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Solidification and Casting of Engineering Metals: Modeling and Simulation

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Deadline for manuscript submissions:
closed (31 May 2023)

Message from the Guest Editor

Solidification is a fundamental aspect of casting and welding processes, even the emerging metal additive manufacturing processes. Knowledge of how to control the solidification process is, therefore, essential in order to ensure the quality of finished products. Over the last few decades, physical and numerical modeling has proven to play an important role in our understanding of some of the phenomena which occur in the harsh, high-temperature environment associated with solidification. Modeling of the phenomena and/or processes involved in solidification has resulted in a remarkable increase in knowledge and is thus indispensable if existing process limits are to be overcome. With the ever-increasing economic and environmental demands on the production, and the simultaneously decreasing costs of computational resources, the role of numerical modeling appears more important than ever.

The upcoming Special Issue of Materials aims to present new developments in the modeling and simulation of metal solidification. We invite you to submit research papers and reviews related to the latest achievements and developments in the multiscale modeling of metal solidification.

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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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