

### Supplementary Information for:

## TiN as a simple and efficient polysulfide immobilizer for lithium–sulfur batteries

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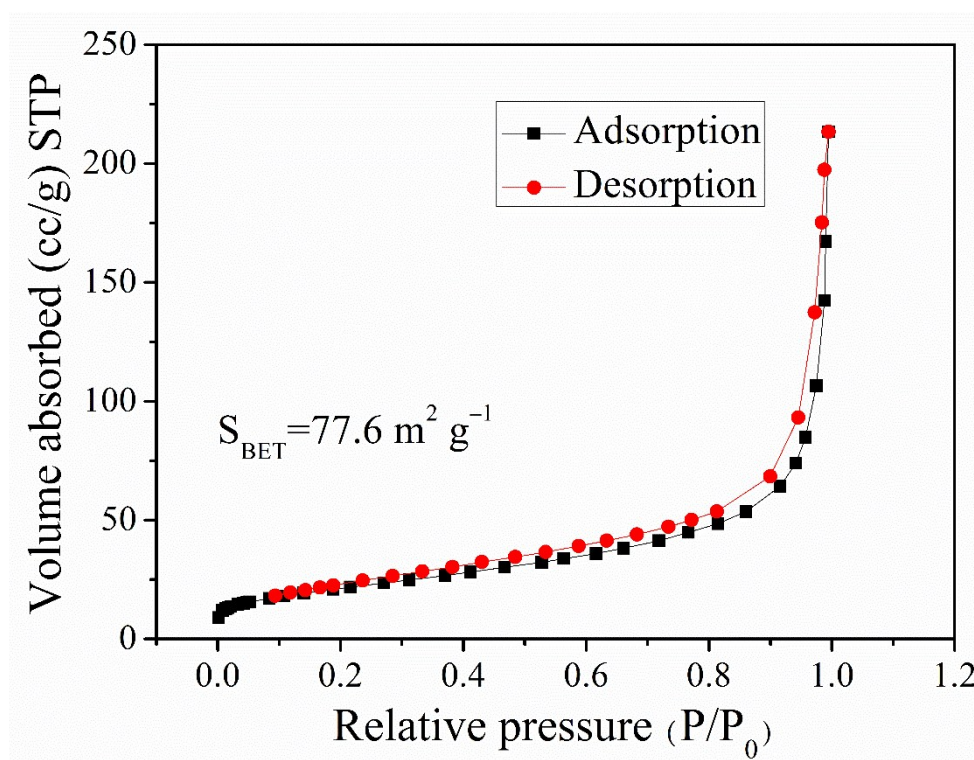


Figure S1 N<sub>2</sub> adsorption/desorption isotherms for commercial TiN.

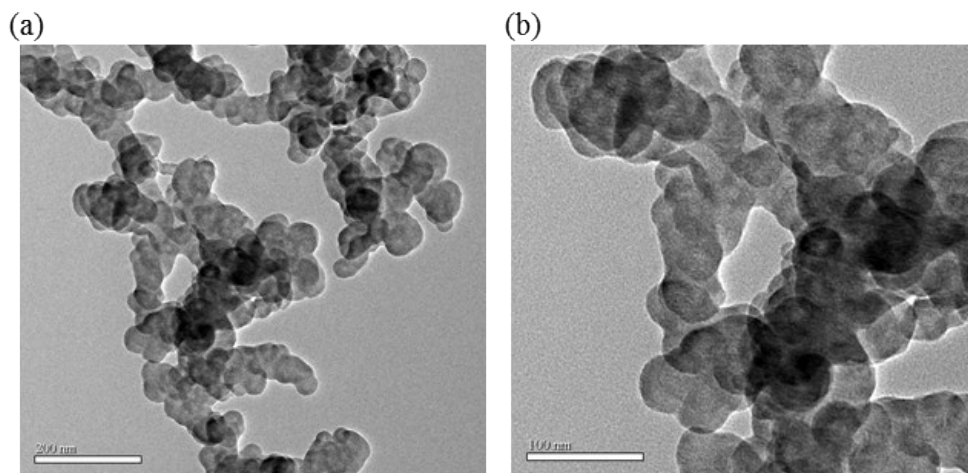


Figure S2 (a) and (b) Transmission electron microscopy (TEM) of super P.

