Supplementary Information for

Edge-Oriented SnS_2 Nanosheet Arrays on Carbon Paper as Advanced Binder-Free Anodes for Li-Ion and Na-Ion Batteries

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Fig. S1 (a) Digital photos of commercial filter paper and its carbonized paper; (b) Demonstration of mechanical flexibility of the carbon paper.

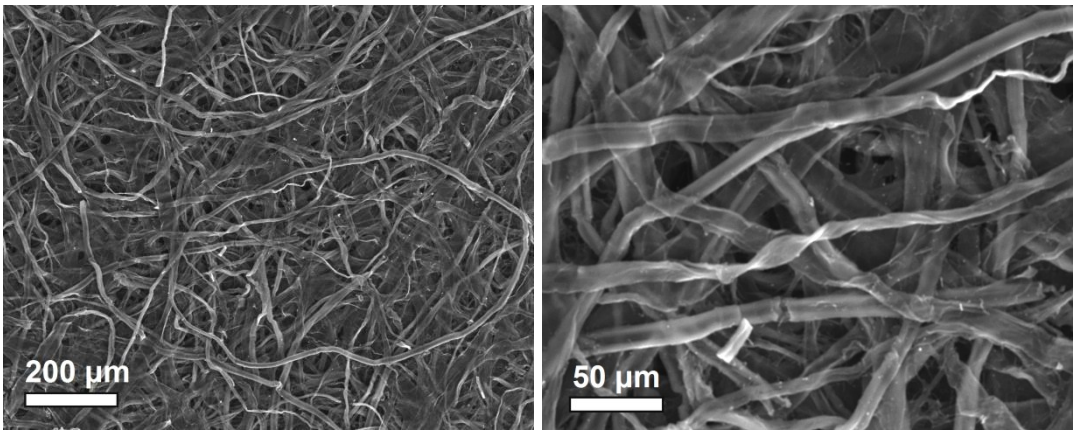

Fig. S2 SEM images of carbon microbelts derived from commercial filter paper.

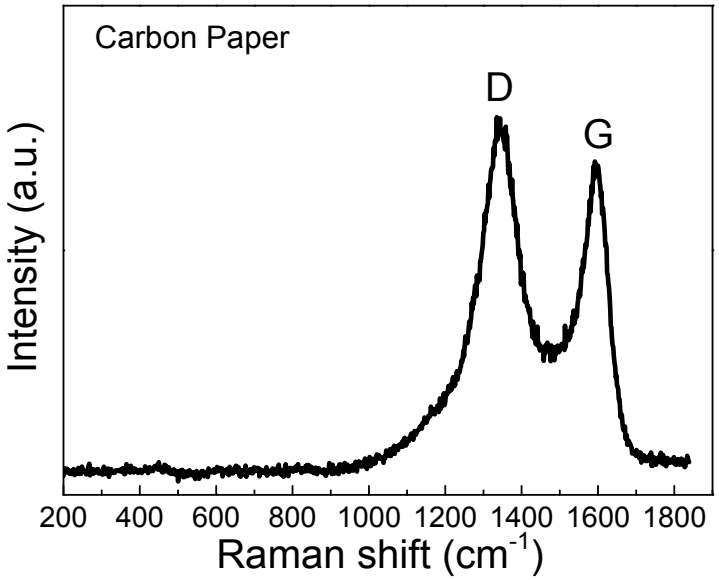

Fig. S3 Raman spectrum of the carbon paper.

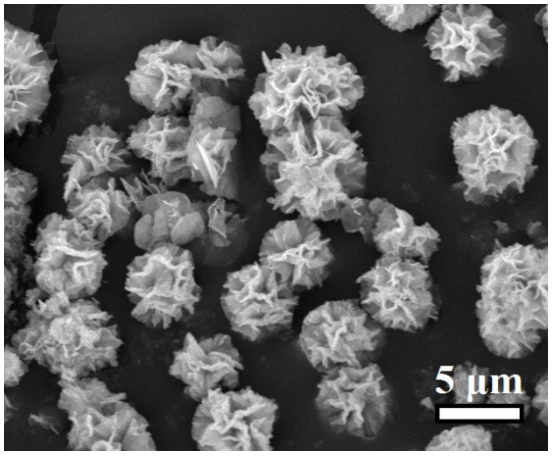

Fig. S4 SEM image of pure SnS_2 flower-like microspheres.

