

The latest breakthrough in lithium battery technology

Could lithium-ion batteries make electric vehicles cheaper?

A team of researchers from Guangdong University of Technology achieved a major breakthrough in lithium-ion battery technology that could make electric vehicles and energy storage cheaper. Traditionally, lithium-ion batteries used to power EVs and renewable energy grids are made of lithium iron phosphate and lithium nickel manganese cobalt oxide.

How will lithium-ion batteries change the world?

It is also expected that demand for lithium-ion batteries will increase up to tenfold by 2030, according to the US Department for Energy, so manufacturers are constantly building battery plants to keep up. Lithium mining can be controversial as it can take several years to develop and has a considerable impact on the environment.

Which companies are making a change in lithium-ion batteries?

The U.S. Department of Energy designed a new lithium-ion battery that can retain 98% of storage capacity over 500 charge cycles. Companies are also leading the change. Redwood Materials is devising innovative ways to improve battery recycling, and Ampaire is working on electrifying aviation.

Can a recharged lithium battery improve cycle life?

"We were looking for the easiest, cheapest, and fastest way to improve lithium metal cycling life," said study co-lead author Wenbo Zhang, a Stanford PhD student in materials science and engineering. "We discovered that by resting the battery in the discharged state, lost capacity can be recovered and cycle life increased.

Could lithium-ion battery technology make EVs more affordable?

This advancement in lithium-ion battery technology could make high-capacity, cobalt-free batteries more accessible and affordable. Cost-effectively improving battery life span paves the way for cheaper EVs, which can encourage drivers to abandon their gas-guzzling cars for cleaner vehicles, lowering air pollution.

Could artificial intelligence reduce lithium use in batteries?

A brand new substance, which could reduce lithium use in batteries, has been discovered using artificial intelligence (AI) and supercomputing. The findings were made by Microsoft and the Pacific Northwest National Laboratory (PNNL), which is part of the US Department of Energy.

After its success supplying lithium-ion batteries to the electric vehicle market, Northvolt has been working secretly on a sodium-ion battery technology and is now ready to ...

This battery technology could increase the lifetime of electric vehicles to that of the gasoline cars -- 10 to 15 years -- without the need to replace the battery. With its high current density, the battery could pave the ...

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In fact, readers chose the technology as our 11th Breakthrough Technology of 2024. To celebrate, we're hosting an online event in a couple of weeks for subscribers.

Japan's TDK is claiming a breakthrough in materials used in its small solid-state batteries, with the Apple supplier predicting significant performance increases for devices from ...

Breakthrough in all-solid-state battery technology with a novel electrodeposition method increases efficiency and lifespan. A research team, consisting of Professor Soojin ...

The company has scaled up the technology to build a smart phone-sized pouch cell battery. Li and his team also characterized the properties that allow silicon to constrict the ...

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 ...

Stanford's breakthrough in lithium metal battery technology promises to extend EV ranges and battery life through a simple resting protocol, enhancing commercial viability. ...

Researchers studying how lithium batteries fail have developed a new technology that could enable next-generation electric vehicles (EVs) and other devices that ...

2 ???· A team of researchers from Guangdong University of Technology achieved a major breakthrough in lithium-ion battery technology that could make electric vehicles and energy ...

Lithium - the main component in most electric batteries - can be costly to mine. But researchers have made a breakthrough with alternative "molten salt" batteries.

Lithium-iron-phosphate will continue its meteoric rise in global market share, from 6 percent in 2020 to 30 percent in 2022. ... In a new dual-ion battery (DIB), instead of ...

2 ???· Korean researchers have extended lithium metal anodes' lifespan by 750 percent using water, marking a major breakthrough in battery technologies. The Korea Advanced Institute of ...

Dec. 11, 2024 -- Rechargeable lithium-ion batteries power everything from electric vehicles to wearable devices. But new research suggests that a more sustainable and cost-effective ...

Stanford's breakthrough in lithium metal battery technology promises to extend EV ranges and battery life through a simple resting protocol, enhancing commercial viability. Next-generation electric vehicles could run on ...

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Harvard's latest solid-state battery breakthrough. January 15, 2024: The lithium metal battery researchers developed at the Harvard John A. Paulson School of Engineering ...

Northvolt has made a breakthrough in a new battery technology used for energy storage that the Swedish industrial start-up claims could minimise dependence on ...

Toyota says its breakthrough batteries will hit the market in 2027 or 2028, giving its EVs 745 miles of range--significantly greater than any gas-powered car today--with 10 ...

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