Incorporated

8:00 AM
Determination of Critical Resolved Shear Stress Ratios for Hexagonal Deformation Systems from Surface Slip Trace Analysis: Hongmei Li[1]; Indraroop Dastidar[1]; Vahid Khademi[1]; *Philip Eisenlohr*[1]; Darren Mason[2]; Thomas Bieler[1]; Martin Crimp[1]; Carl Boehlert[1]; [1]Michigan State University; [2]Albion College

8:20 AM
Deformation Induced Austenite Formation in As-cast 2101 Duplex Stainless Steel and Its Effect on Hot-ductility: *Sudipta Patra*[1]; Debalay Chakrabarti[1]; Lokesh Singhal[2]; [1]Indian Institute of Technology, Kharagpur; [2]Jindal Stainless Limited

8:40 AM
Effect of Microstructural Boundaries of Low-carbon Lath Martensitic Steel in Cleavage Fracture Resistance: *Arya Chatterjee*[1]; Abhijit Ghosh[1]; Rahul Mitra[1]; Debalay Chakrabarti[1]; [1]Indian Institute of Technology Kharagpur

9:00 AM
Surface Chemistry Changes that Occur during a Reforming Process in Borosilicate Glass: *Christy Chapman*[1]; [1]Corning Incorporated

9:20 AM
Effect of Microstructure-texture-residual Stress on Mechanical Properties of Thermo-mechanically Treated (TMT) Reinforcement Steel Bars: *Md. Basiruddin Sk.*[1]; Debalay Chakrabarti[1]; Saurabh Kundu[2]; [1]IIT Kharagpur; [2]Tata Steel

9:40 AM
Effect of Secondary Phase Precipitation on Impact Toughness of Duplex Stainless Steel: *Amit Powar*[1]; Amol Gujar[1]; Niketan Manthani[1]; Vinayak Pawar[1]; RKP Singh[1]; [1]Bharat Forge Ltd.

Mechanochemical Synthesis and Reactions in Materials Science — Applications

Program Organizers: Antonio Fuentes, Cinvestav del IPN; Laszlo Takacs, University of Maryland Baltimore County; Challapalli Suryanarayana, University of Central Florida; Jacques Huot, UQTR

Thursday AM
October 27, 2016

Room: 155A
Location: Salt Palace Convention Center

Session Chairs: Laszlo Takacs, University of Maryland Baltimore County; Antonio Fuentes, Cinvestav del IPN

8:00 AM Invited
Magnetic Nanostructured Powders Investigated by 57Fe Mössbauer Spectrometry: *Jean-Marc Greneche*[1]; [1]IMMM CNRS-Université du Maine

8:40 AM
Deepening the Insight into the Kinetics of Mechanically Activated Transformations: *Sebastiano Garroni*[1]; Giorgio Ligios[2]; Andrea Porcheddu[2]; Francesco Delogu[2]; [1]University of Sassari; [2]University of Cagliari

9:00 AM Invited
Radiation Effects in Pyrochlore Oxides: *Maik Lang*[1]; Cameron Tracy[2]; Jacob Shamblin[1]; Christina Trautmann[3]; Rodney Ewing[2]; [1]University of Tennessee; [2]Stanford University; [3]GSI Helmholtzzentrum für Schwerionenforschung

9:20 AM Invited
Preparation of Coatings Using Ball Milling: *Laszlo Takacs*[1]; Aghasi Torosyan[2]; Ádám Révész[3]; [1]University of Maryland Baltimore County; [2]Richter Precision Inc.; [3]Eötvös University

9:40 AM
Direct In-situ Analysis of Milling Reactions: A Look in the Blackbox: Lisa Batzdorf[1]; Franziska Fischer[1]; Manuel Wilke[1]; *Anke Kabelitz*[1]; Klaus-Jürgen Wenzel[1]; Franziska Emmerling[1]; [1]Federal Institute for Materials Research and Testing

10:00 AM Break

10:20 AM Invited
Synthesis of Nanocrystalline Iron Nitrides Using a Two-step Reactive Milling and High Pressure Spark Plasma Sintering: *Baolong Zheng*[1]; Yizhang Zhou[1]; Stanley Atcitty[2]; Enrique Lavernia[1]; Todd Monson[2]; [1]University of California; [2]Sandia National Laboratories

10:40 AM
On Step Mechanosynthesis of Chloride Intercalated Ca-Al Layered Double Hydroxide: *Abbas Fahami*[1]; Gary W. Beall[1]; [1]Texas State University

11:00 AM
Catalytic Gas Phase Reactions in Ball Mills: *Hannah Schreyer*[1]; Rene Eckert[1]; Michael Felderhoff[1]; Ferdi Schüth[1]; [1]Max-Planck-Institut für Kohlenforschung

11:20 AM
Mechanochemical Prospects in Wet Stirred Media Milling: *Stefan Romeis*[1]; Jochen Schmidt[1]; Larissa Wegener[1]; Alexander Strobel[1]; Wolfgang Peukert[1]; [1]Institute of Particle Technology, Friedrich-Alexander-Universität Erlangen-Nürnberg

11:40 AM
Building Synergies between Molten Salt Synthesis, and Mechanical Milling: Preparation of Nanometric LaAlO3 Powders at Very Low Temperatures: Esmeralda Mendoza-Mendoza[1]; Sagrario Montemayor[1]; *Antonio Fuentes*[2]; [1]CIQA; [2]Cinvestav del IPN

Modeling of Multi-Scale Phenomena in Materials Processing and Advanced Manufacturing — Predicting Deformation, Damage, and Failure Through Multi-scale Modeling/Modeling of Microstructural Evolution

Program Organizers: Adrian Sabau, Oak Ridge National Laboratory; Anthony Rollett, Carnegie Mellon University; Laurentiu Nastac, The University of Alabama; Mei Li, Ford Motor Company; Ashley Spear, University of Utah

Thursday AM
October 27, 2016

Room: 253B
Location: Salt Palace Convention Center

Session Chairs: Anthony Rollett, Carnegie Mellon University; Adrian Sabau, Oak Ridge National Laboratory; Laurentiu Nastac, The University of Alabama; Ashley Spear, University of Utah

8:00 AM Invited
Unraveling the Temperature Dependence of the Yield Strength in Single-crystal Tungsten from Atomistically-informed Crystal Plasticity Calculations: *Jaime Marian*[1]; [1]University of California Los Angeles

8:20 AM
Lattice Correspondence Analysis of {10-12}<10-1-1> Twinning in Magnesium Using Atomistic Simulations: *Qiwei Zhang*[1]; Bin Li[1]; [1]UNR

8:40 AM
Microscale Modeling of Additive Manufactured Ti-6Al-4V's Response and Failure: *John Moore*[1]; Nathan Barton[1]; Jeff Florando[1]; Rupalee Mulay[1]; Mukul Kumar[1]; [1]Lawrence Livermore National Laboratory

9:00 AM
Calibration of Constitutive Models Used for Powder Compaction Process: Different Strategies and Related Difficulties: *Vladimir Buljak*[1]; Shwetank Pandey[1]; Milorad Milovancevic[1]; [1]University of Belgrade

9:20 AM
Modelling the Influence of Proximal Phases in Nano-indentation of Metallic Glass Matrix Composites: *Casey Messick*[1]; Jonathan Gentile[2]; Jason Trelewicz[2]; Eric Homer[1]; [1]Brigham Young University; [2]Stony Brook University

9:40 AM
Arresting Deleterious Particle Growth: A Phase Field Study of Mechanisms : *Trevor Keller*[1]; Jonathan Guyer[1]; [1]National Institute of Standards and Technology

10:00 AM Break

10:20 AM
Modelling of Martensitic Transformation in Gear Steels: *Hemantha Yeddu*[1]; Brian Shaw[1]; [1]Newcastle University

10:40 AM
Multiscale Modeling of Additive Manufacturing: *Matthew Rolchigo*[1]; Michael Mendoza[1]; Peter Collins[1]; Richard LeSar[1]; [1]Iowa State University

11:00 AM
Secondary Steelmaking CAS-OB Process Kinetic Model: *Fuzhong Ji*[1]; Andrew Smith[1]; Alun Thomas[2]; Zushu Li[3]; Wouter Tiekink[4]; [1]Materials Processing Institute; [2]Tata Steel UK; [3]Formerly Tata Steel UK; [4]Tata Steel EU

11:20 AM
Implementation of a Coupled Read-Shockley Q-state Monte Carlo into the SPPARKS Framework to Simulate Magnetic Field Influence on Textures: *Efrain Hernandez-Rivera*[1]; Mark Tschopp[1]; Jeffrey Allen[2]; [1]U.S. Army Research Lab; [2]U.S. Army Engineer Research and Development Center

Multifunctional Oxides — Novel Synthesis II

Program Organizers: Quanxi Jia, Los Alamos National Laboratory; Chonglin Chen, University of Texas at San Antonio; Judith MacManus-Driscoll, University of Cambridge; Xiaoqing Pan, University of California - Irvine

Thursday AM
October 27, 2016
Room: 255C
Location: Salt Palace Convention Center

Session Chairs: Shinbuhm Lee, Daegu Gyungbook Institute of Science and Technology; Yuan Lin, University of Electronic Science and Technology of China

8:00 AM Invited
Black TiO2 Synthesized by Laser Melting with Novel Structure and Photoelectrical Properties: *Jing Ma*[1]; Lu Song[1]; Zhijian Shen[1]; Ce-wen Nan[1]; [1]Tsinghua University

8:20 AM Invited
Epitaxial Growth of VO_2 Polymorphs: *Shinbuhm Lee*[1]; Ho Nyung Lee[2]; [1]Daegu Gyungbook Institute of Science and Technology; [2]Oak Ridge National Laboratory

8:40 AM Invited
Growth of Wafer-scaled VO_2 Thin Films Using a Chemical Solution Approach: *Yuan Lin*[1]; Weizheng Liang[1]; Chang Lu[1]; Min Gao[1]; Chonglin Chen[2]; [1]University of Electronic Science and Technology of China; [2]Department of Physics and Astronomy, University of Texas at San Antonio

9:00 AM Invited
Evolution of Filaments and Electromagnetic Coupling in the Resistive Switching of NiO: *Yonggang Zhao*[1]; [1]Tsinghua University

Nanomaterials Working in the Near-infrared: Biomedical Applications — Multifunctional Architectures & Nanothermometry II

Program Organizers: Antonio Benayas, Institut National de la Recherche Scientifique; Luis Carlos, Universidade de Aveiro; Fiorenzo Vetrone, Intitut national de la recherche scientifique; Marta Quintanilla, CICbiomagune; Daniel Jaque García, Universidad Autónoma de Madrid; Artiom Skripka, Institut National de la Recherche Sscientifique

Thursday AM
October 27, 2016
Room: 260A
Location: Salt Palace Convention Center

Funding support provided by: Millipore Sigma and Photon etc.

Session Chairs: Mikhail Berezin, Washington University in St. Louis; Guosong Hong, Harvard University; Karla Santacruz Gómez, Universidad de Sonora

8:00 AM Keynote
Intracellular Thermometry with Fluorescent Polymeric Thermometers: *Seiichi Uchiyama*[1]; [1]University of Tokyo

8:40 AM Invited
Near-infrared Emitting Rare-earth Doped Garnets for Nanothermometry and Nanoheating Applications in Biomedicine: *Victor Lavin*[1]; Ulises Rodriguez-Mendoza[1]; Inocencio Martin[1]; [1]Universidad de La Laguna

9:00 AM Invited
Luminescent Nanoplatforms as Magnetic Theranostic Agents: *Carlos Brites*[1]; Rafael Piñol[2]; Angel Millan[2]; Luís Carlos[1]; [1]CICECO-Aveiro Institute of Materials, University of Aveiro; [2]ICMA, University of Zaragoza

9:20 AM Invited
A Hybrid Nanomaterial with Magnetic and Luminescent Properties: Proof of Concept Study for Biomedical Applications: Dirk Ortgies[1]; Leonor de la Cueva[2]; David Cabrera[2]; Francisco Terán[2]; Emma Martín Rodríguez[1]; *Gorka Salas*[2]; [1]Universidad Auto´noma de Madrid; [2]IMDEA Nanociencia

9:40 AM
Synthesis and Characterization of Multifunctional (Superparamagnetic and Upconversion) Core/Shell/Shell Nanoparticles for Biomedical Applications: *Fan Yang*[1]; Fuqiang Ren[1]; Xinyu Liu[2]; Fiorenzo Vetrone[1]; Dongling Ma[1]; [1]EMT-INRS; [2]McGill University

10:00 AM Break

10:20 AM Keynote
Luminescent Materials for Biophotonics in OTN-NIR Biological Window: *Kohei Soga*[1]; Masao Kamimura[1]; [1]Tokyo University of Science

Next Generation Biomaterials — Session VI

Program Organizers: Roger Narayan, UNC/NCSU Joint Department of Biomedical Engineering; Sharmila Mukhopadhyay, Wright State University; Sundeep Mukherjee, University of North Texas

Thursday AM
October 27, 2016

Room: 259
Location: Salt Palace Convention Center

Session Chairs: Nida Iqbal, Universiti Teknologi Malaysia; Jae-Chul Pyun, Yonsei University

8:00 AM Invited
Preparation and Characterizations of Nano Composites Based on Biphasic Mixture of Bioactive Ceramics for Biomedical Applications: *Nida Iqbal*[1]; Mohammed Rafiq Abdul Kadir[1]; [1]Universiti Teknologi Malaysia

8:40 AM
CVD Grown Anti-inflammatory Cerium Oxide Coatings for Orthopedic Implants: *Ankur Gupta*[1]; Soumen Das[1]; Sudipta Seal[1]; [1]University of Central Florida

