

An Overview on the Next Generation Li-ion batteries

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Abstract

Lithium-ion batteries have been the nucleus of the digital-modernization, especially when acknowledging the exponential rise in the digital-dependency of society on mobile devices. As they play such a vital role, over the years various efforts have been made to increase their capacity, cyclability and battery life with higher safety measures. At present, LiCoO₂ cathode batteries with carbonaceous anode and LiPF₆/EMC electrolyte is the most commonly used Li-ion battery. However the toxicity of Co, low cyclability of carbon and the inflammable nature of EMC demand the next generation Li-ion battery with enhanced performance and safety measures to take its place commercially to meet the high demand of the society which is possible at nanoscale using LiFePO₄ and silicon-nanowires as the electrodes with an inorganic electrolyte (fluid SO₂) that is incombustible in nature. The following content briefly explains the challenges faced by the current generation of Lithium-ion batteries and the recent progress made to tackle the said problems.

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