

Supporting Information

Nitrogen-Doped Carbon Nanotube Sponge with embedded Fe/Fe₃C nanoparticles as Binder-Free Cathodes for High Capacity Lithium–Sulfur Batteries

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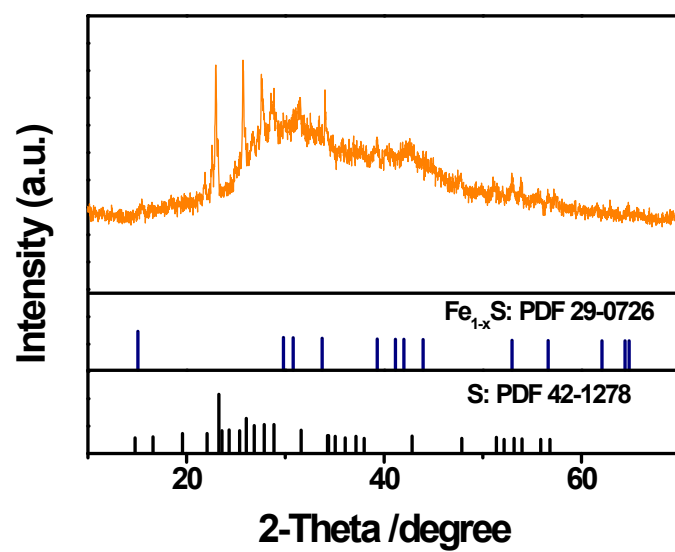


Figure S1. XRD patterns of Fe/Fe₃C@N-CNT/S-2

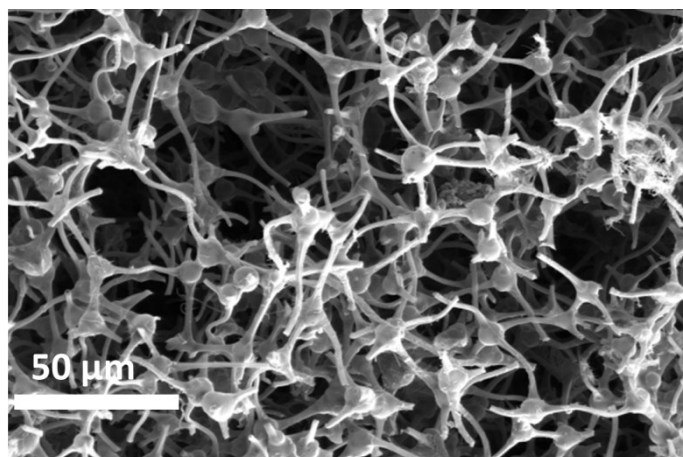


Figure S2. SEM image of the carbonized melamine sponge (CMS).

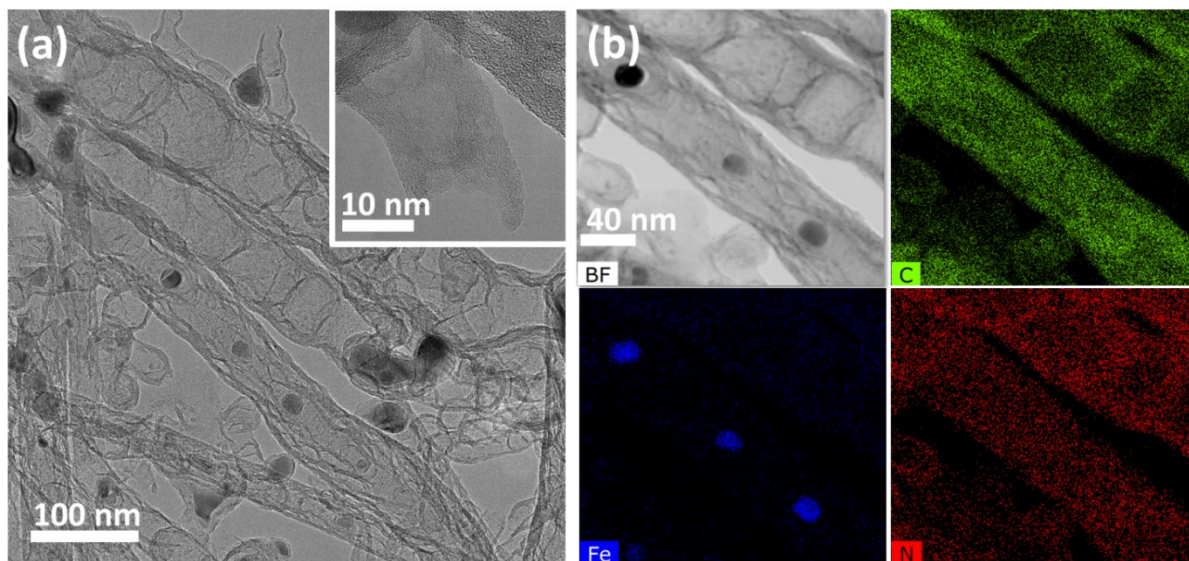


Figure S3. (a) TEM image of Fe/Fe₃C@N-CNT, the inset in (a) is the HRTEM of N-CNT, (b) EDS elemental mapping of Fe/Fe₃C@N-CNT.

