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Processing, Microstructure and Mechanical Properties of Alloys

Guest Editor:

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Deadline for manuscript submissions:
closed (28 February 2022)

Message from the Guest Editor

Dear Colleagues,

Metals and alloys are indispensable infrastructure materials for various load-bearing applications, in which mechanical performance is the most important aspect of concern. Metallurgists are pursuing an exceptional combination of strength and ductility by tuning the microstructures of alloys, through various hot/cold material processing. However, the improvement in strength is usually accompanied by the loss of ductility, where the conflict is known as a long-standing strength-ductility trade-off. The trade-off could be successfully overcome by tuning the microstructure through unique techniques, whereas the influence of the processings on their microstructure and mechanical properties needs to be clarified.

The Special Issue scope embraces cutting-edge work aimed at understanding and deploying the processing for overcoming the strength–ductility trade-off in alloys, revealing the microstructure–structure correlations, structural design that enhancing the mechanical performance of alloys.

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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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Journal Rank: JCR - Q2 (*Metallurgy and Metallurgical Engineering*) / CiteScore - Q1 (Metals and Alloys)

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