Electronic Supplementary Material (ESI) for Nanoscale.
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Supporting Information

Three-Dimensional Carbon Network Confined Antimony Nanoparticles Anode for High-Capacity K-Ion Batteries

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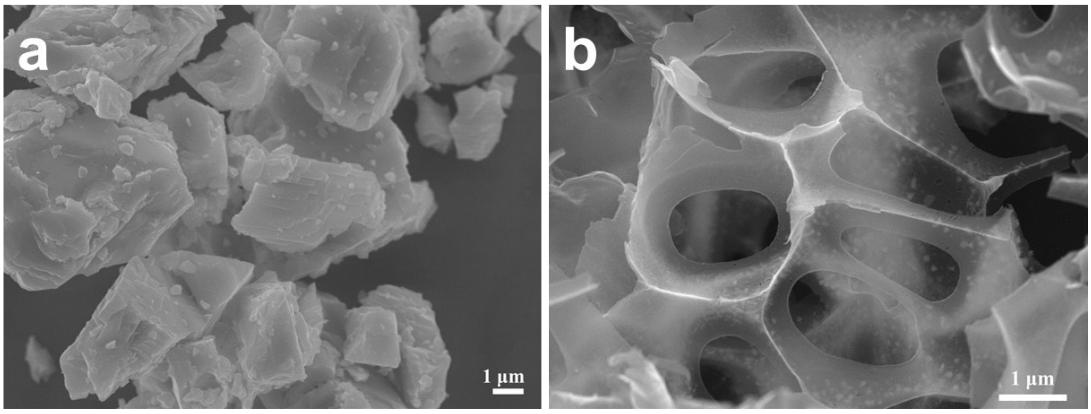

Fig. S1. SEM images of (a) commercial Sb and (b) 3D SbNPs@C .

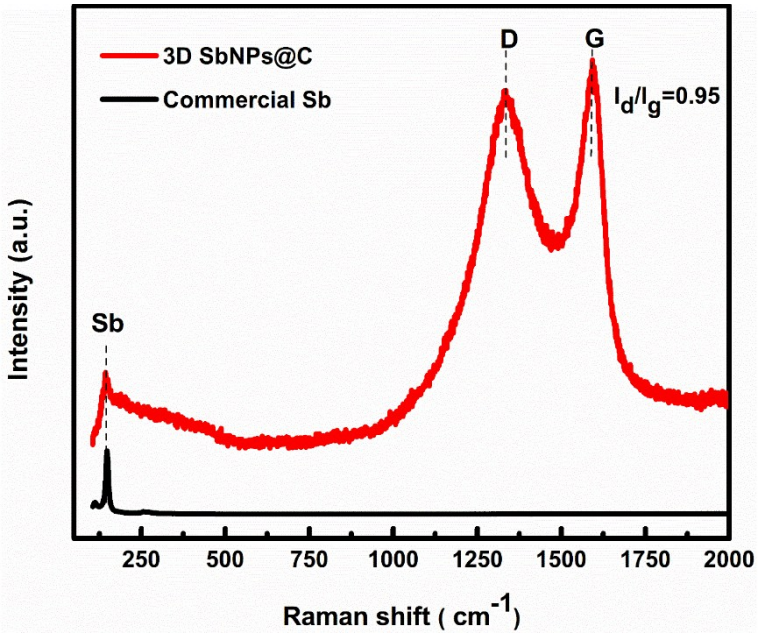

Fig. S2. Raman spectra of the 3D SbNPs@C and commercial Sb, respectively.

