Special Issue

Laser Peening for Improving Fatigue Properties of Aluminium Alloys

Message from the Guest Editors

Aluminium alloys are widely used in daily life and various industries. Aluminium alloys are a key material in personal gears, vehicles, and transportation equipment due to their light weight. Improving mechanical properties, especially fatigue, can reduce unexpected failure of load-bearing components and reduce the environmental footprint. In recent years, much research and development has been carried out on laser peening, and it is known that laser peening is highly effective in improving the fatigue properties of aluminium alloys. In this Special Issue, we are collecting reviews and articles from all sectors, from academia to industry, and highlighting cutting-edge processes and technologies. This contributes to future prospects. Topics include basic research to understanding underlying physics, process development, parameter optimization including big data analysis, and industrial applications. We also welcome papers on microscopic analysis on dislocation, precipitation, phase transformation, nanocrystallization, etc. caused by laser peening in conjunction with fatigue issues in aluminium alloys.

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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