

**Editor's note:** A Correction was published on 16th November 2020 that affects Fig. S10 of this ESI. This can be viewed online at <https://doi.org/10.1039/D0TA90262D>.

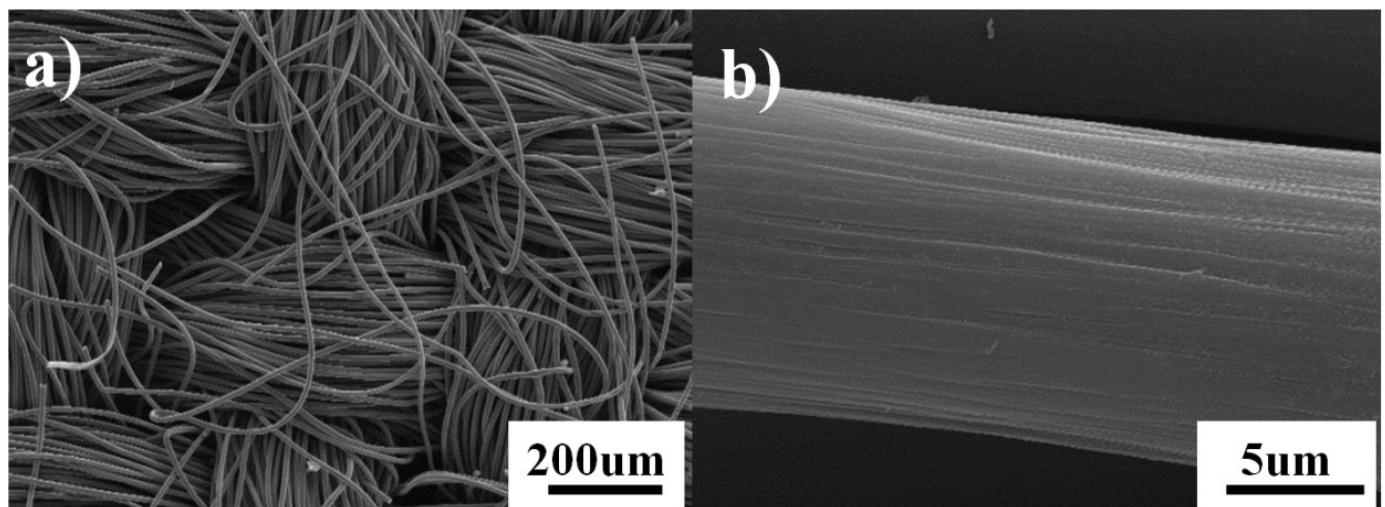
## Supporting Information for

### “Ultra-long $\text{Na}_2\text{Ti}_3\text{O}_7$ Nanowires@carbon Cloth as Binder-free Flexible Electrodes with a Large Capacity and Long Lifetime for Sodium-ion batteries”

