Supplementary Information for

Fully screen printed highly conductive electrodes on various flexible substrates for asymmetric supercapacitors

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1. The volumetric capacitance of the device can be calculated from CV results by the following equations:

$$C = A / (2 \times s \times \Delta U) \tag{1}$$

$$C_V = C / V = A / (2 \times s \times V \times \Delta U) \tag{2}$$

where C is the capacitance of the ASC, A is the area of CV curve, s is the scan rate, ΔU is the potential window, C_V is the volumetric capacitance, and V is the total volume of the electrodes except collector.

2. The volumetric capacitance of the device can be calculated from galvanostatic charge-discharge results by the following equations:

$$C = I \times \Delta t / \Delta U \tag{3}$$

$$C_V = C / V = I \times \Delta t / (V \times \Delta U) \tag{4}$$

where C is the capacitance of the ASC, I is the discharge current, Δt is the discharge time, ΔU is the potential window during the discharge process, C_V is the volumetric capacitance, and V is the total volume of the electrodes except collector.

3. The energy density and average power density derived from the GCD of the device can be calculated from the following equations:

$$D_E = 0.5 C_V (\Delta U)^2 \tag{5}$$

$$D_P = 3600 D_E / \Delta t \tag{6}$$

where D_E is the energy density, C_V is the volumetric capacitance which can be obtained through Eq. 4, ΔU is the potential window, D_P is the volumetric power density and Δt is the discharge time.

4. The capacity retention (CR) can be calculated from galvanostatic charge-discharge results by the following equations:

$$CR = \Delta t / \Delta t_0 \tag{7}$$

Where Δt is the discharge time of different cycles, Δt_0 is initial discharge time.

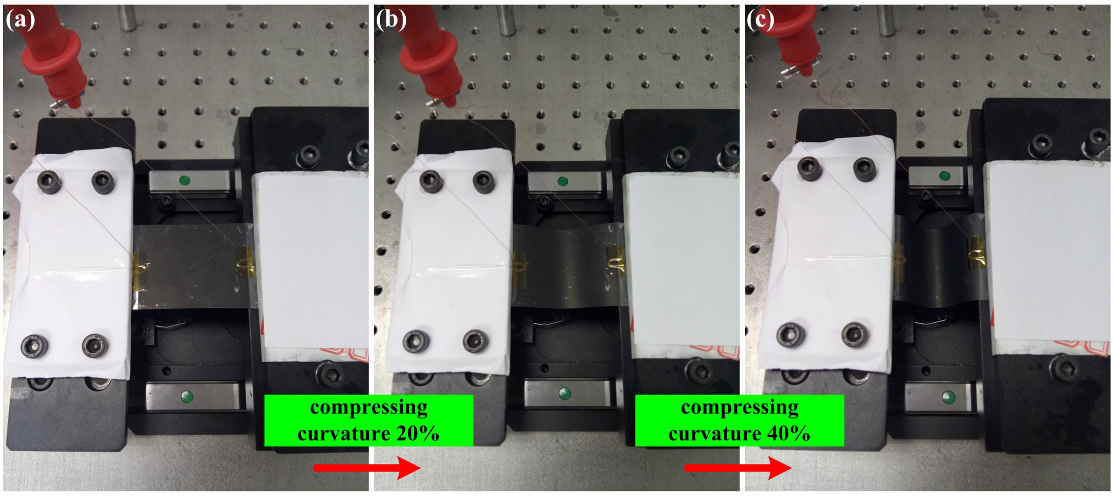

Fig. S1 Compressing process of carbon nanoparticle electrode. (a) Initial state. (b) Compressing for curvature of 20%. (c) Compressing for curvature of 40%.

