# **Special Issue**

# Corrosion and Sustainability: Challenges, Innovations and Future Perspectives in Green Energy

Message from the Guest Editor

Metals and alloys play a crucial role in renewable energy systems, hydrogen infrastructure, carbon capture technologies, and material recycling, but their long-term durability is often compromised by complex corrosion mechanisms. Understanding and mitigating corrosion in these environments is essential to improve efficiency, reduce environmental impact, and ensure the longevity of critical infrastructure.

This Special Issue aims to collate the latest research on corrosion-related challenges and solutions in sustainable technologies. Topics of interest include, but are not limited to, the following:

Hydrogen embrittlement and corrosion in hydrogen production, storage, and transport;

- Eco-friendly corrosion inhibitors and sustainable protective coatings;
- Corrosion of materials in carbon capture, utilization, and storage technologies;
- Corrosion challenges in emerging energy technologies from lithium batteries to hydrogen infrastructure;
- The impact of corrosion on recycled metals and circular economy strategies.

We invite researchers from academia and industry to contribute.

#### **Guest Editor**

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## Deadline for manuscript submissions

10 May 2026



## Metals

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## **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

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### **Author Benefits**

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## **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).

