Supplementary Materials

Bi nanoparticles confined in N, S co-doped carbon nanoribbon with excellent rate performance for Sodium-ion Batteries

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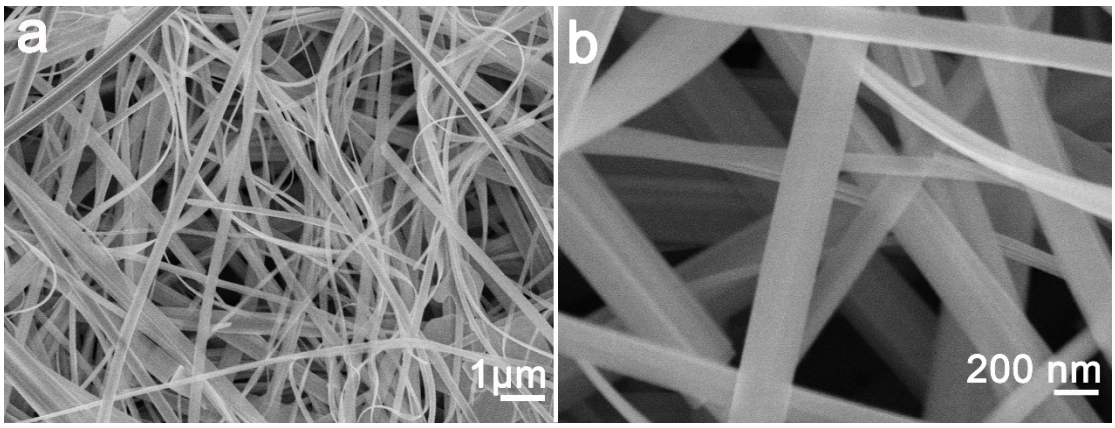

Fig. S1 (a) and (b) SEM image of Bi_2S_3 nanobelts.

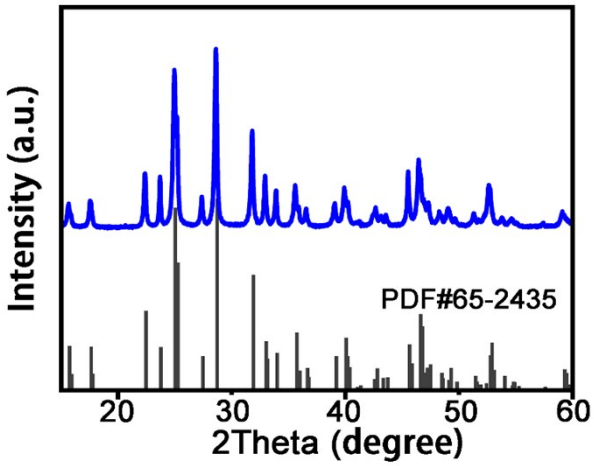

Fig. S2 XRD patterns of Bi_2S_3 nanobelts.

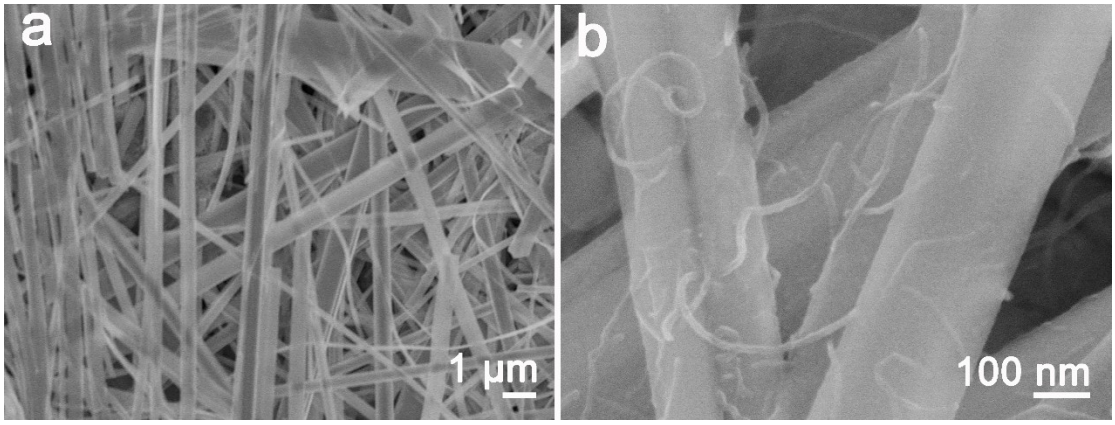

Fig. S3 (a) and (b) SEM image of Bi_2S_3 @PDA/CNT composites.

