Yeast derived Fe-doped Hollow Carbon as a Superior Sulfur Host for Li-S Batteries

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To overcome the charging and discharging problems of lithium sulfur batteries due to their shuttle effect, low conductivity, and volume expansion, researchers have proposed many solutions. Here, we designed an S@Fe-CY electrode in which yeast is carbonized at high temperatures to preserve its porous morphology, and then it is doped with Fe to enhance its electrochemical performance. The electrochemical test proved that S-@Fe-CY has excellent multiplication performance and cyclic stability. The initial discharge capacity of the lithium–sulfur battery with S@Fe-CY as the electrode material was 985.3 mAh/g at 0.2 C, which showed an improvement in electrochemical performance characteristics.

Keywords: Lithium-sulfur battery; porous carbon; thermal treatment

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