Special Issue

Technology in Lithium-Ion Batteries: Prospects and Challenges

Message from the Guest Editors

As the world transitions from fossil fuels to renewable energy, lithium-ion batteries are becoming increasingly vital as advanced energy storage devices. However, their rapid development presents several challenges. These batteries need to possess more competitive properties, such as a wider operational temperature and voltage range, longer lifespan, and better rate capability to meet market demands. Additionally, they face challenges in management, safety, and recycling. Effective management, including protocol selection and temperature control, is crucial for ensuring efficiency and safety. Beyond intrinsic safety, advanced technologies are needed for hazard identification, thermal runaway prevention, and fire suppression. Recycling retired batteries is also essential for resource utilization and environmental protection. In summary, lithium-ion batteries and their technologies require continued development to better serve the community.

Guest Editors

Dr. Dongxu Ouyang

Dr. Weixiong Wu

Dr. Jianing Xu

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

mdpi.com/journal/materials

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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

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