Special Issue

Metal Corrosion Behavior and Protection in Service Environments

Message from the Guest Editors

This Special Issue focuses on the corrosion behavior of metals and alloys in diverse service environments (e.g., marine, industrial, atmospheric, and high-temperature conditions) and explores advanced protection strategies. Corrosion remains a critical challenge, leading to material degradation, economic losses, and safety risks. We invite contributions addressing mechanisms, monitoring techniques, predictive modeling, and innovative protection methods (e.g., coatings, inhibitors, cathodic protection, and material design). Topics of Interest include the following themes: Corrosion mechanisms under harsh or dynamic conditions; Novel anti-corrosion materials and surface treatments; In situ monitoring and AI-driven corrosion prediction; Case studies on corrosion failure and mitigation in industries; Sustainable and eco-friendly protection technologies.

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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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