Electronic Supplementary Information

Study on the cycling performance of LiNi\textsubscript{0.5}Mn\textsubscript{1.5}O\textsubscript{4} electrodes modified by reactive SiO\textsubscript{2} nanoparticles

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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 °C, 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.