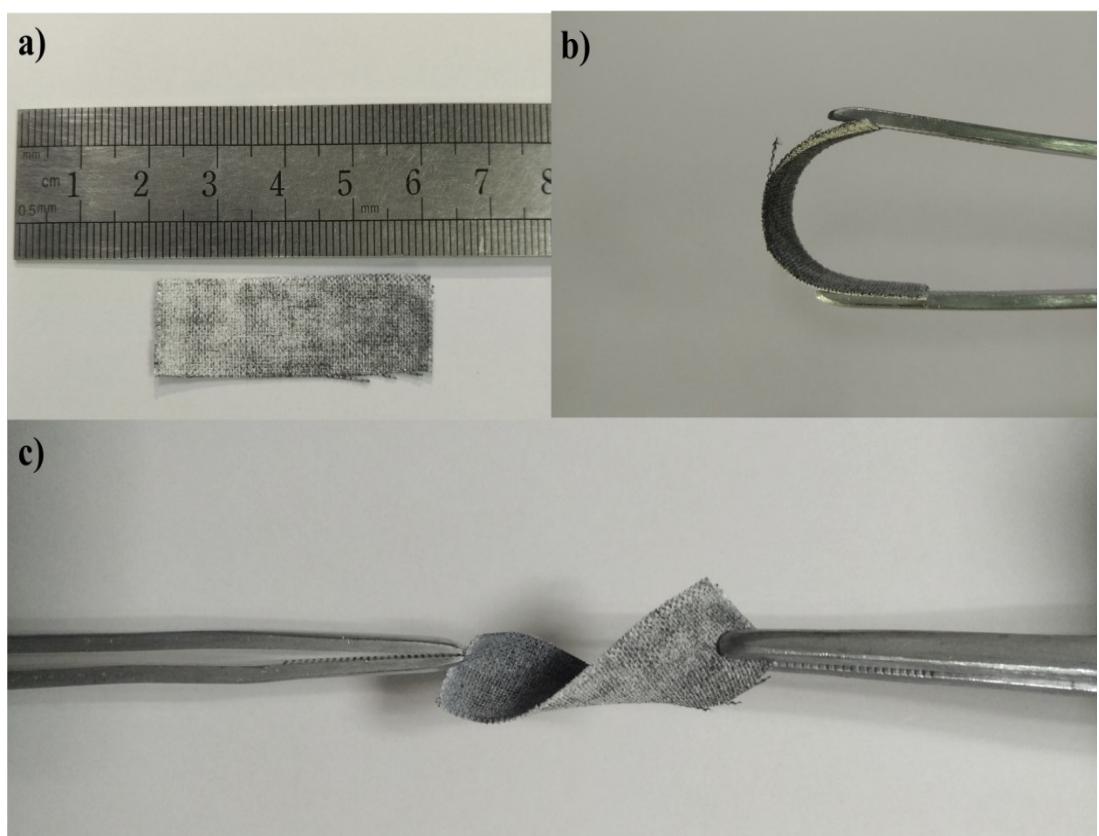
by

Zhihong Li, Wei Shen, Cong Wang, Qunjie Xu, Haimei Liu\*,

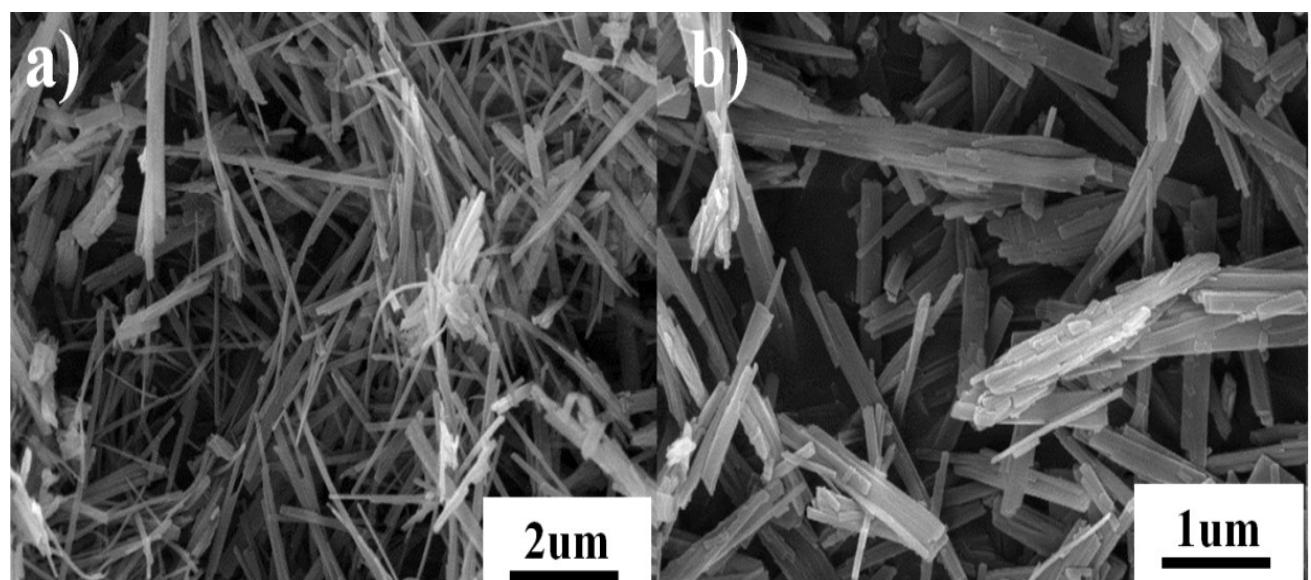
Yonggang Wang\*, Yongyao Xia



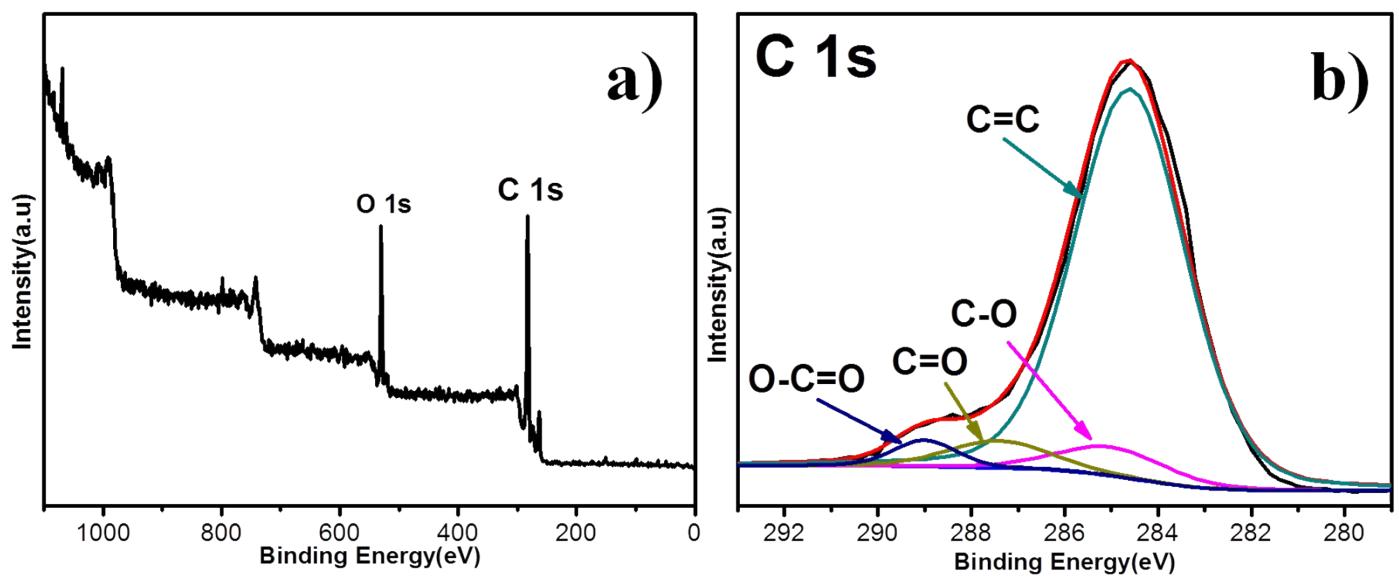
