Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

Supporting Information

Facile synthesis of yolk-shell MoO_2 microspheres with excellent electrochemical performance as Li-ion battery anode

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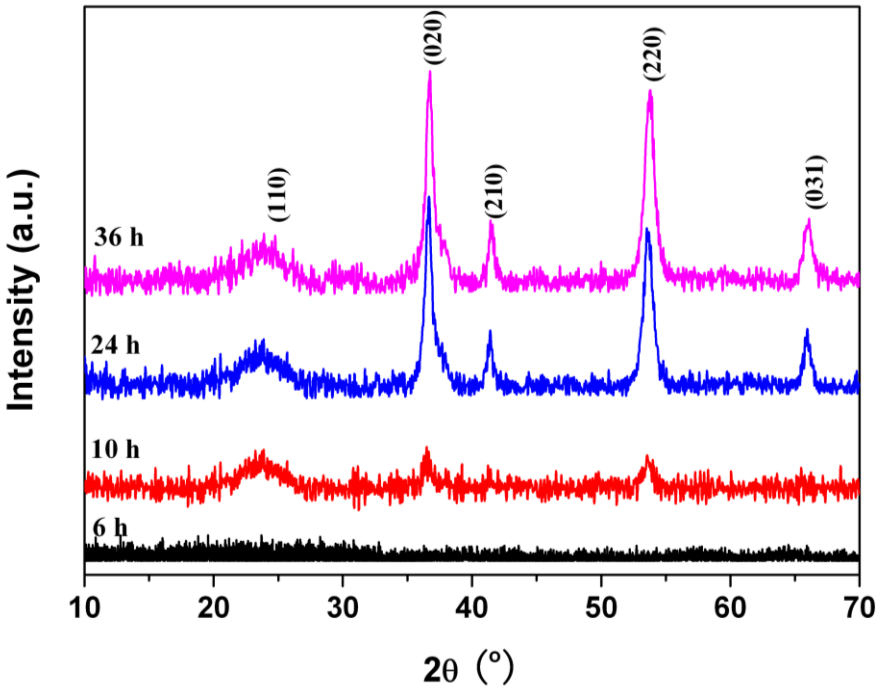

Fig. S1 XRD patterns of solvothermally prepared precursors of MoO_2 at different reaction times

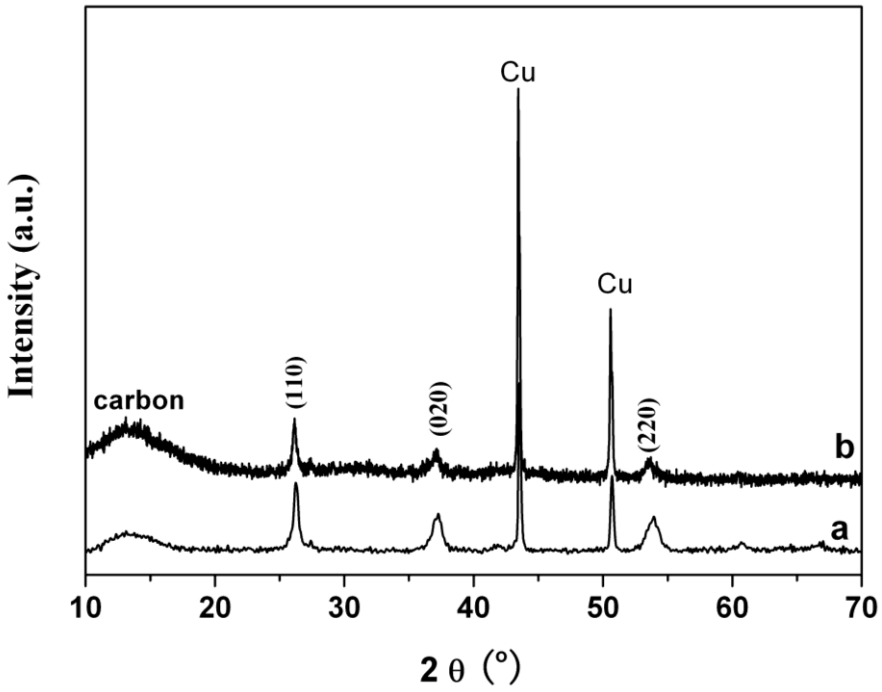

Fig. S2 XRD patterns of the MoO_2 electrode before cycling (a) and after cycling (b)

The XRD patterns of MoO_2 electrode before/after cycling are shown in Fig. 2. The diffraction peaks of electrode before/after cycling can be indexed to monoclinic MoO_2 phase (JCPDS file no. 65-5787). The lattice constants of MoO_2 electrode before/after cycling are a = 0.562208 nm, b = 0.484176 nm, c =0.550935 nm; β = 120.04 ^{o} and a = 0.562817 nm, b = 0.484184 nm, c =0.564467 nm; β = 121.35^o, respectively. The unit cell volumes of the MoO_2 electrode before/after cycling are 0.12983 nm^3 and 0.13137 nm^3, respectively and the volume change (ΔV/V) is 1.17%, indicating the structure stability of these MoO_2 microspheres.

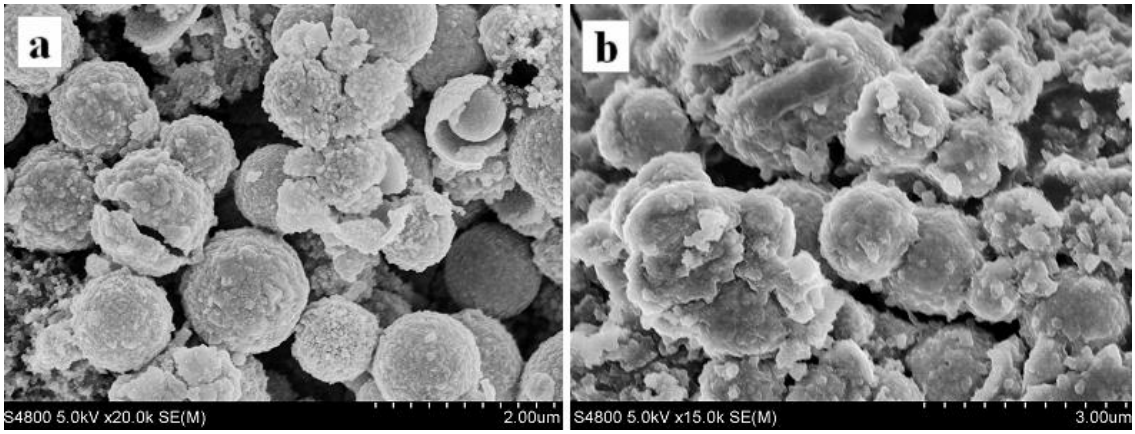

Fig. S3 SEM images of the MoO_2 electrode before cycling (a) and after cycling (b)

The FE-SEM images of MoO_2 electrode before/after cycling are shown in Fig. 3. The morphology of the MoO_2 electrode material before/after cycling still maintains the yolk-shell structure. The inter space between the core and shell and porous surface are not as clear as those observed before cycling, may be due to the electrolyte filling after cycling.