Supplementary Materials: Bulk-Like SnO_2-Fe_2O_3@Carbon Composite as a High-Performance Anode for Lithium Ion Batteries

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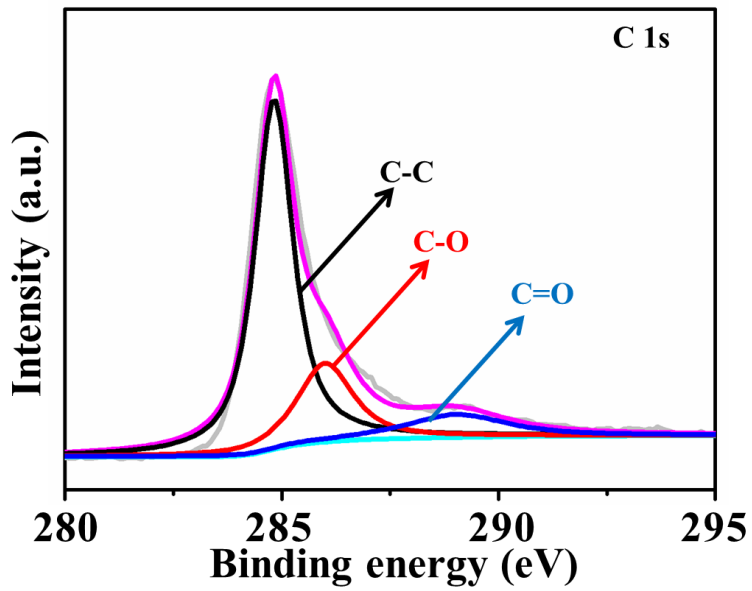

Figure S1. XPS spectra of C 1s for B-SFO@C sample.

Table S1. The weight fractions of SnO_2 and Fe_2O_3 in B-SFO@C sample calculated different methods

methods	SnO_2	Fe_2O_3
ICP	63.5%	9.2%
XPS	47.2%	7.5%

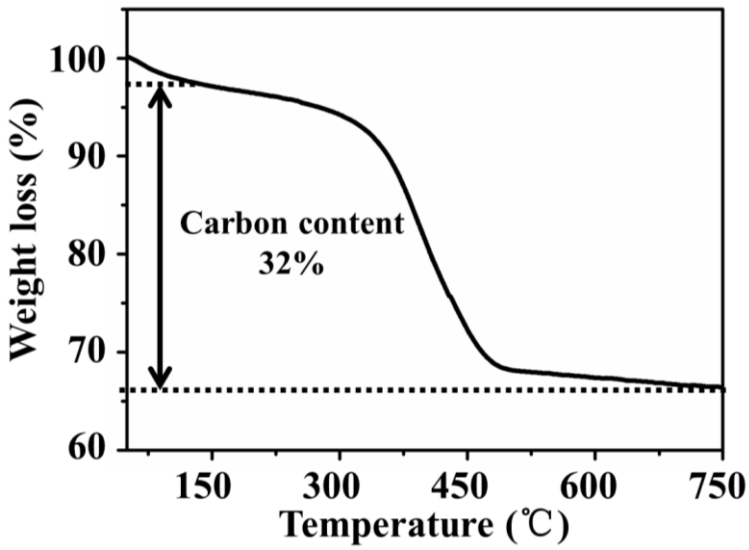

Figure S2. TGA curves of the B-SFO@C sample.

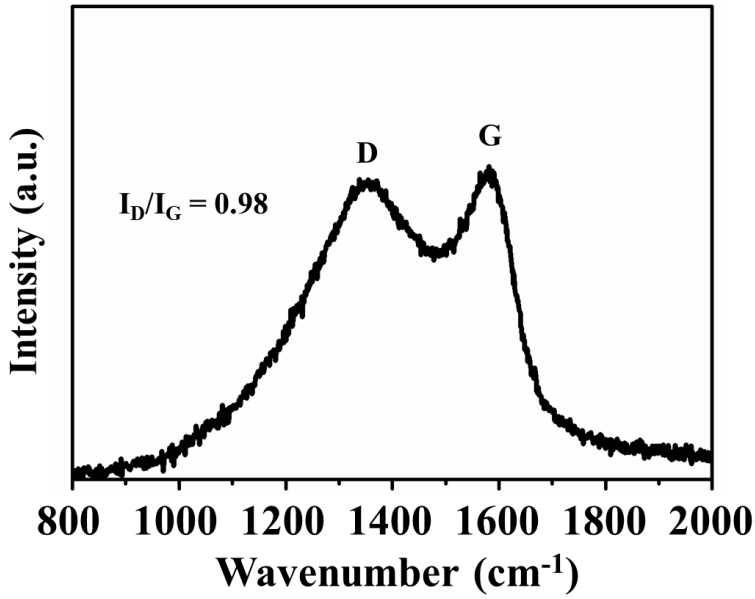

Figure S3. Raman spectrum of the B-SFO@C sample.

