Supporting Information

for

Adsorption Effect of Freestanding SiO_x-decorated Stabilized Polyacrylonitrile Interlayers in Lithium-Sulfur Batteries

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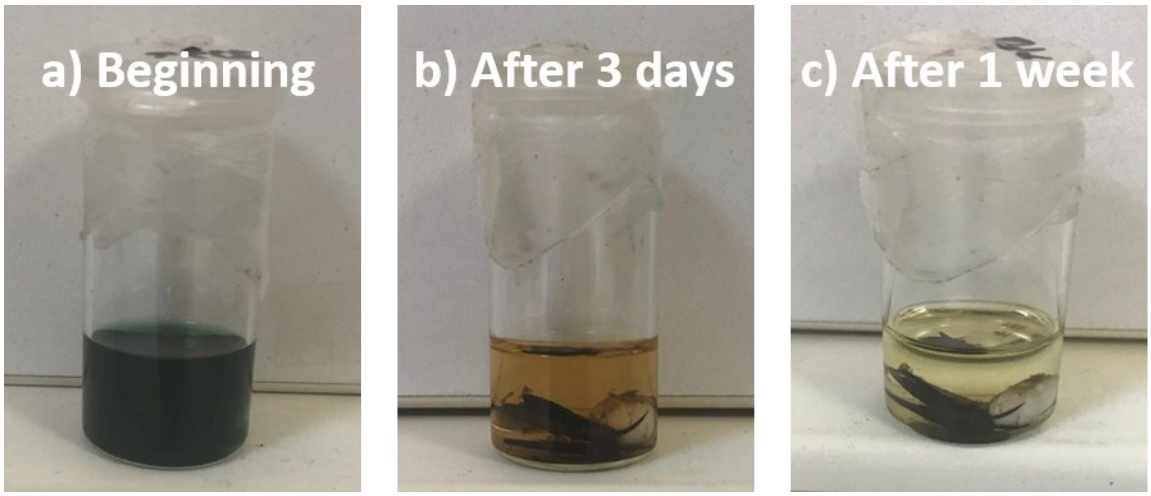

Fig. S1. Adsorption test for observing the adsorption capability of PAN-SiO_x fibermat. Color changes of 0.03 M Li_2S_4 containing DOL solution with PAN-SiO_x fibermat a) at the beginning, b) after 3 days and c) after 1 week of soaking.

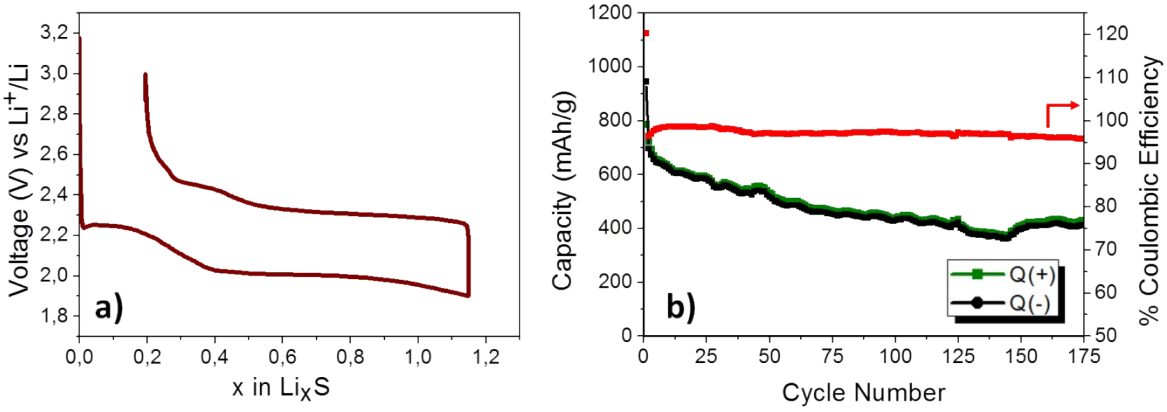

Fig. S2. a) First charge-discharge profile of cell with sPAN-SiO_x at C/2 rate, b) discharge capacities as a function of cycle number for the cell with sPAN-SiO_x at C/2 rate.

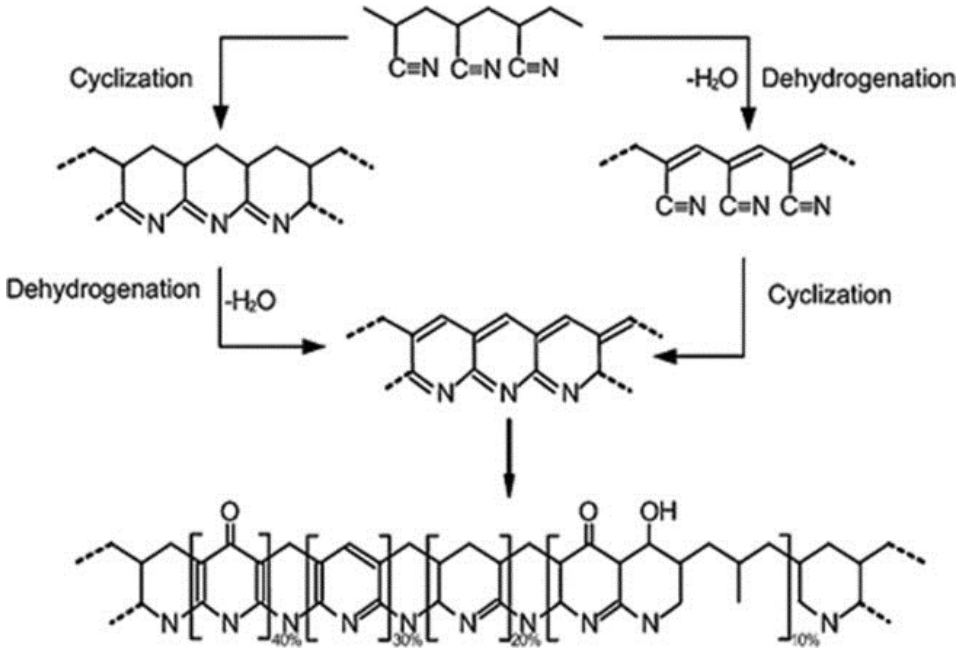

Fig. S3. The evolution of chemical structure of polyacrylonitrile (PAN) during stabilization under air.

Table S1. Electrochemical Impedance Spectra (EIS) results obtained from fitted lines (from Fig. 6b and Fig. 6c).

Sample	*Hour*	R_{ohm} *(Ohm)*	R_{SEI} *(Ohm)*	R_{ct} *(Ohm)*
Without Interlayer	0	9.524	43.49	35.86
	60	7.751	199.4	99.19
With sPAN	0	7.638	37.05	33.47
	60	8.856	29.45	157.9
With sPAN-SiO_x	0	8.948	38.04	34.74
	60	10.07	22.62	122.0