

— Call for Papers —

A Symposium on

Smart Additive Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's
Additive Manufacturing Technical Committee
Manufacturing Systems Technical Committee
Quality & Reliability Technical Committee

2023 ASME International Manufacturing Science & Engineering Conference (MSEC) June 12
– June 16th, 2023

New Brunswick, New Jersey, USA

Hosted by Rutgers University, College of Engineering

Technical Focus

There is a lot of excitement about the potential of smart manufacturing (involving the use of information, automation, computation, software, sensing, and networking technologies) to revolutionize the manufacturing industry, e.g., by boosting manufacturing quality and productivity at low cost. An excellent application for such “smart” technologies is additive manufacturing (AM), another area of manufacturing that is gaining a lot of traction but is plagued by quality, productivity, and cost issues. This symposium will focus on research aimed at leveraging advances in sensing, automation, computation, software, networking, big data analytics, machine learning, control, etc., to reduce trial and error, and enhance the quality, productivity, scalability, cost-effectiveness and functionality of AM. Specific topics of interest include, but are not limited to:

- Data-driven predictive modeling of AM processes
- Data-driven predictive maintenance of AM equipment
- Physics and/or data-driven part design
- In-process and post-built defect detection, characterization, and analysis
- Multi-physics modeling of AM processes
- Digital twin of AM process and equipment
- New sensing modalities and data fusion techniques for AM process monitoring and control
- In-situ monitoring and control techniques for AM
- Applications of machine learning (e.g., physics-guided) in any phase of AM, including design and materials.
- New AM equipment and automation technology development; hybrid AM technology
- Use of cloud/edge and high-performance computing to advance AM
- Embedded sensors and integrated functionalities using AM
- Industrial Internet of Things (IIoT) applications in AM
- Novel applications of commercial software in AM

Paper Submission (Dates are subject to change.)

Authors are encouraged to submit an abstract and full manuscript for review by Oct 23, 2022 and **November 1, 2022 respectively**. **Submissions will only be accepted via the conference website:** <https://event.asme.org/MSEC/>. No papers are to be submitted to the organizers. Only industry presenters are allowed to present without a paper. Final revised manuscripts must be submitted by **March 20, 2023**. The copyright transfer form must be completed by **March 20, 2023**. The presenting author must register by **April 10, 2023** or the paper will be withdrawn from the conference proceedings. **High quality MSEC 2023 papers will be channeled to an ASME journal for fast-tracked review and publication.** Accepted papers can be submitted for review to any ASME journal, such as the prestigious *ASME Journal of Manufacturing Science and Engineering* or the *ASME Journal of Micro and Nano Manufacturing*.

Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

Invite speakers and organize a panel of thought leaders in AM to discuss the role of smart technologies in AM

Collate fast-tracked journal papers from this symposium into a special issue on Smart Additive Manufacturing in ASME Journal of Manufacturing Science and Engineering.

Organizers

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* The conference is collocated with NAMRI/SME's 50th North American Manufacturing Research Conference (NAMRC50), which will have separate call-for-papers. Please note that submissions of the same paper to more than one conference are not permitted.