

Supporting Information for

Solvent-Dictated Sodium Sulfur Redox Reactions: Investigation of Carbonate and Ether Electrolytes

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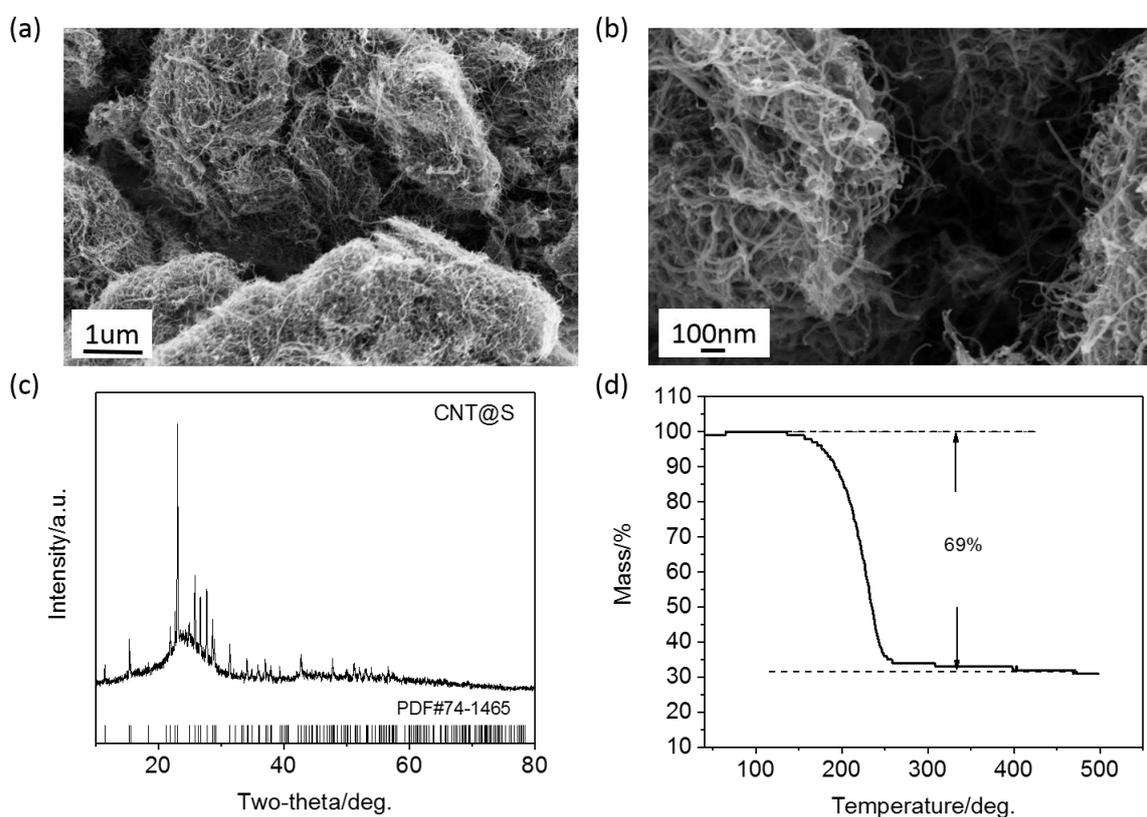


Figure 1. SEM images (a, b), XRD pattern (c) and TGA curve (d) of the as-prepared S/CNT composite.

