SUBMIT AN ABSTRACT BY JULY 1

THE WORLD COMES HERE
TMS 2020
149th Annual Meeting & Exhibition

February 23-27, 2020 • San Diego, California, USA

Submit an abstract to:

Additive Technologies

Additive Manufacturing Fatigue and Fracture IV: Toward Confident Use in Critical Applications

The current understanding of fatigue and fracture behavior of additive manufacturing metals is limited and must be expanded before widespread use in fatigue and fracture critical applications can be fully realized. It is the purpose of this symposium to move toward that expanded understanding by providing a forum to present research results from investigations into fatigue and fracture behavior of additive manufacturing of metals.

This symposium will be organized into six sessions:

- Microstructure-based Fatigue Studies on Additive-Manufactured Materials (Jointly organized with the Fatigue in Materials Symposium)
- Development of New Fatigue and Fracture Test Methods (e.g. small-scale testing)
- Environmental Effects on Fatigue and Fracture
- Development of Predictive Design Tools (e.g. fatigue lifing techniques, critical flaw size measurements)
- Role of Non-Destructive Evaluation (NDE) Techniques
- Quantitative Processing-Structure-Properties-Performance Investigations (more detail below)

To further specify the scope of the processing-structure-property-performance investigations, 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 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 [KIc], elastic-plastic fracture toughness [J-int], fatigue crack growth rate, and impact toughness [Charpy]). Performance includes any end-product testing.

ORGANIZERS

Nikolas Hrabe, National Institute of Standards and Technology – Boulder, USA
Steve Daniewicz, University of Alabama, USA
Nima Shamsaei, Auburn University, USA
John Lewandowski, Case Western Reserve University, USA
Mohsen Seifi, ASTM International/Case Western Reserve University, USA

SYMPOSIUM SPONSORS

TMS Structural Materials Division
TMS Additive Manufacturing Committee
TMS Mechanical Behavior of Materials Committee

Abstract Deadline is July 1, 2019. Submit online at www.programmaster.org/TMS2020.

Questions?
Contact programming@tms.org