

Special Issue

Environmental Effects on the Fatigue Behavior of Conventionally and Additively Manufactured Metallic Materials

Message from the Guest Editors

For this Special Issue, we are inviting recent advances in the comprehension of environmental effects on the fatigue behavior of metallic materials. Experimental, theoretical, and numerical studies aimed at incorporating the research outcomes into design approaches for the fatigue assessment of structural components and mechanical parts are welcomed.

The environment plays a crucial role in dictating the fatigue strength of metallic component exposed to the simultaneous actions of corrosive environment and time-varying stresses. For instance, the synergistic effect of corrosion and fatigue is known to reduce the fatigue strength to an extent even larger than the reduction in fatigue strength caused by the notch effect exerted by corrosion pits. In addition, stress corrosion cracking, hydrogen embrittlement, and galvanic effects can further complicate this damaging scenario. On the other hand, the advent of emerging technologies, like additive manufacturing or welding of dissimilar materials, will bring to operating conditions materials with very complicated corrosion-fatigue behavior.

Guest Editors

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Deadline for manuscript submissions

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About the Journal

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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