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**MARCH 14-18, 2021 • ORLANDO WORLD CENTER MARRIOTT  
ORLANDO, FLORIDA, USA**  
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**SUBMIT AN ABSTRACT TO:**

**ADDITIVE TECHNOLOGIES**

## **ADDITIVE MANUFACTURING OF METALS: APPLICATIONS OF SOLIDIFICATION FUNDAMENTALS**

Additive manufacturing is a disruptive technology, offering increased part complexity, short lead times, and opportunities for local microstructure control. Microstructure and defect development in AM processes is influenced by solidification and melt pool dynamics, but currently the application of fundamental solidification theories to AM process conditions has not been fully explored. Furthermore, increased demand for customized material properties and localized microstructure control will inevitably require a detailed understanding of solidification in these processes.

The goal of this symposium is to highlight research in metal additive manufacturing that applies fundamental solidification theory to understand and solve contemporary processing challenges. This symposium will inform the solidification community about the unique characteristics of AM and guide the AM community to recognize the parallels that exist in the welding and solidification literature. Both experimental and modeling submissions are encouraged, especially in which modeling or theory is connected to experimental results or in situ characterization, as well as the use of data analytics and machine learning approaches to building process-structure-property relationships. The symposium will consist of 4 total sessions.

### **ORGANIZERS**

**Alex Plotkowski**, Oak Ridge National Laboratory, USA  
**Lang Yuan**, University of South Carolina, USA  
**Kevin Chaput**, Northrop Grumman, USA  
**Mohsen Asle Zaeem**, Colorado School of Mines, USA

### **SYMPOSIUM SPONSORS**

TMS Materials Processing & Manufacturing Division  
TMS Additive Manufacturing Committee  
TMS Solidification Committee

**Abstract Deadline is July 1, 2020. Submit online at**  
[www.programmaster.org/TMS2021](http://www.programmaster.org/TMS2021).

**Questions?**  
Contact [programming@tms.org](mailto:programming@tms.org)