

— Call for Papers —  
A Symposium on

**Advances in Reusable Abstractions for Manufacturing Process and Unit  
Process Life Cycle Inventories**

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

2019 ASME International Manufacturing Science and Engineering Conference (MSEC)\*

June 10-14, 2019

Erie, Pennsylvania

Hosted by Pennsylvania State University, The Behrend College

**Technical Focus**

Understanding environmental impacts of manufacturing processes is becoming increasingly critical for manufacturers to stay competitive. Relevant environmental indicators include energy use and efficiency, resource consumption, waste, and emissions. Among process characterization methodologies, a few complimentary methods stand out because of their reusable character which ensures model transferability and transparency. According to ASTM E3012-16, a unit manufacturing process (UMP) is characterized as physical transformations and the information needed to assess and improve process performance. ASTM's standard representations, including both a structured graphical and a computer-readable information model, support UMP reuse. The unit process life cycle inventory (UPLCI) presents a method to estimate the energy use and mass loss of one unit process in a full manufacturing line. The CO2PE! (Cooperative Effort on Process Emissions in Manufacturing) initiative collects data and time studies across a wide range of processes. These methods can improve the sustainability of manufacturing not only on the process level, but also on the system level. This symposium will focus on state-of-the-art research, development and application of analytical methods for reusable abstractions of single manufacturing processes, process chains, or auxiliary processes. Specific topics of interest include, but are not limited to:

- Life cycle assessment of manufacturing systems/processes with reusable models
- Interdisciplinary, distributed or collaborative applications, methods or models for manufacturing analysis
- Reusable abstractions of auxiliary processes or supply chains
- Challenges and strategies in building process models for environmental impact assessment
- Inclusion of broader sustainability and quality measures in environmental process characterizations
- Process abstractions to facilitate virtual manufacturing
- Validation of process or system-level characterizations
- Case studies from educational or industrial use
- Tools and methods to facilitate the curation and/or exchange of manufacturing process abstractions

**Paper Submission**

Authors are encouraged to submit an abstract and full manuscript for review by **November 02, 2018** via the conference website. Final revised manuscripts must be submitted by **March 15, 2019**. The [copyright transfer form](#) must be filled out by March 8, 2018, and the presenting author must [pre-register](#) by **April 05, 2019**; 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/msec2019/](http://www.asmeconferences.org/msec2019/).**

**Additional Symposium Activities**

To highlight advancements in this technical area, symposium organizers will work to attract a high profile international keynote speaker. We encourage submissions related to the [Reusable Abstractions of Manufacturing Process \(RAMP\) Competition](#).

**Organizers:**

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\* The conference is collocated with NAMRI/SME's 47th North American Manufacturing Research Conference (NAMRC47), which will have a separate call-for-papers. Please note that submissions of the same paper to more than one conference are not permitted.