

2nd WORLD CONGRESS ON
HIGH ENTROPY ALLOYS
HEA 2021

December 5–8, 2021

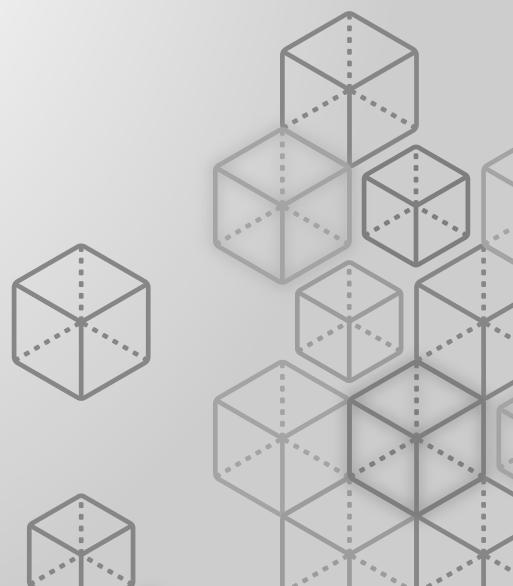
Hilton Charlotte University Place
Charlotte, North Carolina, USA

TECHNICAL PROGRAM

These sessions are current as of November 30. For an up-to-date technical presentation schedule, please refer to the online session sheets at www.tms.org/HEA2021.

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**TMS Structural Materials Division and
the Alloy Phases, High Temperature
Alloys, and Mechanical Behavior of
Materials Committees**

TMS
The Minerals, Metals & Materials Society



www.tms.org/HEA2021

Monday Plenary
Monday AM
 December 6, 2021

Room: University Ballroom CDE
 Hilton Charlotte University Place

8:00 AM Introductory Comments

8:05 AM Plenary
The Interplay between Phase Transformation and Mechanical Properties in High Entropy Alloys: *Maryam Ghazisaeidi*¹; ¹The Ohio State University

Session I
Monday AM
 December 6, 2021

Room: University Ballroom AB
 Hilton Charlotte University Place

9:00 AM Introductory Comments

9:05 AM Invited
Solution Thermodynamics Guided Tuning of Local Chemical Ordering in High Entropy Alloys: Implications for Mechanical Properties: Sriswaroop Dasari¹; Abhishek Sharma¹; Chao Jiang²; Bharat Gwalani³; Srivilliputhur Srinivasan¹; *Rajarshi Banerjee*¹; ¹University of North Texas; ²Idaho National Laboratory; ³Pacific Northwest National Laboratory

9:35 AM
Determination of Transformation Pathways and Microstructural Evolution in Multi-principal Element Alloys using Coupled Materials Characterization and Phase Field Modeling: *Hamish Fraser*¹; Zachary Kloenne¹; Kamalnath Kadirvel¹; Jean-Philippe Couzinie¹; Jacob Jensen¹; Yunzhi Wang¹; ¹Ohio State University

9:55 AM
Phase Field Modeling of Transformation Pathways in
Multi-phase HEAs: Kamalnath Kadirvel¹; Jacob Jensen¹; Zachary Kloenne¹; Hamish Fraser¹; Sang Kim²; Eun Park²; Yunzhi Wang¹; *Shalini Koneru*¹; ¹Ohio State University; ²Seoul National University

10:15 AM Break
10:35 AM
Machine Learning-assisted Phase Prediction for High Entropy Alloys and Feature Analysis: *Kyungtae Lee*¹; Timothy Hartnett¹; Mukil Ayyasamy¹; Prasanna Balachandran¹; ¹University of Virginia

10:55 AM
Machine Learning Assisted Ab Initio Thermodynamics: From BCC unaries to HEAs: *Prashanth Srinivasan*¹; Fritz Körmann²; Blazej Grabowski¹; ¹University of Stuttgart; ²Max Planck Institut für Eisenforschung

11:15 AM
New Physics-based Features for Machine Learning Oxidation Properties of Refractory Complex Concentrated Alloys: *Logan Ware*¹; Haydn Schroader¹; Tinnuade Daboiku²; Emily Cheng³; Todd Butler⁴; Andrew Detor³; Michael Titus¹; ¹Purdue University; ²UES Inc.; ³GE Research; ⁴Air Force Research Laboratory

11:35 AM
Machine Learning Derived Periodic Table for High Entropy Alloys: *Scott Broderick*¹; Krishna Rajan¹; Stephen Giles²; Debasis Sengupta²; ¹University at Buffalo; ²CFD Research Corporation

11:55 AM
Computational Framework for Discovering High Entropy Alloy with Improved Properties: Stephen Giles¹; *Debasis Sengupta*¹; Scott Broderick¹; Krishna Rajan¹; Peter Liaw¹; Hugh Short¹; ¹CFD Research Corp

Session II
Monday AM
 December 6, 2021

Room: University Ballroom CDE
 Hilton Charlotte University Place

9:00 AM Introductory Comments

9:05 AM Invited
A High-throughput Strategy to Study Phase Stability and Mechanical Properties in Complex Concentrated Alloys: Mu Li¹; Zhaohan Zhang¹; Rohan Mishra¹; *Katharine Flores*¹; ¹Washington University in St. Louis

9:35 AM
High-throughput Calculations and Experimentation for the Discovery of Refractory Complex Concentrated Alloys: *Austin Hernandez*¹; Sona Avetian¹; Sharmila Karumuri¹; Zachary McClure¹; Logan Ware¹; Alejandro Strachan¹; Ilias Bilionis¹; Kenneth Sandhage¹; Michael Titus¹; ¹Purdue University

9:55 AM
High-throughput, High-temperature Heavy Ion Irradiation of Annealed CrFeMnNi Magnetron-sputtered Combinatorial Thin Film: *Calvin Parkin*¹; Michael Moorehead¹; Mohamed Elbakhshwan¹; Kumar Sridharan¹; Jason Hattrick-Simpers²; Alan Savan³; Alfred Ludwig³; Adrien Couet¹; ¹University of Wisconsin-Madison; ²University of Toronto; ³Ruhr-Universität Bochum

10:15 AM Break
10:35 AM
Design of HEAs for Additive Manufacturing Using High-throughput Methods: *Dan Thoma*¹; Alec Mangan¹; Ankur Agrawal¹; Behzad Rankouhi¹; Zahabul Islam¹; ¹University of Wisconsin-Madison

10:55 AM
High Throughput Design and Testing of Multi-principal Element Alloys (MPEAs) for Corrosion and Oxidation Resistance: Successes and Pitfalls: *Mitra Taheri*¹; Emily Holcombe¹; David Beaudry¹; Elaf Anber¹; Dan Foley¹; Debashish Sur²; Nathan Smith³; Lauren Walters³; Michael Waters³; William Blades⁴; Christopher Pasco⁴; Charlotte Brandenburg²; John Scully²; Elizabeth Opila²; Tyrel McQueen¹; Karl Sieradzki⁴; Chris Wolverton³; James Rondinelli³; Howie Joress⁵; Jason Hattrick-Simpers⁶; ¹Johns Hopkins University; ²University of Virginia; ³Northwestern University; ⁴Arizona State University; ⁵National Institute of Standards and Technology; ⁶University of Toronto

