

Electronic supplementary information

Enhanced sulfides chemisorption using boron and oxygen dually doped multi-walled carbon nanotubes for advanced lithium-sulfur batteries

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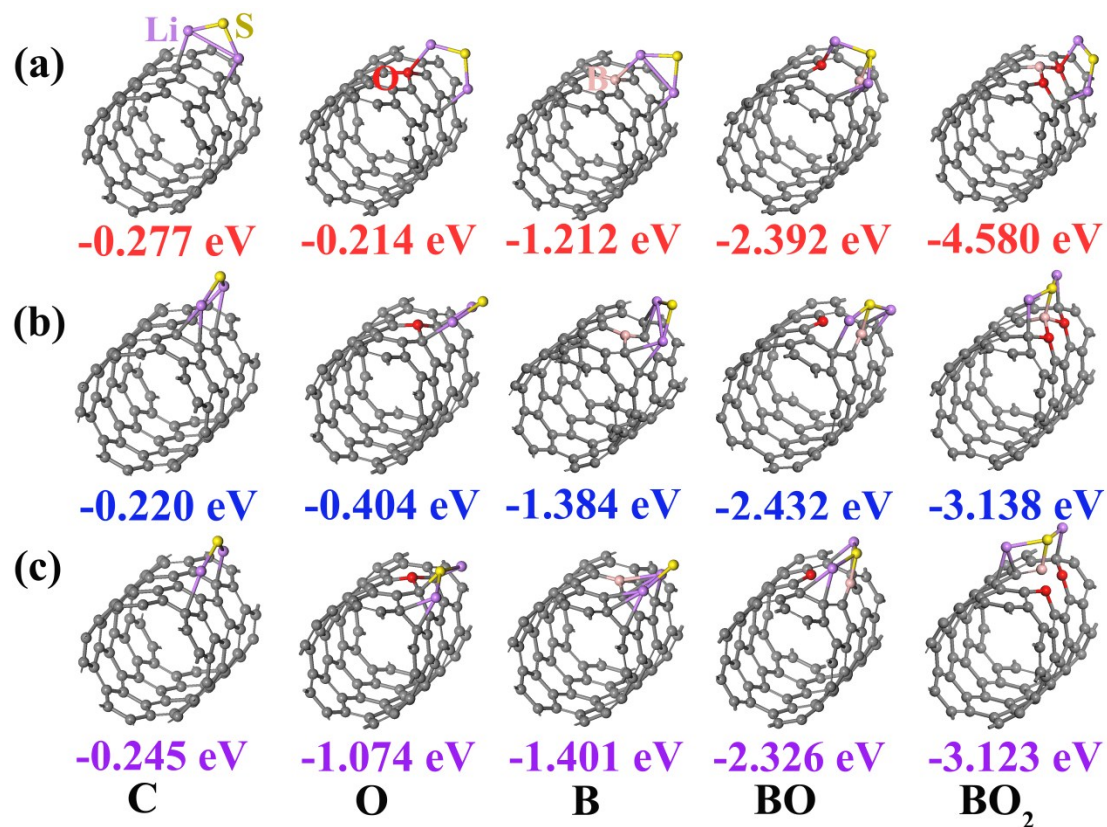


Fig. S1 Possible models of sulfide species on the surface of on pristine MWNTs with O, B, BO and BO₂ species.

