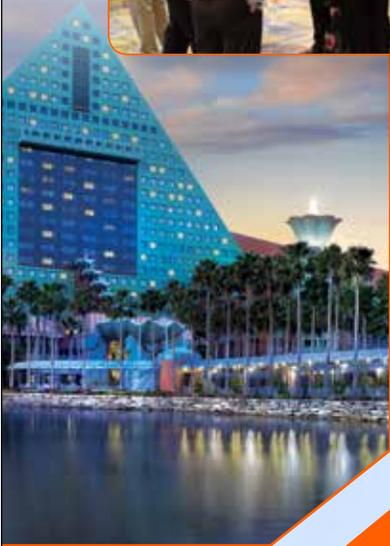


*Connecting the global minerals, metals, and materials community.*



## **Plan Now to Attend:**

### **Advanced Characterization Techniques for Quantifying and Modeling Deformation Mechanisms**

This symposium will provide a venue for presentations regarding the use of advanced characterization techniques in all classes of materials to quantify and model deformation mechanisms. Advances in electron and x-ray based characterization technology have greatly improved our ability to quantify the microstructural changes that accompany deformation including interactions of dislocations and the evolution of dislocation structures, twin nucleation and growth, texture evolution, and grain morphology changes. A variety of techniques such as aberration corrected TEM, HR-EBSD, PED, and Bragg CDI are relatively new techniques that are being applied to both structural and functional materials. These techniques, in combination with modeling, are improving our understanding of deformation mechanisms accommodating plastic strain and failure during material processing/forming and under normal or extreme conditions in service. In situ TEM has also provided an enhanced understanding of the motion and relative stability of deformation mechanisms through the observation of local events.

Talks of this nature are often scattered across symposia at TMS, and this provides a place to talk about new advances in current techniques or in technique development. Areas of interest include, but are not limited to:

- Dislocations and deformation twins
- All advanced X-ray-based techniques including Bragg CDI
- All advanced electron-based techniques including HR-TEM, EBSD, HR-EBSD, PED, and in situ TEM
- All structural and functional materials systems
- Advances in material modeling through the use of advanced characterization techniques
- Industrial applications
- Technique development

#### **Sponsored by:**

- TMS Materials Processing & Manufacturing Division; TMS Extraction & Processing Division
- Shaping and Forming Committee; Materials Characterization Committee

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