Supporting Information:

Instantaneous Carbonization of Acetylenic Polymer into Conductive Carbon and Its Application in Lithium-Sulfur Batteries

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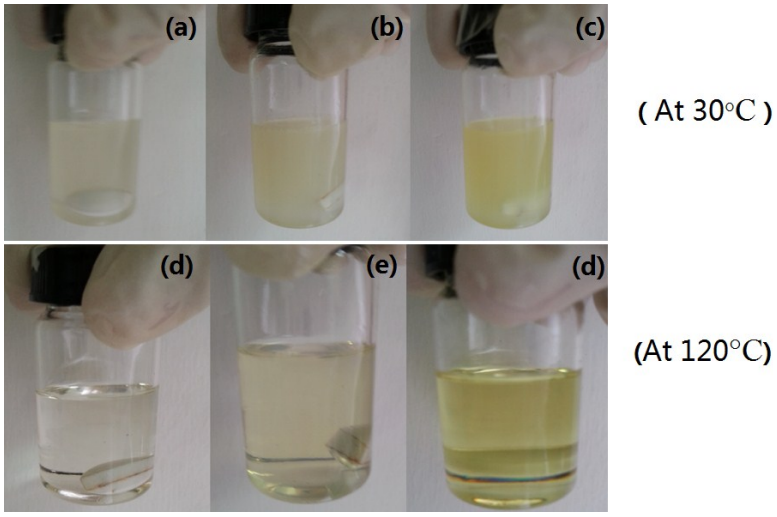

Figure S1 Dissolubility measurements of PAB in (a, d) Chlorobenzene; (b, e) 1,1,2,2-tetrachloroethane and (c, d) Nitrobenzene.

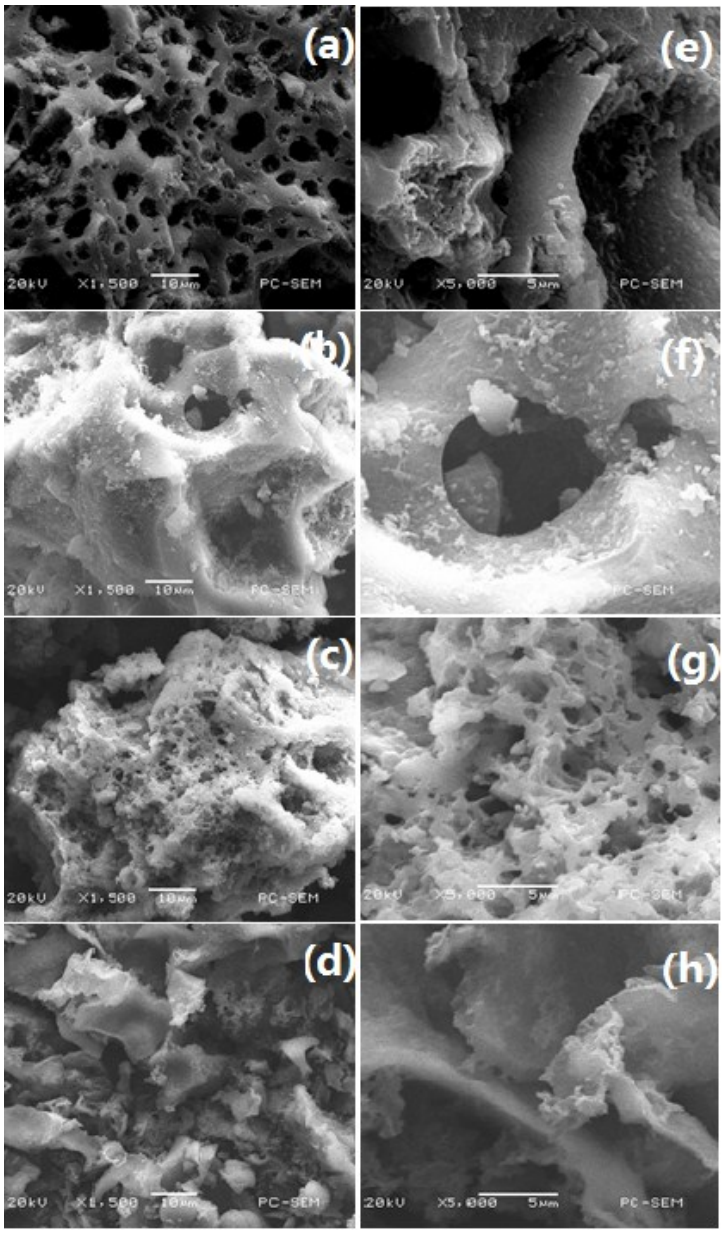

Figure S2 SEM images of (a, e) 55%S/PAB-C; (b, f) 65%S/PAB-C; (c, g) 75%S/PAB-C and (d, h) 85%S/PAB-C.

