



Application of Neural Networks in Processing of Metallic Materials

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Message from the Guest Editor

Physical phenomena that take place in materials during their production have a very complex and highly nonlinear dependence on the technological parameters that influence the evolution of the microstructure and determine its final properties. The main reason for the complexity is the multiscale nature of metal processing, which makes it difficult to develop reliable and sufficiently accurate physical models for metal material processing simulations that are also computationally undemanding to be potentially used for the online control of production. On the other hand, phenomenological models have many other deficiencies.

The purpose of this Special Issue is to present works dealing with the development of novel approaches—primarily the development and application of artificial neural networks in various metal processing operations. However, the sharing of research results in metal processing by applying other novel approaches related to artificial intelligence and/or disruptive technologies such as IoT (Internet of Things) and/or blockchain technology is also welcome. The latter can help in controlling work processes and ensuring the immutability of process parameters.





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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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