



Preliminary Technical Program

Current as of May 29, 2018

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Conference Plenary Session I

Monday AM
July 16, 2018

Room: Plenary Room
Location: The Ohio Union

Session Chair: To Be Announced

8:00 AM Introductory Comments

8:15 AM Plenary

Mechanical Properties of High-Entropy Alloys – Review of Recent Developments: *Easo George*¹; ¹Oak Ridge National Laboratory

9:00 AM Question and Answer Period

9:10 AM Plenary

Advancing Alloys by Segregation Engineering: *Dierk Raabe*¹; ¹Max-Planck-Institut

9:50 AM Question and Answer Period

10:00 AM Break

18th International Conference on the Strength of Materials (ICSMA 18) – Advanced Characterization of Deformation Processes I

Monday AM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Dislocation Mapping Using Electron Channeling Contrast Imaging (ECCI) and High Resolution Electron Backscatter Diffraction (HR-EBSD): *Phani Karamched*¹; Angus Wilkinson¹; ¹University of Oxford

11:00 AM

In-Situ Transmission Electron Microscopy of Twinning Nucleation and Growth in BCC Crystals: *Scott Mao*¹; ¹University of Pittsburgh

11:15 AM

Microstructural Characterization of Creep-Fatigue Deformation in 9Cr-1MoV Steel and Weldments: *Harrison Whitt*¹; Tyler Payton¹; Wei Zhang¹; Michael Mills¹; ¹The Ohio State University

11:30 AM

Orientation Dependence of Deformation Behaviors in Cyclic Deformation of AZ31 Magnesium Alloy Investigated by In-Situ Neutron Diffraction, EBSD and TEM: *Wu Gong*¹; Ruixiao Zheng¹; Stefanus Harjo²; Kazuya Aizawa²; Akinobu Shibata¹; Nobuhiro Tsuji¹; ¹Kyoto University; ²Japan Atomic Energy Agency

11:45 AM

In-Situ Investigation of Deformation Dynamics for Quality Monitoring in Ultrasonic Additive Manufacturing: *Gowtham Venkatraman*¹; Leon Headings¹; Marcelo Dapino¹; ¹The Ohio State University

18th International Conference on the Strength of Materials (ICSMA 18) – Fracture and Fatigue I

Monday AM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Toughening Mechanisms in Ceramic Nanocomposites with One- and Two-dimensional Reinforcements: *Brian Sheldon*¹; Cristina Ramirez¹; Lin Zhang¹; Nitin Padture¹; Xing Liu¹; Huajian Gao¹; Hua Guo²; Jun Lou²; ¹Brown University; ²Rice University

ICSMA 18 Preliminary Program as of May 29, 2018

11:00 AM

Micro-Mechanical Fracture Testing of SiC/SiC Composites: *David Armstrong*¹; Eugene Zayachuk¹; ¹University of Oxford

11:30 AM Invited

Damage-Tolerance in Multi-Element Metallic Alloys: *Robert Ritchie*¹; Mark Asta¹; Andrew Minor¹; ¹Univ of California

12:00 PM

Damage Processes in Third-generation Steels: *David Wilkinson*¹; Javad Samei¹; Jidong Kang²; Linfeng Zhou¹; Diyar Salehiyan¹; ¹McMaster University; ²CanmetMATERIALS

12:30 PM

Plastic Work Partition into Stored Energy and Heat during Low Cycle Fatigue of Austenitic Steel: *Wiera Olineruk*¹; Jaroslaw Szusta¹; Wojciech Grodzki¹; ¹Bialystok University of Technology

12:45 PM

On the Non-Validity of Routinely Used Formulae for Stress Intensity Factors and Plastic Zone Sizes of Mode II and Mode III Fatigue Cracks: *Miroslav Hrstka*¹; ¹Brno University of Technology, Central European Institute of Technology (CEITEC)

18th International Conference on the Strength of Materials (ICSMA 18) – High-temperature Deformation and Creep I

Monday AM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Measurement of Power Law Creep Parameters by Nanoindentation: *George Pharr*¹; William Nix²; Ryan Ginder³; ¹Texas A&M University; ²Stanford University; ³University of Tennessee

11:00 AM

Creep Behaviour NiZrY Alloys Undergoing Fast Internal Oxidation: *Julia Hastreiter*¹; Rainer Völkl¹; Uwe Glatzel¹; ¹University Bayreuth

11:15 AM

Dynamic Recrystallization in a Three Phase Titanium Aluminide: *Nitish Bibhanshu*¹; Satyam Suwas¹; ¹Indian Institute of Science

11:30 AM

Effect of Thermomechanical Treatment on Yield Strength of an Extruded ZX10 Alloy: *Patrik Dobron*¹; Daria Drozdenko¹; Klaudia Horváth¹; ¹Nuclear Physics Institute of the CAS, Rez, Czech Republic

11:45 AM

A Development for a Prediction Method of Time to Creep Rupture of Repaired Weld Joints of Modified 9Cr-1Mo Steel: *Tomohisa Kumagai*¹; Masatsugu Yaguchi¹; Koji Tamura¹; ¹Central Research Institute of Electric Power Industry

18th International Conference on the Strength of Materials (ICSMA 18) – Materials Under Extreme Conditions

Monday AM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Ab Initio Calculations of Ideal Strength and Lattice Instability in W-Ta and W-Re Alloys: *Chaoming Yang*¹; *Liang Qi*¹; ¹University of Michigan

10:45 AM

Microstructure and Mechanical Behavior in Gas Atomized Al 6061 Powders and Splats: *Seok-Woo Lee*¹; Tyler Flanagan¹; Benjamin Bedard¹;

Page 1

Alexis Ernst¹; Jie Chen¹; Sumit Suresh¹; Avinash Dongare¹; Harold Brody¹; Aaron Nardi²; Victor Champagne³; Mark Aindow¹; ¹Univ Of Connecticut; ²United Technologies Research Center; ³U.S. Army Research Laboratory

11:00 AM

On the Mechanical Response of Single Crystal Iron under Extreme Loading Conditions: Pascale El Ters¹; *Mutasem Shehadeh*¹; ¹American University of Beirut

11:15 AM

Corrosion Behavior of Micro-Arc Oxidation Coated Additively Manufactured NiTi: An Experimental Study: *Amir Dehghanhadikolaei*¹; Hamdy Ibrahim¹; Amirhesam Amerinatanz¹; Narges Shayesteh Moghaddam¹; Mohammad Ellahinia¹; ¹The University of Toledo

11:30 AM

In-situ Irradiation Studies of Nanoporous and Nanotwinned Metals: *Xinghang Zhang*¹; Jin Li¹; Cuncai Fan¹; ¹Purdue University

18th International Conference on the Strength of Materials (ICSMA 18) – Mechanical Behavior Associated with Phase Transformations I

Monday AM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Computational Design of Nearly Hysteresis-Free and Linear Super-Elastic, and Ultralow Modulus Ferroelastic Materials: Jiaming Zhu¹; Yipeng Gao²; Dong Wang¹; *Yunzhi Wang*²; ¹Frontier Institute of Science and Technology, Xi'an Jiaotong University; ²Ohio State Univ

11:00 AM

Effects of Strained Heat Treatment on the Transformation Temperature of NiTi Shape Memory Alloy Wires: *Parisa Bayatimalayeri*¹; Ahmadreza Jahadakbar¹; Mohammad J. Mahtabi¹; Mohammad Elahinia¹; ¹University of Toledo

11:15 AM

Microstructural Studies of the Effect of Process Parameters on Additively Manufactured NiTi: *Alejandro Hinojos*¹; Narges Shayesteh Moghaddam²; Soheil Saedi³; Haluk Karaca³; Mohammad Elahinia²; Michael Mills¹; ¹The Ohio State University; ²University of Toledo; ³University of Kentucky

11:30 AM

Modeling of Additively Manufactured Shape Memory Alloys: *Natalie Zeleznik*¹; Alejandro Hinojos²; Narges Moghaddam³; Soheil Saedi⁴; Mohammad Elahinia³; Haluk Karaca⁴; Michael Mills²; Peter Anderson²; ¹Ohio State University; ²Ohio State Univ; ³University of Toledo; ⁴University of Kentucky

11:45 AM

Toward a Complete Design Space for Shape Memory Alloys in Gas Turbine Engines: *Richard Blocher*¹; Muthuvel Murugan²; Anindya Ghoshal²; Luis Bravo²; Peter Anderson¹; ¹Ohio State University; ²Army Research Laboratory

Honorary Symposia Joint Sessions – Session I

Monday AM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Steady-State Monotonic and Cyclic Deformation Revisited, Emphasizing the “Quasi-Stationary” State of Deformation: *Hael Mughrabi*¹; ¹University Erlangen-Nürnberg

11:00 AM Invited

Transformation Disconnections and Their Interaction with External Stresses: Gary Purdy; Hatem Zurob; *David Embury*¹; ¹McMaster University

11:30 AM Invited

Stresses in Reverse-Deformed Single Crystal Cu: Quantitative Tests of the Composite Model: *Michael Kassner*¹; Lyle Levine²; ¹University of Southern California; ²NIST

18th International Conference on the Strength of Materials (ICSMA 18) – Advanced Characterization of Deformation Processes II

Monday PM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

In-Situ Characterization of Grain-Scale Deformation Mechanics in Shape Memory Alloys using High-Energy X-Ray Diffraction Microscopy: *Harshad Paranjape*¹; Partha Paul²; Aaron Stebner³; ¹Confluent Medical Technologies; ²Northwestern University; ³Colorado School of Mines

2:00 PM

In-Situ Nanotomography Investigation of High Temperature Deformation in Al-Cu Alloys: *Richi Kumar*¹; Julie Villanova²; Pierre Lhuissier³; Luc Salvo³; ¹European Synchrotron Radiation Facility and Univ. Grenoble Alpes, CNRS, SIMaP; ²European Synchrotron Radiation Facility; ³Univ. Grenoble Alpes, CNRS, SIMaP

2:15 PM

Characterization of Hot Deformation Behaviour of Extruded Mg-Y-Zn Alloys with LPSO Phase: *Kludia Horvath*¹; Daria Drozdenko¹; Kristián Máthi¹; Gerardo Garcés²; Patrik Dobron¹; ¹Charles University in Prague; ²CENIM-CSIC

2:30 PM

Influence of the Composition on the Deformation Mechanisms of Mg-Y-Zn Alloys with Long-Period-Stacking-Ordered Phase: *Kristian Mathis*¹; Kludia Horváth²; Jan Capek²; Daria Drozdenko¹; Dong Ma³; ¹Nuclear Physics Institute of the CAS; ²Charles University; ³Oak Ridge National Laboratory

2:45 PM

Understanding the High Strength and Good Ductility in LPSO-Containing Mg Alloy Using Synchrotron X-Ray Diffraction: *Leyun Wang*¹; Jie Wang¹; Gaoming Zhu¹; Xiaoqin Zeng¹; ¹Shanghai Jiao Tong University

3:00 PM Break

3:30 PM

Quantifying the response of polycrystals using high energy synchrotron x-ray experiments: *Paul Shade*¹; William Musinski¹; Todd Turner¹; ¹Air Force Research Laboratory

4:00 PM

In Situ Neutron Diffraction of Strain Path Change Effects in Cold-Rolled MgAZ31B Sheet: Karl Sofinowski¹; *Steven Van Petegem*¹; Monika Kubenova¹; Jan Capek²; Tobias Panzner¹; Helena Van Swygenhoven¹; ¹Paul Scherrer Institute; ²Charles University in Prague

4:15 PM

Statistical Analysis of Slip and Twinning Activities in Mg-Ca Alloy by In Situ EBSD: *Gaoming Zhu*¹; Leyun Wang¹; Xiaoqin Zeng¹; ¹Shanghai Jiao Tong University

4:30 PM

Mapping Local Strain and Order with Nanobeam Diffraction during In Situ Deformation of Bulk Metallic Glasses: *Thomas Pekin*¹; Christoph Gammeter²; Colin Ophus³; Robert Ritchie¹; Andrew Minor¹; ¹University of California, Berkeley; ²Erich Schmid Institute Of Materials Science; ³Lawrence Berkeley National Lab

4:45 PM

In Situ Experiments across Real and Reciprocal Space: Micro-Mechanisms of Twinning in Titanium: *Nilesh Gurao*¹; ¹FB-408

18th International Conference on the Strength of Materials (ICSMA 18) – Fracture and Fatigue II

Monday PM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM

Enhancing the Fatigue Performance of Precipitate Strengthened Al Alloys: Qi Zhang¹; Sam Gao¹; Christopher Hutchinson¹; ¹Monash University

1:45 PM

The Effects of Loading Frequency and Degree of Sensitization on Corrosion Fatigue of AA5083-H131 and AA5456-H116 in 3.5% NaCl: David Schrock¹; Allison Akman¹; Rebecca Bay¹; Ramgopal Thodla²; Jenifer (Warner) Locke¹; ¹The Ohio State University; ²DNV GL

