



Hydrogen Embrittlement of Metals and Alloys

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closed (25 March 2026)

Message from the Guest Editors

Dear Colleagues,

Hydrogen plays a pivotal role in decarbonising sectors in which emissions are difficult to remove, including heavy goods vehicles, maritime, aerospace and power generation, etc. This will not only increase the demand for clean hydrogen production but also promote material development across the hydrogen supply chain, from improving hydrogen generation infrastructures, to designing large hydrogen storage systems and fast hydrogen transportation networks, as well as employing hydrogen as an energy vector. Metals are widely utilized across these applications, and it is critical to understand how hydrogen may affect their structural integrity under existing and new operating environments.

In this Special Issue, we welcome submissions on the fundamental and applied research of Hydrogen Embrittlement in Metals, with the aim of addressing known challenges relating to structural components of the hydrogen supply chain. Topics on the mechanisms of hydrogen-related mechanical degradation, hydrogen adsorption, diffusion, and trapping, as well as on the development of novel hydrogen-tolerant materials are welcome.





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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.

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