11:15 AM
High-throughput and Machine Learning Accelerated Discovery of Corrosion-resistant Alloy for Molten Salt Applications: *Yafei Wang*¹; Bonita Goh¹; Phalgun Nelaturu¹; Thien Duong²; Najlaa Hassan¹; Raphaëlle David¹; Michael Moorehead¹; Santanu Chaudhuri²; Adam Creuziger³; Jason Hattrick-Simpers⁴; Dan Thoma¹; Kumar Sridharan¹; Adrien Couet¹; ¹University of Wisconsin, Madison; ²Argonne National Laboratory; ³National Institute of Standard and Technology; ⁴University of Toronto

11:35 AM
High-throughput Characterization and Testing of MoNbTaW Multi-principal Element Alloy for Combinatorial Analysis: *Robert Quammen*¹; Paul F. Rottmann¹; ¹University of Kentucky

11:55 AM
HEA/CCA Concept and High Throughput Screening in the Development of High-performance Al Alloys: *Patrick Conway*¹; Ehsan Ghassemali¹; ¹Jönköping University

Session III

Monday PM
December 6, 2021

Room: University Ballroom CDE
Hilton Charlotte University Place

1:45 PM Introductory Comments

1:50 PM Invited

Entropy-driven Melting Point Depression in HEAs: *Raymundo Arroyave*¹; Tanner Kirk¹; ¹Texas A&M University

2:20 PM

Melting Temperature Prediction of High Entropy Alloys Using Ab-initio Calculations: *Saswat Mishra*¹; Alejandro Strachan¹; ¹Purdue University

2:40 PM

Thermodynamic and Mechanical Properties Prediction within the Cr-Fe-Mn-Ni Alloy System: *Tanguy Manescau*¹; James Braun¹; Olivier Dezellus²; ¹Université Paris-Saclay, CEA, Service de Recherches Métallurgiques Appliquées, 91191 Gif-sur-Yvette, France; ²Univ. Claude Bernard Lyon 1, CNRS, LMI, 69100, Villeurbanne, France

3:00 PM

Computing Thermodynamic Properties for Reduced Activation High Entropy Alloys: Ying Zhou¹; *Prashanth Srinivasan*²; Fritz Körmann³; Roger Smith¹; Pooja Goddard¹; Andrew Duff⁴; ¹Loughborough University; ²University of Stuttgart; ³Delft University of Technology; ⁴STFC Daresbury Laboratory

3:20 PM

Predicting Phase Stability of Refractory Complex Concentrated Alloys with Pairwise Mixing Enthalpy: *Zhaohan Zhang*¹; Mu Li¹; John Cavin¹; Katharine Flores¹; Rohan Mishra¹; ¹Washington University in St. Louis

3:40 PM Break

4:00 PM

Strengthening in a Model Alloy: Theory and Experiment in AuNi: Binglun Yin¹; Shankha Nag²; Jens Freudenberger³; *William Curtin*⁴; ¹Zhejiang University; ²TU Darmstadt; ³IFW-Dresden; ⁴EPFL

4:20 PM

Data-driven Design of Refractory High-entropy Alloys: *Wei Chen*¹; George Kim¹; Chanho Lee²; Peter Liaw³; ¹Illinois Institute of Technology; ²Los Alamos National Laboratory; ³University of Tennessee

4:40 PM

Spontaneous Grain Boundary Roughening in HEAs and Implications for Mobility: *Carolina Baruffi*¹; William Curtin¹; ¹EPFL

5:00 PM

Cross-kinks Control Screw Dislocation Strength in Equiatomic bcc Refractory Alloys: *Xinran Zhou*¹; Sicong He¹; Jaime Marian¹; ¹University of California, Los Angeles

Session IV

Monday PM
December 6, 2021

Room: University Ballroom AB
Hilton Charlotte University Place

1:45 PM Introductory Comments

1:50 PM Invited

A Materials Informatics Approach to High Entropy Alloy Design: *Andrew Detor*¹; Scott Oppenheimer²; Emily Cheng¹; James Ruud¹; ¹GE Research; ²Ge Research

2:20 PM

Preparation and Characterization of a HEA Thin Film Combinatorial Sample: *Peter Nagy*¹; Nadia Rohbeck²; Zoltán Hegedüs³; Johann Michler²; László Pethő²; János Lábár⁴; Jenő Gubicza¹; ¹Eötvös Loránd University; ²EMPA Swiss Federal Laboratories for Materials Science and Technology, Laboratory for Mechanics of Materials and Nanostructures; ³Deutsches Elektronen-Synchrotron (DESY); ⁴Institute for Technical Physics and Materials Science, Centre for Energy Research

2:40 PM

Processing Pathways and Tensile Ductility of Polycrystalline Refractory Multi-principal Element Alloys: *Leah Mills*¹; Jean-Charles Stinville¹; Marie-Agathe Charpagne¹; Carolina Frey¹; Noah Philips²; Valéry Valle³; Daniel Gianola¹; Tresa Pollock¹; ¹University of California-Santa Barbara; ²ATI Specialty Alloys and Components; ³Institut PPRIME Université de Poitiers

3:00 PM

Accelerated Development of Refractory Multi-principal Element Alloys via Machine Learning: *Carolina Frey*¹; Christopher Borg²; James Saal³; Bryce Meredig³; Noah Philips⁴; Tresa Pollock¹; ¹University of California Santa Barbara; ²Citrine Informatics; ³Citrine Informatics; ⁴ATI Specialty Alloys and Components

3:20 PM

CALPHAD Database Development and Optimization of Refractory-HEAs: *Aurelien Perron*¹; Vincenzo Lordi¹; Joel Berry¹; Brandon Bocklund²; Richard Otis³; Alexander Landa¹; Charles Tong¹; Amit Samanta¹; Hunter Henderson¹; Zachary Sims¹; Thomas Voisin¹; Scott McCall¹; Joseph McKeown¹; ¹Lawrence Livermore National Laboratory; ²Pennsylvania State University; ³Jet Propulsion Laboratory, California Institute of Technology

Tuesday Plenary

Tuesday AM
December 7, 2021

Room: University Ballroom CDE
Hilton Charlotte University Place

8:00 AM Introductory Comments

8:05 AM Plenary

Applying Physical Metallurgy Principles to Multi-principal Element Alloys: *Amy Clarke*¹; ¹Colorado School of Mines

Session V

Tuesday AM
December 7, 2021

Room: University Ballroom AB
Hilton Charlotte University Place

9:00 AM Introductory Comments

9:05 AM

Theoretical Predictions of Short-range Order in High Entropy Alloys: You Rao¹; *William Curtin*¹; ¹EPFL

9:35 AM

Tuning Chemical Ordering in the Concentrated Solid Solution of High Entropy Alloys: *Sriswaroop Dasari*¹; Abhishek Sharma¹; Bharat Gwalani¹; Rajarshi Banerjee¹; ¹University of North Texas

9:55 AM

Local and Near-boundary Environments in Multiple-principal Element Alloys: *Doruk Aksoy*¹; Megan McCarthy¹; Ian Geiger¹; Timothy Rupert¹; ¹University of California, Irvine

10:15 AM Break

10:35 AM

Atomistic Simulations of Deformation Response in High Entropy Alloys: *Diana Farkas*¹; ¹Virginia Polytechnic Institute

10:55 AM

Computational Design of a Lightweight and Ductile Refractory Alloy: Michael Gao¹; David Alman¹; *Michael Widom*²; ¹National Energy Technology Laboratory; ²Carnegie Mellon University