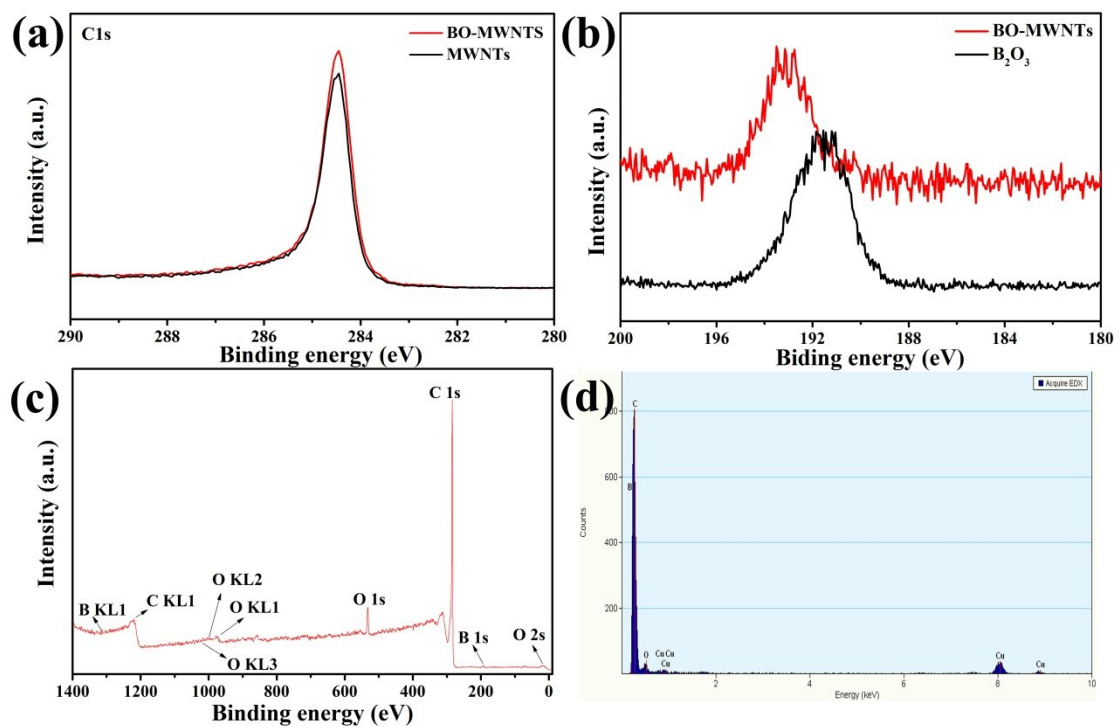


Fig. S2 XPS results of (a) C 1s and (b) B 1s of BO-MWNTs and MWNTs, respectively. (c) XPS and (d) EDX full elements analysis of BO-MWNTs.

