Supplementary materials

Oxygen Vacancies-enriched MoO_{3-x} Nanobelts for Asymmetric Supercapacitors with Excellent Room/Low Temperature Performance

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Relevant formulas:

The relevant calculation formulas for specific capacitance (C_s for single electrodes, C for asymmetric supercapacitor), energy density (E) and power density (P) are listed as follows:

$$C_s=\frac{I\Delta V_1}{m\Delta t_1} \quad (1)$$

$$C=\frac{I\Delta V_2}{m\Delta t_2} \quad (2)$$

$$E=\frac{C(\Delta V_2)^2}{2\times 3.6} \quad (3)$$

$$P=\frac{3600E}{\Delta t_2} \quad (4)$$

Where C_s and C (F g^{-1}) are the specific capacitance of single electrode and asymmetric supercapacitor respectively. I (A) is current. m (g) is the mass of active materials. ΔV_1 (V) and ΔV_2 (V) are the voltage windows of single electrode and asymmetric supercapacitor without IR drop, respectively. E (Wh kg^{-1}) is energy density and P (W kg^{-1}) is power density of asymmetric supercapacitor.

Figures:

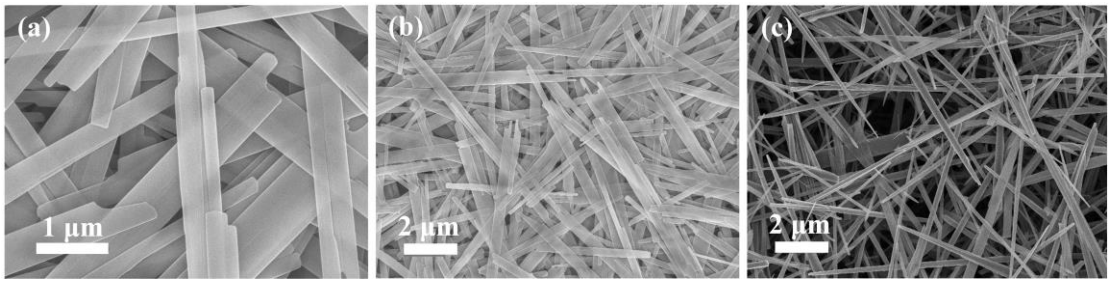

Fig. S1 SEM images of MoO_3 nanobelts with different magnifications (a, b) and MoO_{3-x} nanobelts (c).

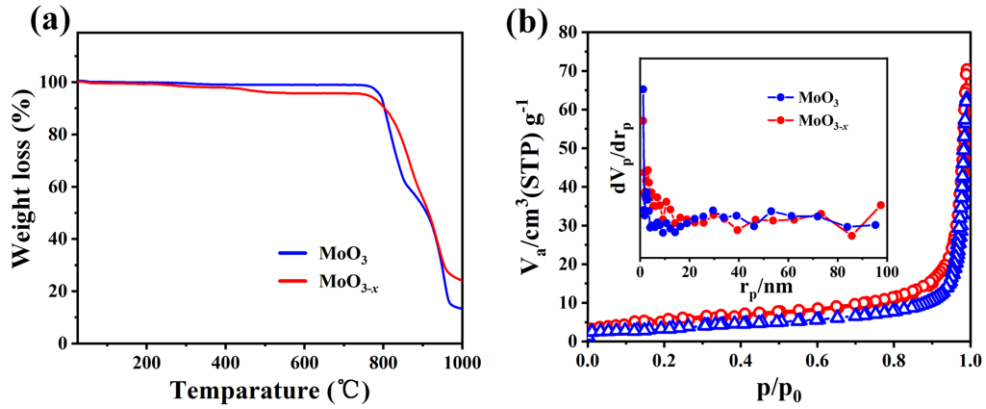

Fig. S2 TG (a) and BET (b) test results of MoO_3 and MoO_{3-x} nanobelts.

