



an Open Access Journal by MDPI

## Advanced and Smart Materials for Next Generation Batteries, Supercapacitors and Energy Harvesting

Guest Editors:

### Dr. Apurba Ray

Department of High-Temperature and Functional Coatings, Institute of Materials Research, German Aerospace Center (DLR), 51147 Cologne, Germany

### Dr. Bilge Saruhan-Brings

Department of High-Temperature and Functional Coatings, Institute of Materials Research, German Aerospace Center (DLR), 51147 Cologne, Germany

### Dr. Svitlana Nahirniak

Department of High-Temperature and Functional Coatings, Institute of Materials Research, German Aerospace Center (DLR), 51147 Cologne, Germany

Deadline for manuscript submissions:

**closed (10 December 2022)**



[mdpi.com/si/99784](https://mdpi.com/si/99784)

### Message from the Guest Editors

Dear Colleagues,

Energy storage and conversion devices are attracting rapidly growing interest due to their key role in future electronics such as wearable devices, space satellites, healthcare devices, artificial intelligence, smart households, electric vehicles, etc. These devices should have a responsive ability to change in response to any kind of internal or external effect such as mechanical deformation, configurational integrity, self-healability, thermal responsivity and light. Multifunctional advanced materials are crucial for the development of future energy storage and conversion devices.

The aim of this Special Issue is to focus on different areas of development of multifunctional advanced materials for electrochemical energy storage and conversion applications, in particular batteries, supercapacitors, solar cells and hydrogen production and storage. Furthermore, current challenges and potential solutions from materials synthesis to device performances will be discussed depending on the application of the multifunctional material. This section will provide researchers with new ideas and new challenges for future energy storage systems.



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 - Q1 (Metallurgy and Metallurgical Engineering) / CiteScore - Q2 (*Condensed Matter Physics*)

## Contact Us

*Materials* Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/materials](http://mdpi.com/journal/materials)  
[materials@mdpi.com](mailto:materials@mdpi.com)  
[X@Materials\\_Mdpi](https://twitter.com/Materials_Mdpi)