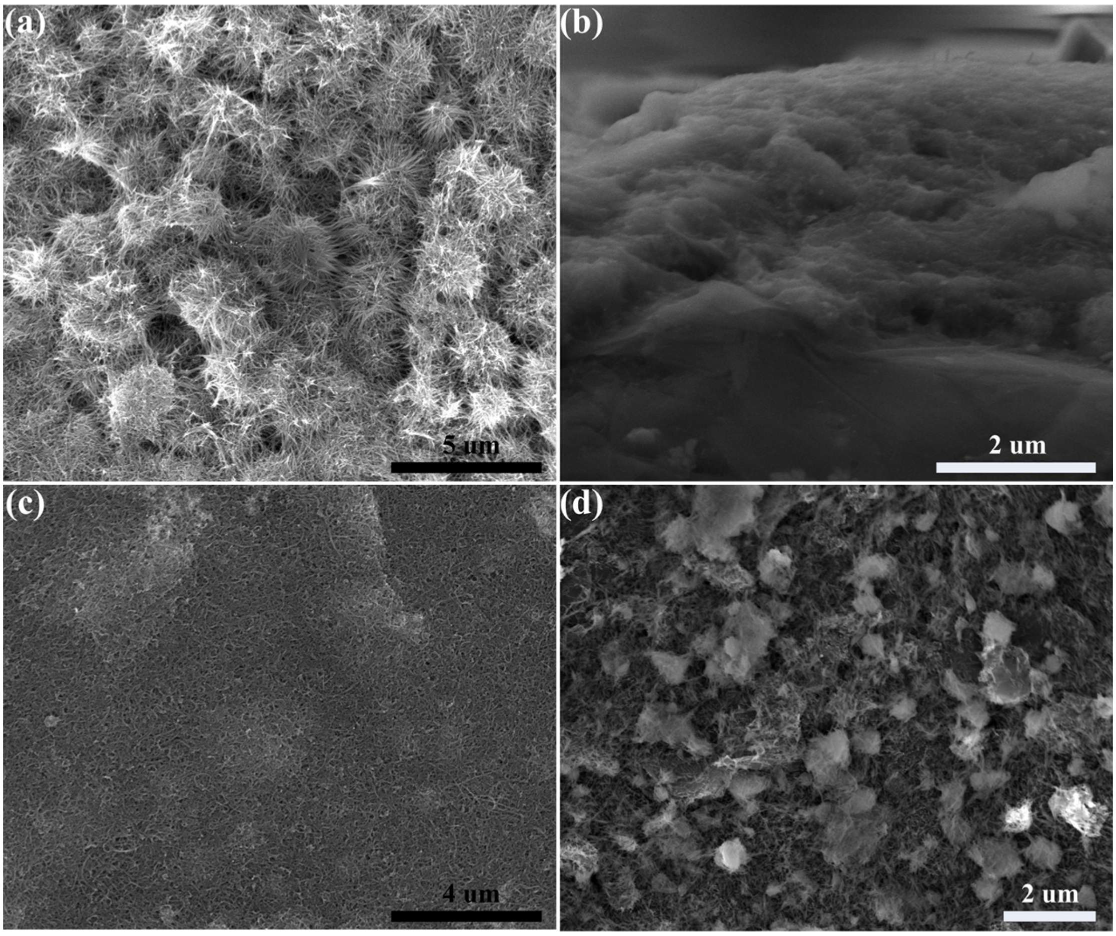

Fig. S2 (a) The SEM image of entangled MnO_2 nanowires. (b) The enlarger SEM image of the border of carbon nanoparticle and MWCNTs-MnO_2. SEM images of surface of (c) MWCNTs electrode and (d) MnO_2 electrode.

