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Fundamentals of Advanced Pyrometallurgy

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Message from the Guest Editors

Dear Colleagues,

Pyrometallurgical technologies have the advantages of processing low-grade ores, high productivity and easy control of by-products. With the depletion of minerals and the growing interest in the processing of secondary raw materials, new pyrometallurgical technologies have been developed in recent years that are more efficient, economical and environmentally friendly processes. Some examples include HIsmelt in ironmaking, oxide metallurgy in steelmaking and oxygen bottom blowing in copper and lead industry. These new technologies have enabled complex primary and secondary raw materials to be processed and advanced steel materials to be produced more efficiently.

High-temperature reactions inside the furnaces are difficult to be observed directly. Fundamental understanding of new technologies is essential for optimization of the processes and applications of these processes for other metals. The aim of this Special Issue is to highlight recent research related to pyrometallurgy to face current challenges in metal production. Results from both experimental studies and simulations are welcome.

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Message from the Editor-in-Chief

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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