Supplementary Information

A Comparative Study on the Oxidation State of Lattice Oxygen among $Li_{1.14}Ni_{0.136}Co_{0.136}Mn_{0.544}O_2$, Li_2MnO_3, $LiNi_{0.5}Co_{0.2}Mn_{0.3}O_2$ and $LiCoO_2$ for the Initial Charge-Discharge

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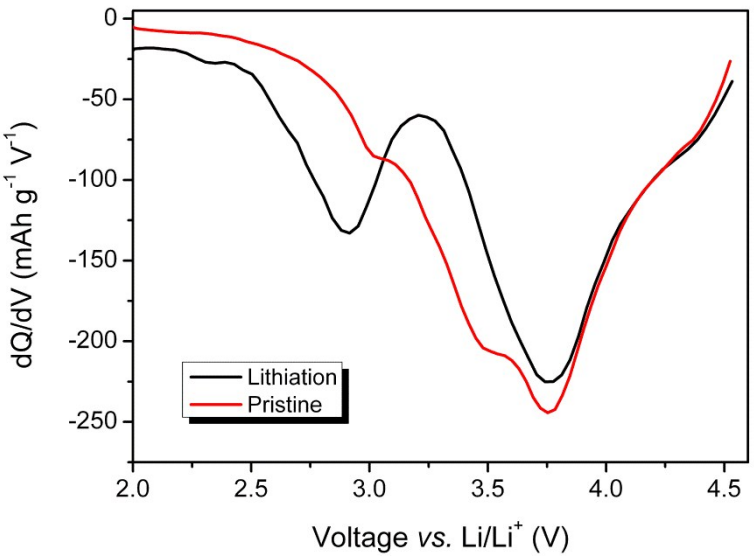

Fig. S1 Differential discharge capacity (dQ/dV) plots of the pristine sample and the sample recovered after chemical lithiation for $Li_{1.14}Ni_{0.136}Co_{0.136}Mn_{0.544}O_2$.

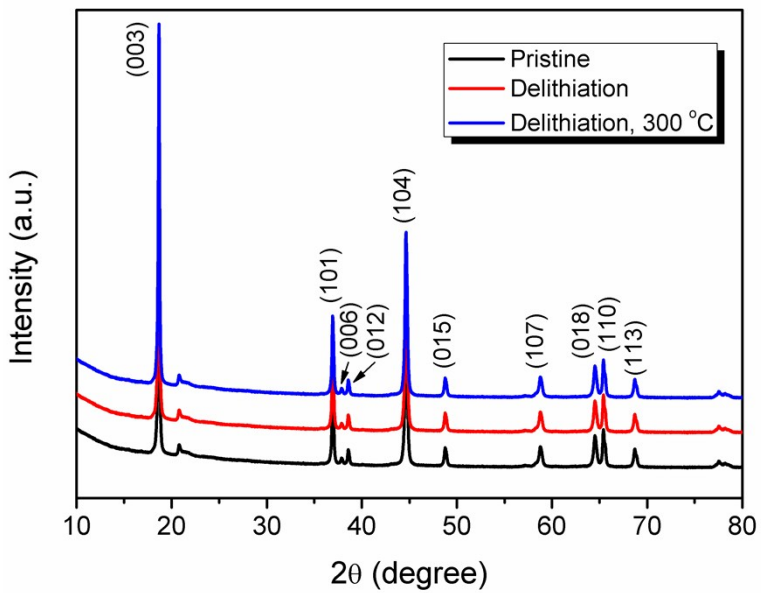

Fig. S2 XRD patterns for $Li_{1.14}Ni_{0.136}Co_{0.136}Mn_{0.544}O_2$, from top to bottom, the patterns collected from the pristine sample, the sample recovered after chemical delithiation and the sample recovered after chemical delithiation and annealing at 300 ^{o}C. The scan rate used here is 0.4° min^{-1}.

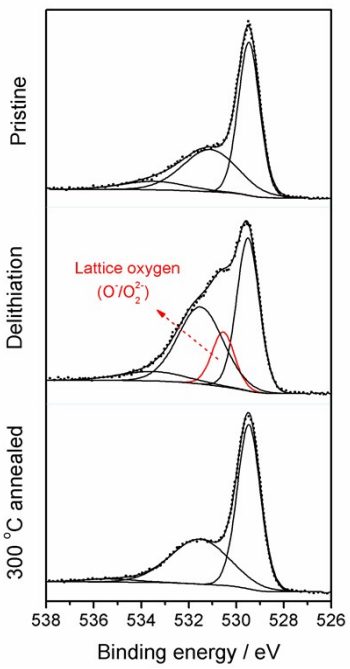

Fig. S3 XPS spectra for $Li_{1.14}Ni_{0.136}Co_{0.136}Mn_{0.544}O_2$, from top to bottom, the spectra collected form the pristine sample, the sample recovered after chemical delithiation and the sample recovered after chemical delithiation and annealing at 300 °C.