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Modeling and Simulation of Metallurgical Processes in Ironmaking and Steelmaking

Guest Editors:

Dr. Thomas Echterhof
Department for Industrial Furnaces and Heat Engineering, RWTH Aachen University, Kopernikustr. 10, 52074 Aachen, Germany

Prof. Dr. Ko-Ichiro Ohno
Department of Materials Science and Engineering, Faculty of Engineering, Kyushu University, 744 Motooka, Nishiku, Fukuoka 819-0395, Japan

Dr. Ville-Valtteri Visuri
Process Metallurgy Research Unit, University of Oulu, P.O. Box 4300, 90014 Oulu, Finland

Deadline for manuscript submissions:
closed (31 March 2022)

Message from the Guest Editors

The UN's 2030 Sustainable Development Goals, the Paris Agreement, and the European Green Deal, among other goals, all aim to improve the sustainability of industrial production and to reduce CO_2 emissions. This goal cannot be achieved without the ironmaking and steelmaking industries.

To reach this goal, further process optimizations with regard to energy and resource efficiency, as well as the development of new processes or process routes, are needed.

Modeling and simulation have thus established themselves as an invaluable source of information regarding otherwise unknown process parameters, and as an alternative to plant trials with a lower associated cost, risk, and duration. Models are also applicable for model-based control of metallurgical processes.

In this Special Issue "Modeling and Simulation of Metallurgical Processes in Ironmaking and Steelmaking", we aim to collect regular and review articles to showcase the recent advances in the modeling and simulation of unit processes in ironmaking and steelmaking. We also encourage studies that examine the integration of process models to simulate process chains.

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Editors-in-Chief

Prof. Dr. Hugo F. Lopez
Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

Prof. Dr. Yong Zhang
Beijing Advanced Innovation Center of Materials Genome Engineering, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, 30 Xueyuan Road, Beijing 100083, China

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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Journal Rank: JCR - Q2 (Metallurgy and Metallurgical Engineering) / CiteScore - Q1 (Metals and Alloys)

Contact Us

Metals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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