

Editorial

Preface of the 30th International Scientific Conference on Modern Metallurgy—Iron and Steelmaking 2023[†]

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[†] Presented at the 30th International Conference on Modern Metallurgy—Iron and Steelmaking, Kosice, Slovakia, 27–29 September 2023.

1. Introduction

The 30th International Scientific Conference on Modern Metallurgy—Iron and Steelmaking 2023 (IaSM 2023) was organized by the Faculty of Materials, Metallurgy, and Recycling at the Technical University of Košice in Slovakia, in collaboration with the Faculty of Materials Science and Technology, VŠB—Technical University of Ostrava in the Czech Republic—and the Faculty of Materials Engineering at the Silesian University of Technology in Poland. The conference took place in hotel Yasmin from 27–29 September 2023, in Košice, Slovakia, and successfully gathered more than 120 participants, including PhD students and representatives from various industries, hailing from six different countries: the Slovak Republic, the Czech Republic, Poland, Belgium, Romania, and Serbia.

The primary objective of the conference was to serve as a forum for the exchange of the latest advancements in science and technical developments within the realm of metallurgy. Over the years, the conference has become a tradition, drawing participants not only from scientific and research institutions but also from international industry, fostering collaboration and knowledge exchange.

The Iron and Steelmaking conference of 2023 was particularly noteworthy as it broadened its scope to encompass contemporary themes, including waste processing and recycling, as well as the actual problem of decarbonization within the metallurgical industry. The traditional focus on iron production remained central, augmented by exploration into energy transformations in the industry and developments in non-ferrous and non-metallic materials. As the conference extended its discourse to cover these new fields, it continued to maintain a high standard of professionalism. The platform not only showcased the latest research, developments, and production outcomes but also emphasized the ecological facets of metallurgical practices. Professional sessions served as a conduit for presenting novel findings, fostering an environment where research seamlessly intertwined with industrial applications.

The conference was held under the auspices of the Ministry of Economy of the Slovak Republic and the following representatives of the faculties: Doc. Ing. Karel Saksl, DrSc.—Dean of the Faculty of Materials, Metallurgy, and Recycling, Technical University of Košice; Prof. Ing. Kamila Janovská, Ph.D.—Dean of the Faculty of Materials Science and Technology, VŠB—Technical University of Ostrava; and Dr. hab. inž. Kinga Rodak, Prof. PŠ—Dean of the Faculty of Materials Engineering, Silesian University of Technology. The conference was also held under the auspices of the representatives of the metallurgy industry: James E. Bruno—President of U.S. Steel Košice, s.r.o.; Dr. h. c. Ing. Vladimír Soták—Chairman of the Board of Directors and CEO of Železiarne podbrezová, a.s.; Ing. Adrián Jakubek—Company Manager of Eurocast Košice, s.r.o.; and Ing. Branislav Klocok—General Director of OFZ, a.s.



Citation: Buľko, B.; Baricová, D.; Demeter, P.; Dzurňák, R. Preface of the 30th International Scientific Conference on Modern Metallurgy—Iron and Steelmaking 2023. *Eng. Proc.* **2024**, *64*, 19. <https://doi.org/10.3390/engproc2024064019>

Published: 29 April 2024



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From the numerous submissions received, 19 contributions were chosen for inclusion in this *Engineering Proceedings* volume. The organizing committee expresses their deepest gratitude for the dedicated efforts of the Editorial Board and the reviewers for their invaluable work in preparing this volume.

2. Conference Sessions

The conference primarily concentrated on thematic sessions in the metallurgy industry:

1. **Iron and steelmaking;**
2. **Foundry and non-ferrous and non-metallic materials;**
3. **Process simulations;**
4. **Recycling of waste from metallurgical processes;**
5. **Decarbonization and energy transformations in industry.**

3. Scientific Committee

3.1. Chairs of the Conference

The Guarantor of the Conference, Associated Professor Branislav Bul'ko, is the director of the Institute of Metallurgy at the Faculty of Materials, Metallurgy, and Recycling, Technical University of Košice. In 2015, he became an Associate Professor at the Faculty of Metallurgy TU, Košice. His areas of interest include the physical modeling and simulation of flow processes; lime utilization in metallurgy, including the testing of its properties; continuous casting; research into the high-temperature stability of quartzite; high-temperature laboratory experiments; hydrogen utilization in metallurgy; the optimization of properties of metallurgical slag; and secondary steelmaking processes. He maintains active collaboration with industry practitioners.

Co-chairman Associated Professor Peter Demeter is Head of the Department of Metallurgy and Foundry at the Faculty of Materials, Metallurgy and Recycling, Technical University of Košice. He graduated in 2021 as an Associate Professor of the Faculty of Metallurgy TU, Košice. His areas of interest include numerical, mathematical, and physical modeling and the simulation of flow processes; lime utilization in metallurgy, including the testing of its properties; continuous casting; high-temperature laboratory experiments; hydrogen utilization in metallurgy; the optimization of properties of metallurgical slag; and secondary steelmaking processes.

