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# Toward Next-Generation Rechargeable Lithium-Ion Batteries: Current Status and Future Prospects

Guest Editor:

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Deadline for manuscript submissions:
**closed (10 November 2025)**

## Message from the Guest Editor

For significant industrial areas such as electrified transportation, consumer electronics, and stationary energy storage, lithium batteries (including lithium-ion, lithium–sulfur, and lithium–air cells) are regarded as enabling technology. Therefore, it is crucial to develop next-generation rechargeable Li-ion batteries with higher energy densities, enhanced safety features, reduced costs, and longer cycle lives.

In this Special Issue, we aim to address topics of interest including, but not limited to, the following:

- Novel LIB electrode materials;
- Replacing traditional liquid electrolytes—e.g., ionic liquids, high-salt-content electrolytes, and solid-state batteries;
- High-performance and functional separators;
- Advanced fabrication technologies;
- Performance improvement or mechanism under extreme environments or conditions;
- Advanced flexible lithium-ion batteries;
- Degradability or sustainability of lithium-ion batteries;
- New battery chemistry;
- Technologies and functionality of battery management system.

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## Message from the Editor-in-Chief

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