Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

Electronic Supplementary Information

Bio-inspired fabrication of carbon nanotiles for high performance cathode of Li-S batteries

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Table 1 BET and pore volume before/after the incorporation of sulfur.

Sample	BET/m^2 g^{-1}	V/cm^3 g^{-1}
KFCNTs	282.38	0.1574
KFCNTs/S (93.2 wt%)	0.76	0.0045

Table 1 shows the BET and pore volume before/after the incorporation of sulfur.

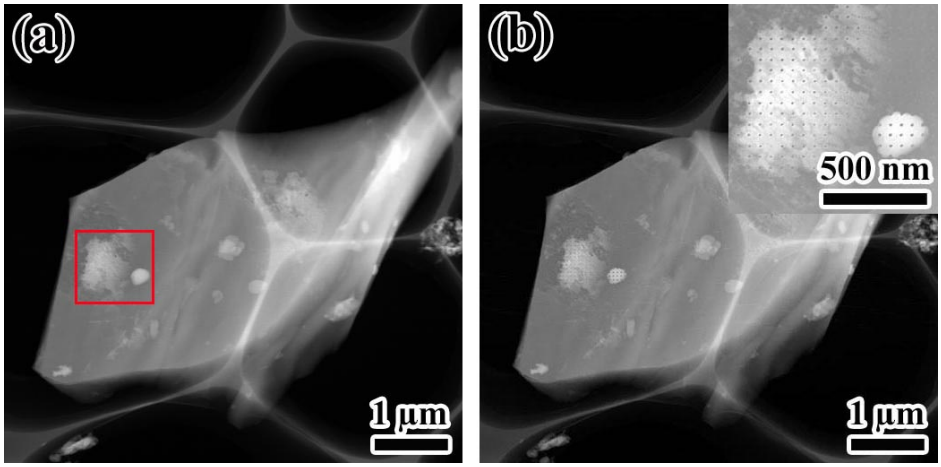

Fig. S1 STEM images of KFCNTs/S (93.2 wt%) before (a) and after (b) the irradiation of the TEM electron beam.

Some sulfur particles can be found on the surface of KFCNTs. It was difficult to get the EDS mapping results due to the sublimation of sulfur under the irradiation of the electron beam. The ordered pore array was formed as a result of the sublimation. This phenomenon demonstrates that the sulfur is present as particles on the surface of KFCNTs.

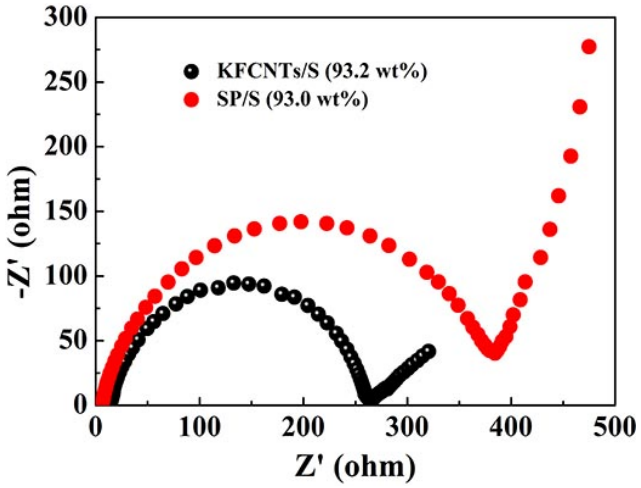

Fig. S2 Electrochemical impedance spectroscopy for KFCNTs/S (93.2 wt%) and SP/S (93.0 wt%) composites.

Electrochemical impedance spectroscopy (EIS) was conducted to analyze the conductivity of the KFCNTs/S (93.2 wt%) and SP/S (93.0 wt%) cathodes before cycling in Fig. S2. The impedance spectra are composed of a semi-circle in the high frequency region corresponding to the contact resistance and charge transfer resistance, as well as an inclined line in the low frequency region due to the ion diffusion within the electrode. Obviously, the KFCNTs/S (93.2 wt%) cathode exhibits a lower charge transfer resistance than that of the SP/S (93.0 wt%), which could be attributed to the enhanced conductivity of the KFCNTs/S (93.2 wt%).