2:00 PM

Fracture Toughness of Tungsten: Reinhard Pippan¹; Vladica Nicolici¹; Manuel Pfeifenberger¹; Daniel Firneis²; Daniel Scheiber³; Lorenz Romaner³; ¹Erich Schmid Institute Of The Oeaw; ²Department Materials Physics, Montanuniversität; ³Material Center Leoben Forschung GmbH

2:15 PM

Stage I Fatigue Crack Initiation in Polycrystalline FCC Metals: Veronika Mazánová¹; Milan Heczko¹; Jaroslav Polák¹; ¹Institute of Physics of Materials ASCR

2:30 PM

On Micromechanics Associated with Crack Growth in Quasi-Brittle Materials: Mohamed Chabaat¹; Mokhtar Touati¹; ¹University of Sciences and Technology Houari Boumediene

2:45 PM

Micromechanical Modeling of Fatigue Crack Incubation and Small Crack Growth in Polycrystals: Hamad ul Hassan¹; Martin Boefff¹; Alexander Hartmaier¹; ¹Ruhr Universität Bochum

3:00 PM Break

3:30 PM

Correlating Dislocation Configurations to Deformation Behavior in Cyclically Loaded Additive Manufactured IN718: Josh Kacher¹; Yung Yoo¹; Todd Book²; Michael Sangid²; ¹Georgia Tech; ²Purdue University

3:45 PM

Effect of Advanced Mechanical Surface Treatments on To be announcednd Elevated Temperature Residual Stress, Microstructure, Strength, and Fatigue Behavior of ATI 718Plus Nickel-Base Alloy: Micheal Kattoura¹; Abhishek Telang²; Seetha Mannava¹; Dong Qian³; Vijay Vasudevan¹; ¹Univ of Cincinnati; ²Integer; ³University of Texas at Dallas

4:00 PM

Fatigue Life Evaluation of the SLM-fabricated, Stiffness-matched, Mandibular Bone Fixation Plates: Ahmadreza Jahadkbar¹; Mohammad J. Mahtabi¹; Narges Shayesteh Moghaddam¹; Amirhesam Amerinatanz¹; David Dean²; Mohammad Elahinia¹; ¹Univ of Toledo; ²The Ohio State University

4:15 PM

Nickel-Titanium-Hafnium Alloy Design in Tribological Systems
: Sean Mills¹; Behnam Aminahmadi¹; Christopher Dellacorte²; Ronald Noebe²; Aaron Stebner¹; ¹Colorado School of Mines; ²NASA Glenn Research Center

4:30 PM

Low-cycle Fatigue Behaviour of Inconel 617: Ch Visweswara Rao¹; N.C. Santhi Srinivas¹; Vakil Singh¹; ¹Department of Metallurgical Engineering

4:45 PM

Tensile Properties and Fracture Behavior of ATI 718Plus Alloy at To be announcednd Elevated Temperatures: Micheal Kattoura¹; Gopal Viswanathan²; Seetha Mannava¹; Dong Qian³; Vijay Vasudevan¹; ¹Univ of Cincinnati; ²Ohio State University; ³University of Texas at Dallas

18th International Conference on the Strength of Materials (ICSMA 18) – Glasses and Non-crystalline Solid

Monday PM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

Connecting Atomistic Simulations, Defect-based Theories, and Continuum Plasticity in Amorphous Solids: Michael Falk¹; Sylvain Patinet²; Adam Hinkle³; Damien Vandembroucq²; ¹Johns Hopkins Univ; ²ESPCI; ³Sandia National Laboratory

2:00 PM

Shear Banding in Bulk Metallic Glass Matrix Composites with Dendrite Reinforcements: Stephen Niezgoda¹; Michael Gibbons¹; Wolfgang Windl¹; Katharine Flores²; ¹The Ohio State University; ²Washington University in St. Louis

2:15 PM

In-situ Micro-pillar Compression Testing of Bulk Metallic Glass Composites: Lisa Kraemer¹; Yannick Champion²; Verena Maier-Kiener³; Karoline Kormout¹; Pippan Reinhard¹; ¹Erich Schmid Institute (Oeaw); ²Univ. Grenoble Alpes; ³Montanuniversität Leoben

2:30 PM

A Comprehensive Overview of the Notch Sensitivity of Deformation in Sub-Micron/Nanoscale Metallic Glasses: Lakshmi Narayan Ramasubramanian¹; Lin Tian²; Danli Zhang²; Ming Dao³; Zhiwei Shan²; Jimmy Hsia¹; ¹Carnegie Mellon University; ²Xi'an Jiaotong University; ³Massachusetts Institute of Technology

2:45 PM

Uniaxial Compression Tests of Amorphous Boron at the Micrometer Scale: Jessica Maita¹; Gyuhoo Song¹; Seok-Woo Lee¹; ¹University of Connecticut

3:00 PM Break

3:30 PM Invited

Elastic Heterogeneities in Bulk Metallic Glasses: Peter Tsai¹; Kelly Kranjc¹; Katharine Flores¹; ¹Washington Univ

4:00 PM

Spatial Correlation of Elastic Heterogeneity Tunes the Deformation Behavior of Metallic Glasses: Neng Wang¹; Jun Ding²; Lin Li¹; ¹Univ of Alabama; ²Lawrence Berkeley National Laboratory

4:15 PM

Origin of Anelasticity in Metallic Glasses: Yue Fan¹; ¹University of Michigan, Ann Arbor

4:30 PM

Understanding the Role of Microwave Heating on the Crystallization Behavior, Microstructure Formation and Mechanical Response of ZrO₂-containing SiO₂ – MgO – Al₂O₃ – K₂O – B₂O₃ – F Mica Glass-ceramics: Shibayan Roy¹; Mrinmoy Garai¹; Sunil Yadav¹; Atiar Molla²; ¹Indian Institute of Technology (IIT) Kharagpur; ²CSIR-Central Glass and Ceramic Research Institute

18th International Conference on the Strength of Materials (ICSMA 18) – High-temperature Deformation and Creep II

Monday PM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM

Assessing Creep Mechanisms Through Strain Transient Experiments: Jeffery Gibeling¹; ¹University of California

2:00 PM

Data-Driven Mechanism Modeling of Creep Behavior of 9Cr-Steels: Amit Verma¹; Vyacheslav Romanov²; Jeffrey Hawk²; Roger French¹; Jennifer Carter¹; ¹Case Western Reserve Univ; ²National Energy Technology Laboratory (NETL)

2:15 PM

A Materials Informatics Approach to Predict Creep of High-Temperature Alloys: Dongwon Shin¹; Sangkeun Lee¹; Yukinori Yamamoto¹; Michael Brady¹; ¹Oak Ridge National Laboratory

2:30 PM

Creep Deformation and Strengthening Mechanism in Newly Developed Ni-20Cr-15Co-1Ti-2Al-8W Polycrystalline Heat-Resistant Alloy: Masatoshi Mitsuhara¹; Takanori Ito¹; Shigeto Yamasaki¹; Hideharu Nakashima¹; Minoru Nishida¹; Mitsuharu Yonemura²; ¹Kyushu University; ²Nippon Steel and Sumitomo Metal Corporation

2:45 PM

The Effect of Brazing on Microstructure of Honeycomb Liner Materials Hastelloy X and Haynes 214: Uwe Glatzel¹; Sonun Ulan kzyz¹; ¹Univ Bayreuth

3:00 PM Break

3:30 PM

Model-Based Description of the Temperature Dependent Strength of Ferritic and Austenitic ODS Steels: Martin Heilmaier¹; Sascha Seils¹; Daniel Schliephake¹; Torben Boll¹; Alexander Kauffmann¹; ¹KIT Karlsruhe

4:00 PM

Influence of Aluminum and Germanium Additions on Microstructure and Creep Properties of Mo-9Si-8B (at.%): Peter Kellner¹; Rainer Völkl¹; Uwe Glatzel¹; ¹University Bayreuth

4:15 PM

High-temperature Compressive Strength and Tensile Creep Strength of ZrC-Modified MoSiB₂TiC Alloy: Shunichi Nakayama¹; Peter Kellner²; Uwe Glatzel²; Shiho Kamata¹; Nobuaki Sekido¹; Kyosuke Yoshimi¹; ¹Tohoku University; ²University Bayreuth

4:30 PM

Tensile Creep Strength and Microstructure Evolution during Creep Deformation of 1st Gen. MoSiB₂TiC Alloy in Ultra-High Temperature Region: Shiho Kamata¹; Nobuaki Sekido¹; Kouichi Maruyama¹; Gunther Eggeler²; Kyosuke Yoshimi¹; ¹Tohoku University; ²Ruhr-University Bochum

4:45 PM

Modified Constitutive Analysis of Flow Stress in Hot Deformation: Evgueni Poliak¹; ¹ArcelorMittal USA

18th International Conference on the Strength of Materials (ICSMA 18) – Mechanical Behavior Associated with Phase Transformations II

Monday PM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM

Local Strains in Additively Manufactured NiTi under Cyclic Loading and Its Relation to Microstructure: Mohammad Mahtabi¹; Ahmdreza Jahadakbar¹; Amir Dehghan¹; Mohammad Elahinia¹; ¹Dynamic and Smart Systems Laboratory, The University of Toledo

1:45 PM

Improving Strength in Ti-6Al-2Sn-4Zr-6Mo: Abigail Ackerman¹; Alexander Knowles¹; Ioannis Bantounas¹; Mohsen Danaie²; Colin Ophus³; David Rugg⁴; David Dye¹; ¹Imperial College, London; ²Diamond Light Source, Oxford; ³Molecular Foundry, NCEM, Berkeley; ⁴Rolls-Royce plc.

2:00 PM

Phase Transformation and Degradation of Superelastic NiTi during Uniaxial and Multiaxial Loading: Wei-Neng Hsu¹; Efthymios Polatidis¹; Miroslav Smid¹; Steven Van Petegem¹; Helena Van Swygenhoven¹; ¹Paul Scherrer Institute

2:15 PM

Strain Distribution in a Notched NiTi Plate Under Constant Force and Thermal Cycling: Mohammadreza Nematollahi¹; Mohammad J. Mahtabi¹; Mohammad Elahinia¹; ¹Dynamic and Smart Systems Laboratory, Mechanical Industrial & Manufacturing Engineering Department, The University of Toledo

2:30 PM

Residual Stresses in 18 Carat Gold Alloys: A Multi-Scale Diffraction Study: Marina Garcia-Gonzalez¹; Nadine Baluc¹; Steven van Petegem²; Helena van Swygenhoven¹; ¹Ecole Polytechnique Fédérale de Lausanne; ²Paul Scherrer Institut

2:45 PM

Ultra-superelasticity in Bulk Nanograined NiTiNb Alloys with Nanoscale Subdomains: Kaiyuan Yu¹; Lishan Cui¹; Hui Zhang¹; Zhiyuan Ma¹; Yang Ren²; Daqiang Jiang¹; Jian Wang³; ¹China University of Petroleum-Beijing; ²APS, Argonne National Laboratory; ³University of Nebraska-Lincoln

3:00 PM Break

3:30 PM

Elucidating the Relationship Between Micromechanics and Macroscopic Response During Crystallographic Twin Reorientation: Ashley Bucsek¹; Darren Pagan²; Jun Young Peter Ko²; Darren Dale²; Yuriy Chumlyakov³; Aaron Stebner¹; ¹Colorado School Of Mines; ²Cornell High Energy Synchrotron Source; ³Tomsk State University

4:00 PM

Superelastic Superconductor, CaFe₄As₄: Gyuho Song¹; Vladislav Borisov²; William Meier³; Keith Dusoe¹; John Sypek¹; Roser Valentí²; Paul Canfield³; Seok-Woo Lee¹; ¹Univ Of Connecticut; ²Goethe University; ³Iowa State University

4:15 PM

Influence of the Beta to Omega Phase Transformation on the Elasticity of Metastable Beta-Ti Alloys: Jitka Nejezchlebova¹; Hanus Seiner¹; Petr Sedlak¹; Lucie Bodnarova¹; Michal Landa¹; Jana Smilauerová²; Petr Harcuba²; Josef Straský²; Milos Janecek²; ¹Institute of Thermomechanics; ²Charles University

4:30 PM

Micromechanical Study of Grain/Twin Shape and Elastic Mismatch at Annealing Twin Boundaries in Ni-base Superalloy: Marat Latypov¹; Jean-Charles Stinville¹; Jason Mayeur²; Tresa Pollock¹; Irene Beyerlein¹; ¹University of California Santa Barbara; ²CFD Research Corporation

Honorary Symposia Joint Sessions – Session II

Monday PM
July 16, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

Internal Stress Patterns in a Plastically Deforming <110>-Textured Nano-Grain Columnar Iron Structure: Javier Gil Sevillano¹; Iñigo Aldazabal²; Javier Aldazabal³; ¹CEIT and TECNUN, University of Navarra; ²Centro de Física de Materiales; ³TECNUN, Universidad de Navarra

