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

Electronic Supplementary Information

Study on the cycling performance of $LiNi_{0.5}Mn_{1.5}O_4$ electrodes modified by reactive SiO_2 nanoparticles

Won-Kyung Shin, Yoon-Sung Lee, and Dong-Won Kim*

Department of Chemical Engineering, Hanyang University, Seoul 133-791, Korea

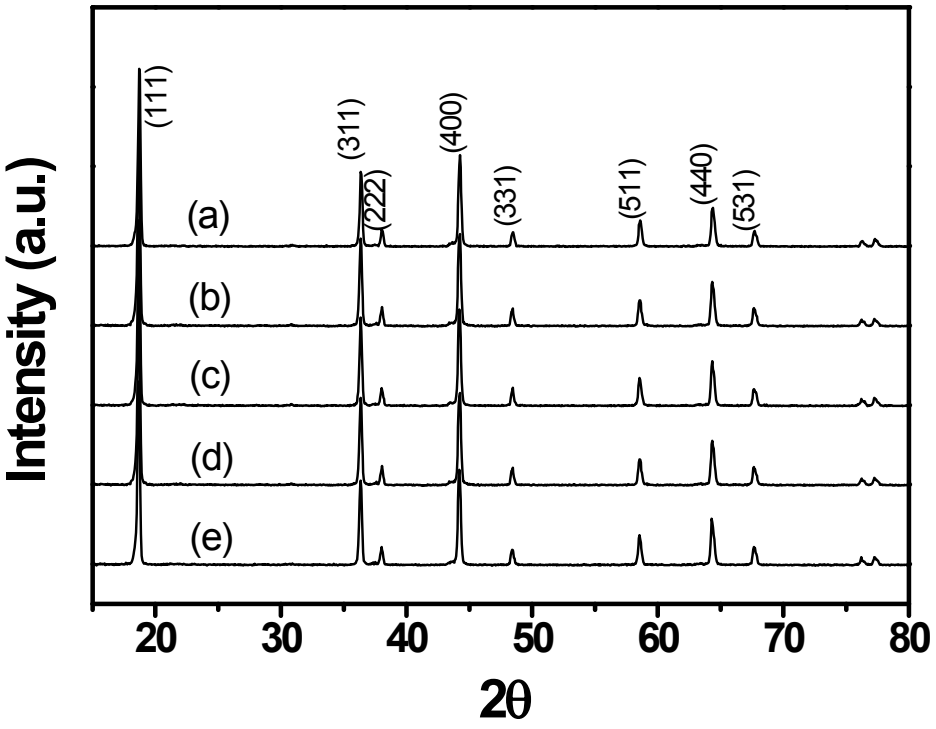

Fig. S1. XRD patterns of (a) pristine $LiNi_{0.5}Mn_{1.5}O_4$ materials, and SiO_2-decorated $LiNi_{0.5}Mn_{1.5}O_4$ materials with SiO_2 nanoparticles of (b) 1 wt.%, (c) 2 wt.%, (d) 3 wt.% and (e) 4 wt.%.

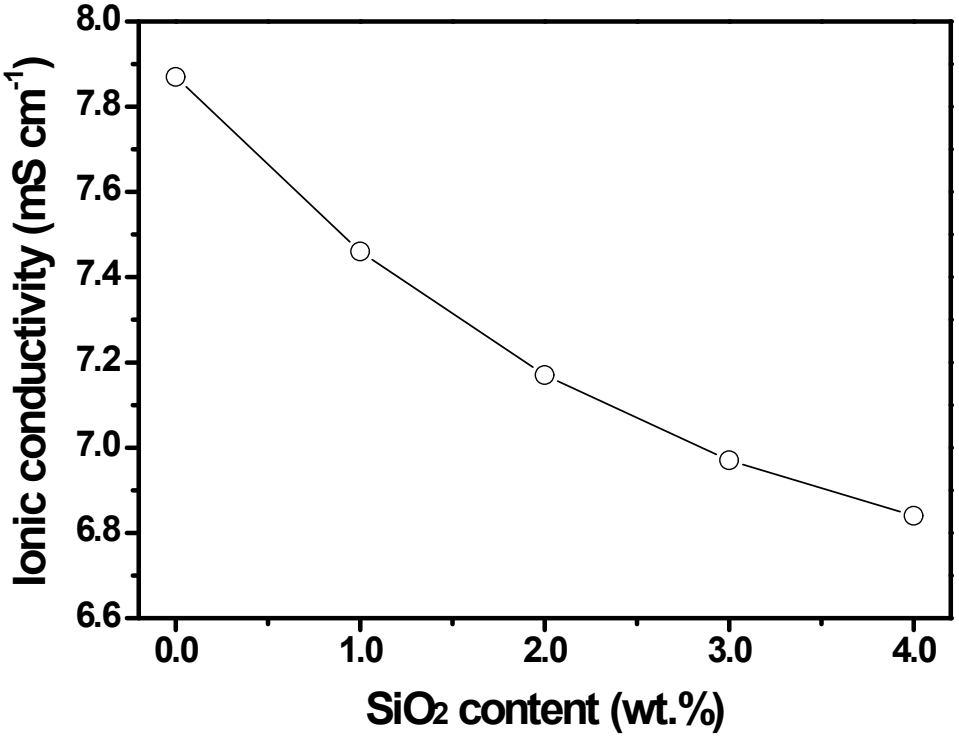

Fig. S2. Ionic conductivities of composite polymer layer obtained from different content of reactive SiO_2 particles.

