CALL FOR ABSTRACTS

THE WORLD COMES HERE.

TMS 2018

147th Annual Meeting & Exhibition

MARCH 11 – 15, 2018
PHOENIX, ARIZONA

SUBMIT AN ABSTRACT TO:

ADDITIVE TECHNOLOGIES

ADDITIVE MANUFACTURING OF METALS: FATIGUE AND FRACTURE

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. Topics include:

- Processing-structure-properties-performance investigations (more detail below)
- Applicability of existing fatigue and fracture test methods to AM materials
- Development of new fatigue and fracture test methods for AM materials (e.g. small-scale testing)
- Predictive Design Tools (e.g. critical flaw size measurements)
- Non-Destructive Evaluation (NDE) techniques for AM as they relate to fatigue and fracture
- Integrated Computational Materials Engineering (ICME) as it relates to fatigue and fracture
- Material and/or Part Qualification as they relate to fatigue and fracture

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, such as 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, USA
Steve Daniewicz, University of Alabama, USA
Nima Shamsaei, Auburn University, USA
Mohsen Seifi, Case Western Reserve University, USA
John Lewandowski, Case Western Reserve University, USA

SYMPOSIUM SPONSORS

TMS Materials Processing & Manufacturing Division
TMS Additive Manufacturing Bridge Committee

ABSTRACT DEADLINE IS JULY 1, 2017. SUBMIT ONLINE AT www.programmaster.org/TMS2018.

QUESTIONS? CONTACT programming@tms.org