MSE 2024

24 - 26 Sep 2024 (Darmstadt)

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Topic I: Circular Materials

I02: Innovations in Sustainable Tribology: New Approaches in Surface Functionalization for Electrical and Mechanical Contacts

About 20% of the global energy consumption is lost due to friction and wear (i.e., tribological contacts). Proper modification and functionalization of material´s surface, as well as better lubrication technologies, have a direct influence in the overall performance and longevity of mechanical and electrical components.

Moreover, environmental protective regulations require the replacement of certain components (e.g., PFAS containing lubricants) for other more sustainable and eco-friendly alternatives.

In this context, this symposium addresses the conceptualization of new environmentally friendly lubricants and enhanced surface treatment and functionalization that will result in products and components with an extended service life and improved ecological compatibility. In particular, the development of material´s systems with reduced friction and wear that positively influence the decision- making during product and component design.

This symposium will bring together experts from different engineering and science fields.

Contributions for oral presentations and posters should include but are not limited to the following:

- Low-friction sustainable materials
- Nanomaterials as protecting and low-friction coatings
- Replacement for PFAS in mechanical systems
- Replacement for PFAS in electrical contacts lubrication
- Reduction of noise in mechanical systems
- Biomimetic approaches
- Bio and natural lubricants
- Self-lubricating materials
- Low-friction surface modification/functionalization
- Carbon footprint of tribological systems

Symposium Organizer


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