



Numerical Simulation of Foundry and Solidification Processes

Guest Editors:

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Message from the Guest Editors

Dear Colleagues,

Casting is one of the most widely used metal forming methods and serves as a foundation in the aviation, aerospace, and automotive industries, among others. However, the complexity of the processing conditions makes it difficult to observe and optimize the casting process. Numerical simulation technology provides a digital representation of the high-temperature metal liquid evolution process and enables the prediction of casting quality. The continuous development of numerical simulation technology for the mold filling and solidification processes in casting has played a crucial role in achieving high-quality castings, making it a key technology in the foundry industry.

This Special Issue welcomes various research articles on numerical simulations of foundry and solidification processes, including those that focus on casting process (such as smelting, mold-filling, solidification, heat treatment, core making, etc.) simulation technology, multi-scale simulation technology, defect prediction technology, high-precision and highly efficient algorithms, and more. We look forward to receiving your contributions.





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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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