**Fig. S1.** a,b) SEM images of pre-treated carbon cloth.



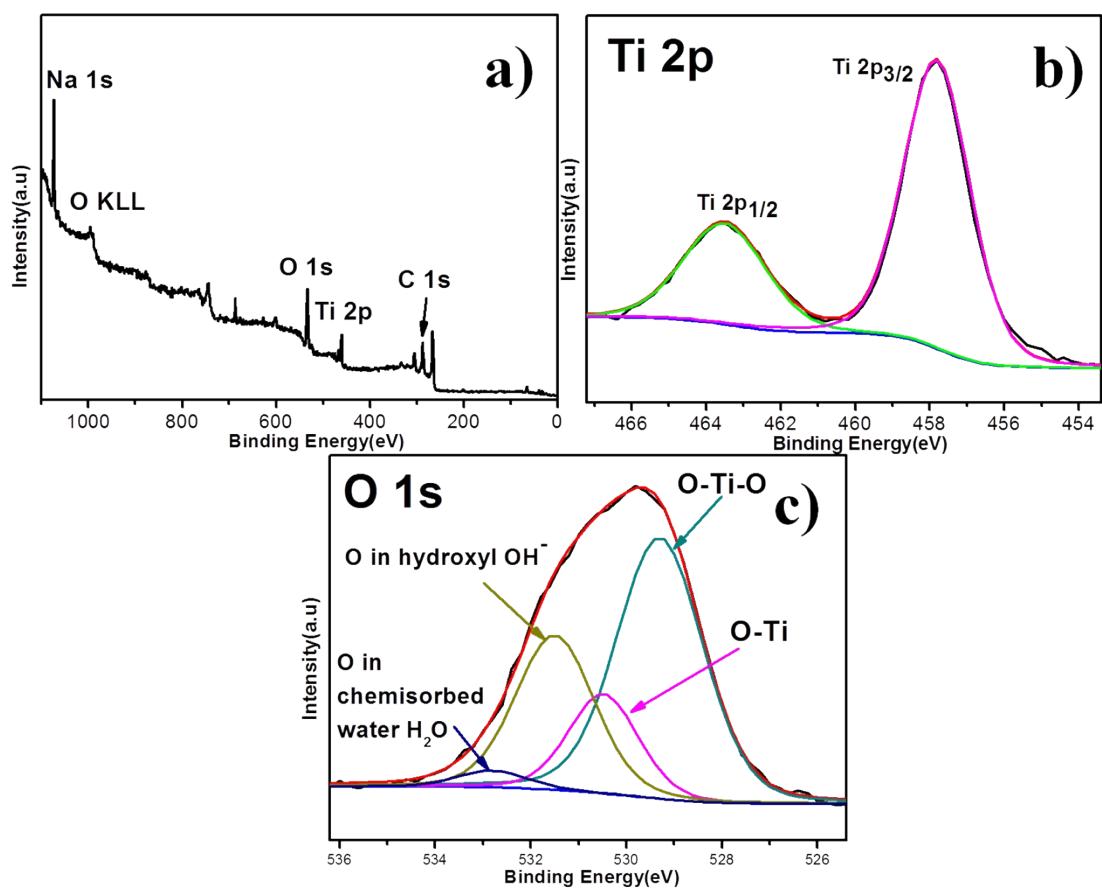
**Fig. S2.** Optical images of the flexible NTO nanowires@CC at a) normal, b) bending, and c) twisting states.



