Special Issue

Lithium-Ion Battery Health and Safety Estimation

Message from the Guest Editors

The mass adoption of battery-powered electric vehicles (EVs) requires car buyers to have high confidence in a battery's performance, reliability, and safety. Although progress has been made in developing technologies for battery diagnosis, challenges remain in accurately predicting a battery's state of charge (SOC), state of health (SOH), cycle life, calendar life, remaining useful life (RUL), state of safety (SOS), and fault/failure. Given the ubiquitous application of lithium-ion batteries, the safety, health, and reliability of these batteries are more important than ever. Therefore, there is a pressing need to not only investigate physical mechanisms but also develop new techniques with which to model and predict the dynamics of multiphysics and multiscale battery systems. We believe that this Special Issue will provide valuable contributions to battery diagnoses in the automotive industry and generate maximum practical value. By prioritizing the development of safe and reliable lithium-ion batteries, we can ensure a cleaner and more sustainable future.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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