Special Issue

Microlattices: New Cellular Materials for Lightweight Design

Message from the Guest Editor

Cellular materials are widely used in transport applications where weight savings are a critical design consideration, as well as in thermal, acoustic, biomedical and many other functional applications. Microlattices, characterised by regular unit cell topologies, are a special type of cellular materials. Due to their geometrically periodic nature, metallic microlattices are more desirable than open-cell stochastic metal foams for many applications. In particular, recent developments in advanced manufacturing technologies (e.g., additive manufacturing) enable the fabrication of lighter metallic microlattices with more complicated architectures and better controllability of properties/functionalities. This Special Issue aims to highlight the state-of-the-art research on metallic microlattices and their applications. The scope of the issue will cover all aspects of microlattices, including their manufacturing techniques, microstructure, properties (mechanical, thermal, fluid flow, acoustic and others), topological design and optimisation, and applications. Contributions including reviews, regular research papers and short communications are all welcome.

Guest Editor

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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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