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Sustainable Manufacturing of Metallic Materials and Structures: Design, Processing and Characterization

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Message from the Guest Editor

Sustainable manufacturing of metallic materials and structures reduces the generation of waste, the extraction and consumption of resources, and energy demands and CO2 emissions, which are crucial for improving resource efficiency and leading to a low-carbon future. However, relevant research on materials and process design for improving the production efficiency, recyclability, reusability, and reduction of industrial waste is still limited.

This Special Issue aims to stimulate and collect relevant studies on sustainable manufacturing of metallic materials and structures. The scope of the research topic includes (but is not limited to) the following areas: 1. sustainable metallic material design, including metal alloys, metal matrix composites, and metallic composites; 2. process development involving recycling and re-use of metallic materials and structures; 3. process development with improved resource efficiency such as minimizing material waste and energy consumption; 4. process modeling and optimization; 5. green manufacturing and intelligent systems; 6. product lifecycle management; and 7. characterization of microstructure and physical properties.

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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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