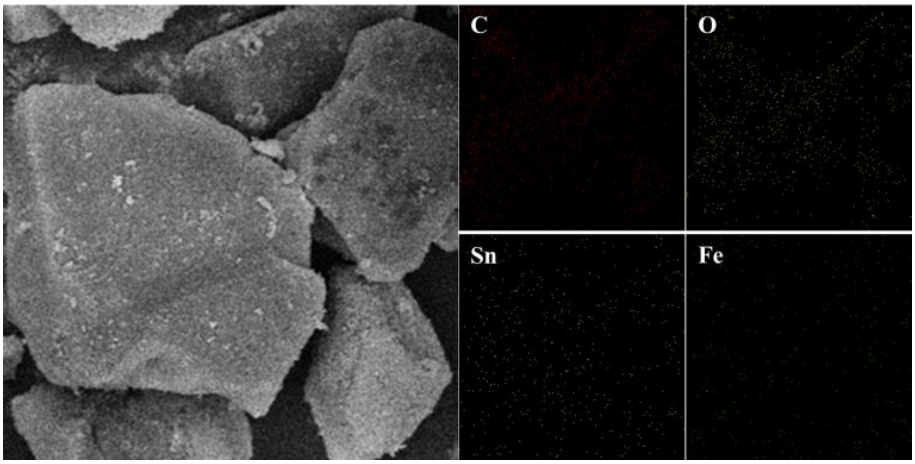

Figure S4. EDX mapping images of the B-SFO@C sample.

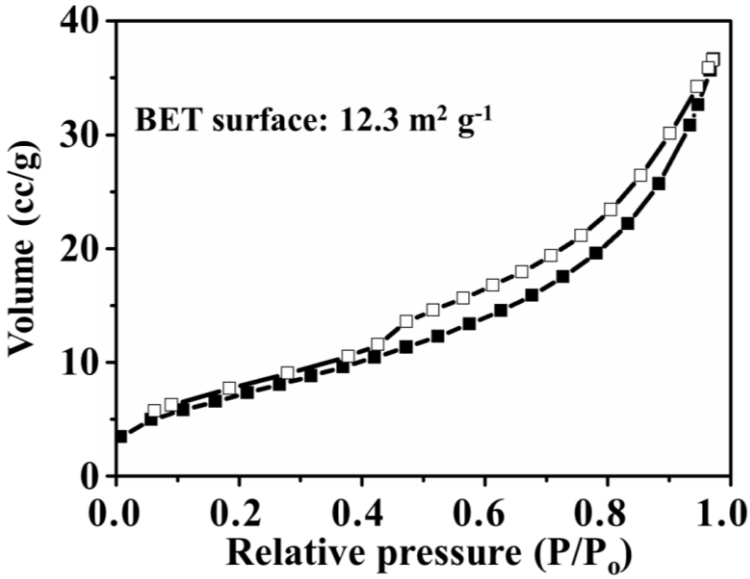

Figure S5. Nitrogen adsorption–desorption isotherms of B-SFO@C sample.

