



stle Atlanta

79th Annual Meeting & Exhibition • May 18-22, 2025

Society of Tribologists and Lubrication Engineers (STLE)
79th Annual Meeting & Exhibition
<https://www.stle.org/annualmeeting>

May 18-22, 2025 at the Hyatt Regency in Atlanta, Georgia (USA)

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 79th Annual STLE Meeting and Exhibition at Hyatt Regency in Atlanta, Georgia (USA). *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 will be either 40 minutes or 20 minutes, including Q&A. Authors will have the opportunity to request either a 40 minute or 20 minute time slot during abstract submission.

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 the **Tribology of Biomaterials** 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 the atomic/nano length scales, please submit to **Tribochemistry** joint session)

Submission deadline for abstracts is **October 4th, 2024**. To submit an abstract, please visit <https://stle2025.abstractcentral.com/> and select the “Materials Tribology” topic during submission.

Materials Tribology will participate in two joint sessions this year. A joint session on **Tribochemistry** will be held in conjunction with the Nanotribology technical committee. A joint session on **Tribology of 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
Tomas F. Babuska at tfbabus@sandia.gov

Sincerely yours,

Tomas F. Babuska, Paper Solicitation Chair (PSC)
Tomas Grejtak, Vice Paper Solicitation Chair
M. Cinta Lorenzo Martin, Vice Paper Solicitation Chair
Kylie E. Van Meter, Secretary
Nikhil Murthy, Committee Vice Chair
Mary E. Makowiec, 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. Presentations will be either 40 minutes or 20 minutes, including Q&A. Authors will have the opportunity to request either a 40 minute or 20 minute time slot during abstract submission.

Suggested topics include, but are not limited to:

- Tribochemistry of metals, ceramics, nanoparticles, nanocomposites, and other advanced materials
- Molecular mechanisms involved in friction-induced chemical reactions and lubrication
- Chemical bonding at the sliding interface and its contribution to adhesion, friction, and wear
- Physicochemical phenomena occurring during interfacial shear and the control of intercalated products
- Tribofilm formation and degradation, and the combined 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**

Cangyu Qu

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Nanotribology Technical Committee

Co-Chair, **Tribochemistry Joint Session**

Joint Session on Tribology of Biomaterials

The Biotribology and Materials Tribology Technical Committees invite you and your colleagues to submit abstracts for the upcoming sessions at the 79th Annual STLE Meeting and Exhibition at Hyatt Regency in Atlanta, Georgia (USA). *The session focuses on the tribology of biomaterials, either natural or synthetic.* Submissions may include experiments, simulation, and/or theory. Presentations will be either 40 minutes or 20 minutes, including Q&A. Authors will have the opportunity to request either a 40 minute or 20 minute time slot during abstract submission. Specific topics include, but are not limited to the following:

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

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Co-Chair, **Tribology of Biomaterials**

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