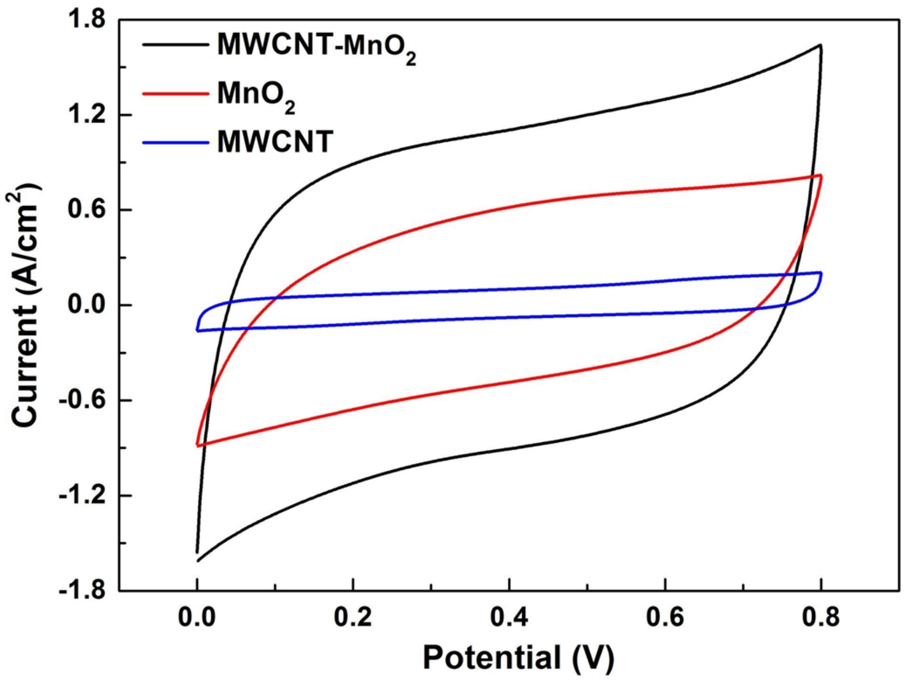

Fig. S3 Cyclic voltammograms of the MWCNTs, MnO_2 and MWCNTs-MnO_2 electrode at the scan rate of 100 mV s^{-1}.

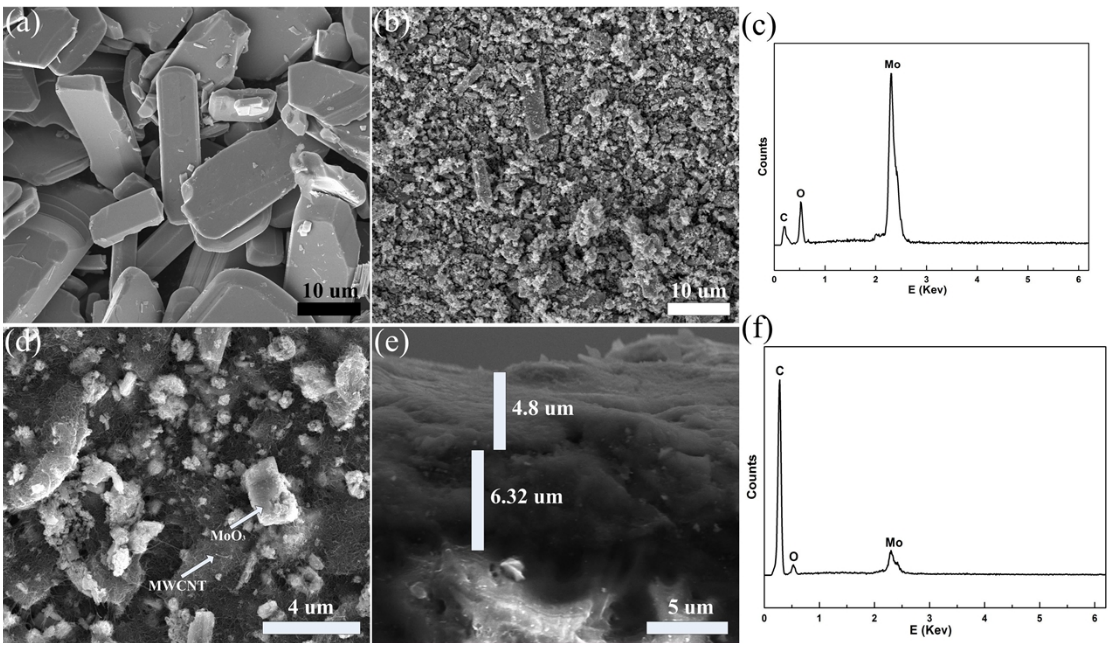

Fig. S4 The SEM images of MoO_3 (a) before and (b) after ball-milling. (c) EDS of MoO_3. (d) SEM images of surface and (e) side view of screen printed MWCNTs-MoO_3 on carbon nanoparticle electrode. (f) EDS of MWCNTs-MoO_3 electrode.

