Special Issue

Fatigue Damage Mechanism and Fatigue Life Prediction of Metallic Materials

Message from the Guest Editors

Metals and alloys are widely used in engineering applications, often requiring careful consideration of complex loading conditions and usually limited by fatigue and fracture performance. The behaviour of metals and alloys under fatigue loading is a multi-scale, complex problem involving microscopic damage initiation, small crack formation, coalescence, propagation and eventually macroscopic fracture failure. This Special Issue aims to present recent research advancements regarding the fatigue of metallic materials. Potential topics may cover, but are not limited to, experimental testing, characterization, theory development and modelling of the fatigue behaviour of various metallic materials over different scales, with one or multiple physical processes. We also encourage the submission of research articles that integrate experimental or situational data with data-driven algorithms into the analysis of fatigue performance.

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About the Journal

Message from the Editor-in-Chief

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.

Editor-in-Chief

Prof. Dr. Yong Zhang
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