

## Supporting Information

### **Self-limiting electrode with double-carbon layers as walls for efficient sodium storage performance**

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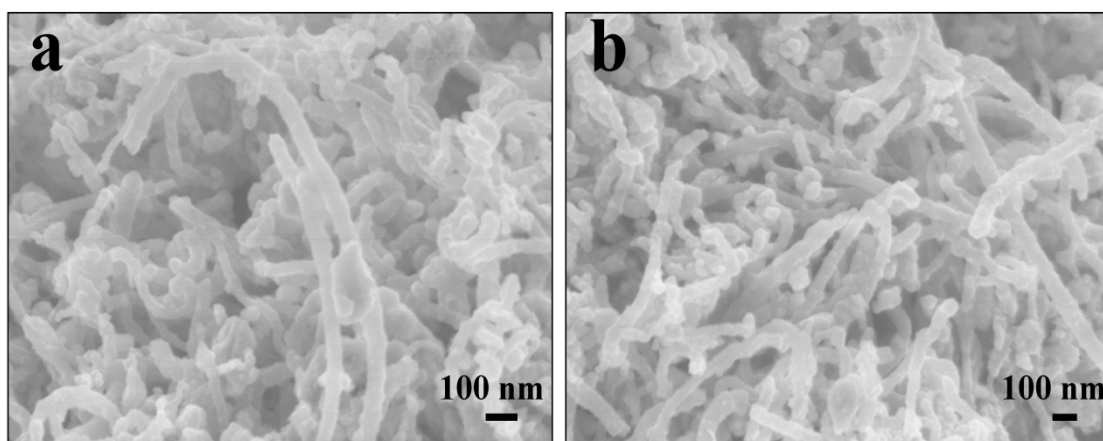
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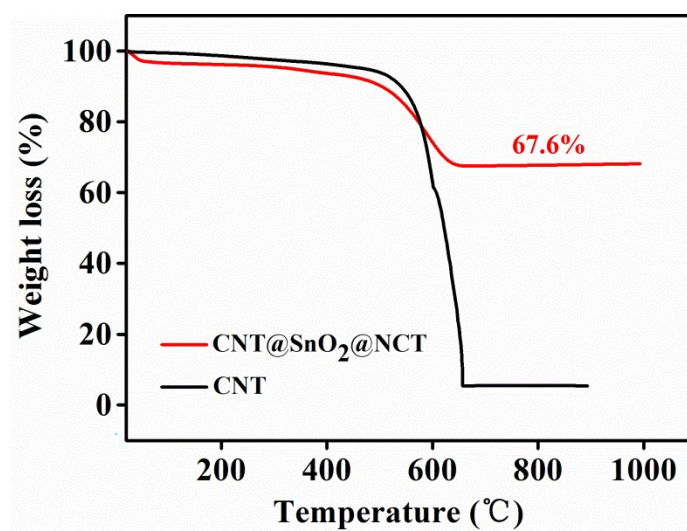
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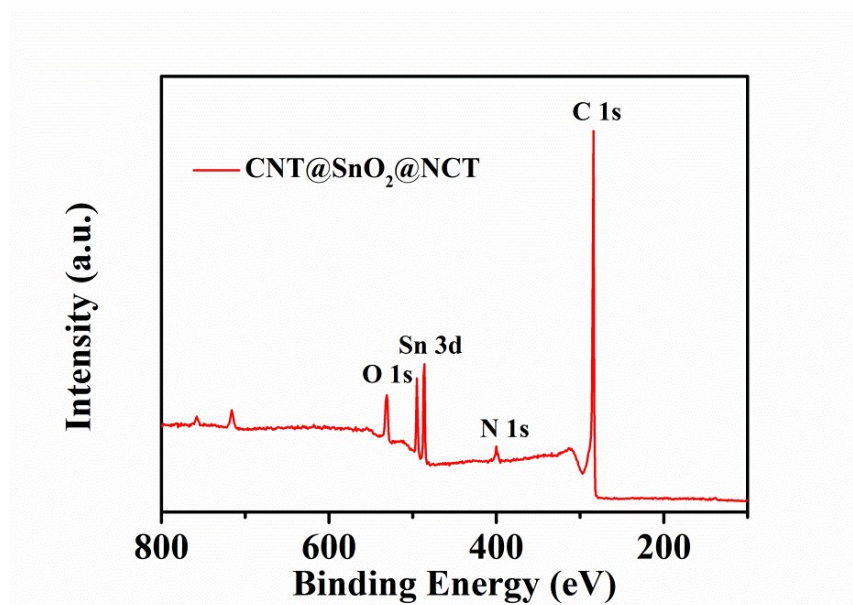
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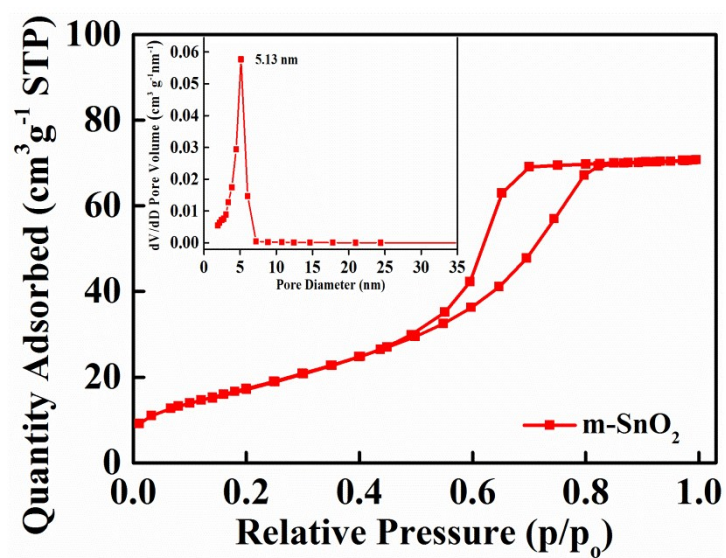
**Fig. S1** (a,b) Typical FESEM image of CNT@SnO<sub>2</sub>@NCT.



