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Super graphene capacitor success



Overview

In a paper recently published in Nature Communications, the research team introduced a new type of carbon-based material that enables supercapacitors to store as much energy as traditional lead-acid batteries while delivering power at a much faster rate than conventional battery. In a paper recently published in Nature Communications, the research team introduced a new type of carbon-based material that enables supercapacitors to store as much energy as traditional lead-acid batteries while delivering power at a much faster rate than conventional battery. Credit: Engineers have unveiled a breakthrough carbon-based material that enables supercapacitors to store as much energy as traditional batteries while delivering power far more rapidly. Shutterstock A new graphene supercapacitor stores battery-level energy and recharges instantly, redefining fast. Supercapacitors have sometimes been heralded as replacements for lithium-ion batteries (LIBs), offering a variety of compelling advantages, including increased safety, faster charging/discharging, and longer lifetimes. By redesigning carbon structures into highly curved, accessible graphene networks, the team achieved record energy and power densities—enough to. A Graphene supercapacitor is said to store almost as much energy as alithium-ion battery, charge and discharge in seconds and maintain all this over tens of thousands of charging cycles. Supercapacitors also work in very low temperatures, where conventional batteries often struggle. They complement the relatively slow (dis-)charging batteries in numerous applications ranging from electric cars to industrial machines and wind turbines. A team of Empa researchers wants to develop better supercaps.

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