

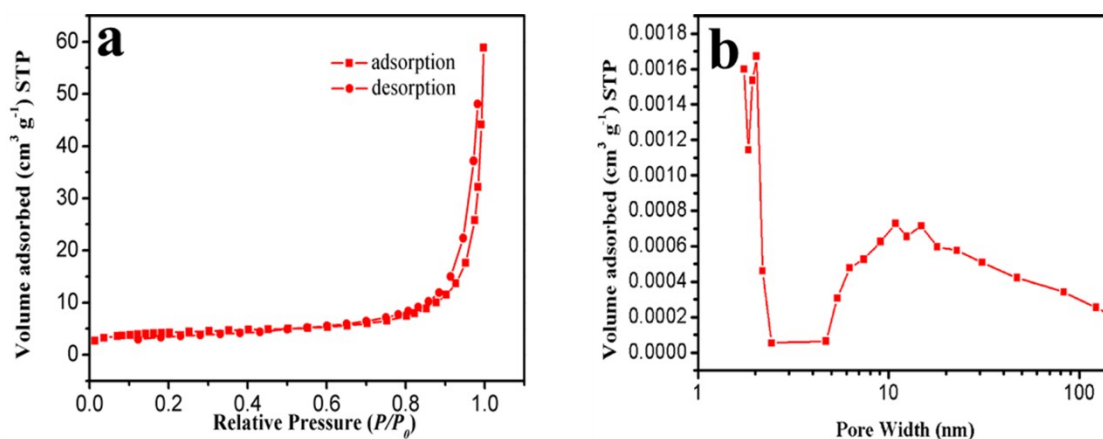
## Supporting Information

### Preparation of graphitic N-doped multi-walled carbon nanotubes composite for lithium-sulfur batteries with long-life and high specific capacity

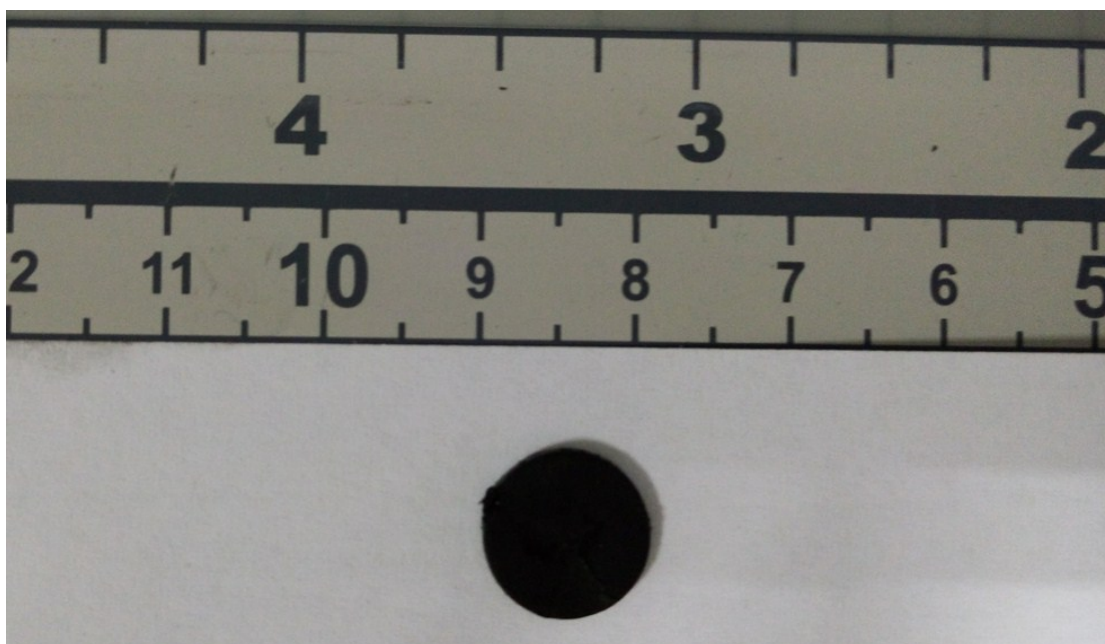
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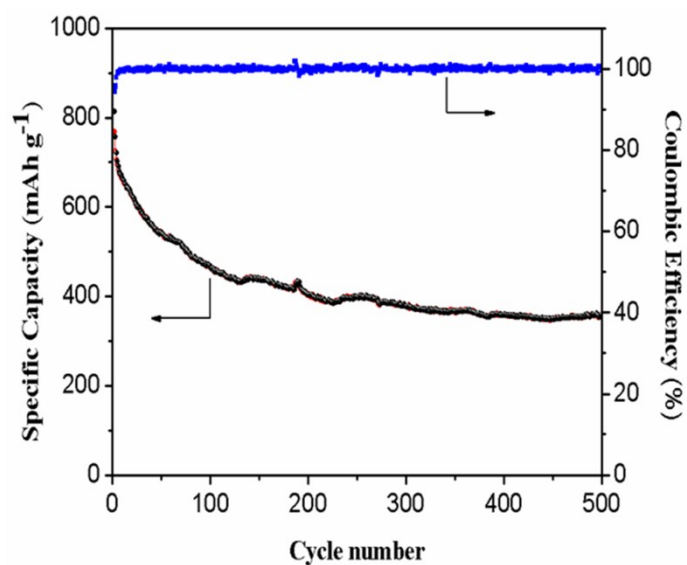
b. University of Chinese Academy of Sciences, Beijing, 100049, P. R. China.



