

Special Issue

Bioinspired Design for Friction Control

Message from the Guest Editors

This Special Issue explores cutting-edge research in bioinspired friction control, bridging biological principles with engineering applications to address contemporary challenges in energy efficiency, sustainability, and performance optimization.

Relevant research areas include biomimetic surface texturing inspired by shark skin riblets, lotus leaves, and pitcher plants for drag reduction and self-cleaning applications; gecko-inspired adhesives demonstrating switchable friction through hierarchical micro/nanostructures; and anisotropic friction surfaces mimicking snake scales for directional control in robotics. Bio-inspired lubrication strategies drawing from synovial joints, fish mucus, and plant cuticles are advancing sustainable, high-performance lubricants and self-lubricating materials. Adaptive friction systems that emulate biological responses to environmental changes, along with multi-scale design approaches replicating nature's hierarchical architectures, represent frontier developments in wear resistance and friction management.

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About the Journal

Message from the Editor-in-Chief

Friction, wear, and lubrication are tribological phenomena that govern the behavior of interacting surfaces in a wide range of machine components. Understanding the physical and chemical nature of these phenomena is critical to achieving long component lifetime and economical operation. Research in the field of tribology is highly interdisciplinary, and encompasses the fields of physics, chemistry, engineering, and mathematical modeling. *Lubricants* invites contributions on new advances in all areas of tribology for publication as peer-reviewed research articles, reviews of current research, letters, and communications. We are committed to providing timely reviews of all articles submitted. Please consider sharing your work with the scientific community through publication in *Lubricants*.

Editor-in-Chief

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