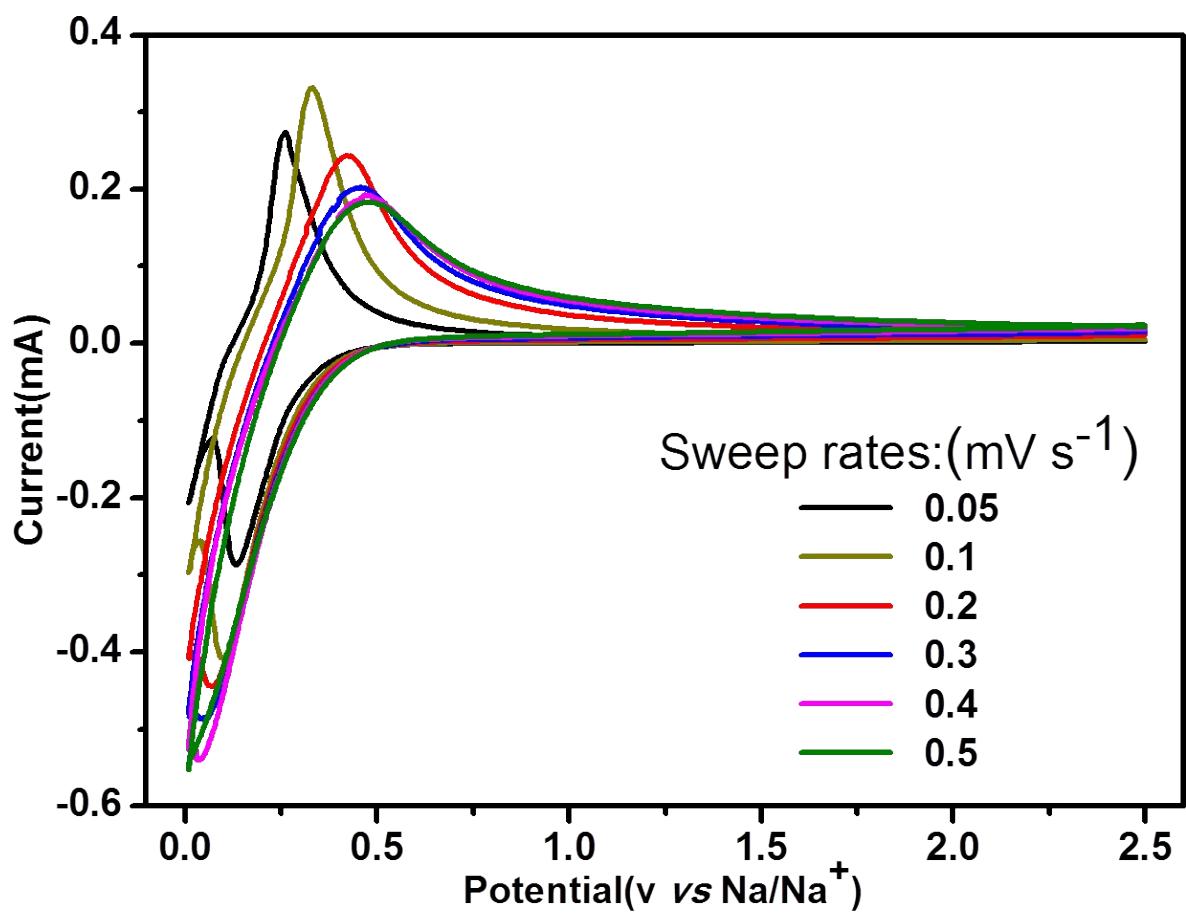
**Fig. S3.** a,b) SEM images of pure NTO nanorods formed without CC.