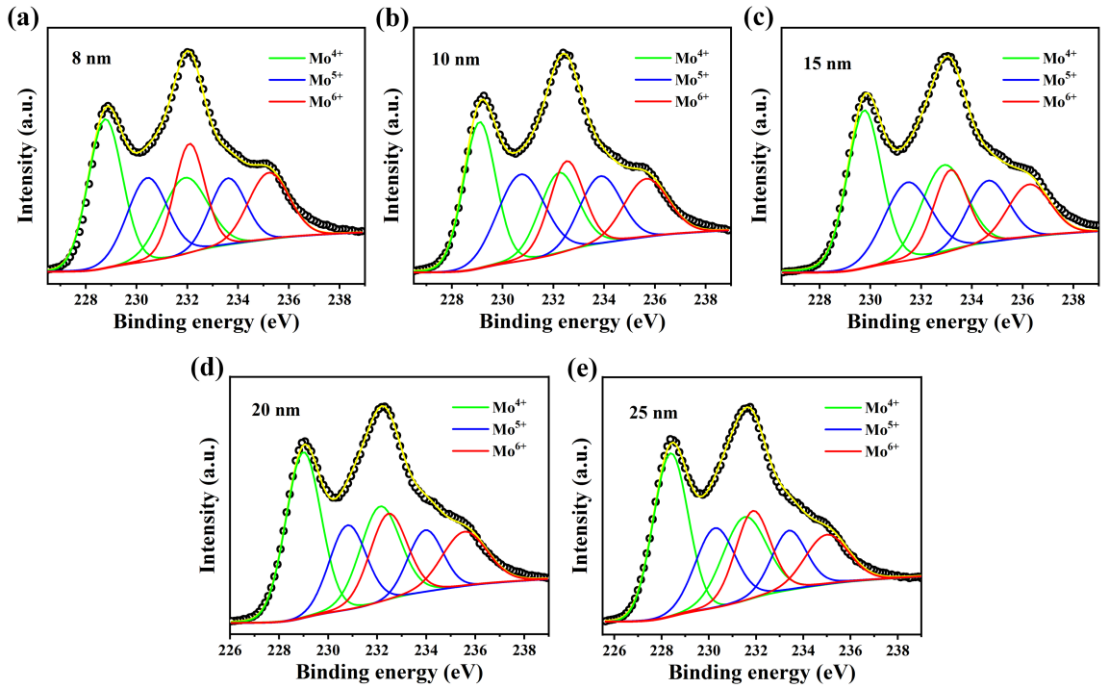

Fig. S3 XPS spectra of MoO_{3-x} nanobelts in different depth from 8 to 25 nm.

