



an Open Access Journal by MDPI

## Electrochemical Materials and Devices for Energy Conversion and Storage

Guest Editors:

**Dr. Bang-An Lu**

College of Materials Science and Engineering, Zhengzhou University, Zhengzhou, China

**Dr. Yuanhui Cheng**

College of Chemical Engineering, Beijing University of Chemical Technology, Beijing, China

Deadline for manuscript submissions:

**closed (20 January 2025)**

### Message from the Guest Editors

With the rapid development of society, the overuse of coal, oil, diesel, and other non-renewable energy resources results in the extreme shortage of traditional fossil fuel. To address this issue, the conversion and storage technologies of electrochemical energy, such as electrochemical capacitors/batteries and fuel cells, have received extensive attention based on their distinguishing properties, e.g., energy/power densities, cyclability, and efficiencies.

This Special Issue aims at covering recent progress and new developments in electrochemical materials and devices for energy conversion and storage, including, but not limited to, the following topics:

- (1) the precise synthesis and design methods of electrochemical materials;
- (2) advanced characterization techniques, especially operando/in situ spectroscopy technology;
- (3) theoretical calculations for electrocatalysts and electrode materials;
- (4) advanced electrolytes and membranes for electrochemical energy conversion and storage devices;
- (5) low-/non-platinum electrocatalyst for low-temperature fuel cells;
- (6) Advanced materials for supercapacitors;
- (7) Review articles that describe the current state of the art.



[mdpi.com/si/142115](https://mdpi.com/si/142115)

# Special Issue



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 - Q2 (Metallurgy and Metallurgical Engineering) / CiteScore - Q1 (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)