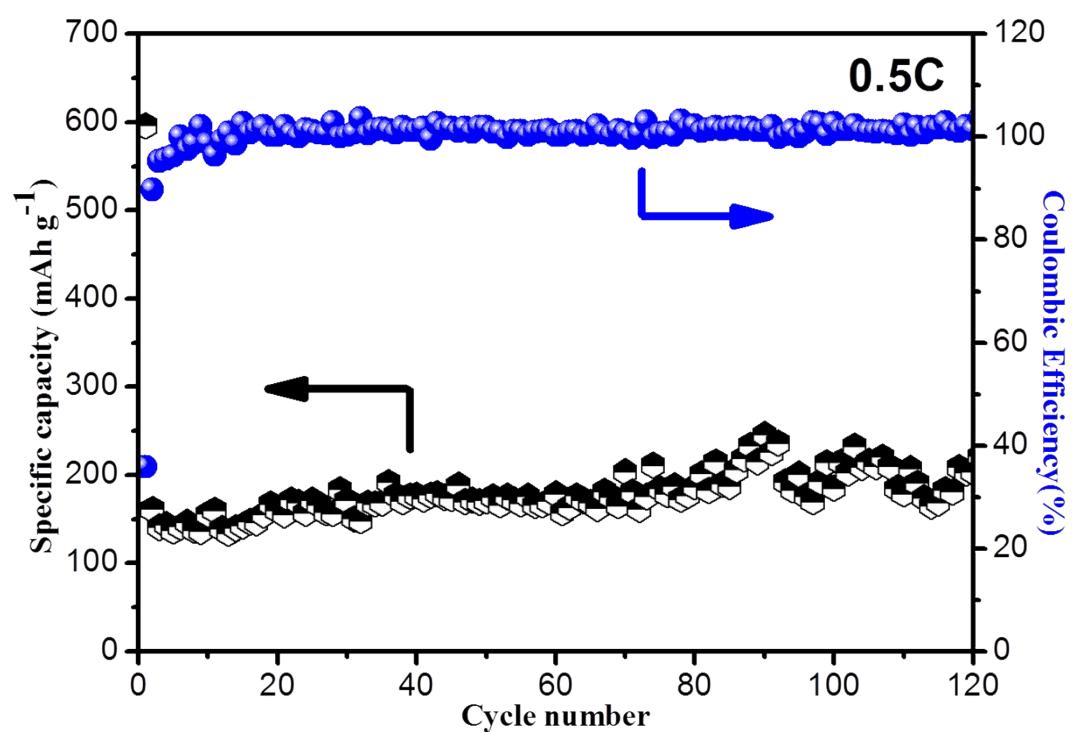
**Fig. S4.** a) XPS survey spectrum of pre-treated CC. High resolution XPS spectra of b) C 1s for pre-treated CC .



