

2022 “New Experimental and Theoretical Developments in High-Entropy Materials” Telluride  
Workshop

Venue: Telluride Intermediate School, 725 W Colorado Ave, Telluride, CO 81435

Monday morning, 6 June 2022 to Friday noon, 10 June 2022; Breakfast starts 7:30am at School

Monday, 6 June 2022

7:50am-8:00am opening remarks

Session I Chairs: Tim Rupert /Michael Widom

8:00am-8:45am Dan Miracle, AFRL; Emerging capabilities for high-throughput characterization of structural materials

8:45am-9:30am Michael Widom, CMU; Information-theory based methods for the calculation of entropy

9:30am-9:45am Coffee Break

9:45am-10:30am Tim Rupert, UC, Irvine; Extended near-boundary segregation zones in complex concentrated metals and oxides

10:30m-11:15am Daniel Gianola, UCSB; Bridging intrinsic plasticity and ductility in in refractory multi-principal element alloys

11:15am-12:00pm Duane Johnson, ISU; Validated theory-guided design of refractory multi-principal-element alloys

Tuesday, 7 June 2022

Session II Chairs: Atieh Moridi /Jeffrey Rickman

8:00am-8:45am Jaime Marian, UCLA; The strength of refractory high entropy alloys is explained by atomic size imperfections

8:45am-9:30am Jeffrey Rickman, Lehigh U.; Using materials informatics to quantify complex correlations in high-entropy alloys

9:30am-9:45am Coffee Break

9:45am-10:30am Atieh Moridi, Cornell; Operando X-ray diffraction studies during printing of multi-component concentrated alloys

10:30m-11:15am Wen Chen, U. Massachusetts; Additive manufacturing of compositionally complex alloys

11:15am-12:00pm Michael Gao, NETL; Accelerated design of cost-competitive high-performance refractory high entropy alloys for turbine blades applications above 1300 degree Celsius

Wednesday, 8 June 2022

Session III Chairs: Ibrahim Karaman / Hanna Terletska

8:00am-8:45am Ian Baker, Dartmouth; FeNiMnAlCr Multi-principal component alloys

8:45am-9:30am Hanna Terletska, Middle Tennessee State U.; Quantum embedding for disordered systems: from models to real materials

9:30am-9:45am Coffee Break

9:45am-10:30am Ibrahim Karaman, TAMU; Deformation behavior of medium and high entropy alloy single and polycrystals

10:30m-11:15am Yogesh Vohra, U. Alabama; High-entropy transition metal borides under extreme conditions of pressure and temperature

11:15am-12:00pm Dilpuneet Singh Aidhy, U. Wyoming; Integrated data science and computational materials science for complex materials properties.

Thursday, 9 June 2022

Session IV Chairs: Vilupanur Ravi /Wei Chen

8:00am-8:45am Farida Selim, Bowling Green State U.; Atomic scale measurements of the impact of the nature of chemical disorder on ion induced defects

8:45am-9:30am Wei Chen, IIT; Data-driven design of high-entropy alloys

9:30am-9:45am Coffee Break

9:45am-10:30am Vilupanur Ravi, Cal Poly Pomona; High entropy materials in corrosive environments

10:30m-11:15am Pierre Poudeu-Poudeu, U. Michigan; Mixed-anion semiconducting high-entropy chalcogenides

11:15am-12:00pm Qijun Hong, ASU; Design of high melting point materials via first principles and deep learning

Friday, 10 June 2022

Session V Chairs: Krishna Chaitanya Pitike/Houlong Zhuang

8:00am-8:45am Hyunseok Oh, MIT; Property targeted design of high entropy alloys: Engineering atomic level complexity for strength and ductility

8:45am-9:30am Houlong Zhuang, ASU; Design of high-entropy alloys using classical and quantum computers

9:30am-9:45am Coffee Break

9:45am-10:30am Krishna Chaitanya Pitike, PNNL; Computationally accelerated discovery of high entropy pyrochlore oxides