

This review presents a survey of the literature on recent progress in lithium-ion batteries, with the active sub-micron-sized particles of the positive electrode chosen in the ...

All-solid-state lithium secondary batteries are attractive owing to their high safety and energy density. Developing active materials for the positive electrode is important ...

Herein, the key historical developments of practical electrode materials in Li-ion batteries are summarized as the cornerstone for the innovation of next-generation batteries. In addition, the emerging electrode materials for ...

One of the common cathode materials in transition metal oxides is LiCoO_2 , which is one of the first introduced cathode materials. Shows a high energy density and ...

The development of efficient electrochemical energy storage devices is key to foster the global market for sustainable technologies, such as electric vehicles and smart grids. However, the energy density of state-of-the-art lithium-ion ...

In a variety of circumstances closely associated with the energy density of the battery, positive electrode material is known as a crucial one to be tackled. Among all kinds of ...

A similar protective film is also reported for materials such as and but the discussion about the SEI on positive electrodes is still controversial and the parameters ...

In this paper, we briefly review positive-electrode materials from the historical aspect and discuss the developments leading to the introduction of lithium-ion batteries, why ...

Lithium-ion capacitor (LIC) has activated carbon (AC) as positive electrode (PE) active layer and uses graphite or hard carbon as negative electrode (NE) active materials. 1,2 So LIC was developed to be a high ...

To compete in the energy storage and transportation market, lithium-ion batteries needs to be safe, low cost, have high energy density, high efficiency and a long service life. [1-4] In this ...

The key to sustaining the progress in Li-ion batteries lies in the quest for safe, low-cost positive electrode (cathode) materials with desirable energy and power capabilities. One approach to boost the energy and power densities of ...

Discussion on positive electrode materials of lithium-ion batteries

The quest for new positive electrode materials for lithium-ion batteries with high energy density and low cost has seen major advances in intercalation compounds based on layered metal oxides, spin...

Detailed review articles on the use of nanomaterials for lithium-ion batteries [1], [2], [3] or for energy storage in general [4], [5] have been published in recent years. More ...

Cobalt-free, nickel-rich positive electrode materials are attracting attention because of their high energy density and low cost, and the ultimate material is LiNiO_2 (LNO). ...

The 3D morphology of $\text{LiNi}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}\text{O}_2$ (NMC), LiFePO_4 (LFP), and blended NMC/LFP electrodes envisioned for electric vehicles Li-ion batteries is characterized ...

Lithium ion batteries with high energy density, low cost, and long lifetime are desired for electric vehicle and energy storage applications. In the family of layered transition ...

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