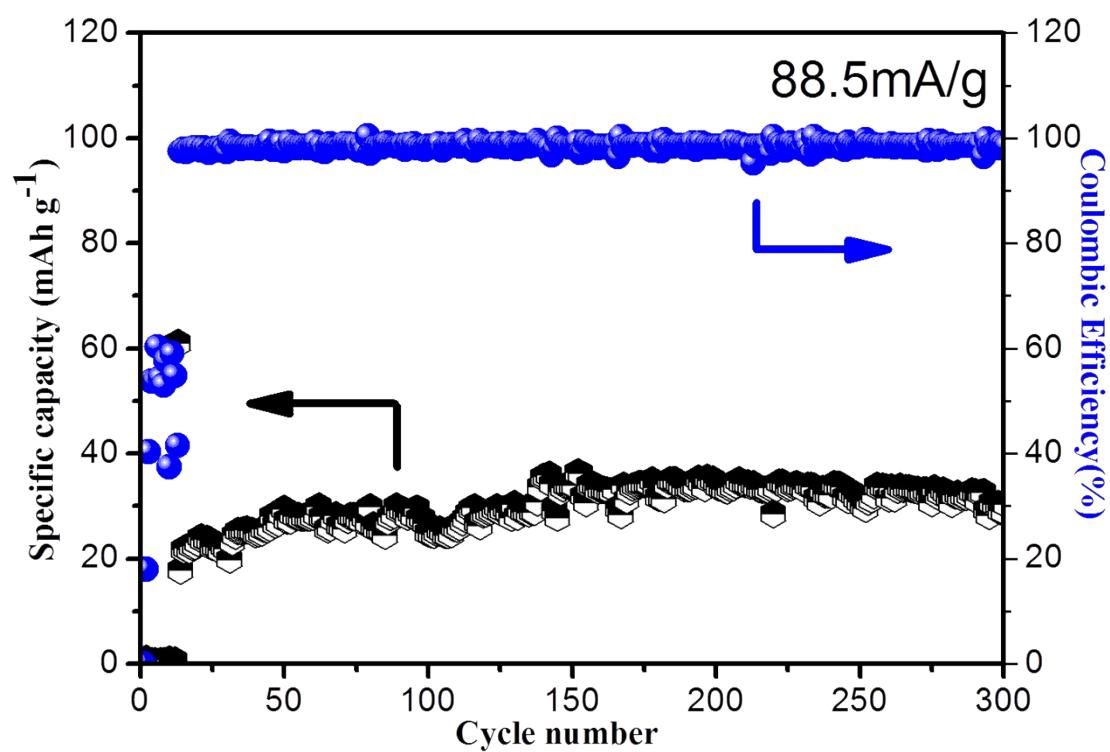
**Fig. S5.** a) XPS survey spectrum of pure NTO nanorods. High resolution XPS spectra of b) Ti 2p, and c) O 1s for pure NTO nanorods.



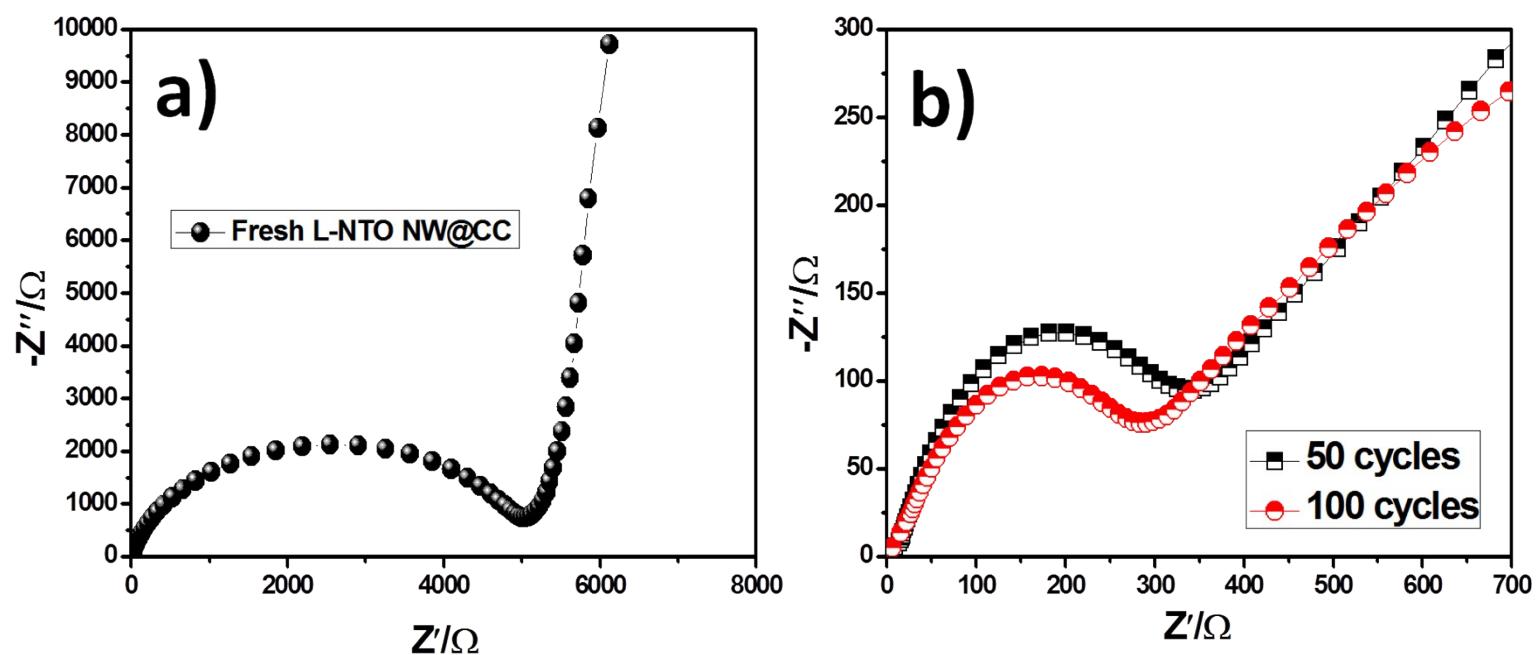
**Fig. S6.** CV curves of the NTO nanowires@CC electrodes at various sweep rates from 0.05 to 0.5 mV s<sup>-1</sup> in a voltage window of 0.01 to 2.5 V.



