

Supplementary Information of High-pressure study of $\text{Li}[\text{Li}_{1/3}\text{Ti}_{5/3}]\text{O}_4$ spinel

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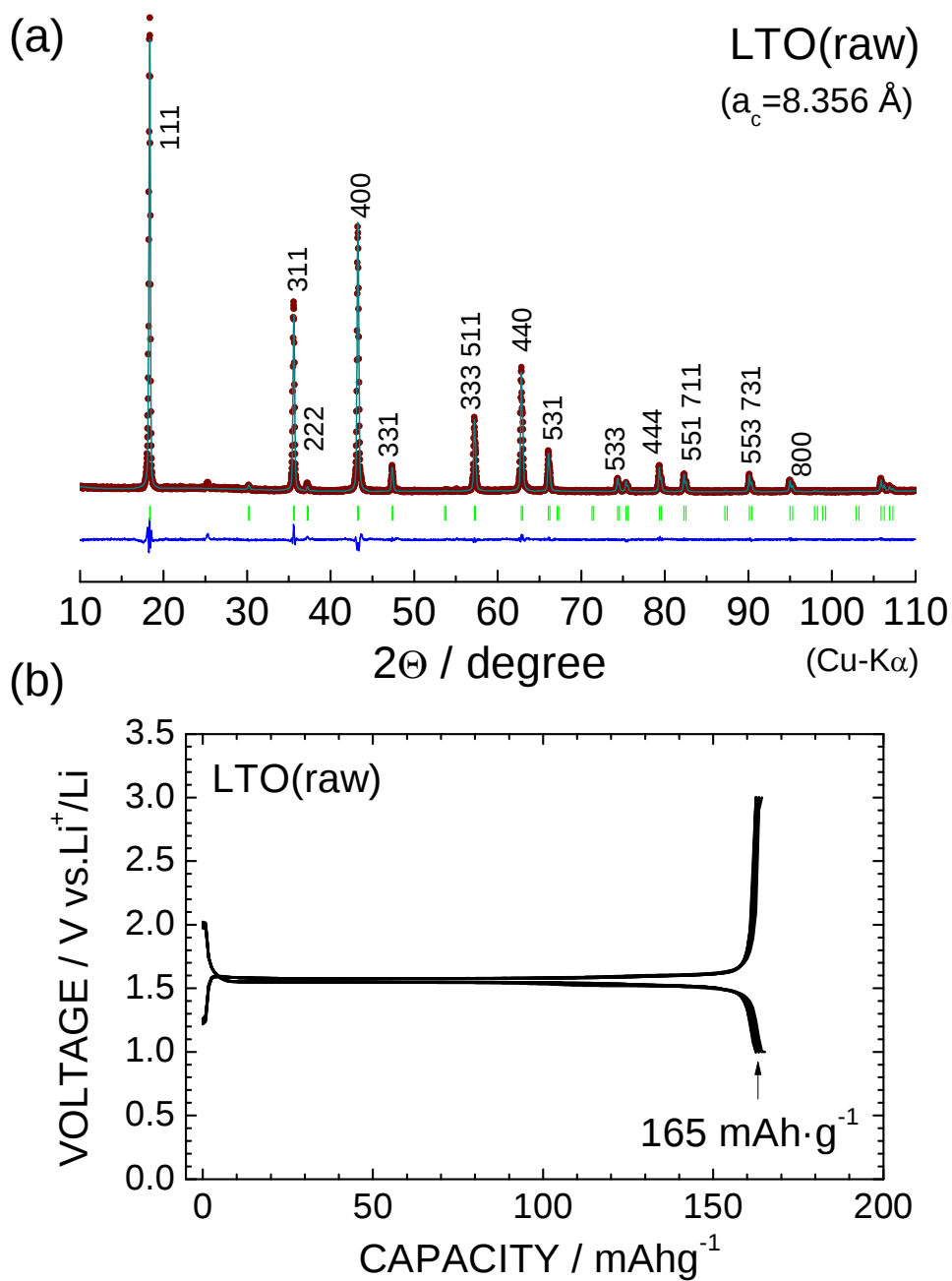


Fig. S1 Characterization of LTO(raw): (a) result of the Rietveld analysis and (b) electrochemical charge and discharge tests in nonaqueous lithium cell.

