Supporting Information

Waste Honeycomb Derived In-situ N-doped Hierarchical Porous Carbon as Sulfur Host of Lithium-Sulfur Battery

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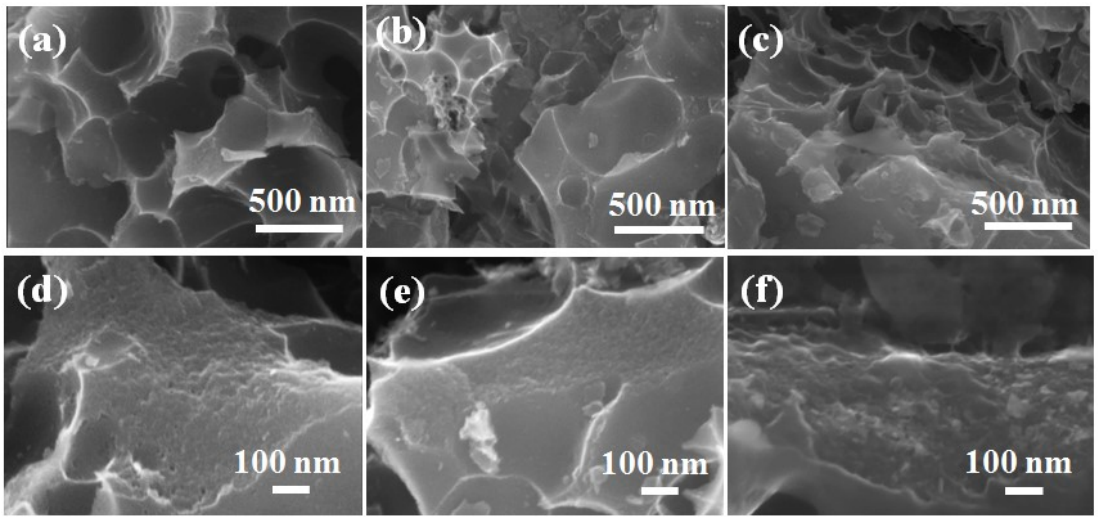

Fig.S1. SEM images of (a, d) INHPC-2, (b, e) INHPC-3 and (c, f) INHPC-5

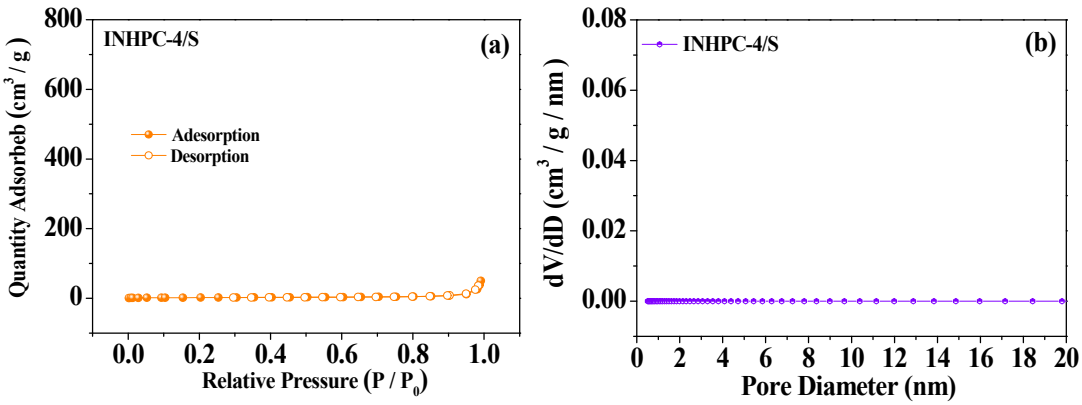

Fig.S2. (a) N_2 adsorption/desorption isotherms and (b) Pore size distribution of INHPC/S-4 samples.