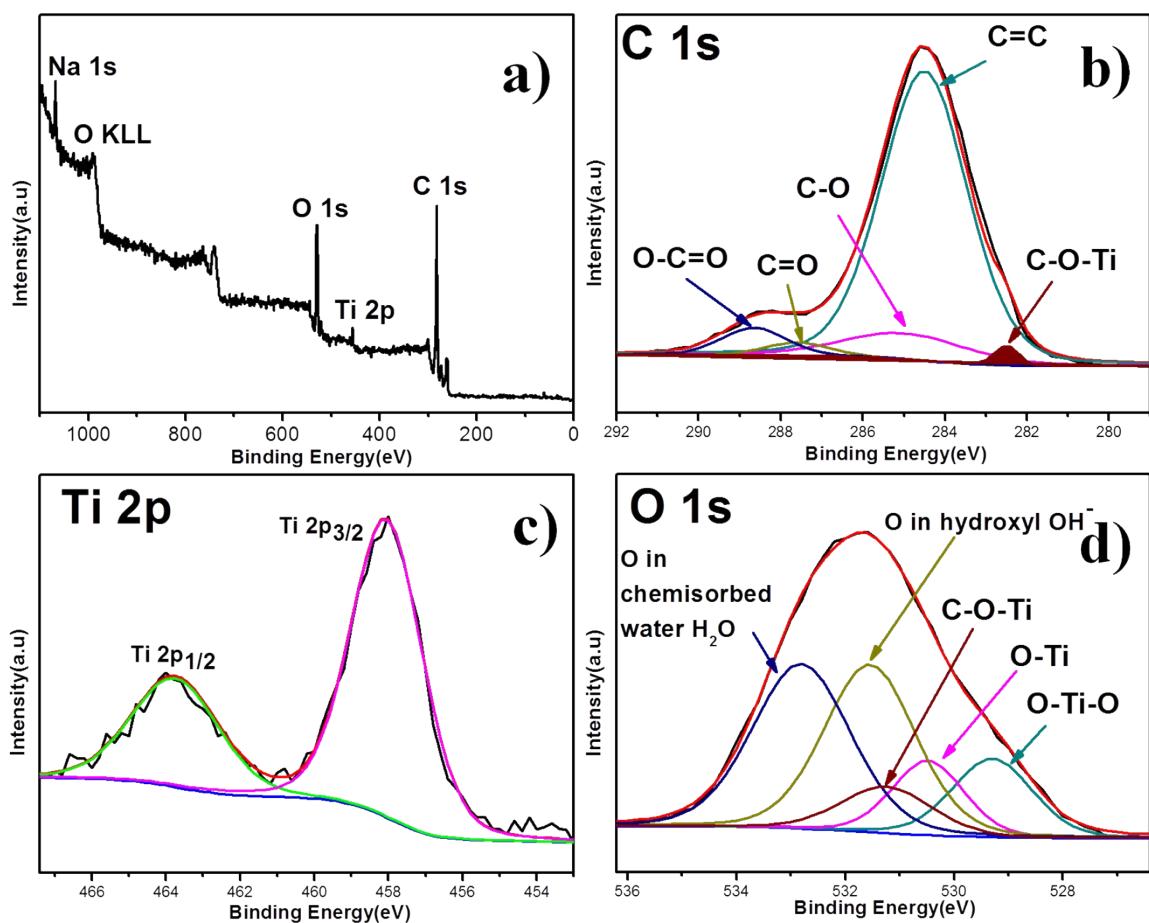
**Fig. S7.** Cycle performance of NTO nanowires@CC between 0.01 and 2.5 V at 0.5C



