

Special Issue

Research Progress of Metal Smart Materials

Message from the Guest Editor

Progress in modern technologies and biomedicine, associated with robotization and environmental safety techniques, is substantially determined by the design of metal smart materials. Special smart materials with martensitic transformation (shape memory alloys) possess the functional properties necessary for the creation of actuators, sensors, dampers, solid-state refrigerators, and medicine devices operating under the action of thermal, magnetic, and/or stress fields. This Special Issue aims to publish original research articles and critical reviews on all aspects related to new advances in processing–microstructure–property relationships and the development of conventional and magnetic shape memory alloys, including biomedical materials, and high-entropy and high-temperature shape memory alloys. We invite to this Special Issue submissions of manuscripts that address the following topics:

- Material processing technology;
- Thermodynamics and kinetics of martensitic transformation;
- Thermo-mechanical treatment;
- Characterization of functional properties;
- Solid-state caloric cooling;
- Functional degradation and fatigue.

Guest Editor

Dr. Elena Panchenko

Siberian Physical-Technical Institute, Tomsk State University, Tomsk, Russia

Deadline for manuscript submissions

closed (31 December 2023)



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

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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.

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

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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).