11:15 AM

High-throughput Approach for Exploration of FCC High Entropy Alloys Based on Deformation Pathways: *K V Vamsi*¹; Marie-Agathe Charpagne¹; Tresa Pollock¹; ¹University of California-Santa Barbara

11:35 AM

Modeling Dislocation Dynamics in Refractory Multi-principal Element Alloys: *Lauren Fey*¹; Shuozhi Xu¹; Yanqing Su²; Abigail Hunter³; Irene Beyerlein¹; ¹University of California-Santa Barbara; ²Utah State University; ³Los Alamos National Laboratory

11:55 AM

Disorder-driven Biasing of Deformation Tendencies in Concentrated FCC Solid Solutions: *Matthew Daly*¹; Ritesh Jagatramka¹; ¹University of Illinois-Chicago

Session VI

Tuesday AM
December 7, 2021

Room: University Ballroom CDE
Hilton Charlotte University Place

9:00 AM Introductory Comments

9:05 AM Invited

Utilizing Nanoprecipitates to Modulate Phase Transformation, Strength, and Ductility of HEAs: *Ying Yang*¹; Easo George¹; ¹Oak Ridge National Laboratory

9:35 AM

Cold Spray of Medium and High Entropy VCoNi, CrCoNi and CrCoFeMnNi Coatings: Effects of Topical Oxides: Desmond Klenam¹; Precious Etinosa²; Trevor Bond²; Arvand Navabi²; Ridwan Ahmed²; Mobin Vandadi²; Oluwaseun Oyewole²; John Obayemi²; *Nima Rahbar*²; Wole Soboyejo²; ¹Wits University; ²Worcester Polytechnic Institute

9:55 AM

Production of Spherical, Refractory HEA Powders: *Karin Ratschbacher*¹; ¹GfE Metals and Materials GmbH

10:15 AM Break

10:35 AM

Dissimilar Laser Welding of High Entropy Alloys: *Joao Oliveira*¹; ¹FCT-UNL

10:55 AM

Development of Powder Metallurgy High-entropy Alloys by Using Superalloys Commercial Commodity Powders: S. Venkatesh Kumar¹; *Jose Torralba*²; ¹IMDEA Materials Institute; ²Universidad Carlos III Madrid-IMDEA Materials Institute

11:15 AM

Dense, Fine-grained Refractory Metal Alloys via a Low-temperature, Chemical-reaction-based Powder Metallurgical Process: Sona Avetian¹; Sunghwan Hwang¹; Austin Hernandez¹; Mario Caccia¹; Michael Titus¹; *Kenneth Sandhage*¹; ¹Purdue University

11:35 AM

Single Phase Formation in a CoCrFeNiAlCu High Entropy Alloy by an Ultrafast Sintering Technique: *Paula Olmos*¹; Eduardo Reverte¹; Juan Cornide¹; Monica Campos¹; Miguel Lagos²; ¹Universidad Carlos III de Madrid; ²Tecnalia

11:55 AM

Recent Progress in the CoCrNi Alloy and Derived Systems: *Sakshi Bajpai*¹; Benjamin MacDonald¹; Timothy Rupert¹; Horst Hahn²; Diran Apelian¹; ¹University of California Irvine; ²Karlsruhe Institute of Technology, Germany

Session VII

Tuesday PM
December 7, 2021

Room: University Ballroom AB
Hilton Charlotte University Place

1:45 PM Introductory Comments

1:50 PM Invited

Recent Advances, Hardening, Softening and Ductility in High Entropy Brasses and Bronzes: Kevin Laws¹; *Patrick Conway*¹; David Miskovic¹; Lori Bassman¹; Warren McKenzie¹; ¹UNSW Sydney

2:20 PM

Exploring Phase Equilibria, Strength and Deformation Mechanisms of Non-equiatomic CrCoNi Compositions: Francisco Coury¹; *Diego Santana*¹; Gustavo Bertoli¹; Claudio Kiminami¹; Guilherme Zepon¹; Vitor Pereira¹; Amy Clarke²; ¹Universidade Federal de São Carlos; ²Colorado School of Mines

2:40 PM

Precipitation and Strengthening in AlCoCrFeNi High Entropy Alloys: *Keith Knipling*¹; Patrick Callahan¹; David Beaudry²; ¹Naval Research Laboratory; ²Johns Hopkins University

3:00 PM

Effect of Dose Rate on the Irradiation Responses of CrFeNi-based Multi-principal Element Alloys (MPEAs): *Anshul Kamboj*¹; Emmanuelle Marquis¹; ¹University of Michigan

3:20 PM

Microstructural and Mechanical Characterization of a Concentrated FCC CrCoNi Matrix Containing Dispersed L12 Precipitates: *Diego de Araujo*¹; Francisco Coury¹; Claudio Kiminami¹; ¹Universidade Federal de Sao Carlos

3:40 PM Break

Session VIII

Tuesday PM
December 7, 2021

Room: University Ballroom CDE
Hilton Charlotte University Place

1:45 PM Introductory Comments

1:50 PM Invited

Guidelines for Beneficial Short-range Ordering: Composition-dependent Plasticity Effects: *Hyunseok Oh*¹; Michael Xu¹; Shaolou Wei¹; James LeBeau¹; Cemal Cem Tasan¹; ¹Massachusetts Institute of Technology

2:20 PM

Effect of Short-range Ordering on the Plastic Deformation of NiCoCr Medium Entropy Alloy: *Sezer Picak*¹; Prashant Singh²; Daniel M. Salas¹; Yury Chumlyakov³; Duane Johnson²; Raymundo Arroyave¹; Ibrahim Karaman¹; ¹Texas A&M University; ²Ames Laboratory; ³Tomsk State University

2:40 PM

Solute-strengthening in Alloys with Short-range Order: Shankha Nag¹; *William A. Curtin*²; ¹TU Darmstadt; ²École Polytechnique Fédérale de Lausanne

3:00 PM

Role of Local Chemical Order on Orientation Relationship Determination in High Entropy Alloys: *Elaf Anber*¹; Daniel Foley¹; Diana Farkas²; Anatoly Frenkel³; Mitra Taheri¹; ¹Johns Hopkins University; ²Virginia Tech; ³Stony Brook University

3:20 PM

Cores of 1/2<110>-type Dislocations in the CrMnFeCoNi High-entropy Alloy Investigated by STEM, the Center of Symmetry and the Nye Tensor Mapping Techniques: *Milan Heczko*¹; Veronika Mazánová¹; Roman Gröger²; Tomáš Záležák²; Mohammad Hooshmand³; Easo George⁴; Michael Mills¹; Antonin Dlouhý²; ¹The Ohio State University; ²Institute of Physics of Materials CAS; ³University of California; ⁴Oak Ridge National Laboratory

3:40 PM Break

Wednesday Plenary

Wednesday AM
December 8, 2021

Room: University Ballroom CDE
Hilton Charlotte University Place

8:00 AM Introductory Comments

8:05 AM Plenary

Materials Systems Consideration in Design of High Entropy Alloys: *Elsa Olivetti*¹; ¹Massachusetts Institute of Technology

Session IX

Wednesday AM
December 8, 2021

Room: University Ballroom AB
Hilton Charlotte University Place

9:00 AM Introductory Comments

9:05 AM Invited

... So You Want to Make a Refractory Alloy? A Primer on R-MPEA Processing Challenges: *Noah Philips*¹; Matthew Carl¹; ¹Allegheny Technologies