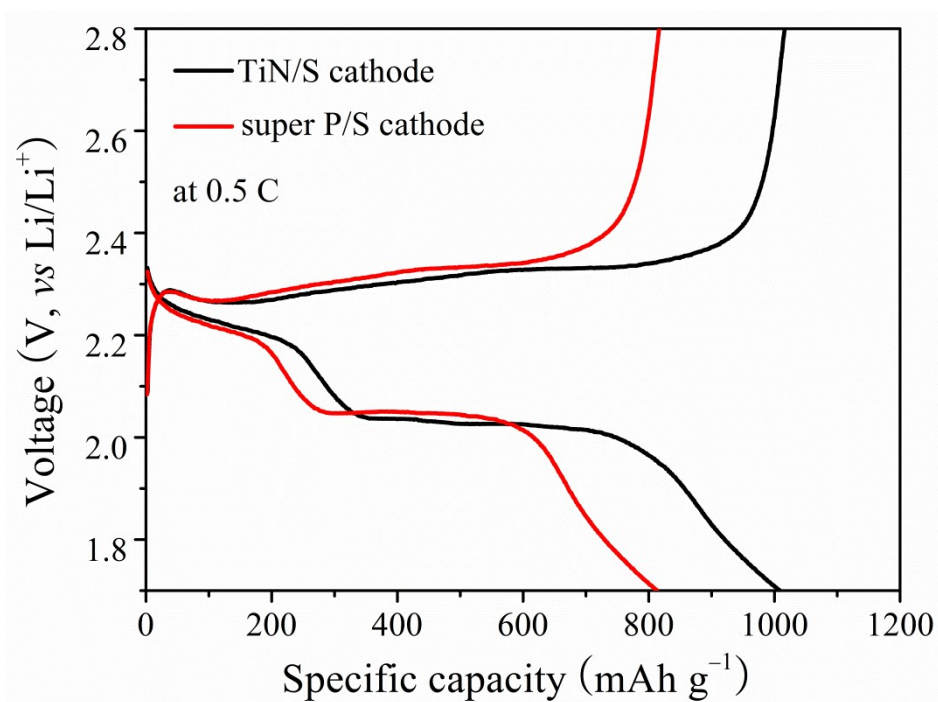


Figure S3 Discharge/charge profiles of TiN/S and super P/S cathode at 0.5 C.

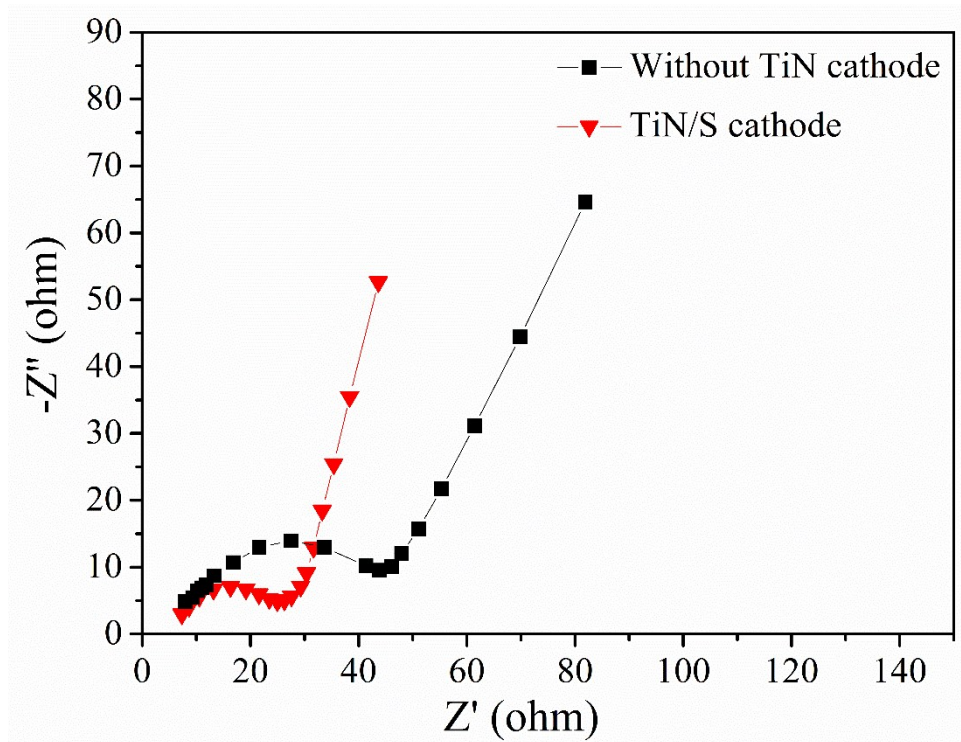


Figure S4 Electrochemical impedance spectra of TiN/S and without TiN cathode.