9:00 AM
Nanostructured Amorphous Magnesium Phosphate/Poly (Lactic Acid) Composite Coating for Enhanced Corrosion Resistance and Bioactivity of Biodegradable AZ31 Magnesium Alloy: *Yufu Ren*[1]; Elham Babaie[1]; Sarit B. Bhaduri[1]; [1]University of Toledo

9:20 AM
Effects of Forming Voltage on Surface Characteristics and Shear Strength of Anodized Titanium: *Sakshi Jain*[1]; Scott Williamson[1]; Michael Roach[1]; [1]University of Mississippi Medical Center

9:40 AM
Laser Desorption/Ionization (LDI) Mass Spectrometry Based on Nanomaterials for Biomedical Applications: *Jae-Chul Pyun*[1]; [1]Yonsei University

10:00 AM Break

10:20 AM
Electrophoretic Deposition of Functionalized Graphene on Ti6Al4V Alloy for Biomedical Applications: *Hassnain Asgar*[1]; Zia Ur Rahman[1]; Umair Shah[1]; Mohsin Raza[1]; Kashif Deen[1]; Waseem Haider[1]; [1]Central Michigan University

10:40 AM
Comparison of Annealing and Hot Isotactic Pressing for Post Processing Heat Treatment of Direct Metal Laser Sintered Ti6Al4V: *Yangzi Xu*[1]; Yuan Lu[1]; Jianyu Liang[1]; Richard Sisson[1]; [1]Worcester Polytechnic Institute

11:00 AM
A New Method to Produce Macroporous Bone Cement: *Elham Babaie*[1]; Sarit Bhaduri[1]; [1]University of Toledo

11:20 AM Invited
Investigation of Corrosion-assisted Cracking of Magnesium Alloys under Appropriate Mechano-Chemical Conditions for Bio-implant Applications: *RK Singh Raman*[1]; [1]Monash University

Phase Stability, Diffusion Kinetics, and Their Applications (PSDK-XI) — General Session III

Program Organizers: James Saal, QuesTek Innovations; Yu Zhong, Florida International University; Ji-Cheng Zhao, The Ohio State University; Nagraj Kulkarni, Knoxville, TN

Thursday AM
October 27, 2016

Room: 155D
Location: Salt Palace Convention Center

Session Chairs: James Saal, QuesTek Innovations; Yu Zhong, Florida International University

8:00 AM Invited
Development of a Mobility Database for the γ Phase in the Co-rich Co-Al-W-Ni System: *Kil-Won Moon*[1]; Carelyn Campbell[1]; Maureen Williams[1]; [1]National Institute of Standards and Technology

8:40 AM
Precipitate Coarsening in Gamma-gamma Prime Nickel-base Superalloys with Low Interphase Interfacial Energies: *Subhashish Meher*[1]; Laura Carroll[1]; Tresa Pollock[2]; Mark Carroll[1]; [1]Idaho National Laboratory; [2]University of california Santa Barbara

9:00 AM
Using DFT Calculations of the Vacancy Formation Energy to Inform the Assessment of the C-Zr Phase Diagram: *Theresa Davey*[1]; Andrew Duff[1]; Suzana Fries[2]; Michael Finnis[1]; [1]Imperial College London; [2]Ruhr-Universität Bochum

9:20 AM
Atomistic Simulation of Pipe Diffusion in Aluminum and Copper: *Siavash Soltani*[1]; Niaz Abdolrahim[2]; Panthea Sepehrband[1]; [1]Santa Clara University; [2]University of Rochester

9:40 AM
Interdiffusion, Crystallography and Mechanical Properties of Ni-Mn-Ga Alloys: *Le Zhou*[1]; Anit Giri[2]; Kyu Cho[3]; Yongho Sohn[1]; [1]University of Central Florida; [2]TKC Global ; [3]US Army Research Laboratory

10:00 AM Break

10:20 AM
Phase Stabilities of Ti Bio-implant Materials with a Focus on Thermodynamic Modeling of bcc, α" and ω phases: *Cassie Marker*[1]; Shun-Li Shang[1]; Ji-Cheng Zhao[2]; Zi-Kui Liu[1]; [1]The Pennsylvania State University; [2]The Ohio State Universtiy

10:40 AM
Investigation of Mn-YSZ Conductivity by Applying the CALPHAD Approach: *Mohammad Asadikiya*[1]; Prabhakar Singh[2]; Yu Zhong[1]; [1]Florida International University; [2]University of Connecticut

Recent Development in Additive Manufacturing: Process and Equipment Development and Applications — Diverse and Disruptive Applications of Additive Manufacturing

Program Organizers: Jing Zhang, Indiana University - Purdue University Indianapolis; Balraj Mani, New Jersey Institute of Technology; Johannes Homa, Lithoz GmbH; Kim Brand, 3D Parts Manufacturing, LLC; Xinghua Yu, Oak Ridge National Laboratory; Yeongil Jung, Changwon National University; Nuggehalli Ravindra, New Jersey Institute of Technology

Thursday AM
October 27, 2016

Room: 258
Location: Salt Palace Convention Center

Session Chairs: Jing Zhang, Indiana University - Purdue University Indianapolis; Balraj Mani, New Jersey Institute of Technology

8:00 AM Keynote
Suspension-based Additive Manufacturing of Ceramic and Metal-ceramic Components: *Uwe Scheithauer*[1]; Eric Schwarzer[1]; Steven Weingarten[1]; Hans-Jürgen Richter[1]; Tassilo Moritz[1]; Alexander Michaelis[1]; [1]Fraunhofer Institute for Ceramic Technologies and Systems IKTS

8:40 AM
Toward Predicting Rapidly Solidified Microstructures of Metallic Alloys: John Roehling[1]; Aurelien Perron[1]; Jean-Luc Fattebert[1]; Patrice Turchi[1]; *Joseph McKeown*[1]; [1]Lawrence Livermore National Laboratory

9:00 AM
Additive Manufacturing of Catalyst Substrates for Steam-methane Reforming: *Matthew Watson*[1]; Michelle Kramer[1]; Emily McKelvie[1]; [1]University of Canterbury

9:20 AM
Challenges Adopting Additive Manufacturing Processes into Mining and Energy Applications: *Tonya Wolfe*[1]; Gary Fisher[1]; Hani Henein[2]; [1]Alberta Innovates - Technology Futures; [2]University of Alberta

9:40 AM
Comparative Study of Mechanical Properties of 3D Printed Plastic components: Jing Zhang[1]; *Yi Zhang*[1]; Michael Golub[1]; Linlin Cai[1]; Linmin Wu[1]; [1]Indiana University - Purdue University Indianapolis

10:00 AM
Cost Analytics in a Cyber-manufacturing Environment: *Jerry Evans*[1]; Edmund Moore[2]; Joseph Shelton[1]; [1]Future Way Designs LLC; [2]AFRL/RQTE

Sintering and Related Powder Processing Science & Technologies — Sintering & Powder Processing

Program Organizers: Ricardo Castro, University of California, Davis; Brady Butler, U.S. Army Research Laboratory; Olivia Graeve, University of California, San Diego; Eugene Olevsky, San Diego State University; Anders Eklund, Quintus Technologies, LLC.

Thursday AM
October 27, 2016

Room: 150E
Location: Salt Palace Convention Center

Session Chair: To Be Announced

8:00 AM
Accelerated Sintering of Powder Metallurgy Ti-6Al-4V Alloy by Repeated Phase Transformation Induced by Thermal Cycling: *Pankaj Kumar*[1]; K.S. Ravi Chandran[1]; Fei Cao[1]; [1]University of Utah

8:20 AM
Achieving Very High Strength in Powder Metallurgy Ti-6Al-4V Alloy through Accelerated Sintering at ß-Transus and Hydrogenation-dehydrogenation Treatment: *Fei Cao*[1]; K.S. Ravi Chandran[1]; Pankaj Kumar[1]; [1]University of Utah

8:40 AM
Densification Behavior of MIM491 Superalloy Prepared by Master Alloy Route: Lin Zhang[1]; Xiaowei Chen[1]; *Xuanhui Qu*[1]; [1]University of Science and Technology Beijing

9:00 AM
Effect of Additives on the Kinetics of Formation of Cordierite via Solid State Reaction: *Demet Aydogmus*[1]; Erdem Demirkesen[1]; [1]Istanbul Technical University

9:20 AM
Enhancement of Diffusion Bonding of Silver Graphite to Copper by Severe Plastic Deformation: *Daudi Waryoba*[1]; [1]Penn State University, DuBois

9:40 AM
Low-cost Titanium Alloys with Wrought-like Microstructures and Exceptional Mechanical Properties Produced by Hydrogen Sintering and Phase Transformation (HSPT): *James Paramore*[1]; Brady Butler[1]; Matt Dunstan[2]; Z. Zak Fang[2]; Pei Sun[2]; [1]United States Army Research Laboratory; [2]University of Utah

10:00 AM Break

10:20 AM
Nanograined Bulk Silicon Steel as a Material for Electric Motor Stators: *Trevor Clark*[1]; Hellen Jiang[2]; Nicole Overman[2]; Suveen Mathaudhu[3]; [1]University of California, Riverside; [2]Pacific Northwest National Laboratory; [3]University of California, Riverside; Pacific Northwest National Laboratory

10:40 AM
Sintering Properties of TiB_2 Powders from Carbon Coated Precursors Method with TiCrFeCoNiAl High Entropy Alloy as Sintering Aid: *Zhezhen Fu*[1]; Rasit Koc[1]; [1]Southern Illinois University Carbondale

11:00 AM
The Relationship between the Grain Size and Ductility of Ultra-fine Grain Powder Metallurgy Tungsten Alloys.: *Huan Zhang*[1]; Zak Fang[1]; Mark Koopman[1]; Chai Ren[1]; James Paramore[2]; Scott Middlemas[2]; [1]The University of Utah; [2]United States Army Research Laboratory

11:20 AM
FEA of Hot Isostatic Pressing of Steel 316: A Comparative Study of Different Powder Compaction Constitutive Models: Khamis Essa[1]; Ali Abdelhafeez[1]; *Moataz Attallah*[1]; [1]University of Birmingham

Surface Protection for Enhanced Materials Performance: Science, Technology, and Application — Tribological Coatings

Program Organizers: Kang Lee, NASA Glenn Research Center; Yutaka Kagawa, The University of Tokyo; Dongming Zhu, NASA Glenn Research Center; Rodney Trice, Purdue University; Daniel Mumm, University of California-Irvine; Mitchell Dorfman, Oerlikon Metco (US) Inc.; Christian Moreau, Concordia University

Thursday AM
October 27, 2016

Room: 251E
Location: Salt Palace Convention Center

Session Chairs: Daniel Mumm, University of California, Irvine; Mitch Dorfman, Oerlikon Metco

8:00 AM Invited
Efficient FARADAYIC® ElectroStripping of WC-Co Wear Coatings from Inconel® 718 Substrates: *Brian Skinn*[1]; Heather McCrabb[1]; Stephen Snyder[1]; Maria Inman[1]; [1]Faraday Technology, Inc.

8:40 AM
Environmentally Friendly Chromium Stripping: *Heather McCrabb*[1]; Timothy Hall[1]; Maria Inman[1]; E.J. Taylor[1]; [1]Faraday Technology

9:00 AM
Development of Hard Ni-W-WC Nanocomposite Coatings: *Jiaqian Qin*[1]; [1]Metallurgy and Materials Science Research Institute, Chulalongkorn University

9:20 AM
Effect of Annealing and Bias Voltage on Microstructure and Mechanical Properties of Ni-Zr tThin Film: *Bibhu Sahu*[1]; [1]IIT Kharagpur

9:40 AM
Pulsed Current Electrodeposition and Dry Sliding Wear Behavior of Ni-W-SiC Nanocomposite Coating as an Alternative for Hard Chrome Replacement: *Sundararajan Govindan*[1]; Nitin Wasekar[2]; [1]Indian Institute of Technology Madras; [2]International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Symposium on Large Fluctuations and Collective Phenomena in Materials III — Crystals and Dislocations

Program Organizers: Xie Xie, The University of Tennessee; Karin Dahmen, University of Illinois at Urbana Champaign; Peter Liaw, University of Tennessee; Yong Zhang, University of Science and Technology Beijing

Thursday AM
October 27, 2016

Room: 250C
Location: Salt Palace Convention Center

Session Chairs: Robert Maass, University of Illinois at Urbana-Champaign; Lin Li, University of Alabama

8:00 AM Invited
Spatiotemporal Slip Dynamics during Deformation of Microcrystals: *Robert Maass*[1]; [1]University of Illinois at Urbana-Champaign

8:40 AM Invited
Connecting Discrete Dislocation Slip and Deformation Behaviors in Nanocrystalline Ni: A Quantized Crystal Plasticity Study: Paul Christodoulou[1]; Peter Anderson[1]; *Lin Li*[2]; [1]The Ohio State University; [2]University of Alabama

9:20 AM Invited
Fluctuations in Martensitic Transformations in Shape Memory Alloys Studied by a Mesoscale Model: *Ying Chen*[1]; [1]Rensselaer Polytechnic Institute

10:00 AM Break

10:20 AM Invited
Multiscale Entropy Analysis on the Serrated Flow of Unirradiated and Irradiated Alloy Systems Undergoing Mechanical Testing at Different Strain Rates and Temperatures: *Jamieson Brechtl*[1]; Xie Xie[1]; Shuying Chen[1]; Haoyan Diao[1]; Yunzhu Shi[1]; Peter Liaw[1]; Steven Zinkle[1]; [1]University of Tennessee

11:00 AM Invited
Collective Motion of Dislocation Associated with Local Plasticity Initiation and Macroscopic Properties in bcc Fe Alloys: *Takahito Ohmura*[1]; Takuya Suzuki[1]; [1]National Institute for Materials Science

MS&T16 Poster Session — Additive Manufacturing

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

A-1: Direct Laser Deposition of Nickel-Base Superalloy for Surface Coating: *Hoyeol Kim*[1]; Hong-Chao Zhang[1]; [1]Texas Tech University