9:35 AM

Microstructure and Deformation Processes of a Refractory Complex Concentrated Alloy Exhibiting B2-type Order: Jean-Philippe Couzinie¹; *Milan Heczko*²; Veronika Mazanova²; Oleg Senkov³; Rajarshi Banerjee⁴; Maryam Ghazisaeidi²; Michael Mills²; ¹The Ohio State University & Université Paris Est ICMPE; ²The Ohio State University; ³Air Force Research Laboratory; ⁴University of North Texas

9:55 AM

Microstructural Inversion Accompanied by B2 to hP18 Phase Transformation in a BCC based Refractory Complex Concentrated Alloy: *Abhishek Sharma*¹; Sriswaroop Dasari¹; Vishal Soni¹; Oleg Senkov²; Daniel Miracle³; Rajarshi Banerjee¹; ¹University of North Texas; ²UES Inc.; ³Air Force Research Laboratory

10:15 AM Break

10:35 AM

Designing High-entropy Intermetallic Alloys: Refractory B2 Phases: *Jie Qi*¹; Xuesong Fan²; Rui Feng³; Peter Liaw²; S. Poon¹; ¹University of Virginia; ²The University of Tennessee; ³Oak Ridge National Laboratory

10:55 AM

Ab Initio Study of the Phase Stability and Transition-induced Plasticity of Body-centered Cubic Refractory High-entropy Alloys: Yuji Ikeda¹; *Prashanth Srinivasan*¹; Konstantin Hubaev¹; Fritz Körmann²; Blazej Grabowski¹; ¹University of Stuttgart; ²Delft University of Technology

11:15 AM

Characteristics of Slip Localization in the HfNbTaTiZr Refractory High Entropy Alloy: *Jean-Charles Stinville*¹; M.A. Charpagne¹; F. Wang¹; L.H. Mills¹; D.S. Gianola¹; T.M. Pollock¹; ¹University of California-Santa Barbara

11:35 AM

New Title: Computational Discovery of Ultra-High Strength BCC Refractory MPEAs: *Joel Berry*¹; Kate Elder²; Aurelien Perron¹; ¹Lawrence Livermore National Laboratory; ²Northwestern University / LLNL

11:55 AM

One Order of Magnitude Improvement of the Magnetocaloric Effect of Rare-earth-free High-entropy Alloys: *Jia Yan Law*¹; Álvaro Díaz-García¹; Luis Moreno-Ramirez¹; Victorino Franco¹; ¹Sevilla University

Session X

Wednesday AM
December 8, 2021

Room: University Ballroom CDE
Hilton Charlotte University Place

9:00 AM Introductory Comments

9:05 AM Invited

Dislocation Pathways in Refractory Multi-principal Element Alloys: *Daniel Gianola*¹; ¹University of California, Santa Barbara

9:35 AM

Twinning Engineering of High-entropy Alloys: *Hyoung Seop Kim*¹; ¹Pohang University of Science and Technology

9:55 AM

Deformable Plastic Strain-induced Epsilon-martensite in Medium-entropy Alloys: A Pathway towards Multi-stage Metastability Engineering: *Shaolou Wei*¹; Cem Tasan¹; ¹Massachusetts Institute of Technology

10:15 AM Break

10:35 AM

The Cyclic Plastic Strain Localization and the Fatigue Crack Initiation in Equiatomic CrCoNi Medium-entropy Alloy: *Veronika Mazanova*¹; Milan Heczko¹; Connor Slone²; Mulaine Shih¹; Easo George³; Maryam Ghazisaeidi¹; Jaroslav Polak; Jaroslav Polak; Jaroslav Polak⁴; Michael J. Mills¹; ¹The Ohio State University; ²Exponent; ³Oak Ridge National Laboratory; ⁴Institute of Physics of Materials CAS

10:55 AM

Mechanism and Prediction of Hydrogen Embrittlement in fcc Stainless Steels and High Entropy Alloys: Xiao Zhou¹; Ali Tehrani²; *William A Curtin*¹; ¹EPFL; ²Max-Planck-Institut für Eisenforschung GmbH

11:15 AM

Low Cycle Fatigue Behavior of the Equiatomic CrMnFeCoNi High Entropy Alloy: *Dayane Oliveira*¹; Easo George²; Jeffery Gibeling¹; ¹University of California, Davis; ²Oak Ridge National Laboratory

11:35 AM

Tensile Creep Behavior of NiCoCr and ODS-NiCoCr Multi-principal Element Alloys: *Gianmarco Sahragard-Monfared*¹; Timothy Smith²; Jeffery Gibeling¹; ¹University of California, Davis; ²NASA Glenn Research Center

Session XI**Wednesday PM
December 8, 2021****Room: University Ballroom AB
Hilton Charlotte University Place**

1:45 PM Introductory Comments**1:50 PM Invited****Defining Pathways for Realizing the Revolutionary Potential of High Entropy Alloys: A Science & Technology Accelerator Study:** *Dan Miracle*¹; George Spanos²; ¹Air Force Research Laboratory, Wright-Patterson Air Force Base; ²The Minerals, Metals, and Materials Society**2:20 PM****Probing the Property Design Space of Ti-V-Nb-Hf Refractory High-entropy Alloys via Al-alloying:** *Shaolou Wei*¹; Cem Tasan¹; ¹Massachusetts Institute of Technology**2:40 PM****Microstructural and Mechanical Evolutions of a Ti-V-Nb-Ta Refractory High-entropy Alloy during Thermal Aging:** *Junliang Liu*¹; Bo-Shiuan Li¹; Hazel Gardner¹; Guanze He¹; David Armstrong¹; Angus Wilkinson¹; ¹University of Oxford**3:00 PM****High-pressure Induced Phase Transitions of a Metastable Complex Concentrated Alloy System with Varying Stacking Fault Energies:** *Christopher Reynolds*¹; Alden Watts¹; Marcus Young¹; Rajiv Mishra¹; Dean Smith²; Dmitry Popov²; Jeffrey Lloyd³; ¹University of North Texas; ²Advanced Photon source, Argonne National Laboratory; ³US Army Research Laboratory**3:20 PM Break****3:40 PM****In-situ X-ray and Thermal Imaging of Refractory High Entropy Alloying during Laser Directed Deposition:** Hui Wang¹; Benjamin Gould²; Michael Moorehead³; Marwan Haddad¹; *Adrien Couet*³; Sarah Wolff¹; ¹Texas A&M University; ²Argonne National Laboratory; ³University of Wisconsin-Madison**4:00 PM****High-throughput First-principles Design and Screening of Additively Manufactured Corrosion-resistant HEA:** *Santanu Chaudhuri*¹; Dan Thoma²; Xiaoli Yan³; Phalgun Nelaturu²; Thien Duong¹; ¹Argonne National Laboratory; ²University of Wisconsin; ³University of Illinois at Chicago

Session XII**Wednesday PM
December 8, 2021****Room: University Ballroom CDE
Hilton Charlotte University Place**

