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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

ADVANCED CHARACTERIZATION METHODS

Advanced Characterization Techniques for Quantifying and Modeling Deformation

Advances in characterization techniques greatly improve our ability to reveal and quantify deformation mechanisms such as dislocation motion, twinning, and stress-induced phase transformations, as well as the microstructural changes accompanying deformation such as texture evolution, grain morphology changes, dislocation accumulation and localized strain. In combination with modeling and simulations, these techniques improve our understanding of deformation and failure during material processing/forming and under normal or extreme conditions in service. In situ techniques provide a detailed understanding of individual mechanisms, their mutual interactions, and allow validation of simulations from computational materials science models. A venue is offered to discuss and share recent advances in current techniques or newly developed techniques or progresses in pairing with algorithms and simulations as they apply to deformation behavior.

Areas of interest include, but are not limited to:

1. Improving the understanding of deformation mechanisms in structural or functional materials – elasticity, dislocation plasticity, mechanically-induced twinning or phase transformations, damage and fracture
2. Advances in characterization techniques: X-ray-based techniques, electron-based techniques (including HR-(S) TEM, 4D-STEM, EBSD, HR-EBSD, ECCI, PED), scanning probe microscopy techniques, DIC, VIC and others – in particular in-situ
3. Advances in materials deformation modeling– with specific emphasis on the integration with advanced characterization techniques
4. Complementarity of multi-scale characterization techniques, advantages and limitations of correlative application

SPONSORED BY:
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