

## Special Issue

# Controllable Electrorheological and Nano/Magnetorheological Materials and their Applications

### Message from the Guest Editors

Checking materials' properties has attracted a lot of attention in recent decades. Magneto/nanomagneto rheological and electrorheological fluids, among others, are smart lubricants whose rheological properties can be changed by applying a magnetic or an electric field respectively. Smart lubricants are commonly a suspension of solid magnetized or dielectric particles diffused in non-conducting liquid. By applying a magnetic or electric field, their resistance to flow can be altered very quickly. The smart fluids can change their rheological behavior from Newtonian type to Bingham type, in which case the apparent viscosity of the fluid becomes non-linear. Due to this behavior, smart fluids can endure external pressure or force variability with the advantages of having a simple design, offering continuous control and a fast response. This Special Issue includes works that deal with the development of smart machines, materials and processes, by introducing new methods, models and multidisciplinary approaches, through research and an in depth understanding of physical phenomena.

---

### Guest Editors

Prof. Dr. Pantelis G. Nikolakopoulos

Machine Design Laboratory, Department of Mechanical Engineering and Aeronautics, University of Patras, 265 04 Patras, Greece

Dr. Dimitrios Bompos

Machine Design Laboratory, Department of Mechanical Engineering & Aeronautics, University of Patras, Patras, Greece

---

### Deadline for manuscript submissions

closed (31 July 2021)



## Materials

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.2  
CiteScore 6.4  
Indexed in PubMed



[mdpi.com/si/26674](https://mdpi.com/si/26674)

*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)