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Li-Ion Batteries: Modelling and Control from Manufacturing to Performance Evaluation

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closed (1 June 2021)

Message from the Guest Editor

We invite you to contribute to this *Energies* Special Issue on new approaches to modelling and control of lithium-ion batteries. The upcoming years are an exciting time given the demand for robust battery models and their applications. Various mathematical models are used to address this, e.g. multiphysics models are used in design optimization and predict degradation. Empirical models are typically used in control and systems applications. New research directions are developing, involving reduced-order models and machine learning that build upon the advantages of multiphysics and empirical methods.

Several challenges however persist, e.g. robust parameter estimation schemes, fast computational approaches and deploying battery models for automotive, aerospace, and grid applications. This Special Issue therefore welcomes new research that explores these challenges and will include the following topics:

- Multiphysics, data-driven modelling of Li-ion batteries
- Battery manufacturing and performance prediction
- Physics-informed machine learning models
- Model parameterisation and validation methodologies
- Degradation modelling
- Battery pack and battery management systems

Special Issue

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Message from the Editor-in-Chief

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