Special Issue

Structural Integrity of Lightweight Alloys

Message from the Guest Editor

The structural integrity of lightweight alloys is a critical issue in modern engineering industries such as the automotive industry and aerospace. These alloys offer excellent strength-to-weight ratios that enable significant reductions in polluting gas emissions and fuel efficiency. However, their mechanical behavior in demanding applications remains challenging, particularly under cyclic loading. This Special Issue aims to explore the latest advancements in the structural integrity of lightweight alloys. Innovative studies focused on alloy design, microstructure features, manufacturing processes, heat treatment routes, loading history, geometrical and size effects, and environmental conditions are welcome. This Special Issue will accept papers on various topics, including based on experimental characterization, numerical modeling or machine learning approaches.

Guest Editor

Dr. Ricardo Branco
Department of Mechanical Engineering, University of Coimbra, 3030-788 Coimbra, Portugal

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Metals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metals@mdpi.com

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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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