1:45 PM Introductory Comments**1:50 PM****Corrosion and Passivation of Multi-principal Element Alloys in Aqueous Solutions:** *John Scully*¹; Angela Gerard¹; Samuel Inman¹; Debashish Sur¹; ¹University of Virginia**2:20 PM****High-throughput Oxidation of Additively Manufactured Refractory High Entropy Alloys:** *Michael Niezgod*¹; Michael Moorehead¹; Chuan Zhang²; Adrien Couet¹; Dan Thoma¹; ¹University of Wisconsin-Madison; ²Computherm LLC.**2:40 PM****Suppression of Disorder in High Entropy Oxides:** *Abhishek Sarkar*¹; Benedikt Eggert²; Ralf Witte³; Johanna Lill²; Leonardo Velasco³; Qingsong Wang³; Janhavika Sonar³; Katharina Ollefs²; Subramshu Bhattacharya⁴; Frank de Groot⁵; Richard Brand²; Heiko Wende²; Oliver Clemens⁶; Horst Hahn³; Robert Kruk³; ¹Technical University Darmstadt; ²University of Duisburg-Essen; ³Karlsruhe Institute of Technology; ⁴Indian Institute of Technology Madras; ⁵Utrecht University; ⁶University of Stuttgart**3:00 PM****Multi-component Rare Earth Silicates for Dual Purpose Thermal/Environmental Barrier Coatings:** Mackenzie Ridley¹; Cameron Miller¹; David Olson¹; Kathleen Tomko¹; Alejandro Salanova¹; Patrick Hopkins¹; Jon Ihlefeld¹; Cormac Toher²; *Elizabeth Opila*¹; ¹University of Virginia; ²Duke University**3:20 PM****Synthesis and Evaluation of High Entropy Perovskite Oxides as Solid Oxide Fuel Cell Cathodes:** Zhongqiu Li¹; Wenyuan Li¹; Bo Guan¹; Wei Li¹; Liang Ma¹; *Xingbo Liu*¹; ¹West Virginia University**3:40 PM Break****4:00 PM****Nanoscale Origins of Passivation in a Refractory High Entropy Alloys:** *Elaf Anber*¹; David Beaudry¹; Daniel Foley¹; Lavina Backman²; Keith Knipling³; Elizabeth Opila²; Jean Philippe Couzinié⁴; Mitra Taheri¹; ¹Johns Hopkins University; ²University of Virginia; ³Naval Research Laboratory; ⁴University Paris-Est Créteil (UPEC) - IUT**4:20 PM****Investigating the Internal Oxidation of a Refractory High Entropy Alloy:** *Indranil Roy*¹; Eric Osei-Agyemang¹; Ganesh Balasubramanian¹; ¹Lehigh University**4:40 PM****Elevated-temperature Creep Properties and Deformation Mechanisms in a CrMnFeCoNi High-entropy Alloy:** *Mingwei Zhang*¹; Easo George²; Jeffery Gibling¹; ¹University of California, Davis; ²Oak Ridge National Laboratory**5:00 PM****Design of Low Cost Compositionally Complex Alloys (CCAs) with Excellent Corrosion Resistance:** *Samuel Inman*¹; Jie Qi¹; Mark Wischhusen¹; Carol Glover¹; Junsoo Han²; Sean Agnew¹; Joseph Poon¹; John Scully¹; ¹University of Virginia; ²Chimie ParisTech

Poster Session**Monday PM
December 6, 2021****Room: Glenwaters (Poster Area)
Hilton Charlotte University Place**

A Low-density Non-equiatomic AlSiCrMnFeNiCu High Entropy Alloy Strengthened with In-situ Precipitation of Cr₅Si₃: *Yagnesh Shadang*¹; Joysurya Basu¹; Kausik Chattopadhyay¹; Nilay Mukhopadhyay¹; ¹Indian Institute of Technology (BHU) Varanasi**A Thermodynamic Model of Ductile Fracturing and Fatigue of High Entropy Alloys:** *Alexander Umantsev*¹; ¹Fayetteville State University**Advanced Characterization of High-temperature Oxide Evolution in NbTiZr:** *David Beaudry*¹; Daniel Foley¹; Elaf Anber¹; Jean-Philippe Couzinié²; Loïc Perrière²; Michael Waters³; James Rondinelli³; Christopher Pasco¹; Tyrel McQueen¹; Keith Knipling⁴; Mitra Taheri¹; ¹Johns Hopkins University; ²University Paris-Est Créteil; ³Northwestern University; ⁴U.S. Naval Research Laboratory**Atomic Simulations of FeCoCrMnSi High Entropy Alloys:** *Riyadh Salloom*¹; Michael Baskes¹; Srivilliputhur Srinivasan¹; ¹University of North Texas**Building Data-driven Models with Noisy Input Features-**

Application: Strength Prediction of High Entropy Alloys: *Sharmila Karumuri¹; Zachary McClure¹; Ilias Bilionis¹; Alejandro Strachan¹; Michael Titus¹; ¹Purdue University*

Combinatorial Thin Film Screening of Non-equiatomically Refractory High Entropy Alloy: *Taohid Bin Nur Tuhser¹; Daryl Chrzan²; Andrew Minor²; Mark Asta²; Thomas Balk¹; ¹University of Kentucky; ²Lawrence Berkeley National Laboratory*

Computing Properties of Multi-component Alloys: *Liangzhi Tan¹; Kawsar Ali²; Pooja Goddard¹; Roger Smith¹; Ashok Arya²; Partha Ghosh²; Ying Zhou¹; ¹Loughborough University; ²Bhabha Atomic Research Centre*

Demonstration of Latin Hyper Cube as a Tool for the Design of Experiment of Laser Additive Manufacturing for MPEAs: *Praveen Sreeramagiri¹; Hengrui Zhang²; Anton van Beek²; Wei Chen²; Ganesh Balasubramanian¹; ¹Lehigh University; ²Northwestern University*

Design of Silicide Strengthening Refractory High-entropy Alloys: *Ziqi Xu¹; ¹Beijing Institute of Technology*

Early Investigation of Hybrid Approaches to Joint Optimization for Accelerating the Design of Refractory High Entropy Alloys: *Baldur Steingrimssohn¹; Michael Gao²; Graham Tewksbury³; Peter Liaw⁴; Wei Chen⁵; ¹Imagars LLC; ²National Energy Technology Laboratory; ³Portland State University; ⁴University of Tennessee; ⁵Illinois Institute of Technology*

Effect of Cooling Rate on the Crystallization Temperatures and Lattice Distortion of AlCoCrFeNi MPEA: *Praveen Sreeramagiri¹; Ankit Roy¹; Ganesh Balasubramanian¹; ¹Lehigh University*

Effect of Grain Refinement on the Mechanical Behavior of the Cr₄₀Co₄₀Ni₂₀ Medium-entropy Alloy: *Gustavo Bertoli¹; Lucas Otani¹; Diego Santana¹; Amy Clarke²; Claudio Kiminami¹; Francisco Coury¹; ¹Federal University of São Carlos; ²Colorado School of Mines*

Effect of Grain Size on the Low-cycle Fatigue Behavior of CoCrNiFeMn High Entropy Alloy: *Sezer Picak¹; Thomas Wegener²; S. Vahid Sajadifar²; Cesar Sobrero²; Julia Richter²; Hansoo Kim¹; Thomas Niendorf²; Ibrahim Karaman¹; ¹Texas A&M University; ²University of Kassel*

Electrical and Thermal Transport Properties of Medium-entropy SiyGeySnx Alloys
Houlong Zhuang¹; Duo Wang¹; Lei Liu¹; ¹Arizona State University

