

*Supporting information*

## **Supporting information**

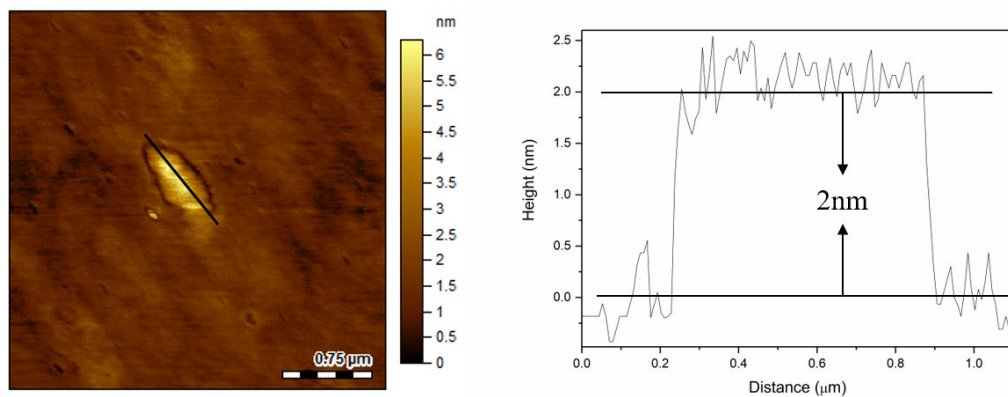
### **Facile Synthesis of Layered Ti<sub>2</sub>C MXene/Carbon Nanotube Composite Paper with Enhanced Electrochemical Property**

Longfei Li<sup>a</sup>, Fen Wang<sup>a,\*</sup>, Jianfeng Zhu<sup>a,\*</sup>, Wenling Wu<sup>a</sup>

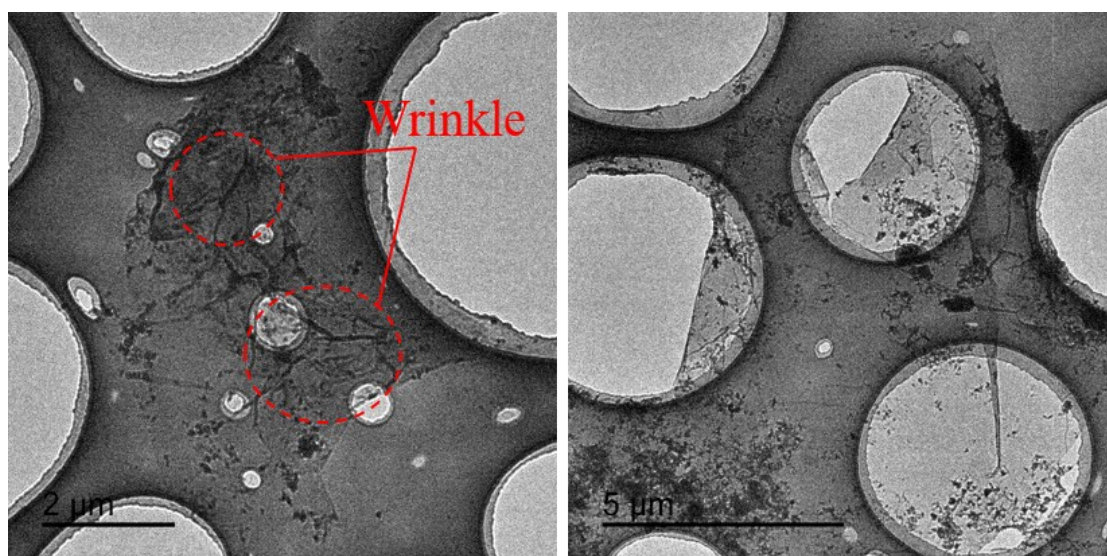
<sup>a</sup> School of Materials Science and Engineering, Shaanxi University of Science and Technology, Xi'an 710021, People's Republic of China

\*Corresponding Authors: [wangf@sust.edu.cn](mailto:wangf@sust.edu.cn); [zhujf@sust.edu.cn](mailto:zhujf@sust.edu.cn)

