

New breakthrough in lithium-sulfur battery technology

Are lithium sulfur batteries better than conventional batteries?

The other news is that those lithium sulfur batteries can charge and discharge faster than conventional batteries and are also lighter and less costly to produce. The benefits -- assuming the new technology can move out of the lab and into commercial production -- are longer range, faster charging electric cars and battery-powered aircraft.

Could a new cathode material improve lithium-sulfur batteries?

Researchers at the University of California San Diego have developed a new cathode material for solid-state lithium-sulfur batteries that significantly improves their electrical conductivity and self-healing properties.

How long do lithium-sulfur batteries last?

It maintained over 80% of its initial capacity after 25,000 charge/discharge cycles. This far surpasses the durability of lithium-ion batteries, which degrade after approximately 1,000 cycles. Despite these achievements, questions remain about the energy density of lithium-sulfur batteries.

Can a lithium-sulfur battery keep 80% charge?

DOI: 10.1038/s41586-024-08298-9 An international team of engineers and materials scientists has developed a lithium-sulfur battery capable of retaining 80% of its charge capacity after 25,000 cycles. Their paper is published in the journal Nature. To make batteries smaller and lighter, engineers continually look for new materials.

Are lithium sulfur batteries a catalyst for high density energy storage?

The breakthrough that makes all this possible is a catalyst closely related to betadine, a common household antiseptic. Until now, lithium sulfur batteries have held promise for high density energy storage, but suffered from slow charging and discharging.

Are Lithium sulfide batteries the future of Electric Aviation?

Co-lead author of a paper on the research called Role of Polymer-Iodine Complexes on Solid-Liquid Polysulfide Phase Transitions and Rate Capability of Lithium Sulfur Batteries, Dr Petar Jovanović said their Li-S batteries bring the vision of high-performance, sustainable electric aviation closer to reality.

Stellantis exploring all battery technology to meet the diverse needs of its broad customer base and ensure clean, safe and affordable mobility; READ the latest Batteries ...

Photo courtesy University of New South Wales BIG BREAKTHROUGH PAVES THE WAY FOR LITHIUM-SULFUR BATTERIES. Sulfur is extremely abundant, cost effective and can hold more energy than ...

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3 ???· Similarly, Jim et al. proposed an anode-free lithium-sulfur battery using Cu foil modified with thin black phosphorus (BP) nanosheets as the current collector. The presence of BP ...

Constructed from sodium-sulphur - a type of molten salt that can be processed from sea water - the battery is low-cost and more environmentally friendly than existing options.

The breakthrough lithium-sulfur battery outlasts the lithium-ion battery, and is rechargeable hundreds of times without failing. The new generation lithium battery stores two ...

A lithium-sulfur battery has been developed that retains 80% charge capacity after 25,000 cycles, significantly outperforming typical lithium-ion batteries. This advancement ...

America's growing demand for electric vehicles (EVs) has shed light on the significant challenge of sustainably sourcing the battery technology necessary for the broad ...

1 Introduction. Lithium-ion batteries (LIBs) have been at the forefront of portable electronic devices and electric vehicles for decades, driving technological advancements that ...

A new nitrogen-doped carbon enables lithium-sulfur batteries to fully charge in 12 minutes, improving capacity and stability for commercialization.

The lithium-sulfur battery developed in this study utilized the multifunctional carbon material synthesized, through the simple magnesium-assisted thermal reduction ...

In a groundbreaking development, researchers at the University of Adelaide's School of Chemical Engineering in Australia have announced a significant breakthrough in ...

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