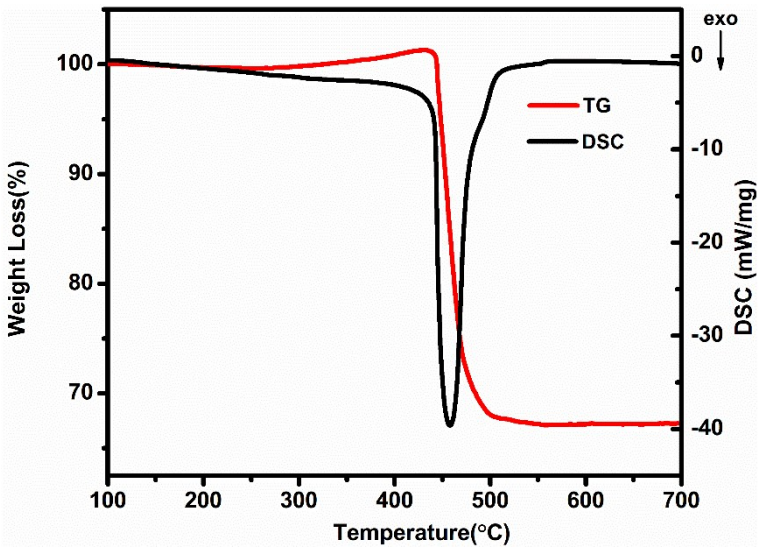

Fig. S3. TGA analysis of 3D SbNPs@C

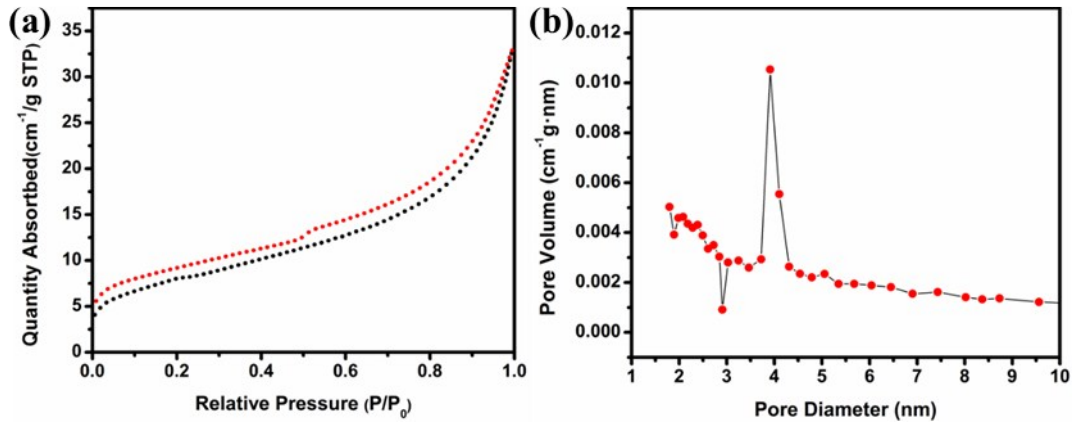

Fig.S4. (a) N_2 adsorption/desorption isotherm of 3D SbNPs@C; (b) pore size distribution of 3D SbNPs@C.

