Special Issue

High-Temperature Self-Lubricating Materials: Current Applications and Future Directions

Message from the Guest Editors

High-temperature self-lubricating materials play a critical role in extreme environments, such as aerospace, automotive, and energy systems, where traditional lubricants are inadequate. This Special Issue explores recent advancements in these materials, including novel composites, solid lubricants (e.g., graphite, MoS2, and MAX phases), and adaptive coatings that reduce friction and wear under thermal stress. We seek papers that cover experimental studies, computational modeling, and real-world applications, highlighting innovations in material design and performance optimization. Additionally, this Special Issue aims to address emerging trends, such as smart self-lubricating systems and sustainable high-temperature materials, while identifying key challenges and future research directions. By bridging academia and industry, we hope to foster breakthroughs in lubrication technology for next-generation engineering systems.

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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.*

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