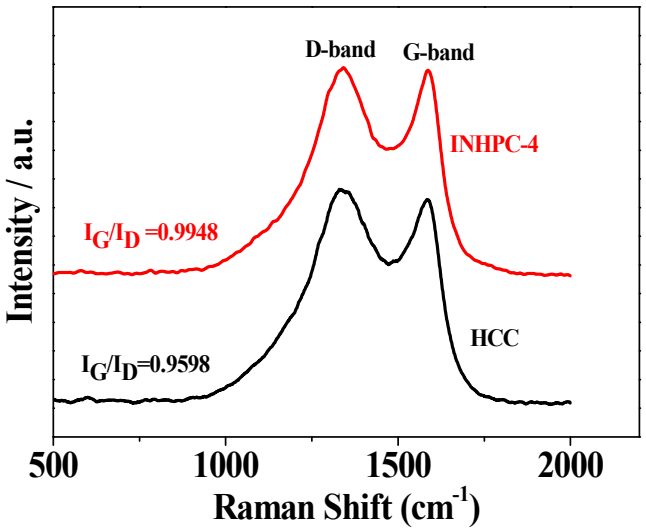

Fig.S3. Raman spectra of HCC and INHPC-4 carbon materials.

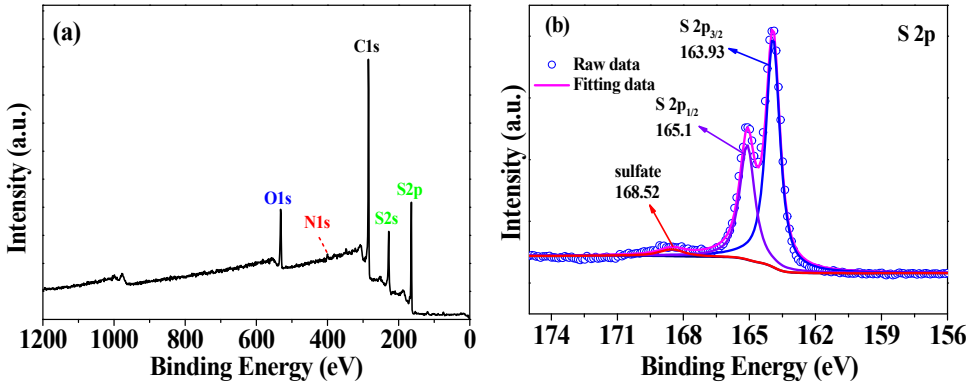

Fig.S4. (a) XPS spectrum of INHPC-4/S; high resolution spectrums of (b) S2p.

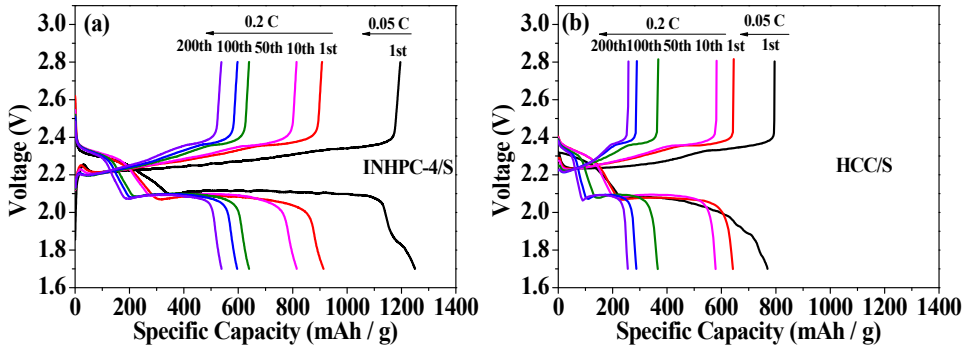

Fig.S5. Galvanostatic charge/discharge voltage curves of (a) INHPC-4/S and (b) HCC/S at 0.2 C.