2:00 PM Invited

Slip Bands Interaction with Grain/Twin Boundaries at the Origin of Fatigue Cracks in Ni-Based Superalloys: Patrick Villechaise¹; Jonathan Cormier¹; Baptiste Larrouy²; Julien Genée¹; Loïc Signor¹; ¹Institut Pprime - CNRS; ²Safran Helicopters Engines

2:30 PM Invited

A Dislocation-Based Theory for Fatigue Damage in High and Low Stacking Fault Energy Materials: Stephen Antolovich¹; Anshul Godha²; Arun Gokhale¹; Tarang Mungole³; David Field³; ¹Georgia Institute of Tech; ²Parker Hannifin; ³Washington State University

3:00 PM Break

3:30 PM Invited

The Evolution of Persistent Slip Bands and Point Defects in Metals: 3D Discrete Dislocation Dynamics Simulations: Jaafar El-Awady¹; ¹John Hopkins Univ

4:00 PM Invited

On the Evolution of Dislocation Cell Structures during Reciprocating High Temperature Sliding Wear of Class I and Class II Aluminium Alloys: Alireza Basir Parsa¹; Maximilian Walter¹; Werner Theisen¹; *Gunther Eggeler*¹; ¹Ruhr-Universität Bochum

4:30 PM

Understanding and Controlling Sliding Friction and Wear: *David Rigney*¹; ¹Ohio State Univ

4:50 PM

Thermally-activated Dislocation Plasticity in BCC Cr by Atomistic Simulations and High-Temperature Nanoindentation: *Christian Brandl*¹; Paul Desmarchelier¹; In-Chul Choi¹; Ruth Schwaiger¹; ¹Karlsruhe Institute of Technology

Conference Plenary Session II

Tuesday AM
July 17, 2018

Room: Plenary Room
Location: The Ohio Union

Session Chair: To Be Announced

8:15 AM Plenary

Hardening and Softening in Nano-grained Metals: *Ke Lu*¹; ¹Institute of Metal Research, CAS

8:55 AM Question and Answer Period

9:05 AM Plenary

Achieving Extraordinary Strengths by Varying Length Scales and Boundary Conditions: *Erica Lilleodden*¹; ¹Helmholtz-Zentrum Geesthacht

9:45 AM Question and Answer Period

9:55 AM Break

18th International Conference on the Strength of Materials (ICSMA 18) – Advanced Characterization of Deformation Processes III

Tuesday AM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Measuring Stresses and Strains with Subgrain Resolution Using High Energy X-Ray Diffraction: *Matthew Miller*¹; Darren Pagan²; Mark Obstalecki¹; ¹Cornell University; ²Cornell High Energy Synchrotron Source

11:00 AM

Multiscale Investigation of Mechanical and Microstructural Properties of Nickel-Based Superalloy Inconel 718 Manufactured by Powder-Bed Selective Laser Melting: *Thomas Gallmeyer*¹; Senthamilaravi Moorthy¹; Behnam Aminahmadi¹; Branden Kappes¹; Aaron Stebner¹; ¹Colorado School of Mines

11:15 AM

On the Origin of Extraordinary Cyclic Strengthening of a New, High-temperature Capable Austenitic Stainless Steel Sanicro 25 during Fatigue at 700°C: *Milan Heczko*¹; Bryan Esser²; Yunzhi Wang²; Roman Gröger¹; Timothy Smith³; Premysl Beran⁴; Veronika Mazánová¹; Tomáš Kruml¹; Jaroslav Polák¹; Michael Mills²; ¹Institute of Physics of Materials ASCR; ²The Ohio State University; ³NASA Glenn Research Center; ⁴Nuclear Physics Institute ASCR

11:30 AM

Segregation-mediated Strengthening Mechanisms in Nanotwinned Metals: *Zhiliang Pan*¹; Xing Ke¹; Qiongjiali Fang¹; Frederic Sansoz¹; ¹University of Vermont

11:45 AM

To be Announced: *Antonin Dlouhy*¹; ¹Academy of Sciences, Institute of Physics of Materials

ICSMA 18 Preliminary Program as of May 29, 2018

18th International Conference on the Strength of Materials (ICSMA 18) – Fracture and Fatigue III

Tuesday AM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Ultrasonic High Cycle Fatigue Testing at the Microscale: Arutyun Arutyunyan¹; Jicheng Gong¹; *Angus Wilkinson*¹; ¹University of Oxford

11:00 AM

Cyclic Deformation and Fatigue of Two High Strength Mg Alloys: *Jie Dong*¹; Dong shuai¹; Jiang Yanyao¹; Jin Li¹; ¹Shanghai Jiao Tong University

11:15 AM

Ratcheting Fatigue Behavior of Zircaloy-2: *Santhi Srinivas N C*¹; Rajpurohit R S¹; Vakil Singh¹; ¹Indian Institute of Technology (Banaras Hindu University)

11:30 AM

Micromechanics of Biaxial Cold Dwell Fatigue in Ti-7Al Using Far-Field High-Energy Diffraction Microscopy: *Garrison Hommer*¹; Jun-Sang Park²; Peter Collins³; Adam Pilchak⁴; Aaron Stebner¹; ¹Colorado School of Mines; ²Advanced Photon Source, Argonne National Laboratory; ³Iowa State University; ⁴Air Force Research Laboratory

11:45 AM

Texture Dependence of Normal and Dwell Fatigue Behavior of a Near Alpha Titanium Alloy – IMI 834: *K Yazar*¹; Satyam Suwas¹; ¹Indian Institute of Science

18th International Conference on the Strength of Materials (ICSMA 18) – High-temperature Deformation and Creep III

Tuesday AM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Investigation of Deformation Mechanisms of Ordered Intermetallic Phases in Superalloys: *Longsheng Feng*¹; Duchao Lv²; Robert Rhein³; Donald McAllister¹; Michael Titus⁴; Tresa Pollock³; Michael Mills¹; Yunzhi Wang¹; ¹Ohio State Univ; ²CompuTherm LLC; ³University of California, Santa Barbara; ⁴Purdue University

11:00 AM

New Results from Double Shear Creep Testing of Ni-Base Superalloy Single Crystals in the Low Temperature High Stress Creep Regime: *David Bürger*¹; Antonín Dlouhý²; Gunther Eggeler¹; ¹Ruhr-Universität Bochum; ²Institute of Physics of Materials

11:15 AM

How Reliable are Yield Strength Anomaly Predictions from First Principles Calculations Done at 0K?: *Venkata Koruprolu*¹; S. Karthikeyan¹; ¹Indian Institute of Science

11:30 AM

Strain Rate Sensitivities of Deformation Mechanisms in Magnesium Alloys and Rate Dependent Behaviors: *Huamiao Wang*¹; ¹Shanghai Jiao Tong University

11:45 AM

Influence of Thermal and Thermo-Mechanical Pre-Exposures on the Creep Life of Single Crystal Superalloys: *Philip Wollgramm*¹; Gunther Eggeler¹; ¹Ruhr-Universität Bochum

18th International Conference on the Strength of Materials (ICSMA 18) – Mechanical Behavior Associated with Phase Transformations III

Tuesday AM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Cause and Effect of Retained Austenite Transformation in High Strength Q&P Steel: *David Fullwood*¹; Derrick Adams¹; Jeff Cramer¹; Stephen Cluff¹; Michael Miles¹; Eric Homer¹; Tyson Brown²; Raj Mishra²; ¹Brigham Young Univ; ²General Motors Research Laboratory

11:00 AM

Monitoring Martensitic Transformation during Tensile Test in TRIP Steels Using Neutron Diffraction: *Stefanus Harjo*¹; Noriyuki Tsuchida²; ¹Japan Atomic Energy Agency; ²University of Hyogo

11:15 AM

Grain Size Effect on the Strain Hardening Behavior of Fe-24Ni-0.3C Metastable Austenitic Steel Studied by In-Situ Neutron Diffraction: *MAO Wenqi*¹; Si Gao¹; Wu Gong¹; Myeong-Heom Park¹; Yu Bai¹; Akinobu Shibata¹; Nobuhiro Tsuji¹; ¹Kyoto University

11:30 AM

Suppressed Martensitic Transformation under Biaxial Loading in Low Stacking Fault Energy Metastable Austenitic Steels: *Efthymios Polatidis*¹; Wei-Neng Hsu²; Miroslav Smid¹; Tobias Panzner¹; Prita Pant³; Helena Van Swygenhoven²; ¹Paul Scherrer Institute; ²Paul Scherrer Institute/École polytechnique fédérale de Lausanne; ³IIT Bombay

11:45 AM

Strain Induced Transformations and Additive Manufacturing - A Pathway to Develop Multiphase Materials: *Niyanth Sridharan*¹; Maxim Gussev¹; Kurt Terrani¹; Sudarsanam Babu²; ¹Oak Ridge National Laboratory; ²University of Tennessee, Knoxville

Hael Mughrabi Honorary Symposium – Session I

Tuesday AM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Rate Processes in Dislocation Dynamics: Effects on Dislocation Microstructure and Comparison with Experimental Data: *Anter El-Azab*¹; ¹Purdue Univ

11:00 AM Invited

In-Situ Investigations of Microstructural Changes during Cyclic Deformation of Aluminium by High Resolution Reciprocal Space Mapping: *Annika Diederichs*¹; Ulrich Lienert²; *Wolfgang Pantleon*¹; ¹Technical University of Denmark; ²Deutsches Elektronen Synchrotron

11:30 AM Invited

Micro-Indentations As 3D X-Ray Microscopy Mesoscale Deformation Laboratories: *Bennett Larson*¹; Jonathan Tischler²; Yanfei Gao³; Anter El-Azab⁴; ¹Oak Ridge National Laboratory; ²Argonne National Laboratory; ³University of TN-K/ORNL; ⁴Purdue University

John P. Hirth Honorary Symposium – Session I

Tuesday AM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Dislocations and Grain Boundaries in Colloidal Crystals: *Frans Spaepen*¹; ¹Harvard School of Engrg & Appl Sciences

11:00 AM Invited

Atomic-scale Investigation of Dislocations and Interfacial Line Defects in Layered Chalcogenides: *Douglas Medlin*¹; ¹Sandia National Laboratories

11:30 AM Invited

Q-Carbon Harder than Diamond: A New Frontier in Materials Science: *Jagdish Narayan*¹; ¹North Carolina State Univ

18th International Conference on the Strength of Materials (ICSMA 18) – Advanced Characterization of Deformation Processes IV

Tuesday PM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

New Modes of Imaging for In Situ TEM Nanomechanical Testing: *Andrew Minor*¹; ¹UC Berkeley and LBNL

2:00 PM

Strong Neighbour Effects on Grain Resolved Stress Distributions in Hexagonal Metals: Hamidreza Abdolvand¹; Jonathan Wright²; *Angus Wilkinson*³; ¹Western University; ²ESRF; ³University of Oxford

2:15 PM

The Role of Chromium and Cobalt Segregation at Dislocations on the \947' Dissolution in Nickel Based Superalloys: *Paraskevas Kontis*¹; Jonathan Cormier²; Dierk Raabe¹; Baptiste Gault¹; ¹Max-Planck-Institut für Eisenforschung GmbH; ²Institut Pprime

2:30 PM

Advanced TEM Characterization of High Strength Superelastic NiTiHf Alloys for Biomedical Applications: *Behnam Aminahmadi*¹; Thomas Gallmeyer¹; Tom Duerig²; Ronald Noebe³; Aaron Stebner¹; ¹Colorado School Of Mines; ²Confluent Medical Technologies; ³NASA Glenn Research Center

2:45 PM

Atom Probe Tomography Investigation of Diamantane in Bulk Nanocrystalline Aluminum Alloys: Torben Boll¹; Martin Heilmaier²; Walid Hanna³; Ali Yousefiani⁴; Farghalli Mohamed⁵; *James Earthman*⁵; ¹Karlsruhe Institute of Technology (KIT), Institute for Applied Materials; ²Karlsruhe Institute of Technology (KIT); ³Military Technical College; ⁴Boeing Research & Technology; ⁵Univ of California

3:00 PM Break

3:30 PM

Detwinning Mechanisms for Growth Twins in Epitaxial Nanotwinned Cu: *Nan Li*¹; Richard Hoagland¹; John Hirth²; Jian Wang³; Xinghang Zhang⁴; Amit Misra¹; ¹Kyushu University; ²Los Alamos National Laboratory,

3:45 PM

Evaluation and Application of a Shear Test Method for Characterization of Ultrasonic Additive Manufactured Materials: *Tianyang Han*¹; M. Bryant Gingerich¹; Leon Headings¹; Aslan Miriyev²; Marcelo Dapino¹; ¹The Ohio State Univ; ²Columbia University

18th International Conference on the Strength of Materials (ICSMA 18) – Elementary Deformation Mechanisms I

Tuesday PM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM

Electronic and Atomic Structures of Dislocation Cores in Ductile Ionic Crystals: *Katsuyuki Matsunaga*¹; Masaya Ukita¹; Tatsuya Yokoi¹; Atsutomu Nakamura¹; ¹Nagoya University

1:45 PM

Room-temperature Plasticity of Sphalerite Zinc Sulfide Single Crystals in Darkness: *Yu Oshima*¹; Atsutomu Nakamura¹; Katsuyuki Matsunaga¹; ¹Nagoya University

