



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

MATERIALS DEGRADATION AND DEGRADATION BY DESIGN

Circular Metallurgy: Design, Technology, Application

This symposium explores the intersection of advanced material science and circular economy principles to address the global demand for resource-efficient metal production and recycling. Bridging cutting-edge research in materials design, innovative processing technology, experimental methodologies, and computational modeling with scalable industrial applications, the event will highlight strategies to minimize waste, reduce energy footprints, and extend material lifecycles. Discussions will span atomic-scale innovations (e.g., recyclability-by-design alloys) to system-level solutions (e.g., AI-enhanced recovery networks), fostering collaboration between researchers, engineers, and policymakers to accelerate the transition to closed-loop metallurgical systems.

The symposium will be structured around the following key themes:

1. Process-Scale Material Design and Process Innovation
 - Experimental methods in sustainable alloy design and processing
 - Computational techniques for recyclable alloys design and development
 - Machine learning for materials discovery and processing optimization
2. Next-Generation Circular Technologies
 - Reducing energy and waste intensity in material production, recovery and recycling
 - Cutting-edge innovations in materials circularity and sorting
3. Industrial Pathways to Circularity
 - Case studies: Green steel, aluminum, and battery metal production, etc.
 - Standardizing secondary materials for automotive/aerospace sectors

SPONSORED BY:

TMS Functional Materials Division; TMS Alloy Phases Committee

ORGANIZED BY:

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