



Latest Insights in Metal Fatigue, Failure, and Fracture

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Message from the Guest Editor

Fatigue in materials represents one of the most prevalent causes of failure in modern constructions. Based on fatigue tests and the simulation of metal components, the theory and method of fatigue damage assessments of metal materials or components are proposed. These methods provide a base for structural safety, as well as for the design, material selection, and process selection of metal components. This research requires multidisciplinary expertise, including material science, structural analysis, detection technology, structural design, manufacturing technology, computer technology, quality assessment, physics, reliability, etc. In order to solve the complex engineering fatigue problem, it is necessary to involve both micro- and macro-scale theory and experimental methods.

Metal fatigue, failure, and fracture is a very broad and diverse field, encompassing the analysis of concepts such as residual strength or life, crack propagation, damage assessment using different fatigue damage detection methods, and various related topics.

We look forward to your contributions to this Special Issue.





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Message from the Editorial Board

Now more than ever, research is asked to deliver knowledge and technologies to solve the major challenges faced by our society. The development of new materials and devices for (without the ambition to be exhaustive) energy, health and food technology, together with the need for establishing processes that reduce the impact on critical resources and the environment, is indeed in the spotlight of most contemporary research. Surface science and engineering play a key role in this regard, with an incredible potential in delivering new and deep scientific understanding and technical solutions essential to solve most of the major societal challenges.

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