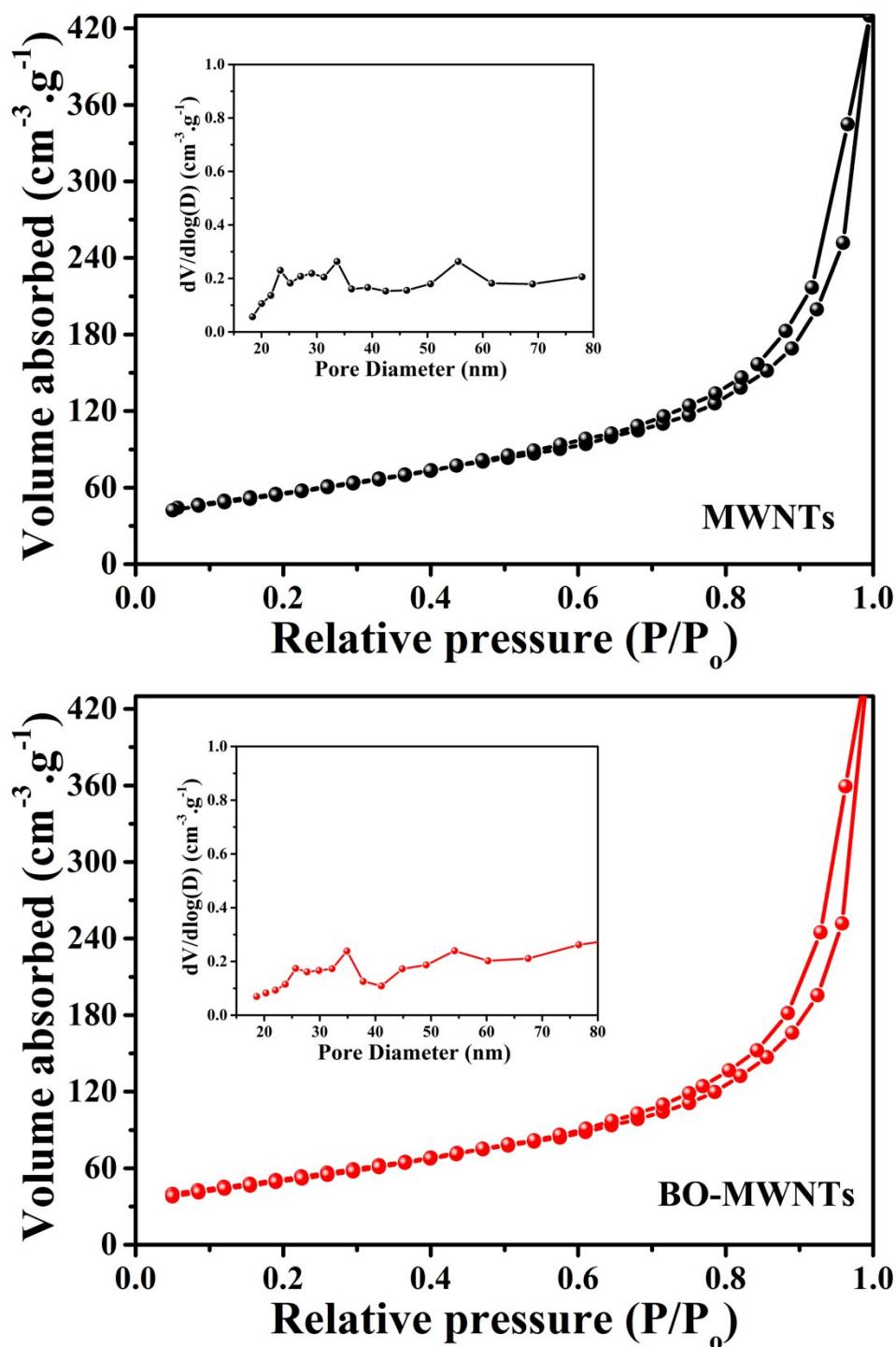


Fig. S3 Pore size distribution curves and nitrogen adsorption–desorption isotherms of (a) MWNTs and (b) BO-MWNTs.

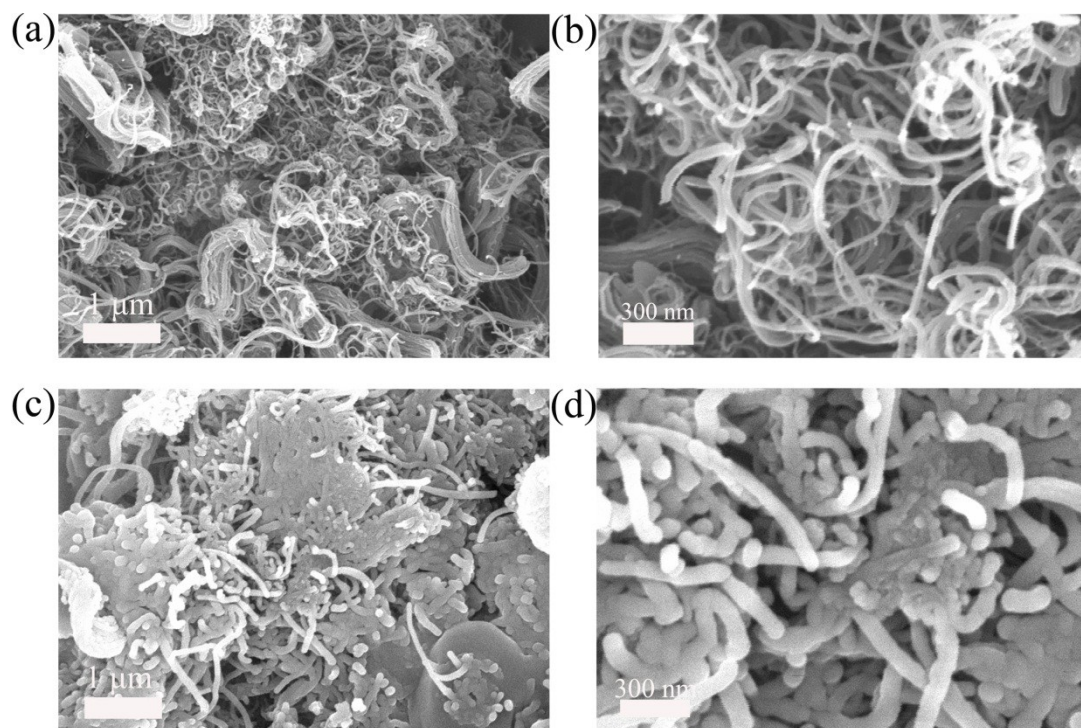


Fig. S4 (a,b) SEM images of MWNTs; (c,d) SEM images of MWNTs/S composite with 69 wt % of sulfur.

