Supporting Information

Synthesis of long hierarchical MoS_2 nanofibers assembled from nanosheets with expanded interlayer distance for achieving superb Na-ion storage performance

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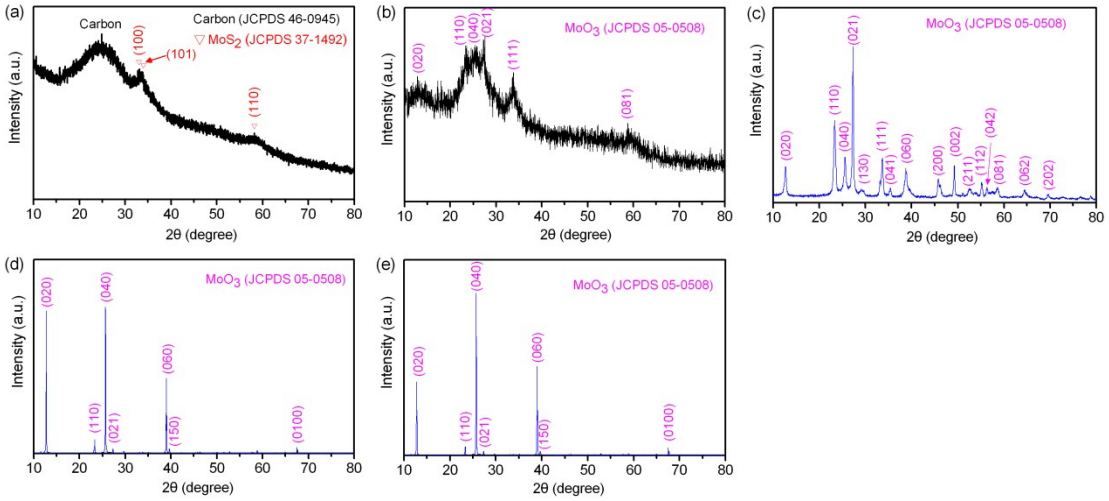

Fig. S1 XRD patterns of hydrothermal obtained hierarchical MoS_2 nanofibers after heat treatment at different interrupting temperature in air atmosphere. (a) 282 °C, (b) 374 °C, (c) 437 °C, (d) 789 °C and (e) 800 °C.

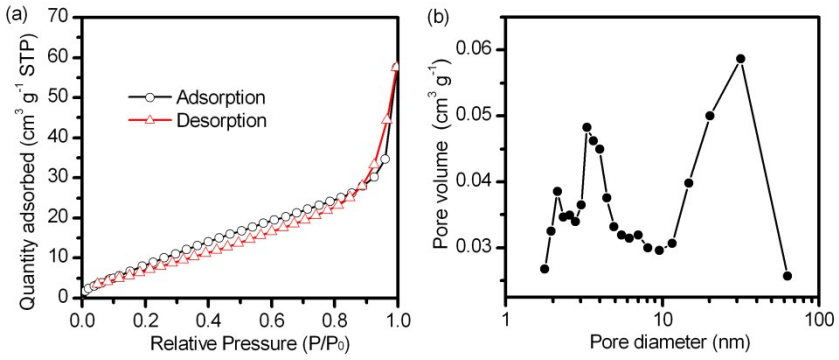

Fig.S2 (a) Nitrogen adsorption-desorption isotherms and (b) corresponding pore size distribution of hierarchical MoS_2 nanofibers.

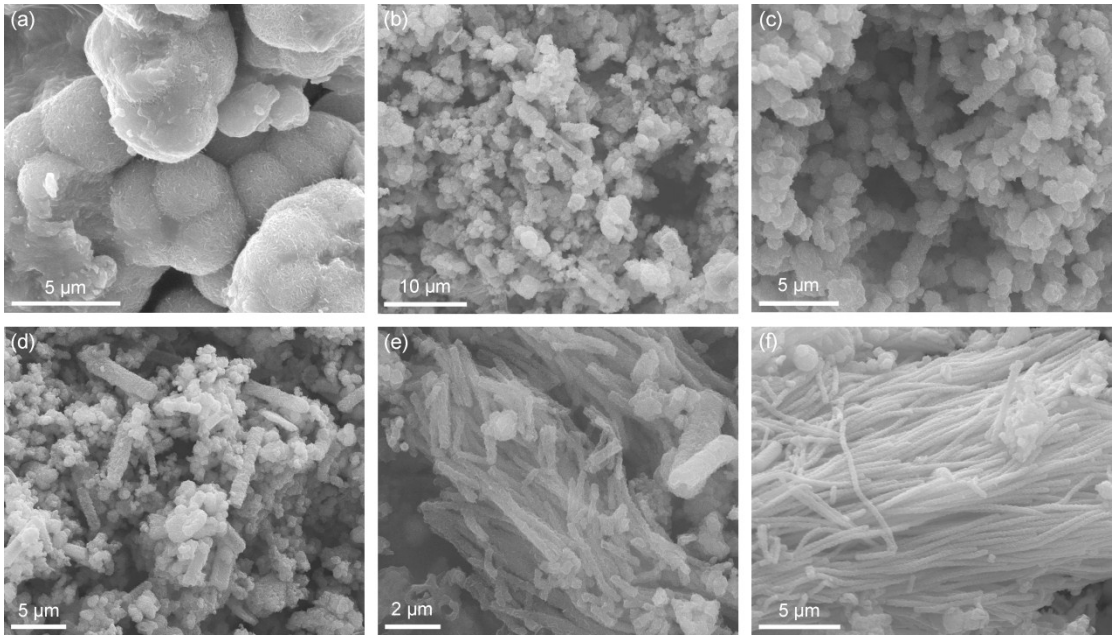

Fig.S3 FESEM images of the MoS_2 products synthesized (a) without addition of PVP and using 0.1 g of PVP with varying MWs: (b) $PVP_{MW\ =\ 8,000}$, (c) $PVP_{MW=10,000}$, (d) $PVP_{MW=24,000}$, (e) $PVP_{MW=58,000}$, and (f) $PVPMW=_{1,300,000}$.

