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Advanced Characterisation of Fatigue Behaviour in Metal Alloys

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Message from the Guest Editor

Fatigue is the single most important cause of failure in metal alloys and still causes unexpected failures, such as the accident of Southwest Airlines in April 2018. The costs related to fatigue failures across the different industries are immense, not only in economic terms, but also in terms of human lives. Understanding the different processes that take place at the fatigue crack tip and its surroundings is essential if we are to improve our predictions and thus reduce the number of sudden failures. There are a number of techniques that have been recently developed in other fields that can be applied to further our understanding of the different mechanisms affecting fatigue failure. These include experimental, analytical and numerical methods and a combination of the different approaches. We encourage engineers, as well as academics and scientists, to submit high-quality research papers analysing different fatigue issues from the nano to the macro scales and in a range of materials from traditional metal alloys to those that have been newly developed. Review papers summarising, in a critical way, specific topics affecting the fatigue behaviour of materials are also welcome.



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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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