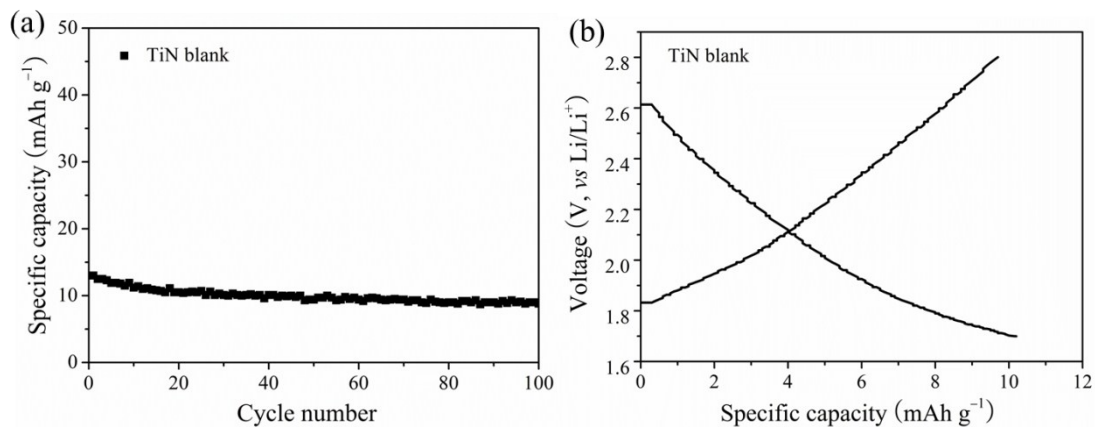


Figure S5 (a) cycling performance and (b) discharge/charge profiles of blank TiN (without sulfur) as a cathode material, carried out at a current density of  $111.1 \text{ mA g}^{-1}$ .

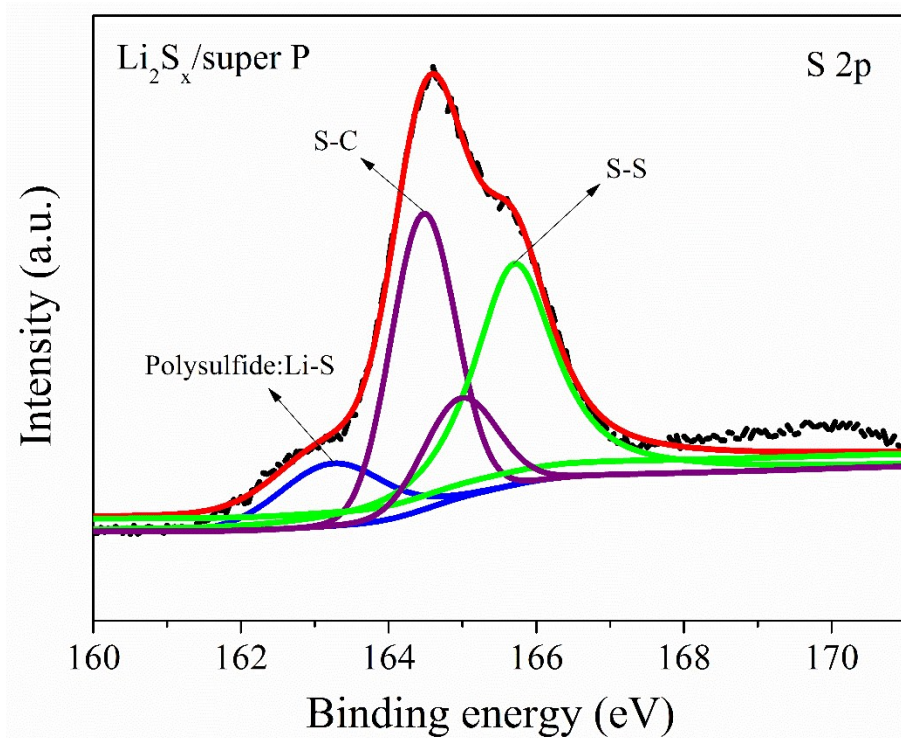


Figure S6 XPS S 2p spectra of  $\text{Li}_2\text{S}_x/\text{super P}$ .