



SUBMIT AN ABSTRACT FOR THE FOLLOWING SYMPOSIUM

MECHANICS OF MATERIALS

Advances in Multi-Principal Element Alloys V: Mechanical Behavior

This symposium gives a platform for scientists, engineers, and researchers to disseminate their latest theoretical and applied research results on the mechanical behavior of multi-principal element alloys (MPEAs). MPEAs, which are alloys comprising multiple primary elements, can be composed of either face-centered-cubic (FCC), body-center-cubic (BCC), or hexagonal-close-packed (HCP) solid-solution phases. These materials have been reported to exhibit attractive properties including excellent corrosion resistance, high irradiation resistance, good strength and ductility, and high fatigue/wear resistance. These desirable aspects therefore make MPEAs potential candidates for several applications including those in the nuclear, aerospace, and automotive industries.

Topics of interest include, but are not limited to:

1. Innovative approaches to computational modeling and simulation of complex microstructures, including CALculation of PHase Diagrams modeling, molecular dynamics and Monte Carlo methods, finite-element techniques, density functional theory, integrated computational materials engineering, and machine learning methods
2. Advanced in situ and high-throughput characterization techniques, such as X-ray diffraction, neutron scattering, transmission electron microscopy, electron backscatter diffraction, and three-dimensional atom probe tomography
3. State-of-the-art methods to investigate mechanical behavior phenomena such as serrated deformation, hardness, creep, and wear behavior
4. Methods of microstructural modification, such as hierarchical structuring, which alters the mechanical behavior and physical properties of a material
5. Mechanical and microstructural property tuning to develop materials for applications in the nuclear, aerospace, and automotive industries

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