

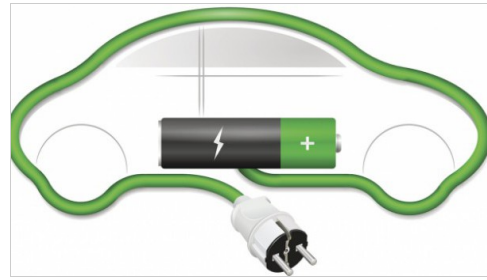
# LG Energy Solution advances sulfur solid-state battery technology with high-capacity cathode material

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**A collaborative study with the University of Chicago promises improved energy capacity, safety and cost efficiency in next-generation batteries**

LG Energy Solution (LGES) has made advancements in sulfur solid-state battery technology by implementing a high-capacity battery using sulfur as a cathode material. On March 5, LGES announced the results of a joint study conducted with a research team led by Professor Shirley Meng at the University of Chicago, which were published in *Nature Communications*, an academic journal in the energy field.



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The researchers achieved high-energy storage performance by using sulfur as a cathode material, which is considered a promising next-generation cathode material due to its affordability, abundance and theoretical ability to deliver high capacity. Traditional lithium-ion batteries using liquid electrolytes faced challenges in lifespan and stability due to polysulfide dissolution, where sulfur compounds generated during charging and discharging leach into the electrolyte.

To overcome these limitations, the researchers employed an all-solid-state battery structure, using a solid electrolyte instead of a liquid one. This approach prevented polysulfide dissolution and achieved a capacity of approximately 1,500 milliampere-hours per gram, along with stable cycle-life performance. This performance was validated in both coin cell experiments and pouch cells, demonstrating its potential for future commercialization.

An LGES representative highlighted the importance of this achievement, noting the potential to expand energy capacity beyond conventional lithium-ion batteries using a sulfur cathode. The company aims to enhance safety, energy density and cost competitiveness through industry and academia collaboration, continually expanding next-generation battery technology.

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