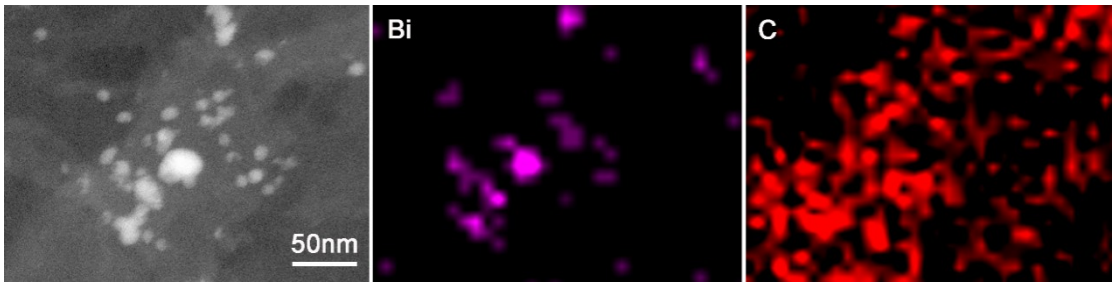

Fig. S4 STEM image and the corresponding Bi, C elemental mapping images of N,S-C@Bi/CNT composites.

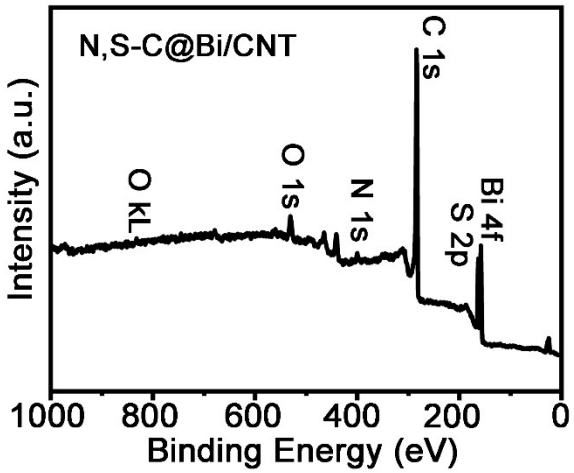

Fig. S5 The wide scan XPS spectra for N,S-C@Bi/CNT composites.

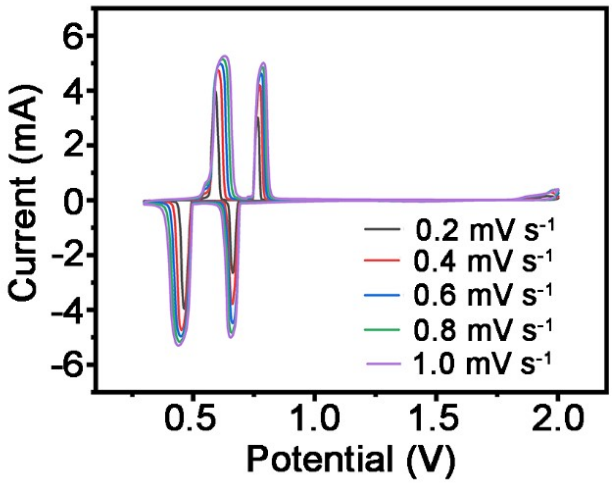

Fig. S6 CV profiles of N,S-C@Bi/CNT anode at different scan rate

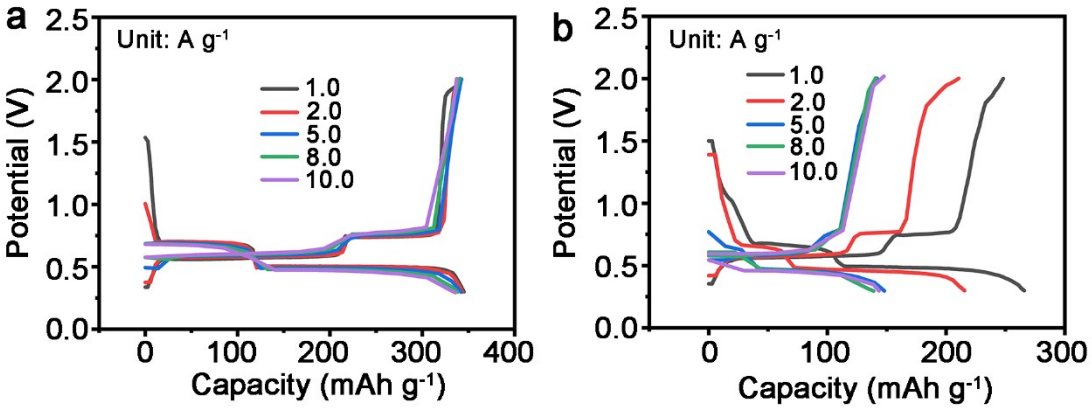

Fig. S7 Discharge-charge profiles at different current densities of N,S-C@Bi/CNT (a) and pure Bi (b).