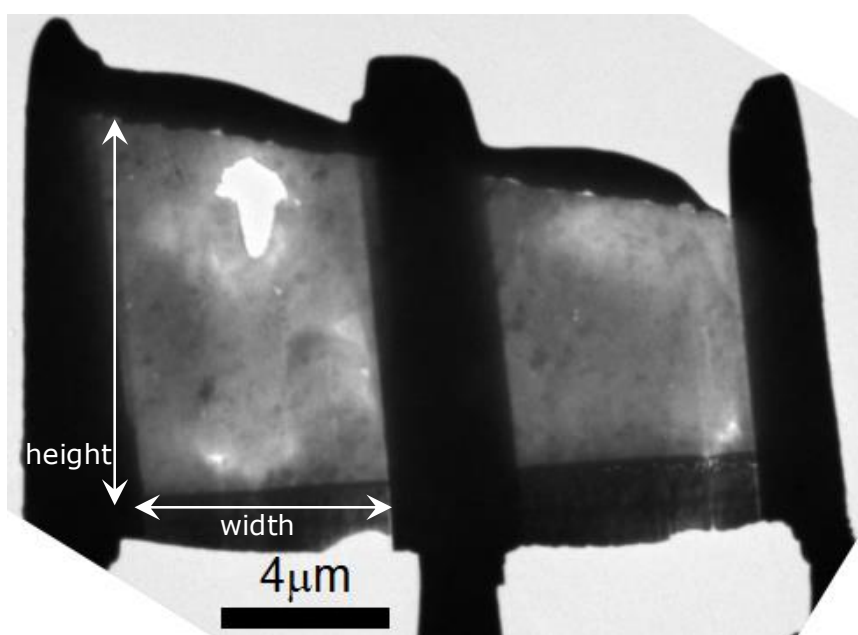


Fig. S2 TEM specimen for the HP(200) sample. Depth of the sample is ~ 100 nm.

