Special Issue

Erosion–Corrosion Behaviour and Mechanisms of Metallic Materials

Message from the Guest Editor

This Special Issue will focus on erosion–corrosion damage in metals, a critical area in materials science and engineering. Erosion–corrosion is a complex surface degradation process resulting from the interaction of mechanical wear (including cavitation erosion, solid particle erosion, slurry erosion, and liquid droplet erosion) and electrochemical corrosion. It significantly affects the durability and performance of metals in various industrial environments, including the marine, chemical, oil and gas, and power generation sectors. The issue will examine the fundamental mechanisms underlying erosion–corrosion, with a particular focus on the interplay between these two processes. It will also address recent advancements in testing methodologies and explores innovative mitigation strategies, including the selection of suitable materials, the application of surface treatments, and the use of protective coatings. Additionally, the issue will feature contributions on the latest developments in modelling and simulation, which aid in predicting the service life of materials and supporting improved design practices.

Guest Editor

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Deadline for manuscript submissions

28 February 2026

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/243583

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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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