Special Issue

From Design to Processing: The Evolution of Advanced Electrode Materials for Next-Gen Lithium-Ion Batteries

Message from the Guest Editor

The advancement of lithium-ion batteries (LIBs) has shown extraordinary promise for creating a wireless and non-fossil fuel society, making a significant need for battery materials that offer high energy density and improved safety features. Next-generation LIBs require advanced electrode materials with innovative chemistry, inspired new electrode architectural design strategies, and facilitated modelling methods for understanding electrochemical performance. The rising use of electric vehicles has accelerated research into thick electrode designs with high active material mass loading to achieve high areal capacities, which can facilitate the commercial implementation of advanced battery electrodes. This Special Issue aims to highlight the recent advancements in materials for Li-ion battery anodes and cathodes, focusing on stable electrode design, efficient electron transport, rapid ion diffusion, and thermal stability, while also considering the development of practical devices like pouch and flexible cells.

Guest Editor

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