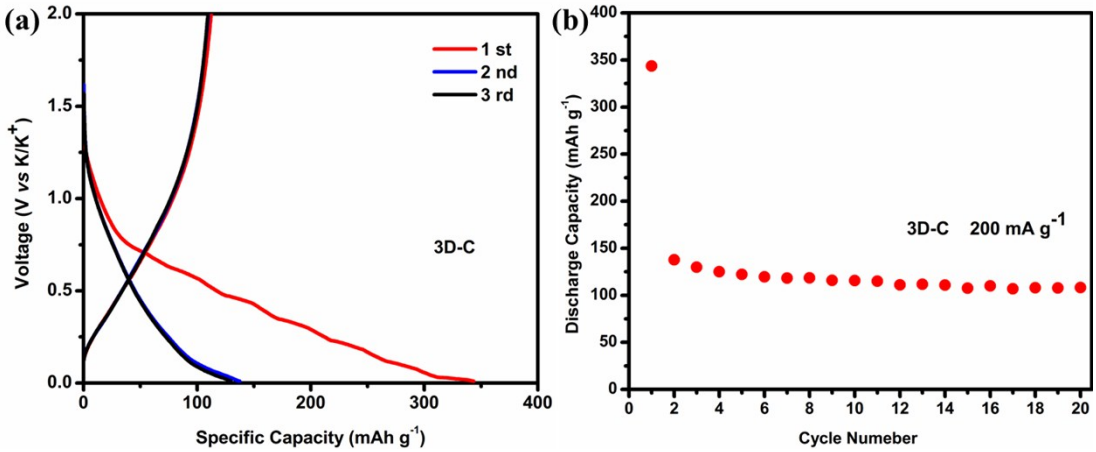

Fig.S5. (a) Representative charge-discharge curves of 3D-C electrode at a specific current of 200 mA g^{-1} (b) Cycle performance of 3D-C electrode at a specific current of 200 mA g^{-1}.

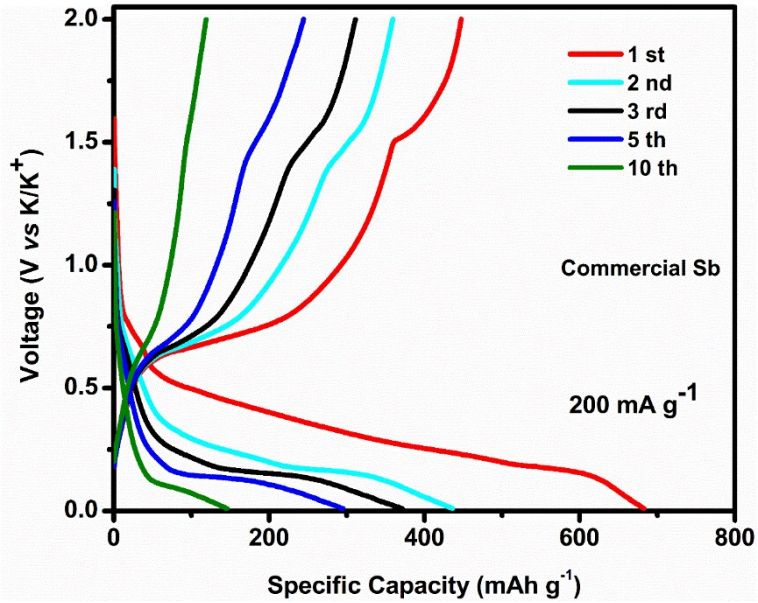

Fig. S6. Representative charge-discharge curves of commercial Sb electrode at a specific current of 200 mA g^{-1}

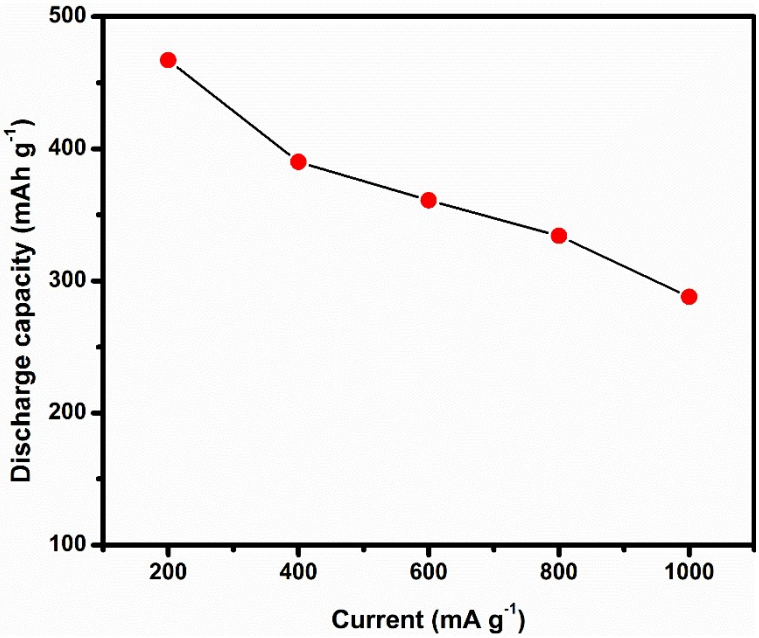

Fig. S7. Comparison of the specific discharge capacity of the electrodes at different specific currents.

