



Breakthrough in battery energy technology

Can battery technology change our energy future?

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Can battery technology improve energy storage capacity?

A pivotal breakthrough in battery technology that has profound implications for our energy future has been achieved by a joint-research team led by City University of Hong Kong (CityU). The new development overcomes the persistent challenge of voltage decay and can lead to significantly higher energy storage capacity.

Could a new energy source make batteries more powerful?

Columbia Engineers have developed a new, more powerful "fuel" for batteries--an electrolyte that is not only longer-lasting but also cheaper to produce. Renewable energy sources like wind and solar are essential for the future of our planet, but they face a major hurdle: they don't consistently generate power when demand is high.

How does a battery work?

Traditional batteries have an anode to store the ions while a battery is charging. While the battery is in use, the ions flow from the anode through an electrolyte to a current collector (cathode), powering devices and cars along the way.

How do EV batteries work?

A typical EV may have 4,000 batteries arranged in modules controlled by a battery management system, an electronic brain that monitors and controls battery performance. In a lithium metal battery, the existing management system can be programmed to discharge an individual module completely so that it has zero capacity left.

Can K-Na/S batteries save energy?

In a new study recently published by Nature Communications, the team used K-Na/S batteries that combine inexpensive, readily-found elements -- potassium (K) and sodium (Na), together with sulfur (S) -- to create a low-cost, high-energy solution for long-duration energy storage.

6 ???· Yuqi Li "Because we don't use active metals for permanent electrodes and the electrolyte is water-based, this design should be easy and cheap to manufacture," said Yuqi Li, a postdoctoral researcher with Professor Yi Cui in Stanford's Department of Materials Science & Engineering. "Zinc manganese batteries today are limited to use in devices that don't need a ...



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2 ???· New superionic battery tech could boost EV range to 600+ miles on single charge. The vacancy-rich Li_3N design reduces energy barriers for lithium-ion migration, increasing mobile lithium ion ...

GANZHOU, China, July 22, 2024 /PRNewswire/ -- Farasis Energy proudly announces the successful testing of its revolutionary battery cells, marking a significant milestone in the quest for a million ...

Researchers at the University of Waterloo have developed a groundbreaking new battery architecture that enables extreme fast charging of lithium-ion batteries for electric ...

5 ???· The new material, sodium vanadium phosphate with the chemical formula $\text{Na}_x\text{V}_2(\text{PO}_4)_3$, improves sodium-ion battery performance by increasing the energy density--the ...

In the midst of the soaring demand for EVs and renewable power and an explosion in battery development, one thing is certain: batteries will play a key role in the transition to renewable energy ...

Scientists have created an anode-free sodium solid-state battery. This brings the reality of inexpensive, fast-charging, high-capacity batteries for electric vehicles and grid ...

5 ???· The new material, sodium vanadium phosphate with the chemical formula $\text{Na}_x\text{V}_2(\text{PO}_4)_3$, improves sodium-ion battery performance by increasing the energy density--the amount of energy stored per kilogram--by more than 15%. With a higher energy density of 458 watt-hours per kilogram (Wh/kg) compared to the 396 Wh/kg in older sodium-ion batteries, this material ...

Scientists have created an anode-free sodium solid-state battery. This brings the reality of inexpensive, fast-charging, high-capacity batteries for electric vehicles and grid storage closer...

Researchers from the Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS) have developed a new lithium metal battery that can be charged and discharged at least 6,000 times -- more than any other pouch battery cell -- and can be ...

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Farasis Energy is a developer and producer of high-performance lithium-ion battery technology and pouch cells for electric mobility and other power storage applications. Founded in California in 2002, the company now operates research and development centers in China, Germany, and the USA. There are currently two production facilities in Ganzhou and ...

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The implications of this breakthrough extend beyond affordability and safety. Zinc-sulfur batteries have a higher energy density than lithium-ion counterparts, enabling smaller, longer-lasting ...

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Researchers at the University of Waterloo have developed a groundbreaking new battery architecture that enables extreme fast charging of lithium-ion batteries for electric vehicles (EVs). The innovation paves the way for drivers to consistently charge EVs from zero to 80% in under 15 minutes, a significant improvement from the current industry ...

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