Discounted long-life solid-state lithium battery

Conventional lithium-ion batteries with inflammable organic liquid electrolytes are required to make a breakthrough regarding their bottlenecks of energy density and safety, as demanded by the ever-increasing development of electric vehicles and grids. In this context, solid-state lithium batteries (SSLBs), which replace liquid electrolytes with solid counterparts, have ...

Inorganic sulfide solid-state electrolytes, especially Li6PS5X (X = Cl, Br, I), are considered viable materials for developing all-solid-state batteries because of their high ionic...

A commercially viable solid-state battery must cost less than $50 per kilogram to produce. With LPSO, USTC researchers have managed to significantly reduce production costs without sacrificing...

All-solid-state lithium batteries are receiving ever-increasing attention to both circumvent the safety issues and enhance the energy density of Li-based batteries. The combinative utilization of Li+-ion conductive polymer and ceramic electrolytes is an attractive strategy for the development of all-solid-state lithium metal batteries. Such a strategy can take ...

The resulting Ta-LZ/LPSC SSE exhibits Li + conductivity of 4.42×10 -4 S cm ...

This unprecedented battery configuration demonstrates high-rate (2C) performance and long cycle life (over 300 cycles), which exceeds preciously-reported sulfide SE/lithium batteries at low stack pressures, and may open up a promising route for high-energy-density, cost-effective and safe rechargeable lithium batteries.

6 ???· ARPA-E"s new PROPEL-1K program is funding 13 research efforts--3 of them solid ...

A crystal defect design enables ?-Li3N, a "hexagonal warrior" solid-state electrolyte for all-solid-state lithium metal batteries with a long cycle life.

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