2:00 PM

Density Functional Study of Pipe Diffusion in Ni: *Luke Wirth*¹; C. Woodward²; Amir Farajian¹; ¹Wright State University; ²Air Force Research Laboratory

2:15 PM

First Principles Calculations of Screw Dislocations in Model Engineering Alloys (Ni, Ni3Al, hcp-Ti): *Christopher Woodward*¹; Satish Rao²; Anne Zhao Hui³; Dallas Trinkle³; Brahim Akdim²; ¹Air Force Research Lab; ²UES Inc.; ³University of Illinois

2:30 PM

On the Competition between Slip and Twinning in Very Low Stacking-Fault Energy Cu-Al Alloy Single Crystals: *Maciej Szczerba*¹; Marek Szczerba²; ¹Institute of Metallurgy and Materials Science; ²AGH University of Science and Technology

2:45 PM

Towards an Understanding of Shear Band Formation in Nanocrystalline and Ultrafine-Grained Single Phase FCC Materials: *Oliver Renk*¹; Pradipta Ghosh¹; Reinhard Pippan¹; ¹Erich Schmid Institute of Materials Science, Austrian Academy of Sciences

3:00 PM Break

3:30 PM

Is Deformation Twinning Important for Twinning-Induced Plasticity Steel?: *MingXin Huang*¹; ¹Univ of Hong Kong

3:45 PM

Mechanical Properties of Hetero-Nanostructured Duplex Stainless Steels: *Hiroimi Miura*¹; Masakazu Kobayashi¹; Chihiro Watanabe²; Yoshiteru Aoyagi³; Yojiro Oba⁴; ¹Toyohashi University of Technology; ²Kanazawa University; ³Tohoku University; ⁴JAEA

4:00 PM

Strengthening Mechanisms in Severe Plastically Deformed Metals and Alloys: *Satyam Suwas*¹; ¹Indian Institute of Science, Bangalore

4:15 PM

Designed Hierarchical Microstructure of a High Manganese Twinning-Induced Plasticity Steel with Unexpected Strength-Ductility Combinations: *Xuejun Jin*¹; Wei Li¹; Yu Li¹; Huibin Liu¹; ¹Shanghai Jiao Tong University

4:30 PM

Underlying mechanisms for strengthening in annealed Ni rods: *Girish Bojjawar*¹; Satyam Suwas¹; Atul. H Chokshi¹; ¹IISc, Bengaluru

4:45 PM

The Effect of Hydrogen on the Deformation of Face-Centered Cubic Microcrystals: Three-Dimensional Discrete Dislocation Dynamics Simulations: *Yejun Gu*¹; *Jaafar El-Awady*¹; ¹John Hopkins Univ

18th International Conference on the Strength of Materials (ICSMA 18) – High-temperature Deformation and Creep IV

Tuesday PM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

From Atoms to Turbine Blades: Challenges for Scale Bridging Materials Science in the Field of Co- and Ni-base Single Crystal Superalloys: *Gunther Eggeler*¹; ¹Ruhr-Universität Bochum

2:00 PM

On the Interplay between Vacancies, Dislocations, and Pores during Low Stress High Temperature Creep of SX Superalloys: *Alain Jacques*¹; Roxane TREHOREL¹; Thomas SCHENK¹; ¹IJL/CNRS

2:15 PM

Influence of \947\8242-\947\8243 Co-Precipitation on the Mechanical Properties and Coarsening Kinetics of Alloy718 Variant Superalloys: *Christopher Zenk*¹; Semanti Mukhopadhyay¹; Robert Hayes²; Reza Sharghi-Moshtaghin³; Richard DiDomizio³; Yunzhi Wang¹; Michael Mills¹; ¹The Ohio State University; ²Metals Technology Inc; ³General Electric Global Research Center

2:30 PM

Quantification of the Susceptibility to Ductility Dip Cracking in Welds of Ni-Based Alloys: *Samuel Luther*¹; Boian Alexandrov¹; ¹Ohio State Univ

2:45 PM

Elementary Processes which Govern Microstructural Evolution During HIP Rejuvenation Treatments of As-Processed and Pre-Crept Single Crystal Superalloys: *Oliver Horst*¹; Benjamin Rutttert¹; David Bürger¹; Werner Theisen¹; Gunther Eggeler¹; ¹Ruhr-Universität Bochum

3:00 PM Break

3:30 PM

Dislocation Multiplication within the γ Channels of a Single Crystal Superalloy during Stage II of High-temperature Creep: *Thomas Schenk*¹; Roxane Trehorel¹; Laura Dirand²; Alain Jacques¹; ¹Institut Jean Lamour; ²Universidad del País Vasco

4:00 PM

Effects of Ni3Ti Eta Phase on the Performance of High Temperature Nickel-Base Alloys: *Walter Milligan*¹; John Shingledecker²; Paul Sanders¹; Calvin White¹; Ninad Mohale¹; ¹Michigan Technological Univ; ²Electric Power Research Institute

4:15 PM

The Effect of Temperature on the Suppression of Twinning in A-axis Textured Magnesium and Magnesium Alloys: *Roshan Plamthottam*¹; *Steven Lavenstein*²; Suhas Eswarappa Premeela; Xiaolong Ma; Timothy Weihs; Jaafar El-Awady; ¹Johns Hopkins University; ²Johns Hopkins Univ

4:30 PM

The Influence of the Base Elements on the Deformation Mechanisms in Single Crystalline Co/Ni-base Superalloys: *Nicklas Volz*¹; Christopher H. Zenk¹; Steffen Neumeier¹; Mathias Göken¹; ¹Lehrstuhl für Allgemeine Werkstoffwissenschaften

4:45 PM

A Phenomenological Creep Model for Ni-Base Single Crystal Superalloys at Intermediate Temperatures: *Siwon Gao*¹; Philip Wollgramm²; Gunther Eggeler³; Anxin Ma⁴; Juergen Schreuer⁵; Alexander Hartmaier¹; ¹Interdisciplinary Centre for Advanced Materials Simulation (ICAMS); ²Institute of Materials, Ruhr-University Bochum; ³Institute of Materials, Ruhr-University Bochum; ⁴IMDEA Materiales; ⁵Institute of Geology, Mineralogy and Geophysics, Ruhr-University Bochum

18th International Conference on the Strength of Materials (ICSMA 18) – Mechanical Behavior Associated with Phase Transformations IV

Tuesday PM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM

Alloy Design by Dislocation Engineering: *MingXin Huang*¹; ¹Univ of Hong Kong

2:00 PM

Very Strong Medium-Carbon Low Alloy Steel by Ultrafine-Metastable-Austenite Decomposition at Nano-Scale: *Liming Fu*¹; *Lifeng Lv*¹; *Han Zheng*¹; *Aidang Shan*¹; ¹Shanghai Jiao Tong Univ

2:15 PM

Tensile Behavior of Ultra-Fine Grained SUS304 Stainless Steel Fabricated by Cold Rolling and Annealing Processes: *Si Gao*¹; *Ruixiao Zheng*¹; *Yu Bai*¹; *Akinobu Shibata*¹; *Nobuhiro Tsuji*¹; ¹Kyoto Univ

2:30 PM

Metastability of Austenitic Stainless Steels: *Marek Smaga*¹; *Annika Boemke*¹; *Tobias Daniel*¹; *Shayan Deldar*¹; *Matthias Walfred Klein*¹; ¹Institute of Materials Science and Engineering, University of Kaiserslautern

2:45 PM

Decomposition of the CrMnFeCoNi High-Entropy Alloy and Effects on Mechanical Properties: *Florian Fox*¹; *Yordan Kalchev*¹; *Sondre Berglund*¹; *Guillaume Laplanche*²; *Aleksander Kostka*²; *Gunther Eggeler*¹; *Easo P. George*³; *Easo P. George*⁴; ¹Institute for Materials, Ruhr University Bochum; ²Center for Interface-Dominated High Performance Materials; ³Materials Science and Technology Division, Oak Ridge National Laboratory; ⁴Materials Science and Engineering Department, University of Tennessee

3:00 PM Break

3:30 PM

Achieving Ultra-high Strength by Compositional Inhomogeneity in Bulk Nanocrystalline Shape Memory Alloys: *Kaiyuan Yu*¹; *Lishan Cui*¹; *Hui Zhang*¹; *Zhiyuan Ma*¹; *Yang Ren*²; *Daqiang Jiang*¹; *Jian Wang*³; ¹China University of Petroleum-Beijing; ²APS, Argonne National Laboratory; ³University of Nebraska-Lincoln

3:45 PM

Improved Ductility of High Pressure Die-cast Mg-xCe-yAl-0.5Mn Alloys by Modifying Al/Ce Ratio: *Dejiang Li*¹; *Chuangye Su*¹; ¹Shanghai Jiao Tong Univ

4:00 PM

Solute Interfacial Segregation as an Elevated Temperature Strengthening Mechanism in Precipitation Hardened Alloys: *Amit Shyam*¹; *Patrick Shower*¹; *Dongwon Shin*¹; *Yukinori Yamamoto*¹; *James Morris*¹; *Lawrence Allard*¹; *Jonathan Poplawsky*¹; *James Haynes*¹; ¹Oak Ridge National Laboratory

4:15 PM

Effect of Grain Refinement on Mechanical Properties of Si-Added 22Mn-0.6C Steel: *Sukyong Hwang*¹; *Yu Bai*¹; *Si Gao*¹; *Akinobu Shibata*¹; *Nobuhiro Tsuji*¹; ¹Kyoto University

4:30 PM

Temper Bead Welding for Weld Overlays: *Jeff Stewart*¹; *Boian Alexandrov*¹; ¹Ohio State Univ

Hael Mughrabi Honorary Symposium – Session II

Tuesday PM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

Cyclic Deformation Behavior and γ - α' -Phase Transformation of Metastable Austenite AISI 347: *Dietmar Eifler*¹; *Tilmann Beck*¹; *Marek Smaga*¹; ¹University of Kaiserslautern

2:00 PM Invited

Why does the Fatigue Endurance Limit scale with Ultimate Tensile Strength? *Nathan Heckman*¹; *Brad Boyce*¹; ¹Sandia National Labs

2:30 PM Invited

Probabilistic Prediction of Dwell Fatigue Lifetime in Microtextured Ti-6Al-4V: *Adam Pilchak*¹; *Sushant Jha*; *Reji John*¹; *James Larsen*¹; ¹US Air Force Research Lab

3:00 PM Break

3:30 PM Invited

Influence of Inclusions on Cyclic Torsion and Cyclic Tension Very High Cycle Fatigue of Spring Steel: *Herwig Mayer*¹; *Ulrike Karr*¹; *Bernd Schönbauer*¹; *Michael Fitzka*¹; *Yusuke Sandaiji*²; *Eichi Tamura*²; *Shogo Murakami*²; ¹BOKU University Vienna; ²KOBE Steel LTD

4:00 PM Invited

Predicting Fatigue Behavior in Metals and Alloys: The PRISMS Center Fatigue Use Case: *John Allison*¹; *J. Wayne Jones*; *Veera Sundararaghavan*; *Jacob Adams*; *Shardul Panwar*; *Aeriel Murphy*; *Mohammadreza Yaghoobi*¹; ¹University of Michigan

4:30 PM

A New Slip Activity Based Strain Hardening Model for Predicting Strain Hardening Behavior of Al-Mg-Si Alloy in Different Temper Conditions: *Sumeet Mishra*¹; *Manasij yadava*²; *Kaustubh Kulkarni*²; *Nilesh Gurao*²; ¹Indian Institute of Technology Kanpur; ²Indian Institute of Technology Kanpur

4:45 PM

Atomistic Simulation of Dislocation Dipole Transformation and Their Effects on the Deformation and Fracture of some Metals: *Dongsheng Xu*¹; *Hao Wang*¹; *Rui Yang*¹; ¹Institute of Metal Research, Chinese Academy of Sciences

John P. Hirth Honorary Symposium – Session II

Tuesday PM
July 17, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

Connections with John Hirth and Dislocation Mechanics: *Ronald Armstrong*¹; ¹University of Maryland

2:00 PM Invited

Predicting the Unpredictable with Superdislocations: The Hall-Petch Effect, Nonlinear Pre-yield Stress-Strain, and Bauschinger Effect: *Robert Wagoner*¹; *John Hirth*²; *Myoung-Gyu Lee*³; *Hojun Lim*⁴; *Ji Kim*⁵; *Hyuk Bong*⁶; *Brent Adams*²; *David Fullwood*⁷; *Eric Homer*⁷; ¹The Ohio State University; ²Retired; ³Korea University; ⁴Sandia National Laboratory; ⁵Pusan National University; ⁶Pacific Northwest National Laboratory; ⁷Brigham Young University

2:30 PM Invited

Crystalline Boundary Mediated Dislocation Behavior: *Yuntian Zhu*¹; ¹North Carolina State University

3:00 PM Break

3:30 PM Invited

Multiscale Dislocation-based Plasticity: *Hussein Zbib*¹; ¹Washington State University

