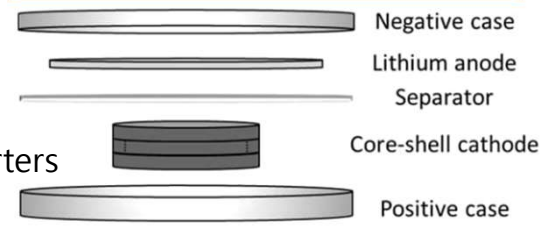
R&D Endorsement

Title

A core-shell cathode and a lithium-sulfur battery using the same

Abstract	The purpose of this invention is to provide a type of shell core cathode which at the same time synthesize a liquid polysulfide with high reactivity. With a conductive porous carbon material as the shell, assembled and the core tightly coated with sulfur active material, it can improve the kinetics reaction of the overall sulfur electrode, limit the escape of liquid polysulfides from the cathode region, and achieve high sulfur loading and high sulfur content. In return it realized an excellent electrochemical efficiency and reversibility. In addition, this invention also provides a type of lithium-sulfur battery equipped with the above-mentioned core-shell cathode, which can meet high energy density, high-capacity retention rate and high cycle stability all at the same time in a low-electrolyte environment.
Benefits	1. Active substance loading with response ability effectively improved 2. Effectively restrict solid- liquid phase active materials in the cathode region3. Effectively improve the electronic conductivity of the electrode to increase the content and loading of active materials 4. Effectively improve the ion conductivity of the electrode to reduce the volume of the electrolyte in the system 5. Achieve high energy density, high-capacity retention, and high cycle stability
Industry Categories	Materials Science and Engineering, Chemistry, Chemical Engineering, Energy Engineering battery industry, energy storage industry, power grid industry, electric equipment industry
Keywords	Carbon-sulfur cathode, electrochemistry, lithium battery
Patent No.	TW 111141394, JP2022-202707, US18/088,069



Lithium battery assembling method of the applied cathode structure

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