Special Issue

Application of Electrocatalytic and Electrochemical Materials in Energy

Message from the Guest Editors

In response to the global energy crisis and the urgent need to transition toward sustainable and low-carbon technologies, research in electrochemical energy conversion and storage has witnessed rapid growth. Advanced materials for electrocatalysis and electrode design are at the forefront of innovations powering hydrogen production, fuel cells, metal–air batteries, supercapacitors, and CO_2 reduction systems. Understanding structure–activity relationships and developing cost-effective, stable, and efficient materials remain critical challenges and opportunities in this field.

This Special Issue aims to highlight recent advances in the synthesis, characterization, and application of novel electrocatalytic and electrochemical materials for energy-related technologies. Manuscripts aligning with the journal's scope include both fundamental studies and applied research targeting improvements in catalytic performance, material durability, and system integration. We especially encourage submissions that bridge experimental insights with theoretical modeling, promote green chemistry principles, and address challenges related to scalability and real-world deployment.

Guest Editors

Dr. Pablo Arévalo-Cid

Institute of Catalysis and Petrochemistry (CSIC), Marie Curie Street, 2, 28049 Madrid, Spain

Dr. Rui Silva Sampaio

Materials Engineering & Energy Group, Department of Chemical Engineering, Instituto Superior Técnico, Lisbon, Portugal

Deadline for manuscript submissions

20 March 2026

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/245584

Materials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

mdpi.com/journal/materials

MDPI

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/journal/materials

MDPI

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)