Electron Diffraction-based Analysis of the Role of Chemical Short-range Order on the Dynamic Deformation Response of FCC and BCC Multi-principal Element Alloys: *Daniel Foley¹; David Beaudry¹; Elaf Anber¹; Yevgeny Rakita Shlafstein¹; Partha Das²; Simon Billinge³; Andrew Matejunas⁴; Carolina Frey⁵; Leslie Lamberson⁴; Tresa Pollock⁵; Irene Beyerlein⁶; Garritt Tucker⁴; Chris Weinberger⁶; Mitra Taheri¹; ¹Johns Hopkins University; ²NanoMEGAS SPRL; ³Columbia University; ⁴Colorado School of Mines; ⁵University of California, Santa Barbara; ⁶Colorado State University*

Enhanced Strength Ductility Synergy in AlCoCrFeNi HEA through Facile Post Processing Technique: *Mayank Garg¹; Harpreet Grewal¹; Harpreet Arora¹; ¹Shiv Nadar University*

Fabrication and Characterization of Nanoporous Multi Principal Element Alloy Thin Films by Vacuum Thermal Dealloying: *Tibra Das Gupta¹; Taohid Bin Nur Tuhser¹; Maria Kosmidou¹; Michael J Detisch¹; Thomas Balk¹; ¹University of Kentucky*

Boron Addition in a Non-equiatomically Fe₅₀Mn₃₀Co₁₀Cr₁₀ Alloy Manufactured by Laser Cladding: Microstructure and Wear Abrasive Resistance: *Jose Yesid Aguilar Hurtado¹; Alejandro Vargas-Uscategui²; Katherine Paredes-Gil³; Maria Jose Tobar⁴; Jose Manuel Amado⁴; ¹University of Chile; ²CSIRO-Manufacturing; ³Metropolitan Technological University; ⁴University of A Coruña*

Cluster Expansion Approach to Sigma Phase Site Occupancy and Stability in Compositionally Complex Stainless Steel Alloys: *Anna Soper¹; Savannah Diaz¹; Holly Frank¹; Jonas Kaufman²; Adam Shaw³; Kevin Laws⁴; Aurora Pribram-Jones⁵; Lori Bassman¹; ¹Harvey Mudd College; ²University of California, Santa Barbara; ³California Institute of Technology; ⁴University of New South Wales; ⁵University of California, Merced*

Fabrication, Testing and Characterization of a Non-equiatomically CrCoNi Alloy on a Semi-industrial Scale: *Vitor Pereira¹; Francisco Coury¹; Guilherme Zepon¹; ¹Universidade Federal de São Carlos*

Atomistic Simulations of the Local Slip Resistances in Four Refractory Multi-principal Element Alloys: *Rebecca Romero¹; Shuozhi Xu²; Wurong Jian²; Irene Beyerlein²; Chintalapalle Ramana²; ¹University of Texas at El Paso; ²University of California, Santa Barbara*

Feature Selection and Interpretation for Machine Learning Models: Reducing the Dimensionality of Complex Concentrated Alloys: *Zachary McClure¹; Alejandro Strachan¹; ¹Purdue University*

First-principles Investigation into Ductility of High Entropy B2-like Alloys: *Emma Cuddy¹; Emily Hwang¹; Jonas Kaufman²; Adam Shaw³; Kevin Laws⁴; Aurora Pribram-Jones⁵; Lori Bassman¹; ¹Harvey Mudd College; ²University of California, Santa Barbara; ³California Institute of Technology; ⁴University of New South Wales; ⁵University of California, Merced*

High Throughput Study of Hardening and Void Swelling in Ion Irradiated High Entropy Alloys: *Benoit Queyhat¹; Michael Moorehead¹; Phalgun Nelaturu¹; Mohamed Elbakhshwan¹; Dan Thoma¹; Mukesh Bachhav²; Dane Morgan¹; *Adrien Couet¹; ¹University of Wisconsin, Madison; ²Idaho National Laboratory**

Investigating Oxidation of NiAl+Hf Using Cellular Automata: *Indranil Roy¹; Pratik Ray²; Ganesh Balasubramanian¹; ¹Lehigh University; ²Indian Institute of Technology Ropar*

Investigation of the Initial Stages of Oxidation in MoNbTaW and Comparison to Pure W: *Robert Quammen¹; Paul F. Rottmann¹; ¹University of Kentucky*

Machine Learning Based Intelligent Framework for Discovering High Entropy Alloy: *Debasis Sengupta¹; Stephen Giles¹; Scott Broderick¹; Krishna Rajan¹; ¹CFD Research Corp*

Modelling of Equiatomically Mo-Nb-Ti-Zr and Mo-Nb-Ti Systems for Use in Irradiation Environments: *Anilas Karimpilakkal¹; Joseph Newkirk¹; Frank Liou¹; Jason Schulthess²; Sriram Praneeth Isanaka¹; Julia Medvedeva¹; ¹Missouri University of Science and Technology; ²Idaho National Laboratory*

On the Phase Constituents of Ten CoCrFeNiX (X = Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W) High-entropy Alloys after Prolonged Annealing: *An-Chen Fan¹; Jian-Hong Li¹; Ming-Hung Tsai¹; ¹National Chung Hsing University*

Ostwald Ripening in High Entropy Alloys: *Alexander Umantsev¹; ¹Fayetteville State University*

Phase Stability and Mechanical Properties of MgAlSiCr Containing Low-density High Entropy Alloys: *Nandini Singh¹; Priyatosh Pradhan¹; Yagnesh Shadangi¹; Nilay Mukhopadhyay¹; ¹Indian Institute of Technology (BHU) Varanasi*

Stacking Fault Energy (SFE) of Multi-component Alloys Based in Fe₂₀-X MnXCo₁₀Cr₁₀ (X = 20, 30, 40, 50 at%) Using a Computational Approach: *Katherine Paredes Gil¹; Jose Yesid Aguilar Hurtado²; ¹Universidad Tecnológica Metropolitana; ²Universidad de Chile*

The Cyclic Plastic Response and the Fatigue Induced Microstructural Changes of Equiatomic CrCoNi Medium-entropy Alloy: Milan Heczko¹; Veronika Mazánová¹; Connor Slone²; Ivo Kubena³; Mulaine Shih⁴; Tomáš Kruml³; Easo George⁴; Maryam Ghazisaeidi¹; Jaroslav Polák³; Michael Mills¹; ¹The Ohio State University; ²Exponent; ³Institute of Physics of Materials CAS; ⁴Oak Ridge National Laboratory

Thermomechanical Processing of a CrMnFeCoNi by Cold Rolling and Annealing: Caroline Gonçalves¹; Gustavo Sousa¹; Eric Mazzer¹; ¹Federal University of Minas Gerais

Pre-Recorded and On-Demand Oral Presentations

Friday AM
December 3, 2021

Room: On-Demand Program Area
Online Conference Platform

ON DEMAND: Density Functional Theory Study of Short-range Order in Bulk, Grain Boundary, Stacking Fault, and Surface of CrMnFeCoNi Alloy: Artur Tamm¹; Tomorr Haxhimali¹; ShinYoung Kang¹; ¹Lawrence Livermore National Laboratory

ON DEMAND: Predicting Fundamental Properties of bcc Refractory Multicomponent Alloys Using Electronic Descriptors and Statistical Learning: Yong-Jie Hu¹; Christopher Tandoc¹; Liang Qi²; ¹Drexel University; ²University of Michigan