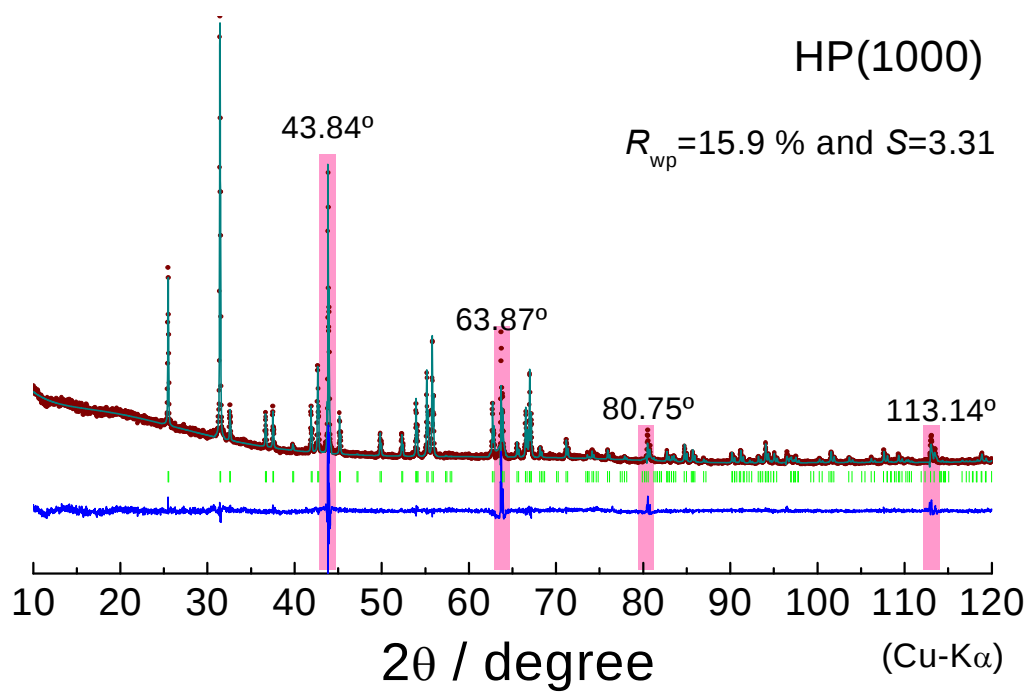


Fig. S3 Result of the Rietveld analysis for the HP(1000) sample when assuming that the HP(1000) sample is in a single-phase of columbite-type TiO_2 with $Pbcn$ space group.

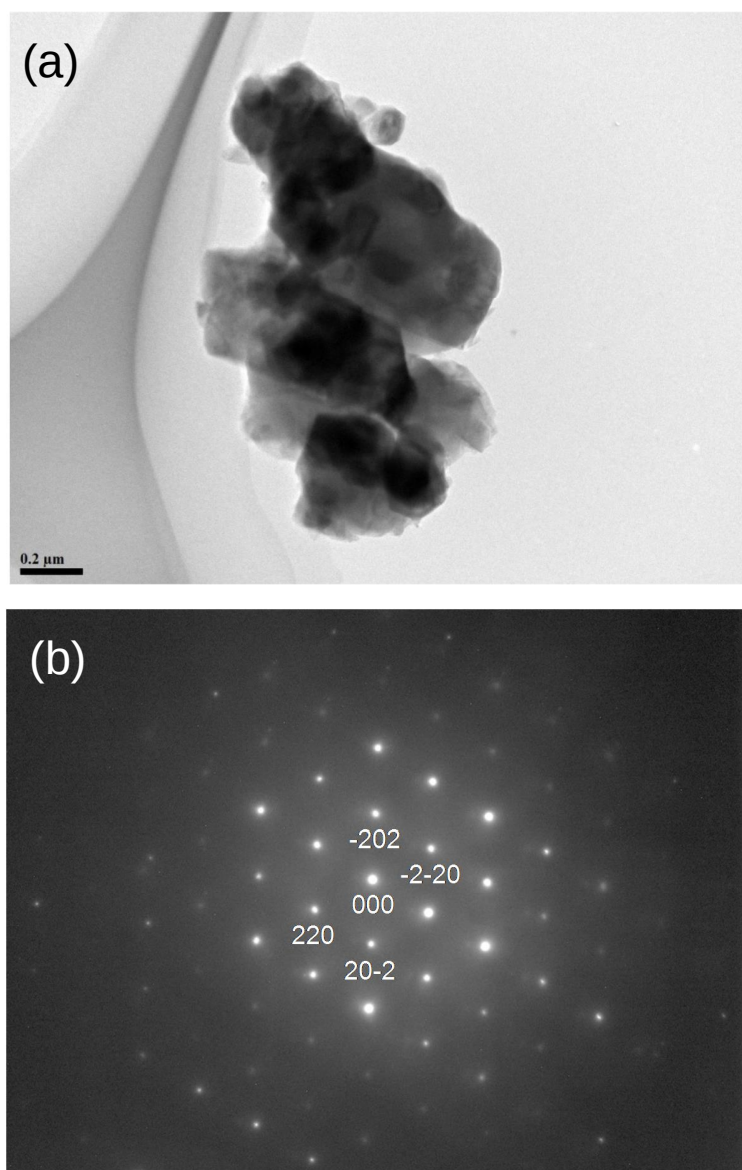


Fig. S4 (a) TEM image and (b) SAED pattern of the LTO(raw) sample. The SAED pattern is assigned as the diffraction pattern from the $[111]$ incident with $Fd\bar{3}m$ space group.