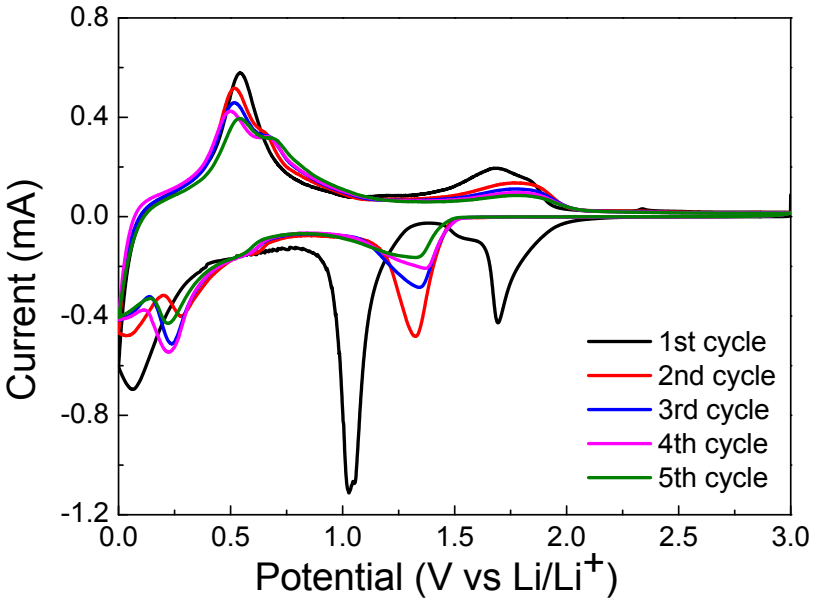

Fig. S5 CV curves of pure SnS_2 anode.

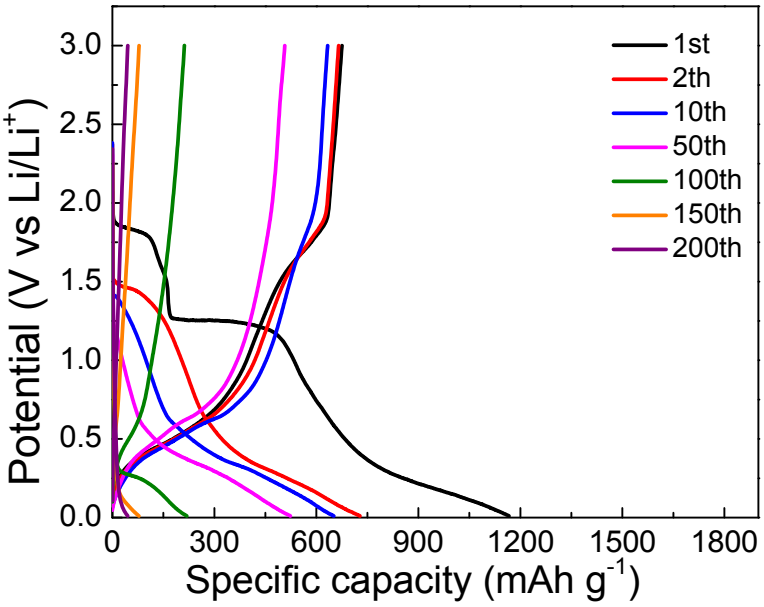

Fig. S6 Galvanostatic charge/discharge curves of pure SnS_2 anode at different cycles.

