

Special Issue

Wear and Corrosion Resistance of Alloys

Message from the Guest Editors

Wear and corrosion represent a critical challenge across multiple high-consequence industries, including nuclear power, aerospace, and chemical processing. In systems such as heat exchangers, reactor cooling circuits, aircraft engines, and pressurized piping networks, wear and corrosion lead to progressive material degradation in key components—such as heat transfer tubes, fuel cladding, turbine blades, and reactor vessels. This damage manifests as wall thinning, crack initiation, and loss of functional integrity, ultimately compromising safety margins, operational life, and system reliability. This Special Issue invites high-quality contributions from academia and industry that address wear and corrosion resistance of alloys and challenges in energy, aerospace, chemical, and related sectors. We particularly welcome experimental, theoretical, and computational studies focused on underlying mechanisms, predictive modelling, condition monitoring, and mitigation strategies. Interdisciplinary submissions that bridge fundamentals and industrial applications are encouraged. We look forward to receiving your contributions.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

Editor-in-Chief

Prof. Dr. Yong Zhang

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