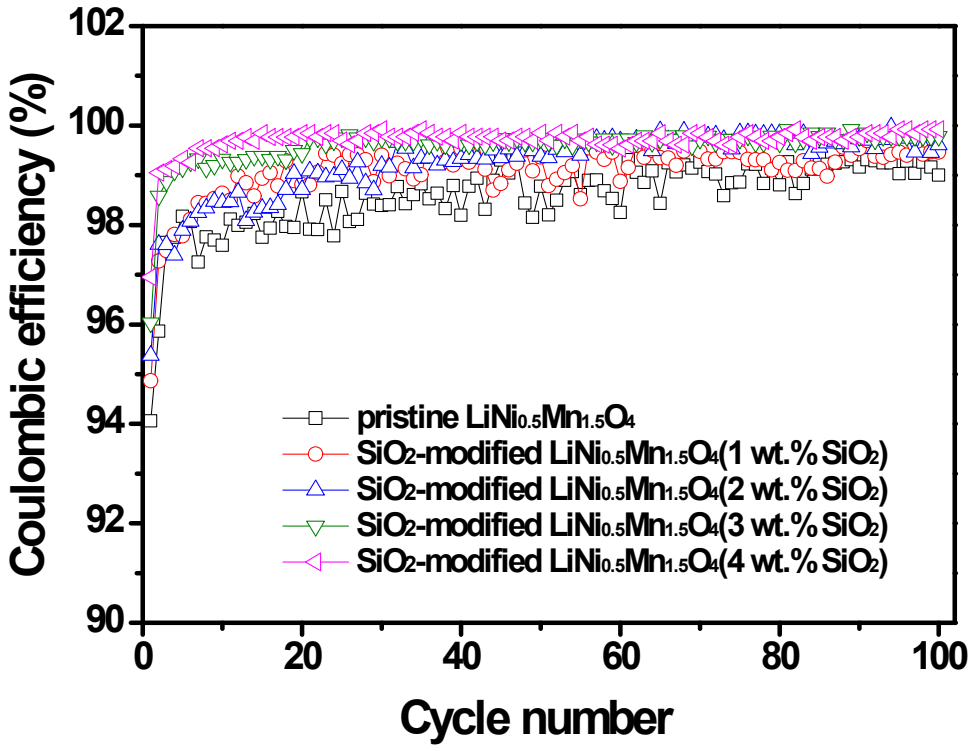

Fig. S3. Coulombic efficiencies of the Li/$LiNi_{0.5}Mn_{1.5}O_4$ cells assembled with the pristine $LiNi_{0.5}Mn_{1.5}O_4$ electrode and SiO_2-modified $LiNi_{0.5}Mn_{1.5}O_4$ electrodes. (25 ^oC, 0.5C CC and CV charge, 0.5C CC discharge, cut-off: 3.0−4.9 V)

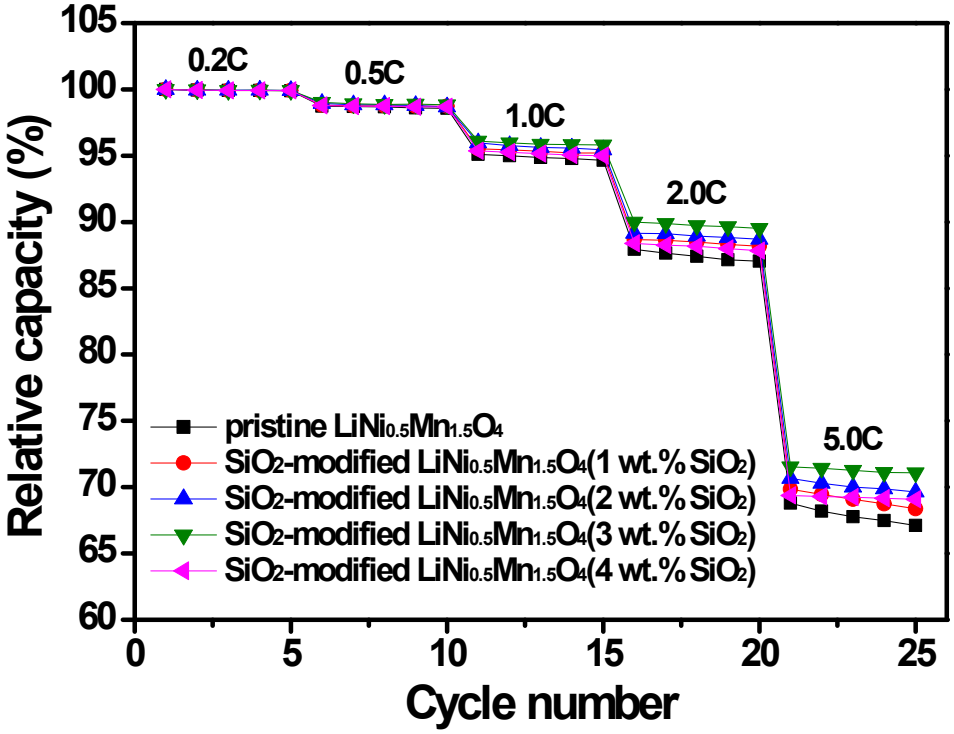

Fig. S4. Cycling performance of the Li/$LiNi_{0.5}Mn_{1.5}O_4$ cells at different current rates. The C-rate was increased from 0.2 to 5.0C after every 5 cycles.