Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Supporting information for

Nitrogen-enriched carbon coating flower-like bismuth sulfide architectures towards high performance lithium ion battery anodes

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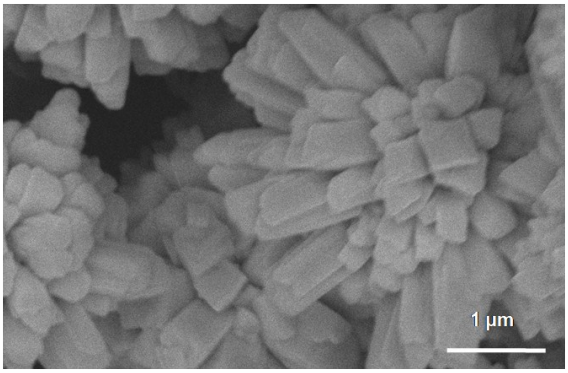

Figure S1 The SEM image of without PVP.

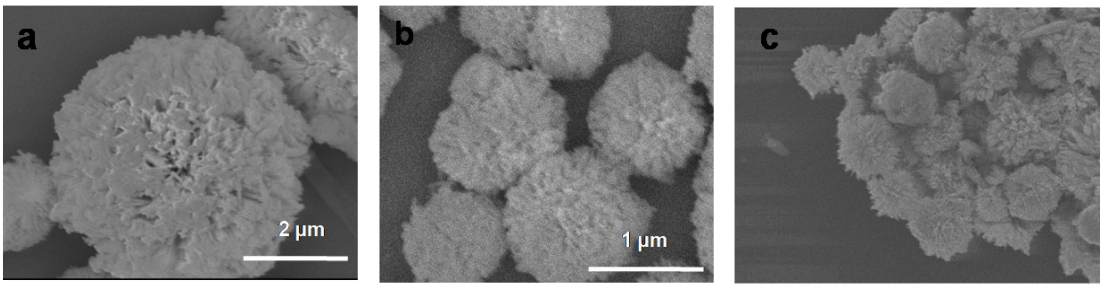

Figure S2 The SEM image of the poly-dopamine coated flower-like Bi_2S_3 structures (a and b); The SEM image offlower-likeN-C@Bi_2S_3 structures (c).

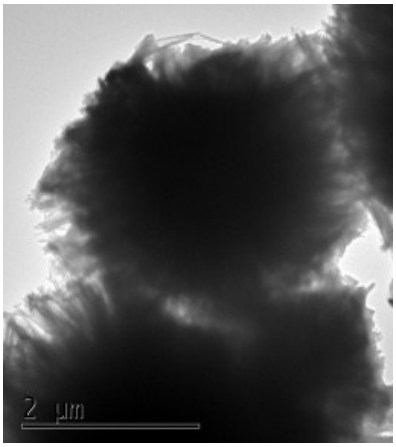

Figure S3 The TEM image offlower-likeN-C@Bi_2S_3 structures.