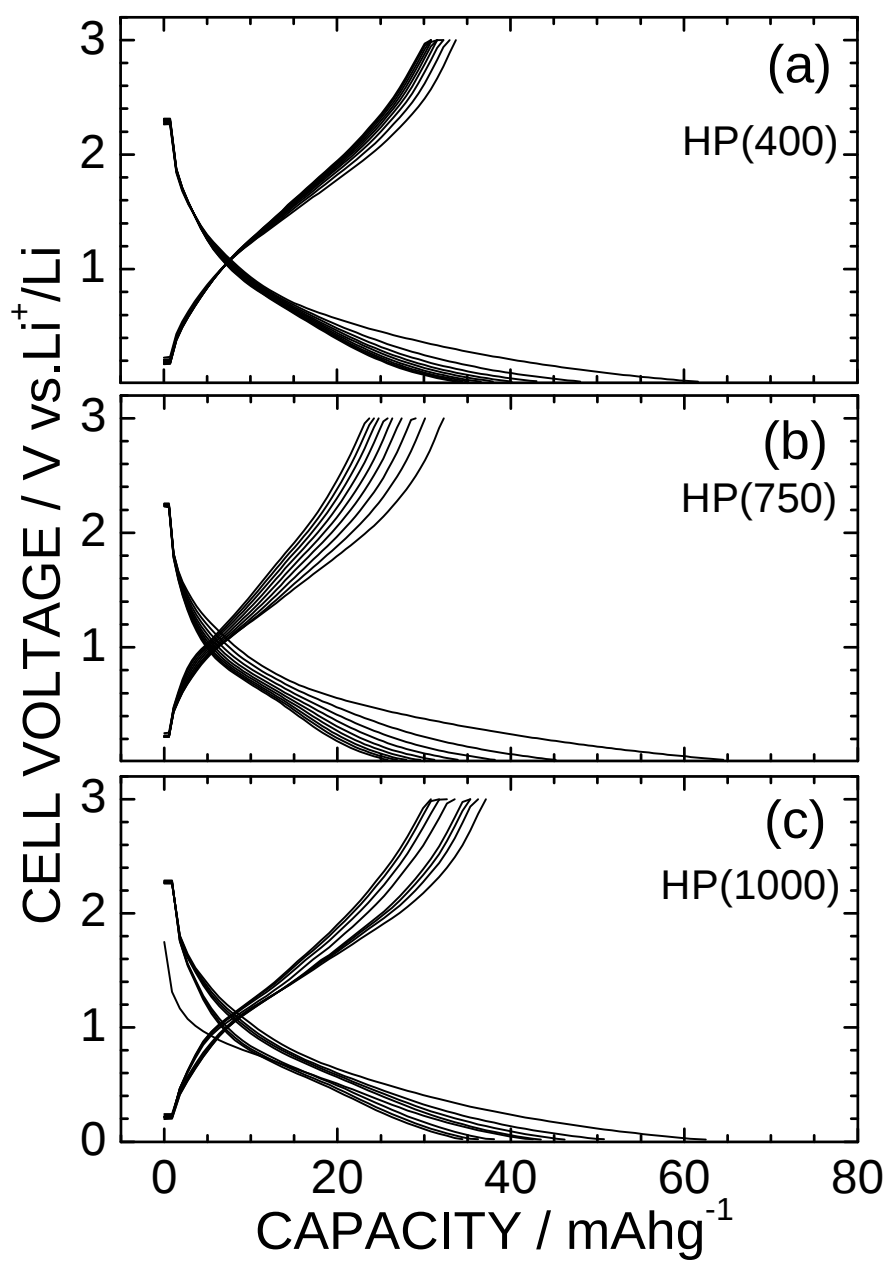


Fig. S5 Rescaled charge and discharge curves of the nonaqueous lithium cells of the (a) HP(400), (b) HP(750), and HP(1000) samples.

