



## Hydrogen Embrittlement in Metallic Materials

Guest Editors:

**Dr. Binhan Sun**

Department of Microstructure  
Physics and Alloy Design, Max  
Planck Institute for Iron Research  
GmbH, Düsseldorf, Germany

**Dr. Clodualdo Aranas**

Department of Mechanical  
Engineering, University of New  
Brunswick, Fredericton, NB E3B  
5A3, Canada

**Dr. Yu Bai**

School of Materials Science and  
Engineering, Dalian University of  
Technology, Dalian, China

Deadline for manuscript  
submissions:

**closed (31 December 2021)**

### Message from the Guest Editors

Hydrogen embrittlement (HE), which corresponds to the abrupt loss of a material's load-bearing capacity in presence of H, is often responsible for catastrophic and unpredictable failure of large-scale engineering structures. This embrittlement phenomenon occurs in many metallic materials. H embrittlement basically threatens any industries that aim to use high-strength alloys to make lightweight structural components, and with that, may set an abrupt halt to some of the pending infrastructures needed for a hydrogen economy. It is thus crucial to understand the mechanisms as well as to explore solutions for improving materials' resistance to H.

This Research Topic aims to cover all experimental and modeling studies associated with H embrittlement. The state-of-the-art research, development, and current challenges in the field of H embrittlement will be highlighted in this Research Topic, which is helpful to guide future research efforts.





an Open Access Journal by MDPI

## 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

## 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.

## Author Benefits

**Open Access:** free for readers, with **article processing charges (APC)** paid by authors or their institutions.

**High Visibility:** indexed within **Scopus**, **SCIE (Web of Science)**, **Inspec**, **CAPlus / SciFinder**, and **other databases**.

**Journal Rank:** JCR - Q2 (*Metallurgy & Metallurgical Engineering*) / CiteScore - Q1 (*Metals and Alloys*)

## Contact Us

Metals Editorial Office  
MDPI, St. Alban-Anlage 26  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/metals](http://mdpi.com/journal/metals)  
[metals@mdpi.com](mailto:metals@mdpi.com)  
[X@Metals\\_MDPI](https://twitter.com/X@Metals_MDPI)