Special Issue

Advanced Energy Storage Materials and Thermal Safety Aspects for Lithium-Ion, Sodium-Ion, and Potassium-Ion Batteries

Message from the Guest Editor

The electrochemical energy storage device demand keeps on increasing since the discovery of its utility as a strong material in daily life. The current lithium-ion batteries have been used in applications including electric vehicles, hybrid electric vehicles, and large scale energy storage systems. The limited availability of lithium resources would prevent complete electrification and may fail to fulfill the continuous increment of energy demand. This concern welcomes the sodium-ion and potassium-ion batteries for the reason of infinite sodium and potassium resources are widely distributed throughout the world with affordable cost. Accordingly, the research and development of energy storage materials with advanced nanoarchitecture would increase the performance of lithium-ion, sodium-ion, and potassium-ion batteries. The thermal safety studies of the energy materials can reveal the thermal runaway of the battery in high-power applications and lead to operation with enhanced safety.

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