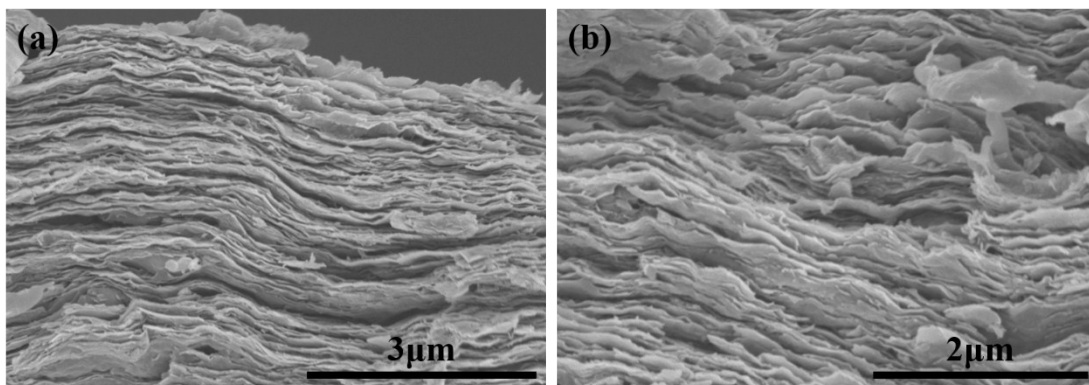
**KEYWORDS:** MXene; Flexible film; Li-ion storage; Supercapacitor; Volumetric capacity; Gravimetric capacity



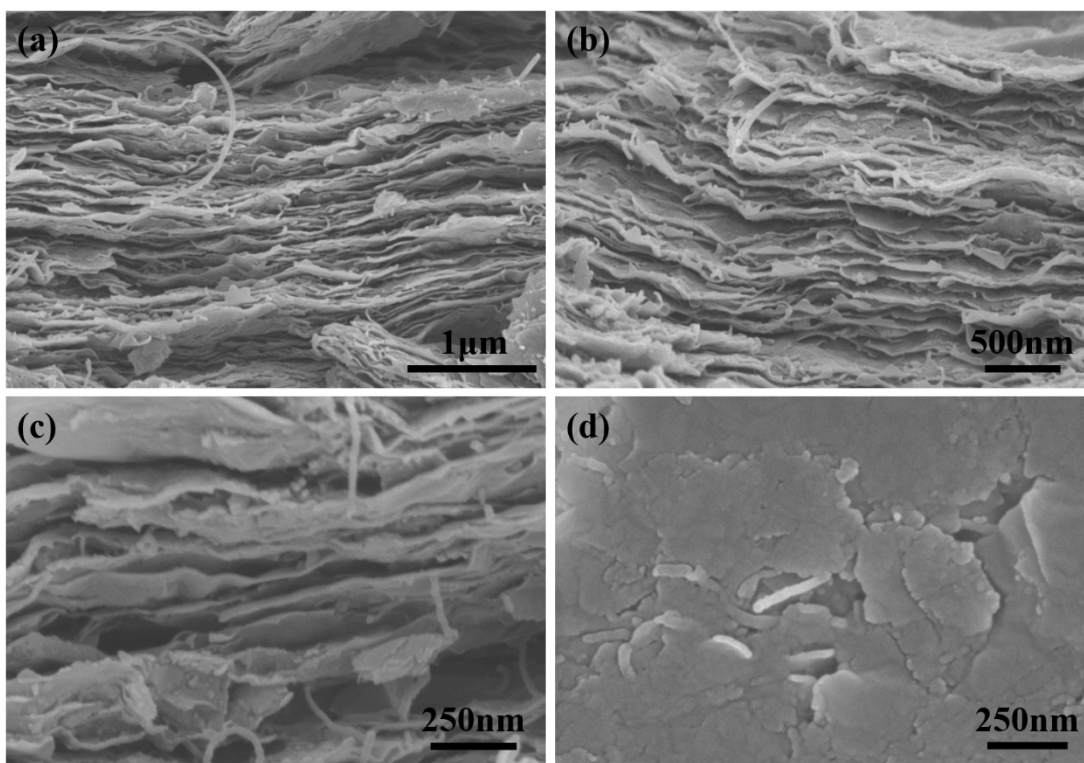
**Fig. S1** AFM image of  $\text{Ti}_2\text{CT}_x$  nanosheets with a thickness of about 2 nm



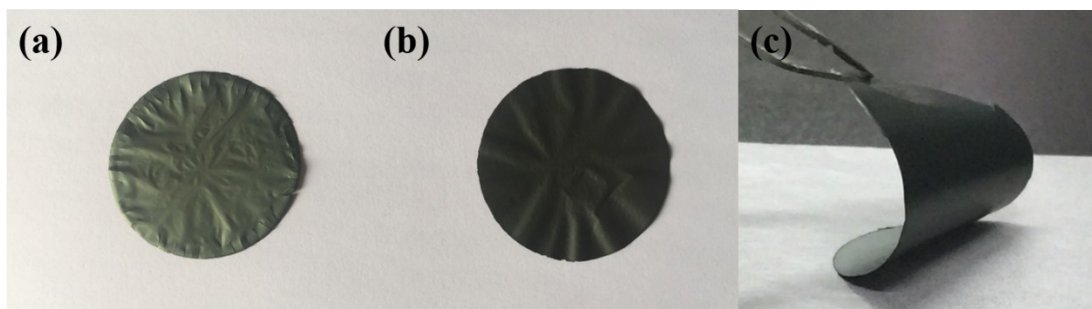
**Fig. S2** TEM image of  $\text{Ti}_2\text{CT}_x$  nanosheets under different magnification



