Special Issue

Thermodynamic Properties, Structure and Phase Stabilities of Special Alloys

Message from the Guest Editor

The fulfilment of present-day requirements of our consumer society depends on the development of innovative materials. Moreover, the responsibility for a worth-living environment for the future generations needs to be accepted by implementing sustainable and gentle processes. This can be achieved by the smart combination of various materials with optimized properties, preferably with reduced weight and long-term stability and employable under extreme conditions, such as high temperatures or a corrosive ambience. Whereas conventional alloys often do not satisfy these requirements, special alloys may be suitable due to their vast flexibility of composition and associated microstructures, often allowing to reach incredible mechanical properties and corrosion resistance, among various other interesting features. However, special alloys may themselves be materials of high complexity, and their interrelations with other system components may demand highly specific process conditions. Thus, for their wide applicability, it is necessary to deepen the basic understanding of their thermodynamic properties and structure and phase stability.

Guest Editor

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