

## Special Issue

# Hydrogen Induced Damages in Metallic Materials

### Message from the Guest Editors

Exposing metal materials to hydrogen-rich environments can cause a range of damages, often resulting in premature cracking, ductility loss, bubbling/blistering, and swelling. These damages will deteriorate the performance of metallic materials, posing a great threat to the safety and efficiency of many applications. It is therefore crucial to understand the fundamental mechanisms of hydrogen-induced damages in metallic materials.

With the rapid development of computing of efficient and simulation methods, numerical modeling has become a powerful tool for investigating the microscopic behavior of hydrogen in metallic materials. We invite you to submit original research on the modeling and simulation of hydrogen-induced damages in metallic materials. The topics of interest in this Special Issue include but are not limited to the effect of hydrogen on mechanical performance, hydrogen-defect interaction, kinetics of hydrogen ingress, diffusion, trapping, and desorption, hydrogen damage mechanisms, and predictions regarding materials properties in hydrogen-rich environments.

---

### Guest Editors

Prof. Dr. Jie Hou

College of Materials Science and Engineering, Hunan University,  
Changsha, China

Dr. Xiao Zhou

Institute of Composite Materials, Shanghai Jiaotong University,  
Shanghai, China

---

### Deadline for manuscript submissions

closed (29 February 2024)



## Metals

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.5  
CiteScore 5.3



[mdpi.com/si/159096](https://mdpi.com/si/159096)

### *Metals*

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

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

[metals](https://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, CAPus / 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).