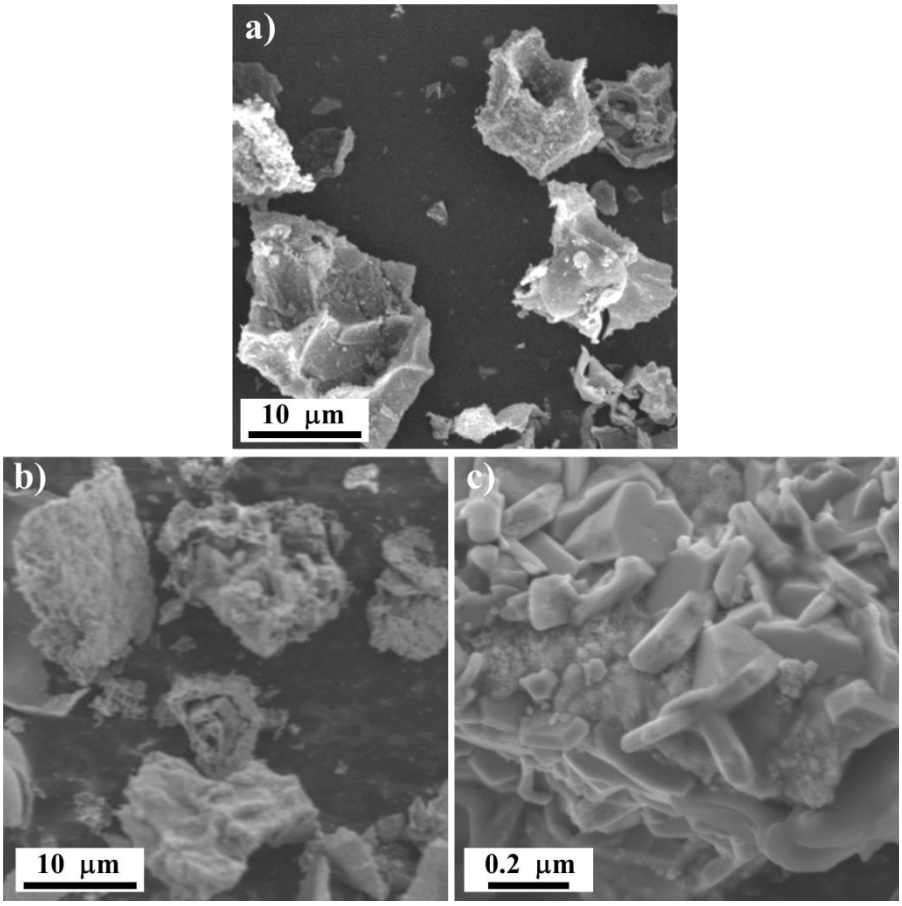

Figure S6. (**a**) SEM images of B-SO@C sample, (**b**) Low-resolution and (**c**) High-resolution SEM image of B-SFO sample.

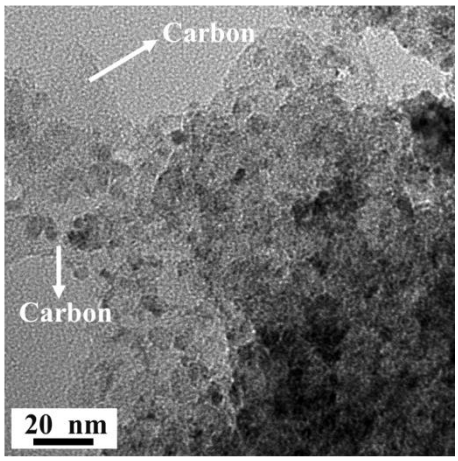

Figure S7. Magnified TEM image of the B-SFO@C sample.

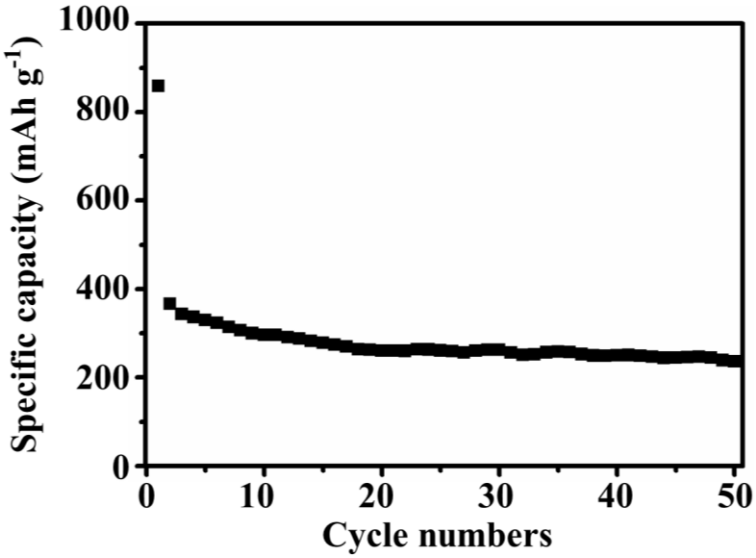

Figure S8. Cyclic performance of carbon matrix at 0.2 A g^{-1} in the range of 0.005–3.0 V.

Table S2. The electrochemical performances of B-SFO@C and SnO_2-based composites anode materials in the previous reports.

Sample	Current density (A g^{-1})	Initial coulombic efficiency	Remained Capacity (mAh g^{-1})	Cycle number	Ref.
Bulk SnO_x@C	0.2 1	46.3%	885.8 637.2	360 1000	1
Carbon-Encapsulated Porous SnO_2	0.05	41.6%	870.9	120	2
Honeycomb-like SnO_2@C	0.2 1	66.2%	940 400	150 500	3
SnO_2@CNT	0.2 1	62.5%	546 398	100 150	4
3D h-SnO_2-Fe_2O_3@RGO	0.2	61.3%	830	100	5
rGO/ Fe_2O_3/ SnO_2	0.4	63%	700	100	6
Fe_2O_3@SnO_2/GS	0.1	60.8%	1015	200	7
SnO_2/Fe_2O_3/RGO	0.2 1	46%	795 690	220 1000	8
SnO_2-Fe_2O_3/SWCNTs	0.2 1	64.9%	692 553	50 100	9
B-SFO@C	0.2 1 3	70%	927 701 429	100 500 1800	This work

