Special Issue

Fatigue Damage Assessment of Steels

Message from the Guest Editors

Various steel components suffer from fatigue damage during long-term application under cyclic mechanical stress conditions. The evaluation of the fatigue damage is important to ensure the reliable and safe operation of the components. The evaluation area includes crack initiation, crack propagation, macro- and microscopic observation, microstructural damage mechanisms, the effect of chemical composition and microstructure, fatigue failure analysis, nondestructive evaluation of the fatigue damage, in-situ monitoring, fatigue life prediction, simulation of fatigue behavior, and artificial intelligence for fatigue evaluation. Moreover, fatigue degradations are accelerated by the interaction with environmental factors such as corrosion atmosphere and temperature. This Special Issue on “Fatigue Damage Assessment of Steels” will cover a variety of fatigue assessment topics from the perspective of material, mechanical, as well as reliability engineering. Research papers and case studies from academia as well as industrial fields are solicited.

Guest Editors

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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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