Supporting Information for

In-situ Annealed $Ti_3C_2T_x$ MXene Based All-Solid-State Flexible Zn-Ion Hybrid Micro Supercapacitor Array with Enhanced Stability

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Supplementary Tables and Figures

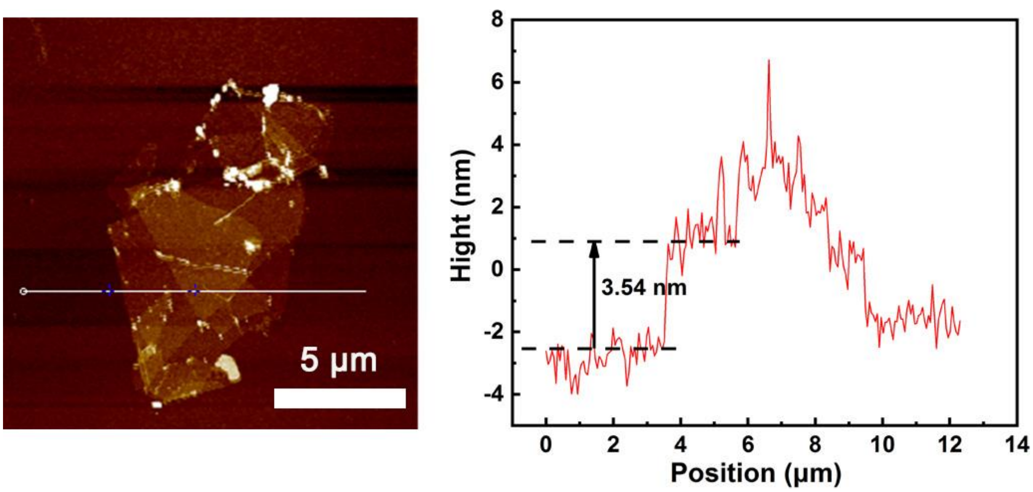

Fig. S1 AFM images of the $Ti_3C_2T_x$ flakes

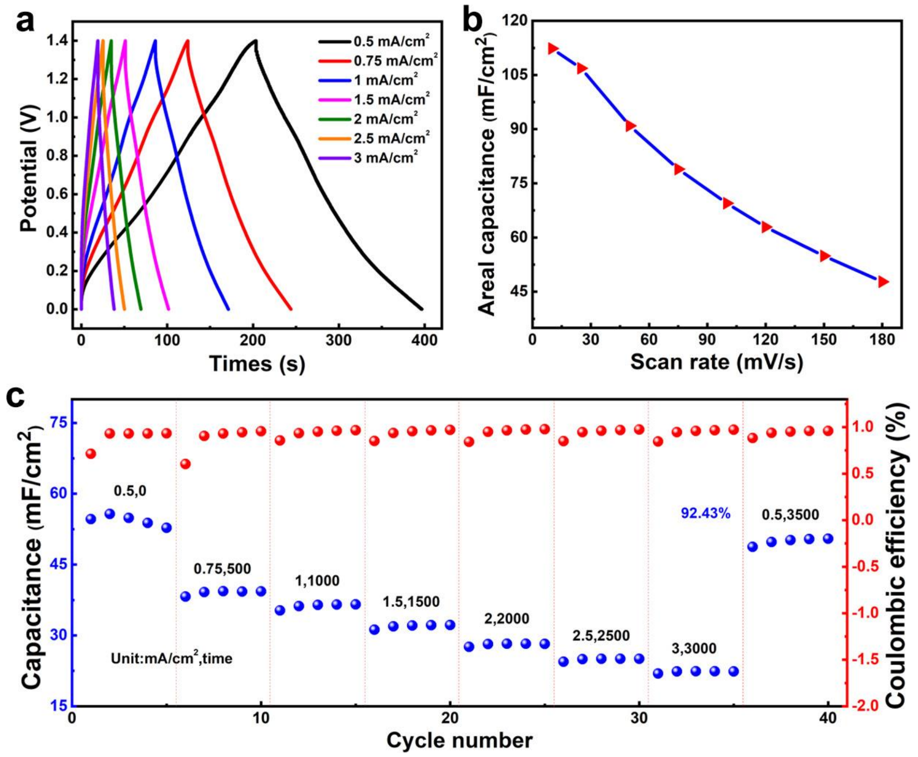

Fig. S2 a Galvanostatic charge-discharge curves. **b** areal capacitance and **c** rate stability of the fabricated MSCs without anneal

