



Advances in Anode and Electrolyte Materials for Lithium-Ion Batteries and Beyond

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

Li ion batteries have been used for a few decades as the main energy storage devices. However, Na, K and multivalent (Mg, Ca, Al) ion batteries have emerged as candidates for medium- and large-scale stationary energy storage, due to the abundance of Na⁺, K⁺, Mg⁺², Ca⁺²⁺, Al⁺³⁺ ions in Nature.

One very important factor for the performance of batteries and fast charge/discharge rates is the choice of organic electrolyte, since a good electrolyte can provide good ionic conductivity, high cycle life, and energy density. Desirable properties for a good electrolyte include: (i) high polarity, (ii) low viscosity, (iii) chemical stability, and (iv) safety. Moreover, the research on anode materials and the passive layer between the electrolyte and anode (SEI) is also very limited for batteries beyond Li.

This Special Issue of Batteries invites contributions addressing computational studies (DFT, MD, ML) in Li ion batteries and beyond, focusing on electrolyte phase, ionic liquids, ether-based electrolytes, anode materials, SEI, ion solvation and transport.

Dr. Argyrios Karatrantos

Guest Editor





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Editor-in-Chief

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Message from the Editor-in-Chief

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