Special Issue

Nanocomposite Membranes for Electrolysis, Fuel Cells, Batteries, and Desalination

Message from the Guest Editor

Nanocomposite membranes have emerged as a pivotal technology, driving innovations in critical energy and water applications, including electrolysis, fuel cells, batteries, and desalination. By integrating tailored nanostructures (e.g., nanoparticles, nanotubes, and 2D materials) into polymeric or inorganic matrices, these membranes achieve enhanced ion conductivity, mechanical robustness, chemical stability, and selectivity—essential for improving the efficiency and durability of electrochemical devices. This Special Issue invites original research and reviews focused on nanocomposite membranes for electrolysis, fuel cells, batteries, and desalination. Topics include, but are not limited to the following: 1. Synthesis and characterization of novel nanocomposite membranes with tailored properties;
2. Structure–performance relationships under operational conditions;
3. Advanced fabrication techniques to optimize membrane morphology and functionality;
4. Strategies to enhance durability and cost-effectiveness;
5. Performance evaluation and mechanistic studies.

Guest Editor

Dr. Lu Guo
School of Engineering, Yunnan University, Kunming 650091, China

Deadline for manuscript submissions

30 September 2026

Membranes

an Open Access Journal by MDPI

Impact Factor 3.6
CiteScore 7.9
Indexed in PubMed

mdpi.com/si/251723

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

mdpi.com/journal/membranes

Membranes

an Open Access Journal by MDPI

Impact Factor 3.6
CiteScore 7.9
Indexed in PubMed

mdpi.com/journal/membranes

MDPI

About the Journal

Message from the Editor-in-Chief

You are cordially invited to contribute a research article or a comprehensive review for consideration and publication in *Membranes* (ISSN 2077-0375). *Membranes* is an international, peer-reviewed open accessjournal of membrane technology published monthly online by MDPI. The journal covers the broad aspects of the science and technology of both biological and non-biological membranes, including membrane dynamics and the preparation and characterization of membranes and their applications in water, environment, energy, and food industries. Articles contributing to better understanding of transport processes in all types of membranes are also welcome. The scientific community and the general public have unlimited and free access to the content as soon as it is published. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Spas D. Kolev
School of Chemistry, The University of Melbourne, Melbourne, VIC 3010, Australia

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), Ei Compendex, PubMed, PMC, CAPlus / SciFinder, Inspec, and other databases.

Journal Rank:

JCR - Q2 (Polymer Science) / CiteScore - Q1 (Chemical Engineering (miscellaneous))