

Special Issue

Microstructure, Deformation, and Fatigue Behavior in Metals

Message from the Guest Editor

Metallic materials are widely used in fabrication of many components and structures operating in the harsh environments. These engineering structures are often subjected to severe loading conditions causing fatigue, creep, fracture, and/or environmental damage that can eventually lead to failure. Some examples are high-temperature components used in power plants and offshore wind turbines operating in a harsh marine environment. An ongoing challenge in the design and life assessment of metallic structures is to provide a reliable estimation of the remaining life by considering realistic contributing factors in damage nucleation and evolution, including the material's microstructure, deformation, crack initiation, and propagation. In this Special Issue, we seek to provide a wide set of articles on various aspects of metallic material degradation and failure mechanisms in the context of structural design, integrity, and reliability engineering. Articles on the materials and microstructures, structural life assessment, risk and reliability engineering, and O&M of steel structures and additive manufacturing technologies are desired.

Guest Editor

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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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