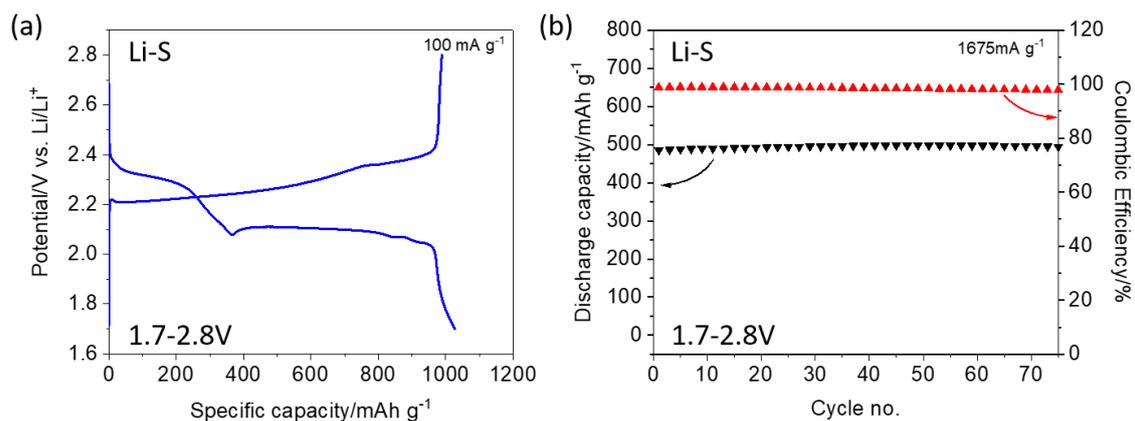


Figure 2. Initial charge/discharge profile and cycling performance of S/CNT electrodes in Li-S batteries. A solution of 1 M LiTFSI in DOL/DME (1:1 v/v) with 0.2 M LiNO₃ was used as Li-S electrolyte.

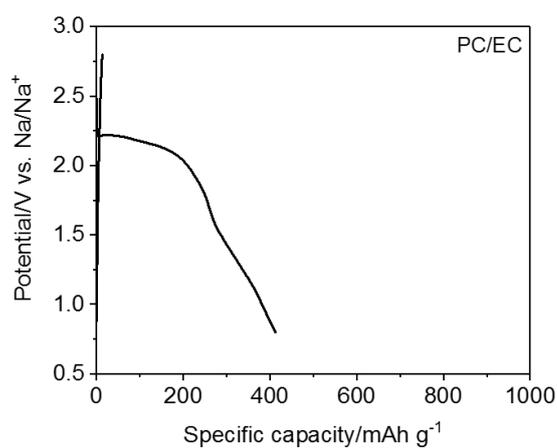


Figure 3. Initial charge/discharge profile of S/CNT electrode at 50 mA g⁻¹ in a Na-S cell using PC/EC-based electrolyte.

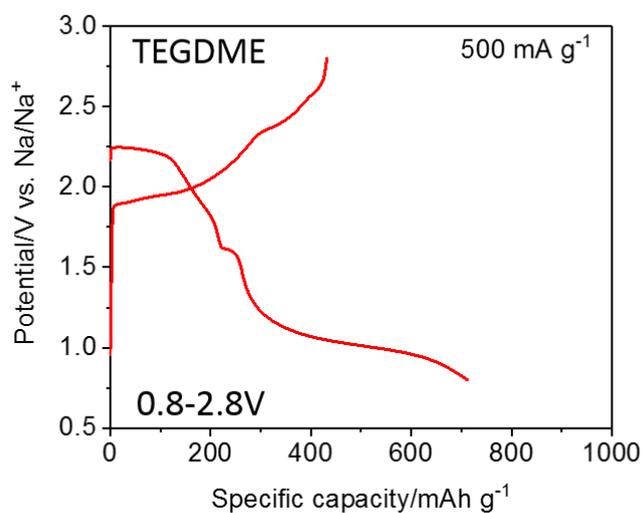


Figure 4. Initial charge/discharge profile of a S/CNT electrode in a Na-S battery cell using TEGDME electrolyte at 500 mA g⁻¹.

