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 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

<table>
<thead>
<tr>
<th>Material</th>
<th>MWNTs-S</th>
<th>BO-MWNTs-S</th>
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<tr>
<td>Conductivity (S cm⁻¹)</td>
<td>7.41</td>
<td>10.87</td>
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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.