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Recent Advances in Study of Solid-Liquid Interfaces and Solidification of Metals

Guest Editor:

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Deadline for manuscript submissions:
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Message from the Guest Editor

Solidification occurs in several material processing methods, such as in casting, welding, and laser additive manufacturing of metals, and it controls the nano- and microstructures and the overall properties. Recent advances in experimental and computational modeling techniques have made it possible to more effectively study atomistic and microscale mechanisms that control the solidification structures and formation and evolution of solidification defects. This Special Issue solicits articles demonstrating recent advancements in the following areas:

1. Experimental studies of solid-liquid interfaces and solidification nano- and microstructures.
2. Computational modeling at different length scales, including atomistic simulations (e.g., molecular dynamics) and mesoscale modeling (e.g., phase-field modeling) of solid-liquid interfaces and solidification structures (e.g., dendritic structures).
3. Experimental and/or modeling studies of solidification defects and their effects on mechanical and physical properties of solidified materials.

Mohsen Asle Zaeem
Guest Editor

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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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