**Fig. S2** TGA curves of CNT and CNT@SnO<sub>2</sub>@NCT. This pyrolysis process was carried out in oxygen at a heating rate of 10 °C min<sup>-1</sup>.



**Fig. S3** The survey scan XPS spectrum of CNT@SnO<sub>2</sub>@NCT.



**Fig. S4** Nitrogen adsorption/desorption isotherms of the m-SnO<sub>2</sub>. Inset is the pore size distributions.

**Table S1.** A comparison of SnO<sub>2</sub>-based electrode materials for SIBs.

| Materials                               | Current Density<br>(A g <sup>-1</sup> ) | Capacity<br>(mAh g <sup>-1</sup> ) | Cycle<br>Numbers | Ref.      |
|-----------------------------------------|-----------------------------------------|------------------------------------|------------------|-----------|
| Sn@SnO <sub>2</sub> @C                  | 0.02                                    | 245                                | 100              | 1         |
| CNT@SnO <sub>2</sub> @PPy               | 0.1                                     | 226                                | 100              | 2         |
| SnO <sub>2</sub> /C                     | 0.05                                    | 240                                | 50               | 3         |
| SnO <sub>2</sub> nanowires              | 0.1                                     | 189                                | 50               | 4         |
| Sn/SnO <sub>2</sub> /PC                 | 0.05                                    | 265                                | 50               | 5         |
| SnO <sub>2</sub> /GNS-SCCO <sub>2</sub> | 0.1                                     | 239                                | 100              | 6         |
| SnO <sub>2</sub> @C/CF                  | 0.5                                     | 171                                | 100              | 7         |
| SnO <sub>2</sub> -N-GNS                 | 0.05                                    | 280                                | 50               | 8         |
| CNT@SnO <sub>2</sub> @G                 | 0.2                                     | 180                                | 300              | 9         |
| SnSb/SnO <sub>2</sub> /Sn/C             | 0.05                                    | 305                                | 40               | 10        |
| SnO <sub>2</sub> QDs/GA                 | 0.05                                    | 319                                | 50               | 11        |
| SnO <sub>2</sub> @RGO                   | 0.05                                    | 236                                | 100              | 12        |
| SnO <sub>2</sub> /NG                    | 0.04                                    | 238                                | 100              | 13        |
| SnO <sub>2</sub> microfibers            | 0.02                                    | 240                                | 30               | 14        |
| SnO <sub>2</sub> /C nanofibers          | 0.1                                     | 306                                | 200              | this work |

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