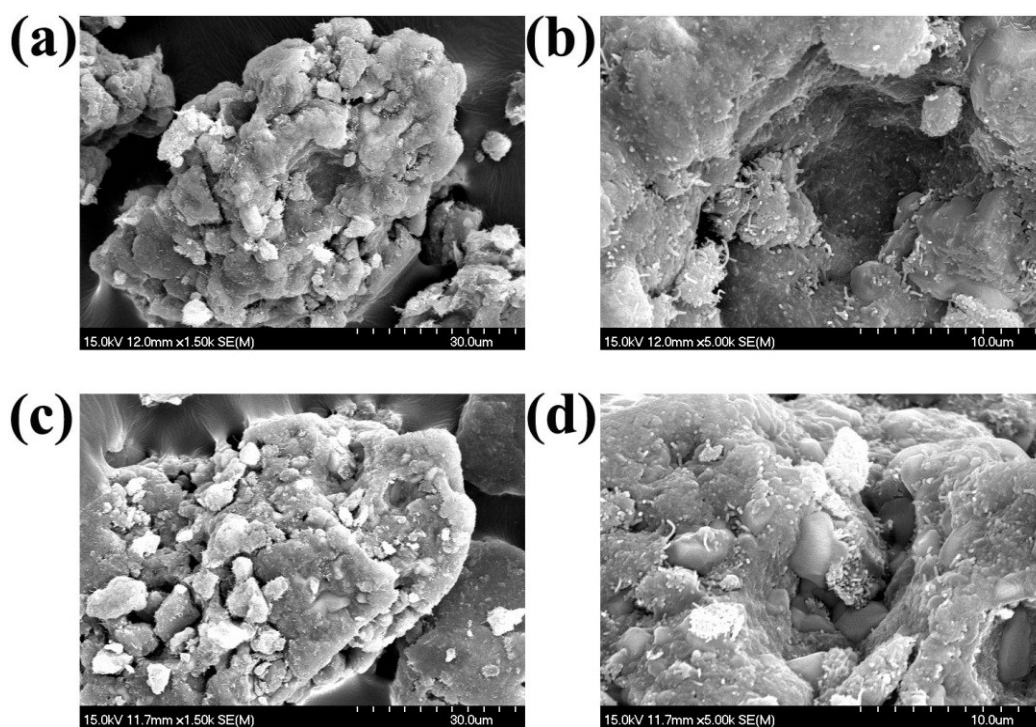


Fig. S5 The low magnification SEM images of (a,b) BO-MWNTs/S and (c,d) MWNTs/S

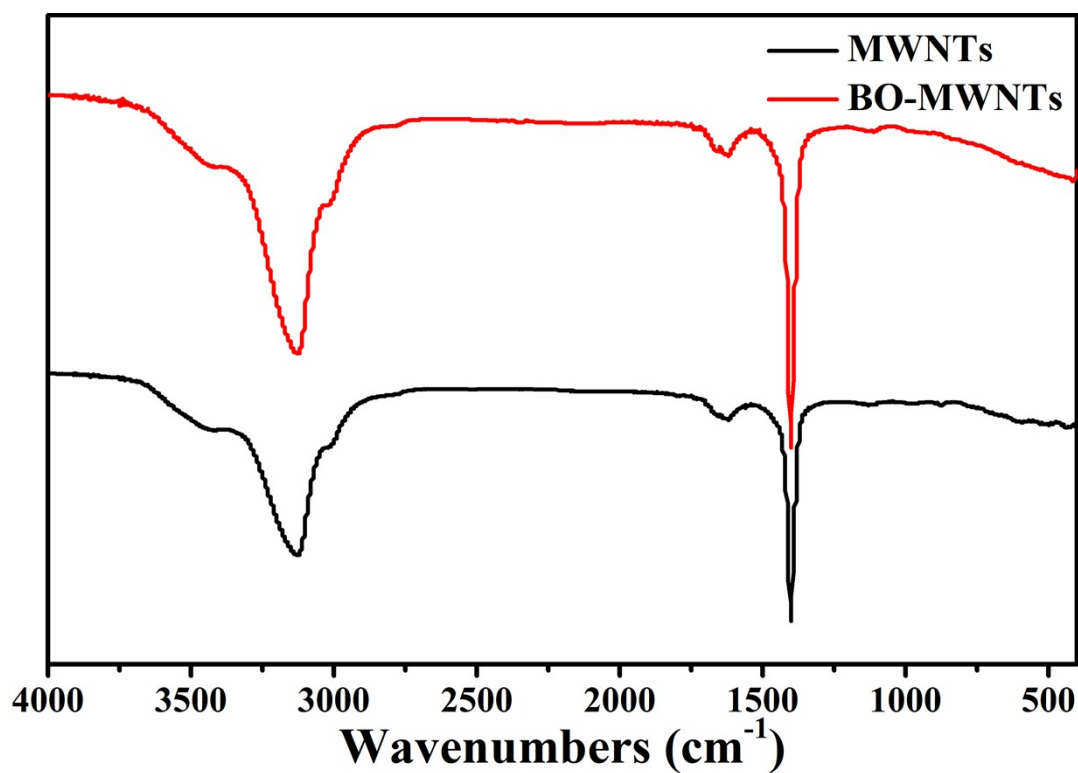