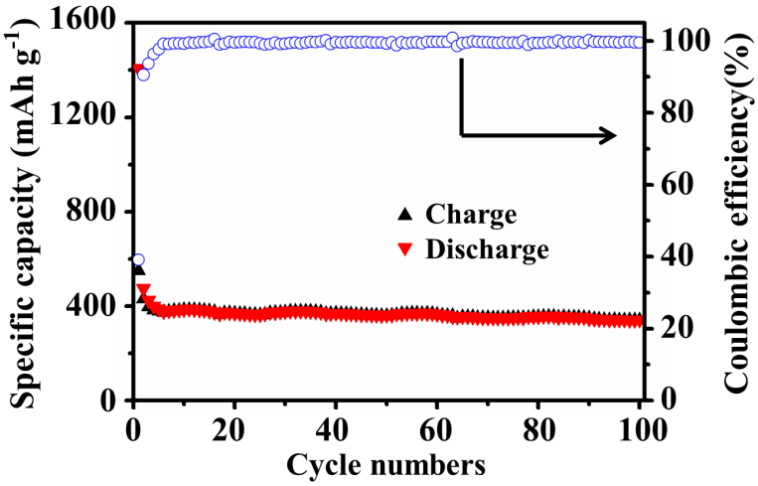

Figure S9. Cyclic performance of B-SFO@C electrode at 0.2 A g^{-1} in the range of 0.005–1.0 V.

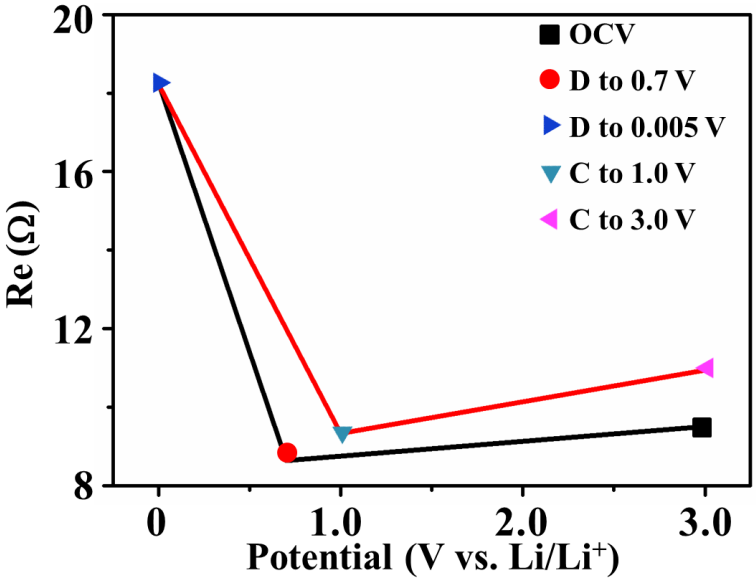

Figure S10. The corresponding fitted R_e at different SOC.

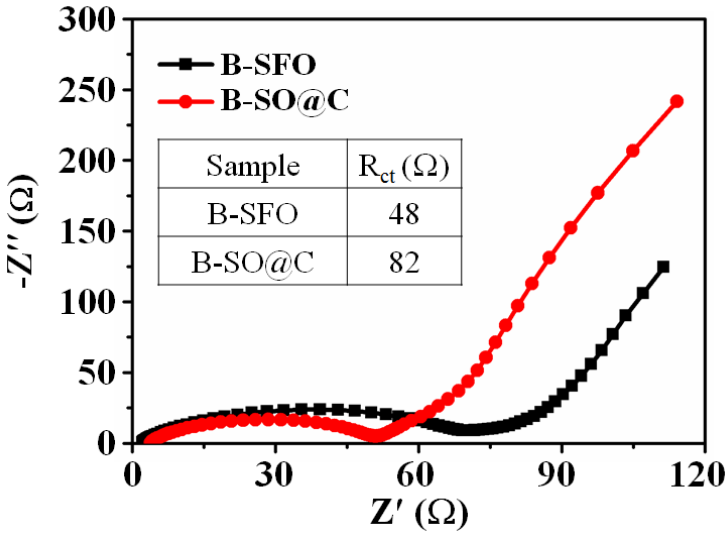

Figure S11. EIS spectra of fresh B-SO@C and B-SFO electrodes the corresponding fitted R_{ct} (inset).

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