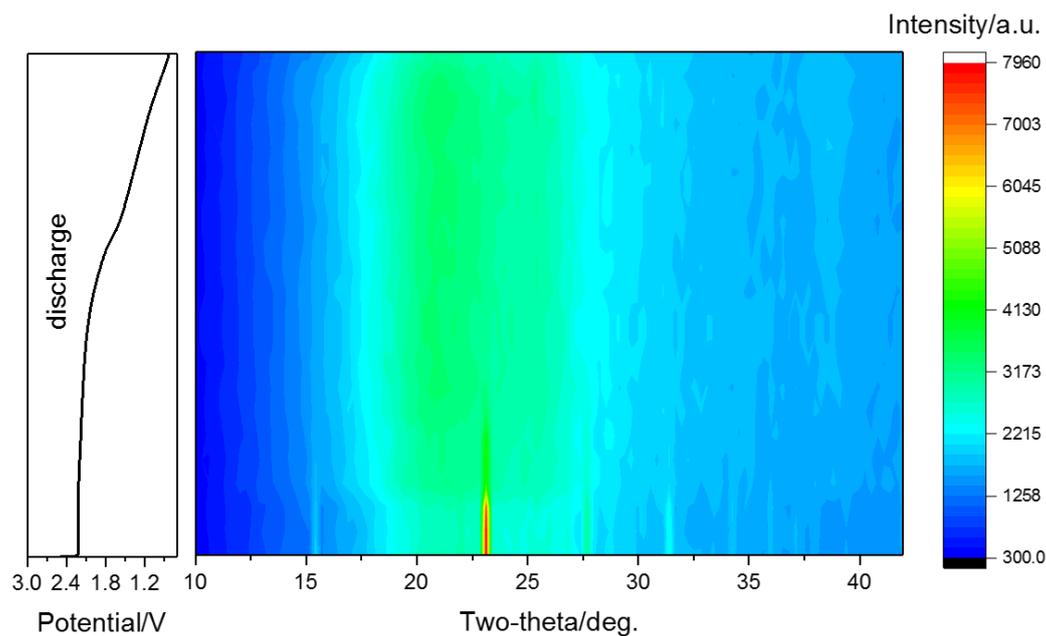


Figure 5. Contour map of *in situ* XRD diffractograms collected during the first charge of an S/CNT electrode in PC/EC electrolyte.

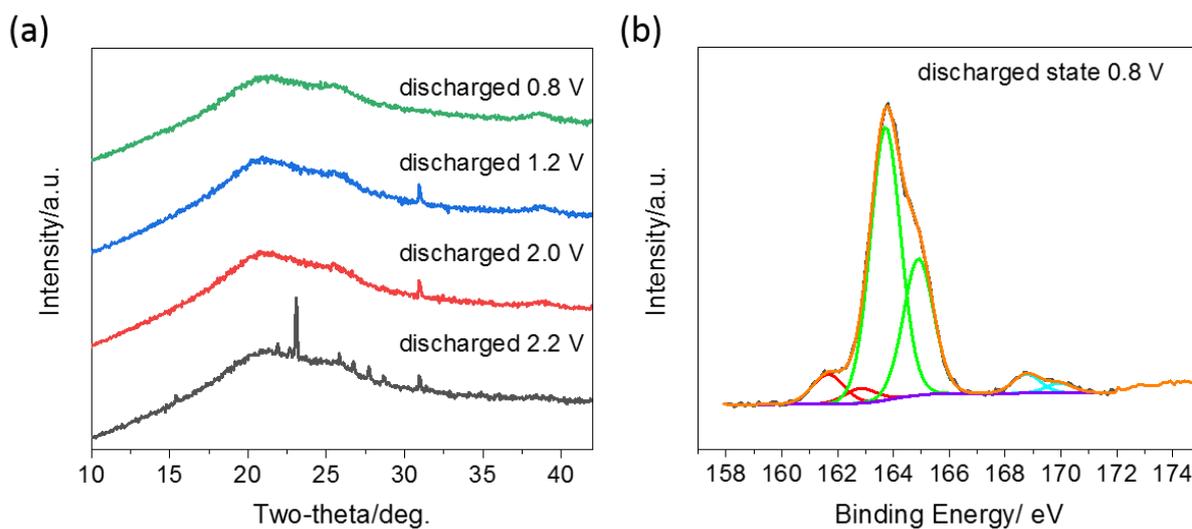


Figure 6. Characterization of S/CNT electrodes at different sodiation stages in PC/EC-based electrolyte. Selected *in situ* XRD patterns (at discharge potentials of 2.2, 2.0, 1.2 and 0.8 V) (a), and *ex situ* XPS detail spectrum of the S2p range with peak fit after discharging to 0.8 V (b), respectively.