Fig. S6 FT-IR spectra of MWNTs and BO-MWNTs.

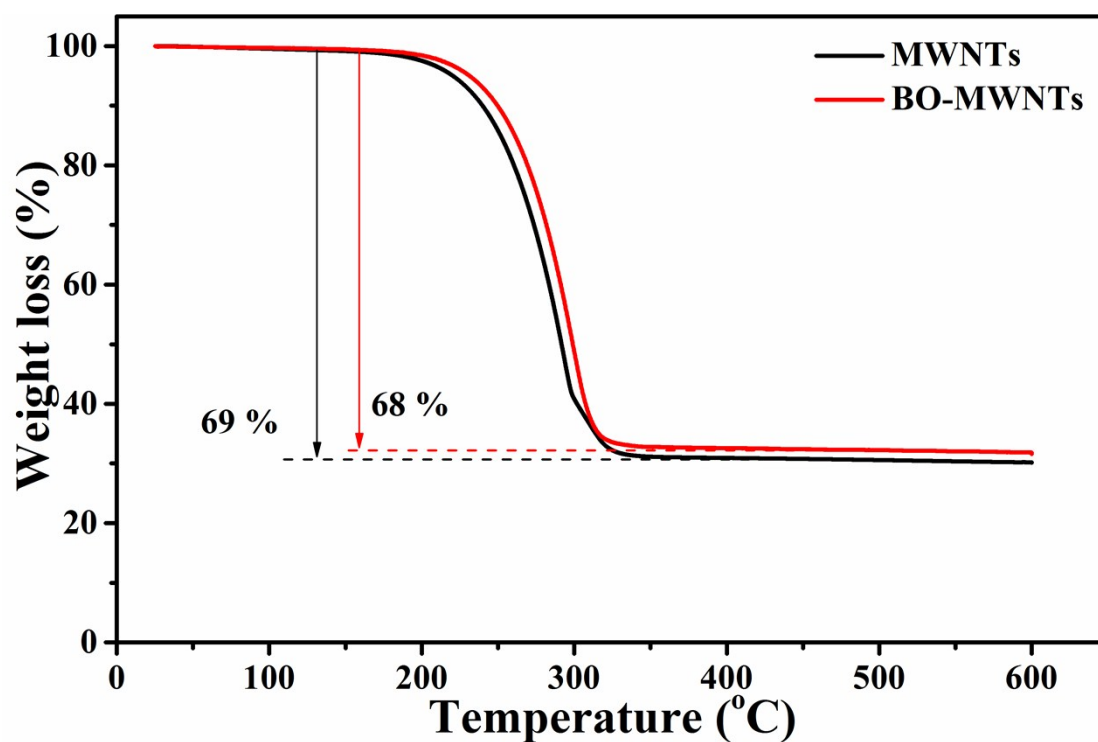


Fig. S7 TG curves of (a) MWNTs/S and (b) BO-MWNTs/S.

