

*Connecting the global minerals, metals, and materials community.*



## Plan Now to Attend:

### High Entropy Alloys III

This symposium will provide a new venue for presentation of research on the fundamental understanding and theoretical modeling of high-entropy alloy (HEA) processing, microstructures, and mechanical behavior.

In contrast to conventional alloys, which are based upon one principal element, HEAs have multiple principal elements, often five or more. The presence of multi-principal elements leads to simplified microstructures, which in many cases, because high mixing entropy enhances the formation of simple solid-solution phases, such as the face-centered-cubic (FCC) and body-centered-cubic (BCC) structures. Moreover, these alloys often have unprecedented tailorable properties that frequently far-surpass their conventional counterpart alloy systems. Such properties in HEAs include high strength, ductility, corrosion resistance, oxidation resistance, fatigue and wear resistance. These properties will undoubtedly make HEAs of interest for use in biomedical, structural, mechanical, and energy applications. Given the novel and exciting nature of HEAs, they are poised for significant growth, not unlike the bulk metallic glass or nanostructured alloy scientific communities, and present a perfect opportunity for a new symposium.

Topics of interest include, but are not limited to:

- Material fabrication and processing
- Advanced characterization, such as neutron scattering
- Thermodynamics and diffusivity
  - Nanocrystalline materials and composites based on HEAs
  - Mechanical behavior
  - Shear-band formation, fatigue, deformation, and fracture mechanisms
  - Corrosion, physical, magnetic, electric, thermal, coating, and biomedical behavior
  - Theoretical modeling and simulation
  - Industrial applications

#### Sponsored by:

- TMS Structural Materials Division
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