A-2: Fabrication and Thermal Properties of Aluminum Matrix Composites Reinforced with Molybdenum Carbide-coated Graphite Fibers: *Tingting Liu*[1]; [1]University of Science and Technology Beijing

A-3: Functional Graded Titanium Matrix Composites Reinforced by Submicron TiC or TiB2 Inclusions under SLM: *Igor Shishkovsky*[1]; Vladimir Scherbakov[1]; Nina Kakovkina[1]; [1]Lebedev Physical Institute of Russian Academy of Sciences

A-4: A Combinatorial Assessment of Complex Concentrated Alloys / High Entropy Alloys: *Tushar Borkar*[1]; Bharat Gwalani[2]; Deep Choudhuri[2]; Talukder Alam[2]; Calvin Mikler[2]; Chris Yannetta[2]; Xi Chen[3]; Raju Ramanujan[3]; Mark Styles[4]; Mark Gibson[4]; Rajarshi Banerjee[2]; [1]Cleveland State University; [2]University of North Texas; [3]Nanyang Technological University; [4]CSIRO Manufacturing Flagship

A-5: An Alternative Processing Route for Historically Process Incompatible Metal Alloys: *Christopher Roberts*[1]; David Bourell[1]; [1]University of Texas at Austin

A-6: Laser Additive Processing of Magnetic Alloys from Elemental Blends: *Calvin Mikler*[1]; Tushar Borkar[2]; Srinivas Mantri[1]; Varun Chaudhury[3]; Rodrigo Contieri[4]; Chen Xi[3]; Raju Ramanujan[3]; Rajarshi Banerjee[1]; [1]University of North Texas; [2]Cleveland State University; [3]Nanyang Technological University; [4]FCA/UNICAMP

A-7: Strengthening Weld-based Additive Manufacturing Through Age-hardened Supersaturated Alloys: *Rachel Clark*[1]; [1]Michigan Technological University

A-8: Tensile Property of the AISI H13 Tool Steel Deposited by the Direct Energy Deposition Process: *Jun Seok Park*[1]; Yoon-Sun Lee[1]; Ji Hyun Sung[1]; Sang-Kon Lee[1]; Yong-Jae Cho[1]; Da Hye Kim[1]; [1]KITECH

A-9: Thermodynamic & Kinetic Model Application to Strengthening Mechanisms of Aluminum Alloys for Additive Manufacturing: *Derek Tsaknopoulos*[1]; Danielle Cote[1]; Richard Sisson[1]; Victor Champagne[1]; [1]Worcester Polytechnic Institute

A-10: Microstructures of Low-C and Medium-C Steel Powders Additively Deposited on Cast Iron Using Directed Energy Deposition (DED) Technique: Seulbi Lee[1]; *Yoon Suk Choi*[1]; Jae Hyun Yu[1]; Sang Hu Park[1]; Do-Sik Shim[2]; Dae-Geun Nam[2]; [1]Pusan National University; [2]Korea Institute of Industrial Technology

A-11: Open Material Database for Additive Manufacturing (AM): *Yan Lu*[1]; Paul Witherell[1]; Alkan Donmez[1]; [1]NIST

A-12: Residual Stress in Direct Metal Laser Sintered Steel powders: *Elias Jelis*[1]; Rajendra Sadangi[2]; Michael Hespos[2]; Nuggehalli Ravindra[3]; [1] U.S Army, ARDEC, Picatinny Arsenal; [2]U.S Army, ARDEC, Picatinny Arsenal; [3]New Jersey Insitute of Technology

A-13: The Microstructural Evolution of Powder Aluminum Alloys after Thermal Processing: *Caitlin Walde*[1]; Danielle Cote[1]; Richard Sisson[1]; Victor Champagne[2]; [1]WPI; [2]US Army Research Laboratory

A-14: The Effect of Post Processing Heat Treatment on Improving Mechanical Properties of 17-4 PH Stainless Steel Additively Manufactured via Laser Powder Bed Fusion: *Somayeh Pasebani*[1]; Sunil Badwea[1]; Harish Irrinki[2]; Sundar Atreb[2]; [1]North American Hoganas; [2]University of Louisville

A-15: Investigation for Bionic-Structural Design of Titanium Alloy Produced Using Additive Manufactured Forming, and Resulting Microstructure and Bioreactor Characteristic: *Chun-Ming Lin*[1]; Huang Shih-Hua[2]; Weng Li-Wen[2]; [1]National Taipei University of Technology; [2]Metal Industries Research & Development Centre

MS&T16 Poster Session — Biomaterials

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

B-1: Bio-mediated Materials Fabrication: Exopolysaccharides as Structural Templates: *Sabine Kugler*[1]; Steffi Deuerling[1]; Cordt Zollfrank[1]; Daniel Van Opdenbosch[1]; [1]Technische Universität München

B-2: Developing Functionally Graded Ti Orthopedic Implants: Compositional Gradient via LENS Process: *Dalton Lima*[1]; Rodrigo Contieri[1]; Kaio Campo[1]; Eder Lopes[1]; Rajarshi Banerjee[2]; Rubens Caram[1]; [1]UNICAMP; [2]University of North Texas

B-3: Guided Biotemplating: Phototactic Structuring of Polysaccharides by Microalgea: *Steffi Deuerling*[1]; Sabine Kugler[1]; Daniel Van Opdenbosch[1]; Cordt Zollfrank[1]; [1]Technische Universität München, Fachgebiet Biogene Polymere

B-4: Load-to-failure of Composite Bone Following Removal of Proximal Femoral Fixation Hardware: *Janet Gbur*[1]; Hazel Marie[1]; James Shaer[2]; [1]Youngstown State University; [2]St. Elizabeth Youngstown Hospital

B-5: Model Biomimetic Dental Composites: Processing and Mechanical Properties of Glass Fiber Model Systems: *Karan Mohan*[1]; Christopher Wong[1]; Isabel Lloyd[1]; [1]University of Maryland

B-6: Grain Refinement and Biodegradation of Mg-RE Alloy for Orthopedic Implant Applications: Process-Structure-Functional Property Relationship: *Pramanshu Trivedi*[1]; Krishna Chaitanya Nune[1]; R.D.K. Misra[1]; R. Jayganthan[2]; [1]University of Texas at El Paso; [2]Indian Institute of Technology

B-7: Tribological Performance and In Vivo Response of Laser Processed CoCrMo-CaP Composites for Load Bearing Implants: *Anish Shivaram*[1]; Himanshu Sahasrabudhe[1]; Susmita Bose[1]; Amit Bandyopadhyay[1]; [1]Washington State University

B-8: Effects of Strontium and Magnesium on Osteoblast-Osteoclast Co-culture Using Doped Hydroxyapatite Plasma Coatings: *Dishary Banerjee*[1]; Sahar Vahabzadeh[1]; Susmita Bose[1]; [1]Washington State University

B-9: Enhanced Osteoblastic Differentiation of Human Bone Marrow-derived Mesenchymal Stem Cells from Strontium Doped Hydroxyapatite Sol-gel Coatings on Titanium Alloys: Sam Robertson[1]; Susmita Bose[1]; [1]Washington State University

MS&T16 Poster Session — Ceramic and Glass Materials

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

C-1: Investigations on BTNN-PVDF Composites of 0-3 Connectivity: *Jaciele Rosso*[1]; Taiana Bonadio[2]; Daniel Silva[1]; José Burato[1]; Valdirlei Freitas[2]; Luis Cótica[1]; Ivair dos Santos[1]; [1]State University of Maringá; [2]Midwestern State University

C-2: Processing of Cu-10 wt% Graphite Composite by High-energy Ball Milling: Yaxuan Zhang[1]; *A. Aning*[1]; Hesham Elmkharram[1]; Ibrahim Khalfallah[1]; [1]Virginia Tech

C-3: Synthesis of Nanopowders of Zirconia through Salt Incorporated Precursors: *Divya Padmanabhan*[1]; Parag Bhargava[1]; [1]IIT Bombay

C-4: Influence of Dopants on the Thermal Behavior of Y3Al5O12 Nanoparticles: *Geetu Sharma*[1]; Ricardo Castro[1]; [1]University of California davis

C-5: Compositional Dependence of Cd-S-Se Quantum Dot Embedded Silicate Glass for LED Color Converters: *Karam Han*[1]; Jae Won Jang[1]; Yong Gyu Choi[2]; Woon Jin Chung[1]; [1]Kongju National University; [2]Korea Aerospace University

C-6: The Evolution of the Structure and Physicochemical Properties of Crystals ZrO_2-Y_2O_3, ZrO_2-Sc_2O_3 and ZrO_2-Y_2O_3 -Sc_2O_3 Obtained by Skull Melting Technique: *Philipp Milovich*[1]; Mihail Borik[2]; Sergey Bredikhin[3]; Aleksei Kulebyakin[2]; Irina Kuritsyna[3]; Elena Lomonova[2]; Valentina Myzina[2]; Sergey Seryakov[1]; Natalia Tabachkova[1]; [1]National University of Science and Technology (MISIS); [2]Prokhorov General Physics Institute, Russian Academy of Sciences; [3]Institute of Solid State Physics, Russian Academy of Sciences

C-7: Low Temperature Glass Powders for Hermetic Sealing Process in Large Sized Dye Sensitized Solar Cells: *Hansol Lee*[1]; [1]Kongju National University

C-8: Application of Porous $MgTi_2O_5$ Ceramics with Pseudobrookite-type Structure for Diesel Particle Filter Application: *Xinzhu Miao*[1]; Yoshikazu Suzuki[1]; [1]University of Tsukuba

C-9: Mechanical Properties of Dense ZrO_2-Al_2O_3 Composites Fabricated Using Various Sintering Methods: Ken Hirota[1]; *Xiaoteng Ge*[1]; Masaki Kato[1]; Hideki Taguchi[1]; Hideo Kimura[2]; [1]Doshisha University; [2]Daiichi Kigenso Kagaku Kogyo Co., Ltd.

C-10: Simultaneous Synthesis and Densification of New-type Carbon Nanofibers (CNF) Dispersed B4C/CNF Composites by Pulsed Electric Current Pressure Sintering (PECPS) and their Mechanical Properties: Ken Hirota[1]; *Hironobu Hirahara*[1]; Masaki Kato[1]; Hideki Taguchi[1]; Toshiyuki Nishimura[2]; [1]Doshisha University; [2]National Institute for Materials Science

C-11: Stable Nano Nonstoichiometric Cerium Oxide by DC Thermal Plasma: *Yuan-Pei Lan*[1]; Yousef Mohassab[1]; Bao-Qiang Xu[1]; Hong Yong Sohn[1]; [1]University of Utah

C-12: Synthesis and Characterization of Alkaline Earth and Transition Metal Complex Oxides: A Study on the Effect of Chelating Agent EDTA and Time-dependent Sintering: *Weyshla Rodriguez Rodriguez*[1]; Boxun Hu[1]; Ashish Aphale[1]; Chiying Liang[1]; Prabhakar Singh[1]; [1]University of Connecticut

C-13: Synthesis and Electrochemical Properties of Ni-Ce0.8-xSm0.2ZrxO2-d Anode for IT-SOFC: *Bok-Hee Kim*[1]; Myung-Jin Lee[1]; Kai Zhao[2]; [1]Chonbuk National University; [2]Kent State University

C-14: Synthesis of Ceramic Cements and Composites in System (Ca,Sr,Ba) O-Al2O3-ZrO2: *Ilyoukha Nickolai*[1]; Timofeeva Valentina[1]; [1]Academic Ceramic Center

C-15: Resistive Switching Memory Based on BiFeO3 Nano-island Showing High Resistance Ratio and Nonliearity Factor: *Taekjib Choi*[1]; Ji hoon Jeon[2]; Baeho Park[2]; [1]Sejong University; [2]Konkuk Univerisity

C-16: Synthesis, Characterization, Surface Energetics and Sintering Behavior of Spinel MgGa2O4 Nanoparticles: *Geetu Sharma*[1]; Ricardo Castro[1]; [1]University of California Davis

C-17: A New Approach to Calorimetry: "Drop-n-catch" Technique Applied to Laser Heated Levitated Alumina and Yttria above 2000 °C: *Denys Kapush*[1]; Sergey Ushakov[1]; Alexandra Navrotsky[1]; [1]University of Califrnia, Davis

C-18: Comparative Study of the Effect of Zr^{4+} Dopant on Phase Transformations in Rare-earth Ortho-niobates and -tantalates: *Pankaj Sarin*[1]; Daniel Lowry[1]; [1]Oklahoma State University

C-19: Crystalline Phase Studies of $KNa_x[AlSi_2O_6]$: *Andrew Steveson*[1]; Waltraud Kriven[1]; [1]University of Illinois at Urbana-Champaign

C-20: Experimental Study of the Effect of La_2O_3 on the Liquidus and the Equilibrium Phases of the CaO-SiO_2-Nb_2O_5 Phase Diagram: *Lifeng Sun*[1]; Jiyu Qiu[1]; Zhaoyun Wang[1]; Junjie Shi[1]; Maofa Jiang[1]; [1]Key Laboratory for Ecological Metallurgy of Multimetallic Ores (Ministry of Education), School of Metallurgy, Northeastern University of China

C-21: Microstructural Damage of a-Al2O3 Induced by High Energy Density Plasma: Qun Yang[1]; Kishor Kalathiparambil[1]; Daniel Elg[1]; David Ruzic[1]; *Waltraud Kriven*[1]; [1]University of Illinois at Urbana-Champaign

C-22: Structural Stability Comparing for Lanthanum Chromite-based Perovskites: *Hooman Sabarou*[1]; Yu Zhong[1]; [1]Florida International University

