New technology to improve battery capacity

Will a new battery chemistry boost EV production?
Expect new battery chemistries for electric vehicles and a manufacturing booststhanks to government funding this year. BMW plans to invest $1.7 billion in their new factory in South Carolina to produce EVs and their batteries. AP Photo/Sean Rayford Every year the world runs more and more on batteries.

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.

Why are lithium-ion batteries getting better and cheaper?
Lithium-ion batteries keep getting better and cheaper,but researchers are tweaking the technology further to eke out greater performance and lower costs. Some of the motivation comes from the price volatility of battery materials,which could drive companies to change chemistries. "It's a cost game," Sekine says.

Should lithium-ion batteries get a makeover?
Though battery research tends to focus on cathode chemistries,anodes are also in line to get a makeover. Most anodes in lithium-ion batteries today,whatever their cathode makeup,use graphite to hold the lithium ions. But alternatives like silicon could help increase energy density and speed up charging.

How does polyethylene glycol improve Li-ion battery performance?
Furthermore,the team introduced polyethylene glycol to regulate the physical properties and facilitate Li-ion diffusion,resulting in the thick high-capacity electrode and maximum energy densityfound in Li-ion batteries.

Can a 'tiny egg carton' improve battery performance?
Addionics, an Israeli company, has found that tweaking the geometry of these sheets can boost the batteries' performance. Unlike the smooth sheets used in today's batteries, Addionics's offering has hills and valleys; like a "tiny egg carton", says Moshiel Biton, the company's founder.

American battery-component startups such as Sila Nano and Group14 have developed composite materials that embed molecules of silicon into a web of carbon molecules. This would be able to contain...

At 60°C, 15 degrees above the maximum operating temperature for a Li-ion battery, the new electrolyte-filled cell could undergo twice as many charging cycles before seeing a 20% drop in battery ...

Academic labs and companies alike are hunting for ways to improve the technology--boosting capacity, speeding charging time, and cutting costs. The goal is even cheaper batteries that will...

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6 ???· "Making a battery that"s better than lithium-ion is really hard," says Tim Holme, chief ...

5 ???· The new material, sodium vanadium phosphate with the chemical formula Na x V 2 ...

5 ???· Samsung SDI developed a "graphene ball" material that enables a 45% increase in battery capacity and five times faster charging compared to standard lithium-ion batteries. LG Energy Solution developed a new material that suppresses thermal runaway in lithium-ion ...

Researchers at Stanford University have discovered that allowing lithium metal batteries to rest in a discharged state can significantly restore their capacity and extend their cycle life. This method, which is both low-cost and straightforward to implement, could double the range of electric vehicles without requiring new manufacturing ...

5 ???· Samsung SDI developed a "graphene ball" material that enables a 45% increase in battery capacity and five times faster charging compared to standard lithium-ion batteries. LG Energy Solution developed a new material that suppresses thermal runaway in lithium-ion batteries, reducing battery explosions from 63% to 10% during impact testing.

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