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# Nitrogen-doped microporous carbon from polyaspartic acid bonding separator for high performance lithium-sulfur batteries

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## ABSTRACT

Lithium-sulfur (Li-S) batteries are regarded as one of the great potential members for the next-generation rechargeable batteries due to their outstanding theoretical energy density (2600 Wh kg<sup>-1</sup>), low cost and environment friendliness. However, the further developments of Li-S batteries have been obstructed by the low electronic conductivity of active material and the diffusion of polysulfides. In this paper, we found a cheap raw material to prepare a nitrogen doped porous carbon (NPC) by a simple method. Then, NPC was used to modify the pristine separator to promote the overall performance of Li-S batteries. With the NPC modified separator, a high initial discharge capacity of 1382 mA h g<sup>-1</sup> at 0.2C and a low fading rate of 0.078% per cycle within 500 cycles at 0.5 C can be delivered by the pure sulfur cathode (1 C = 1675 mA h g<sup>-1</sup>), which attribute to the high-content nitrogen doped level and large

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