C-23: Synthesis of Iron-doped Na- ß"-Alumina + Yttria-Stabilized Zirconia Composite Electrolytes by a Vapor Phase Process: *Leila Ghadbeigi*[1]; Alex Szendreia[1]; Taylor Sparks[1]; Anil Virkar[1]; [1]University of Utah

C-24; Effect of Morphology of Nanostructured ZrO_2-WO_3 Mixed Anodic Oxide on Electrochemical Energy Storage: Stuart Whitman[1]; *Krishnan Raja*[1]; [1]University of Idaho

C-25: Effect of Water Vapor on Oxidation of Nickel in 8YSZ at High Temperature: Michael Lu[1]; Martha Mecartney[2]; [1]University of California Irvine; [2]University of California Irvine

C-26: Electroreduction of Yttria Stabilized Zirconia with In-situ Potential Measurement Using Embedded Electrodes: *Liangzhu Zhu*[1]; Lei Zhang[1]; Anil Virkar[1]; [1]University of Utah

C-27: Enhancement of Photocatalytic Activity of WO3 by ZrO_2 for the Treatment of Phenolic Wastewater: *Mohamed Gar Alalm*[1]; [1]Faculty of Engineering Mansoura University

C-28: Fabrication of Ceramics/Nano-carbon Composites by Combination of Gelcasting and Argon Sintering: *Takashi Shirai*[1]; Masayoshi Fuji[1]; [1]Nagoya Insitute of Technology

C-29: Microstructural Evolution and Tribocorrosion Performance of Novel Laser Clad Ti-Ni-ZrO_2 Composite Coatings in 3.5% NaCl Solution: *Babatunde Obadele*[1]; Peter Olubambi[1]; [1]University of Johannesburg

C-30: Synthesis and Phase Stability of the ZrO_2-Y_2O_3-Ta_2O_5 Compositions for High Tetragonality Zirconia-based Thermal Barrier Coatings: *Ivan Mazilin*[1]; Lev Baldaev[1]; Nikolay Zaitsev[1]; Evgeny Sazonov[1]; [1]TSPC Ltd

MS&T16 Poster Session — Electronic and Magnetic Materials

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

D-1: Clausius-Mossotti Equation in Correlation with Curie-weiss Law, Fractal Frontiers: *Vojislav Mitic*[1]; Steven Tidrow[2]; Ljubiša Kocic[3]; Hans Fecht[4]; Vesna Paunovic[3]; [1]Faculty of Electronic Engineering, University of Niš; Institute of Technical Sciences of the Serbian Academy of Sciences and Arts ; [2]Alfred University; [3]Faculty of Electronic Engineering, University of Niš; [4]Ulm University

D-2: Complex Site Occupancy and Mesoscale Chemical Heterogeneity of (1-x)$BaTiO_3$ – x$BiMO_3$ Dielectrics: *Michaela Beuerlein*[1]; Geoff Brennecka[1]; [1]Colorado School of Mines

D-3: Conversion from p-type to n-type Semiconductor Behavior in BaxSr2-xTi0.8Fe0.8Nb0.4O6 Double Perovskites Based Thermoelectric Material: Pinku Roy[1]; Vikram Waghmare[1]; *Tanmoy Maiti*[1]; [1]IIT Kanpur

D-4: Crystal Structure, Microstructure and Piezoelectric Properties of Ca/Zr Co-substituted $BaTiO_3$ Lead Free Piezoceramics: *Vijayeta Pal*[1]; A Kumar[2]; R. Dwivedi[3]; [1]IIT kanpur; [2]G. L. Bajaj Institute of Technology; [3]JIIT-Noida

D-5: Development of Sr2TiMoO6 Based Novel Double Perovskites for High Temperature Thermoelectric Power Generation: Mandvi Saxena[1]; *Tanmoy Maiti*[1]; [1]IIT Kanpur

D-6: Dielectric, Magnetic and Magnetoelectric Characterization of (1-x)[0.90Pb($Zn_{1/3}Nb_{2/3}$)-0.10$PbTiO_3$]/x$CoFe_2O_4$ Particulate Composites: *Flávio Milton*[1]; Claudia Perdomo[2]; Diego Viana[1]; Fábio Zabotto[1]; Alexandre Gualdi[3]; Paulo Camargo[3]; Adilson Oliveira[3]; Ruth Kiminami[3]; José Eiras[1]; Ducinei Garcia[1]; [1]Group of Ferroic Materials; [2]Dema; [3]Grupo de Supercondutividade e Magnetismo

D-7: Effect of A-site Doping by La, Ba, and Ca on Thermoelectric Properties of Sr2FeTiO6 Double Perovskites: Pinku Roy[1]; Imon Bose[1]; Vikram Waghmare[1]; Mandvi Saxena[1]; *Tanmoy Maiti*[1]; [1]IIT Kanpur

D-8: Effect of Spark Plasma Sintering on Thermoelectric Figure-of-merit of Nb Doped $SrTiO_3$: Vijayeta Pal[1]; *Tanmoy Maiti*[1]; [1]IIT Kanpur

D-9; Improvement of Microwave Dielectric Properties of Bi2(Zn1/3Nb2/3)2O7 Ceramics by Annealing Treatment: *Siyuan Dong*[1]; Xiaoli Wang[1]; [1]Xi'an Jiaotong University

D-10: Innovatively Designed Piezoelectric Laminate Composites for DC Magnetic Field Sensing: *Ivair Santos*[1]; José Pereira[1]; Fernando Gaiotto[1]; Diogo Montanher[2]; Soutik Betal[3]; Ruyan Guo[3]; Amar Bhalla[3]; [1]State University of Maringá; [2]Technological Federal University of Paraná; [3]University of Texas at San Antonio

D-11: Investigation of the Physical Properties in BiFeO3–based Multiferroic Ceramics: *Marcos Mariano*[1]; Yosdan Martínez-Camejo[1]; Ruyan Guo[2]; Amar Bhalla[2]; Jose de los Santos Guerra[1]; [1]Universidade Federal de Uberlândia; [2]The University of Texas at San Antonio

D-12:Multifilamentary Conduction Modeling in Heterogeneous Binary Transition Metal Oxides Based RRAM: Shiva Asapu[1]; *Tanmoy Maiti*[1]; [1]IIT Kanpur

D-13: Polymers' Electrical Conductivity and Fractional Order Models: *Vojislav Mitic*[1]; Zoran Vosika[2]; M. P. Lazarevic[3]; Ljubiša Kocic[2]; V. Pavlovic[3]; [1]Faculty of Electronic Engineering, University of Niš; Institute of Technical Sciences of the Serbian Academy of Sciences and Arts ; [2]Faculty of Electronic Engineering, University of Niš; [3]University of Belgrade

D-14: Room Temperature Negative Capacitance in RF Sputtered BTO/STO Bilayers: *Mathew Ivill*[1]; Eric Ngo[1]; S. Gary Hirsch[1]; Thomas Parker[1]; Daniel Shreiber[1]; Erik Enriquez[2]; Clifford Hubbard[1]; Melanie W. Cole[1]; Marc Ulrich[3]; [1]U.S. Army Research Laboratory; [2]Center for Integrated Nanotechnologies; [3]U.S. Army Research Office

D-15: Spectroscopic, Structural and Electrical Properties of $Ba(M^{3+}_{0.05}Sb^{5+}_{0.05}Ti_{0.9})O_3$ (M = Ho, Er, Lu, Tm): *Vignaswaran Kaliyaperumal Veerapandiyan*[1]; Walter Schulze[1]; Scott Misture[1]; Steven Pilgrim[1]; Daniel Potrepka[2]; Frank Crowne[2]; Arthur Tauber[3]; Steven Tidrow[1]; [1]Kazuo Inamori School of Engineering, Alfred University; [2]U.S. Army Research Laboratory, Sensors Electron Devices Directorate; [3]As Contracted to the U.S. Army Research Laboratory from Geo-Centers Inc.; Presently Retired

D-16: Structural Analysis of the Lead-free $AlFeO_3$-Based Magnetoelectric Compositions: *Guilherme Santos*[1]; José Sousa[2]; Ivair Santos[1]; Luiz Cotica[1]; [1]Universidade Estadual de Maringá; [2]Universidade Federal do Paraná

D-17: Study of Crystal and Electronic Structures of $(Bi_{1-x}Nd_x)(Fe_{1-y}Co_y)O_3$ Multiferroic Compositions Calculated from X-ray Diffraction Data: Odair Oliveira[1]; Anuar Mincache[1]; Guilherme Santos[1]; Breno Oliveira[1]; Gustavo Dias[1]; Ivair Santos[1]; *Luiz Cotica*[1]; [1]State University of Maringa

D-18: Study of the Dielectric Response of Rare-earth Modified PZT Ferroelectric Ceramics: An Approach to the Diffuse Phase Transition: *Suzana Hessel*[1]; Atair Carvalho da Silva[2]; Ruyan Guo[3]; Amar Bhalla[3]; Jose de los Santos Guerra[1]; [1]Universidade Federal de Uberlândia; [2]Universidade Estadual Paulista; [3]The University of Texas at San Antonio

D-19: Study of the Magnetoeletric Effect in $Bi_{1-x}Nd_xFe_{1-y}Co_yO_3$ Compositions: Anuar Mincache[1]; Odair Oliveira[1]; Andre Sunahara[1]; Breno Oliveira[1]; Gustavo Dias[1]; Ivair Santos[1]; Ruyan Guo[2]; Amar Bhalla[2]; *Luiz Cotica*[1]; [1]State University of Maringa; [2]University of Texas at San Antonio

D-20: Thermoelectric Properties of BaxSr2-xTiCoO6 Double Perovskites with 0.0=x=0.3: Pinku Roy[1]; Imon Bose[1]; Megha Acharya[1]; Mandvi Saxena[1]; *Tanmoy Maiti*[1]; [1]IIT Kanpur

D-21: *Ab Initio* Study of Electronic Structure of $Bi_{1-x}Nd_xFeO_3$ Magnetoelectric Compositions: Gabriel Perin[1]; Ivair Santos[1]; Breno Oliveira[1]; Jose Padilha[2]; *Luiz Cotica*[1]; [1]State University of Maringa; [2]Federal University of Paraná

D-22: Compound Growth during Reaction Diffusion between Liquid Sn-base Alloys and Solid Fe: *Ryo Fukui*[1]; Minho O[2]; Kajihara Masanori[2]; [1]Tokyo Institute of Technology ; [2]Tokyo Institute of Technology

D-23: Kinetics of Reactive Diffusion between Sn-Ag Alloys and Ni at Solid-state Temperatures: *Misako Nakayama*[1]; O Minho[1]; Kajihara Masanori[1]; [1]Tokyo Institute of Technology

D-24: Circuit Model for Equilibrium Strains in Semiconductor Multilayers and Superlattices: *Tedi Kujofsa*[1]; John Ayers[1]; [1]University of Connecticut

D-25: Threading Dislocations in InGaAs/GaAs (001) Buffer Layers for Metamorphic High Electron Mobility Transistors: Yifei Song[1]; *John Ayers*[1]; [1]University of Connecticut

D-26: X-ray Rocking Curve Pendellosung: A Sensitive Tool for the Characterization of Dislocations in Pseudomorphic High Electron Mobility Transistors: *Fahad Althowibi*[1]; John Ayers[2]; [1] University of Connecticut ; [2]University of Connecticut

D-27: Microstructure Characterization of Reactive Sputtered Cu(In,Ga)(Se)2 Absorber Material: *Anh Duong*[1]; [1]MiaSole

D-28: Design of Graded Buffer Layers for Tandem Solar Cells on GaAs (001) Substrates: Yifei Song[1]; *John Ayers*[1]; [1]University of Connecticut

MS&T16 Poster Session — Energy

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

E-1: Conductive Nanostructured Scaffolds Render Low Local Current Density to Inhibit Lithium Dendrite Growth: *Qiang Zhang*[1]; [1]Tsinghua University

E-2: Free Standing, Flexible, High Ionic Conductivity Cubic-Li7La3Zr2O12 Ceramic Thin Film Membranes for Lithium Batteries: *Eongyu Yi*[1]; Weimin Wang[1]; John Kieffer[1]; Richard Laine[1]; [1]University of Michigan

E-3: Honeycomb TiO_2: Self-ordering Titania with Increased Stability, Capacitance and Surface Area.: *Steven Sitler*[1]; Krishnan Raja[1]; [1]University of Idaho

E-4: Improved Mechanical Properties of Silver-Zinc Batteries Utilizing Current Collector Geometry: Alla Zamarayeva[1]; *Cheryl Chang*[1]; Michael Wang[2]; Igal Deckman[1]; Greg Davies[1]; Daniel Steingart[1]; Ana Arias[1]; [1]University of California, Berkeley; [2]Princeton University

E-5: Investigation of Capacity Fading of Li-rich Layered Composite Cathodes based on Structure Considerations: *Kuan-Zong Fung*[1]; Shu-Yi Tsai[1]; Chung-Ta Ni[1]; Bo-Yuan Huang[1]; [1]National Cheng Kung University

E-6: LiCoNiFeO Nanocrystalline Cathode Particles for Lithium Ion Batteries: Prepared by Ultrasonic Spray Pyrolysis (USP) Method: Cigdem Toparli[1]; Burcak Ebin[2]; *Sebahattin Gurmen*[3]; [1]Max Planck Institute for Iron Research GmbH; [2]Chalmers University of Technology; [3]Istanbul Technical University

E-7: Towards a Compliant Energy Storage System for Wearable Technology: High Performance Ag-Zn Chemistry Batteries: Alla Zamarayeva[1]; *Michael Liu*[1]; Abhinav Gaikwad[1]; Igal Deckman[1]; Michael Wang[2]; Brian Khau[1]; Daniel Steingart[1]; Ana Arias[1]; [1]University of California, Berkeley; [2]Princeton University