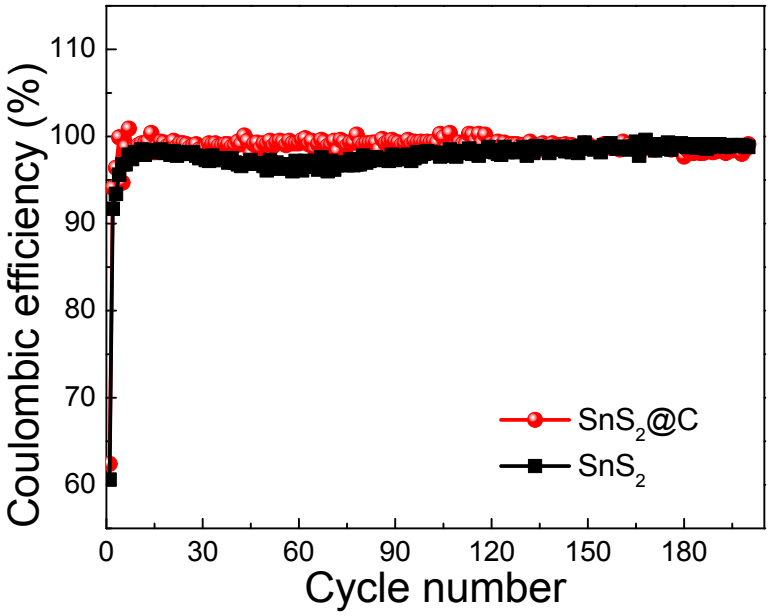

Fig. S7 Comparison of Coulombic efficiency.