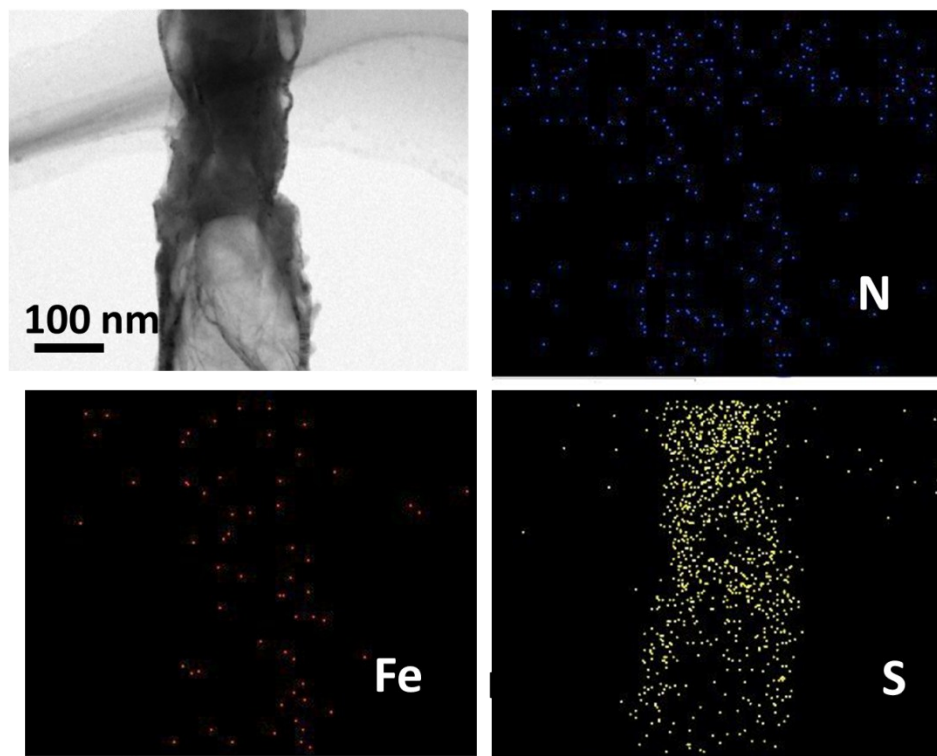


Figure S4. EDS elemental mapping of Fe/Fe₃C@N-CNT/S.

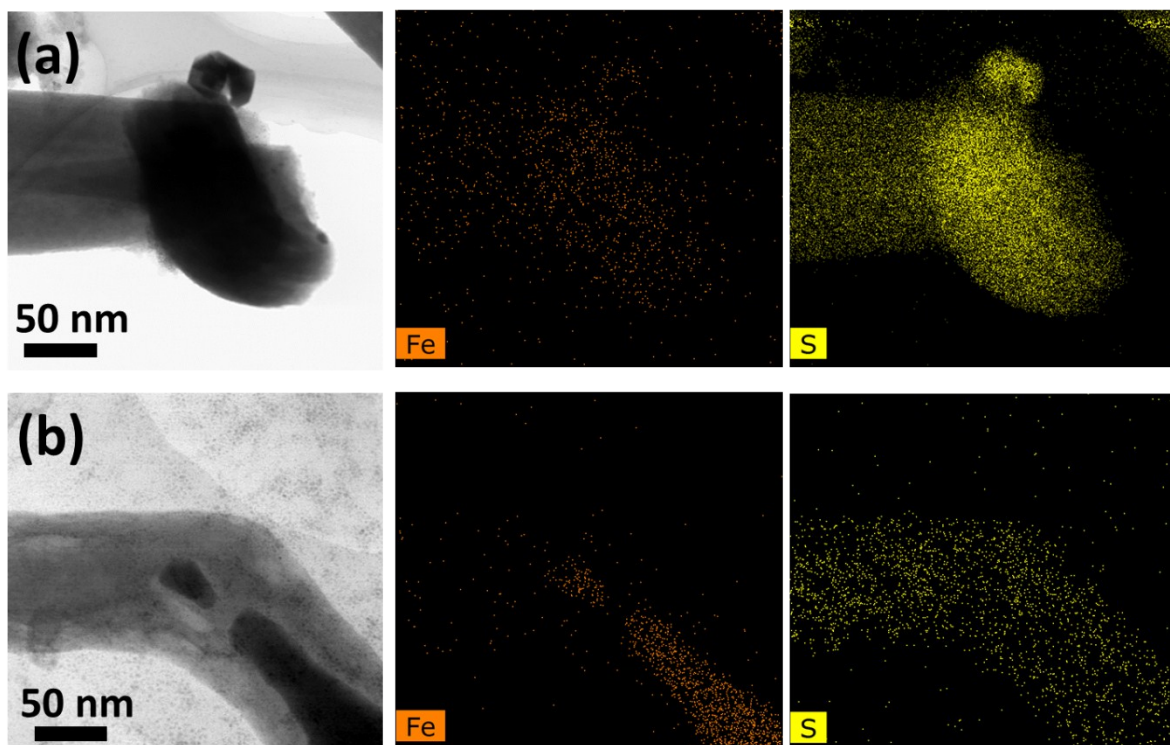


Figure S5. EDS elemental mapping of Fe/Fe₃C@N-CNT/S after (a) discharge down to 1.7 V,
(b) charge to 2.8 V