E-8: Structural Stability of La0.8Ca0.2Fe1-XCoX(x=0~0.4) Perovskite Oxygen Transport Membrane for Cabon Capture Application: *Kuan-Zong Fung*[1]; Shu-Yi Ni[1]; Chung-Ta Ni[1]; Shiang-Yi Lo[1]; [1]National Cheng Kung University

E-9: Perovskite Manganese Oxides for Thermocyclic Conversion of CO_2 to CO: *Siu-wai Chan*[1]; [1]Columbia University

E-10: In-Situ Low Temperature Neutron Powder Diffraction Study of Mixed CH_4-CO_2 Gas Hydrates: *Bernadette Cladek*[1]; S. Michelle Everett[2]; Bryan Chakoumakos[2]; Luke Heroux[2]; Melanie Kirkham[2]; Ashfia Huq[2]; Claudia Rawn[1]; [1]University of Tennessee, Knoxville; [2]Oak Ridge National Laboratory

E-11: Creep-fatigue Crack Growth Mechanisms for Alloy 617 at 800°C: *Dylan Addison*[1]; Jamie Kruzic[1]; [1]Oregon State University

E-12: Effect of Carbonate Concentration on Dissolution Rate of UO_2 and Spent Fuel: A Review: *Akira Kitamura*[1]; Kuniaki Akahori[2]; [1]Japan Atomic Energy Agency; [2]Mitsubishi Materials Corporation

E-13: Effect of Laves Phase Precipitating Behavior on the Impact Properties of P92 Heat-resistant Steel: Wei Yan[1]; Xu Yang[2]; Wei Wang[1]; *Yiyin Shan*[1]; Ke Yang[1]; Wei Sha[3]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]State Key Laboratory of Metastable Materials Science and Technology, Yanshan University; [3]School of Planning, Architecture and Civil Engineering, Queen's University Belfast

E-14: Ex-situ and In-situ Investigation of Heavy Ion Irradiation Damage in Ti-6Al-4V: *Aida Amroussia*[1]; Carl Boehlert[1]; Frederique Pellemoine[2]; Isabelle Monnet[3]; Wolfgang Mittig[4]; Clara Grygiel[3]; Florent Durantel[3]; Mikhail Avilov[2]; [1]Michigan State University; [2]Facility for rare Isotope Beams -Michigan State University; [3]CIMAP, Normandie universite-UNICAEN-ENSICAEN-CEA-CNRS; [4]Facility for Rare Isotope Beams FRIB -National Superconducting Cyclotron Lab, Michigan State University

E-15: Fuel-cladding Interaction in the Monolithic U-Mo Nuclear Fuels: *Jan-Fong Jue*[1]; Dennis Keiser[1]; [1]Idaho National Laboratory

E-16: High Temperature Behavior of Zirconium Alloys: *Jordan Vandegrift*[1]; Kelci Lester[1]; [1]Boise State University

E-17: Laser Welding of Zr-2.5Nb Alloy to 410 Stainless Steel with Ni Interlayer: Jianyin Chen[1]; *Ahmed Khalifa*[2]; Lijue Xue[1]; Mitch King[2]; [1]National Research Council Canada; [2]Canadian Nuclear Laboratories.

E-18: Microstructural Properties of Alloy 718 Processed at Different Experimental Conditions: *Chinthaka Silva*[1]; Keith Leonard[1]; Jeremy Busby[1]; Gary Was[2]; Lawrence Nelson[3]; Gabriel Ilevbare[4]; [1]Oak Ridge National Laboratory; [2]University of Michigan; [3]JLN Consulting; [4]Electric Power Research Institute

E-19: Microstructure Stability of Mo/W/Ti/Zr/Nb/Ta-alloyed 310S Austenite Stainless Steels Designed by a Cluster Model: Qing Wang[1]; *Donghui Wen*[1]; Wen Lu[1]; Guoqing Chen[1]; Chuang Dong[1]; Peter K. Liaw[2]; [1]Dalian University of Technology; [2]The University of Tennessee

E-20: Phase Field Modeling of Irradiation-induced Recrystallization: *Karim Ahmed*[1]; Xianming Bai[1]; Yongfeng Zhang[1]; Daniel Schwen[1]; Jianguo Yu[1]; [1]Idaho National Laboratory

E-21: Radiation response of a Novel Intermetallic-strengthened Alloy: *Tianyi Chen*[1]; Mo-Rigen He[2]; Lizhen Tan[1]; Ying Yang[1]; Beata Tyburska-Püschel[2]; Kumar Sridharan[2]; [1]Oak Ridge National Laboratory; [2]University of Wisconsin-Madison

E-22: Studies of Grain Boundary Regions in Nb Superconductive Accelerating Cavities: *Ali Khosravani*[1]; Thomas Bieler[2]; Surya Kalidindi[1]; [1]Georgia Institute of Technology; [2]Michigan State University

E-23: Tailoring W_2O_3 Nanostructures Using Low Energy High Flux He^+ Ion Irradiation: *Jitendra Tripathi*[1]; Theodore Novakowski[1]; Joseph Fiala[1]; Arvind Sundaeram[1]; Ahmed Hassanein[1]; [1]Purdue University

E-24: Experimental and Calculation Investigation on Severe Accidents in PWR Reactors: *Andrea Quaini*[1]; C. Guéneau[1]; S. Gossé[1]; D. Manara[2]; [1]CEA Saclay; [2] European Commission, Institute for Transuranium Elements

E-25: Cascade Simulations in Ceramic/Metallic Nano-composites: *Ioannis Mastorakos*[1]; Iman Salehinia[2]; [1]Clarkson University; [2]Northern Illinois University

E-26: Characterization of Radiation Induced Microstructural and Thermoelectric Property Changes in Bismuth Telluride and Half Heusler Materials: *Medha Veligatla*[1]; Joseph Croteau[1]; Nicholas Kempf[1]; Luke Schoensee[1]; Brian Jaques[1]; Chao Han[1]; Jonathan Gigax[2]; Ran He[3]; Lin Shao[2]; Zhifeng Ren[3]; Yanliang Zhang[1]; Darryl Butt[1]; [1]Boise State University; [2]Texas A&M University; [3]University of Houston

E-27: Corrosion Behavior of Advanced Duplex Stainless Steels in High Temperature Steam Environment: Hyunmyung Kim[1]; Jin Woo Heo[1]; Sung Hwan Kim[1]; Ho-Sub Kim[1]; Hun Jang[2]; *Changheui Jang*[1]; [1]KAIST; [2]KEPCO Nuclear Fuel

E-28: The Effect of Cold Work on the Recrystallization of a Nanostructured Ferritic Alloy: *Clarissa Yablinsky*[1]; Eda Aydogan[2]; Sven Vogel[1]; G. Robert Odette[3]; David Hoelzer[4]; Kester Clarke[5]; Stuart Maloy[1]; [1]Los Alamos National Laboratory; [2]Los Alamos National Laboratory/Texas A&M University; [3]University of California, Santa Barbara; [4]Oak Ridge National Laboratory; [5]Los Alamos National Laboratory/Colorado School of Mines

E-29: The Effect of Stoichiometry on the Mechanical Properties of CeO_2-x: *Ursula Carvajal*[1]; Nathan Mara[1]; Andrew Nelson[1]; [1]LANL

E-30: The Study of NS3105 Tube Stress Corrosion Behavior in Aqueous Alkali: *Mingjuan Ma*[1]; Chengtao Li[2]; [1]Baosteel Special Metals Co., Ltd; [2]Suzhou Nuclear Power Research Institute

E-31: The Challenges and Goals of Integrated Waste Treatment Unit: *Derek Fowers*[1]; Raghunath Kanakala[1]; [1]University of Idaho

E-32: Examining Durability and Alternative Phase Formation of Ceramic Waste Forms Using Vapor Hydration Testing: *Devin Harkins*[1]; [1]Clemson University

E-33: Phosphate Cement Blended with Samarium Oxide as Irradiation Shielding Materials: *Yailuth Loaiza Lopera*[1]; Henry Colorado Lopera[1]; Carlos Castano[2]; [1]Universidad de Antioquia; [2]Missouri University of Science of Technology

E-34: X-ray Scattering and Spectroscopy Studies of Nanosheet MnO_2 Supercapacitor Electrodes: *Peter Metz*[1]; Peng Gao[1]; Scott Misture[1]; [1]Alfred University

E-35: Effect of Neutron Irradiation on Friction Stir Processed MA956 and MA754: *Ramprashad Prabhakaran*[1]; Yaqiao Wu[2]; Jatuporn Burns[2]; James Cole[3]; Indrajit Charit[4]; Rajiv Mishra[5]; Korukonda Murty[6]; Thak Sang Byun[1]; [1]Pacific Northwest National Laboratory; [2]Boise State University; [3]Idaho National Laboratory; [4]University of Idaho; [5]University of North Texas; [6]North Carolina State University

MS&T16 Poster Session — Fundamentals, Characterization, and Computational Modeling

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

F-1: Roles of Ag Addition in FePt L10 Ordering Transition Investigated by In-situ Heating HRTEM Observations: *Youxing Yu*[1]; [1]Beihang University

F-2: Automatic Deconvolution of Dilatometry Curve in Continuous Cooling Transformations: *Hoheok Kim*[1]; Junya Inoue[1]; Masato Okada[1]; Kenji Nagata[1]; Satoru Tokuda[1]; [1]Graduate School of Materials Engineering, University of Tokyo

F-3: Multi-phase-field Study of Cube Recrystallization Texture of Aluminum Alloy: *Akinobu Hori*[1]; Junya Inoue[1]; [1]University of Tokyo

F-4: Non-isothermal Nanocrystallization Kinetics of FINEMET Type Alloys Using a Direct Extension of JMAK Theory: Alejandro Manchon-Gordon[1]; *Javier Blázquez*[1]; Clara Conde[1]; Alejandro Conde[1]; [1]University of Sevilla

F-5: A 3D Polyhedral Description of Grain Boundary Structural Features Based on the Structure of Defects in Bulk FCC Metals: *Arash Dehghan Banadaki*[1]; Srikanth Patala[1]; [1]North Carolina State University

F-6: Modeling Material Interfaces with Hybrid Adhesion Method: *Nicholas Brown*[1]; Jianmin Qu[2]; Enrique Martinez[3]; [1]Northwestern University; [2]Tufts University; [3]Los Alamos National Laboratory

F-7: Coherency Strain Reduction in Particles on a Substrate as a Driving Force for Solute Segregation: *Dor Amram*[1]; David Barlam[2]; Eugen Rabkin[1]; Roni Shneck[2]; [1]Technion - Israel Institute of Technology; [2]Ben Gurion University of the Negev

F-8: Grain Boundary Structure-property Relationships: Single Disorientation Axis Trends: *Hunter Erickson*[1]; Eric Homer[1]; [1]Brigham Young University

F-9: Partially Agglomerated Metallic Thin Films Formed by Annealing of Solid Solution Nanoparticles at Low Homological Temperatures: *Nimrod Gazit*[1]; Leonid Klinger[1]; Eugen Rabkin[1]; [1]Technion - Israel institute of Technology

F-10: The Development of Physically Based Atomistic Microstructure: The Effect on the Mechanical Response of Polycrystals: Jacob Gruber[1]; Fadi Abdeljawad[2]; Hojun Lim[2]; Stephen Foiles[2]; *Garritt Tucker*[2]; [1]Drexel University; [2]Sandia National Laboratories

F-11: The Effect of the Grain Size on the Growth Kinetics in the IMC Layer in Fe-Al Binary System: *Lei Xu*[1]; Joseph Robson[2]; Zhigang Fang[1]; Philip Prangnell[2]; [1]University of Utah; [2]University of Manchester

F-12: Anorthite ($CaAl_2Si_2O_8$)-Aluminium Interface: Kinetics of High-Temperature Interactions: *Esmaeil Adabifiroozjaei*[1]; Hongyang Ma[1]; Pramod Koshy[1]; Charles Sorrell[1]; [1]University of New South Wales

F-13: Ionic Conductivity in Alkali Nitrites and Composite Solid Electrolytes Based on $LiNO_2$: *Yulia Mateyshina*[1]; Nikolai Uvarov[1]; Artem Ulihin[1]; [1]1 Institute of Solid State Chemistry and Mechanochemistry SB RAS

F-14: Study of Isothermal Mass and Charge Transport Properties of La2Ni0.95Al0.05O4.025+d: Sang-Yun Jeon[1]; *Sun-Ju Song*[2]; [1]KEPCO Research Institute; [2]Chonnam National University

F-15: Anisotropic Tailored Thermal Expansion In Martensitic Alloys: *Dominic Gehring*[1]; Ibrahim Karaman[1]; [1]Texas A&M University

F-16: Flow Characteristics of Ultrafine Grained Zircaloy-4 pProcessed by Mutiaxial Forging: *Devasri Fuloria*[1]; Nikhil Kumar[1]; R. Jayaganthan[1]; S. Jha[1]; D. Srivastava[1]; [1]IIT Roorkee

F-17: Grain Growth during Cyclic Straining of Copper Films Revealed with In-situ Resistance Measurements: *Megan Cordill*[1]; Oleksandr Glushko[1]; [1]Erich Schmid Institute of Materials Science

F-18: Low Energy Ion Scattering (LEIS) of Commercial Display Glasses: *George Major*[1]; Cody Cushman[1]; Barry Lunt[1]; Nicholas Smith[2]; Matthew Linford[1]; [1]Brigham Young University; [2]Corning Incorporated

F-19: Nucleation of Dynamic Recrystallization and Grain Growth in Hot Extruded Mg-Ce Alloys: *Aidin Imandoust*[1]; Haitham El Kadiri[2]; [1]MIssissippi State University,Department of Mechanical Engineering; [2]Mississippi State University, Department of Mechanical Engineering

F-20: Relating Anisotropy and Strain-induced Crystallinity to Processing and Glass Transition Temperature of Polypropylene and Poly(Ethylene-terephthalate) Plastic Cups: *Hannah Woods*[1]; Kendra Erk[1]; [1]Purdue University

F-21: Effect of Sulfur Content on Fatigue Strength of AISI 4140 Steel: Sachin Patil[1]; Mohan Mehta[1]; *Sandip Sutar*[1]; Akshay Patil[1]; Shreyas Kirwai[1]; Suresh Arangi[1]; [1]Bharat Forge Ltd.