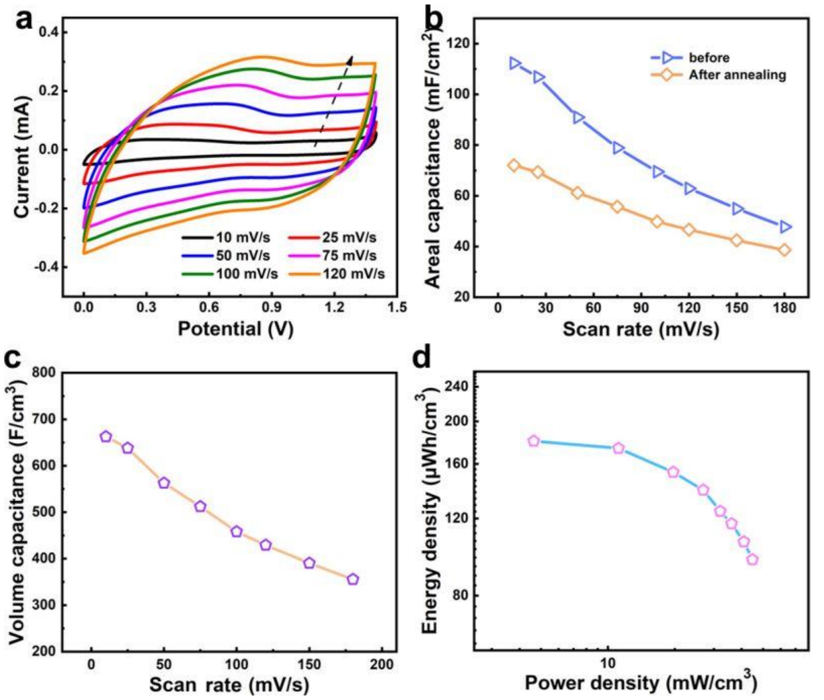

Fig. S3 a CV curves, **b** compared areal capacitance, **c** volume capacitance and **d** range plot of *in-situ* annealed Zn-ion MSCs

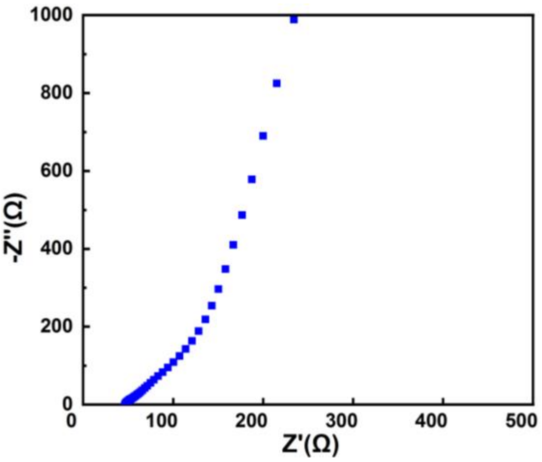

Fig. S4 Nyquist impedance of the $Ti_3C_2T_x$ based concentric circular Zn-ion MSC after annealing treatment

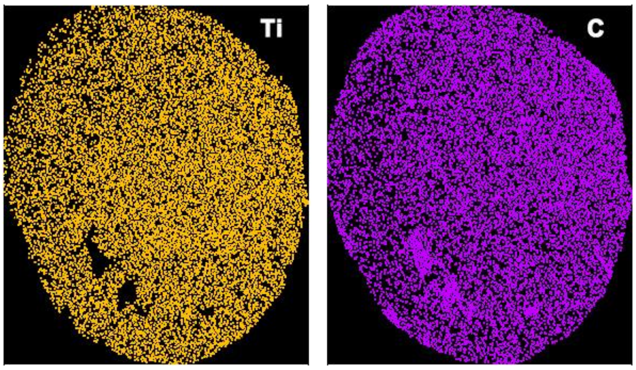

Fig. S5 Ti and C element dispersion in the $Ti_3C_2T_x$ cathode, corresponding to Fig. 4b

Caculation:

Areal and volumetric capacitances can be calculated by the equations:

$$C_A = \frac{\int_0^v I \, dv}{SVA}$$

Where C_A represents the specific areal/volume capacitance, I is the current, S stands for the scan rate, V is the potential in the CV curve, A is the areal or volume of the devices.

The energy density and power density:

$$E = C_A \times \Delta V^2 / 7200$$

$$P = E \times 3600 / \Delta t$$

Where E represents the energy density, P is the power density, and Δt is the total discharge time.