

**JOIN US AT:**

**THE WORLD COMES HERE.**

**TMS 2017**  
146<sup>th</sup> Annual Meeting & Exhibition



**February 26 – March 2, 2017**  
**San Diego, California, USA**

## **HIGH ENTROPY ALLOYS V**

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 significantly high entropy of the solid solution stabilizes the solid-solution phases in face-centered-cubic, body-centered-cubic, and hexagonal close-packed structures against intermetallic compounds. Moreover, carefully-designed HEAs possess tailorable properties that far surpass their conventional alloys. 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:

- Material fabrication and processing, such as homogenization, nanomaterials, and grain-boundary engineering
- Advanced characterization, such as neutron scattering and three-dimensional (3D) atom probe
- Thermodynamics and diffusivity: measurements and modeling
- Mechanical behavior, such as fatigue, creep, and fracture
- Corrosion, physical, magnetic, electric, thermal, coating, and biomedical behavior
- Theoretical modeling and simulation using density functional theory, molecular dynamics, Monte Carlo simulations, phase-field and finite-elements method, and CALPHAD modeling
- Industrial applications

### **ORGANIZERS**

**Peter K. Liaw**, University of Tennessee, USA

**Michael C. Gao**, National Energy Technology Laboratory, USA

**Suveen Nigel Mathaudhu**, University of California Riverside, USA

**Xie Xie**, The University of Tennessee, Knoxville, USA

**Gongyao Wang**, Alcoa Technical Center, USA

**E-Wen Huang**, National Chiao Tung University

### **PROCEEDINGS PLANS**

Selected papers from this symposium may be published in the TMS journal, *Metallurgical and Materials Transactions*.

### **SYMPOSIUM SPONSORS**

TMS Alloy Phases Committee

TMS Mechanical Behavior of Materials Committee

**PLAN TO JOIN US AT TMS2017. VISIT [WWW.TMS.ORG/TMS2017](http://WWW.TMS.ORG/TMS2017) FOR MORE INFORMATION**