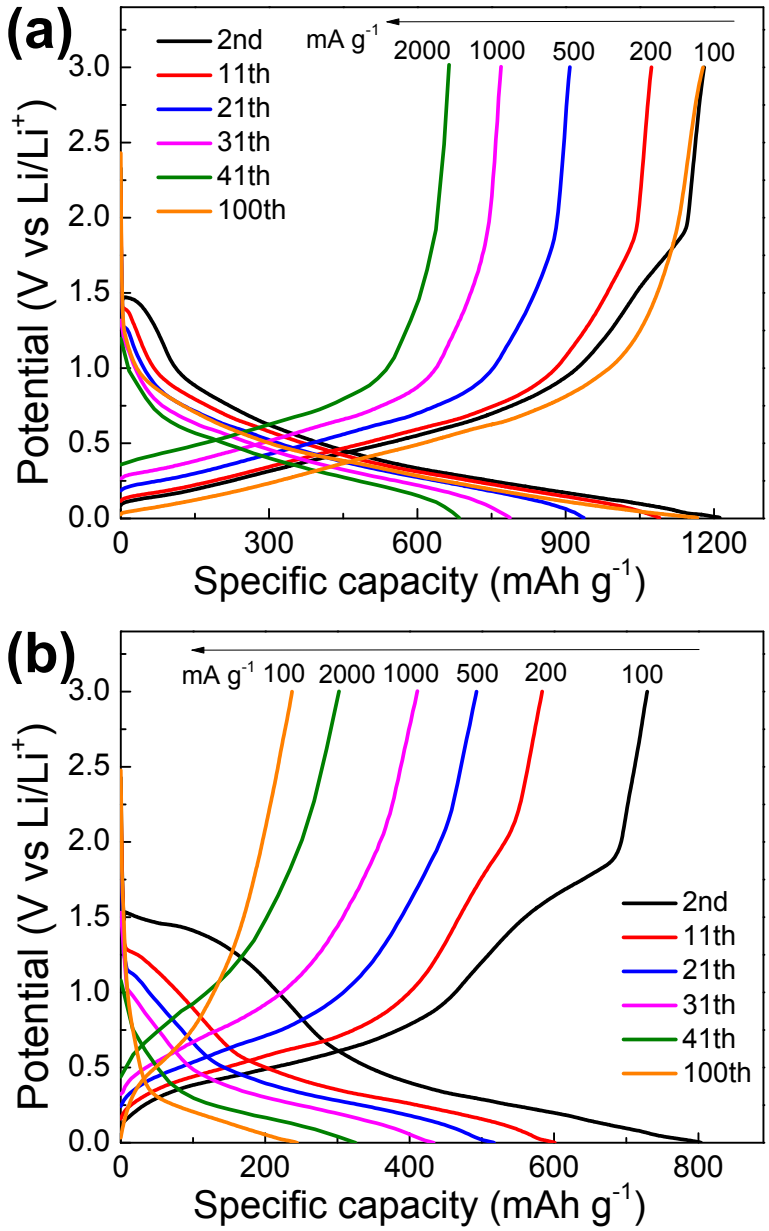

Fig. S8 Galvanostatic charge/discharge curves of (a) SnS_2@C and (b) pure SnS_2 anodes at current densities from 100 to 2000 mA g^{-1}.

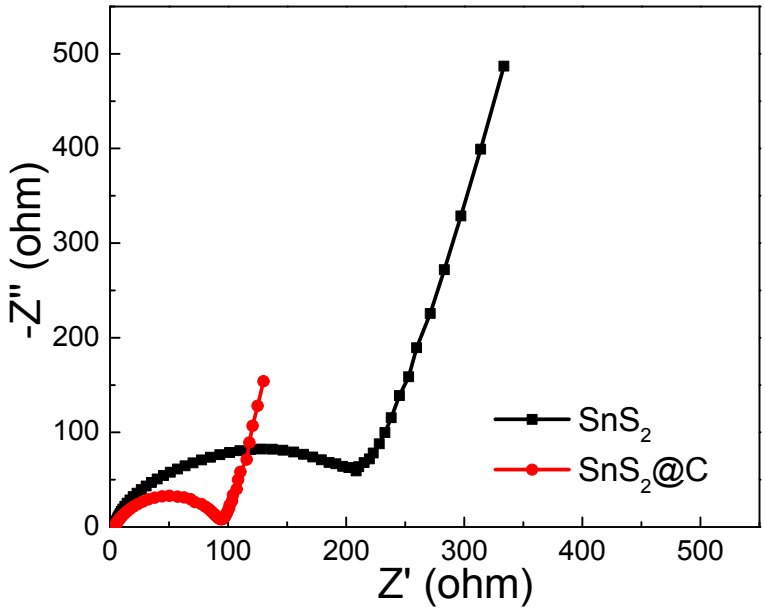

Fig. S9 Nyquist plots of the SnS_2@C and pure SnS_2 anodes.

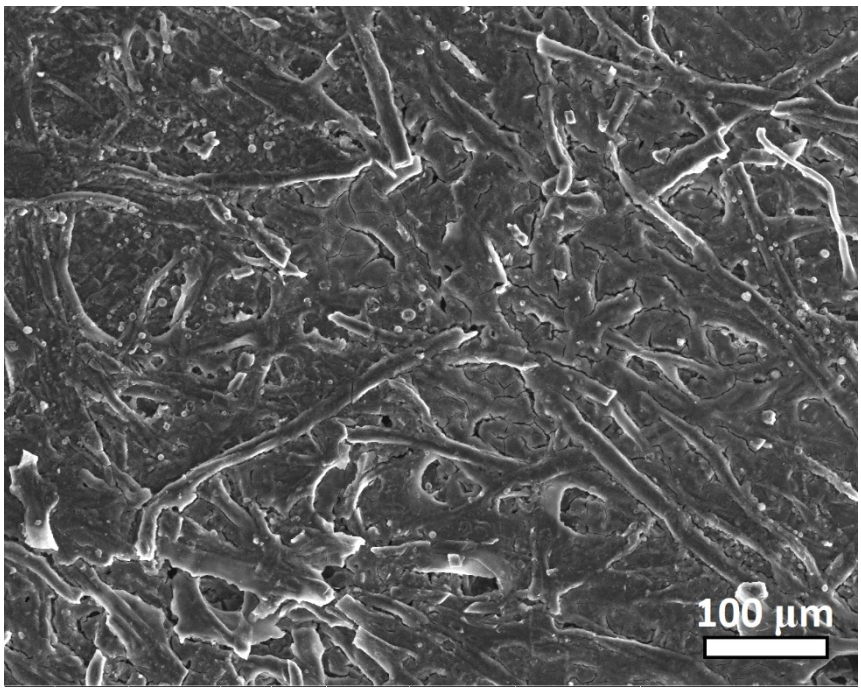

Fig. S10 SEM image of the SnS_2@C after long-term cycling test.

