Special Issue

Advanced Lithium-Based Battery Materials: Manufacturing and Recycling

Message from the Guest Editors

The development of advanced lithium-ion batteries (LIBs) has emerged as a critical area of research due to the pressing need for sustainable and environmentally friendly energy solutions. These developments are especially true in the automotive industry, which has rapidly begun adapting green and efficient LIB technologies within the past decade. However, despite this trend, there is still an ever-increasing need to utilize higher-performing materials (typically anodes and cathodes) to meet future energy demands. To further advance the scientific understanding of advanced LIB materials, this Special Issue will explore the following topics:

- The latest advancements in LIB technology
- The manufacturing processes used for LIB fabrication,
- The environmental impact of lithium-ion battery production
- The recycling methods of LIBs
- Safety issues related to lithium-ion batteries
- Growing trends of LIB-based electric vehicles and the challenges facing the industry in terms of scaling up production and reducing costs.
- Challenges involved in achieving a sustainable and cost-effective recycling process.
- The future of lithium-ion batteries

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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.

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