Special Issue

Electrolyte and Electrode Design for Next-Generation Rechargeable Batteries

Message from the Guest Editor

Designing qualified electrolytes and electrodes is key to the success of emerging battery systems. Electrode materials play an important role in the energy density, power density, and cycling life of batteries, and the design of reasonable electrode materials is essential to promote the development of novel battery technologies. As the only component that interfaces with every other component in the batteries, the electrolyte must simultaneously satisfy several criteria, including rapid ion and mass transportation, effective electron insulation, and electrochemical inertness. The associated electrolyte–electrode interfacing chemistry is the essence of electrolyte engineering, dictating the power, energy, and reversibility of the battery during its entire service life. Topics of interest include, but are not limited to, the following:

- Novel battery systems;
- Novel anode and cathode materials;
- Li/Na/K/Zn metal anode;
- Catalysts design for electrolytic water systems, fuel cells, Li-O2 batteries, etc.;
- Electrolyte adjustment;
- All-solid-state electrolyte design and batteries;
- Solid electrolyte interface;
- Electrochemical principles;
- .....

Guest Editor

Dr. Shaokun Chong

Frontiers Science Center for Flexible Electronics, Northwestern Polytechnical University, Xi'an 710072, China

Deadline for manuscript submissions

closed (10 June 2025)

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

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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

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