

## Special Issue

# Advanced Finite Element Analysis and Fracture Control in Steel Pipelines Under Hydrogen Influence

### Message from the Guest Editors

The integrity of steel pipelines in hydrogen environments is critical for safe energy transportation, necessitating advanced fracture control and finite element analysis (FEA). This special issue aims to explore the latest advancements in finite element analysis (FEA) and fracture control techniques, focusing on the challenges posed by hydrogen-induced failures in steel pipelines. This special issue seeks to compile cutting-edge research on the finite element analysis of steel pipelines under hydrogen environments, addressing fracture mechanics, microstructural influences, material degradation, and innovative fracture control strategies. We welcome original research articles, comprehensive reviews, and case studies that offer new insights into the application of finite element methods and fracture mechanics in steel pipelines exposed to hydrogen. Manuscripts that combine experimental results with advanced simulation techniques or that propose novel methodologies for fracture control and failure prevention in hydrogen environments are particularly welcome.

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### Guest Editors

Dr. Yihuan Wang  
Dr. Guojin Qin  
Prof. Dr. Ying Wu

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### Deadline for manuscript submissions

closed (10 May 2025)



## Materials

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### Message from the Editor-in-Chief

*Materials* (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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