Special Issue

Intelligent Battery Systems: Monitoring, Management, and Control

Message from the Guest Editors

The transition from combustion engines to electrified vehicles and renewable energy integration is propelling the demand for compact, high-energy-density storage systems, including batteries. These battery elements are not only key to decarbonizing the transportation sector but also critical for buffering renewable energy. However, there Is still significant room for technological improvement. A large body of research focuses on the chemistry improvement and production optimization of batteries, whereas concentrating on the chemistry might not be the complete solution. This Special Issue focuses on advancing battery technologies with a particular emphasis on smart monitoring, management, and control of these systems. Potential topics:

- Advanced sensing or monitoring techniques;
- Smart estimation and observation techniques;
- Modelling and design of smart battery elements and systems;
- Digital twins for battery elements and systems;
- Statistical analysis and modelling of large battery systems;
- Implementation of artificial intelligence in battery diagnostics;
- Improved thermal management for battery systems.

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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.

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