

Among the battery technologies, rechargeable Li-ion batteries (LIBs) have successfully been commercialized by Sony-Japan in 1996. [1] . Since then, LIBs have been employed as an energy storage device in the field of ...

To enhance the electrochemical performance of such batteries, rational electrolyte design and regulated interfacial chemistry are crucial for obtaining high-energy batteries that utilize...

Recent studies indicate that ionic liquid-based electrolytes can significantly improve the thermal stability and safety of lithium-ion batteries. These electrolytes can also enhance ionic conductivity, leading to ...

Recent advances in lithium phosphorus oxynitride (LiPON)-based solid-state lithium-ion batteries (SSLIBs) demonstrate significant potential for both enhanced stability and energy density, marking LiPON as ...

Electrochemical energy storage systems face evolving requirements. Electric vehicle applications require batteries with high energy density and fast-charging capabilities. Grid-scale battery energy storage ...

Solid-state lithium-ion batteries are gaining attention as a promising alternative to traditional lithium-ion batteries. By utilizing a solid electrolyte instead of a liquid, these batteries offer the potential for enhanced safety, ...

Researchers are exploring novel electrolyte compositions, electrode materials, and cell architectures to elevate the performance of lithium batteries and other rechargeable systems. To bridge the ...

This robust growth is fueled by the exponential demand for high-performance lithium-ion batteries from the electric vehicle (EV), consumer electronics, and grid-scale energy storage sectors. As the global ...

Kennesaw State researchers use sulfur-modified solid electrolytes to improve lithium-ion movement in solid-state batteries.

Abstract High-energy lithium metal batteries (LMBs) are expected to play important roles in the next-generation energy storage systems. However, the uncontrolled Li dendrite growth in liquid electrolytes still impedes ...

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