Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.


# Supplementary Information

# Magnetic anomalies and itinerant character of electrochemically Li-inserted $Li[Li_{1/3}Ti_{5/3}]O_4$

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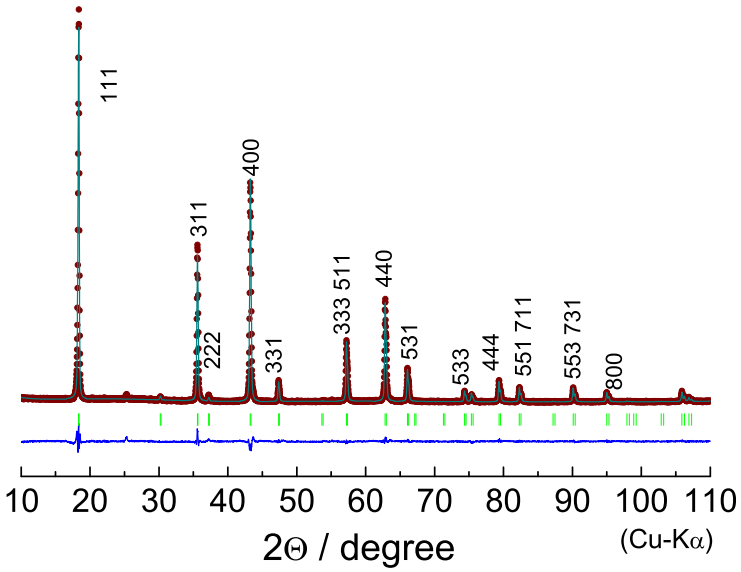


**Fig. S1.** Result of the Rietveld analysis for the $Li[Li_{1/3}Ti_{5/3}]O_4$ sample.

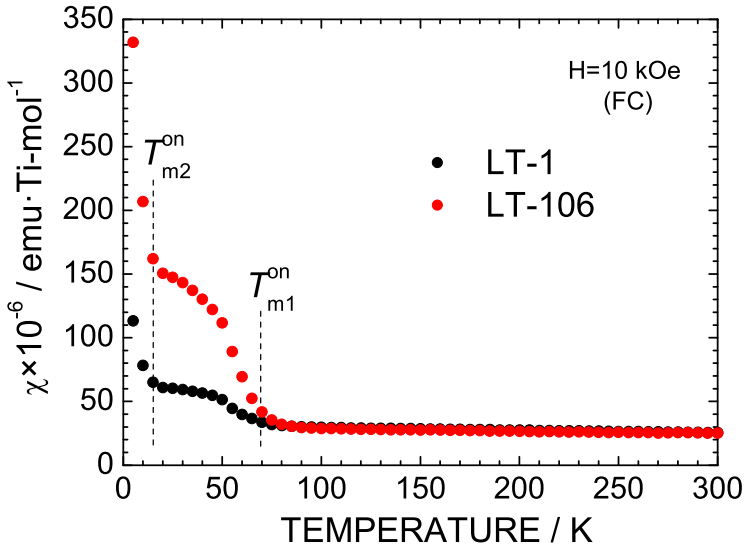


**Fig. S2.** Temperature dependence of magnetic susceptibility ($\chi$) for two commercial available $Li[Li_{1/3}Ti_{5/3}]O_4$ samples purchased from Titan Kogyo, Ltd. (LT-1) and Ishihara Sangyo Kaisha, Ltd. (ENERMIGHT, LT-106). $\chi$ was measured in a field-cooling (FC) mode with $H = 10$ kOe.

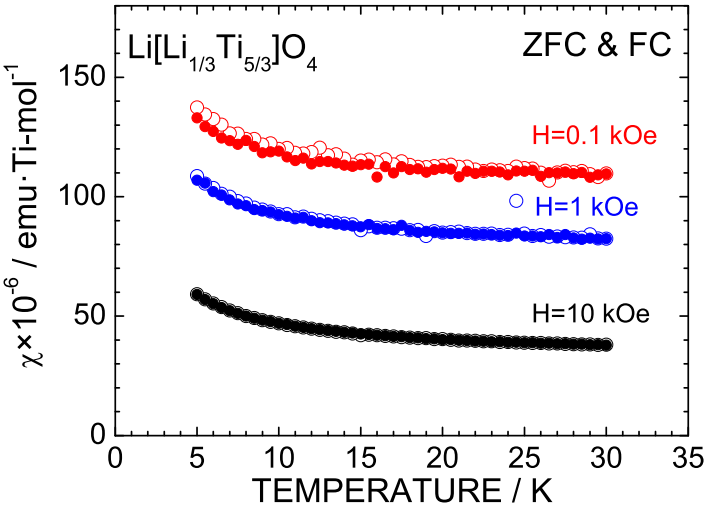


**Fig. S3.** Temperature dependence of magnetic susceptibility ($\chi$) for the $Li[Li_{1/3}Ti_{5/3}]O_4$ sample. $\chi$ was measured in both zero-field-cooling (ZFC) and field-cooling (FC) modes with $H = 0.1$, 1, and 10 kOe. Open and closed circles indicate $\chi$ in FC and ZFC modes, respectively.

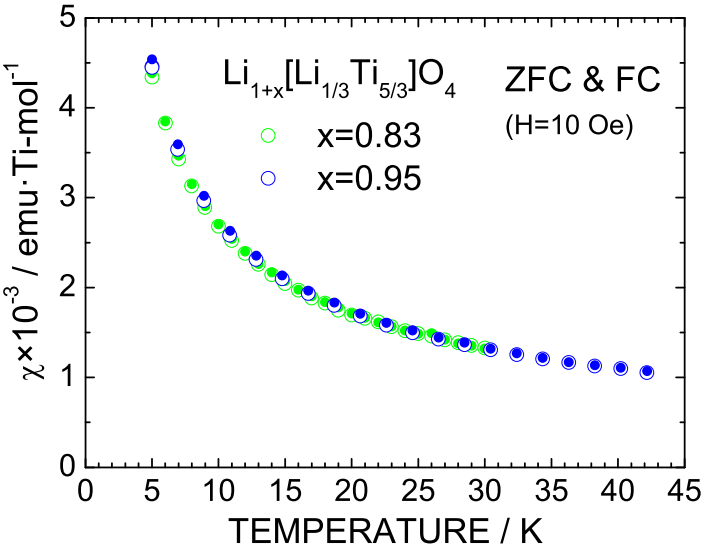


**Fig. S4.** Temperature dependence of magnetic susceptibility ($\chi$) for the $Li_{1+x}[Li_{1/3}Ti_{5/3}]O_4$ samples with $x = 0.83$, and 0.95. $\chi$ was measured in both zero-field-cooling (ZFC) and field-cooling (FC) modes with $H = 10$ Oe. Open and closed circles indicate $\chi$ in FC and ZFC modes, respectively.