Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

Supplementary Information

Hollow $0.3Li_2MnO_3{\bullet}0.7LiNi_{0.5}Mn_{0.5}O_2$ microspheres as a high-performance cathode material for lithium-ion batteries

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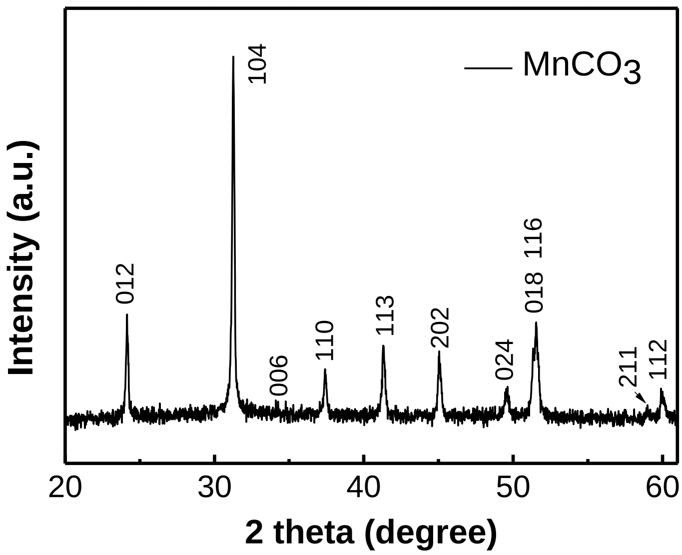

Fig.S1 A representative XRD pattern of precursor $MnCO_3$ prepared by co-precipitation. The diffraction peaks could be well indexed to a pure rhombohedral phase of $MnCO_3$ (JCPDS No. 44-1472).

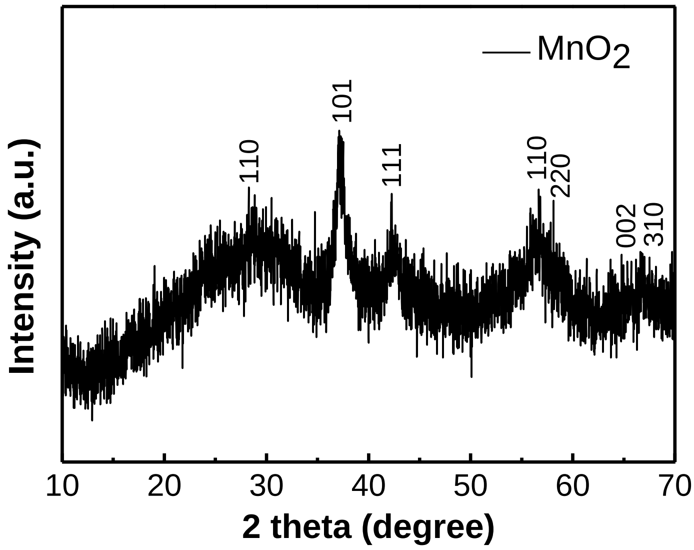

Fig.S2 A representative XRD pattern of the intermediate product of porous MnO_2 prepared by heating $MnCO_3$ at 400 °C for 5 h in air. The diffraction peaks could be well indexed to a pure tetragonal phase of MnO_2 (JCPDS No. 01-0799).

