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TMS 2026

155th Annual Meeting & Exhibition

March 15–19, 2026
San Diego Convention Center
and Hilton San Diego Bayfront
San Diego, California, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING SYMPOSIUM

MECHANICS OF MATERIALS

Advances in Thermo-Mechanical Processing of Refractory Alloys

Refractory alloys, including refractory multi-principal element alloys, have received renewed interest as enabling materials in the pursuit of ultra-high temperature performance applications, including aerospace propulsion and nuclear fusion. These alloys, known for their exceptionally high melting points and resistance to extreme environments, can pose significant challenges during manufacturing due to their poor oxidation behavior and room temperature ductility. This symposium is intended to highlight the latest scientific advancements in thermo-mechanical processing of refractory alloys to elucidate the interplay between thermal, mechanical, and metallurgical factors driving innovation in the design of next-generation refractory metals. Key topics will include: microstructural evolution (e.g. deformation induced boundaries, grain subdivision, recrystallization), phase transformations, and the development of novel processing routes aimed at improving ductility, toughness and high temperature creep strength. Presentations from academia, national laboratories, and industry are welcomed. Talks which also provide context from historical developments in refractory alloys are also encouraged.

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