F-22: Behaviour of Asphalt Concrete Beyond Its Limit of Elasticity: *Lee Leon*[1]; Raymond Charles[1]; Nicola Simpson[1]; [1]University of the West Indies

F-23: Influence of Quenching Processes on Microstructure and Mechanical Properties of 800MPa High Strength Steels: *Zhengtao Duan*[1]; Xinhua Pei[1]; [1]Shanghai Meishan Iron and Steel Co. Ltd.

F-24: Structure Property Relationship of Cationic Doping in $Ca_{12}Al_{14}O_{33}$ Nanocages: *John Robert Salasin*[1]; Christina Cox[1]; Sabina Ude[1]; Ashfia Huq[2]; Claudia Rawn[1]; [1]University of Tennessee; [2]Oak Ridge National Laboratory

F-25: Compact Forced Simple-shear and Compact Forced Double-shear Applications for Shear Localization in Materials: *Thomas Lebrun*[1]; [1]Los Alamos National Laboratory

F-26: Modeling the Hydroforming of a Large Grain Niobium Tube: *Aboozar Mapar*[1]; Thomas Bieler[1]; Farhang Pourboghrat[2]; [1]Michigan State University; [2]The Ohio State University

F-27: Numerical Simulation of Inclusion Aggregation and Removal in a Bottom Gas-injected Ladle during Molten Steel Deoxidation: *Yanbin Yin*[1]; Jiongming Zhang[1]; Shaowu Lei[2]; Shunxi Wang[1]; Qipeng Dong[1]; [1]State Key Laboratory of Advanced Metallurgy,University of Science and Technology Beijing; [2]Hutian Engineering&Technology Corporation.MCC.

F-28: The Method for Determination of the Influence of the Stress-strain State of Metal on the Structural Transformations in the Low-alloy Steel: Sergey Shejko[1]; *Serhii Yechyn*[1]; Nikita Demchenko[1]; [1]Zaporizhzhya National Technical University

F-29: Thermal Non-Equilibrium Effects on Nickel Solid-Liquid Interface: *Nicholas Brown*[1]; Enrique Martinez[2]; Jianmin Qu[3]; [1]Northwestern University; [2]Los Alamos National Lab; [3]Tufts University

F-30: Stochastic Modeling for Prediction of the Columnar to Equiaxed Transition during Solidification of Magnesium-based Alloys: *Ahmad Salman*[1]; Laurentiu Nastac[1]; [1]The University of Alabama

F-31: Multiscale Numerical Model of Nanoindentation Test of PLD sample: *Konrad Perzynski*[1]; Grzegorz Cios[1]; Lukasz Madej[1]; [1]AGH University of Science and technology

F-32: Simulation of Tube Drawing Textures in NiTi Using Elasto-plastic Self Consistent Algorithm
: *Shivram Kashyap Sridhar*[1]; Scott Robertson[2]; Anthony Rollett[1]; Richard Francis[2]; [1]Carnegie Mellon University; [2]Medtronic Inc.

F-33: Maximum Likelihood Parameter Estimation in Crystal Plasticity Finite Element Method Using Particle Filter: *Yushi Sato*[1]; Junya Inoue[1]; [1]The University of Tokyo

MS&T16 Poster Session — Iron and Steel (Ferrous Alloys)

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

G-1: Effect of Iron on Combustion Characteristics of Coal Char Pyrolyzed by Lump Coal: *Haiyang Wang*[1]; Jianliang Zhang[1]; Guangwei Wang[1]; Zhengjian Liu[1]; Runsheng Xu[1]; Siyuan Liu[1]; Tengfei Song[1]; Ke Guo[1]; [1]University of Science and Technology Beijing

G-2: Application of the EAF Steelmaking Combined Blowing Technology in 100T EAF: *Ma Guohong*[1]; [1]University of Science and Technology Beijing

G-3: Deformation Analysis and the Relation to Martensite Morphology and Distribution in Dual Phase Steels: *Fan Zhang*[1]; Annie Ruimi[1]; Amrita Kundu[1]; David Field[1]; [1]Washington State University

G-4: Effect of Cementite on Ductile Fracture in High Tensile Strength Steel Sheets: *Mari Maeda*[1]; Junji Shimamura[2]; Shinsuke Suzuki[3]; [1]Waseda University ; [2]JFE Steel Corporation; [3]Waseda University

G-5: Hot Deformation and Processing Maps of a Low Carbon Nb/Ti Microalloy Steel: *Mei Zhang*[1]; [1]Shanghai University

G-6: Investigation of Combustion Reaction Kinetic of Anthracite by Sectioning Method: *Ruiling Du*[1]; [1]University of Science and Technology Beijing

G-7: Investigation on the Structure Evolution of Ferrous Burden under the Simulation Oxygen Blast Furnace: *Yan Haotian*[1]; Guang Wang[1]; Depeng Sun[1]; Yingli Liu[1]; [1]USTB

G-8: Microstructure and Mechanical Properties of Fe-Ni-Cr-Mo Alloys Fabricated by Centrifugal Casting: *Kyeongsoon Park*[1]; J. Pi[1]; A. Iqbal[1]; K. Oh[1]; N. Yi[1]; S. Kim[1]; [1]Sejong University

G-9: Modeling Deformation in Steels with Retained Austenite: *Daniel Free*[1]; Stephen Cluff[1]; Devin Adams[1]; David Fullwood[1]; Michael Miles[1]; Eric Homer[1]; [1]Brigham Young University

G-10: Research on the Flow Behavior of Molten Slag through Pore: Yingli Liu[1]; Guang Wang[1]; Long Chen[1]; Haotian Yan[1]; [1]USTB

G-11: Research on the Generation Characteristics and Particle Size Distribution of Steelmaking Dust: *Zhizheng Li*[1]; [1]University of Science and Technology Beijing

G-12: Study on Chlorine Distribution Rate between Bosh Gas and Slag in Blast Furnace: *Cui Wang*[1]; Jian-liang Zhang[1]; He-shun Zhang[1]; Zheng-jian Liu[1]; Ke-xin Jiao[1]; [1]University of Science and Technology Beijing

G-13: The Effect of Sodium and Zinc on Metallurgy Character of Sinter Ore in BF: Zhiwu Yan[1]; Jianliang Zhang[1]; Zhengjian Liu[1]; Xiang Yuan[1]; Heshun Zhang[2]; *Yang Wang*[1]; [1]University of Science and Technology Beijing; [2]Shougang Jingtang United Iron & Steel Co. Ltd

G-14: Research on Galvanisability of High Manganese Alloyed Steel Containing Vanadium: Tingdong Ren[1]; Hu Jiang[1]; Nan Zou[1]; Wen Shi[1]; [1]Shanghai University

G-15: The Influence of Zinc Vapor on Composition and Properties of Coke: Jianbo Zhong[1]; Jianliang Zhang[1]; Kejiang Li[1]; Di Zhao[1]; Hao Lin[1]; Heshun Zhang[2]; [1]University of Science and Technology Beijing; [2]Shougang Jingtang United Iron & Steel Co. Ltd.

G-16: Effect of Starting Microstructure on the Grain Refinement in Cold-rolled Low-carbon Steel during Annealing at Two Different Heating Rates: *Anish Karmakar*[1]; Debalay Chakrabarti[1]; [1]Indian Institute of Technology, Kharagpur

G-17: Multi-phase Numerical Research on Oxygen Lance Blowing High Temperature Oxygen: *Shaoyan Hu*[1]; [1]University of Science and Technology Beijing China

G-18: Optimizing the Cooling Rate for Maximum Precipitation Strengthening of Naturally Cooled V Micro-alloyed Steels: *Anish Karmakar*[1]; Pooja Sahu[1]; Subrata Mukherjee[2]; Saurabh Kundu[2]; Debalay Chakrabarti[1]; [1]Indian Institute of Technology, Kharagpur; [2]R & D, Tata Steel

G-19: Thermodynamic Calculation and Experimental Investigation of Second Phase Particles in HRB400III Steels Enhanced Nitrogen: Wei Song[1]; Jiong-ming Zhang[1]; Shun-xi Wang[1]; [1]State Key Laboratory of Advanced Metallurgy, University of Science and Technology Beijing

G-20: High-speed Quenching of Springs to Generate Compressive Residual Stresses: *Gabriela Martínez Cázares*[1]; [1]Universidad de Monterrey

G-21: Effect of Coarse Grain Band on the Ridging Severity of 409L Ferritic Stainless Steel: *Sudipta Patra*[1]; Debalay Chakrabarti[1]; Arijit Podder[2]; [1]Indian Institute of Technology, Kharagpur; [2]Jindal Stainless Limited

G-22: Study of La Element Content Control in Alloy Smelting: Yongji Niu[1]; Zhiwei Zhang[1]; *Yang Gao*[1]; [1]Beijing Beiye Functional Materials Corporation

G-23: A First-principles Study on the Effect of Coverage in the Dilute Limit for the Adsorption and Dissociation of CO on Fe-110 Surface: Aurab Chakrabarty[1]; Othmane Bouhali[1]; Charlotte Becquart[2]; Normand Mousseau[3]; Fadwa El-Mellouhi[4]; *El Tayeb Bentria*[5]; [1]Texas A&M University at Qatar; [2]UMET, ENSCL, University of Lille 1; [3]University of Montreal; [4]Qatar Environment and Energy Research Institute; [5]Hamad bin Khalifa University

G-24: A Study on the Viscous Behaviour with K2O Additions on the Slags: Yang Junqiang[1]; *Yang Wang*[1]; [1]University of Science and Technology of Beijing

MS&T16 Poster Session — Materials-Environment Interactions

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

H-1: A Comparison of Corrosion, Tribocorrosion on Atmospheric Plasma Sprayed Al2O3 8YSZ Composite Ceramic Coating on Titanium for Orthopedic Application: *Eric Lee*[1]; Mathew Mathew[1]; Xuebin Zheng[2]; Ernesto Indacochea[1]; [1]University of Illinois at Chicago; [2]Shanghai Institute of Ceramics, Chinese Academy of Sciences

H-2: Characterization of TiC, TiN, TiAlN, TiO and TiCN PVD Nano Coatings on AISI 420 J1 Steel: *Muhammad Ishtiaq*[1]; Aqil Inam[1]; Rafiq Ahmad[1]; Anaum Nawaz[1]; Muhammad Irfan[1]; Muhammad Saleem[1]; Muhammad Saleem[1]; Waqas Ali[1]; [1]University of the Punjab

H-3: Effect of Plasma Etching on the Adhesion of Zn-Mg Coated High Strength Steel: *Su-Ryong Bang*[1]; Jong Min Byun[1]; Hyun Woo Kim[1]; Tae-Yeob Kim[2]; Young Do Kim[1]; [1]Hanyang University; [2]POSCO

H-4: Getting of Wear-resistant Coatings on Steels in SHS Conditions: Borys Sereda[1]; *Dmytro Sereda*[2]; [1]DSTU; [2]ZSEA

H-5: Microstructure and Properties of TiN Coating Layer on Tool Materials: Young Suk Kim[1]; Charles Han[1]; Young Hoon Lee[1]; Hyo Soo Lee[2]; *Ki Buem Kim*[1]; [1]Sejong University; [2]KITECH, Incheon

H-6: Phlogopite Glass-ceramic Coatings on Stainless Steel Substrate: *Aida Faeghinia*[1]; [1]MERC

H-7: Fabrication of Superhydrophobic Coatings on AA 6061: *Muhammad Nauman Siddiqui*[1]; Agha Zeeshan Ali[1]; Hamza Haseeb[1]; Muhammad Shaharyar[1]; [1]University of the Punjab

H-8: Effect of Surface Profile of Mild Steel Substrate upon the Adhesion Strength of WC- 11%Co Flame Spray Coating: *Muhammad Hassan*[1]; Aqil Inam[1]; Muhammad Shahid[1]; [1]University of the Punjab

H-9: Performance of Methanogen Encapsulated Proppant in Release and Conductivity: *Kyu-Bum Han*[1]; Alexandre Stella[2]; John Fuertez[1]; John McLennan[1]; Taylor Sparks[1]; [1]University of Utah; [2]Universidade Federal do ABC

H-10: Degradation of Indium Tin Oxide Film under Electrochemical Corrosion Environment: *Jaiwon Byeon*[1]; Hina Farooq[1]; [1]Seoul National University of Technology

H-11: Structure-property Relationships Governing Degradation Induced Release of Nanoparticles from Polymer Materials: Jacob Cohen[1]; Eric Rohrbach[1]; Kai Gao[1]; Micheal Toomey[1]; John Howarter[1]; *Logan Kearney*[1]; [1]Purdue University

H-12: Bacterial Corrosion of Oxides Formed in Supercritical Water: *Zachary Karmiol*[1]; Dev Chidambaram[1]; [1]University of Nevada Reno

H-13: Oxidation Behavior of Deformable Austempered Ductile Iron and the Ways for Improvement of Its High Temperatures Properties: *Olga Tsurtsumia*[1]; Nugzar Khidasheli[1]; Elguja Kutelia[1]; Tengiz Kukava[1]; Bronislava Gorr[2]; Benjamin Gregoire[3]; Fernando Pedraza[3]; [1]Georgian Technical University; [2]University of Siegen; [3]University of La Rochelle

H-14: The Effect of Ni:Co and Al:Ti Ratios on the Oxidation Behaviour of Ni-Co-Al-Ti-15Cr Alloys: *Katerina Christofidou*[1]; Nicholas Jones[1]; Mark Hardy[2]; Howard Stone[1]; [1]University of Cambridge; [2]Rolls Royce plc