4:00 PM Invited

Mechanisms of <100> Interstitial Loop Formation in Irradiated Iron: *Richard Kurtz*¹; Ning Gao²; Fei Gao³; Wahyu Setyawan¹; ¹Pacific Northwest National Laboratory; ²Chinese Academy of Sciences; ³University of Michigan

4:30 PM

How Finite Numbers of Dislocations in Slip Bands Affect Deformation and Fracture in Metals: Ioannis Mastorakos¹; *Stephen Antolovich*²; Ronald Armstrong³; ¹Clarkson University; ²Georgia Institute of Technology; ³University of Maryland

Conference Plenary Session III

Wednesday AM
July 18, 2018

Room: Plenary Room
Location: The Ohio Union

Session Chair: To Be Announced

8:15 AM Plenary

Micromechanics of Highly Cross-linked Thermosets: *Laurence Brassart*¹; ¹Monash University

8:55 AM Question and Answer Period

9:05 AM Plenary

Metallurgical Aspects of Fatigue Crack Growth Resistance in Steel: How Can We Improve it through Microstructure Control?: *Kaneaki Tsuzaki*¹; Motomichi Koyama¹; Hiroshi Noguchi¹; ¹Kyushu University

9:45 AM Question and Answer Period

9:55 AM Break

18th International Conference on the Strength of Materials (ICSMA 18) – Advanced Characterization of Deformation Processes V

Wednesday AM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Dynamic Strain Aging during Constant Strain Rate and Creep Tests in Near- α Ti Alloy – IMI 834: *Priyanka Agrawal*¹; Karthikeyan S.¹; Dipankar Banerjee¹; ¹Indian Institute of Science

11:00 AM

Direct Characterization of Atomic-Scale Crack Propagation Path along a Dopant-Segregated Grain Boundary: *Shun Kondo*¹; Eita Tochigi²; Naoya Shibata²; Yuichi Ikuhara²; ¹Elements Strategy Initiative for Structural Materials, Kyoto University; ²Institute of Engineering Innovation, The University of Tokyo

11:15 AM

Combined In Situ SEM DIC/EBSD Study on the Influence of Dispersoid Distribution on Strain Localization and Dislocation Accumulation during Deformation of AA6451: *Yung Suk Yoo*¹; Sazol Das²; Richard Hamerton²; Josh Kacher¹; ¹Georgia Institute of Technology; ²Novelis Inc.

11:30 AM

In Situ X-Ray Diffraction of a High Work-Hardening Ti-6Al-4V Prepared by Electron-Beam Melting: *Karl Sofinowski*¹; Solange Vivés²; Steven Van Petegem¹; Stéphane Godet²; Helena Van Swygenhoven¹; ¹Paul Scherrer Institute; ²Université Libre de Bruxelles

18th International Conference on the Strength of Materials (ICSMA 18) – Elementary Deformation Mechanisms II

Wednesday AM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Programmable Materials - Tuning Effective Materials Response: *Peter Gumbsch*¹; Chris Eberl; Claudio Findeisen²; Alexander Butz¹; Jan Pagenkopf¹; ¹Fraunhofer IWM; ²Fraunhofer IWM and Institute for Applied Materials (IAM) Karlsruhe Institute of Technology

11:00 AM

Ductility of Alloys from Nonlinear Elasticity: *Ian Winter*¹; Daryl Chrzan¹; ¹University of California, Berkeley

11:15 AM

Mechanism of Enhanced Ductility in Mg Alloys: *W Curtin*¹; Z. Wu²; R. Ahmad¹; B. Yin¹; ¹EPFL; ²IHPC

11:30 AM

Stabilized <c+a> Dislocations Cores in AZ31 Mg Alloy: *Luoning Ma*¹; Kelvin Xie¹; Kevin Hemker¹; ¹Johns Hopkins University

11:45 AM

Orientation-Dependent Slip in bcc Metals from Atomistic Simulations and Experiments: *Roman Gröger*¹; Zdenek Chlup¹; Ivo Kubena¹; Tomas Kruml¹; ¹CEITEC IPM, Academy of Sciences of the Czech Republic

18th International Conference on the Strength of Materials (ICSMA 18) – Micro- and Nanoscale Mechanical Testing

Wednesday AM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Assessing Mechanical Properties of Irradiated Materials by Nanomechanical Testing: *Janelle Wharry*¹; Kayla Yano¹; Priyam Patki¹; Haozheng Qu¹; Yaqiao Wu²; ¹Purdue University; ²Boise State University & Center for Advanced Energy Studies

11:00 AM

Micro-tension Testing and Micro-scale Strengthening Mechanisms of Lightweight Alloys: *Zhi Liang*¹; Emre Cinkilic¹; Xuejun Huang¹; Jiashi Miao¹; Alan Luo¹; ¹The Ohio State University

11:15 AM

Grain-Scale Investigation of the Anisotropic Dependence of Plastic Instability in AZ91: *Henry Ovril*¹; Erica Lilleodden¹; ¹Helmholtz Zentrum Geesthacht

11:30 AM

Benchmarking Multi-Scale Models with Microtensile Experiments and 3D Microstructural Characterization of René 88DT: *David Eastman*¹; Paul Shade²; Michael Uchic²; George Weber¹; Akbar Bagri¹; Will Lenthe³; Tresa Pollock³; Kevin Hemker¹; ¹Johns Hopkins University; ²Air Force Research Lab; ³University of California, Santa Barbara

11:45 AM

Parametrically Homogenized Constitutive Models (PHCM) from Image-based Crystal Plasticity Modeling to Predict Fatigue Crack Nucleation: *Somnath Ghosh*¹; ¹Johns Hopkins University

18th International Conference on the Strength of Materials (ICSMA 18) – Strength of Biomedical and Bio-inspired Materials

Wednesday AM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Modeling of Anisotropic Fracture in Soft Biological Composites: *Nikolaos Bouklas*¹; ¹Cornell University

10:45 AM

An Optical Trap Method to Measure Scale-Dependent Properties of Soft Materials: *David Gutschick*¹; Tyler Heisler-Taylor¹; David Yeung¹; Gunjan Agarwal¹; Heather Powell¹; Peter Anderson¹; Gregory Lafyatis¹; ¹The Ohio State University

11:00 AM

A Magnesium Alloy and Post-Fabrication Techniques Towards Biodegradable Implants: *Hamdy Ibrahim*¹; Andrew Klarner²; Alan Luo²; David Dean²; Mohammad Elahinia^{1,2}; ¹The University of Toledo; ²Ohio State University

11:15 AM

Corrosion of Heat- and MAO-Treated Mg-1.2Zn-0.5Ca-0.5Mn: A Candidate Alloy for Bioresorbable Skeletal Fixation: *David Dean*¹; Hamdy Ibrahim²; Andrew Klarner¹; Janet Meier¹; Alan Luo¹; Rigoberto Advincula³; Alicia Bertone¹; Ian Valerio¹; Peter Larsen¹; Hany Emam¹; Roman Skoracki¹; Michael Miller¹; Mohammad Elahinia²; ¹The Ohio State University; ²University of Toledo; ³Case Western Reserve University

11:30 AM

Characterization of Microstructure, Mechanical and Corrosion Properties of Mg-Zn-Y Based Alloys with Low Fraction of LPSO Phase: *Daria Drozdenko*¹; Michiaki Yamasaki²; Naoya Kizu³; Shin-ichi Inoue²; Yoshihito Kawamura²; ¹Magnesium Research Center of Kumamoto University and Department of Physics of Materials of Charles University; ²Magnesium Research Center; ³Kumamoto University

11:45 AM

Durability and Sustainability of Guayule Natural Rubber Filled with Eggshell and Precipitated Silica Reinforcing Fillers: *Xianjie Ren*¹; Katrina Cornish¹; ¹The Ohio State University

Hael Mughrabi Honorary Symposium – Session III

Wednesday AM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

New Insights Into Rate Limiting Deformation Processes in Ni-Base Superalloys: *Michael Mills*¹; ¹The Ohio State University

11:00 AM Invited

Rafting and Deformation Mechanisms during Creep of a Single Crystal Co-Base Superalloy: *Steffen Neumeier*¹; Nicklas Volz¹; Fei Xue¹; Christopher Zenk¹; Lisa Freund¹; Mathias Göken¹; ¹Univ of Erlangen Nuernberg

11:30 AM

The Effect of Strain Amplitude on Dislocation Microstructure Evolution and Crack Initiation in Ni and Ni-Based Superalloy Microcrystals: *Steven Lavenstein*¹; Jaafar El-Awady¹; ¹Johns Hopkins Univ

John P. Hirth Honorary Symposium – Session III

Wednesday AM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Atomic-Scale Structure and Dynamics of Phase Transformation Interfaces: A Tribute to John P. Hirth: *James Howe*¹; ¹University of Virginia

11:00 AM Invited

Characterization of Twinning in HCP Materials: *Carlos Tome*¹; Mariyappan Arul Kumar¹; Hareesh Tummala¹; Laurent Capolungo¹; Yue Liu²; Jian Wang³; ¹Los Alamos National Laboratory; ²Shanghai Jiaotong University; ³University of Nebraska-Lincoln

11:30 AM Invited

Dislocation Density Vectors and Plane Strain Bending of FCC Crystals: *Craig Hartley*¹; ¹Florida Atlantic University

18th International Conference on the Strength of Materials (ICSMA 18) – Effects of Grain Boundaries and Interfaces I

Wednesday PM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:15 PM Invited

Grain Boundary Dynamics/Deformation Coupling: *David Srolovitz*¹; Jian Han¹; Spencer Thomas¹; Kongtao Chen¹; Yang Xiang²; Chaozhen Wei²; Luchan Zhang³; ¹University of Pennsylvania; ²Hong Kong University of Science and Technology; ³National University of Singapore

1:45 PM

Anisotropic Mobility of Faceted Grain Boundaries: *Timothy Rupert*¹; ¹Univ of California Irvine

2:00 PM

The Influence of Grain Size Distribution and Dislocation Density on the Mechanical Properties of Interstitial Free Steel: *Wei Li*¹; Jilt Sietsma¹; ¹Department of Materials Science and Engineering, Delft University of Technology

2:15 PM

Parallel Versus Perpendicular Interfaces to the Current Flow, and Their Role on Formation of Kirkendall Voids in Cu/Sn/Cu Sandwich Interconnections, a DFT Assisted Phase Field Study: *Vahid Attari*¹; Thien Duong¹; Raymundo Arroyave¹; ¹Texas A&M Univ

2:30 PM Break

2:45 PM

The Potential of High-energy Milling to Produce Ultra-Fine Grained ZnFe₂O₄-Spinel-Reinforced Aluminum and High-Entropy Alloys for Applications at Elevated Temperatures: *Ulrich Krupp*¹; Michael Harwarth¹; Alexander Giertler¹; Hans-Ulrich Benz²; Henning Zoz²; ¹University of Applied Sciences Osnabrück; ²Zoz Group

3:00 PM

Atomic Structure and Electrical Conduction Property of Dislocations in Strontium Titanate: *Atsutomo Nakamura*¹; Yuho Furushima¹; Eita Tochigi²; Yuichi Ikuhara²; Tatsuya Yokoi¹; Katsuyuki Matsunaga¹; ¹Nagoya University; ²University of Tokyo

3:15 PM

Dislocation Interaction with the Grain Boundary in Bi-crystalline FCC Micropillars: *Ill Ryu*¹; ¹The University Of Texas at Dallas

3:30 PM

Mechanical Properties of Mg-8Gd-3Y-0.5Zr Alloy with Bimodal Grain Size Distributions: *Li Jin*¹; Jie Dong¹; ¹Shanghai Jiao Tong Univ

3:45 PM

Influence of Alloy Composition, Extrusion Parameters and Heat Treatment on Strength and Corrosion Resistance of Extruded 6xxx Series Al-Alloys: *Bastian Böhnlein*¹; Heinz Werner Höppel¹; Mathias Göken¹; ¹FAU Erlangen-Nuremberg

18th International Conference on the Strength of Materials (ICSMA 18) – Elementary Deformation Mechanisms III

Wednesday PM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:15 PM

Theory of Strengthening in BCC High Entropy Alloys: *WCurtin*¹; F. Maresca¹; ¹EPFL

1:30 PM

Effect of Elemental Combination on Friction Stress and Hall-Petch Relationship in Face-Centered Cubic High / Medium Entropy Alloys: *Shuhei Yoshida*¹; Takuto Ikeuchi¹; Tilak Bhattacharjee²; Yu Bai²; Akinobu Shibata²; Nobuhiro Tsuji²; ¹Kyoto Univ; ²Kyoto Univ / ESISM

1:45 PM

Crossover in the Power-Law Statistics of Acoustic Emission during Jerky Flow: *Tatiana Lebedkina*¹; Mikhail Lebyodkin²; Youcef Bougherira³; Denis Entemeyer¹; Ivan Shashkov⁴; ¹Université de Lorraine; ²CNRS; ³Université de Sétif1; ⁴Institute of Solid State Physics RAS

