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Advanced Solidification Processing and Casting Technologies

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Message from the Guest Editor

Advanced solidification processing and casting technologies have been initiated to respond to the challenges imposed by the need to optimize existing processes, making them more sustainable and less expensive, via new processes for smart and high-performance materials and components, as well as by the development towards integrated materials design. High-performance metallic components can be manufactured via innovative near net shape solidification processing, involving little solid-state post-processing, which is energy-intensive, time consuming, and inevitably high cost. Although significant advances in this field have already been achieved, there are still a lot of unanswered questions as well as challenges to be met.

This Special Issue on Advanced Solidification Processing and Casting Technologies is intended to highlight the latest developments in the field by compiling a comprehensive collection of papers on various aspects of processing and technology innovation. The scope spans a wide range of processes (e.g., traditional and advanced casting, joining, liquid metal engineering) and research approaches (e.g., theoretical, experimental, computational).

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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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