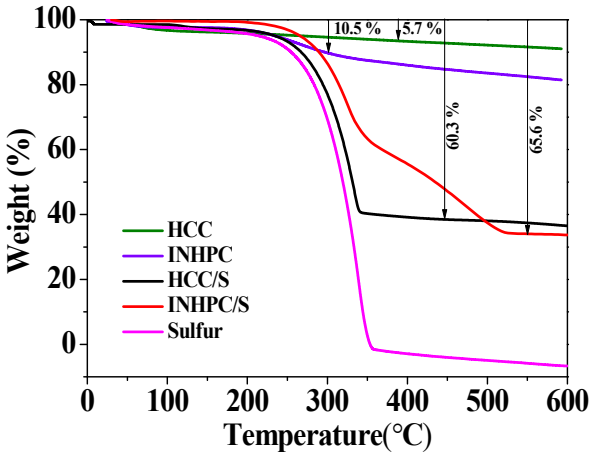

Fig.S6. TGA curves of pure sulfur, INHPC-4 and HCC materials and corresponding the carbon/sulfur composites materials.

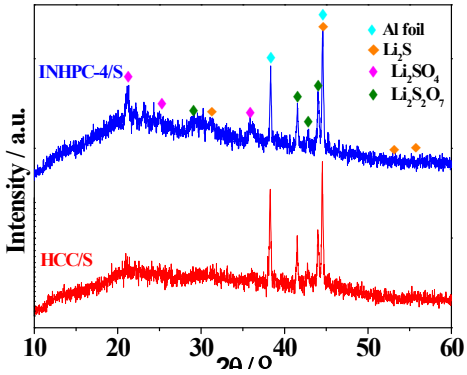

Fig.S7. XRD spectrum of HCC/S and INHPC/S cathode after 200 cycles at 0.2 C.

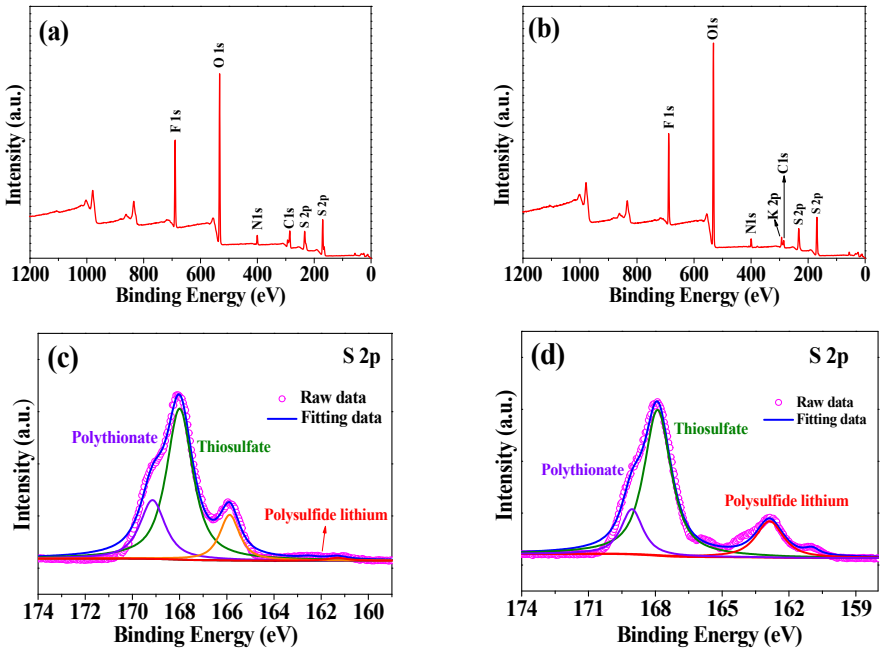

Fig.S8. XPS survey spectra of (a) HCC/S and (b) INHPC/S cathode after 200 cycles at 0.2 C, (c) and (d) the corresponding high-resolution XPS spectra of S 2p.

Table 1. Impedance fitting parameters and errors of INHPC-4/S and HCC/S

Samples		INHPC-4/S		HCC/S	
	Resistance	value	errors	value	errors
Before cycles	R_e	2.20	0.97	1.90	0.11
	R_{ct}	119.70	0.84	218.3	2.20
	W_0	0.38	0.01	0.45	0.14
After 200 cycles	R_e	3.76	0.06	4.30	0.07
	R_{ct}	15.30	0.36	17.60	0.69
	R_s	7.11	2.52	10.00	1.41
	W_0	0.57	0.36	0.73	0.03