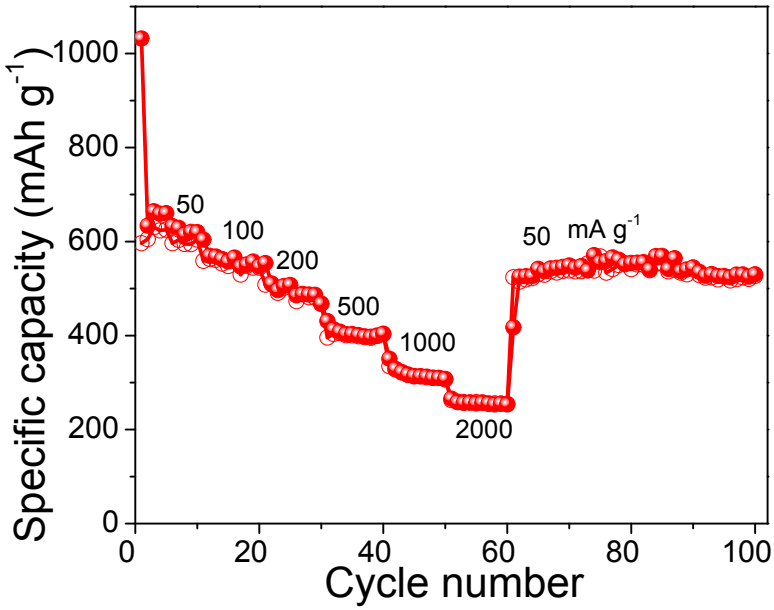

Fig. S11 Rate performance of the SnS_2@C anode for Na-ion batteries.

