All-solid-state lithium batteries

All-solid-state batteries (ASSBs) have garnered considerable attention as promising candidates for next-generation energy storage systems due to their potentially simultaneously enhanced safety capacities and ...

All-solid-state lithium-metal batteries (ASSLBs) with NMC811 cathodes can meet the high-energy-density and safety requirements for electric vehicles and large-scale ...

All-solid-state lithium-sulfur (Li-S) batteries have emerged as one of the most promising alternative energy storage solutions ascribed to their potentials of high energy density, cost-effectiveness, and enhanced safety. ...

The fabricated all-solid-state lithium battery comprising the pre-lithiated Al anode and dual-reinforced Ni-rich cathode achieves stable cycling for 1000 cycles with a capacity ...

Considering the interdependence of performance measures and the lack of a basic reference system for all-solid-state batteries, Jürgen Janek and co-workers analyse ...

All-solid-state lithium batteries (ASSLBs) can overcome many problems in cathode and lithium anode, and it is a very promising safe secondary battery. However, ...

All-solid-state lithium batteries (ASSLBs) are strongly considered as the next-generation energy storage devices for their high energy density and intrinsic safety. The solid ...

Introduction All-solid-state batteries (ASSBs) have emerged as a promising solution to address the limitations of traditional lithium-ion batteries (LIBs). These batteries offer the potential to revolutionize industries ranging ...

In-depth mechanistic insights inform the fabrication of an all-solid-state, Co-free lithium battery with good performance and cyclability.

Abstract All-solid-state lithium-ion batteries (ASSLBs) have garnered significant attention due to their superior safety performance and high energy density, making them a promising next-generation energy storage ...

2 · Abstract As a leading contender for advanced energy storage systems, silicon-based all-solid-state lithium-ion batteries (Si-ASSLIBs) have garnered critical research frontier due to ...

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devices for their high energy density and intrinsic safety.

Solid polymer electrolytes (SPEs) are promising for high-energy and high-safety solid-state lithium metal batteries (LMBs). Here, a polycationic solid electrolyte (PCSE) is ...

By using lithium thioborophosphate iodide glass-phase solid electrolytes in all-solid-state lithium-sulfur batteries, fast solid-solid sulfur redox reaction is demonstrated, ...

All-solid-state lithium batteries (ASSLBs) are considered promising alternatives to current lithium-ion batteries as their use poses less of a safety risk. However, the fabrication of composite cathodes by the ...

The research on ASSLSBs faces not only the interfacial challenges in general (as with all all-solid-state lithium batteries) but also the sluggish SSSRR and large volume ...

All-solid-state lithium-metal batteries are at the forefront of battery research and development. Here C. Wang and colleagues have developed an interlayer design strategy to ...

Abstract All-solid-state lithium batteries (ASSLBs) are considered promising alternatives to current lithium-ion batteries as their use poses less of a safety risk.

In this study, we present a series of halide solid-state electrolytes (SSEs) utilizing a doping strategy with highly valent elements, demonstrating an outstanding combination of ...

An all-solid-state battery with a lithium metal anode is a strong candidate for surpassing conventional lithium-ion battery capabilities.

Lithium-ion batteries often struggle to maintain capacity in extreme cold conditions. Here, authors develop amorphous solid electrolytes (xLi3N-TaCl5) with high ionic ...

Solid polymer electrolytes (SPEs) are promising for high-energy and high-safety solid-state lithium metal batteries (LMBs). Here, a polycationic solid electrolyte (PCSE) is described that leverages the inherent high ...

Since the electrochemical potential of lithium metal was systematically elaborated and measured in the early 19th century, lithium-ion batteries with liquid organic electrolyte have been a key energy storage device ...

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All-solid-state lithium-sulfur batteries have been recognized for their high energy density and safety. This Perspective explores sulfur redox in the solid state, emphasizing the ...