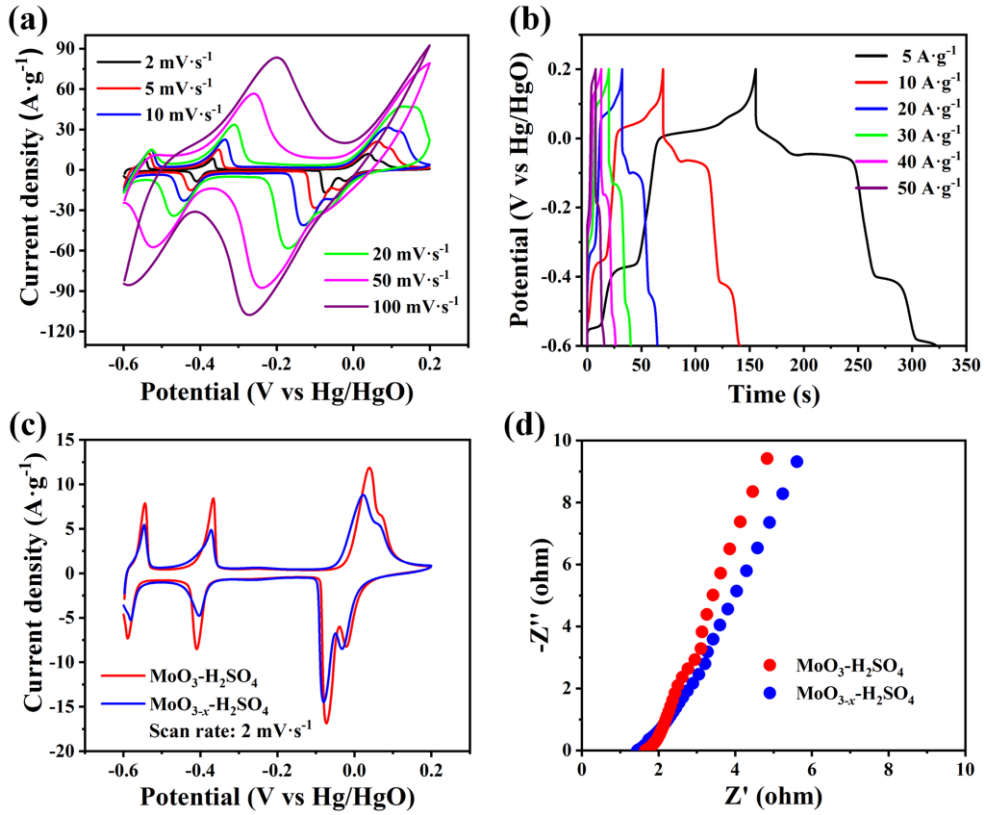

Fig. S4 (a) and (b) CV and GCD curves of MoO_3 nanobelts electrode tested in H_2SO_4; Comparison of MoO_3 and MoO_{3-x} nanobelts electrodes: (c) CV curves and (d) EIS plots.

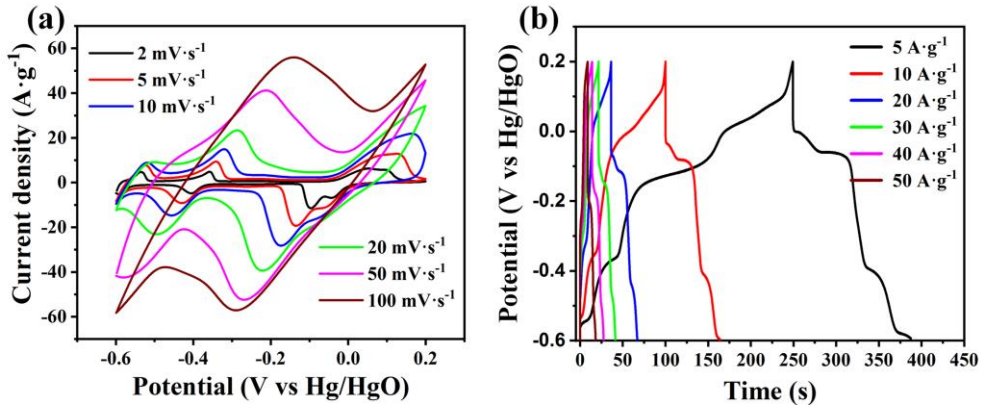

Fig. S5 CV and GCD curves of MoO_{3-x} nanobelts electrode tested at 0℃.