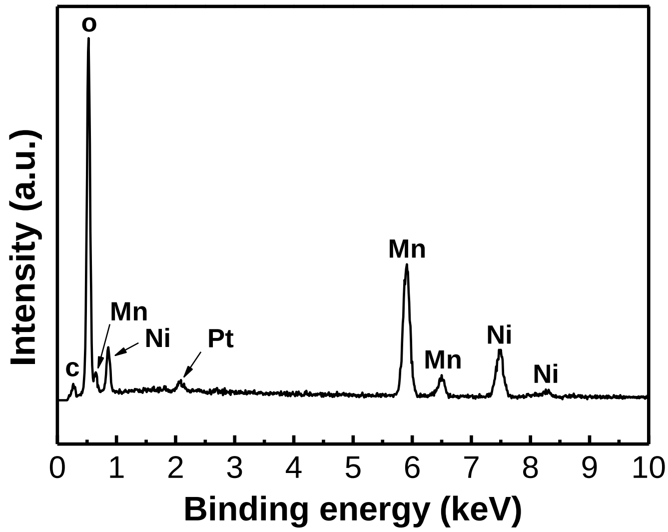

Fig. S3 EDX spectrum of the $0.3Li_2MnO_3$•$0.7LiNi_{0.5}Mn_{0.5}O_2$ product, where the signal of C is generated from the sample holder.

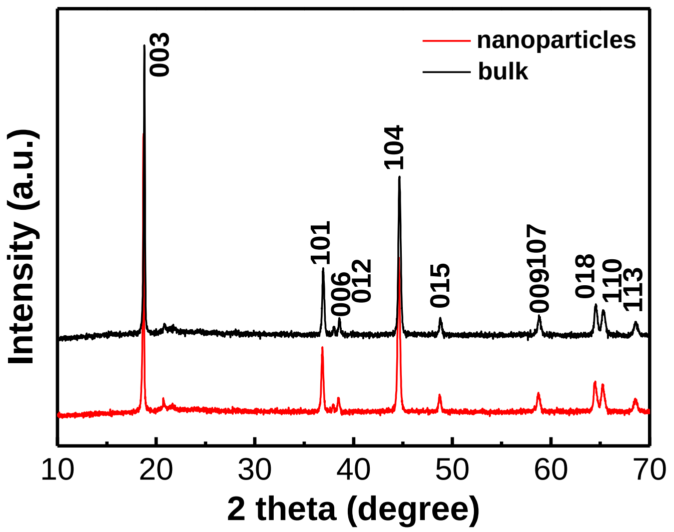

Fig. S4 XRD patterns for the $0.3Li_2MnO_3{\bullet}0.7LiNi_{0.5}Mn_{0.5}O_2$ products prepared by a sol-gel method (nanoparticles) and a solid state reaction (bulk), respectively.

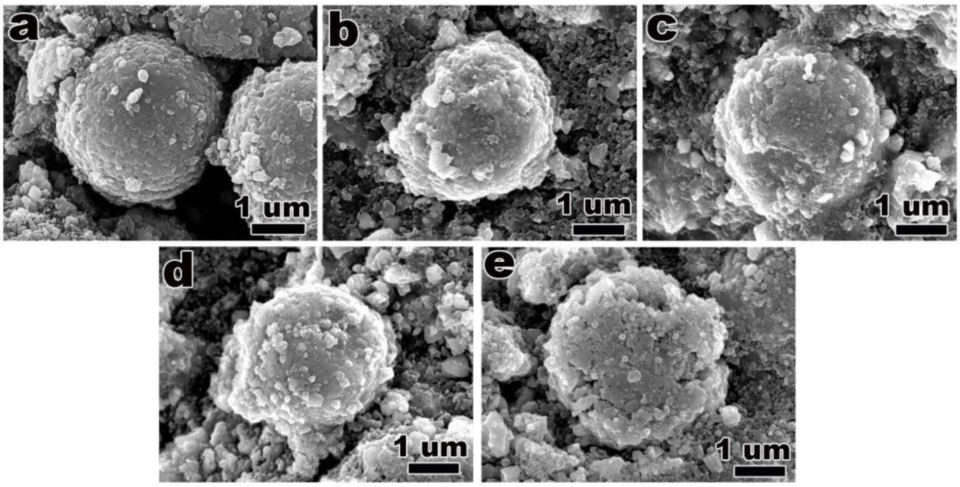

Fig. S5 FESEM images for the electrodes before cycling (a) and after 200 discharge/charge cycles at 55 ºC at the current densities of (b) 50 (c) 100 (d) 200, and (e) 500 mA g^{-1}, respectively. The smaller particles are acetylene black.