Special Issue

Design, Preparation and Properties of High Performance Steels (2nd Edition)

Message from the Guest Editors

Steel, a cornerstone of infrastructure, has seen continuous development, especially in the last century, due to advancements in physical metallurgy. Modern high-performance steels now prioritize not only high strength and toughness but also better weldability, formability, longer service life, and enhanced safety. Specific engineering demands have led to tailored performance needs: crack resistance for ship plate steel, seismic and fire resistance for construction steel, impact and wear resistance for tool steel, and corrosion and hydrogen-induced cracking resistance for oilfield steel.

The progress of high-performance steel relies on physical metallurgy. Alloy design considers solid solution, precipitation, and the interactions between multiple alloying elements. Microstructure design has evolved from simple phases to multi-phase and multi-scale regulation, with increasingly complex steel manufacturing processes. Innovations in metallurgy and industrial technology will continue to enhance steel performance.

This Special Issue invites papers on novel alloy and process designs for high-performance steel, focusing on comprehensive properties and engineering applications.

Guest Editors

Dr. Xiucheng Li

Collaborative Innovation Center of Steel Technology, University of Science and Technology Beijing, Beijing 100083, China

Dr. Shilong Liu

Bao Steel-SJTU Joint Research Center of Future Steels, School of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai 200240, China

Deadline for manuscript submissions

closed (30 April 2025)

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/219702

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

mdpi.com/journal/metals

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/journal/metals

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.

Editors-in-Chief

Prof. Dr. Hugo F. Lopez
Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

Prof. Dr. Yong Zhang
Beijing Advanced Innovation Center of Materials Genome Engineering, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, 30 Xueyuan Road, Beijing 100083, China

Author Benefits

High Visibility:

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

Journal Rank:

JCR - Q2 (Metallurgy and Metallurgical Engineering) / CiteScore - Q1 (Metals and Alloys)

Rapid Publication:

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).

MDPI