

Special Issue

Numerical Modelling in Steel Metallurgy

Message from the Guest Editor

Steel production represents a complex process which is accompanied by a series of physical-chemical processes from melting, through the multiphase flow of steel and chemical reactions (processes taking place between the slag, metal, and an inert gas) after solidification. A frequent problem in steel production is setting the correct conditions, e.g., in blowing argon for the steel processing in a ladle, the vacuum degassing of steel, optimising the nature of flow in individual reactors (ladle, tundish, nozzles, moulds), or the conditions for casting and the solidification of steel. Understanding these mechanisms requires knowledge from the technology of steel production, metallurgical thermodynamics, and kinetics. The main aim of Special Issue “Numerical Modelling in Steel Metallurgy” is to present new knowledge and trends in the optimization of steel production using numerical modelling. Articles on the numerical modelling of steel refining in ladle, vacuum processing, steel flow optimization in tundish or mould, slag emulsification into steel, steel ingot casting and continuous casting, are welcome.

Guest Editor

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Message from the Editorial Board

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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