

Supplementary Information

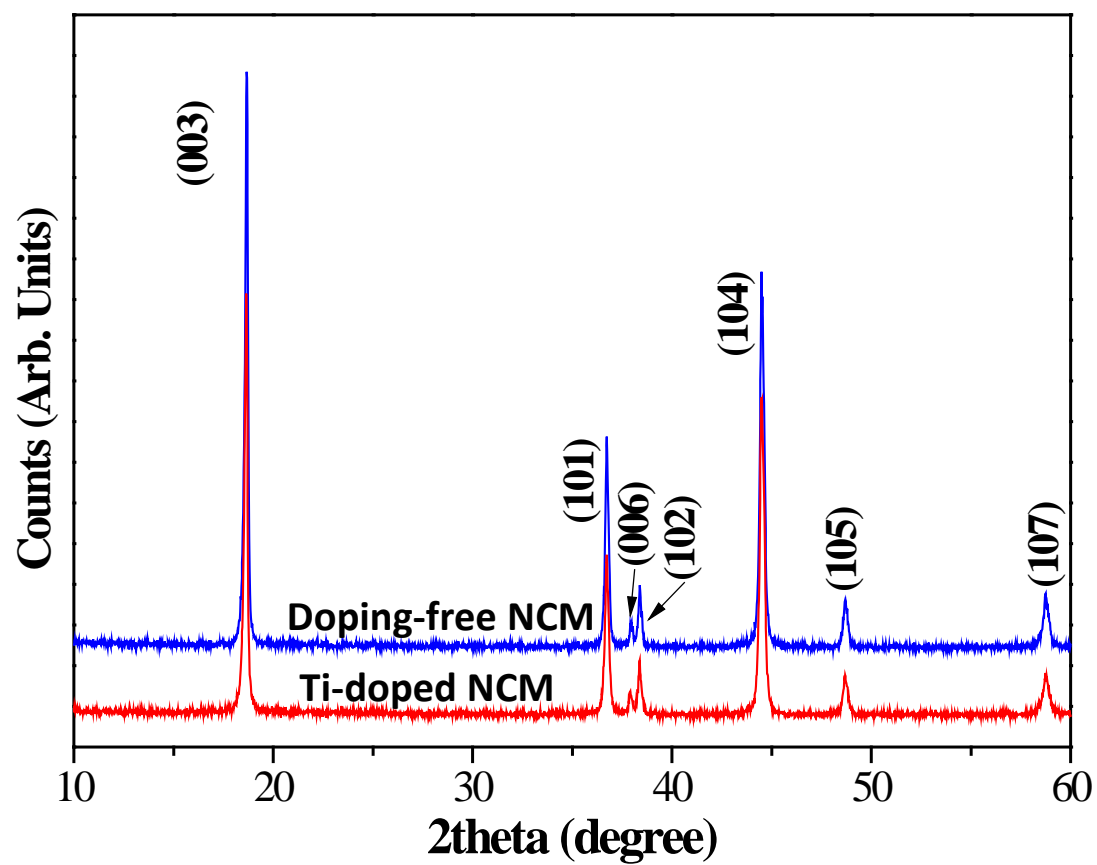
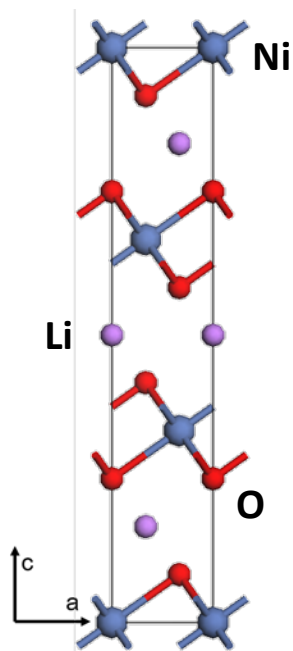
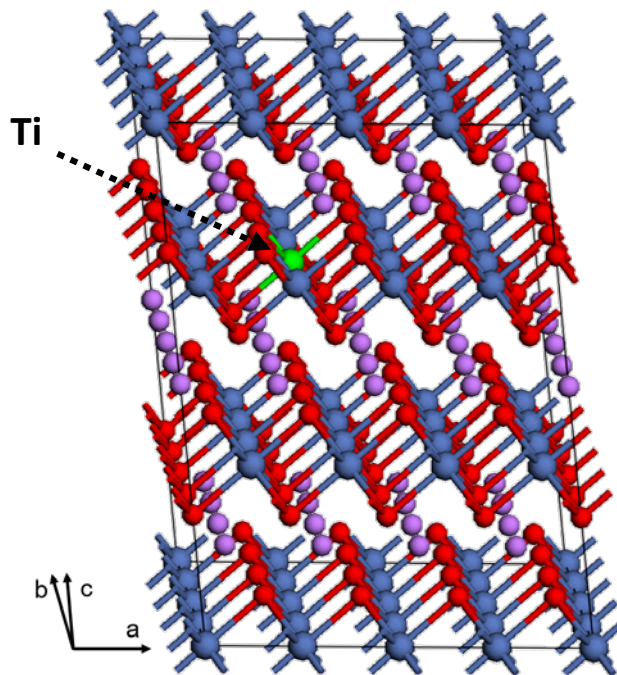


