



Advances in Electron Beam Melting and Refining Technology

Guest Editors:

Dr. Shuang Shi

School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing 210094, China

Dr. Xiaogang You

Zhongyuan Critical Metals Laboratory, Zhengzhou University, Zhengzhou 450001, China

Dr. Shutao Wen

School of Mechanical Engineering, Yangzhou University, Yangzhou 225127, China

Deadline for manuscript submissions:

10 September 2024

Message from the Guest Editors

Dear colleagues,

The purity of materials has a crucial impact on their performance, including physical and mechanical properties, which is closely related to metallurgical processes. Compared with other metallurgical technologies, electron beam melting has the characteristics of high vacuum, high temperature and good controllability, and it is not limited by the shape of the raw material. Therefore, this technology makes it possible to solve the problems occurring during the preparation of high-purity materials.

However, electron beam melting still faces challenges. For example, it is a complex multi-field coupling process; hence, the temperature distribution, melt flow and migration behavior of inclusions are not yet fully understood. Going forward, research on metallurgical physical and chemical processes of electron beam melting should be intensified in order to improve materials' purity and performance.





an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Maryam Tabrizian

1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada

2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), PubMed, PMC, Ei Compendex, CaPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

Journal Rank: JCR - Q2 (*Metallurgy & Metallurgical Engineering*) / CiteScore - Q2 (*Condensed Matter Physics*)

Contact Us

Materials Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/materials
materials@mdpi.com
[X@Materials_Mdpi](https://twitter.com/Materials_Mdpi)