

Special Issue

Research on Microstructure and Performance Mechanisms of Advanced Steels and Alloys

Message from the Guest Editor

Advanced steels and alloys, such as stainless steels, HSLA steels, high-manganese steels, Al alloys, Cu alloys, and high-entropy alloys, are important cornerstones for the development of modern industries, agriculture, livelihoods, the military, and other fields. At present, there is a demand for ways to reduce the weight, lower the cost, extend the service life, and improve the performance of steels and alloys components. To keep up with ever-increasing demands, it is necessary to develop high-performance steels with excellent mechanical properties and high-performance alloys with better physical and chemical properties. The chemical composition design, microstructure evolution, and manufacturing processes collectively determine the mechanical properties of the materials. The main aim of the Special Issue is to discuss the topics of materials processing, manufacturing, mechanical properties, microstructure, mechanism, and applications in advanced steels and alloys. All of the advanced steels and alloys as well as composite materials in metals are of interest. It is our pleasure to invite you to submit a manuscript for this Special Issue.

Guest Editor

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Deadline for manuscript submissions

closed (30 September 2025)



Metals

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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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