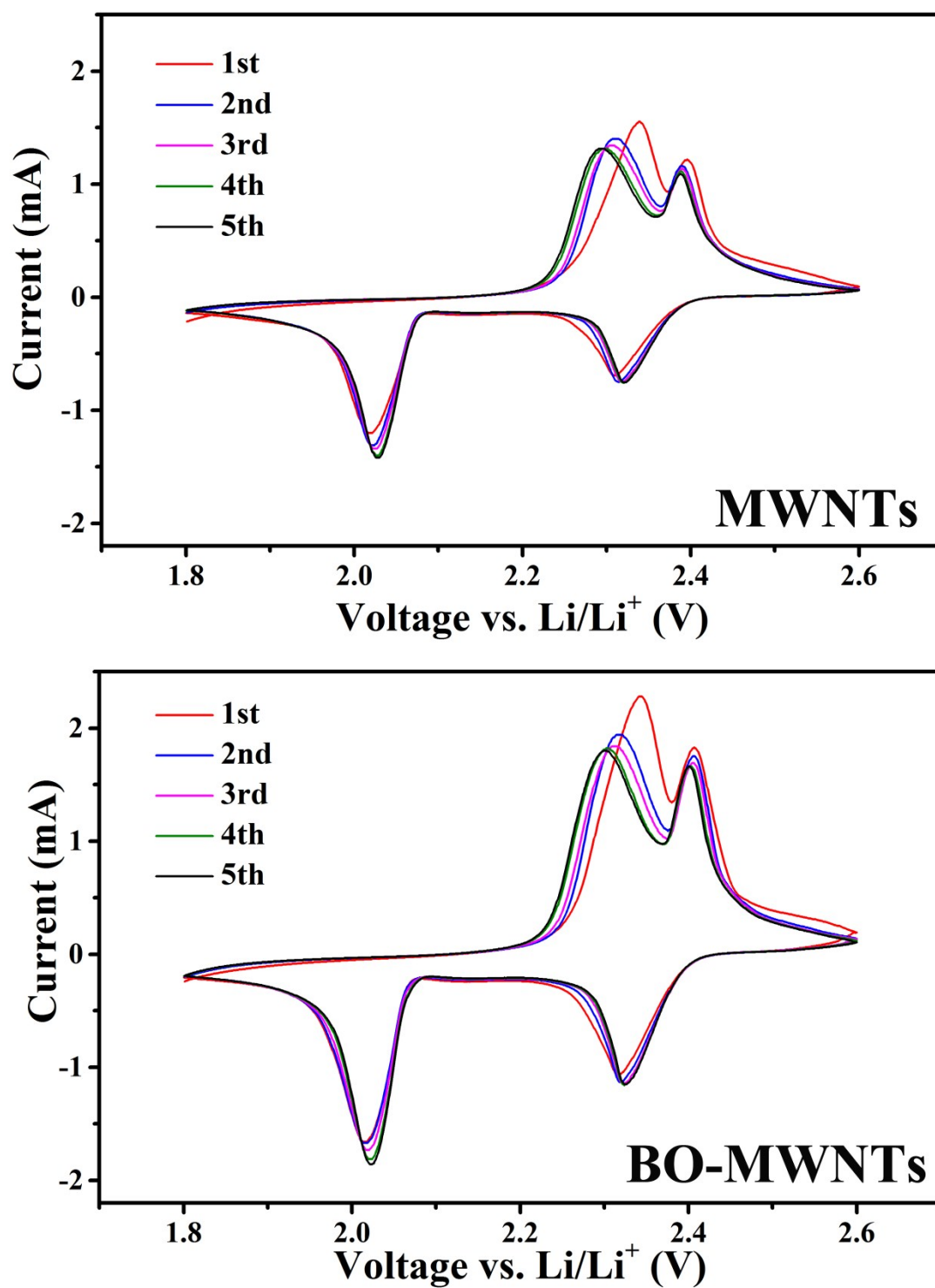
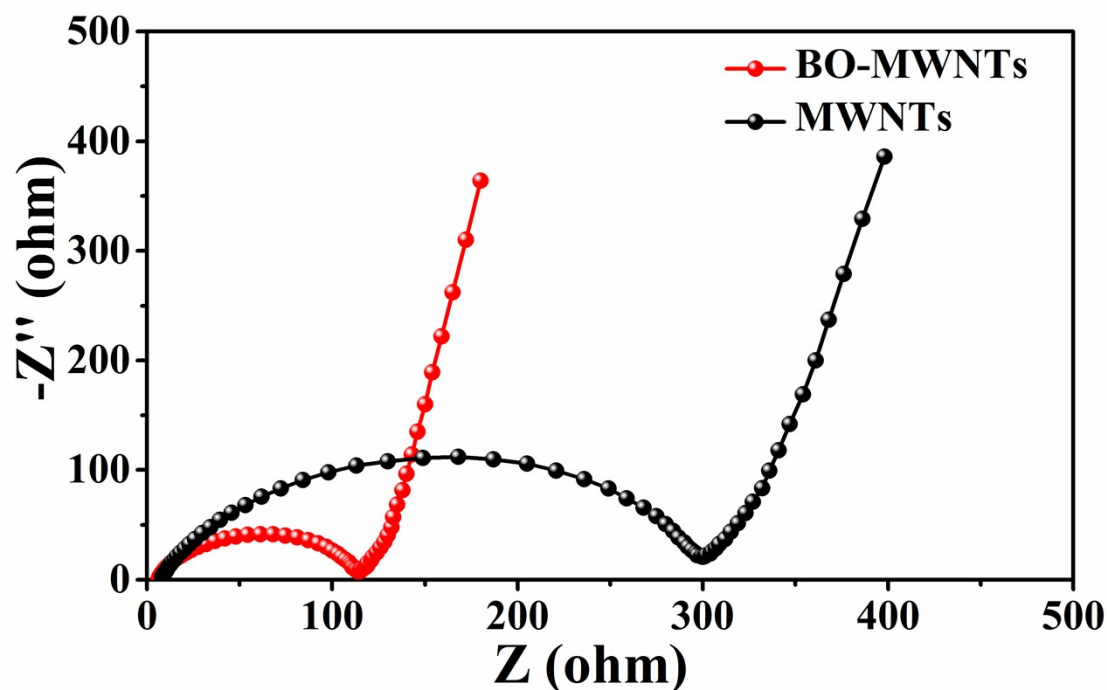
