

# — Call for Papers —

## A Symposium on

### Sustainability in Smart Manufacturing: Analysis, Metrics, and Modeling Tools

Sponsored by the ASME Manufacturing Engineering Division's  
*Manufacturing Systems Technical Committee*

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

June 4-8, 2017

University of Southern California

#### Technical Focus

Improving sustainability at all levels of the organization is becoming of ever-increasing importance to manufacturers. As industry begins to adopt a variety of smart manufacturing technologies, it is more accessible for manufacturers to collect the data necessary for sustainability analysis. This has led to the increase in research projects related to smart and sustainable manufacturing throughout industry and academia. The United States Department of Commerce defines sustainable manufacturing as “the creation of manufactured processes that use processes that minimize negative environmental impacts, conserve energy and natural resources, are safe for employees, communities, and consumers and are economically sound.” This definition contains the three main tenets of sustainability: social, economic, and environmental aspects. This session will cover how smart manufacturing tools and technologies can address the various issues related to these three pillars with a focus on the manufacturing system level.

Although it is imperative to achieve and maintain sustainable manufacturing systems, there are a lack of systematic tools that can effectively design, analyze and improve the sustainability of these systems. Many current analysis tools rely on tribal knowledge or ad-hoc rules to address sustainability measurement. The complex nature of a manufacturing system makes it difficult to only utilize these heuristic methodologies to fully understand sustainability performance. On top of that, many system models focus solely on process parameters, e.g. quality, throughput, etc., and do not explicitly focus on sustainability aspects. With the increase of readily available data from smart manufacturing sensors, more formal models and tools are necessary to properly measure and improve sustainability at a system level.

This symposium will focus on sustainability in smart manufacturing and the subsequent research advances in the modelling, analysis tools, and metrics at the manufacturing system level. Specific topics of interest include, but are not limited to:

- Sustainable manufacturing system design methodologies
- Metrics for life-cycle assessment of sustainable manufacturing systems
- Smart manufacturing technologies for sustainability measurement
- Sustainable manufacturing system modeling and analysis
- Data analytics for sustainable manufacturing measurement
- Sustainable management of manufacturing systems: planning, scheduling and control
- Tools that incorporate standards in sustainability
- Sustainable manufacturing analysis classifications and taxonomies
- Trade-off studies of sustainability goals versus process goals
- Case studies of sustainability in industrial applications

#### 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/](http://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/](http://www.asmeconferences.org/msec2017/).**

#### Organizers:

Dr. Michael P. Brundage, National Institute of Standards and Technology, Ph: 301-975-8798, [michael.brundage@nist.gov](mailto:michael.brundage@nist.gov)

Dr. Yang Li, Tongji University, Shanghai, China, Ph: (86) 185-3788-8436, [Yangmli@tongji.edu.cn](mailto:Yangmli@tongji.edu.cn)

Dr. Jorge Arinez, GM Global Research and Development, Ph: 586-986-1238, [Jorge.arinez@gm.com](mailto:Jorge.arinez@gm.com)

Dr. Shaw Feng, National Institute of Standards and Technology, Ph: 301-975-3551, [shaw.feng@nist.gov](mailto:shaw.feng@nist.gov)

---

\*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.