Special Issue

Advances in Al/Mg/Cu Alloys and Their Composites: Welding, Additive Manufacturing, Heterogeneous Microstructures, and Mechanical Properties

Message from the Guest Editor

This Special Issue focuses on the latest research findings on advances in Al/Mg/Cu alloys and their composites, including the same/dissimilar welding and additive manufacturing based on heat sources such as arcs, lasers, and electron beams, heterogeneous microstructures, mechanical properties, and strengthening mechanisms. This collection of work aims to explore new manufacturing technologies, such as welding and additive manufacturing, basic principles of heterogeneous microstructure regulation, the relationship between microstructure and properties, defect formation mechanisms and control strategies, and strengthening mechanisms. We welcome the submission of original research articles and reviews to this Special Issue. Research areas may include (but are not limited to) the following: advanced same/dissimilar welding and the additive manufacturing of Al/Mg/Cu alloys and their composites, heterogeneous microstructure evolution and regulation, microstructure simulation, defect simulation and real-time control strategies, process optimization, and performance improvement.

Guest Editor

Dr. Shuncun Luo

High-Performance Metal Structural Materials Research Institute, School of Iron and Steel, Soochow University, Suzhou 215131, China

Deadline for manuscript submissions

20 September 2025

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/211695

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)