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Recent Advances in Electric Tribology

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Message from the Guest Editor

Dear Colleagues,

With the advancement of high-level instruments and computational resources, there has been a surge in research focusing on tribology at the molecular level. Researchers are now able to investigate the atomic structures of friction pairs and track their evolution during sliding using a combination of experimental techniques and computational simulations. However, our understanding of tribology at the quantum level, particularly concerning electronic structures and electric dissipation during interfacial sliding, has continued to grow. Exploring the electronic properties and electric dissipation mechanisms during frictional interactions holds significant promise, especially in areas such as polar lubricants on metals/semiconductors and friction between solid surfaces. The ability to adjust the electric properties of friction pairs using electric fields can lead to dramatic changes in tribological processes, presenting exciting opportunities for controlling friction and lubrication.