

Special Issue

Modeling and Simulation of Solidification in Alloys

Message from the Guest Editors

The scope of this Special Issue includes the simulation of the solidification process of various alloys, including the processing and control of corresponding materials, their characterization, and ultimate performance analysis. In order to accurately simulate the formation process of casting microstructure, it is necessary to establish an accurate mathematical model, and to have an accurate and efficient numerical calculation method to solve. Through the long-term efforts of scholars from all over the world, the simulation of microstructures has evolved from qualitative and semi-quantitative simulation to quantitative simulation, from fixed-point nucleation to random nucleation, from pure material microsimulation to the simulation of the microstructure of multiple alloys, and the mathematical methods applied to the simulation are also constantly being improved. For these reasons, there is currently some engineering significance in using simulation process guidance practices.

In this Special Issue, we particularly welcome articles that focus on alloy simulation processes and their implications for eventual production.

Guest Editors

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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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