**Supplementary Information**

**Hollow 0.3Li$_2$MnO$_3$·0.7LiNi$_{0.5}$Mn$_{0.5}$O$_2$ microspheres as a high-performance cathode material for lithium-ion batteries**

Yan Jiang, Ze Yang, Wei Luo, Xianluo Hu* and Yunhui Huang*

*State Key Laboratory of Material Processing and Die & Mould Technology, School of Materials Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, P. R. China.*

Fax: +86 -27-87558241; Tel: +86 -27-87558241

*E-mail: huxl@mail.hust.edu.cn, huangyh@mail.hust.edu.cn.*

---

**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$_2$MnO$_3$•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$_3$MnO$_2$·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.