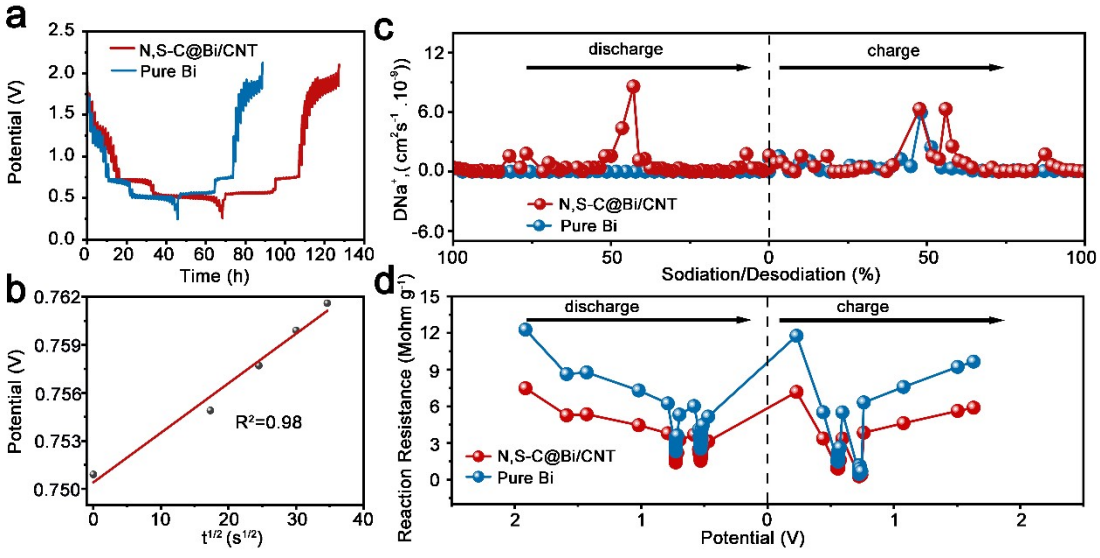

Fig. S8 (a) GITT potential response curve with a time of N,S-C@Bi/CNT and pure Bi electrodes. (b) The linear relation between the voltage and square root of the pulse time. (c) Na^+ diffusion coefficient at different sodiation/desodiation states of the N,S-C@Bi/CNT and Pure Bi electrodes. (d) In situ reaction resistance during the discharge/charge process calculated by GITT measurement of N,S-C@Bi/CNT and pure Bi electrodes.

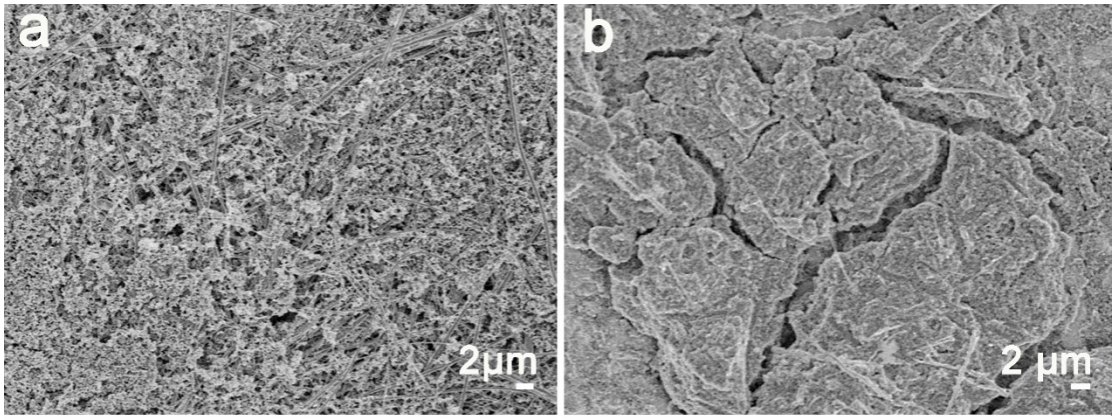

Fig. S9 (a) SEM images of the N,S-C@Bi/CNT electrode after the 300th cycle at a high current density of 1.0 A g^{-1}. (c) SEM image of the pure Bi electrode after the 300th cycle at a high current density of 1.0 A g^{-1}.