— Call for Papers —

A Symposium on

Environmental Sustainability of Additive Manufacturing Processes

Sponsored by the ASME Manufacturing Engineering Division's

Life Cycle Engineering Technical Committee

2017 ASME International Manufacturing Science and Engineering Conference (MSEC)*

June 4-8, 2017

University of Southern California

Technical Focus

Environmental sustainability has been considered as one of the main advantages of additive manufacturing (AM) processes when compared to traditional subtractive manufacturing processes. AM processes in general seem to have high material efficiency and low scrap rate, while eliminating the need for tooling, cutting fluids, and lubricants. AM processes also make regional and localized production possible, where the shortened supply chain suggests lower energy consumption and emissions from transportation. However, similar to traditional processes, AM processes consume materials and energy while generating emissions thus are not free of environmental impacts. It is highly likely that AM processes have significantly different profiles with regard to materials/energy consumption and emissions comparing to traditional processes. This symposium will focus on research advances that deepen our understanding on environmental impacts of AM processes over the entire life cycle, and lead to the development of machines, processes, and logistics that reduce the environmental footprints of AM processes. These research could provide guidelines for designers, manufacturers, and government agencies to safeguard workforce and enhance environmental sustainability of AM processes. This will in turn accelerate the larger scale technology adoption of AM. Specific topics of interest include, but are not limited to:

- Life cycle assessment of typical AM processes in field setting
- Quantification and characterization of emissions generated by AM processes
- Assessment of occupational health impacts of process emissions
- Development of life cycle inventory for AM processes
- New designs, control, and configurations that improve material and energy efficiency
- End of life management of products made from AM processes
- Environmental consequences due to wide deployment of AM technologies
- Supply chain and logistics that improve environmental performance of AM processes
- Integration of environmental considerations into machine and process development

Paper Submission

Authors are encouraged to submit an abstract and full manuscript for review by **November 03, 2016** via the conference website. Final revised manuscripts must be submitted by **March 08, 2017**. The copyright transfer form must be filled out and the presenting author must pre-register by April 06, 2017 or the paper will be withdrawn from the conference. Authors may also consult www.asme.org/divisions/med/call/ for updates. ***No papers are to be submitted to the organizers; submissions will only be accepted via the conference website at*** www.asmeconferences.org/msec2017/.

Additional Symposium Activities

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

- work to attract a high profile international keynote speaker including honorarium
- organize a special issue in the ASME J. of Manufacturing Science and Engineering or ASME J. of Micro and Nano-Manufacturing
- organize a state-of-the-art paper that will be the lead article in the special issue

Organizers

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* The conference is collocated with NAMRI/SME's 45th North American Manufacturing Research Conference (NAMRC45) and JSME's International Conference on Materials and Processing (ICMP 2017), both of which have a separate call-for-papers. Please note that submissions of the same paper to more than one conference are not permitted.