

Special Issue

Calphad Tools for the Metallurgy of Solidification

Message from the Guest Editors

In recent years, Calphad-based methodologies have reached maturity in several important fields of metallurgy, and especially in solidification-related processes such as semi-solid casting, 3d printing, and welding, to name a few.

While there are important studies devoted to the progress of Calphad methodology, there is still space for a systematization of the field, which proceeds from the ability of most Calphad-based software to simulate solidification curves and includes both fundamental and applied studies on solidification, to be substantially appreciated by a wider community than today.

The three applied fields mentioned above could be widened by specific successful examples of simple modeling related to the topic of this issue, with the aim of widening the application of simple and effective tools related to Calphad and Metallurgy.

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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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