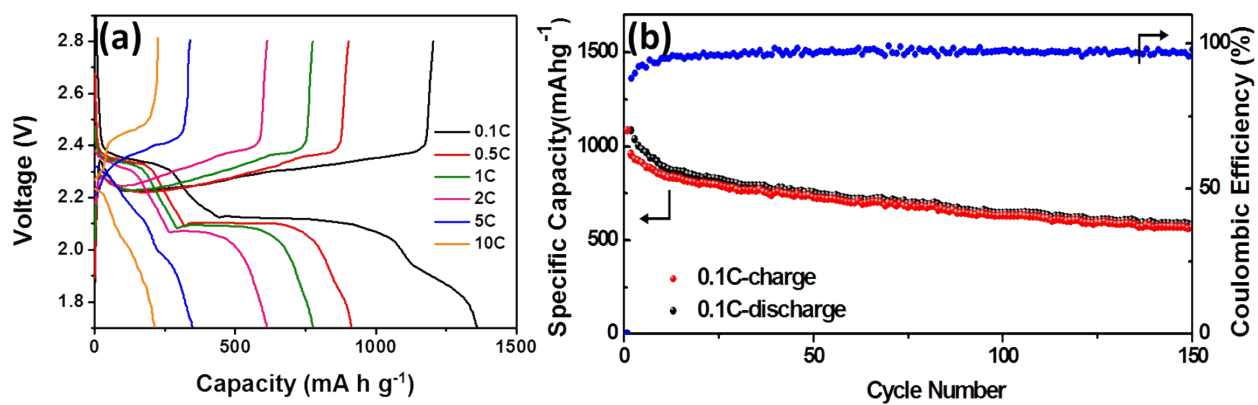


Figure S6. (a) Charge/discharge curves of Fe/Fe₃C@N-CNT/S under different current rate, (b) cyclic performance of Fe/Fe₃C@N-CNT/S composite electrode when charged/discharged at 0.1 C.

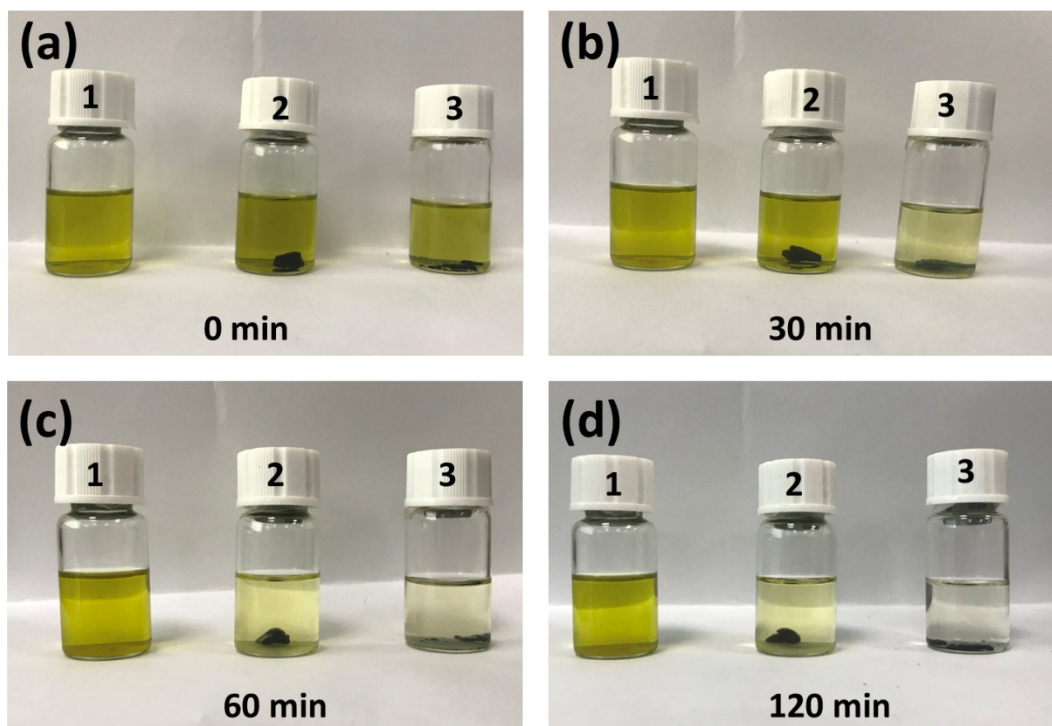


Figure S7. Visual comparison of the Li_2S_6 solution for polysulfide entrapment of (1) Li_2S_6 solution, (2) Li_2S_6 solution with CMS, (3) Li_2S_6 solution with $\text{Fe}/\text{Fe}_3\text{C}@\text{N-CNT}$.