Electronic Supplementary Information

Effect of temperature on the performance of ultrafine MnO_2 nanobelt supercapacitors

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Part I: Calculations

The specific capacitance of the electrode was calculated from the C-V curves according to the following equation[1]:

$$C = \frac{Q}{\Delta V * m}$$

where C (F g^{-1}) is the specific capacitance, m (g) is the mass of the active materials in the electrodes, Q (C) is an average charge during the charging and discharging processes, and ΔV (V) is the potential window.

The discharge specific capacitance is calculated from the discharge curves using the following formula[1]:

$$C = \frac{I * \Delta t}{m * \Delta V}$$

where I (A), Δt (s), m (g), and ΔV (V) are the discharge current, discharge time consumed in the potential range of ΔV, mass of the active materials, and the potential windows, respectively.

1. J. Yan, E. Khoo, A Sumboja, P. S. LEE. *Acs Nano*, 2010, **4**, 4247-4255.

Part II: Supplementary Figures

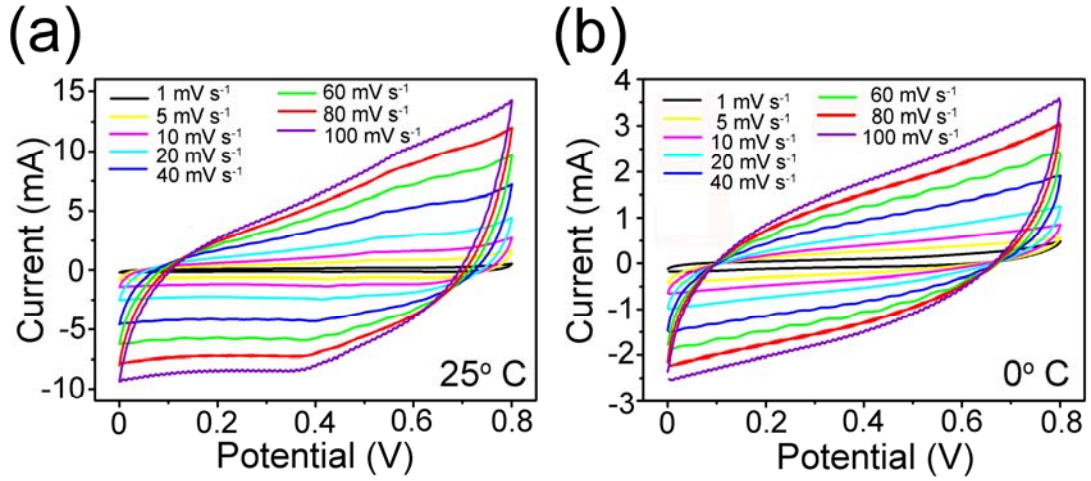

Fig. S1 Cyclic voltammetry (CV) curves of the MnO_2 nanobelts at different scan rates with (a) 25 ºC and (b) 0 ºC.

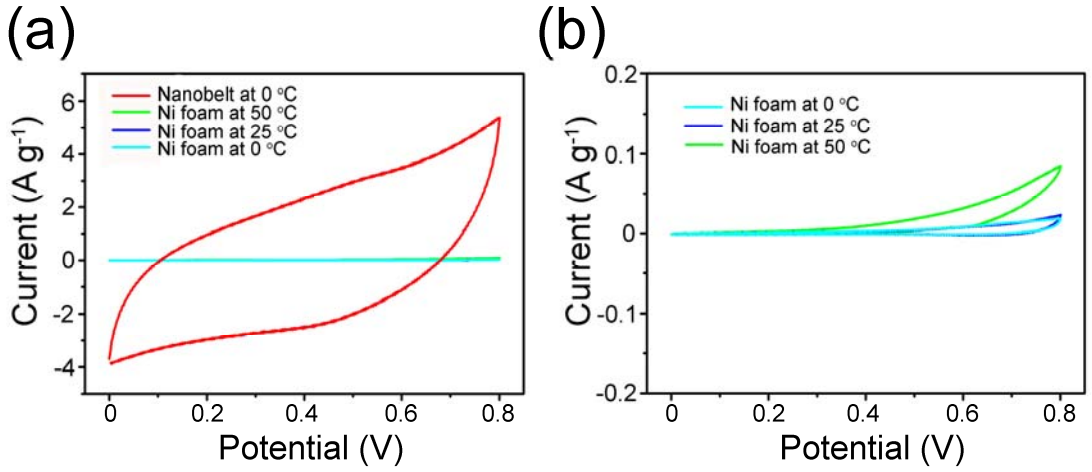

Fig. S2 (a) CV curves comparison of the Ni substrate at different temperatures and MnO_2 nanobelts at 0 ºC, at a scan rate of 50 mV s^{-1}. (b) Enlarged CV curves of Ni substrate in (a) at different temperatures.

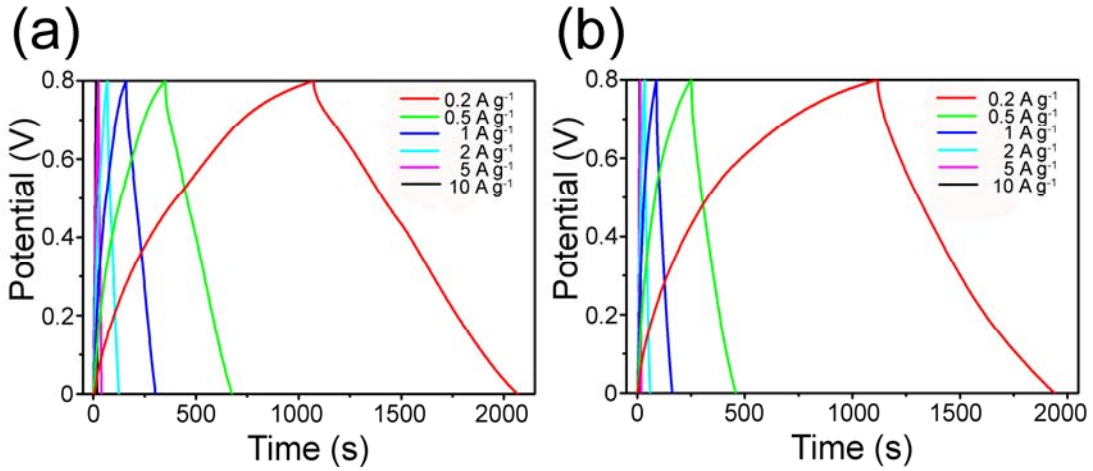

Fig. S3 Galvanostatic charge-discharge curves of the MnO_2 nanobelts with different current densities at (a) 25 ºC and (b) 0 ºC.