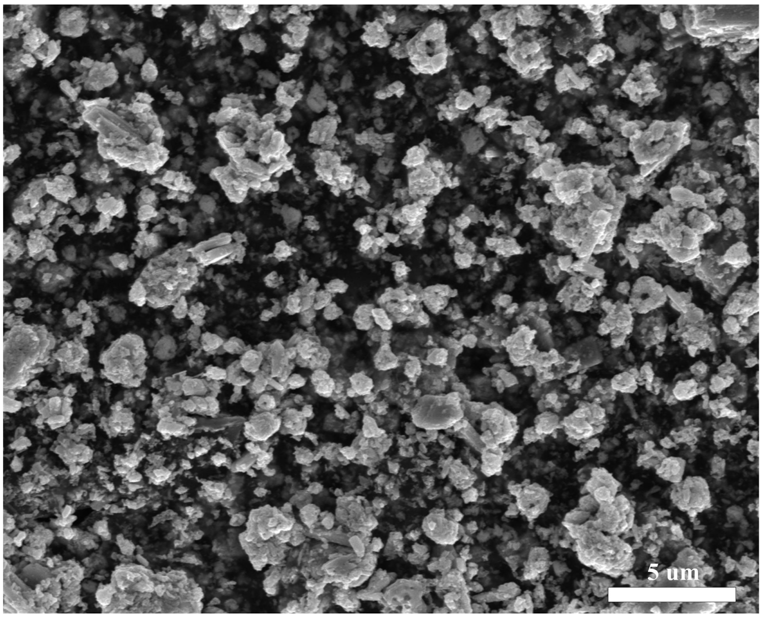

Fig. S5 The SEM image of MoO_3 electrode.

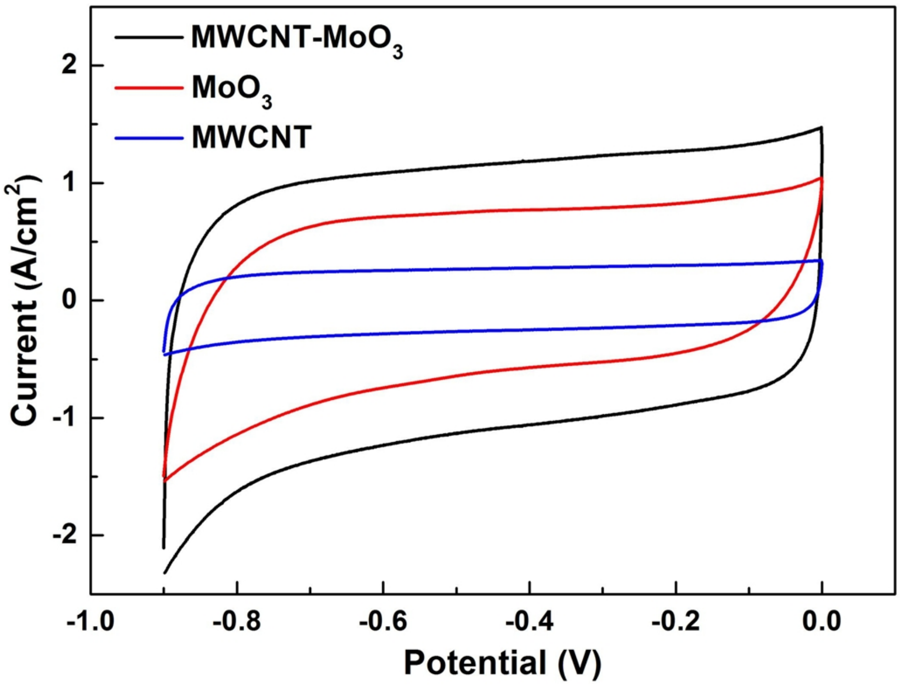

Fig. S6 Cyclic voltammograms of the MWCNTs, MoO_3 and MWCNTs-MoO_3 electrode at the scan rate of 100 mV s^{-1}.