

## Special Issue

# Additive Manufacturing of Metallic Alloys and Composite Materials—Process, Structure, Properties and Part Performance: Experimental and Computer Methods

### Message from the Guest Editors

Dear colleagues, Additive manufacturing (AM) has been experiencing an explosion of research in materials science and non-equilibrium processing aimed at designing novel high-value products for potential engineering applications. Although many materials, geometries and fabrication methods have been investigated, our ability to systematically and unambiguously determine the mechanical performances, detect the actual 3D microstructures, tailor the mechanical properties to specific applications remains fragmented and unsatisfactory. This Special Issue calls for contributions focusing on advanced AM methods, in combination with new alloy and composite materials, monitoring techniques for process and microstructure control, 3D microstructure characterization, the elucidation of deformation modes during mechanical testing, with special attention to non-destructive testing, measurement techniques and strategies to discern mechanical properties from residual stresses; the optimization of metallurgical/mechanical properties, computer modelling and simulation to verify new theories and optimize the AM process, material properties and performance of components.

Sincerely,  
Guest editors

---

### Guest Editors

Prof. Dr. Giovanni Maizza

Department of Applied Science and Technology (DISAT), Politecnico di Torino, Corso Duca degli Abruzzi, 24, 10129 Turin, Italy

Prof. Dr. Dario Croccolo

Department of Industrial Engineering (DIN), University of Bologna, Viale del Risorgimento, 2, 40136 Bologna, Italy

---

### Deadline for manuscript submissions



## Materials

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.2  
CiteScore 6.4  
Indexed in PubMed



[mdpi.com/si/220995](https://mdpi.com/si/220995)

*Materials*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[materials@mdpi.com](mailto:materials@mdpi.com)

[mdpi.com/journal/  
materials](https://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](https://mdpi.com/journal/materials)



## About the Journal

### Message from the Editorial Board

*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.

---

### Editors-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

Prof. Dr. Yuguang Ma

State Key Laboratory of Luminescent Materials and Devices, South China University of Technology, Guangzhou 510640, China

---

### 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)