

Special Issue

Solidification Process of Alloys under Magnetic Field

Message from the Guest Editor

In metallurgy, current trends are oriented toward productivity gains, controlling the quality of solidified material, and development of environmentally friendly processes. Use of alternating or direct magnetic fields offers many possibilities to achieve the above objectives.

Magnetic-assisted solidification is crucial for modern techniques such as materials refining, casting of alloys, and semiconductor elaboration, as well as additive manufacturing. Moreover, it becomes possible to use them for the production of “soft-magnetic” metallic alloys.

Alternating magnetic fields are also widely used in the processing of conducting materials. Furthermore, the resulting electromagnetic forces can be used to act directly on the material being solidified.

This Special Issue aims to focus on those traditional or innovative electromagnetic devices capable of improving quality, productivity, cleanliness, energy consumption of existing metallurgical processes, but also capable of developing new environmentally friendly processes for new materials. For this Special Issue, we welcome contributions from both academia and industry.

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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