Special Issue

Modeling of Alloy Solidification

Message from the Guest Editor

Following over four decades of progress on the computational modelling of alloy solidification, it is timely to now assess the current state of the art—hence, this Special Issue of *Metals* will capture and record research outputs from relevant running or recently completed projects. Today, we have sophisticated multi-scale and multi-physics models of alloy solidification that can simulate microstructural evolution—from nucleation of solid to impingement of grains, solute redistribution, intergranular and interdendritic flow, grain advection due to gravity and natural thermosolutal convection, columnar-to-equiaxed transition, eutectic and peritectic transformations, planar-to-cellular-to-dendritic transitions and beyond, rapid solidification and far-from-equilibrium effects, glass formation and crystallization in glass-forming alloys. Applications are in casting, welding and additive manufacturing processes. I would welcome a manuscript describing your research and new results on the modelling of alloy solidification for consideration in this specially themed issue.

Guest Editor

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Deadline for manuscript submissions

closed (31 May 2023)

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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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