Special Issue

Thermo-Mechanical Processing and Additive Manufacturing of Steels

Message from the Guest Editor

Despite the ongoing development of new classes of metallic and composition materials, steels remain among the most important constructional materials. They demonstrate the attractive combination of cost and functional properties due to the variety of the elemental compositions, processing-assisted microstructures, and phase compositions. Novel processing technologies, including additive manufacturing or complex thermo-mechanical processing of steels, offer many additional possibilities for reducing energy consumption and saving high-cost elements during the industrial production of the different complex components. The microstructural design of the steels during such innovative industrial processing opens the opportunities for “smart production” of different components and the direct governing of their functional properties. In this Special Issue, there is a focus on the microstructural/properties characterization of the steels with advanced strength, plastic, corrosion, etc., fabricated by additive manufacturing methods and novel thermo-mechanical processing techniques. Both theoretical and experimental contributions are invited for submission.

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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