2:00 PM

Meso-Scale Modelling of the Anisotropic Slip Behaviors in a Reduced Activation Ferrite/Martensite (RAFM) Steel: Haiting Liu¹; Jiawei Ma¹; Ao Tang¹; *Yao Shen*¹; ¹Shanghai Jiao Tong Univ

2:15 PM

Role of Mesoscopic-Scale Self-Organization of Dislocations in Macroscopic Characteristics of Jerky Flow: *Mikhail Lebyodkin*¹; Nikolay Kobelev²; Tatiana Lebedkina³; ¹CNRS; ²Institute of Solid State Physics RAS; ³Université de Lorraine

2:30 PM Break

2:45 PM

Stirred Not Shaken: A Dislocation-Obstacle Analysis of a Friction Welded Microstructure in an Age-Hardenable Aluminum Alloy: Olga Gopkalo¹; *Brad Diak*¹; Adrian Gerlich²; ¹Queen's Univ; ²University of Waterloo

3:00 PM

Anisotropy of Static Strain Aging in a Fine-Grained Linepipe Steel: *Qingquan Lai*¹; Chad Sinclair²; Warren Poole²; ¹Nanjing University of Science and Technology; ²The University of British Columbia

3:15 PM

Room Temperature Stress Relaxation of a Quenched and Tempered Steel: *Karl-Heinz Lang*¹; ¹Karlsruhe Institute of Technology (KIT)

3:30 PM

An In-situ Study of Dynamic Strain Ageing in Iron and Iron Alloys: *Daniel Caillard*¹; ¹CNRS

3:45 PM

High Temperature Mechanical Properties of Q390 Steel: *YongTao Zhao*¹; Zhihua Tian¹; Junhui Dong²; Yonglin Ma¹; ¹Material and Metallurgy School, Inner Mongolia University of Science and Technology; ²Materials Science and Engineering school, Inner Mongolia University of Technology

18th International Conference on the Strength of Materials (ICSMA 18) – Mechanistic Foundations for Multiscale Modeling

Wednesday PM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:15 PM

DAMASK: The Düsseldorf Advanced Material Simulation Kit for Studying Multi-Physics Crystal Plasticity Phenomena: Franz Roters¹; Martin Diehl¹; Su Leen Wong¹; Pratheek Shanthraj¹; *Dierk Raabe*¹; ¹Max-Planck-Institut

1:30 PM

Fatigue of Titanium Aluminides: A Coupled Approach between Experimental Observations and Multiscale Modeling: *Louise Toulabi*¹; Pierre Serrano¹; Alain Couret²; Pascale Kanoute¹; ¹ONERA - The French Aerospace Lab; ²CNRS

1:45 PM

A Micromechanical Modeling Scheme to Parameterize a Loading-Path-Dependent Hardening Model for DC06 Steel: *Napat Vajragupta*¹; Srinivas Kamath¹; Till Clausmeyer²; Alexander Hartmaier¹; ¹Interdisciplinary Centre for Advanced Materials Simulation/ Ruhr-Universität Bochum; ²Institute of Forming Technology and Lightweight Construction (IUL)/ TU Dortmund University

2:00 PM

Optimization and Parametrization of Crystal Plasticity Model Using Efficient Data-Driven Material Tools: *Mengfei Yuan*¹; Stephen Niezgodá¹; ¹The Ohio State University

2:15 PM

Modeling of Precipitation Microstructure and Yield Strength of Mg-Al-Sn based Magnesium Alloys
: *Jiashi Miao*¹; Chuan Zhang²; Weihua Sun¹; Andrew Klarner¹; Fan Zhang²; Alan Luo¹; ¹The Ohio State University; ²CompuTherm LLC

2:30 PM

Predicting Thermodynamic Forces from Atomistic Simulations: *Mulaine Shih*¹; Michael Mills¹; Maryam Ghazisaeidi¹; Peter Anderson¹; ¹Ohio State Univ

2:45 PM Break

18th International Conference on the Strength of Materials (ICSMA 18) – Micro- and Nanoscale Mechanical Testing II

Wednesday PM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:15 PM Invited

Rejuvenation of Nanocrystalline Metals using Femtosecond Laser Treatments: Glenn Balbus¹; McLean Echlin¹; Charlette Grigorian²; Tim Rupert²; Tresa Pollock¹; *Daniel Gianola*¹; ¹UCSB; ²UC Irvine

1:45 PM

Anneal Hardening and High Temperature Strain Rate Sensitivity of Nanostructured Metals and Their Relation to Intergranular Dislocation Accommodation: *Oliver Renk*¹; Verena Maier-Kiener²; Daniel Kiener³; Reinhard Pippan¹; ¹Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; ²Montanuniversität Leoben, Department Physical Metallurgy and Materials testing; ³Montanuniversität Leoben, Department Materials Physics

2:15 PM

Constrained Plastic Deformation in a Sub-Micron Sized Crystalline-Glass Bilayer Leads to the Formation of Geometrically Necessary Stacking Faults: *Lakshmi Narayan Ramasubramanian*¹; Lin Tian²; Ming Dao³; Upadrasta Ramamurthy⁴; Zhiwei Shan²; Jimmy Hsia¹; ¹Carnegie Mellon University; ²Xi'an Jiaotong University; ³Massachusetts Institute of Technology; ⁴Indian Institute of Science

2:30 PM Break

2:45 PM

Impact Testing and High Strain Rate Sensitivity Measurements with a Nanoindenter: *Kurt Johanns*¹; P. Sudharshan Phani²; Kermit Parks¹; Warren Oliver¹; ¹Nanomechanics Inc; ²ARCI

3:00 PM

Multi Length-scale Characterization of Ferroelastic Deformation in Ceramic Materials: *Charles Smith*¹; Jessica Krogstad²; ¹Univ of Illinois Urbana-Champaign; ²Univ of Illinois Urbana-Champaign

3:15 PM

Developing High-Strength, Compliant Polymer Nanocomposites by Infiltration of Inorganic Reinforcing Nanoclusters: *Keith Duse*¹; Xinyi Ye²; Kim Kisslinger²; Aaron Stein²; Seok-Woo Lee¹; Chang-Yong Nam²; ¹Univ Of Connecticut; ²Center for Functional Nanomaterials/BNL

3:30 PM

Characterization and Analysis of PMMA Cohesion Behavior: *Pei-Kang Sun*¹; S. Reza Mahmoodi¹; R. Besser¹; ¹Stevens Institute of Technology

Hael Mughrabi Honorary Symposium – Session IV

Wednesday PM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:15 PM Invited

Annealing Twin Networks and Fatigue Crack Initiation in Polycrystalline Superalloys: *Tresa Pollock*¹; Will Lenthe¹; Mclean Echlin¹; Jean-Charles Stinville¹; Chris Torbet¹; ¹Univ of California Santa Barbara

1:45 PM Invited

Crack Initiation Mechanisms during VHCF of Ni-Based Single Crystal Superalloys: *Alice Cervellon*¹; *Jonathan Cormier*¹; Florent Mauget¹; Samuel Hémyry¹; ¹ENSMA / Institut Pprime - UPR CNRS 3346

2:15 PM Invited

Fatigue Failure Modes and Dislocation Mechanisms in a Polycrystalline Nickel Base Superalloy at Intermediate and High Temperature: *Jean-Charles Stinville*¹; E. Martin²; M. Karadge²; S. Ismonov²; M. Soare²; T. Hanlon²; S. Sundaram²; M. P. Echlin¹; P. G. Callahan¹; W. C. Lenthe¹; J. Miao³; A. E. Wessman⁴; R. Finlay⁴; A. Loghini²; J. Marte²; J. A. El-Awady⁵; T. M. Pollock¹; ¹University of California, Santa Barbara; ²General Electric Global Research; ³University of Michigan; ⁴General Electric Aviation; ⁵The Johns Hopkins University

2:45 PM Break

3:15 PM

Tailoring the Properties of a Ni-Based Superalloy via Modification of the Forging Process: An ICME Approach to Fatigue Performance: *John Rotella*¹; Martin Detrois²; Sammy Tin³; Michael Sangid⁴; ¹School of Materials Engineering, Purdue University; ²ORISE Nation Energy Technology Laboratory; ³Illinois Institute of Technology; ⁴School of Aeronautics and Astronautics, Purdue University

3:30 PM

Grain and Sub-Grain Level Strains ahead of an Evolving Fatigue Short Crack as Measured by X-Ray Techniques: *Diwakar Naragani*¹; Michael Sangid¹; Paul Shade²; Peter Kenesei³; Hemant Sharma³; ¹Purdue Univ; ²Air Force Research Laboratory; ³Argonne National Laboratory

3:45 PM

Non-Uniqueness of Fatigue Threshold in Nanocrystalline Ni-Co Alloy: *Sertan Alkan*¹; Huseyin Sehitoglu¹; ¹University Of Illinois Urbana Champaign

John P. Hirth Honorary Symposium – Session IV

Wednesday PM
July 18, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:15 PM Invited

Topological Model of Type II Deformation Twinning: *Robert Pond*¹; John Hirth²; ¹University of Exeter; ²Private scholar

1:45 PM Invited

Finite-Deformation Continuum Dislocation Dynamics for 3D Dislocation Microstructure Evolution: *Anter El-Azab*¹; ¹Purdue Univ

2:15 PM Invited

Relating the Crystallographic Character of Individual Grain Boundaries to their Hydrogen Embrittlement Susceptibility: *Michael Demkowicz*¹; ¹Texas A&M University

2:45 PM Break

3:15 PM Invited

High Strength, Deformable Nanotwinned Al Alloys: *Xinghang Zhang*¹; Qiang Li¹; Jian Wang¹; Haiyan Wang¹; ¹Purdue University

3:45 PM

Cu-Ag Composites and High-Field Magnets: *Ke Han*¹; Congcong Zhao²; Rongmei Niu¹; Vince Toplosky¹; Jun Lu¹; Xiaowei Zuo²; Engang Wagn²; ¹Florida State University; ²Northeastern University

4:05 PM

Deformation Twinning and Omega Transformation in Shock-Loaded Tantalum: *Luke Hsiung*¹; ¹Lawrence Livermore National Laboratory

Conference Plenary Session IV

Thursday AM
July 19, 2018

Room: Plenary Room
Location: The Ohio Union

Session Chair: To Be Announced

8:15 AM Plenary

Metal Microstructures and Properties in 3D and 4D: *Dorte Jensen*¹; ¹DTU

8:55 AM Question and Answer Period

9:05 AM Plenary

Evolution of Microstructure and Material Properties during Additive Manufacturing: *Carolyn Koerner*¹; ¹University of Erlangen

9:45 AM Question and Answer Period

9:55 AM Break

18th International Conference on the Strength of Materials (ICSMA 18) – Effects of Grain Boundaries and Interfaces II

Thursday AM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Advances in Characterizing the Crystallographic and Atomic Structure of Grain Boundaries: *Eric Homer*¹; Srikanth Patala²; Jonathan Priedeman¹; Conrad Rosenbrock¹; Gus Hart¹; Gábor Csányi³; Ricky Wyman¹; Devin Adams¹; ¹Brigham Young Univ; ²North Carolina State University; ³University of Cambridge

11:00 AM

Near-Ideal Theoretical Strength in Au Angstrom Scale Twins: *Scott Mao*¹; Jiangwei Wang; Frederic Sansoz; ¹University of Pittsburgh

11:15 AM

Large Scale Atomistic Simulations of the Interaction of Glide Dislocations with Grain Boundaries in fcc Bipillars: *Satish Rao*¹; Maxime Dupraz²; Christopher Woodward³; Helena VanSwyghoven²; William Curtin⁴; ¹UES Inc.; ²Paul Scherrer Institute; ³Air Force Research Laboratory; ⁴EPFL

11:30 AM

Large Scale 3D Atomistic Simulations of Dislocation Interactions with Coherent Twin Boundaries during Multiaxial Loading: *Maxime Dupraz*¹; Satish Rao²; Manas Upadhyay¹; William Curtin³; Helena Van Swyghoven¹; ¹Paul Scherrer Institut; ²Air Force Research Laboratory; ³École Polytechnique Fédérale de Lausanne

11:45 AM

Grain Boundary Complexions and the Strength of Nanocrystalline Metals: *Vladyslav Turlo*¹; Timothy Rupert¹; ¹University of California, Irvine

18th International Conference on the Strength of Materials (ICSMA 18) – Elementary Deformation Mechanisms IV

Thursday AM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Enhanced Strength and Ductility in Ni-Co-Cr Alloys Through Cold Work and Annealing: *Connor Stone*¹; Michael Mills¹; ¹Ohio State University

10:45 AM

Microstructure, Texture and Strength Evolution during Severe Plastic Deformation of CrMnFeCoNi High-entropy Alloy: *Werner Skrotzki*¹; Aurimas Pukenas¹; Bertalan Joni²; Eva Odor²; Tamas Ungar²; Anton Hohenwarter³; Reinhard Pippan³; Easo George⁴; ¹TU Dresden; ²Eötvös University Budapest; ³Montanuniversität Leoben; ⁴Oak Ridge National Laboratory