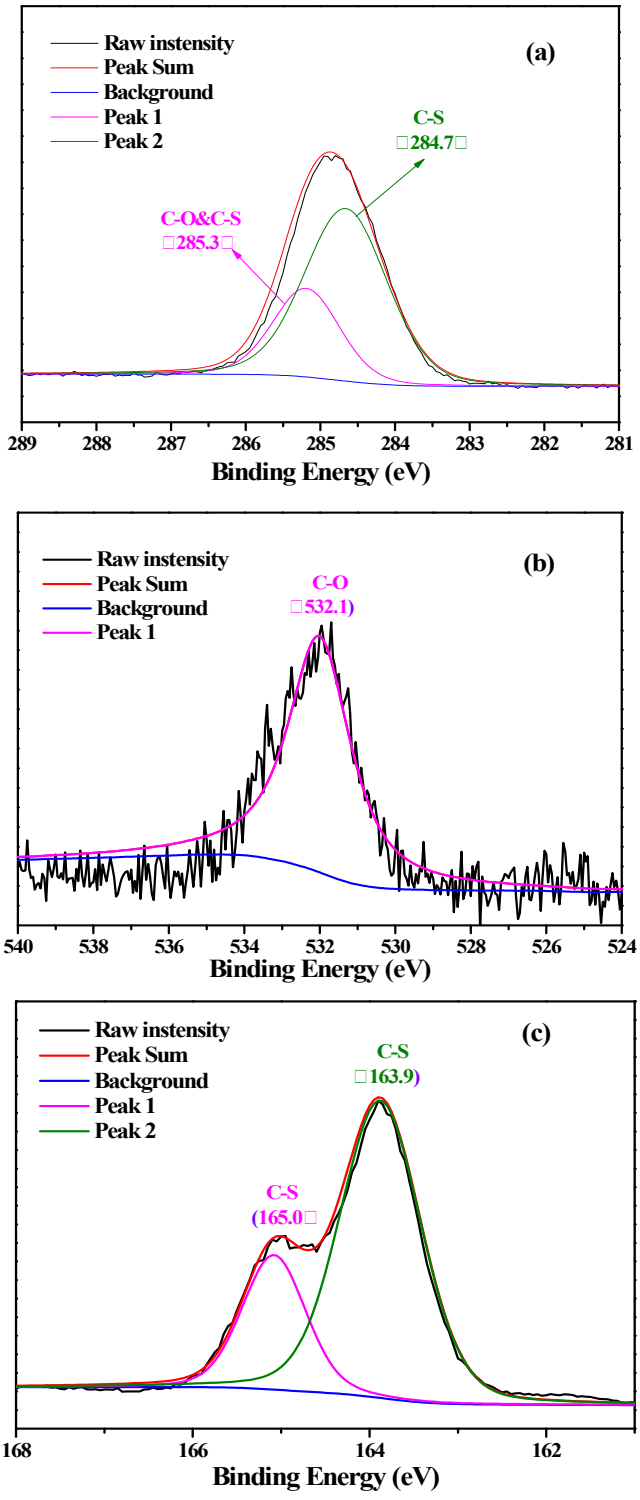

Figure S3 High-resolution XPS spectrum: (a) C 1s, (b) O 1s and (c) S 2p for 75%S/PAB-C.

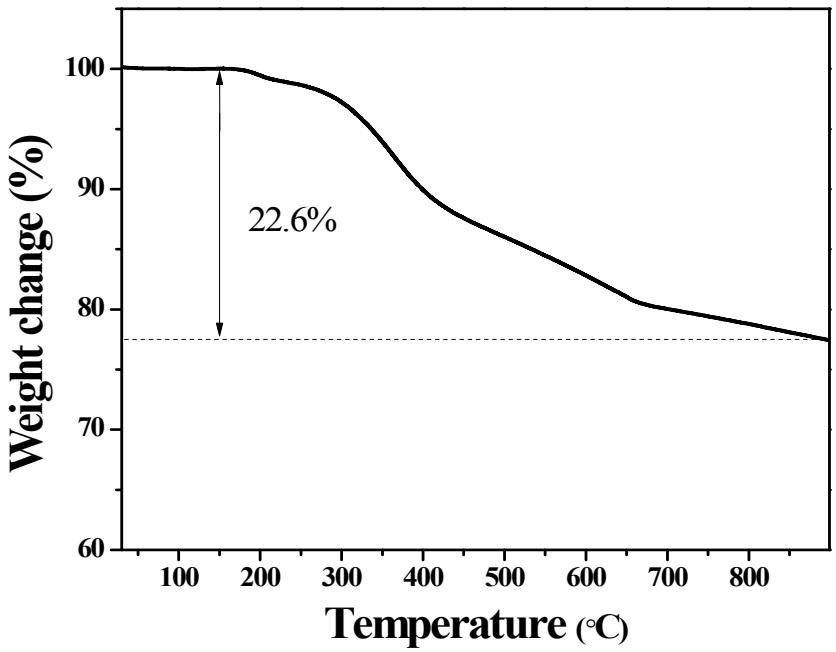

Figure S4 TG test of 75%S/PAB-C/CS_2 sample.

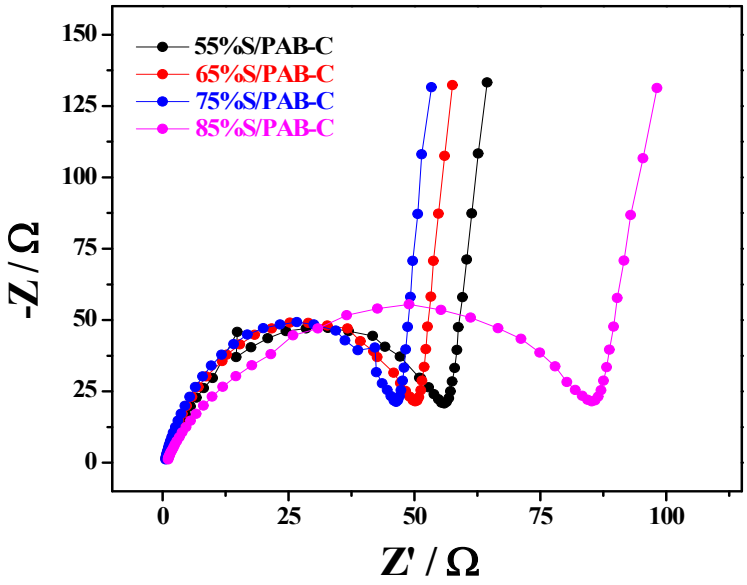

Figure S5 Electrochemical impedance spectroscopy (EIS) of S/PAB-C cathodes.