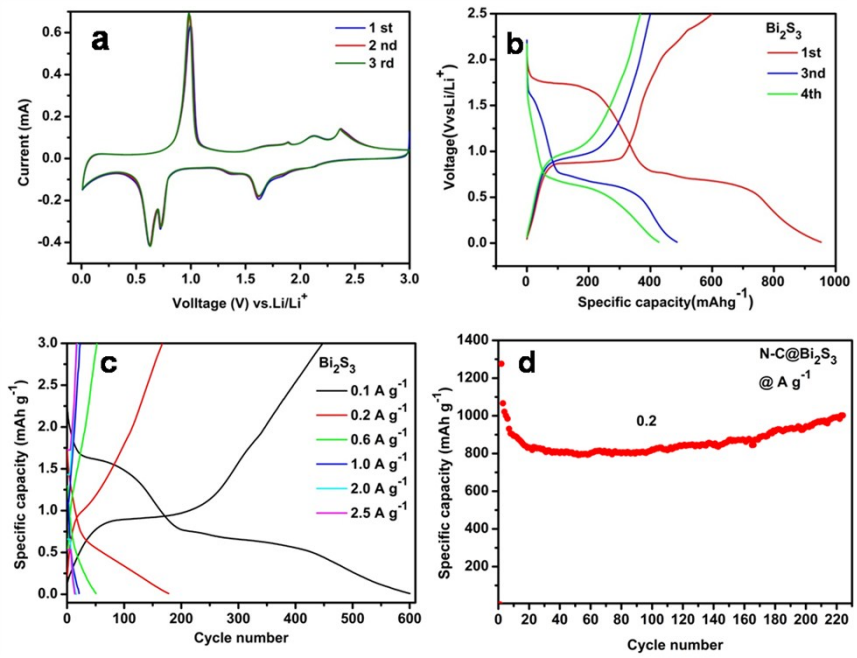

Figure S4 Typical CV curve (a) of the N-C@Bi_2S_3 electrode at 0.2 mV s^{-1}; Galvanostatic charge-discharge profiles (b) of the Bi_2S_3electrodeat 0.1 Ag^{-1}; Galvanostatic charge-discharge profiles (c) of the Bi_2S_3electrodeat varied current densities; The long-term cycling performance (d) ofN-C@Bi_2S_3 electrodes at 0.2 A g^{-1}.

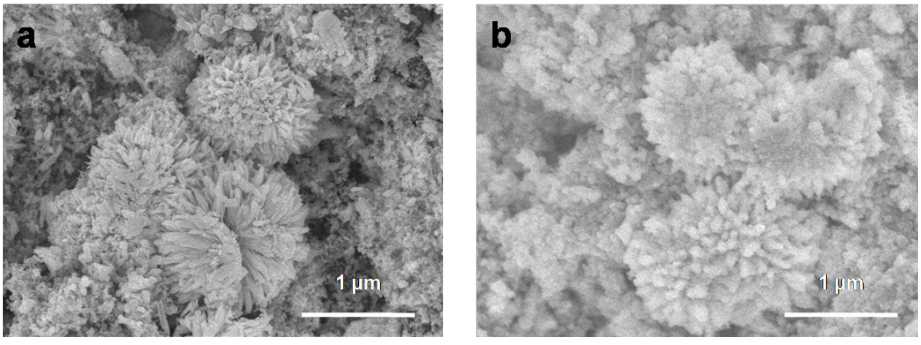

Figure S5 The SEM image of before (a) and after (b) cycling.

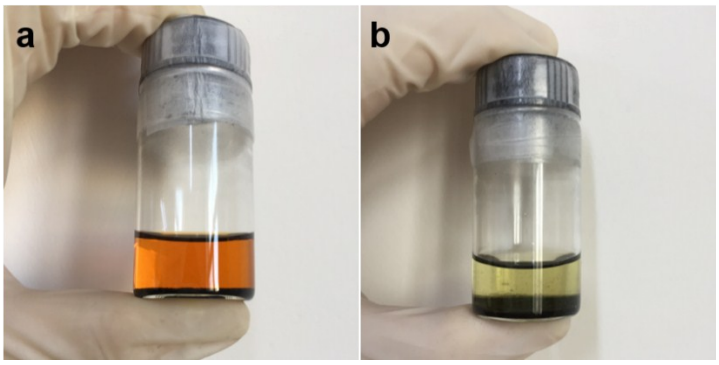

Figure S6 Digital photograph of the fresh Li_2S_6/N-C@Bi_2S_3 mixtures and the aged Li_2S_6/N-C@Bi_2S_3 mixtures (three days).

Table S1 The content of various C and N.

	N1	N2	N3	N4	C-C	C-N	C-O	C=O	O-C=O
Content (%)	33.5	7	55.1	4.4	57	29.1	6.3	2.5	5.1

Table S2 The performance comparisons between this work and previously reported works.

Cathodes	Density (A g^{-1})	Cycle number	Capacity (mAh g^{-1})
Our work	1/0.2	950/224	617/1001.7
Bi_2S_3@C[39]	0.1	100	765
Bi_2S_3@CNW[17]	1	700	501
Bi_2S_3@SC[5]	1	1000	550
rGO@Bi_2S_3[41]	0.5	400	> 300
Bi_2S_3-PPY[7]	1.2	500	450
Bi_2S_3@SiO_2[36]	1	4000	379
GVB[40]	0.1	100	702
Bi_2S_3@C[16]	0.6	40	301

Table S3 The electrochemical data from EIS analysis (R_s is solution resistance; R_{ct} is charge transfer resistance).

Electrode	R_s	R_{ct}
N-C@Bi_2S_3 before cycle	4.432	178.7
N-C@Bi_2S_3 after cycle	4.319	713.5
Bi_2S_3 before cycle	1.491	401
Bi_2S_3 after cycle	11.32	1246

Equivalent circuit