Figure 1S. X-ray diffraction patterns of the pure and Ti-doped NCM.



(a) Unit-cell of LiNiO_2



(b) Ti-doped LiNiO_2

Figure 2S. DFT calculated systems for this study. (a) Unit cell of the pure LiNiO_2 and (b) Ti-doped LiNiO_2 .

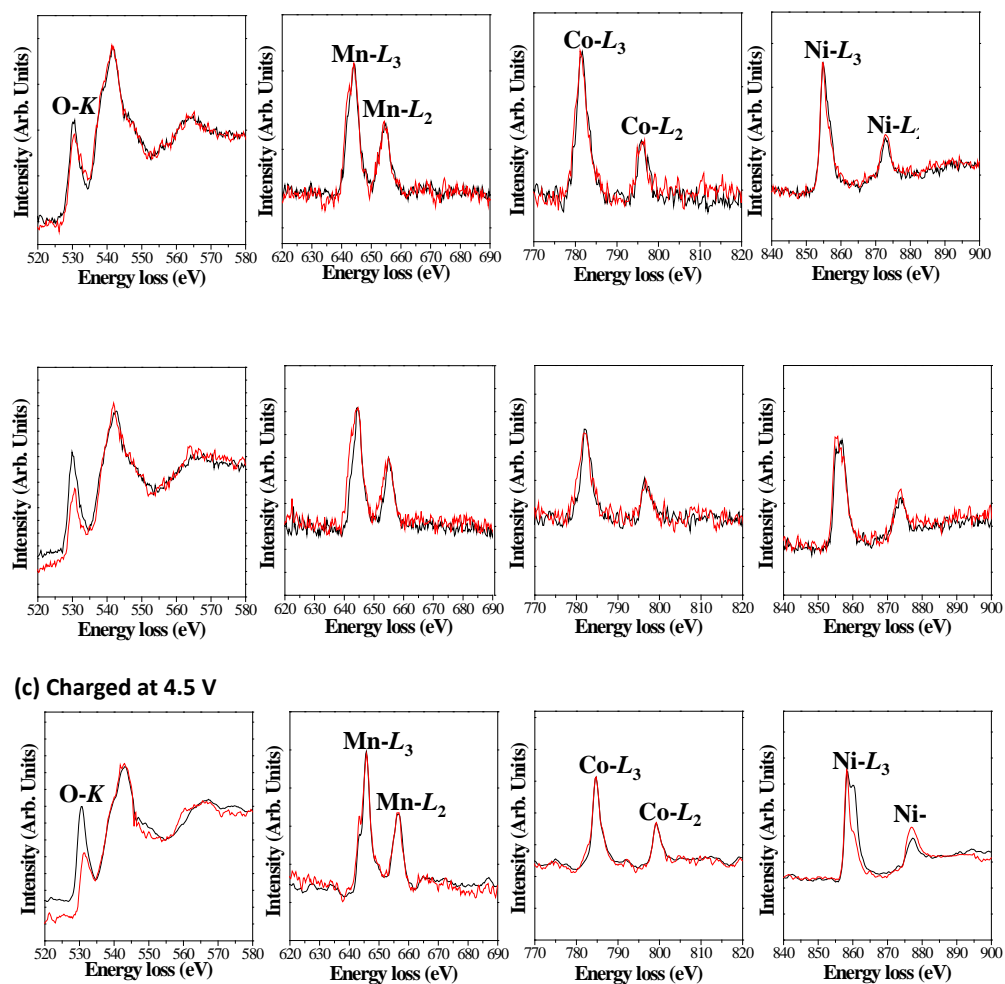
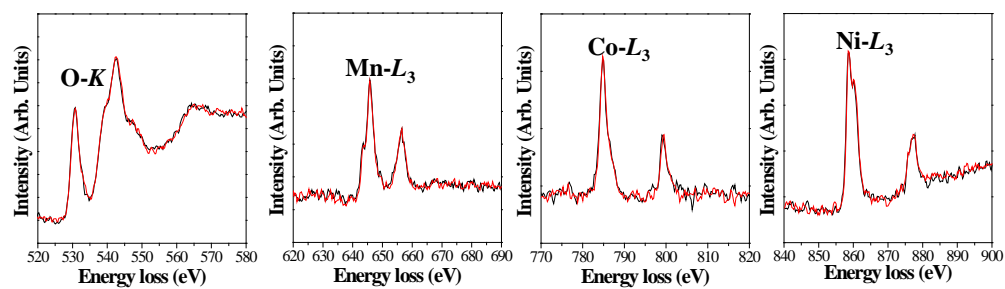
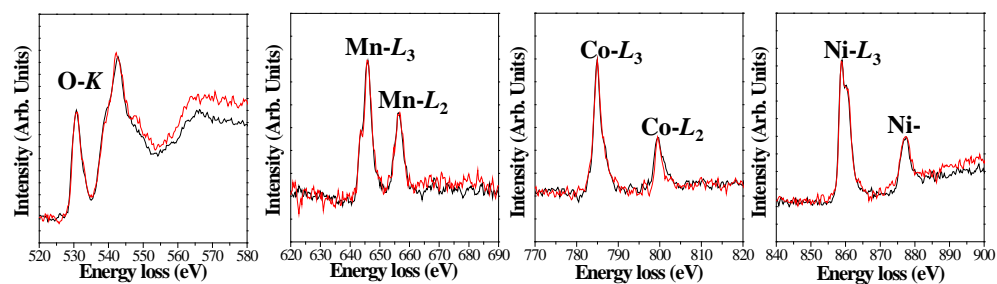


Figure 3S. EELS profiles of O K and TM L edges obtained at an accelerating voltage of 200 kV of the pure $\text{LiNi}_{0.6}\text{Co}_{0.2}\text{Mn}_{0.2}\text{O}_2$; (a) discharged and (b, c) charged states at 4.3 and 4.5 V, respectively. The black and red lines are the spectra obtained at initial (0 s) and final (600 s) stages of the electron beam irradiation, respectively.