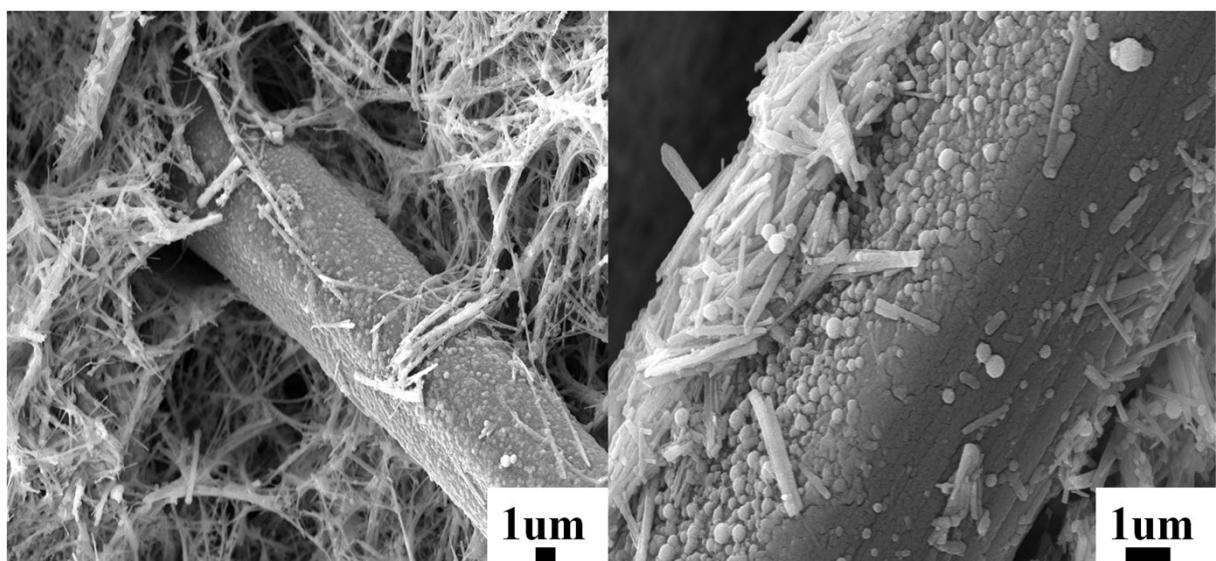
**Fig. S8.** Cycle performance of bare CC between 0.01 and 2.5 V at 88.5 mA g<sup>-1</sup>



**Fig. S9.** Impedance spectra of the NTO nanowires@CC electrodes at stages of a) fresh stages and b) various cycling stages at 1C.



**Fig. S10.** a) XPS survey spectrum of NTO nanowires@CC after the cycles. High resolution XPS spectra of b) C 1s, c) Ti 2p, and d) O 1s for NTO nanowires@CC.



**Fig. S11.** a) SEM images of NTO nanowires@CC after the first cycle of discharge,

b) after the first cycle of charge.

**Table S1.** Comparison of electrochemical performance of different NTO materials

Electrode definition	Specific capacity (mAh g <sup>-1</sup> )	Cycle performance	Reference
L-NTO NW@CC	242.8 mAh g <sup>-1</sup> at 1C	211.9 mAh g <sup>-1</sup> after 300 cycles at 1C	This work
	191.5 mAh g <sup>-1</sup> at 2C	183.8 mAh g <sup>-1</sup> after 300 cycles at 2C	
NTO nanoarrays	190 mAh g <sup>-1</sup> at 1C	195 mAh g <sup>-1</sup> after 200 cycles at 1C	1
NTO nanotube	186 mAh g <sup>-1</sup> at 1C	101 mAh g <sup>-1</sup> after 1200 cycles at 5C	2
3D spider-web architecture assembled from NTO nanotubes	200 mAh g <sup>-1</sup> at 200 mA g <sup>-1</sup>	200 mAh g <sup>-1</sup> after 100 cycles at 400 mA g <sup>-1</sup>	3
Miscrospheric NTO consisting of nanotubes	263 mAh g <sup>-1</sup> at 354 mA g <sup>-1</sup>	108 mAh g <sup>-1</sup> after 100 cycles at 354 mA g <sup>-1</sup>	4
NTO/C	121.2 mAh g <sup>-1</sup> at 1C	111.8 mAh g <sup>-1</sup> after 100 cycles at 1C	5
NTO/CNT	245 mAh g <sup>-1</sup> at 170 mA g <sup>-1</sup>	200 mAh g <sup>-1</sup> after 200 cycles at 170 mA g <sup>-1</sup>	6

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