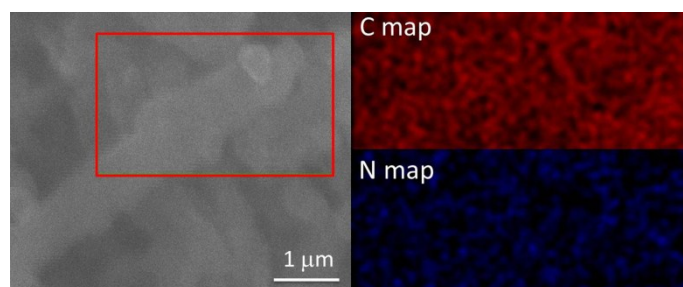
**Fig. S1** (a) Nitrogen adsorption–desorption isotherms and (b) pore size distribution of the S-GN/PNCNTs composite.



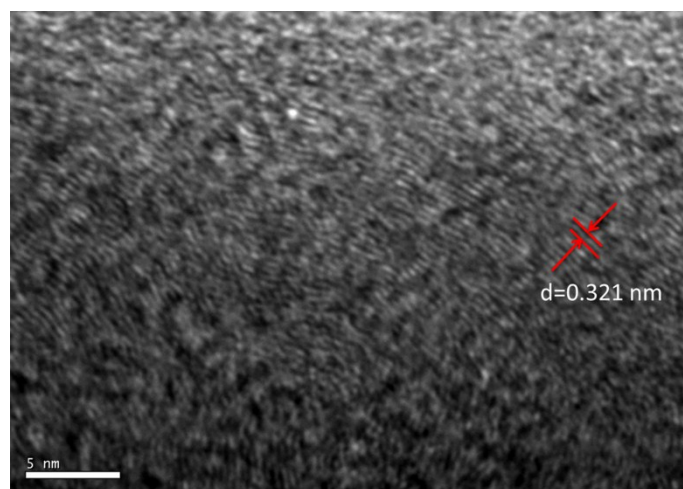
**Fig. S2** The picture of the S-GN/PNCNTs composite under the pressure of 20 MPa and keeping two minutes.



**Fig. S3** The cycling performance of the S-GN/PNCNTs composite with the active material of 2.32 mg cm<sup>-2</sup> at the current density of 0.5 C.



**Fig. S4** The EDS maps of the GN/PNCNTs and the C/N stoichiometric ratio on the surface of the GN/PNCNTs is about 1.09.



**Fig. S5** The HRTEM image for the 2D structure of the GN/PNCNTs composite and the spacing distance is 0.321 nm.