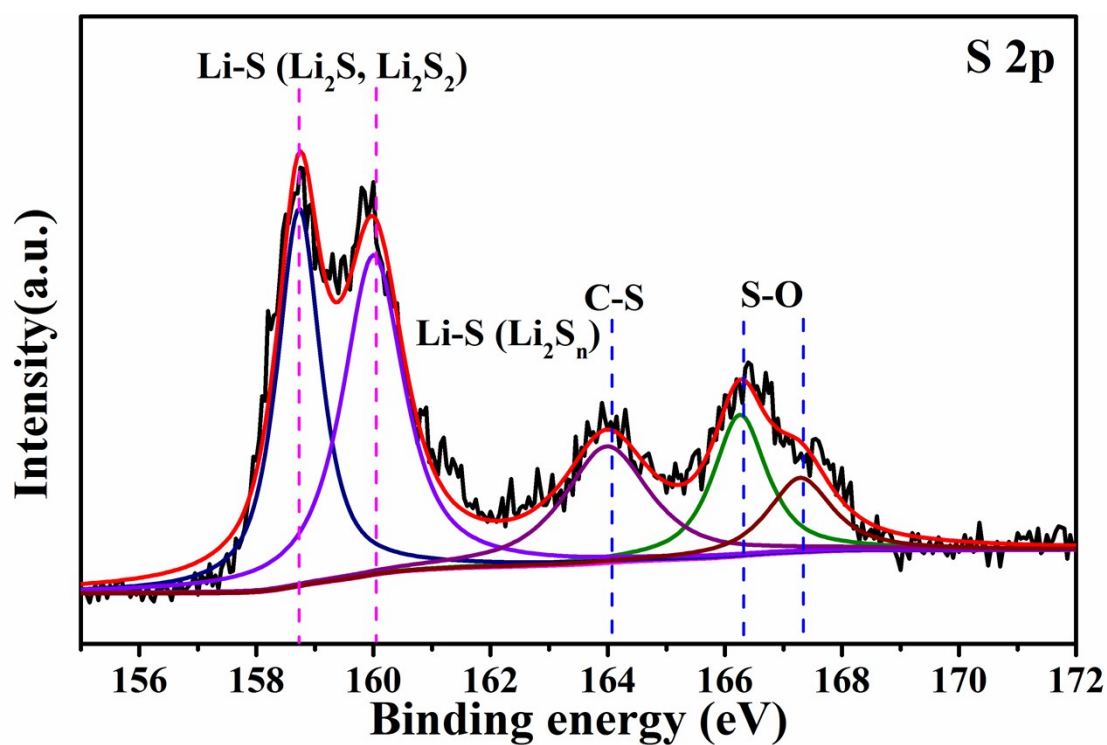


