

— Call for Papers —
A Symposium on
Sustainability and Cost Dimensions of Additive Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's
Life Cycle Engineering Technical Committee
Additive Manufacturing 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

Additive manufacturing is a critical pillar of emerging industry 4.0 and is moving from the design shop to the factory floor. As these processes become more popular, it is paramount that engineers and policymakers understand and then reduce the sustainability impacts and costs of additive manufacturing. This symposium will focus on modeling, technology, and production planning advances in resource and cost efficiency during the additive manufacturing process and the use phases of the printed parts. Modeling advances will identify opportunities for technology improvement and **empower manufacturers with the decision-making tools needed to determine where and when additive manufacturing is appropriate in their business.** Such decisions are often unclear because use phase benefits (e.g., vehicle light weighting) can be balanced by increased upfront production costs and impacts. Use phase impacts, such as any additional maintenance requirements, are also not well understood. Technology and production planning advances will increase the number of applications for which additive manufacturing is the sustainable and cost efficient choice. Specific areas of interest include, but are not limited to:

- Process selection decision-making tools for manufacturers
- Unit Additive Manufacturing Process impact models and comparisons to rival technologies
- Design flexibility, part consolidation, and the effect on the number of manufacturing operations
- Use phase and maintenance impacts
- The development of standards to assess the lifecycle impacts of additive manufacturing
- Improvements to additive manufacturing energy and material efficiency
- Production planning for reduced impacts (e.g., multi-part builds or use of renewable energy)
- Low impact (e.g., renewable or recycled) 3d printing materials
- Development roadmaps for critical manufacturing industries such as aerospace and automotive
- Scalability: addressable future markets and calculating absolute environmental impacts

Paper Submission

Authors are encouraged 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

The symposium organizers will work to attract a high profile international keynote speaker to highlight cutting edge advances in the field. In order to generate new insights and foster new collaborations, the organizers will host a workshop during the symposium. A preliminary topic and title for this workshop is *Additive Manufacturing in a Mass Produced World*, and will focus on development pathways and applications of additive manufacturing for large manufacturers familiar with mass production technologies.

Organizers:

Dr. Daniel Cooper, University of Michigan, Ann Arbor, MI, USA. 734-761-1357; drcooper@umich.edu
Mr. Robert De Kleine, Ford Motor Company, Dearborn, MI, USA. 313-322-9356; rdeklein@ford.com
Dr. Paul Witherell, NIST, Gaithersburg, MD, USA. 301-975-3385; paul.witherell@nist.gov

* 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.