Supporting Information for

High-Performance Sodium-Ion Batteries and Flexible Sodium-Ion

Capacitors Based on Sb₂X₃ (X=O, S)/Carbon Fiber Cloth

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Figure S1 XRD pattern of carbon fiber cloth.



Figure S2 CV curves of SO/CFC//Na NIBs at various sweep rates from 0.1 to 1.0 mV s⁻¹.



Figure S3 CV curves of SS/CFC//Na NIBs at various sweep rates from 0.1 to 2.0 mV s⁻¹.



Figure S4 Electrochemical performance of CFC anode for NIBs in the voltage range of 0.01-2.00 V (*vs. Na/Na*⁺). (a) CV curves of CFC at sweep rate 0.5 mV S⁻¹; (c) Cycling performance of CFC at 0.5 A g⁻¹.

Samples	Current density / A g ⁻¹	Capacity retention / mA h g ⁻¹	Cycle number	Refere- nce
Sb ₂ O ₃ film	0.5	400	200	[1]
Sb ₂ O ₃ /Sb@graphene	0.1 then 0.2	522/487	275 then continue cycling for another 55 cycles	[2]
Sb/Sb ₂ O ₃ composites	0.66	615	100	[3]
MWNTs@Sb ₂ S ₃ @PPy	0.1	500	80	[4]
Flower-like Sb ₂ S ₃	0.2	642	100	[5]
Rod-like Sb ₂ S ₃	0.1 0.2	699 650	100 100	[6]
Sb ₂ S ₃ -graphite	1 10	656 495	100 100	[7]
This workthe SS/CFC	0.5 2	736 649	650 400	
	5	585	400	
	10	468	400	This
This workthe SO/CFC				work
	0.5	514	500	
	1	475	350	
	2	415	350	
	5	348	350	

Table S1 A comparison of our work with previously reported electrochemical performance of Sb_2O_3 and Sb_2S_3 anodes for NIBs.



Figure S5 SEM images of SO/CFC electrode after (a) 50 cycles, (b) 500 cycles at the current density of 0.5 A g^{-1} .



Figure S6 SEM images of SS/CFC electrode after (a) 50 cycles, (b) 500 cycles at the current density of 0.5 A g^{-1} .



Figure S7 Electrochemical impedance spectroscopy of NIBs employing the SS/CFC and SS powder anodes.



Figure S8 (a) XRD pattern and (b) SEM image of the CFs prepared by the electrospinning method.

Two characteristic peaks located at about 25° and 43° can be assigned to the (002) and (100) planes of graphite and, the morphology possess one-dimensional structure, which is beneficial for improving electronic conductivity and active surface.⁸



Figure S9 (a) CV curve of CFs at sweep rate of 1 mV S⁻¹ in the voltage range of 2.7-4.3 V (*vs.* Na/Na^+); (b) The selected charge-discharge profiles of CFs; (c) Cycling performance of CFs at 0.5 A g⁻¹ and digital photographs of CFs (inset c).



Figure S10 CV curves of the SO/CFC//CFs NIC device at different scan rates between 1 and 20 mV S⁻¹ in the voltage range of 1.5-4.3 V.



Figure S11 CV curves of the SS/CFC//CFs NIC device at different scan rates between 1 and 20 mV S⁻¹ in the voltage range of 1.5-4.3 V.



Figure S12 Electrochemical performance of the flexible SO/CFC//CFs NIC device in the voltage range of 1.5-4.3 V. (a) Charge-discharge profiles at different current densities; (b) Cycle performance for around 3500 cycles at the current density of 1 A g^{-1} .



Figure S13 Schematic of the discharge mechanism of the flexible Sb₂X₃(X=O,S)/CFC//CFs NIC device.

References

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