Special Issue

Structural Phenomena in Metallic Materials for Demanding Applications

Message from the Guest Editor

The ever-increasing requirements of industry and commerce on the performance and longevity of components produced from metallic materials have encouraged the research and development of innovative engineering materials based on iron/steel and nonferrous metals, as well as metal-based composites. The properties of modern materials and alloys ensue from their structures. Structural phenomena, such as substructure development, volumes and types of grains boundaries, twinning, texture formation, as well as the possible occurrence of residual stress and mutual diffusion of the individual phases, non-negligibly affecting the performance of metallic components, can primarily be affected by their chemical and phase composition, and the applied preparation/production technology. At the beginning of the production process, the material is affected by the manufacturing method. The selected parameters of casting, additive manufacturing, or powder metallurgy processing all influence the structures and properties of the final material. Among the favorable ways to effectively enhance the properties of metallic materials is also grain refinement [...]

Guest Editor

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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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