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Manuscript text**Hybrid polyacrylamide/carbon coating on sulfur cathode for advanced lithium sulfur battery**

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Abstract Commercialized conductive slurry consisting of polyacrylamide (PAM) and two kinds of carbon black was coated on the surface of sulfur cathode. The hybrid PAM/C coating not only physically blocks but also chemically anchors polysulfides within the cathode, confining their out-diffusion and shuttle. Besides, the flexible and highly-conductive coating layer buffers volume change of the cathode during discharge-charge process and reduces charge transfer resistance. A specific capacity of as high as ~900 mAh g⁻¹ after 300 cycles is demonstrated for the PAM/C coated cathode, which is a significant improvement of reversible capacity and cycle capability compared to uncoated or conventional PVDF/C coated cathode.

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