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TMS 2023

152nd Annual Meeting & Exhibition

MARCH 19–23, 2023
SAN DIEGO CONVENTION CENTER &
HILTON SAN DIEGO BAYFRONT
SAN DIEGO, CALIFORNIA, USA
#TMSANNUALMEETING



SUBMIT AN ABSTRACT BY JULY 1 FOR THE FOLLOWING TMS2023 SYMPOSIUM:

ADVANCED MATERIALS

Advances in Multi-Principal Element Alloys II

This symposium provides an opportunity for scientists and engineers to present and discuss the latest theoretical and applied research related to the fabrication methods, microstructures, and mechanical behavior of high-entropy alloys (HEAs) or multi-principal element alloys (MPEAs).

HEAs and MPEAs consist of five or more elements and typically consist of body-center-cubic (BCC), face-centered-cubic (FCC), and hexagonal-close-packed (HCP) solid-solutions phases. These material systems possess many desirable properties, such as irradiation resistance, remarkable corrosion and oxidation resistance, high strength and ductility, and high fatigue/wear resistance. These positive characteristics therefore make HEAs/MPEAs viable candidates for several applications, such as biomedical, energy, mechanical, and aerospace industries. Topics of interest include, but are not limited to:

- Theoretical modeling and simulation using advanced computational techniques, including molecular dynamics, Monte Carlo, CALPHAD modeling, density functional theory, phase-field modeling, finite-element techniques, and machine learning methods
- Advanced in-situ characterization methods, such as transmission electron microscopy, neutron scattering, three-dimensional (3D) atom probe tomography, and electron backscatter diffraction
- Material fabrication and processing techniques, including additive manufacturing, grain-boundary engineering, and homogenization
- Mechanical behavior, such as creep, wear, fatigue, serrated plastic flow, and fracture
- Microstructural modification and control that alter the various biomedical, physical, mechanical, corrosion, magnetic, electric, irradiation, and thermal behavior
- Diffusivity and thermodynamic phenomena
- Applications in the biomedical, automotive, aerospace, energy, and other industries

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