Special Issue

Service Performance and Analysis of Advanced Metallic Materials

Message from the Guest Editor

The fracture and fatigue of metallic materials have been a research focus since 1964 when a descriptive definition of fatigue is given. Nowadays, a comprehensive understanding of fatigue is the gradual weakening of a material as a result of frequent loading and unloading, and fatigue damage develops and can result in the initiation of a crack, its growth, and sudden fracture. Aiming to enhance the fatigue life of metallic materials, numerous works and efforts have been made. Crack initiation, crack growth, and crack propagation or instability stage have been an accepted process for fatigue damage after systematic investigations. With the development of metallic materials, some novel conceptions, such as transformation-induced energy absorption, transformation-induced crack deflection, and so on, are found to be of significance in increasing the fatigue life of metallic materials. Related to this, a Special Issue has been scheduled to provide a broad forum for the latest results in the Fracture and Fatigue of Metallic Materials. Topics related to the processing, testing, and characterization of fracture and fatigue of metallic materials are invited.

Guest Editor

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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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