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Experimental Investigation and Numerical Simulation of the Deformation Behavior of Steels

Guest Editor:

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Deadline for manuscript submissions:
closed (31 May 2022)

Message from the Guest Editor

Dear Colleagues,

Understanding the mechanisms that act during hot deformation is essential to design and optimize thermomechanical processing. Mechanisms such as work hardening, recovery, and recrystallization have been studied and continue to be the subject of research on single-phase and two-phase steels. The influence of deformation conditions on mechanisms can be outlined using processing maps.

Recent advances in artificial intelligence engender realistic alternatives for thermomechanical processing analysis using techniques such as artificial neural networks (ANNs) and adaptive neuro-fuzzy inference systems (ANFIs). ANNs can learn from examples and recognize paths in a series of input and output data without any prior knowledge of their nature and interrelations. Artificial intelligence creates space for themes such as the prediction of microstructure evolution and mechanical properties and the analysis and optimization of thermomechanical processing.

This Special Issue will publish works that improve our understanding of deformation under hot working conditions and can contribute to improving industrial practices.

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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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