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FEBRUARY 27-MARCH 3, 2022
ANAHEIM CONVENTION CENTER & ANAHEIM MARRIOTT
ANAHEIM, CALIFORNIA, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2022 SYMPOSIUM:

ADDITIVE TECHNOLOGIES

Additive Manufacturing Fatigue and Fracture: Developing Predictive Capabilities

It is the purpose of this symposium to move toward expanded understanding by providing a forum to present research results from investigations into the fatigue and fracture behavior of additive manufacturing of metals.

The symposium will be organized into seven sessions:

- Microstructure-based Fatigue Studies on Additive-Manufactured Materials (Jointly organized with Fatigue in Materials Symposium)
- Fatigue Modeling and Prediction
- Critical Flaw Size Investigations
- New Fatigue and Fracture Test Methods (e.g., small-scale techniques)
- Processing-Structure-Property Fatigue and Fracture Investigations
- Non-Destructive Evaluation (NDE) Techniques in Fatigue and Fracture
- Corrosion, Environmental, Residual Stress, and Surface Roughness Effects on Fatigue and Fracture

Processing-structure-property-performance relationships pertinent to this symposium include the following:

- Processing includes machine settings (e.g., layer thickness), melt parameters (e.g., energy density), post-processing (e.g., heat treatment, surface treatment), and feedstock variables (e.g., flowability, spreadability, particle size distribution) that can directly impact the fatigue and fracture performance of parts.
- Structure includes crystallographic microstructure (e.g., texture), internal defects (e.g., pores, inclusions), external defects (e.g., surface roughness), residual stress, and chemistry.
- Properties include all fatigue and fracture properties (e.g., high-cycle fatigue, low-cycle fatigue, linear elastic fracture toughness (K_{Ic}), elastic-plastic fracture toughness (J_{-int}), fatigue crack growth rate, and impact toughness (Charpy)).
- Performance includes any end-product testing.

ORGANIZERS

Nik Hrabe, National Institute of Standards and Technology

John J. Lewandowski, Case Western Reserve University

Nima Shamsaei, Auburn University

Mohsen Seifi, ASTM International/Case Western Reserve University

Steve Daniewicz, University of Alabama

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