



Novel Raw Materials and Energy Sources for Ironmaking and Steelmaking

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Message from the Guest Editor

Dear Colleagues,

Steel production from low-grade iron ore requires a long process chain of its upgrade and massive resources. Thus, innovative materials such as hybrid sinter-pellets, mini-pellets for sintering, ferro-coke, iron ore-carbon composites, bio-sinter, bio-coal, and numerous further novel raw materials for different applications have been developed and tested.

To decouple CO₂ emissions from primary energy consumption and to counteract the lowering quality of raw materials, the use of secondary raw materials and recycling and application of renewable energy sources and materials lowering the energy demand should be moved to the fore.

A carbon-free iron product such as hydrogen-based DRI faces challenges not only for its sustainable mass production with acceptable costs, but also for its subsequent smelting in EAF.

This Special Issue is targeted to the latest developments on iron-bearing materials, additives, reducing agents, and further energy sources for the blast furnace, direct and smelting reduction processes, and further applications in iron and steel making.





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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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