



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

*May 15-19, 2022 at the Walt Disney World Swan & Dolphin  
in Orlando, Florida*

**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 76<sup>th</sup> Annual STLE Meeting and Exhibition at the Walt Disney World Swan & Dolphin in Orlando, Florida. *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.

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)
- Tribology of non-lamellar solid lubricants (for lamellar solid lubricants, please submit to the [2D Materials + Superlubricity](#) joint session)
- In situ approaches to materials tribology
- Mechanistic understanding of tribological phenomena (for tribochemical mechanisms, please submit to [Trib chemistry](#) joint session)
- Simulations and modeling at multiple length scales

Submission deadline for abstracts is **October 1<sup>st</sup>, 2021**. To submit an abstract, please visit <https://stle2022.abstractcentral.com/> and select the “Materials Tribology” topic during submission.

**Materials Tribology will participate in three joint sessions this year.** Joint sessions on [Trib chemistry](#) and [2D Materials + Superlubricity](#) 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  
Mark Sidebottom at [mark.sidebottom@miamioh.edu](mailto:mark.sidebottom@miamioh.edu).

Sincerely yours,

**Mark Sidebottom**, Paper Solicitation Chair (PSC)

**Nikhil Murphy**, Vice Paper Solicitation Chair and Tribochemistry Joint Session Co-Chair

**Mary E Makowiec**, Vice Paper Solicitation Chair and 2D Materials Joint Session Co-Chair

**Kylie E Van Meter**, Vice Paper Solicitation Chair and Tribology of Biomaterials Chair

**John Curry**, Committee Vice Chair

**Tevis Jacobs**, 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 metals, 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
- 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

**Nikhil Murthy**

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Materials Tribology Technical Committee

Co-Chair, **Tribochemistry Joint Session**

**Arnab Bhattacharjee**

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Nanotribology Technical Committee

Co-Chair, **Tribochemistry Joint Session**

## Joint Session on **2D Materials + Superlubricity**

In this joint session of the Materials Tribology and Nanotribology technical committees, we would like to highlight research that focuses on 2D materials + Superlubricity (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 for 2D materials on tribological behavior
- Advanced deposition techniques of 2D materials for tribological applications
- Macro- and nano- tribological behavior of 2D heterostructures

**Mary Makowiec, Ph.D.**

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Materials Tribology Technical Committee

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

**Mehmet Baykara**

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Nanotribology Technical Committee

Co-Chair, **2D Materials** 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 76<sup>th</sup> Annual STLE Meeting and Exhibition at the Walt Disney World Swan and Dolphin in Orlando, Florida. *The session focuses on the tribology of biomaterials, either natural or synthetic.* Submissions may include experiments, simulation, and/or theory.

Presentations are normally 30 minutes, including Q&A.

Specific topics include, but are not limited to these:

- Structure-property relationships of 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

**Kylie E Van Meter**

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Materials Tribology Technical Committee

Chair, **Tribology of Biomaterials** Joint Session

**Alison C. Dunn**

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Biotribology Technical Committee

Biomaterials Joint Session Chair