

Sodium ion battery charging

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New research indicates that sodium-ion EV batteries could charge up in seconds, not minutes. That not only races past the best lithium-ion technology on the market today, it also beats gas...

A new type of hybrid sodium-ion battery that offers both high capacity and rapid-charging capabilities could power mobile devices, electric vehicles and space tech.

Researchers at the Korea Advanced Institute of Science and Technology (KAIST) have identified a high-energy, high-power hybrid sodium-ion battery capable of charging in just a few seconds.

A research team led by Professor Jeung Ku Kang from the Department of Materials Science and Engineering has developed a high-energy, high-power hybrid sodium-ion battery capable of rapid charging.

Researchers have developed a new coin-type sodium-based battery that can charge rapidly "in seconds" and could potentially power everything from smartphones to electric vehicles (EVs) in the future.

By combining anode materials used in conventional batteries with cathodes from supercapacitors — batteries that can store and deliver energy at very high rates — the scientists created a new type of sodium-ion battery that offers both high capacity and rapid-charging capabilities.

They were looking for a way to overcome the current limitations of sodium-ion energy storage — touted as an alternative to lithium-ion batteries — and described their findings in a study published March 29 in the journal *Energy Storage Materials*.

The new sodium-ion hybrid fuel cells could serve as a "viable next-generation alternative to lithium-ion batteries," the researchers said in a joint statement, with applications ranging from laptops and mobile devices to electric vehicles and aerospace technologies.

Related: Tired of your laptop battery degrading? New "pulse current" charging process could double its lifespan.

Sodium is significantly more abundant than lithium — up to 1,000 times more, the researchers said — making sodium-ion batteries potentially cheaper and more sustainable to produce than the lithium-ion batteries currently used to power most EVs and consumer electronics.

However, existing sodium-ion batteries offer lower power output and storage capacity than lithium-ion batteries and take longer to charge, thus limiting their potential applications. In the new study, the researchers

sought a way to tackle the shortcomings of the technology.

The research represents "a breakthrough in overcoming the current limitations of energy storage systems," Jeung Ku Kang, lead author of the study and a professor of materials science and engineering at the Korea Advanced Institute of Science and Technology (KAIST), said in the statement.

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