11:00 AM

The Role of Short-range Order on the Dislocation Behavior in BCC and FCC Multicomponent Solid Solution Alloys Using Atomistic Simulations: *Edwin Antillon*¹; Satish Rao¹; Christopher Woodward²; Triplicane Parthasarathy¹; ¹UES Inc; ²AFRL

11:15 AM

Investigation on the Effect of Cr to Ni Ratio on Solid Solution Strengthening in Cr_xMn₂₀Fe₂₀Co₂₀Ni_{40-x} High Entropy Alloys: *Christian Reinhart*¹; Aleksander Kostka¹; Easo George²; Guillaume Laplanche¹; ¹Ruhr-University Bochum; ²Oak Ridge National Laboratory

11:30 AM

Anomalous Strain-Rate Sensitivity of High-Entropy Alloy: Effects of Strain Rate and Grain Size: *Yakai Zhao*¹; Tangqing Cao¹; Xutao Wang¹; Fuchi Wang¹; Yunfei Xue¹; Jae Kyung Han²; Megumi Kawasaki²; ¹Beijing Institute of Technology; ²Oregon State University

18th International Conference on the Strength of Materials (ICSMA 18) – Fracture and Fatigue II (Thu AM)

Thursday AM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM

Ultrasonic High Cycle Fatigue Testing at the Microscale: Arutyun Arutyunyan¹; Jicheng Gong¹; *Angus Wilkinson*¹; ¹University of Oxford

11:00 AM

Cyclic Deformation and Fatigue of Two High Strength Mg Alloys: *Jie Dong*¹; Dong shuai¹; Jiang Yanyao¹; Jin Li¹; ¹Shanghai Jiao Tong University

11:15 AM

Ratcheting Fatigue Behavior of Zircaloy-2: *Santhi Srinivas N C*¹; Rajpurohit R S¹; Vakil Singh¹; ¹Indian Institute of Technology (Banaras Hindu University)

11:30 AM

Micromechanics of Biaxial Cold Dwell Fatigue in Ti-7Al Using Far-Field High-Energy Diffraction Microscopy: *Garrison Hommer*¹; Jun-Sang Park²; Peter Collins³; Adam Pilchak⁴; Aaron Stebner¹; ¹Colorado School of Mines; ²Advanced Photon Source, Argonne National Laboratory; ³Iowa State University; ⁴Air Force Research Laboratory

11:45 AM

Texture Dependence of Normal and Dwell Fatigue Behavior of a Near Alpha Titanium Alloy – IMI 834: *K Yazar*¹; Satyam Suwas¹; ¹Indian Institute of Science

18th International Conference on the Strength of Materials (ICSMA 18) – Micro- and Nanoscale Mechanical Testing III

Thursday AM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Dislocation Slip Transfer through Grain Boundaries: Insights from In-situ Nanomechanics: *Christoph Kirchlechner*¹; ¹Max-Planck-Institut

11:00 AM

A New Type of Superelastic and Shape Memory Materials: ThCr₂Si₂-Structured Intermetallic Compound at Small Length Scales: *Seok-Woo Lee*¹; John Sypek¹; Gyuhoo Song¹; Christopher Weinberger²; Sergey Budko³; Paul Canfield³; ¹Univ Of Connecticut; ²Colorado State University; ³Iowa State University

11:15 AM

Measuring and Simulation of Residual Stress after Shot peening: *Siavash Ghanbari*¹; David Bahr¹; ¹Purdue Univ

11:30 AM

Mechanical Properties of High Strength Pearlitic Steels under Various Loading Conditions: *Marlene Kapp*¹; Anton Hohenwarter²; Reinhard Pippan¹; ¹Austrian Academy of Sciences; ²University of Leoben

11:45 AM

Phase Specific Nanoindentation of Stainless Steel Wear Resistant Alloys: *Ryan Smith*¹; Peter Anderson²; David Gandy³; Marc Doran²; ¹California Polytechnic State University; ²The Ohio State University; ³The Electric Power Research Institute

18th International Conference on the Strength of Materials (ICSMA 18) – Reinforcements at the Sub-nanometer Scale

Thursday AM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Understanding Extreme Strength and Plasticity in Nanotwinned NiMoW Alloys: *Kevin Hemker*¹; ¹Johns Hopkins University

11:00 AM Invited

Finding Strength in our Faults: Superstrong Magnesium Alloys via Nano-Spaced Stacking Faults: *Suveen Mathaudhu*¹; ¹University of California Riverside

11:30 AM

Effects of Graphene Reinforcement on Microstructural Evolution and Mechanical Characteristics of Electrodeposited Copper: *Rohit Mathew*¹; Swetha Singam¹; MJNV Prasad¹; ¹Indian Institute of Technology Bombay

11:45 AM

Dislocation-templated Gd Nano-Fiber Patterns: A New Strategy of Tailoring Mechanical Properties in Mg Alloys: *Yangxin Li*¹; Xiaoqin Zeng¹; ¹Shanghai Jiao Tong University

12:00 PM

History-independent Cyclic Response of Polycrystalline Cu with Highly Oriented Nanoscale Twins: *Lei Lu*¹; ¹Institute of Metal Research, CAS

Hael Mughrabi Honorary Symposium – Session V

Thursday AM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Fracture of Metals at the Nanoscale: *Mathias Göken*¹; ¹University Erlangen-Nuernberg

11:00 AM Invited

Gradient Nanostructure Improves Fatigue Properties through Progressive Microstructural Homogenization: *Lei Lu*¹; ¹Institute of Metal Research, CAS

11:30 AM Invited

Heterogeneous Structures: The Next Hot Research Area?! *Yuntian Zhu*¹; Xiaolei Wu²; ¹North Carolina State University; ²Institute of Mechanics, Chinese Academy of Sciences

John P. Hirth Honorary Symposium – Session V

Thursday AM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

10:30 AM Invited

Coupling of Transformation and Plasticity in NiTi and NiTiHf Shape Memory Alloys: *Peter Anderson*¹; Harshad Paranjape²; Kathryn Esham³; Lee Cassalena⁴; Michael Mills¹; ¹Ohio State Univ; ²Confluent Medical Company; ³Honeywell, Inc.; ⁴Thermo Fisher Scientific

11:00 AM Invited

Strain Bursts and Size-controlled Localized Plastic Deformation: *Nasr Ghoniem*¹; Yanan Cui¹; ¹University of California, Los Angeles

11:30 AM Invited

Interface Structures and Twinning Mechanisms in Hexagonal Metals: *Jian Wang*¹; Mingyu Gong¹; ¹University of Nebraska-Lincoln

18th International Conference on the Strength of Materials (ICSMA 18) – Effects of Grain Boundaries and Interfaces III

Thursday PM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

Planar Defects in Nanocrystalline Metallic Alloys: Stability, Transformation and Transport: *Jessica Krogstad*¹; Megan Emigh; Pralav Shetty; ¹University of Illinois, Urbana-Champaign

2:00 PM

Processing--Structure--Properties Relations in Al-Fe Impact Welds: Anupam Vivek¹; Taeseon Lee¹; Yu Mao¹; Ali Nassiri¹; Angshuman Kapil¹; *Glenn Daehn*¹; ¹Ohio State Univ

2:15 PM

Oxygen Diffusion around (10-12) Twin Boundary in Titanium: *Mohammad Shahriar Hooshmand*¹; Maryam Ghazisaeidi¹; ¹The Ohio State University

2:30 PM

Suppressing of Grain Boundary Migration in Nano-Grained Pure Metals: *Xiuyan Li*¹; ¹Institute of Metal Research C.A.S.

2:45 PM

Characterizing Mechanical and Thermal Properties of Nanotwinned Metal Thin Films for High Temperature MEMS Devices: *Gianna Valentino*¹; Jessica Krogstad²; Timothy Weihs²; Kevin Hemker¹; ¹Johns Hopkins University; ²University of Illinois at Urbana-Champaign

3:00 PM Break

3:30 PM

Effect of Microstructure Refinement on Tensile Properties of Low Carbon Dual Phase Steel Composed of Soft Ferrite and Hard Martensite: Myeongheom Park¹; Akinobu Shibata¹; *Nobuhiro Tsuji*¹; ¹Kyoto Univ

3:45 PM

Sub-grain Evaluation of a Super-Dislocation Model via EBSD-Based GND Mapping: *Landon Hansen*¹; David Fullwood¹; Hyuk Jong Bong²; Eric Homer¹; Robert Wagoner²; ¹Brigham Young University; ²Ohio State University

4:00 PM

Bulk and Surface Grain Boundary Engineering for Improved Resistance to Corrosion and Stress Corrosion Cracking Resistance of Nuclear Alloys: Abhishek Telang¹; Amrinder Gill²; Mukul Kumar³; Sebastien Teyssyre⁴; Seetha Mannava⁵; Dong Qian⁶; *Vijay Vasudevan*⁵; ¹Integer; ²AK Steel; ³Lawrence Livermore National Laboratory; ⁴Idaho National Laboratory; ⁵Univ of Cincinnati; ⁶University of Texas at Dallas

4:15 PM

Evolution of Elastic Properties of Cold Sprayed Metal Coatings at Elevated Temperatures: *Michaela Janovská*¹; Hanuš Seiner¹; Jan Cížek²; Petr Sedláč¹; Michal Landa¹; ¹Institute of Thermomechanics; ²Institute of Plasma Physics

18th International Conference on the Strength of Materials (ICSMA 18) – Elementary Deformation Mechanisms V

Thursday PM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM

Monitoring Meso Phase and Micro Strains in Fully Pearlite Steels by Means of In Situ Neutron Diffraction: *Marc Seefeldt*¹; Jeroen Tacq²; ¹KU Leuven; ²SIRRIS

1:45 PM

In-situ SEM characterization of deformation processes in Ti-5553 at room temperature: influence of the β phase and consequences on fatigue crack initiation: *Samuel Hemery*¹; Patrick Villechaise¹; ¹Institute Prime - ENSMA

2:00 PM

Aging and Oxidation Effects on the β 21S Titanium Alloy Microstructure and Mechanical Properties: Héloïse Bernardeau Vigie¹; Aurelie Soula²; *Bernard Viguier*¹; ¹CIRIMAT; ²Safran Nacelle

2:15 PM

Influence of Strain Rate and Microstructure on the Substructure Evolution and Properties of Ti-407: *Zachary Kloenne*¹; Gopal Viswanathan¹; Hamish Fraser¹; ¹Ohio State Univ

2:30 PM

Influence of Microstructure on High Strain Rate and High Temperature Deformation Behaviour of Ti-6Al-4V Alloy: *Shubhashis Dixit*¹; Amit

Bhattacharjee²; S Karthikeyan³; S Sankaran¹; ¹IIT Madras; ²Titanium Alloy Group, Defence Metallurgical Research Laboratory, Hyderabad; ³Indian Institute of Science, Bangalore, India

2:45 PM

Effect of Crystallographic Texture and Stress Tri-Axiality on Fracture Behaviour of Titanium: *Vivek Sahu*¹; N.P. Gurao¹; ¹IIT KANPUR

18th International Conference on the Strength of Materials (ICSMA 18) – Topics on the Strength of Materials

Thursday PM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM

Transition of Deformation Behavior and Its Related Microstructure Evolution in Nimonic 80A under Hot-to-Warm Deformation: *Ke Chen*¹; Jieqiong Wu¹; Hui Shi¹; Xianping Dong¹; Lanting Zhang¹; Aidang Shan¹; ¹Shanghai Jiao Tong Univ

1:45 PM

Collective Motion of Dislocation Associated with Local Plasticity Initiation and Subsequent Behavior in bcc Metals: *Takahito Ohmura*¹; ¹National Institute for Materials Science

2:00 PM

Deformation Behavior of Nb Nanowires in TiNiCu Shape Memory Alloy Matrix: *Daqiang Jiang*¹; ¹China University of Petroleum, Beijing

2:15 PM

Bayesian Inferential Framework for Model Selection in Crystal Plasticity Modeling: *Denielle Ricciardi*¹; *Oksana Chkrebti*¹; *Stephen Niezgod*¹; ¹OSU

2:30 PM

Hydrogen Embrittlement in a Compositionally Complex FeNiCoCrMn FCC Solid Solution Alloy: *Kelly Nygren*¹; *Kaila Bertsch*¹; *Shuai Wang*¹; *Hongbin Bei*²; *Akihide Nagao*³; *Ian Robertson*¹; ¹University of Wisconsin-Madison; ²Oak Ridge National Laboratory; ³JFE Steel Corporation

2:45 PM

Microstructure and Deformation Behavior of Nb Nanoparticle Reinforced CuZnAl Composite: *Feng Yang*¹; ¹China University of Petroleum-Beijing

3:00 PM Break

John P. Hirth Honorary Symposium – Session VI

Thursday PM
July 19, 2018

Room: To be announced
Location: The Ohio Union

Session Chair: To Be Announced

1:30 PM Invited

Lattice Defects and Solute Segregation in Mg Alloys: *Jian-Feng Nie*¹; ¹Monash University

