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TMS 2023

152nd **Annual Meeting & Exhibition**

MARCH 19—23, 2023
SAN DIEGO CONVENTION CENTER &
HILTON SAN DIEGO BAYFRONT
SAN DIEGO, CALIFORNIA, USA
#TMSANNUALMEETING

SUBMIT AN ABSTRACT BY JULY 1 FOR THE FOLLOWING TMS2023 SYMPOSIUM:

ADDITIVE TECHNOLOGIES

Additive Manufacturing: Length-Scale Phenomena in Mechanical Response

There is growing interest in the use of additive manufacturing (AM) across multiple industrial sectors that seek to benefit from the multiple possibilities that these emerging technologies can offer. The microstructures and hence, mechanical properties of AM materials can be tailored locally through careful selection of processing parameters and strategies. Therefore, the characterization of mechanical behaviors across the full-length scale is critical for the fundamental understanding of material behavior. This includes the elastic-plastic response, residual stresses, creep and relaxation properties, fracture toughness, and fatigue in local scales in AM materials.

This symposium focuses on the properties of various AM materials (metals, ceramics, polymers, biological/ bio-inspired materials, composites) across multiple length scales from both theoretical/modeling and experimental viewpoints. The scope includes, but is not limited to, the following areas:

- Microstructure-mechanical property relationships of AM materials
- Location-specific property characterization in AM materials through micro/nano-indentation testing
- Full-scale mechanical assessment of AM built components and experimental geometries
- In-situ nanomechanical measurements in application environments (thermal, electrical, electrochemical, and biological stimuli)
- Small scale quasi-static tests (tension, compression, bending, and torsional tests)
- Small scale fatigue, creep, and impact tests
- Nano-scale measurements of strain and stress
- Micromechanics-based modeling in additive manufacturing

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QUESTIONS?
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