Special Issue

Investigation on Shape Memory Alloys

Message from the Guest Editors

Shape memory alloys, exhibit interesting properties when subjected to mechanical, thermal or magnetic loadings. These unusual behaviors are due to a solid–solid displacive martensite phase transformation or to the reorientation of martensite variants in the case of magnetic shape memory alloys. In industrial applications, SMAs are subjected to cyclic loadings, which could induce failure of the SMA-made structures by fatigue crack initiation and propagation.

The purpose of this Special Issue is to report research related to multiphysics and multiscale behaviors of SMAs. It includes strain-rate-dependent and strain-rate-independent constitutive models to predict the behavior of dense or porous SMAs during quasi-static, dynamic or cyclic thermomechanical loading, multiscale modeling of various deformation mechanisms such as phase transformation, dislocation and twinning, high-cycle and low-cycle fatigue crack initiation, and crack propagation, taking into account thermomechanical coupling.

Experimental, theoretical, numerical contributions are of special interest. Papers on investigating and modeling 4D printing of SMAs and optimization of SMA microstructures are also welcomed.

Guest Editors

Prof. Dr. Ziad Moumni

IMSIA, ENSTA Paris, CNRS, CEA, EDF, Institut Polytechnique de Paris, 828 boulevard des Maréchaux, 91762 Palaiseau cedex, France

Prof. Dr. Weihong Zhang

State IJR Center of Aerospace Design and Additive Manufacturing, Northwestern Polytechnical University, Xi'an 710072, China

Deadline for manuscript submissions

closed (31 October 2021)

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/53262

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