



metals



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Study of Hydrogen Embrittlement of Metallic Materials

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Message from the Guest Editors

Exposing alloys (multi-principal element alloys, steels, aluminium alloys, superalloys, zirconium alloy, magnesium alloys, etc.) to nuclear energy, hydrogen energy, and petrochemical fields may induce hydrogen embrittlement (HE) as one of the typical failure mechanisms. HE often occurs prematurely, accompanied by brittle fracture at low stress levels. This leads to huge economic losses and even catastrophe. Therefore, HE must be considered to ensure the reliability, structural integrity, and remaining life of components. Hydrogen dissolved into metals as a result of internal hydrogen and external hydrogen can affect their mechanical properties, principally through the interactions between hydrogen and materials defects.



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Special Issue



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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.

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