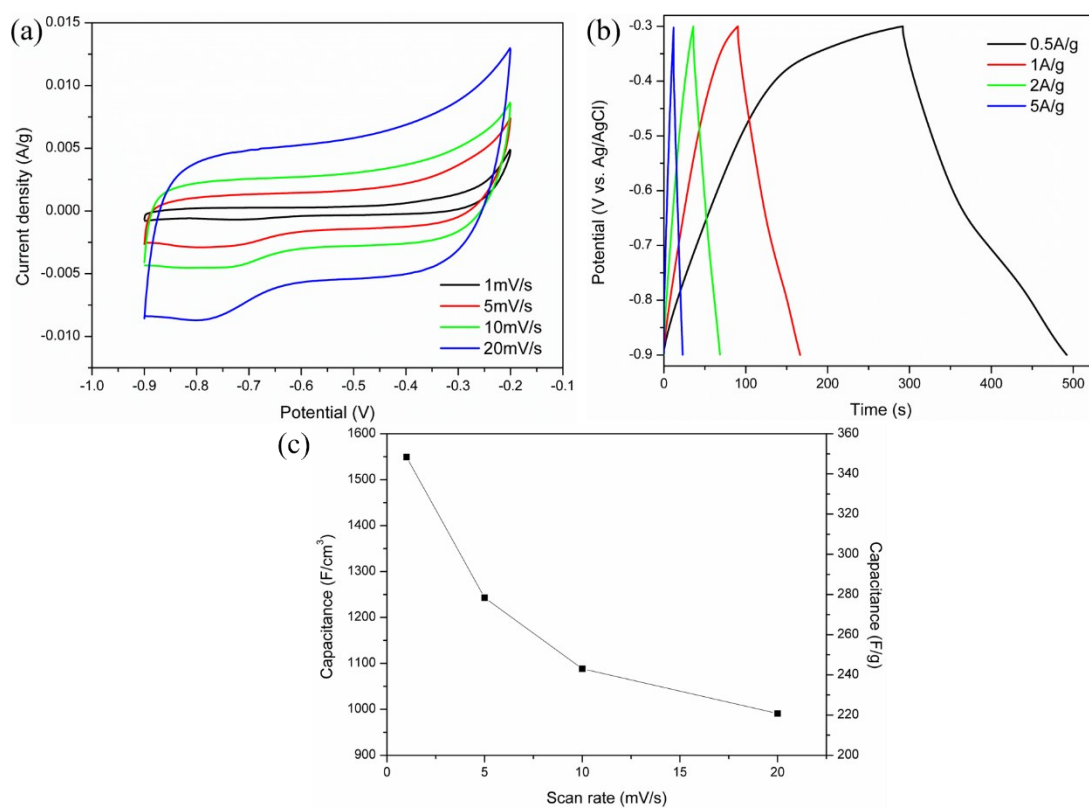
**Fig. S3** SEM images of  $\text{Ti}_2\text{CT}_x$  paper under different magnification



