Special Issue

Structure and Performance of Nanoparticle Improved Ferrous Alloys

Message from the Guest Editor

Ferrous alloys, particularly steels, are currently the most widely used structural materials due to their high mechanical performance, abundance and reasonable prices. In recent years, nanoparticle-enabled methodologies have emerged to overcome the limitations of conventional metallurgical approaches and revolutionize metal processing and manufacturing technologies, providing a novel avenue to significantly improve the performance of ferrous alloys. It is well documented that in situ and ex situ nanoparticles can be employed to tailor materials, incorporating controllable nano/micro-structures with unique physical/chemical/mechanical properties. An in-depth understanding of nanoparticle-induced evolution mechanisms of structure and performance of ferrous alloys can lay a scientific foundation for the development of high-performance ferrous alloys.

This Special Issue aims to cover a wide range of subjects related to the structure and performance of nanoparticle-improved ferrous alloys. It will emphasise resolving the issue of how nanoparticles can be utilized to tailor the nano/micro-structures and physical/chemical/mechanical behaviours of ferrous alloys.

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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