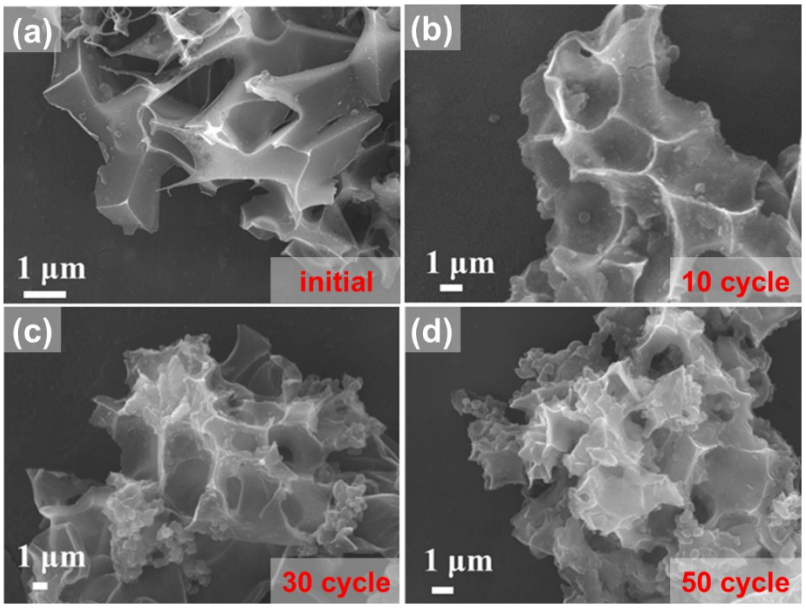

Fig.S8. SEM images of 3D SbNPs@C before cycling and after 10, 30 and 50cycling, respectively.

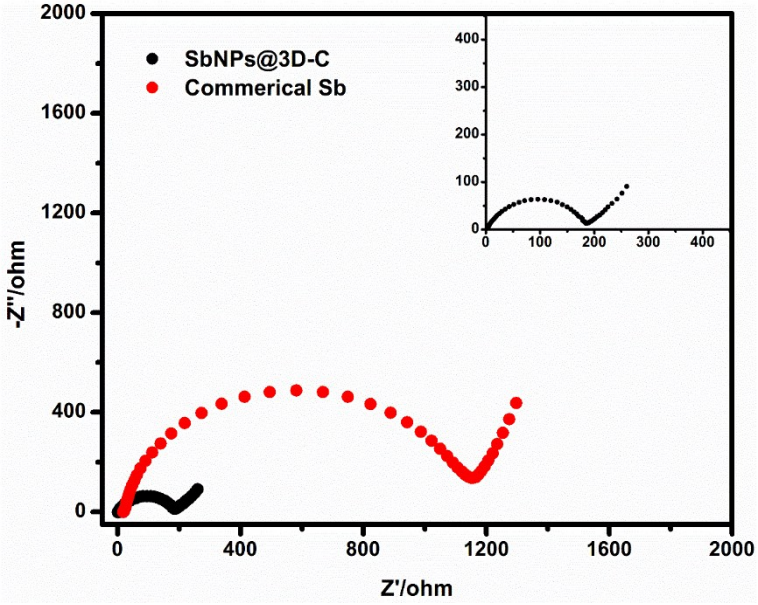

Fig. S9. Nyquist plot of the3D SbNPs@C and commercial Sb electrode, respectively.

