

TMS2016
145th Annual Meeting & Exhibition

FEBRUARY 14-18 DOWNTOWN NASHVILLE,
TENNESSEE MUSIC CITY CENTER

Connecting the Global Minerals, Metals, and Materials Community.



In Operando Nano- and Micro-mechanical Characterization of Materials with Special Emphasis on In Situ Techniques

The focus of this symposium is to discuss current research and key developments in techniques and experimental methods to measure mechanical properties of materials in situ and ex situ in application-orientated environments. These environments may include high temperature, cryogenic temperature, electrical and magnetic field, gas, radiation, chemical, pressure extremes, and humidity. In situ mechanical testing techniques becoming increasingly popular for studying mechanical behavior of materials. Many such techniques have been developed to probe material response to stimuli across nano- to macro-length scales. While the practice of performing experiments inside an electron microscope to probe material response under direct observation has been around for decades, recent advances in mechanical testing instrumentation, microscopy techniques, analytical detectors, high-speed cameras, computing resources, and various types of spectroscopy are now able to provide unprecedented insight and fundamental understanding of elasticity, plasticity, fracture, wear, phase transformations, irradiation damage effects, recovery and recrystallization, and creep of materials. The intent of the symposium is to provide a forum to discuss research progress in the area of in operando and/or in-situ mechanical testing for nanomechanical studies, and to accelerate the development and acceptance of innovative materials and testing techniques.

Organizers include:

Sanjit Bhowmick, Hysitron Inc. (USA)
Amit Pandey, Rolls Royce LG Fuel Cell Systems Inc. (USA)
Vikas Tomar, Purdue University (USA)
Vikram Jayaram, Indian Institute of Science (India)
Aman Haque, Penn State University (USA)
Benjamin M. Morrow, Los Alamos National Laboratory (USA)
Paul A. Shade, Air Force Research Laboratory (USA)
Weizhong Han, Xi'an Jiaotong University (China)
Arief Budiman, Singapore University of Technology and Design (Singapore)

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