Associated Professor Dana Baricová works in the areas of ironmaking and steelmaking processes; the modeling of metallurgical processes; slag-forming processes; the ecological aspects of ironmaking and steelmaking processes; the processing and recycling of metallurgical waste; the decarbonization of metallurgical processes; and new metallurgical technologies.

3.2. Scientific Committee Members

The scientific committee comprised distinguished experts in the field of metallurgy engineering:

- Doc. Ing. Jaroslav Legemza, PhD.—Technical University of Košice
Prof. Ing. Alena Pribulová, CSc.—Technical University of Košice
Prof. Ing. Augustín Varga, CSc.—Technical University of Košice
Doc. Ing. Branislav Bul'ko, PhD.—Technical University of Košice
Doc. Ing. Iveta Vasková, PhD.—Technical University of Košice
Doc. Ing. Dušan Oráč, PhD.—Technical University of Košice
Prof. Ing. Andrea Miškuřová, PhD.—Technical University of Košice
Prof. Ing. Jarmila Trpčevská, CSc.—Technical University of Košice
Prof. Ing. Mária Fröhlichová, CSc.
Prof. Ing. Jozef Kijac, CSc.
Ing. Marcel Novosad—U. S. Steel Košice, s.r.o.
Ing. Viera Kohúteková, PhD.—U. S. Steel Košice, s.r.o.
Ing. Pavol Beraxa, PhD.—ŽP Výskumno-vývojové centrum s.r.o.

Doc. Ing. Dana Baricová, PhD., MBA—Research, Innovation and Technology Center, NPO, Košice, Slovak Republic
 Prof. Ing. Markéta Tkadlečková, Ph.D.—VŠB—Technical University of Ostrava
 Doc. Ing. Pavlína Pustějovská Ph.D.—VŠB—Technical University of Ostrava
 Doc. Ing. Silvie Brožová, Ph.D.—VŠB—Technical University of Ostrava
 Doc. Ing. Petr Lichý, PhD.—VŠB—Technical University of Ostrava
 Prof. Ing. Karel Michalek, CSc.
 Doc. Ing. Karel Gryc, MBA, Ph.D.—Vysoká škola technická a ekonomická v Českých Budějovicích
 Doc. Ing. Ladislav Socha, MBA, Ph.D.—Vysoká škola technická a ekonomická v Českých Budějovicích
 Prof. Dr. Ing. Michal Szucki—Technische Universität Bergakademie Freiberg
 Dr. hab. inż. Rafał Dańko, Prof. nadzw. AGH-Akademia Górniczo - Hutnicza im. Stanisława Staszica w Krakowie
 Prof. Dr. hab. inż. Leszek Blacha—Silesian University of Technology
 Prof. Dr. hab. inż. Mariola Saternus—Silesian University of Technology
 Dr. hab. inż. Marek Warzecha, Prof. PCz.—Czestochowa University of Technology
 Dr. hab. inż. Tomasz Merder, Prof. PŚ—Silesian University of Technology
 Dr. hab. inż. Jacek Pieprzyca, Prof. PŚ—Silesian University of Technology
 Dr. hab. inż. Jan Falkus, Prof. AGH—AGH University of Science and Technology in Krakow
 Dr. hab. inż. Piotr Migas, Prof. AGH—AGH University of Science and Technology in Krakow
 Prof. Dr. hab. inż. Jerzy Łabaj—Silesian University of Technology

4. Organizing Committee

Representatives of the participating institutions took on the responsibility of ensuring the organization of the conference: Associate Professor Dana Baricová Research—Innovation and Technology Center, Košice, Slovakia

Organizing Committee Members:

Doc. Ing. Branislav Bul'ko, PhD.—Technical University of Košice
 Doc. Ing. Peter Demeter, PhD.—Technical University of Košice
 Doc. Ing. Iveta Vasková, PhD.—Technical University of Košice
 Ing. Dagmara Varcholová, PhD.—Technical University of Košice
 Doc. Ing. Dušan Oráč, PhD.—Technical University of Košice
 Ing. Bc. Martina Hrubovčáková, PhD.—Technical University of Košice
 Ing. Jana Pirošková, PhD.—Technical University of Košice
 Ing. Zita Takáčová, PhD.—Technical University of Košice
 Ing. Róbert Dzurňák, PhD.—Technical University of Košice
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 Ing. Slavomír Hubatka—Technical University of Košice
 Renáta Ivánová—Technical University of Košice
 Anna Bul'ková

5. Sponsors

We express our sincere gratitude to all the sponsors and partners of the IaSM 2023 conference (Figure 1).



Figure 1. Logos of sponsors [1–20].

Conflicts of Interest: The authors declare no conflict of interest.

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