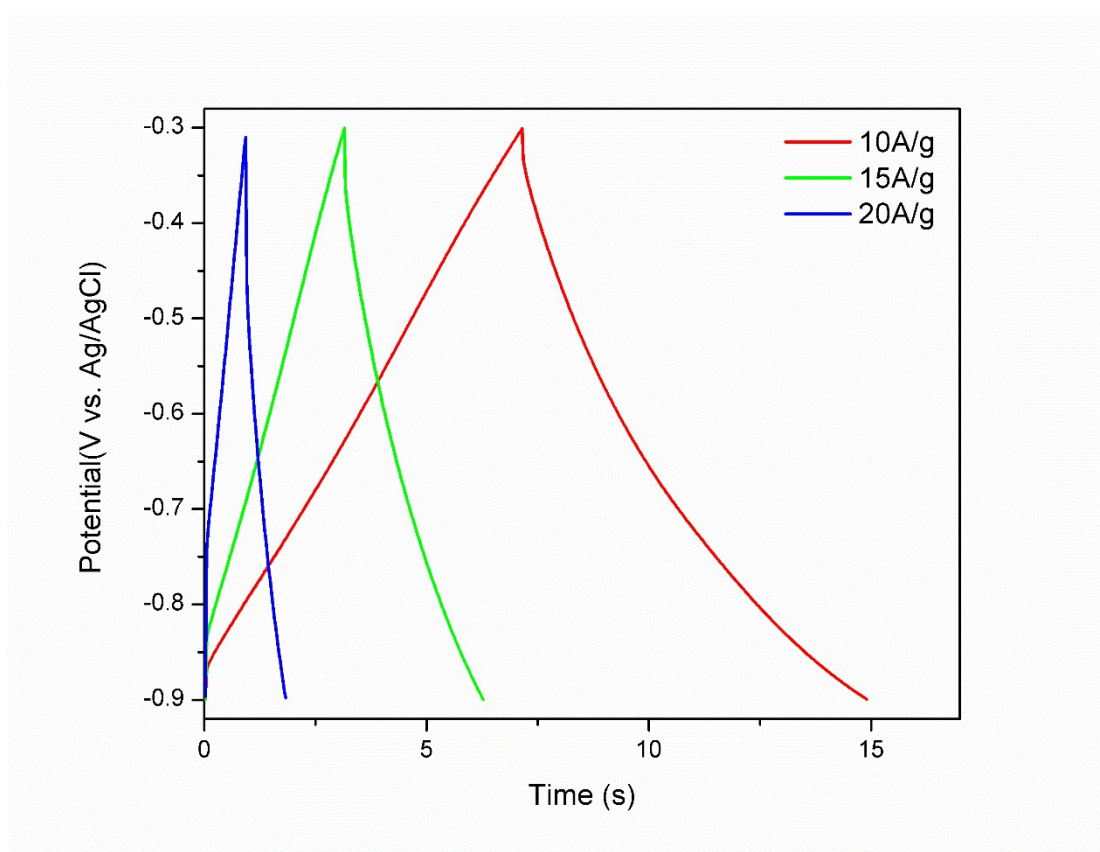
**Fig. S4** SEM images of  $\text{Ti}_2\text{CT}_x/\text{CNT}$  paper, (a) (b) and (c) are the cross section of  $\text{Ti}_2\text{CT}_x/\text{CNT}$  paper under different magnification; (d) is top-view of  $\text{Ti}_2\text{CT}_x/\text{CNT}$  paper



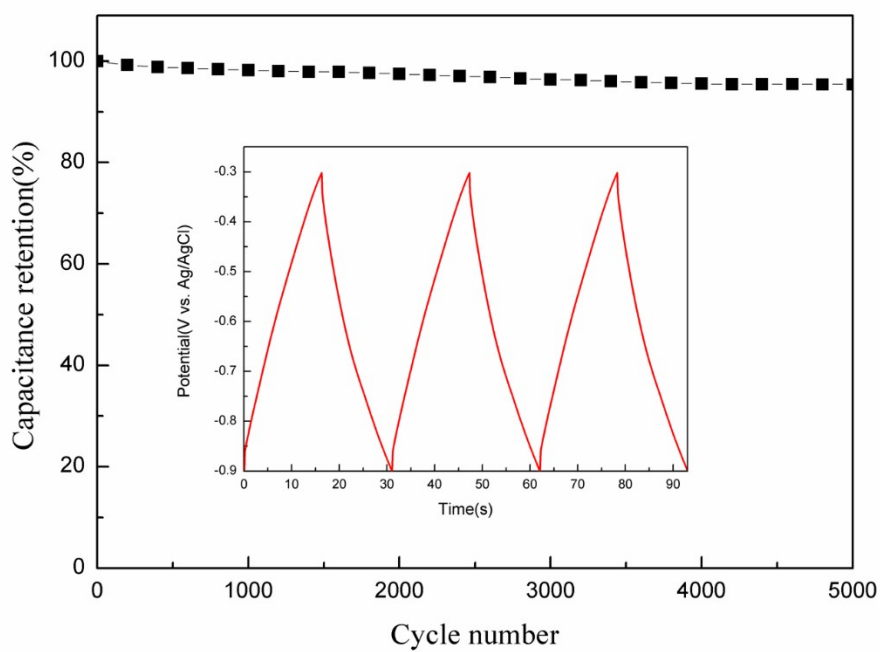
**Fig. S5** Digital photograph of (a) Ti<sub>2</sub>CT<sub>x</sub> paper and (b) Ti<sub>2</sub>CT<sub>x</sub>/CNT paper, (c) display the highly flexible of Ti<sub>2</sub>CT<sub>x</sub>/CNT paper.



**Fig. S6** Capacitor performance of Ti<sub>2</sub>CT<sub>x</sub> paper electrodes. (a) Cyclic voltammograms at different scan rates and (b) galvanostatic charge-discharge profiles collected at different current densities (c) Volumetric (left y-axis) and gravimetric (right y-axis) rate performance



**Fig.S7** Galvanostatic charge-discharge profiles collected at different current densities



**Fig.S8** Galvanostatic cycling curves for  $\text{Ti}_2\text{CT}_x/\text{CNT}$  paper electrode at 5 A g<sup>-1</sup> (5000 GCD cycles).