

# — Call for Papers —

## A Symposium on

### Laser-based Advanced Manufacturing and Material Processing

Sponsored by the ASME Manufacturing Engineering Division's  
*Manufacturing Processes 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

The recent advance of high-power/ultrafast lasers has considerably broadened the capability of lasers in advanced manufacturing and material processing. Depending on the power level and the mode (continuous, nanosecond, picosecond or femtosecond), the irradiated materials can be heated, melted, evaporated, and even ionized, and hence the microstructure, geometry, morphology, properties, and/or appearance of the materials will be modified. Complex phenomena taking place during these processes include laser-matter interaction, heat/mass transfer, fluid mechanics, solid mechanics, plastic deformation, phase and microstructure change, etc. All these phenomena can have significant effects on the properties and performance of the materials to be processed. This symposium focuses on the recent advance in the applications of high energy laser beams in advanced manufacturing and material processing. Both fundamental and applied studies are of interest. These include experimental observation, analytical modeling and numerical simulation. Specific topics of interest include, but are not limited to:

- Laser-based surface modification processes, including laser shock peening, laser hardening, laser nitriding, laser coating, laser cladding, laser cleaning, etc.
- Laser-based material processing techniques, including laser sintering, laser-assisted deposition, laser recrystallization, laser annealing, etc.
- Laser-based machining processes, including laser bending/forming, laser ablation, laser cutting/drilling, laser welding/soldering/brazing, etc.
- Laser-based micro-/nano- fabrication processes.

#### 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be filled out by March 8, 2019, and the presenting author must pre-register by **April 05, 2019**; or the paper will be withdrawn from the conference.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/).**

#### Organizers:

Dr. Chang Ye, University of Akron, Akron, OH, USA. 330-972-4032; [cye@uakron.edu](mailto:cye@uakron.edu)

Dr. Xin Zhao, Clemson University, Clemson, SC, USA. 864-656-2151; [xzhao5@clemson.edu](mailto:xzhao5@clemson.edu)

Dr. Dong Lin, Kansas State University, Manhattan, KS, USA. 785-532-3728; [dongl@ksu.edu](mailto:dongl@ksu.edu)

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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.