H-15: Characterization of Surface Films on Magnesium Alloy AZ31D in NaCl Solutions with Electrochemcial Techniques: *Shuoshuo Xi*[1]; [1]University of Illinois at Chicago

H-16: Corrosion Response of ASTM A-299 Steel Weldment in As-weld and Post Weld Heat Treatment Condition: *Muhammad Kamran*[1]; Tahir Ahmad[1]; [1]University of the Punjab

H-17: Effect of Carbon Content on Corrosion Properties of Plain Carbon Steels: *Amer Malik*[1]; Aqil Inam[1]; Rafiq Ahmad[1]; Muhammad Ishtiaq[1]; Riaz Sarwar[1]; Khubaib Zohaib[1]; Muhammad Shaheen[1]; [1]University of the Punjab

H-18: Evaluation of Corrosion of Shielded Metal Arc Weldment in Boiler Tube Steel in 3.5% NaCl solution: *Ravindra Kumar*[1]; [1]NIET

H-19: Modification of AC/DC/AC Technique for Organic Coatings: Qi Gui[1]; Dajiang Zheng[1]; *Guang-Ling Song*[1]; [1]Xiamen University

H-20: Study on Corrosion Resistance of the Effect of the Temperature on Thread Steel: Zhitong Wang[1]; Jiongming Zhang[1]; Bo Wang[1]; Yanbin Yin[1]; Qipeng Dong[1]; Shunxi Wang[1]; Wei Song[1]; Lilei Han[1]; [1]University of Science and Technology Beijing

H-21: Advanced Thermal Barrier Coating Architectures for Improved Erosion Durability: *Brenna Gorin*[1]; Michael Schmitt[1]; Amarendra Rai[2]; Douglas Wolfe[1]; Dongming Zhu[3]; [1]The Pennsylvania State University; [2]UES Inc; [3]NASA Glenn Research Center

H-22: Assessment of Mechanical Behaviors of Co-evaporated EBPVD TBCs with Varying Rare Earth Content: *Jamesa Stokes*[1]; Michael Schmitt[1]; Douglas Wolfe[1]; [1]The Pennsylvania State University

H-23: Performance and Durability of Environmental Barrier Coatings on SiC/SiC Ceramic Matrix Composites: *Dongming Zhu*[1]; Bryan Harder[1]; Ram Bhatt[1]; [1]NASA John H. Glenn Research Center

H-24: Material Behavior of Window 7 Carrier Panel Tiles and Thermal Pane Glass Fragments Recovered from the Space Shuttle *Columbia*: *Brenda Arellano*[1]; [1]The University of Texas at El Paso

H-25: Fabrication of Silica Aerogel as Thermal Insulation Coating: *Noppakun Sanpo*[1]; Jaturong Jitputti[1]; Koichi Fukuda[1]; [1]SCG Chemical Co., Ltd.

MS&T16 Poster Session — Nanomaterials

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

I-1: A Novel Production Approach for FeNiCoCu High Entropy Alloys: Burak Kucukelyas[1]; Serzat Safaltin[2]; Duygu Yesiltepe[2]; Ebru Sam Parmak[1]; *Sebahattin Gurmen*[2]; [1]Bursa Technical University; [2]Istanbul Technical University

I-2: Plasmonic, Flexible, Free-Standing, Monolayer Gold Nanoparticle Films for Plasmonic Applications: *Lindsey Pruden*[1]; [1]University of Utah

I-3: Formation of Si Nanostructures via Low-energy He^+ Ion Irradiation: *Theodore Novakowski*[1]; Jitendra Tripathi[1]; Ahmed Hassanein[1]; [1]Purdue University

I-4: Processing Nanocrystalline Alumina for Sintering: *James Wollmershauser*[1]; Boris Feigelson[1]; Dana Kazerooni[2]; Edward Gorzkowski[1]; [1]Naval Research Laboratory; [2]Virginia Polytechnic Institute and State University

I-5: Reductions in the Size and Spacing of Ni Nanoparticles Dewet Via Laser Pulse through the Addition of Alumina Capping Layers: Benjamin White[1]; *McKay Stoker*[1]; Nicholas Roberts[1]; [1]Utah State University

I-6: Second Derivative Fourier Transform Infrared Spectroscopy Analysis of Aligned Graphene and Graphene Oxide in Carboxymethyl Cellulose Films: *Julie Muretta*[1]; Una Trivanovic[1]; [1]Montana State University

I-7: Structural and Magnetic Properties of Melt-spun $Fe_{bal}Si_x$ (x = 3-9 wt.%) Materials: *Xiujuan Jiang*[1]; Karen Kruska[1]; Arun Deveraj[1]; Jens Darsell[1]; Vineet Joshi[1]; Nicole Overman[1]; [1]Pacific Northwest National Lab

I-8: Fabrication of 3D Phononic Crystals with Long-Range SiO_2 Phononic Band Structure: *Shan-Ju Chiang*[1]; Leon Shaw[1]; [1]Illinois Institute of Technology

MS&T16 Poster Session — Processing and Manufacturing

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

J-1: Bilayer Graded Al/SiC/Rice Husk Ash Composite: Thermal and Electrical Properties: Amin Bahrami[1]; *Martin Pech-Canul*[1]; Shaghayegh Soltani[2]; Niloofar Soltani[1]; Carlos Gutierrez[1]; Luis Gonzalez[1]; [1]CINVESTAV-IPN; [2]K. N. Toosi University of Technology

J-2: Porous Silicon Oxycarbide Composites with Aligned Macro Porosity from Water-based Slurry by Freeze Casting Process: Niloofar Soltani[1]; Ulla Simon[2]; Amin Bahrami[1]; Sara Zavareh[2]; Oliver Görke[2]; *Martin Pech-Canul*[1]; Aleksander Gurlo[2]; [1]CINVESTAV-IPN; [2]Technische Universitaet Berlin

J-3: Thermal and Electrical Properties of Infiltrated High Volume Fraction Si_3N_4 and Si_3N_4-coated SiO_2 Preforms by Al-Mg-Si Alloys as Heat Sink Materials in Electronic Packaging: Niloofar Soltani[1]; Shaghayegh Soltani[2]; *Martin Pech-Canul*[1]; Amin Bahrami[1]; Luis Gonzalez[1]; [1]Centro de Investigación y de Estudios Avanzados del IPN; [2]K. N. Toosi University of Technology

J-4: Improvement of Mechanical Properties of Pure Titanium by Boronization and Nitridization by Al Added Fused Salt Bath: *Ryoya Ishino*[1]; Shohei Arai[1]; Shinji Koyama[1]; [1]Gunma University

J-5: Obtaining of Boride Coatings under SHS Conditions for Car Parts: Borys Sereda[1]; *Dmytro Sereda*[2]; [1]DSTU; [2]ZSEA

J-6: High Temperature Oxidation Study of Hafnium & Zirconium Diborides: MHD Electrode Coatings: *Steven Sitler*[1]; Krishnan Raja[1]; Indrajit Charit[1]; [1]University of Idaho

J-7: Relating Hardness, Bonding, and Composition in $AlLiB_{14}$: Liwen Wan[1]; *Scott Beckman*[2]; [1]Lawerence Berkeley National Laboratory; [2]Washington State University

J-8: The Nature of Thermoelectricity in $AlYB_{14}$ Compounds: Bo Xu[1]; Irmak Sargin[1]; *Scott Beckman*[1]; [1]Washington State University

J-9: Admixture Optimization in Concrete by Using Superplasticizers: *Andrea Munoz*[1]; Sergio Cifuentes[2]; Henry Colorado[1]; [1]Universidad de Antioquia; [2]Conasfaltos

J-10: Aggregate Optimization in Concrete by the Viterbo O' Reilly Díaz Method: *Edinson Murillo Mosquera*[1]; Henry A Colorado[1]; [1]Universidad de Antioquia

J-11: Process Optimization of a VSI Crusher and Screening System Used with Feldspar Minerals: *Hugo Gomez*[1]; Juan Esteban Ospina[1]; [1]Sumicol S.A.S., Organizacion Corona

J-12: Characterization of Composition and Ionic Effects on Superabsorbent Hydrogel Polymers for Internal Curing of Cement: *Matthew Parsons*[1]; Matthew Krafcik[1]; Kendra Erk[1]; [1]Purdue University

J-13: Superabsorbent Hydrogels as Internal Curing Agents: Investigating the Effects of Hydrogel Particle Size on Properties and Microstructure of Concrete: *Austin Beggs*[1]; Matthew Krafcik[1]; Kendra Erk[1]; [1]Purdue University

J-14: Suspension Polymerization of Superabsorbent Polymer Hydrogels and Impact of Particle Size and Shape on Internal Curing: *Stacey Kelly*[1]; Kendra A. Erk[1]; [1]Purdue University

J-15: Creep of Calcium Aluminate Cements: *John Zapata*[1]; Maryory Gomez[1]; Henry Colorado[1]; [1]Universidad de Antioquia

J-16: Waste Form Screening Test Results of Submerged-bed Scrubber Effluent (SBSE) Using Ceramicrete Phosphate Ceramics: *Jose Gaviria*[1]; Henry Colorado[2]; Dileep Singh[3]; [1]University of Califoria - Los Angeles; [2]Universidad de Antioquia; [3]Argonne National Laboratory

J-17: Electron Microscopy Analysis of Secondary Phases in KHR45A Tubulars after 10 Years Service in an Ethylene Furnace: *Ihho Park*[1]; Yunjo Ro[1]; Raghavan Ayer[1]; Junghoon Jeon[1]; Jae-Woong Kim[2]; [1]SK innovation; [2]SK Energy

J-18: Failure Analysis of Uneven Fracture of Connecting Rod during Splitting Operation: *Shital Jadhav*[1]; Vinayak Pawar[1]; Ashish Supare[1]; Amol Gujar[1]; Rajkumar Singh[1]; [1]Bharatforge,ltd

J-19: Effect of Geometrical Parameters on Deflection of Different Chassis Components Sections: Sumedh Kousadikar[1]; Mangesh Yadav[1]; *Dattaprasad Lomate*[1]; Manoj Ukhande[1]; [1]Bharat Forge Ltd.

J-20: Ceramic-metal Joining on the Nanoscale: Engineered Interfaces for Robust Thermal Performance: *David Driscoll*[1]; Stephen Sofie[1]; [1]Montana State Univeristy

J-21: Fracture Toughness Comparison between Friction Stir Welds in Two API-5L-X80 Steels with Different Microstructure and Composition: *Julian Avila*[1]; Eduardo Fonseca[2]; Johnnatan Rodriguez[2]; Antonio Ramirez[3]; [1]University of São Paulo at São Carlos School of Engineering; Brazilian Nanotechnology National Laboratory ; [2]Brazilian Nanotechnology National Laboratory; [3]The Ohio State University

J-22: Application of Computational Thermodynamics & Kinetics to Rare Earth Reduction in Magnesium Alloys: *Kyle Fitzpatrick-Schmidt*[1]; Danielle Cote[1]; Diran Apelian[1]; [1]Worcester Polytechnic Institute

J-23: Light Element Measurements on Electron Probe Microscopy by Wavelength-dispersive X-ray Spectrometry: Michel Outrequin[1]; Mona Moret[1]; Anne-Sophe Robbes[1]; Michel Fialin[2]; *David Larson*[3]; Thomas Kelly[3]; [1]CAMECA SA; [2]Université Pierre et Marie Curie - Paris 6; [3]CAMECA Instruments Inc.

J-24: Localized Corrosion Behavior of Mg-Y-R.E-Zr Alloy in Basic Solution: *Jakraphan Ninlachart*[1]; Krishnan Raja[1]; [1]University of Idaho

J-25: Purification and Improvement of Properties of A356 Alloy Wheels during Low Pressure Die Casting: Application of a Novel Refining Agent: *Huarui Zhang*[1]; Hu Zhang[1]; [1]Beihang University

J-26: A Chemical Model to Predict the Formation of a Semiconductor Solid Solution, by Using Mechanochemical Reactions: The Effect of Oxygen Potential: H. Rojas-Chávez[1]; J. Santoyo-Salazar[1]; *A. F. Fuentes*[1]; [1]CINVESTAV-IPN

J-27: Characterization of Mechanical Milling Induced Effects in Titanate Pyrochlores with Neutron Total Scattering: *Eric O'Quinn*[1]; Jacob Shamblin[1]; Maik Lang[1]; Antonio Fuentes[2]; [1]University of Tennessee; [2]Cinvestav Unidad Saltillo

J-28: The Effect of Sintering Temperature on the Microstructure of Fe-1.4 wt.% C Alloy Prepared by Mechanical Alloying: Ibrahim Khalfallah[1]; *Alex Aning*[1]; J. Chen[2]; David Gray[3]; David Berry[3]; [1]Virginia Tech; [2]National Taipei University of Technology; [3]Prime Photonics, LC

J-29: Effect of Milling Conditions on the Mechanochemical Reactions in the System Al – B2O3 – C: *Petra Hanusova*[1]; [1]Brno University of Technology, Faculty of Mechanical Engineering

J-30: Effects of Few-layered Graphene (FLG) on the Mechanical and Thermal Properties of Copper Matrix Composites: *Seonghyeon Yoo*[1]; Haneul Jang[1]; Hyunjoo Choi[1]; [1]Kookmin University

J-31: Electrical Properties of Ln4Zr3O12 (Ln = Y, Ho, Er and Yb) Zirconates Synthesized by Mechanical Milling: José Orlando Acosta-García[1]; Antonio Fernández-Fuentes[2]; Madelyne Salazar-Zertuche[1]; María Elena Bazaldúa-Medellín[2]; *José Alonso Díaz-Guillén*[1]; [1]Instituto Tecnologico de Saltillo; [2]CINVESTAV Unidad Saltillo