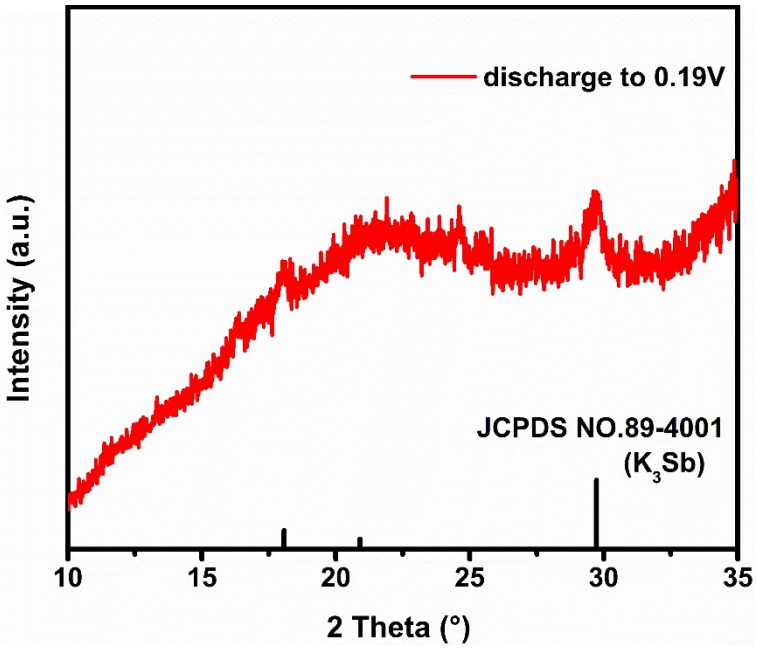

Fig. S10. XRD pattern of 3D SbNPs@C electrode when discharge to 0.19 V.

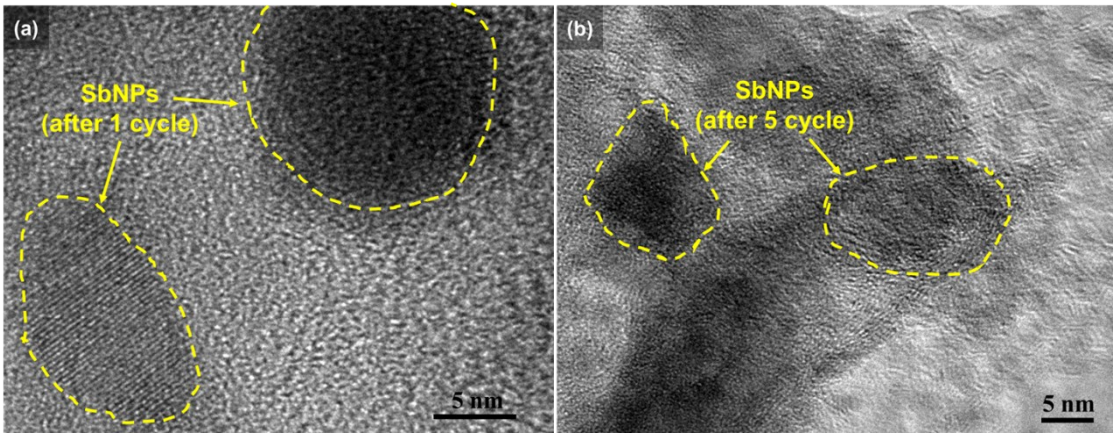

Fig.S11. TEM images of 3D SbNPs@C before cycling and after 5 cycling, respectively.

Table.S1. Electrochemical performance comparison of various K-ion anodes.

Alloy-based anode materials	Current density ($mA\ g^{-1}$)	Reversible capacity ($mA\ h\ g^{-1}$)	Voltage Range (V)	Reference
SnS_2-rGO	25	350	0.01-2	*Chem. Commun.*, 2017,53, 8272-8275
Sn/C	25	150	0.01-2	*Chem. Commun.*, 2016,52, 9279-9282
Sb/C composites	---	250	0.5-1.5	*ACS Appl. Mater. Interfaces* 7,47,26158-26166
Sn_4P_3/C	50	384	0.01-2	*J. Am. Chem. Soc.* 139, 9, 3316-3319
MIL-125(Ti)	50	155	0.01-3	*Chem. Commun.*, 2017,53, 8360-8363
3D SbNPs@C	**200**	**478**	**0.01-2**	**This work**
	400	**390**	**0.01-2**	
	1000	**288**	**0.01-2**	