Special Issue

Deformation and Failure Behavior of Metastable Metallic Materials

Message from the Guest Editor

Metastable metallic materials exhibit a local minimum of Gibb's free energy, meaning that under specific conditions the materials will transform spontaneously into a more stable structure. Besides the temperature, a monotonic and/or cyclic loading belongs to the most important conditions, which provide a driving force for such transformation. Consequently, during mechanical loading a complex change in microstructure associated with formation and rearrangement of dislocations, formation of stacking faults, twinning and phase transformation takes place. These microstructure-based mechanisms not only influence the physical properties but also the deformation and failure behavior of metastable metallic materials. For this special issue, we welcome manuscripts presenting experimental and theoretical studies, which address the deformation, phase transformation and failure behavior of the different types of metastable metallic materials mentioned above. Scientific works focused on understanding of cross effects like magneto-mechanical or magnetic-temperature interaction as well as reviews of fundamental metal physics are also warmly welcomed.

Guest Editor

Dr. Marek Smaga
Institute of Materials Science and Engineering, University of Kaiserslautern, 67663 Kaiserslautern, Germany

Deadline for manuscript submissions

closed (30 November 2024)

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/114738

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