Special Issue

Monitoring and Remaining Useful Life (RUL) Technology of Tool Wear

Message from the Guest Editors

Tool wear is a fundamental tribological phenomenon that directly affects manufacturing quality and efficiency. In smart manufacturing, real-time monitoring and accurate prediction of remaining useful life (RUL) are essential. This Special Issue brings together surface engineering, contact mechanics, and data science to address these challenges. We invite research that links the evolution of surface topography in machining processes with friction, wear, and lubrication to enable smarter predictions.

Key topics include: advanced sensing and modeling: multi-sensor fusion and AI-driven models for wear state recognition and RUL prediction; physics-informed prediction: integrating wear mechanisms with monitoring data; industrial applications: robust strategies for real-world monitoring and implementation.

This issue aims to provide a critical reference for researchers in tribology, surface engineering, and smart manufacturing, fostering sustainable collaboration between academia and industry.

Guest Editors

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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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