ON DEMAND: Investigation of Reduced Activation FCC-type High Entropy Alloys for Nuclear Applications: Hiroshi Oka¹; Naoyuki Hashimoto¹; Shigehito Isobe¹; Mikito Ueda¹; Shigenari Hayashi¹; Shinichiro Yamashita²; Mitsuhiro Itakura²; Tomohito Tsuru²; ¹Hokkaido University; ²Japan Atomic Energy Agency

ON DEMAND: Factors Affecting Stacking Fault Energies in Concentrated Alloys Using Density Functional Theory and Machine Learning: Gaurav Arora¹; Anus Manzoor¹; Dilpuneet S. Aihya¹; ¹University of Wyoming

ON DEMAND: Development of an Interatomic Potential for the FeNiCrMn System: Dislocation Properties: Ayobami Daramola¹; Giovanni Bonny²; Gilles Adjanor³; Christophe Domain³; Ghiath Monnet³; Anna Frackiewicz¹; ¹Ecole des MINES SMS centre; ²SCK CEN, Nuclear Materials Science Institute; ³EDF—Centre de Recherche des Renardieres

ON DEMAND: Prediction of Optimal High Entropy Alloys Using New Thermodynamic Multi-objective Criteria: Aimen Gherib¹; Arthur Pelton¹; Jean-Philippe Harvey¹; ¹Polytechnique Montreal

ON DEMAND: The Combined Effect of Irradiation and Stress on Damage in a BCC CrMnFeV High-entropy Alloy: Hyosim Kim¹; Stuart Maloy¹; Jonathan Gigax¹; Osman El-Atwani¹; ¹Los Alamos National Laboratory

ON DEMAND: Ultra-high Strength and Ductility of a Multiple Component Alloy with a Heterogeneous Microstructure of Grains and Precipitates: Weitong Wang¹; Shengyun Yuan¹; Yong Zhang¹; ¹Nanjing University of Science and Technology

ON DEMAND: An Experimental Study of the Effects of Deviations from AlCoCrFeNi Alloy Composition and Heat Treatment on the Microstructure, Phase Stability and Properties of Cast High Entropy Alloys: David Browne¹; Oisín Gavigan¹; Andrew Murphy¹; Mert Celikin¹; ¹University College Dublin

ON DEMAND: High-temperature Gas Corrosion at 800 °C in H₂O-O₂-SO₂ of CrMnFeCoNi (HEA) and CrCoNi (MEA): Wencke Schulz¹; Stephanos Karafiludis¹; Guillaume Laplanche²; Mike Schneider²; Christiane Stephan-Scherb¹; Anna Manzoni³; ¹(BAM) Bundesanstalt für Materialforschung und -prüfung; ²Ruhr Universität Bochum (RUB); ³BAM

ON DEMAND: On the Phase Stability, Mechanical Properties, and Deformation Mechanisms of the Equiatomic CrFeNi Medium-entropy Alloy: Mike Schneider¹; Guillaume Laplanche¹; ¹Ruhr-University Bochum

ON DEMAND: Experimental Determination of Interdiffusion and Defect Kinetics in Multicomponent Systems: Susanta Kumar Nayak¹; Somanath Danayak¹; Kaustubh Kulkarni²; ¹Indian Institute of Technology Kanpur

ON DEMAND: Computationally Guided High Entropy Alloy Discovery: Kenneth Smith¹; John Sharon¹; Ryan Deacon¹; Soumalya Sarkar¹; ¹Raytheon Technologies Research Center

ON DEMAND: Deformation Behaviors in Refractory High-entropy Alloys: Chanho Lee¹; George Kim²; Yi Chou³; Michael Gao⁴; Ke An⁵; Gian Song⁶; Yi-Chia Chou³; Wei Chen²; Saryu Fensin¹; Peter Liaw⁷; ¹Los Alamos National Laboratory; ²Illinois Institute of Technology; ³National Chiao Tung University; ⁴National Energy Technology Laboratory/Leidos Research Support Team; ⁵Oak Ridge National Laboratory; ⁶Kongju National University; ⁷University of Tennessee, Knoxville

ON DEMAND: Superior High-temperature Strength in a Refractory High-entropy Alloy: Rui Feng¹; Bojun Feng²; Michael Gao³; Chuan Zhang⁴; Joerg Neuefeind¹; Jonathan Poplawsky¹; Yang Ren⁵; Ke An¹; Michael Widom²; Peter Liaw⁶; ¹Oak Ridge National Laboratory; ²Carnegie Mellon University; ³National Energy Technology Laboratory; ⁴Computherm, LLC; ⁵Argonne National Laboratory; ⁶The University of Tennessee, Knoxville

ON DEMAND: Refractory Metals-based High Entropy Alloys: Phase Evolution and Radiation Damage Studies: Poulami Chakraborty¹; Nilabja Sarkar¹; Bathula Vishwanadh¹; Raghendra Tewari¹; Sri Kumar Banerjee²; ¹Bhabha Atomic Research Centre; ²Homi Bhabha National Institute

ON DEMAND: Multiscale Modeling of Hydrogen Bubble Nucleation: Tomorr Haxhimali¹; Artur Tamm¹; ShinYoung Kang¹; ¹Lawrence Livermore National Laboratory

ON DEMAND: Mechanical Properties of High Entropy Single Crystal Superalloys at Elevated Temperatures: Hideyuki Murakami¹; Takuma Saito¹; An-chou Yeh¹; ¹National Institute for Materials Science

ON DEMAND: Exploiting the Insensitivity of Certain HEAs to Compositional Variation: Matthew Barnett¹; Jithin Joseph¹; Murugesan Annasamy¹; Daniel Fabijanic¹; ¹Deakin University

ON DEMAND: On the Tuning of Creep Properties by Balancing Trace Elements: Anna Manzoni¹; Sebastian Haas²; Yasemin Bahadır Yesilcicek¹; Uwe Glatzel²; ¹BAM; ²University Bayreuth

ON DEMAND: Developing High Entropy Alloys for Advanced Nuclear Applications: Amy Gandy¹; Ed Pickering²; Alexander Carruthers²; David Armstrong³; Dhinisaben Patel¹; Hamed Shahmir¹; Bo-Shiuan Li²; R Mythili⁴; Chanchal Ghosh⁵; Arup Dasgupta⁵; ¹University of Sheffield; ²University of Manchester; ³University of Oxford; ⁴Indira Gandhi Centre for Atomic Research ; ⁵Indira Gandhi Centre for Atomic Research

ON DEMAND: Efficient Prediction of the Yield Strength of BCC High Entropy Alloys: Francesco Maresca¹; William Curtin²; ¹University of Groningen; ²EPFL

ON DEMAND: On the Corrosion and Passivation of Multi-principal Element Alloys (MPEAs): Nick Birbilis¹; Sanjay Choudhary²; ¹Australian National University; ²Monash University

ON DEMAND: Novel Mechanisms for Strengthening High-entropy Alloys: Zhiming Li¹; ¹Central South University

ON DEMAND: Predict Solid Solution Formation Using Machine Learning: Michael Gao¹; Zongrui Pei¹; Junqi Yin²; Jeffrey Hawk¹; David Alman¹; ¹National Energy Technology Laboratory; ²Oak Ridge National Laboratory

ON DEMAND: Lattice Distortion and Its Effect on Strength in Refractory High-entropy Alloys: Chanho Lee¹; Yi Chou²; George Kim³; Michael Gao⁴; Ke An⁵; Wei Chen³; Jonathan Poplawsky⁵; Gian Song⁶; Yi-Chia Chou²; Saryu Fensin¹; *Peter Liaw*⁷; ¹Los Alamos National Laboratory; ²National Chiao Tung University; ³Illinois Institute of Technology; ⁴National Energy Technology Laboratory/Leidos Research Support Team; ⁵Oak Ridge National Laboratory; ⁶Kongju National University; ⁷University of Tennessee, Knoxville

ON DEMAND: Synergistic Studies on the Effects of Cr Contents on Phases and Mechanical Properties of CuNiTiFeCr HEAs: *Oluwaseun Akindele*¹; ¹Federal University of Technology Akure

ON DEMAND: Multiphase, Multispecies Simulation of High Entropy Alloys for Brazing Applications: *Bogdan Nenchev*¹; Chinnapat Panwisawas¹; Hongbiao Dong¹; Russell Goodall²; Dan Luo²; Nick Ludford³; ¹University of Leicester; ²University of Sheffield; ³TWI Ltd.

