— Call for Papers —

A Symposium on

Tribology of Material Removal/Deformation Processes and Machinery

Sponsored by the ASME Manufacturing Engineering Division's

Manufacturing Equipment Technical Committee

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

June 4-8, 2017

University of Southern California

Technical Focus

Tribology, the science of friction, lubrication and wear between sliding surfaces, plays a critical role in materials processing and performance. For example, in material removal or deformation processes, the severe contact conditions between the tool and workpiece not only determine energy dissipation, process efficiency and tool wear, but also significantly affect the component's surface attributes (e.g., microstructure, residual stress, etc.) which in turn influence material's functional performance under service. Similarly, tribological contacts in machine elements can critically determine the machine's performance, reliability and life cycle. Given that sliding contacts are ubiquitous and particularly severe in manufacturing processes, advances in the field of tribology for better control of friction, wear and energy are of considerable importance. This symposium seeks experimental and theoretical/modeling contributions that advance the state-of-the-art of the science and technology of tribology. While the focus is on tribology of manufacturing processes and machinery, model system studies that contribute to new insights into the nature of sliding surfaces are also welcome. A comprehensive understanding of tribology also warrants an interdisciplinary approach, so submissions are sought from various science and engineering fields including mechanics, materials science, physical chemistry and physics. Specific topics of interest include, but are not limited to:

- Process tribology pertaining to material removal processes (machining, grinding, polishing, etc.), bulk and surface deformation processes (rolling, extrusion, drawing, burnishing, etc.), and sheet metal forming
- Tribology of machine elements (bearings, gears, etc.) and assembled machinery
- Tribology at various length scales from micro/nano to meso to macroscale
- Hard and soft material systems encompassing engineering materials (metals, glasses, ceramics), biological or natural materials (bone, rocks, etc.) and soft matter (polymers, gels, etc.)
- Coatings, surface patterning, texturing, and related methods for reduced wear and friction
- Lubricants, lubrication phenomena and tool wear
- Experiments, theory or modeling of asperity contacts, friction and wear mechanisms
- Tribochemistry, chemomechanical effects, and role of material (microstructure)
- Characterization of interfaces and surfaces/sub-surfaces
- Laboratory testing (tribometers), methods, standards and tribosystem analysis
- *In situ* approaches to tribology

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
- organize a paper on the state of the art

Organizers:

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* The conference is co-located 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.