Special Issue

Advances in Material Wear Mechanisms and Modeling

Message from the Guest Editors

Material wear remains a critical challenge across sectors such as manufacturing, mining, agriculture, energy, transportation, and biomedical engineering. Components are expected to perform under extreme conditions—abrasion, impact, cyclic loading, and corrosive environments—the demand for advanced materials and accurate predictive models has never been greater. Tribological contacts account for about 23% of global energy use, with 3% spent on remanufacturing due to wear. In developed economies, wear-related failures cost roughly 3% of GDP. By integrating predictive wear modeling—analytical methods, DEM, FEM, CFD, machine learning—consumers can predict component behavior under real conditions. Such capabilities lead to reduced downtime, improved productivity, fewer replacements, and economic and environmental benefits. This Special Issue aims to present and promote the latest scientific and technological advances in understanding, measuring, modelling, and controlling material wear loss. We seek contributions that explore both the fundamental mechanisms behind different wear processes and the applied strategies for improving durability and performance in real-world environments.

Guest Editors

Dr. Egidijus Katinas
Dr. Rostislav Chotěborský
Dr. Michal Petrů

Deadline for manuscript submissions

20 October 2026

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/253235

Applied Sciences
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
applsci@mdpi.com

mdpi.com/journal/applsci

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/journal/applsci

MDPI

About the Journal

Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), Ei Compendex, Inspec, Embase, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)