Society of Tribologists and Lubrication Engineers (STLE)
75th Annual Meeting & Exhibition

Call for abstracts in
Materials Tribology

Dear Friends and Colleagues,

The Materials Tribology technical committee invites you to present your research in the **Materials Tribology** session to be held at the 75th Annual STLE Meeting and Exhibition at the Hyatt Regency Chicago in downtown Chicago, Illinois. ***The session focuses on fundamental materials aspects of tribological systems***, covering a multi-disciplinary range of topics encompassing the use of traditional and emerging materials and techniques. Presentations are 30 minutes, including Q&A.

For the first time, we are accepting a limited number of short (10 min. talk, 5 min. Q&A) presentations to encourage rapid dissemination of new findings. Please email John Curry (jcurry@sandia.gov) with the subject line "2020 STLE Materials Tribology Mini-Presentation" and include your title, full author list & affiliations, abstract, short bio, and request to be considered for a short presentation.

Materials Tribology topics include, but are not limited to:

- Structure/properties relationships in tribology including microstructure and processing
- Tribology of metals, ceramics, soft matter, polymers, and composites (for biological materials, please submit to **Biomaterials** joint session)
- Tribology of non-lamellar solid lubricants (for lamellar solid lubricants, please submit to the **2D Materials** joint session)
- In situ approaches to materials tribology
- Mechanistic understanding of tribological phenomena (for tribochemical mechanisms, please submit to **Tribochemistry** joint session)
- Simulations and modeling at multiple length scales

Submission deadline for abstracts is **October 1st, 2019**. To submit an abstract, please visit https://stle2020.abstractcentral.com and select the "Materials Tribology" topic during submission.

Materials Tribology will participate in three joint sessions this year. Joint sessions on **Tribochemistry** and **2D Materials** will be held in conjunction with the Nanotribology technical committee. A joint session on **Biomaterials** will also be held this year in conjunction with the Biotribology technical committee. Please see their calls for papers included below.

For all questions on the Materials Tribology session, please contact
John Curry at **jcurry@sandia.gov.**

Sincerely yours,
John Curry, Paper Solicitation Chair (PSC)
Mark Sidebottom, Vice Paper Solicitation Chair and Tribochemistry Joint Session Co-Chair
Mary E Makowiec, Vice Paper Solicitation Chair and 2D Materials Joint Session Co-Chair
Tevis Jacobs, Committee Vice Chair
Brandon Krick, Committee Chair

Joint Session on Tribochemistry

In this joint session of the Materials Tribology and Nanotribology technical committees, we would like to highlight research that focuses on chemical reactions at the contact interface that are initiated or accelerated by mechanical stresses. We encourage experimental and simulation studies as well as investigations that link the two. Please remember to select "Tribochemistry Joint Session" as your topic when you submit your abstract. Suggested topics include, but are not limited to:

- Tribochemistry of ceramics, nanoparticles, nanocomposites and other technologically advanced materials Molecular mechanisms involved in friction-induced chemical reactions and lubrication
- Chemical bonding occurring at the sliding interface and its contribution to adhesion, friction, and wear
- Physicochemical phenomena occurring during interfacial shear and the control of intercalated products
- Tribochemistry of ceramics, nanoparticles, nanocomposites and other technologically advanced materials
- Tribofilm formation and degradation and the compound effect of mechanical stress and chemical reactions
- Theoretical modeling of mechanical stresses at the sliding interface and their effect on interfacial chemistry and wear
- Nanoscale mechanisms for chemically-assisted wear

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Materials Tribology Technical Committee
Co-Chair**, Tribochemistry Joint Session**

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Joint Session on 2D Materials

In this joint session of the Materials Tribology and Nanotribology technical committees, we would like to highlight research that focuses on 2D materials (such as but not limited to metal dichalcogenides, graphene, h-BN, etc.) for tribological applications. We encourage experimental and simulation studies as well as investigations that link the two. Please remember to select "2D Materials Joint Session" as your topic when you submit your abstract. Suggested topics include, but are not limited to:

- Mechanistic interpretations of nanoscale tribological behavior of 2D material & links to macroscale behavior
- Impact of aging, degradation & environmental sensitivities of 2D materials on tribological behavior
- Simulations & modeling of interlamellar interactions in 2D materials
- Strain engineering studies & tuning of 2D material properties
- Understanding lamellar solids in the context of lamellar interactions
- Role of surface functionalization techniques of 2D materials on tribological behavior
- Advanced deposition techniques of 2D materials for tribological applications
- Macro- or nano- tribological behavior of 2D heterostructures

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Joint Session on Tribology of Biomaterials

In this joint session of the Materials Tribology and Biotribology technical committees, we would like to highlight research that focuses on fundamental materials aspects of biotribology. We encourage experimental and simulation studies as well as investigations that link the two. Please remember to select "Tribology of Biomaterials Joint Session" as your topic when you submit your abstract. Suggested topics within this focus area include, but are not limited to:

- Structure-property relationships of materials used various biological applications, including but not limited to:
  - articulating joint biomaterials
  - dental biomaterials
  - ocular biomaterials
- Relationships between the biological environment and the tribological behavior of biomaterials
- Simulations and modeling of biomaterials tribology at multiple length scales

Prof. Brandon Krick
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Materials Tribology Technical Committee
Chair, **Tribology of Biomaterials** Joint Session