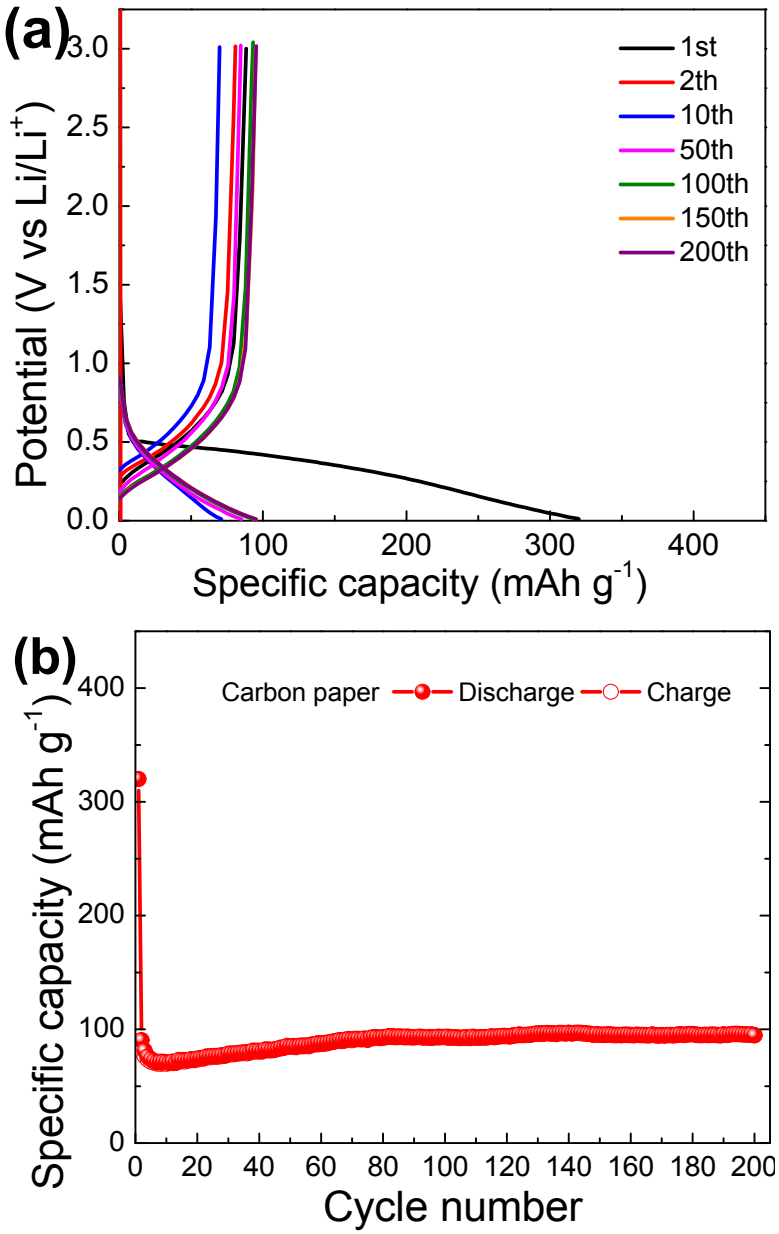

Fig. S12 (a) Galvanostatic charge/discharge curves of the carbon paper at 100 mA g^{-1} and (b) specific capacity as a function of cycle number.

Table S1 Comparison of the reversible capacity, cycling stability and initial Coulombic efficiency (CE) of various SnS_2-based materials in Li-ion batteries.

Material[1]	SnS_2 Morphology	1st reversible capacity (mAh g^{-1})	Current density (mA g^{-1})	Capacity retention (cycle number)	1st Coulombic efficiency	Ref.
SnS_2	Microsphere	771	650	74% (100)	28%	[1]
SnS_2	Nanosheet	535	100	96% (50)	-	[2]
SnS_2	Nanoplate	1028	200	91% (30)	72.6%	[3]
SnS_2	Nanoplate	579	100	90% (50)	40.3%	[4]
SnS_2	Nanoflower	537	100	69% (50)	30.6%	[5]
SnS_2	Microflower	642	200	65% (100)	36%	[6]
SnS_2	Nanoplate	645	323	85% (30)	49.2%	[7]
SnS_2/graphene	Nanoplate	864	50	704 (100)	69%	[8]
SnS_2/graphene	Nanoparticle	738	120	76.5% (60)	71.5%	[9]
SnS_2/graphene	Nanocrystal	1278	65	80.9% (200)	78.8%	[10]
SnS_2/graphene	Nanoplate	687	50	94.6% (30)	36.2%	[11]
SnS_2/graphene	Nanoparticle	1002	65	57.6% (50)	-	[12]
SnS_2/graphene	Nanoplate	1485	50	44.2% (30)	37%	[13]
SnS_2/graphene	Nanoparticle	542	325	93% (200)	34.5%	[14]
SnS_2/graphene	Nanosheet	705	100	130.5% (50)	42.4%	[15]
SnS_2/graphene	Nanoparticle	569	200	98.8% (200)	34%	[16]
SnS_2/graphene	Nanoflake	1216	80	61.1% (100)	66%	
SnS_2/graphene/CNT	Nanosheet	1118.2	100	91% (100)	63%	[17]
SnS_2/CNT	Nanosheet	557	100	75.4% (50)	37.2%	[18]
SnS_2/AB	Nanoflower	622.8	400	73.1% (100)	53.5%	[19]
SnS_2/C	Nanosheet	665.8	100	64.4% (50)	42.9%	[20]
SnS_2/C	Nanoparticle	707	50	94.5% (50)	41%	[21]
SnS_2/PANI	Nanoplate	968.7	100	75.4% (80)	69.4%	[22]
SnS_2@C	**Nanosheet**	**1156**	**100**	**99.5% (200)**	**62.5%**	**This work**

[1] CNT: carbon nanotube; AB: acetylene black; PANI: polyaniline;

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