— Call for Papers —

A Symposium on
Advances in Metal Additive Manufacturing Processes
Sponsored by the ASME Manufacturing Engineering Division's
Additive Manufacturing Technical Committee
Manufacturing Processes Technical Committee
2020 ASME International Manufacturing Science and Engineering Conference (MSEC)*
June 22 – 26, 2020
Cincinnati, Ohio
Hosted by the University of Cincinnati, College of Engineering and Applied Science

Technical Focus
Metal Additive Manufacturing (AM), which has been gaining momentum in aerospace, defense, tooling, and medical applications, is listed as one of the top 10 Breakthrough Technologies by the 2018 MIT Technology Review. Metal AM delivers complex metal structures with excellent physical properties using a wide range of industrial materials, such as titanium, stainless steel, Inconel, and other metal superalloys. However, the lack of fundamental understanding of the metal AM processes has made it challenging to control the quality of the product and thus thwarted the progress in the adoption of metal AM. This symposium will report the latest progress in all aspects of metal AM, such as new metal AM processes and systems, process control and development, in-situ process monitoring, process optimization, characterization and qualification of AM products, process-structure-property relationships, and related simulation and modeling. Authors are encouraged to submit drafts related to metal AM that may contribute to improving the product quality and reducing the cost and risk of adopting metal AM. People from government, academia and industries are all encouraged to participate. A panel discussion may be organized. Specific topics of interest include, but are not limited to:

- Development of metal AM processes and/or systems.
- AM material characterization: size/morphological, size distribution, and thermal properties of the materials.
- AM process: scan path planning, speed/power synchronization, feedforward/ feedback strategies, etc., and their effects on part quality/performance.
- Real-time monitoring techniques: such as high speed camera observation, *in-situ* X-ray detection, and so on for fundamental AM process understanding and part defects predication (qualify as build).
- Machine learning applications in AM, for both fundamental process understanding and recommendations to optimize part quality and process design.
- Simulation and modeling on metal AM process and process-structure-property relationships, and related experimental prediction and validation.
- Post-process characterization and qualification of metal AM: such as microstructure, mechanical properties, fatigue, etc., and non-destructive testing.

Paper Submission
Authors are encouraged to to submit an abstract and full manuscript for review by **November 15, 2019** via the conference website. Final revised manuscripts must be submitted by **March 26, 2020**. The copyright transfer form must be filled out by March 19, 2020 and the presenting author must pre-register by **April 15, 2020** or the paper will be withdrawn from the conference. ***No papers are to be submitted to the organizers; submissions will only be accepted via the conference website at https://event.asme.org/MSEC/** .*

All papers accepted by MSEC2020 can be further submitted to any ASME journals, such as the highly prestigious Journal of Manufacturing Science and Engineering, for consideration of archival publication. In addition, high quality MSEC2020 papers will be automatically channeled to relevant ASME journals for fast-tracked publications.

Additional Symposium Activities
To highlight advancements in this technical area, symposium organizers will:
- Work to attract a high-profile international keynote speaker
- Organize a special issue in the ASME Journal of Manufacturing Science and Engineering or ASME Journal of Micro and Nano-Manufacturing
- Organize a state-of-the-art paper that will be the lead article in the special issue

Organizers:
Dr. Dong Lin, Kansas State University, Manhattan, KS, USA. 785-532-3728; dongl@ksu.edu
Dr. Ho Yeung, NIST, Washington DC, USA, 301-975-2786; ho.yeung@nist.gov
Dr. Wenchao Zou, University of Arkansas, Fayetteville, AR, USA. 479-575-7250; zhouw@uark.edu

---

* The conference is collocated with NAMRI/SME's 48th North American Manufacturing Research Conference (NAMRC48) and LEM&P (Leading Edge Manufacturing / Materials and Processing) by The Japan Society of Mechanical Engineers (JSME), which will have a separate call-for-papers. Please note that submissions of the same paper to more than one conferences are not permitted.