



## Fatigue Behavior of Metals: Theoretical Analysis and Experimental Tests

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Deadline for manuscript  
submissions:

**closed (31 December 2022)**

### Message from the Guest Editor

Dear Colleagues,

The increasingly complex challenges of mechanical design, due to the ever-higher standards of the safety, reliability, and performance levels required for components and systems, cannot ignore the fundamental issues related to the prediction of a component's duration, the resistance to the operating load, and the estimated damage condition. The basic factors that cause fatigue is estimated contributes to approximately 90% of all mechanical service failures. The expansion in using a greater variety of metal alloys, increased by the development of new advanced manufacturing technologies, further enhances the key role of the study of fatigue behavior in mechanical design. This Special Issue aims to promote the discussion and provide an insight into a phenomenon of the mechanical behavior of metallic materials that is well-known, but which also maintains great relevance because of its complexity, due to the variety of factors that influence fatigue behavior and failure mechanism (structure of material, shape, state of the surface, thermal and environmental operating conditions, loading history and frequency, stress state and concentration factors, etc.).





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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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