Special Issue

Formation of Intermetallic Phases in Solidifying Al-Fe-Si Melts

Message from the Guest Editor

This Special Issue will be dedicated to the presentation of the current state of knowledge regarding the formation of the intermetallic phases on the solidification path of aluminum alloys containing Fe, Mn, and Si. Particular attention will be paid to kinetics and the mechanism of the polyphase reactions in which the intermetallics containing transition metals, such as Fe and Mn, take part. These phenomena are the subject of numerous publications, due to their importance for technical alloys but also due to the specific properties of the intermetallic phases in this group. These phases form microstructure constituents that are important for technical alloys properties, and the control of processes of their formation in liquid alloys is still a problem. The temperature and concentration limit the equilibrium phase stability regarding confirmation or correction. Research on determining the rule for stabilizing their crystalline structure and identifying the nature of interatomic bonds and subnet structures also affects the basic problem of stabilizing the structure of metal alloys.

Guest Editor

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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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