Special Issue

Next-Generation Aqueous Batteries: From Materials Innovation to Real-World Applications

Message from the Guest Editors

Among diverse battery systems, aqueous batteries stand out with core strengths: intrinsic safety from non-flammable electrolytes, cost-effectiveness using earth-abundant materials, and high ionic conductivity enabling superior power performance. This Special Issue aims to showcase the latest advances in the materials, mechanisms, and devices in aqueous batteries. It seeks to summarize and highlight the potential, issues, and breakthroughs associated with highly safe aqueous batteries in scalable storage and wearable technologies. We welcome research articles, reviews, and perspectives from researchers worldwide. Topics include, but are not limited to, the following:

- Aqueous ion batteries, including H+, NH4+, Li+, Na+, K+, Zn2+, Ca2+, Fe2+, Mg2+, Mn2+, Al3+, halogen, and chalcogens, etc.;
- Novel electrode materials, electrolytes, separators, etc.;
- Supercapacitors, static batteries, and redox flow batteries using aqueous electrolyte;
- Energy storage mechanisms and interfacial chemistry related to aqueous batteries;
- Challenges that hinder aqueous battery development;
- Pathways from lab to fab for aqueous batteries.

Guest Editors

Dr. Wanhai Zhou
Dr. Dong Zhou
Dr. Junnan Hao

Deadline for manuscript submissions

25 October 2026

Batteries

an Open Access Journal by MDPI

Impact Factor 4.8
CiteScore 6.6

mdpi.com/si/251712

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

mdpi.com/journal/batteries

Batteries

an Open Access Journal by MDPI

Impact Factor 4.8
CiteScore 6.6

mdpi.com/journal/batteries

MDPI

About the Journal

Message from the Editor-in-Chief

Take the opportunity to publish your original scientific work or a review paper concerning battery materials, battery technology or battery application within this new open access journal. Along with material science, the journal also addresses engineering and multidisciplinary research topics, such as cell and system design or storage system integration. Publishing proffers visibility for the benefit of other experts and facilitates discussion of the research results within the field. You are invited to publish your work, read published papers and to participate in topical discussions.

Editor-in-Chief

Prof. Dr. Karim Zaghib
Department of Chemical and Materials Engineering, Concordia University, Montréal, QC H3G 1M8, 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), Inspec, Ei Compendex, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Electrochemistry) / CiteScore - Q1 (Electrical and Electronic Engineering)