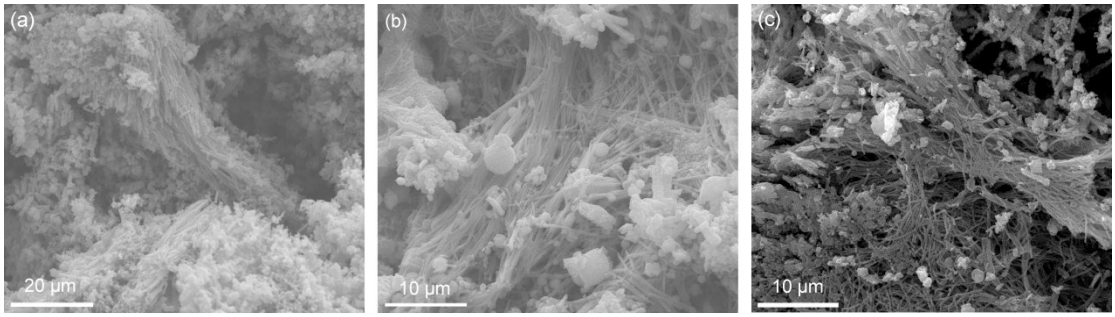

Fig.S4 FESEM images of the MoS_2 products obtained by varying the additive amount of $PVP_{MW=1,300,000}$: (a) 0.02 g , (b) 0.05 g, and 0.075 g.

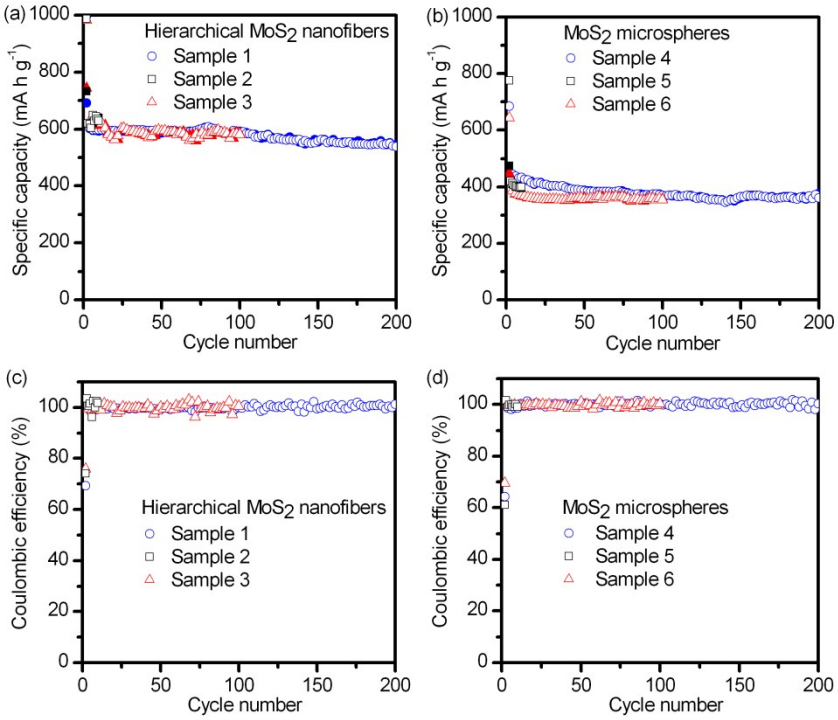

Fig.S5 (a) and (b) Cycling performance and (c) and (d) Coulombic efficiency of the hierarchical MoS_2 nanofiber electrodes and MoS_2 microsphere electrodes obtained at current density of 0.1 A g^{-1} showing repeatable results. Data in Sample 1 (hierarchical MoS_2 nanofibers) and Sample 4 (MoS_2 microspheres) come from Fig.5a; Data in Sample 2 (hierarchical MoS_2 nanofibers) and Sample 5 (MoS_2 microspheres) come from Fig.5e; Data in Sample 3 (hierarchical MoS_2 nanofibers) and Sample 6 (MoS_2 microspheres) come from a new set of testing results.

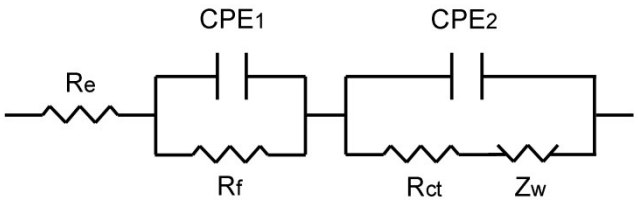

Fig. S6 The used equivalent circuit model. In this model, R_e represents the internal resistance of cells, and R_f and CPE_1 are associated with the resistance and constant phase element of SEI film, respectively. R_{ct} and CPE_2 depict the charge transfer resistance and constant phase element of the electrode/electrolyte interface, respectively. Meanwhile, Z_W is the Warburg impedance.