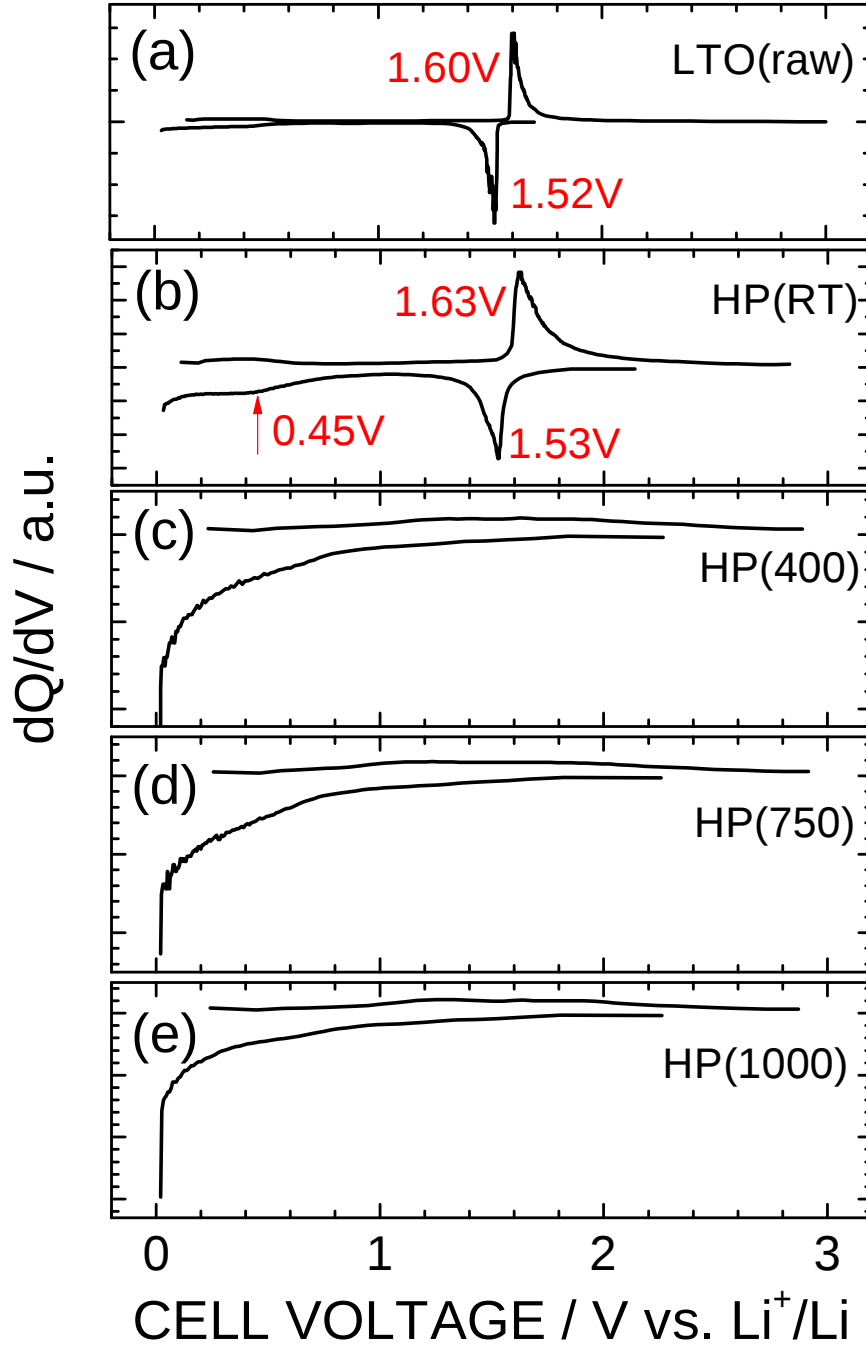


Fig. S6 The derivative of Q_{dis} (or Q_{cha}) with respect to the cell voltage, i.e., the dQ_{dis}/dV (or dQ_{cha}/dV) curves for the (a) LTO(raw), (b) HP(RT), (c) HP(400), (d) HP(750), and (e) HP(1000) samples. The dQ_{dis}/dV (or dQ_{cha}/dV) curves were obtained by the charge and discharge curves at the initial cycle shown in Fig. 8 of the text. The dQ_{dis}/dV (or dQ_{cha}/dV) curves of the HP(400), HP(750), and HP(1000) samples do not show distinct responses, due to their gradual increases (or decreases) in voltage as a function of discharge (or charge) capacity.