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Safer and Higher-Energy-Density Lithium Batteries

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closed (31 August 2022)

Message from the Guest Editors

Dear Colleagues,

Increasing the safety and energy density of lithium batteries is extremely crucial for the success of EVs, grid-scale energy storage, and the next generation of power electronics. This, however, can only be achieved through a holistic approach to improve the performance of the battery's three main components (cathode, anode, and electrolyte) simultaneously. In this Special Issue, the focus will be on energy density and safety as two of the many important metrics required to evaluate lithium battery performance for success. The issue will cover existing Li-ion battery research and innovation and the drive to improve the capacity of the two electrodes and potential of the cathode while maintaining the potential of the anode low and enabling safer, highly performing electrolytes. Also of interest are the latest research and innovation efforts to enable high-energy-density lithium metals in liquid-state and solid-state electrolytes in a safe manner. Finally, the issue will cover applications of artificial intelligence and machine learning in accelerating the discovery and design of new battery materials, cells, and systems...

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Editor-in-Chief

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Message from the Editor-in-Chief

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