2:00 PM Invited

Deformation Mechanisms in Mg-Nanolayered Composites: *Irene Beyerlein*¹; ¹University of California, Santa Barbara

2:30 PM Invited

Phase Transformation Strengthening in High Entropy Alloys: *Maryam Ghazisaeidi*¹; *Changning Niu*¹; *Carly LaRosa*¹; *Jiashi Miao*¹; *Michael Mills*¹; ¹Ohio State University

3:00 PM Break

3:30 PM Invited

Atomistically Resolved Dislocation-Solute Interactions Predicted on Diffusive Timescales: *Chad Sinclair*¹; ¹Dept. of Materials Engineering, The University of British Columbia

ICSMA 18 Preliminary Program as of May 29, 2018

4:00 PM

Discrete Plasticity in Sub-10-nm-Sized Gold Crystals: *Scott Mao*¹; ¹University of Pittsburgh

4:20 PM

Generation of Master Shape-change Flow-stress Curve in FCC Metals Validated Using Rate Theory of Thermally Activated Flow: *Shigeo Saimoto*¹; ¹Queen's University

18th International Conference on the Strength of Materials (ICSMA 18) – Poster Session I

Monday PM
July 16, 2018

Room: Performance Hall
Location: The Ohio Union

Session Chair: To Be Announced

A Test to Determine Stress Relief Cracking Susceptibility in Grade 11 Welds: *Conner Sarich*¹; ¹The Ohio State University

Dose Dependences of CdIn₂S₄<Au> Resistance at Various Roentgen Radiation Hardnesses: *Salim Asadov*¹; *Solmaz Mustafaeva*¹; ¹Institute of Catalysis and Inorganic Chemistry ANAS

Effect of Long Period Stacking Ordered Phase on Thermal Stability of Magnesium Alloys Containing Rare Earth Element: *Qingchun Zhu*¹; *Yangxin Li*¹; *Xiaoqin Zeng*¹; ¹Shanghai Jiao Tong University

Element Testing of Additively Manufactured Nickel Alloys: *Arunima Banerjee*¹; *Matthew Vaughn*¹; *Jamie Guest*¹; *Kevin Hemker*¹; ¹Johns Hopkins University

Experimental Characterization of Mode II Delamination in Commercial Thermal Barrier Coating Systems: *Jalil Alidoost*¹; *Kevin Hemker*¹; ¹Johns Hopkins University

Forming Limit Criteria Under Full 3D Stress Condition and Its Application to Incremental Sheet Forming Processes: *Hyunki Kim*¹; *Farhang Pourboghra*¹; *Taejoon Park*¹; *Rasoul Esameilpour*¹; ¹Ohio State University

High Temperature Low Strain Rate Tensile Behaviour of Surface Modified Alloy 602CA Subjected to Two Surface Modification Techniques: *Sai Rajeshwari Kondavalasa*¹; *Gerhard Wilde*²; *Vijay K.Vasudevan*³; *Sankaran S*¹; ¹Indian Institute of Technology Madras; ²Institute of Materials Physics, University of Münster, Germany; ³Department of Chemical and Materials Science Engineering, University of Cincinnati, USA

High Throughput Microstructure Characterization of Additively Manufactured Ti-6Al-4V: *Nathan Johnson*¹; *Aaron Stebner*¹; ¹Colorado School of Mines

In-Situ TEM Observation of Stress Induced Phase Transformation in Zirconia: *Hiroaki Nakade*¹; *Shun Kondo*²; *Eita Tochigi*¹; *Bin Feng*¹; *Yukio Nezu*³; *Hiromichi Ohta*³; *Naoya Shibata*¹; *Yuichi Ikuhara*¹; ¹The University of Tokyo; ²Kyoto University; ³Hokkaido University

In Situ Characterization of the Deformation Mechanisms Present in Biaxially Loaded Magnesium Alloys: *Zachary Brunson*¹; ¹Colorado School of Mines

Influence of Cryogenic Quenching on ECAP Al-Mg-Si-X Alloy: *Chiara Paoletti*¹; *Daniele Ciccarelli*¹; *Stefano Spigarelli*¹; *Marcello Cabibbo*¹; ¹DIISM / Faculty of Engineering - Università Politecnica delle Marche

Mechanical Properties and Shape Memory Behaviors of Highly Porous Ti-Based Biomaterials: *Yeon-wook Kim*¹; ¹Keimyung University

Mechanical Properties of Al Doped Ni_{1.5}Co_{1.5}CrFeTi_{0.5} Powder High Entropy Alloy after Heat Treatment: *Igor Moravcik*¹; *Larissa de Almeida Gouvea*¹; *Michael Kitzmantel*²; *Erich Neubauer*²; *Ivo Dlouhy*¹; ¹Brno University of Technology; ²RHP Technology

Phase Transformation Strengthening in Metastable fcc Materials: *Carlyn LaRosa*¹; *Changning Niu*¹; *Jiashi Miao*¹; *Michael Mills*¹; *Maryam Ghazisaeidi*¹; ¹The Ohio State University

Probing Creep Deformation Using High Temperature Nanoindentation and Bulk Mechanical Testing: *Ashton Egan*¹; *Connor Slone*¹; *Jiashi Miao*¹;

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Michael Mills¹; ¹Ohio State Univ

Segregation of Alloying Elements to Planar Faults in Ni-Based Superalloys: *You Rao*¹; Maryam Ghazisaeidi¹; ¹The Ohio State University

Structural Adhesion of Thermoplastic Composites for Wind Turbine Blades: *Peter Caltagirone*¹; ¹Colorado School of Mines

Testing the Local Interfacial Properties of 3D Printed Polycarbonate: *Ojaswi Agarwal*¹; Lichen Fang¹; Zheliang Wang¹; Jingkai Guo¹; Sung Hoon Kang¹; Thao (Vicky) Nguyen¹; Kevin Hemker¹; ¹Johns Hopkins University

Using In-situ SEM Micro Double Shear Experiments for the Analysis of Elementary Deformation Processes in Advanced Near- γ Ti-Al Alloys: *Dennis Langenkämper*¹; Florian Fox¹; Christoph Somsen¹; Gunther Eggeler¹; ¹Ruhr-University Bochum

High Strength Titanium Alloy and Its Deformation Mechanism during In-Suit SEM Tensile: *Yongqing Zhao*¹; ¹Northwest Institute for Nonferrous Metal Research

Mechanical Properties of (CoMoNi)/WC Nanocomposite Systems Measured via Nanoindentation Testing: *Sergey Romankov*¹; Yun Chang Park²; Pablo Escuder³; Wonkeun Park⁴; ¹Chonbuk National University; ²National Nanofab Center; ³Anton Paar TriTec SA; ⁴Anton Paar Korea Ltd.

Using Miniature Circular Notched Tensile Creep Specimens to Study the Influence of Stress State on Microstructural Evolution during Creep of Ni-Base Single Crystal Superalloys: *Lijie Cao*¹; David Buerger¹; Philip Wollgramm¹; Klaus Neuking¹; Gunther Eggeler¹; ¹Ruhr University Bochum

Plastic Deformation of Polycrystalline Ni-Mn-Ga Alloys: *Xuexi Zhang*¹; ¹Harbin Institute of Technology

Synthesis of Self-Supported CuO and CuMOx nanogrids: *Gagan Jodhani*¹; Jusang Lee²; Pelagia Gouma¹; ¹Ohio State University; ²Stony Brook University

Study of Microstructure--Deformation Behavior of Ultra High-strength Steel Resistance Spot Weld using Wedge Testing: *Kaiwen Zhang*¹; Ying Lu¹; Andrea Peer²; Wei Zhang¹; Menachem Kimchi¹; ¹The Ohio State University; ²Ford

Numerical Modeling of the Influence of Process Conditions on Hydrogen Transport at Microstructural Level: *Hamad ul Hassan*¹; Kishan Govind¹; Alexander Hartmaier¹; ¹Ruhr Universität Bochum

Generalized Wave Model of Macrolocalized Plastic Flow: *Lev Zuev*¹; ¹ISPMS, SB RAS

Location and Stress-state Dependent Mechanical Characterization of Additively Manufactured Metals: *Matthew Vaughn*¹; Andrew Gaynor²; Brandon McWilliams²; Michael Groeber³; Jamie Guest¹; Kevin Hemker¹; ¹Johns Hopkins University; ²U.S. Army Research Laboratory; ³U.S. Air Force Research Laboratory

Basal Slip Dominant Fatigue Damage Behavior in Cast Mg-8Gd-3Y-Zr Alloy: *Jipeng Pan*¹; Penghuai Fu¹; Liming Peng¹; Bin Hu²; Haiming Zhang¹; Haiyan Yue¹; Alan Luo³; ¹Shanghai Jiao Tong University; ²General Motors China Science Laboratory; ³The Ohio State University

Effect of a Circular Notch on [001] Tensile Creep Behavior of the Ni-base Superalloy Single Crystal LEK 94 at 1020°C: *Leonardo Agudo Jácome*¹; ¹Federal Institute for Materials Research and Testing (BAM)

Fatigue Damage Development of Glass-Fiber-Reinforced Polyurethane Examined by In Situ Computed Tomography: *Daniel Huelsbusch*¹; Selim Mrzljak¹; Frank Walther¹; ¹TU Dortmund University

Numerical Analysis of Void Closure by Large Plastic Deformation: *Jong-Jin Park*¹; ¹Hongik University

Studying the Mechanisms for Pore Annihilation during Hot Isostatic Pressing of Nickel Based Superalloys Single Crystals: *Muhammad Ijaz*¹; *Bernard Viguier*¹; Dominique Poquillon¹; Yann Le Bouar²; Antoine Ruffini²; Alphonse Finel²; Titus Feldmann³; Bernard Fedelich⁴; Alexander Epishin⁵; ¹CIRIMAT; ²LEM - CNRS/ONERA; ³Federal Institut for Materials Research and Testing (BAM) ; ⁴Federal Institut for Materials Research and Testing (BAM); ⁵Technical University of Berlin

Impact-Sliding Wear Characteristics of High Manganese Additive Iron-Based Hardfacing Alloys: *Yogesh Singla*¹; Navneet Arora²; D Dwivedi²;

¹Chitkara University, Punjab; ²IIT Roorkee

Hardness Distribution in a Heavily Cold-Rolled Duplex Stainless Steel: *Chihiro Watanabe*¹; Yoshiteru Aoyagi²; Masakazu Kobayashi³; Hiromi Miura³; ¹Kanazawa University; ²Tohoku University; ³Toyohashi University of Technology

Mechanical Properties of Thermoplastic Composites for Wind Turbine Blades: *Dylan Cousins*¹; Yasuhiro Suzuki¹; Aaron Stebner¹; ¹Colorado School of Mines

Cryogenic Temperature Effects on Superelasticity of the Novel Intermetallic Compound CaFe₂As₂ At Small Length Scales: *John Sypek*¹; Christopher Weinberger²; Paul Canfield³; Seok-Woo Lee¹; ¹University of Connecticut; ²Colorado State University; ³Ames National Lab

John P. Hirth Honorary Symposium – Poster Session

Monday PM
July 16, 2018

Room: Performance Hall
Location: The Ohio Union

Session Chair: To Be Announced

Atomic Level Study of Planar Defects in Al-Al₂Cu Alloys: *Guisen Liu*¹; Shujuan Wang²; Amit Misra²; Jian Wang¹; ¹University of Nebraska-Lincoln; ²University of Michigan

Atomic Structure of Defects Associated with Twin Interface of AlBite (NaAlSi₃O₈): *Dongyue Xie*¹; John Hirth²; Greg Hirth³; Jian Wang¹; ¹University of Nebraska-Lincoln; ²Los Alamos National Laboratory; ³Brown University

Atomistic Simulations of Dislocation-Twin and Twin-Twin Interactions in Magnesium: *Mingyu Gong*¹; Yue Liu²; Shun Xu¹; John Hirth³; Jian Wang¹; ¹University of Nebraska-Lincoln; ²Shanghai Jiaotong University; ³Los Alamos National Laboratory

Core-shell Structured Ti-N Alloys with High Strength, High Thermal Stability and Good Plasticity: *yusheng zhang*¹; Y.H. Zhao²; ¹Northwest Institute for Non-Ferrous Metal Research; ²Nanjing University of Science and Technology

Effect of Zn and Mn Additions on Mechanical Properties of Biodegradable Mg-Sn Alloys: *Yang Zhang*¹; Wei-ning Lei¹; Xiao-ping Li¹; ¹Jiangsu University of Technology

In Situ Synchrotron XRD Study of Dislocation Activity During Loading/unloading of Ultrafine Grained (UFG) Aluminum: *Qi Huang*¹; *Yao Shen*¹; Jian Wang²; ¹Shanghai Jiao Tong Univ; ²University of Nebraska-Lincoln

Temperature Dependent Deformation Modes of Cr₂₆Mn₂₀Fe₂₀Co₂₀Ni₁₄ Alloys: *Kaisheng Ming*¹; Jian Wang¹; ¹University of Nebraska-Lincoln

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