

Special Issue

Study of Hydrogen-Induced Cracking in Metals and Alloys

Message from the Guest Editors

As in recent years, the strength of structural materials increases dramatically. Hydrogen embrittlement attracts more and more attention. Hydrogen embrittlement has been considered to limit the safe use of high-strength steels. There are several concepts to explain how hydrogen leads to the failure of steels and alloys. However, the loss of ductility due to hydrogen remains a serious problem for the design and fabrication of high-strength steels. For some steels, their well-balanced strength and ductility are achieved by a transformation-induced plasticity effect (TRIP). Hydrogen can move due to the transformation process, resulting in localized hydrogen-rich areas. If there are “traps”, hydrogen loses its mobility. As a result, crack initiation due to hydrogen can be inhibited.

Recently, there have been some advanced techniques to observe the interaction between hydrogen and metal microstructures in a more detailed manner. This Special Issue will focus on the study of hydrogen embrittlement via advanced techniques, machine learning methods, etc. for advanced alloys and high-strength steels.

Guest Editors

Prof. Dr. Lijie Qiao

Institute for Advanced Materials and Technology, University of Science and Technology Beijing, Beijing 100083, China

Prof. Dr. Yu Yan

Corrosion and Protection Center of the Institute for Advanced Materials and Technology, University of Science and Technology Beijing, Beijing, China

Deadline for manuscript submissions

closed (28 February 2023)



Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



mdpi.com/si/93436

Metals

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

[mdpi.com/journal/
metals](https://mdpi.com/journal/metals)





Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



[mdpi.com/journal/
metals](https://mdpi.com/journal/metals)



About the Journal

Message from the Editor-in-Chief

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.

Editor-in-Chief

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 18.7 days after submission; acceptance to publication is undertaken in 2.7 days (median values for papers published in this journal in the second half of 2025).