Society of Tribologists and Lubrication Engineers
74th 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 74th Annual Meeting of STLE. This conference is the premier event for the tribology and lubricant communities and will be held **May 19-23, 2019** in **Nashville, Tennessee**.

This session focuses on fundamental materials aspects of tribological systems. It will cover a multi-disciplinary range of topics encompassing the use of traditional and emerging materials and techniques. The abstract submission deadline is **October 1st, 2018**. To submit an abstract, please visit the STLE website, https://stle2019.abstractcentral.com. Remember to select "Materials Tribology" as your topic when submitting an abstract.

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 on the next few pages.

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

For all questions on the Materials Tribology session, please contact
J. Michael Shockley at james.shockley@mail.mcgill.ca.

Sincerely yours,

J. Michael Shockley, Paper Solicitation Chair (PSC) and **Biomaterials** Joint Session Co-Chair
John Curry, Vice Paper Solicitation Chair and **2D Materials** Joint Session Co-Chair
Mark Sidebottom, Vice Paper Solicitation Chair and **Tribochemistry** 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 within this focus area include, but are not limited to:

- Chemical bonding at the sliding interface and its contribution to adhesion, friction, and wear
- The origin of friction-induced chemical reactions and control of product formation
- Tribofilm properties, formation, degradation and the compound effect of mechanical stress and chemical reactions
- Atomistic and multi-scale simulations of chemical reactions at interfaces
- Modeling of mechanical stress at the sliding interface and its effects on chemistry and wear.
- Experiments and models that evaluate how friction and wear are affected by differences in surface chemistry as a result of different environments (temperature, ambient vs. vacuum, lubrication, third bodies, etc.)
- Nanoscale mechanisms of chemically-assisted wear

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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 within this focus area include, but are not limited to:

- Mechanistic interpretations of nanoscale behaviors & links to macroscale
- 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 in 2D materials on tribological behavior
- Methods of advanced deposition techniques in 2D materials
- Tribochemical interactions between 2D material interfaces

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Co-Chair, **2D Materials** Joint Session

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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 or form/function relationships of materials used in various biological applications, including but not limited to:
  - articulating joint biomaterials
  - dental biomaterials
  - ocular biomaterials
  - other prosthetic or soft anatomical biomaterials
- Relationships between the biological environment and the tribological behavior of materials
- Simulations and modeling of biomaterials tribology at multiple length scales
- Treatment of biological entities as materials

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Biotribology Technical Committee
Chair, **Biomaterials** Joint Session

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