Fig. S8 CV curves of MWNTs/S and BO-MWNTs/S composites from 2.6 to 1.8 V.

Table S1. Electrical conductivity of MWNTs-S and BO-MWNT-S mixture

Material	MWNTs-S	BO-MWNTs-S
Conductivity ($S\ cm^{-1}$)	7.41	10.87

**Fig. S9** EIS curves of MWNTs/S and BO-MWNTs/S composites.**Fig. S10** XPS of S2p from electrode during discharging process.

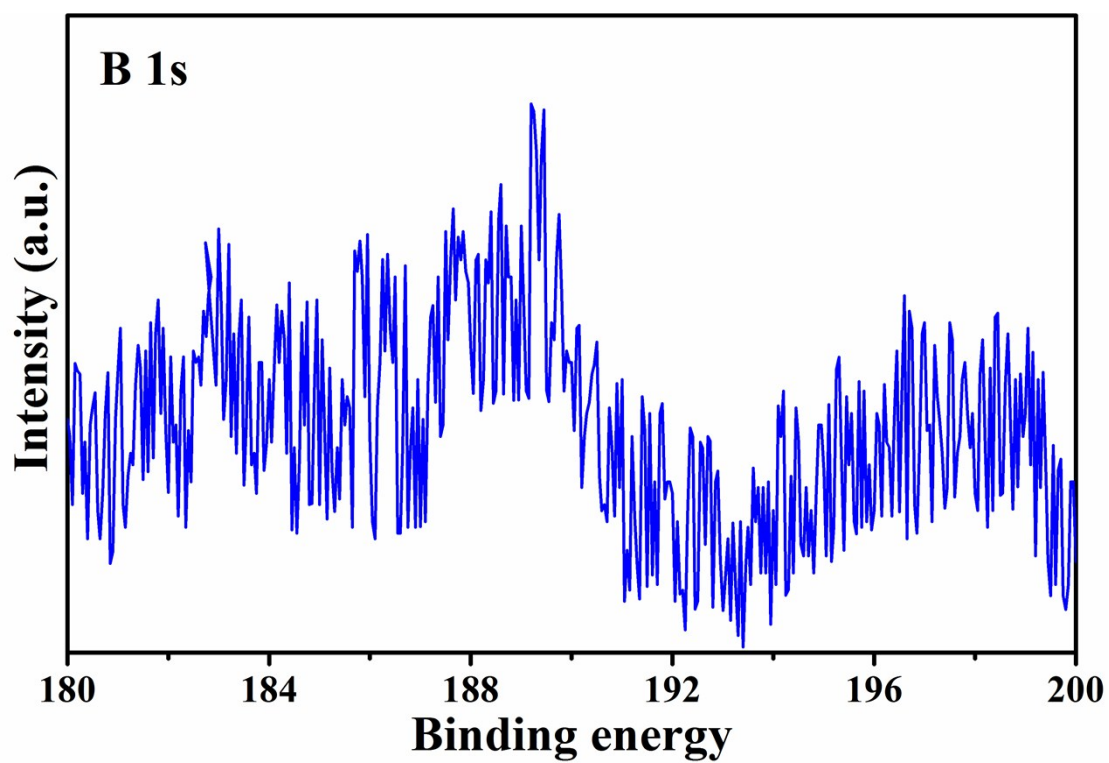


Fig. S11 XPS of B1s from electrode during discharging process.