Special Issue

Advances in Physical Metallurgy of Additively Manufactured Alloys

Message from the Guest Editors

We seek submissions that delve into the microstructure–property–processing relationship in metals and alloys manufactured through various AM technologies, encompassing various materials from nickel and titanium alloys to steel and high-entropy alloys. Powder bed fusion, direct metal deposition, and cold spray additive manufacturing are among the targeted technologies. Contributions examining microstructural characterisation after various post-treatments are encouraged. This interdisciplinary endeavour aims to bridge the gap between traditional physical metallurgy and the unique challenges posed by AM by addressing barriers like material selection, consistency, repeatability, accuracy, and post-processing requirements in AM. This Special Issue aims to accelerate the development of AM-manufactured alloys for various industries, including aerospace, automotive, maritime, and biomedical. Full papers, short communications, case studies, and reviews advancing our understanding and application of physical metallurgy in additive manufacturing are welcomed. I look forward to receiving your contributions.

Guest Editors

Dr. Andrew Breen

School of Aerospace, Mechanical and Mechatronic Engineering, The University of Sydney, Sydney, NSW 2006, Australia

Dr. Vitor Rielli

School of Materials Science and Engineering, UNSW Sydney, NSW, Australia

Deadline for manuscript submissions

closed (20 July 2025)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/202979

Materials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

mdpi.com/journal/materials

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/journal/materials

About the Journal

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.

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

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 and Metallurgical Engineering) / CiteScore - Q1 (Condensed Matter Physics)