(b) Charged at 4.3 V



(c) Charged at 4.5 V

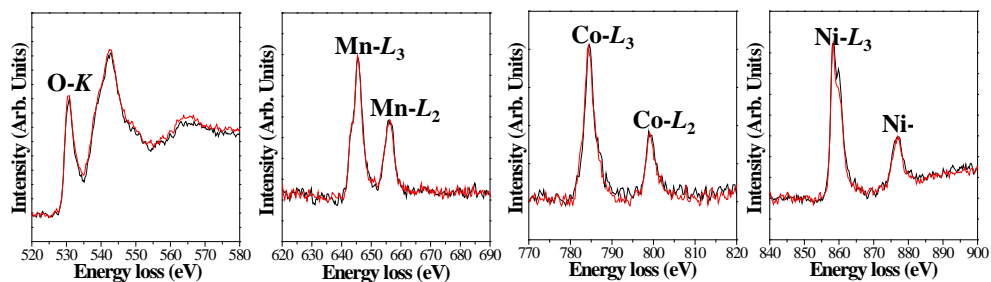


Figure 4S. EELS profiles of the O K and TM L edges obtained at an accelerating voltage of 80 kV of the pure $\text{LiNi}_{0.6}\text{Co}_{0.2}\text{Mn}_{0.2}\text{O}_2$; (a) discharged and (b, c) charged states at 4.3 and 4.5 V, respectively. The black and red lines are the spectra obtained at initial (0 s) and final (600 s) stages of the electron beam irradiation, respectively.

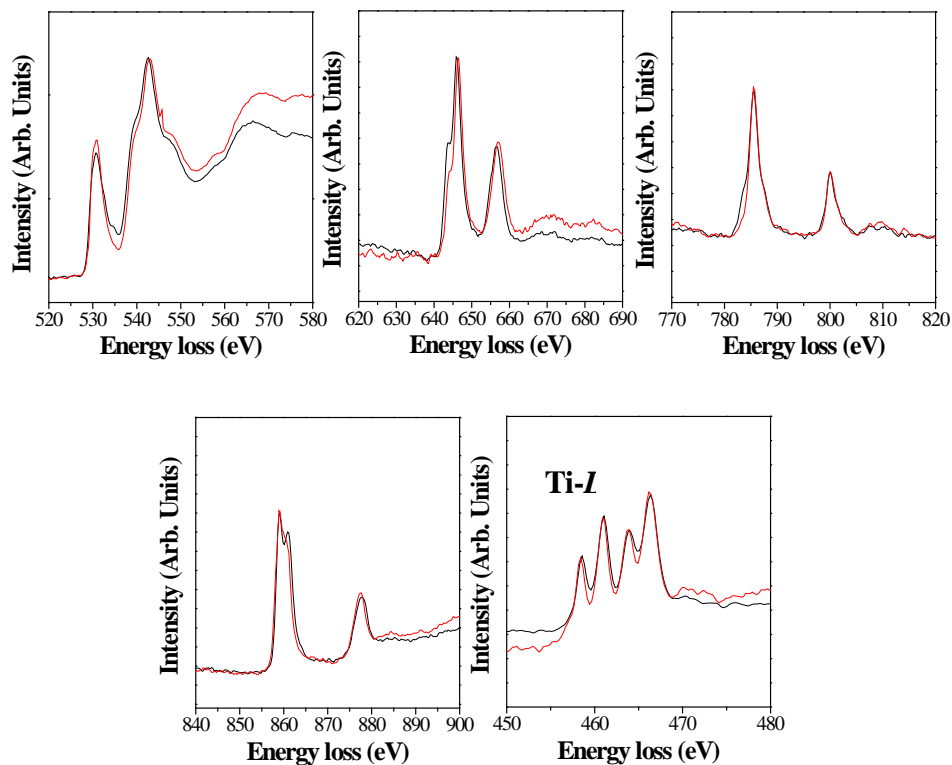


Figure 5S. EELS profiles of the O K and Ti L edges obtained at an accelerating voltage of 200 kV of the charged (at 4.3 V) Ti-doped $\text{LiNi}_{0.6}\text{Co}_{0.2}\text{Mn}_{0.2}\text{O}_2$. The black and red lines are the spectra obtained at the initial (0 s) and final (600 s) stages of the electron beam irradiation, respectively.