Special Issue

Solidification of Metals—Fundamental Uses and Applications of Modern Alloys

Message from the Guest Editors

The solidification of metals and alloys is fundamental in metallurgy, with a long history dating back to the Iron Age. It be exploited for processing and forming metals. Specially, solidification has become an important area of research in multiple engineering fields, such as casting and welding. Since the millennium, there has been renewed interest in the solidification of alloys, with its application in additive manufacturing, particularly in 3D printing, gaining significant attention. Further complications arise due to the complexity of the materials involved, which are a blend of elements from a broad range within the periodic table, and the technical complexity caused by the fine and multiple heat inputs. Consequently, the studies also involve solid-state problems. However, thanks to the technical advancements in testing and analysis, significant development has been made towards understanding these problems. This Special Issue encompasses the historical significance of the solidification of metals, as well as state-of-the-art processing techniques and research using modern alloys, combined with advanced analytical techniques and computational theories and predictions.

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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