Pre-Recorded and On-Demand Poster Presentations

Friday AM
December 3, 2021

Room: On-Demand Program Area
Online Conference Platform

ON DEMAND: Designing New Corrosion Resistant Materials with Exceptional Strength-ductility Synergy and Good Weldability Using High Entropy Approach: *S. Nene*¹; Rajiv Mishra²; ¹Indian Institute of Technology Jodhpur; ²University of North Texas

ON DEMAND: The Effect of Titanium and Silicon on the Phase Equilibrium in the Co-Cr-Fe-Mn-Ni System: *Syuki Yamanaka*¹; Satoshi Takizawa¹; Ken-ichi Ikeda¹; Seiji Miura¹; ¹Hokkaido University

ON DEMAND: Short-range Order Influence on the Quality of Interatomic Potential Built Using Machine Learning Technique for High Entropy Alloys: *Ivan Lobzenko*¹; Tomohito Tsuru¹; ¹Japan Atomic Energy Agency

ON DEMAND: DED Additively Manufactured HEAs Optimized via Parametric Study of Functionally Graded Materials: Calvin Downey¹; *Luis Nunez*²; Isabella Van Rooyen¹; ¹Idaho National Laboratory

ON DEMAND: Computational Design of Co-free Complex Concentrated Alloys (CCA) for Nuclear Applications: *Dinesh Ram*¹; Anna Fraczkiewicz²; Franck Tancret¹; ¹Université de Nantes, Institut des Matériaux de Nantes – Jean Rouxel (IMN), CNRS UMR 6502; ²MINES Saint-Étienne, Centre SMS / LGF UMR CNRS 5307

ON DEMAND: Solidification Behavior and Mechanical Properties of a MnFeCoNiCu HEA for Filler Applications: *Benjamin Schneiderman*¹; Andrew Chuang²; Peter Kenesei²; Olivia DeNonno³; Jonah Klemm-Toole¹; Zhenzhen Yu¹; ¹Colorado School of Mines; ²Advanced Photon Source

ON DEMAND: Precipitation Strengthened High Strength Al_{0.2}CoCrFeNiMo_{0.5} High Entropy Alloy: *Yasam Palguna*¹; Rajesh Korla¹; ¹Indian Institute of Technology Hyderabad

ON DEMAND: High-throughput Screening of Structural High Entropy Alloys Using a Machine Learning Approach: *Novana Hutasoit*¹; Pragalathan Apputhurai¹; ¹Swinburne University of Technology

ON DEMAND: Optimized Tailoring of Phase Constitution Leading to Exceptional Oxidation Behavior in AlCoCrFeNi HEAs: *Rahul Bhattacharya*¹; Murugesan Annasamy¹; ¹Institute for Frontier Materials

ON DEMAND: Effect of Crystal Orientation on Creep Deformation Behavior of a Single Crystal High Entropy Superalloy: *Takuma Saito*¹; Akira Ishida¹; Michinari Yuyama¹; Yuji Takata¹; Kyoko Kawagishi¹; An-Chou Yeh²; Hideyuki Murakami¹; ¹National Institute for Material Science; ²National Tsing Hua University

ON DEMAND: Analysis of Mutli-hit Events in Atom Probe Tomography of Refractory High Entropy Alloys: *Patrick Callahan*¹; Keith Knipling¹; ¹US Naval Research Laboratory

ON DEMAND: Nanomechanical Testing of In-situ Synthesized Laser-deposited High Entropy Alloys for Aerospace Applications: *Modupeola Dada*¹; Patricia Popoola¹; Ntombi Mathe²; ¹Tshwane University of Technology; ²Council for Scientific and Industrial Research

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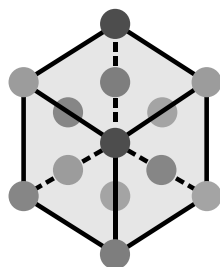
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SCHEDULE AT A GLANCE

Current as of December 1, 2021. Schedule subject to change.
The schedule is in Eastern Standard Time (EST) UTC-5:00.

	Time	Location
Sunday, December 5		
Mother's Room	5:00 PM - 6:30 PM	Keynes
Registration	5:00 PM - 6:30 PM	Midway 2
Welcome Reception	5:30 PM - 6:30 PM	Lakeview
Monday, December 6		
Registration	7:00 AM - 6:30 PM	Midway 2
Mother's Room	8:00 AM - 6:30 PM	Keynes
First Aid	8:00 AM - 6:30 PM	Walden
Poster Installation	7:30 AM - 9:30 AM	Glenwaters
Plenary Session	8:00 AM - 8:55 AM	University Ballroom CDE
Technical Sessions	9:00 AM - 12:10 PM	See Technical Program
Lunch	12:10 PM - 1:45 PM	On your own
Technical Sessions	1:45 PM - 5:20 PM	See Technical Program
Poster Reception	5:20 PM - 6:30 PM	Glenwaters
Tuesday, December 7		
Registration	7:30 AM - 4:00 PM	Midway 2
Mother's Room	8:00 AM - 7:30 PM	Keynes
First Aid	8:00 AM - 7:30 PM	Walden
Plenary Session	8:00 AM - 8:55 AM	University Ballroom CDE
Technical Sessions	9:00 AM - 12:10 PM	See Technical Program
Lunch	12:10 PM - 1:45 PM	On your own
Technical Sessions	1:45 PM - 3:40 PM	See Technical Program
Conference Dinner Cocktail Reception	5:30 PM - 6:00 PM	Glenwaters
Conference Dinner	6:00 PM - 7:30 PM	University Ballroom CDE
Wednesday, December 8		
Registration	7:30 AM - 5:00 PM	Midway 2
Mother's Room	8:00 AM - 4:30 PM	Keynes
First Aid	8:00 AM - 4:30 PM	Walden
Plenary Session	8:00 AM - 8:55 AM	University Ballroom CDE
Technical Sessions	9:00 AM - 12:10 PM	See Technical Program
Poster Dismantle	10:35 AM - 1:45 PM	Glenwaters
Lunch	12:10 PM - 1:45 PM	On your own
Organizing Committee Planning Meeting (Invitation Only)	12:10 PM - 1:45 PM	Harris
Technical Sessions	1:45 PM - 5:20 PM	See Technical Program

Note: HEA 2021 will follow recommended social distancing guidelines.



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