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Microstructural Engineering in Metallic Materials

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Deadline for manuscript submissions:
closed (31 December 2020)

Message from the Guest Editor

Developing high-performance engineering metals is one of the practical solutions to many of today's industrial challenges. Tailoring (engineering) the microstructure is an indirect but effective way of optimizing the properties of metals.

This includes a range of length scales from the atomic level to the nano/micro/millimeter scale. The characteristics of other microstructural constituents such as dispersoids or secondary phases also affect the material behavior in various working conditions.

This Special Issue will gather and present the latest achievements in theoretical (modeling and simulation) and experimental studies of microstructural engineering in metallic materials. The issue covers all related processing routes, including metal casting, forming, joining, powder technology, etc. Studies that include advanced metallic materials such as medium- and high-entropy alloys as well as advanced characterization techniques such as atom probe tomography or analytical microscopy (EBSD, EDX, EELS, etc.) are particularly welcome. An appropriate submission to this Special Issue should include an analysis of the structure–property-processing relationship in metals.

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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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