

Special Issue

Recent Developments in Medium and High Manganese Steels

Message from the Guest Editor

Manganese steels have been continuously studied since the publication of an article entitled, "Hadfield's Patent Manganese Steel" in the 8 February 1884 edition of "The Engineer". Incredibly, 136 years on, few areas of physical metallurgy still generate as much excitement and activity as the study of medium and high manganese steels. The current wave of interest began in the mid-1990s/early 2000s, triggered by the development of cold-rolled 2G and later 3G sheets to meet more stringent automotive weight reduction and crash resistance requirements. Some of the new alloys have already found their way into the automotive marketplace; many others are close to commercial production. A multitude of other, non-automotive, applications is also being enthusiastically pursued. These include shape memory alloys, steels for ballistic protection, cryogenic containers, medical stents, tank cars, slurry pipes, alloys for additive manufacturing, etc. This Special Issue is intended to provide a broad forum for the latest results in the physical metallurgy of these fascinating steels.

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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