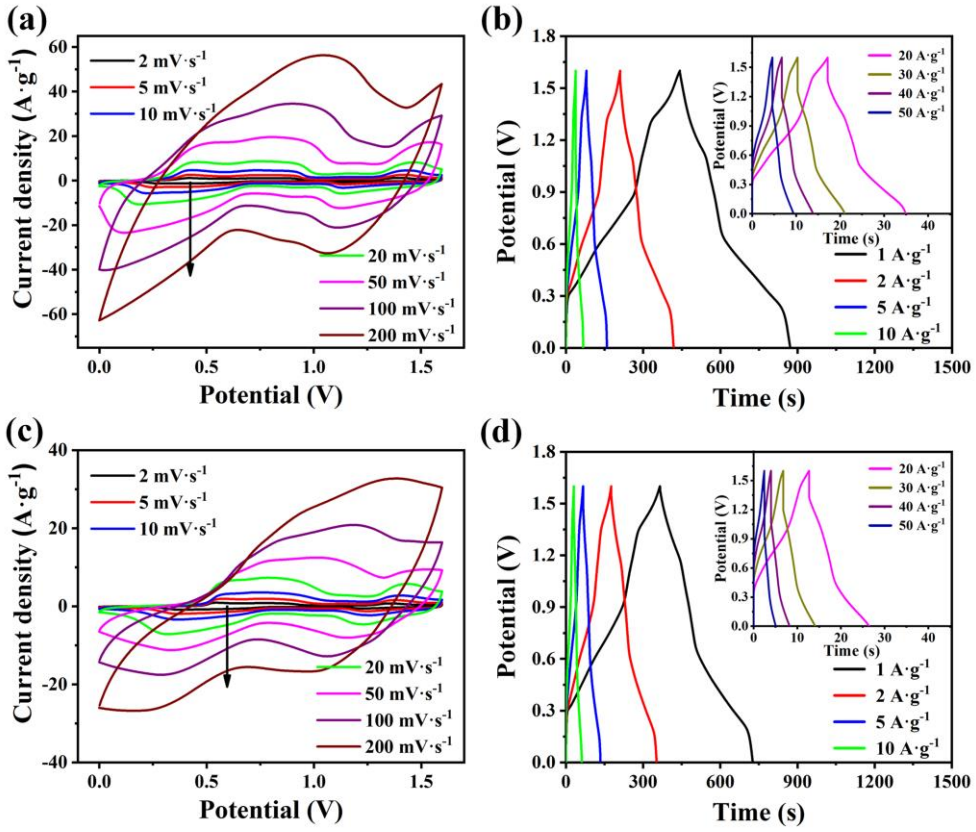

Fig. S6 CV and GCD curves of AC//MoO_{3-x} tested at 0℃ (a, b) and -25℃ (c, d).

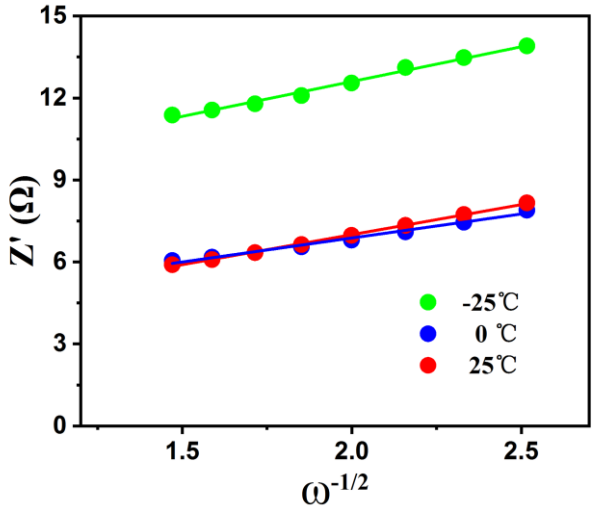

Fig. S7 Linear relationship between z' and $\omega^{-1/2}$ in low frequency region.

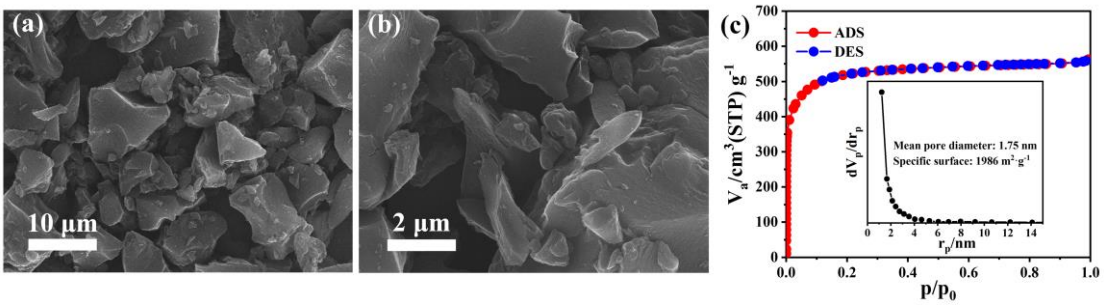

Fig. S8 (a) and (b) SEM images of AC with different magnifications; (c) BET test result of AC.