J-32: Facile Oxyhalides Production from Halogenated Pollutants Destruction by Ball Milling: *Giovanni Cagnetta*[1]; Mengnan Lu[1]; Jun Huang[1]; Gang Yu[1]; [1]Tsinghua University

J-33: High-energy Milling Activation, a Key Step on a Molten Salts Route, to Synthesize Multiferroic Compounds at Low-temperature: Anayantzin Hernández-Ramírez[1]; A. Martínez-Luévanos[1]; Antonio F. Fuentes[2]; *Sagrario M. Montemayor*[3]; [1]Universidad Autónoma de Coahuila; [2]CINVESTAV Unidad Saltillo; [3]Centro de Investigación en Química Aplicada

J-34: Mechanical Activation Effect on the Chemistry of a Typical Float Glass Batch: *Antonio Fuentes*[1]; [1]Cinvestav del IPN

J-35: Mechanisms of Refractory Metal Borides and Carbides Formation during Mechanical Alloying: *Maria Savyak*[1]; [1]Franzevych Institute for Problems of Materials Science National Academy of Sciences of Ukraine

J-36: Mechanochemical Acetylation of Peat: *Maksim Efanov*[1]; [1]High Technology Park

J-37: Mechanochemical Destruction of Fluorosurfactants as the Alternatives to PFOS: A Feasibility Study: *Mengnan Lu*[1]; Kunlun Zhang[1]; Jun Huang[1]; Gang Yu[1]; [1]Tsinghua University

J-38: Mechanochemical Synthesis of Thermoelectric Materials for Space Applications: *Sabah Bux*[1]; Jean-Pierre Fleurial[1]; Richard Blair[2]; Thierry Caillat[1]; [1]Jet Propulsion Laboratory/California Institute of Technology; [2]University of Central Florida

J-39: Mechanochemical Synthesis, Structural Characteristics, and Electrical Properties of the Gd2(Hf2-xTix)O7 Solid Solution: *Nayeli Cepeda*[1]; José Díaz-Guillén[2]; Ulises Amador[3]; Antonio Fuentes[1]; [1]CINVESTAV; [2]Instituto Tecnológico de Saltillo; [3]Universidad CEU San Pablo, Facultad de Farmacia

J-40: Mechanochemical Synthesis, Structure and Properties of Solid Solutions of Alkaline Earth Metal Fluorides: $M^a_{1-x}M^b_xF_2$ (M: Ca, Sr, Ba): *Marcel Heise*[1]; Gudrun Scholz[1]; Andre Düvel[2]; Paul Heitjans[2]; Erhard Kemnitz[1]; [1]Humboldt-Universität zu Berlin; [2]Leibniz Universität Hannover

J-41: Mechanochemistry for CO-PROX Catalysts Preparation: *Olga Morozova*[1]; Galina Vorobjeva[1]; Alla Firsova[1]; Andrey Streletskii[1]; Alexander Leonov[2]; Ernst Kurmaev[3]; Christine Borchers[4]; May Martin[4]; [1]Semenov Institute of Chemical Physics RAS; [2]Lomonosov Moscow State University, Chemical Department; [3]M.N. Mikheev Institute of Metal Physics, RAS-Ural Division; [4]Institute for Materials Physics, University of Göttingen

J-42: Microstructure-mechanical Property Relationship for Nanocomposite High Energy Density Materials: *Christopher Shuck*[1]; Timothy Ovaert[1]; Alexander Mukasyan[1]; [1]University of Notre Dame

J-43: Reaction Kinetics and Thermodynamic Study of Metal-doped Magnesium Silicides: *Mallikharjuna Bogala*[1]; Ramana Reddy[1]; [1]The University of Alabama

J-44: Synthesis of Al/Graphene Composites via Solution Process Combined with Mechanical Milling: *Daeyoung Kim*[1]; Seonghyeon Yoo[1]; Hyejin Lim[1]; Hyunjoo Choi[1]; [1]School of Advanced Materials Engineering, Kookmin University

J-45: Thermoelectric Properties of Amorphous Ti50Cu28Ni15Sn7-dispersed Bi0.4Sb1.6Te3 Nanocomposite Fabricated by Mechanical Alloying and Vacuum Hot Pressing: *Pee-Yew Lee*[1]; [1]National Taiwan Ocean University

J-46: Microstructure and Mechanical Properties of the As-cast and Extruded Al-Si-Fe-Cu-Mn Based Alloys Fabricated by Adding Grain Refiner: *Hyeon-Taek Son*[1]; Yong-Ho Kim[1]; Hyo-Sang Yoo[1]; Jung-Han Kim[1]; [1]Korea Institute of Industrial Technology

J-47: Effect of the Microstructure Characteristics of Semi-solid Slurries on the Gradient Structure of Tubes Produced by Rheo-squeeze Casting High Si Al Alloys: Lu Li[1]; *Rongfeng Zhou*[1]; Jia Wang[1]; Yehua Jiang[1]; Rong Zhou[1]; [1]Kunming University of Science and Technology

J-48: Microstructure and Deformation Behaviour of Ti-Cu Alloys in the Semisolid State: *Kaio Campo*[1]; Caio de Freitas[1]; Rubens Caram[1]; [1]UNICAMP - University of Campinas

J-49: Modelling of Metal Drawing Process for Aluminium Alloys in Semisolid State: *Himadri Chattopadhyay*[1]; Sudip Simlandi[1]; Nilkanta Barman[1]; [1]Jadavpur University

J-50: New Semi-solid Forging Process for Fabrication Aluminum Bipolar Plates in Fuel Cell: *Chul Kyu Jin*[1]; Chung Gil Kang[2]; [1]Kyungnam University; [2]Pusan National Univeristy

J-51: Semi-solid Forming of Cavity Filter Using in the Telecommunication Industry: Zhiyu Yang[1]; Xiaokang Liang[1]; Youfeng He[1]; Hui Yao[2]; Chunlong Zhang[2]; *Qiang Zhu*[1]; [1]General Research Institute for Non Ferrous Metals; [2]Shenzhen Silver Basis Diecasting Technology Co.Ltd

J-52: Investigation on Liquid Segregation during Rheo-casting Process based on Eulerian-granular Multiphase Model: Jiaojiao Wang[1]; Qiang Zhu[1]; *Fan Zhang*[1]; Daquan Li[1]; Youfeng He[1]; [1]General Research Institute for Non-ferrous Metals

J-53: Microstructure and Mechanical Properties of Ti/AZ31 Multi-layered Materials Processed by Accumulative Roll Bonding: C.S. Hsu[1]; N. Zou[1]; *Qizhen Li*[1]; [1]Washington State University

J-54: Effect of Powder Size and Sintering Parameters on Spark Plasma Sintering Behavior of TiAl-Nb Alloys: *Yan Wang*[1]; Yong Liu[1]; Jiawen Wang[1]; Chi Zhang[1]; [1]Central South University

J-55: Processing and Characterization of Gradient Micro-porous Metals through Blended Elemental Powder Metallurgy: Cindy Waters[1]; *Gerald Vosburg*[1]; [1]NCA&T State University

J-56: Sintering and Characterization of $Ge_2Sb_2Te_5$ Target by Spark Plasma Sintering: Hong Min[1]; *Jin Kyu Lee*[1]; [1]Kongju National University

J-57: Microstructural Heterogeneity and Texture of As-received, Vacuum Arc-cast, Extruded, and Re-extruded NiTi Shape Memory Alloy: *Jiao Luo*[1]; J. Bobanga[2]; John J. Lewandowski[2]; [1]Northwestern Polytechnical University; [2]Case Western Reserve University

J-58: Microstructure Evolution and Deformation Mechanisms Responsible for Flow Softening of Ti17 Alloy during Isothermal Compression: *Jiao Luo*[1]; Lian Li[1]; M.Q. Li[1]; [1]Northwestern Polytechnical University

J-59: The Influence of Deformation Twinning on Copper 220 Caused by Cryogenic Processing: *Janette Fernelius*[1]; Eric Homer[1]; Tracy Nelson[1]; [1]Brigham Young University

J-60: Carbon Structure in Blast Furnace Dusts Characterized by Raman Spectroscope and Its Links with Combustion Reactivity: Di Zhao[1]; Guangwei Wang[1]; Jianliang Zhang[1]; Runsheng Xu[1]; Haiyang Wang[1]; *Yang Wang*[1]; [1]University of Science and Technology Beijing

J-61: Comparative Study on the Microstructure Evolution of Semicoke and Lump Coal under High Temperature: *Runsheng Xu*[1]; Jianliang Zhang[2]; Wei Wang[1]; Zhengliang Xue[1]; Changgui Cheng[1]; [1]The State Key Laboratory of Refractories and Metallurgical; [2]University of Science and Technology Beijing

J-62: Mechanical Analysis of Artificial Stone Produced with Waste from Glass Sheeting Processes in Polymeric Matrix: Lucas Martins[1]; *Carlos Maurício Vieira*[1]; Sergio Monteiro[2]; [1]UENF; [2]IME

J-63: Research on the Recycling Technology of Ladle Furnace Hot Steel Slag: Feng Wang[1]; *Yang Wang*[1]; Shufeng Yang[1]; Jingshe Li[1]; [1]University of Science and Technology Beijing

J-64: Research on the Separation Behavior of Zinc-bearing Dust Briquettes: ZiLuo Chen[1]; JianLiang Zhang[1]; ZhengJian Liu[1]; Xiang Yuan[1]; Bin Gao[1]; [1]University of Science and Technology Beijing

J-65: The Effect of Particle Size of Semi-coke on the Permeability of Stock Column: Hao Lin[1]; Jianliang Zhang[1]; Runsheng Xu[1]; Yun Zhou[1]; Tao Xu[1]; Zhanguo Li[1]; [1]University of Science and Technology Beijing

J-66: Effect Of SiC Nanoparticles on Microstructure and Mechanical Properties of CoCrFeMnNi HIGH Entropy Alloy with FCC Solid Solution: *Lukasz Rogal*[1]; Damian Kalita[1]; [1]Institute of Metallurgy and Materials Science

J-67: Evaluations of Al-Cu-CNF Composite Products Fabricated by Liquid Process Utilizing CGG Process: *Young-sek Yang*[1]; [1]Foosung Precision Ind. Co., Ltd

J-68: Martensitic Phase Transformation in a f.c.c./B2 FeNiMnAl Alloy: *Margaret Wu*[1]; Ian Baker[1]; Paul Munroe[2]; [1]Dartmouth College; [2]University of New South Wales

J-69: Microstructures and High Temperature Mechanical Properties of 304 Stainless Steel Nanocomposites: *Chansun Shin*[1]; Hyohang Cho[1]; Junhyun Kwon[2]; Hyung-Ha Jin[2]; [1]Myongji University; [2]KAERI

J-70: Additive Manufacturing by Extrusion Freeforming of Kaolinite Clay Based Ceramics: *Carlos F. Revelo H.*[1]; Henry Colorado[1]; [1]Universidad de Antioquia

MS&T16 Poster Session — Special Topics

Tuesday AM
October 25, 2016

Room: Exhibit Halls DE
Location: Salt Palace Convention Center

K-1: Analysis of Corn and Tobacco Residue on Archaeological Objects: *Wendy Lindsey*[1]; Nancy Odegaard[1]; [1]University of Arizona

K-2: High Resolution Digital Elevation Modeling of Artworks by Structured Light Methods: *Maria del Carmen Casas Perez*[1]; Lorenzo Borselli[2]; Bernardino Barrientos García[3]; Darryl Butt[4]; Damiano Sarocchi[2]; Gamaliel Moreno Chavez[2]; [1]Boise State University / Universidad Autónoma de San Luis Potosí; [2]Universidad Autónoma de San Luis Potosí; [3]Centro de Investigaciones en Óptica; [4]Boise State University

K-3: Importance of Stabilizing Agents in Conserving the Historical/Cultural Heritage in Tainan City: *Kuan-Zong Fung*[1]; Shu-Yi Tsai[1]; Chung-Ta Ni[1]; [1]National Cheng Kung University

K-4: Initial Micro-structural Evaluation of Tamahagane Steel: *Prabal Tiwari*[1]; Atanu Choudhary[2]; Srinivasa Ranganathan[2]; Satyam Suwas[2]; [1]University of Florida; [2]Indian Institute of Science

K-5: Peculiar Protrusions: Examining the Chemistry of Medieval Oil-on-copper Paintings Using Microscopy and Spectroscopy: *Robin McCown*[1]; Bogdan Makar[1]; Sierra Ludwig[1]; María del Carmen Casas Perez[2]; Glenn Gates[3]; Darryl Butt[1]; [1]Boise State University; [2] Doctorado Institucional en Ingeniería y Ciencia de Materiales (DICIM) de la Universidad Autónoma de San Luis Potosí; [3]Walters Art Museum

K-6: State of Conservation Survey of Artworks by Image Analysis Techniques: The Case Study of the Analco Virgin (Puebla, Mexico): *Maria del Carmen Casas Perez*[1]; Damiano Sarocchi[2]; Lorenzo Borselli[2]; Darryl P. Butt[3]; [1]Universidad Autónoma de San Luis Potosi UASLP - Boise State University; [2]Universidad Autónoma de San Luis Potosí; [3]Boise State University

K-7: Uncovering the Secrets of "32.6 the Bearded Man": *Brittany Cannon*[1]; Hanna Meinikheim[1]; Brittany Archuleta[1]; Maria del Carmen Casas[1]; Jennie Coon[1]; Ron Garnys[1]; Cassie Green[1]; Benjamin Herren[1]; Garnet Kwader[1]; Alaggio Laurino[1]; Robin McCown[1]; Cameron Quade[1]; John-Paul Stroud[1]; Jared Talley[1]; Glenn Gates[2]; Janice Neri[1]; Darryl Butt[1]; [1]Boise State University; [2]Walters Art Museum

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