Call for Papers —
A Symposium on

Advances in the Mechanics of Materials and Manufacturing Processes

Sponsored by the ASME Manufacturing Engineering Division’s
Manufacturing Equipment Technical Committee

2018 ASME International Manufacturing Science and Engineering Conference (MSEC)*
June 18-22, 2018
Texas A&M University

Technical Focus
This symposium will bring together material scientists, mechanicians, and industrial and mechanical engineers to discuss recent advances in the mechanics of materials and advanced manufacturing processes. Different approaches to studying mechanics – experimental, theoretical or computational, are all within the scope of this symposium. The symposium also covers a broad array of manufacturing processes (material removal processes, material deformation processes) and application areas (manufacturing equipment, machinery) where a fundamental understanding of process mechanics is critical for improving process efficiency, product quality and material’s functional performance. Special topics of interest, as they relate to advanced manufacturing, include, but are not limited to:

- Innovative experimental methods, including in situ techniques, for characterizing the mechanics of deformation at multiple length-scales
- Advances in multi-scale modeling (phenomenological, crystal plasticity based, etc.) of large strain plastic deformation and ductile failure in material removal, deformation processing and tribology
- Improved understanding of plastic flow instabilities, localization (e.g., shear bands), damage and fracture mechanics in cutting and deformation processing of engineering materials
- Constitutive models for material deformation under process conditions, and finite element based process modeling approaches
- Micromechanics of plastic deformation (e.g., dislocation slip, twinning) and microstructure evolution during processing
- Size effects in deformation mechanics and implications for materials processing and manufacturing
- Chemo-mechanical effects in plastic deformation of metals
- Applications of novel methods for improving surface quality and microstructure design in manufacturing processes

Paper Submission
Authors are encouraged to submit an abstract and full manuscript for review by November 15, 2017 via the conference website. Final revised manuscripts must be submitted by March 31, 2018. The copyright transfer form must be filled out and the presenting author must pre-register by April 20, 2018 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/msec2018/

Additional Symposium Activities
To highlight advancements in this technical area, symposium organizers will
- work to attract a high-profile international keynote speaker (including the payment of an honorarium)
- organize a special issue in the ASME Journal of Manufacturing Science and Engineering or ASME Journal of Micro and Nano-Manufacturing
- organize a paper on the state of the art that will be the lead article in the special issue

Organizers:
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*The conference is co-located with NAMRI/SME’s 46th North American Manufacturing Research Conference (NAMRC46) which will have a separate call for papers. Please note that submissions of the same paper to more than one conference are not permitted.