Special Issue

Advances in Tribological Performance and Wear Mechanism of Metallic Materials

Message from the Guest Editors

This Special Issue of Metal is dedicated to the advancement of both fundamental understanding and applied knowledge concerning wear phenomena in metallic systems. Manuscripts must provide rigorous experimental or theoretical insights, and for experimental work, authors are expected to demonstrate the reproducibility of their findings through repeated trials under consistent testing conditions.

Topics of interest include the following:

Wear Modeling and Validation: Mechanistic models, tribosystem simulations, and machine learning approaches with experimental validation.
New Testing Methods and Standards: Novel wear tests, including critiques of current methodologies.
Wear Diagnostics: In situ and real-time sensing or imaging of tribological interfaces.
Wear-Resistant Materials and Coatings: Development and benchmarking of new materials or surface treatments, with validated wear mechanisms.
Composition–Structure–Wear Relationships: Studies linking material properties and processing to wear behavior.
Role of Lubricants and Interfacial Species: Mechanistic insights into wear under well-defined interfacial conditions.

Guest Editors

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About the Journal

Message from the Editorial Board

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.

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18 days after submission; acceptance to publication is undertaken in 2.6 days (median values for papers published in this journal in the first half of 2025).

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