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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

DATA-DRIVEN AND COMPUTATIONAL MATERIALS DESIGN

Vacancy Engineering in Metals and Alloys

This symposium highlights vacancy engineering in metals and alloys, focusing on controlling vacancy defects to enhance material properties. While vacancies have been recognized for over a century, recent advancements in detection and theory have uncovered their potential to improve mechanical, thermal, and electronic properties. The event will unite experts to discuss the fundamentals of vacancy behavior, including formation, migration, and interactions with solutes in alloys, as well as cutting-edge characterization methods like positron annihilation, 4D-STEM, and Atom Probe Tomography. Key applications in structural materials will be explored, emphasizing vacancy-induced transformations that improve strength, ductility, fatigue, and creep resistance. Additionally, the symposium will dive into the role of vacancies in radiation environments, crucial for nuclear materials. By enabling interdisciplinary dialogue, the symposium seeks to define the next steps for translating vacancy engineering research into practical applications and promoting new research collaborations to solve critical challenges in this area.

SPONSORED BY:
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