

Special Issue

High-Performance Alloys and Steels: Design, Processing, and Applications

Message from the Guest Editors

The development and performance optimization of high-performance alloys and steel have been a research focus for the past few decades, aiming to manufacture excellent industrial products. Numerous works and efforts have been made to elevate the performance of alloys and steel, including tuning design strategies, processing routes, and their application in the environment. However, the performance of the alloys and steel still does not meet the requirements of application fields, including extremely high/low-temperature conditions. Further improvement to the performance of alloys and steel is essential to elevate the service quality of industrial products. Therefore, this Special Issue aims to provide a broad platform to share the latest results in the development and performance optimization of high-performance alloys and steel. This includes fundamental questions regarding microstructure–property relationships, phase transformations, strain hardening, and fracture mechanisms. Submissions on topics related to the design, processing, testing, characterization, and applications of high-performance alloys and steel are welcome.

Guest Editors

Dr. Shiwei Tian

Institute of Engineering Technology, University of Science and Technology Beijing, Beijing 100083, China

Dr. Yonggang Yang

Institute of Engineering Technology, University of Science and Technology Beijing, Beijing 100083, China

Deadline for manuscript submissions

28 December 2026



Materials

an Open Access Journal
by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed



mdpi.com/si/238374

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

[mdpi.com/journal/
materials](https://mdpi.com/journal/materials)





Materials

an Open Access Journal
by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed



[mdpi.com/journal/
materials](https://mdpi.com/journal/materials)



About the Journal

Message from the Editorial Board

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

Editors-in-Chief

Prof. Dr. Maryam Tabrizian

1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada

2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

Prof. Dr. Yuguang Ma

State Key Laboratory of Luminescent Materials and Devices, South China University of Technology, Guangzhou 510640, China

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), PubMed, PMC, Ei Compendex, CaPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

Journal Rank:

JCR - Q2 (Metallurgy and Metallurgical Engineering) /
CiteScore - Q1 (Condensed Matter Physics)