



materials



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Metallic Materials: Microstructure, Phase Equilibria and Thermodynamics

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Message from the Guest Editors

Thermodynamics describes the state of a system and its interaction with its surroundings, which is an extremely powerful tool in the field of materials science. The study of thermodynamics is central to the understanding of phase equilibria and phase transformation, which helps to construct relationships between composition, microstructure, processes and properties.

The relationship between thermodynamic functions and the equilibrium phase diagram of a binary system was made explicit as early as 1908. After more than 50 years of development in engineering design and computational simulation, a particularly successful and widely used modeling method in thermodynamics is the CALPHAD method. This method can now be used to predict phase equilibria, phase diagram and various thermophysical parameters, which are key inputs for microstructure simulation and performance prediction.

Microstructure, phase equilibria and thermodynamics are the basis for integrated computational materials engineering and need to be studied systematically and in depth.

I wish to invite you to submit a manuscript for this Special Issue. Full papers, communications, and reviews are all welcome.



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Special Issue



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Message from the Editor-in-Chief

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