

Supporting Information

Enhanced performance of LiCoO₂-TiO₂ electrode fabricated by sputtering for lithium ion battery

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Supporting materials include:

Part I. Supplementary figures

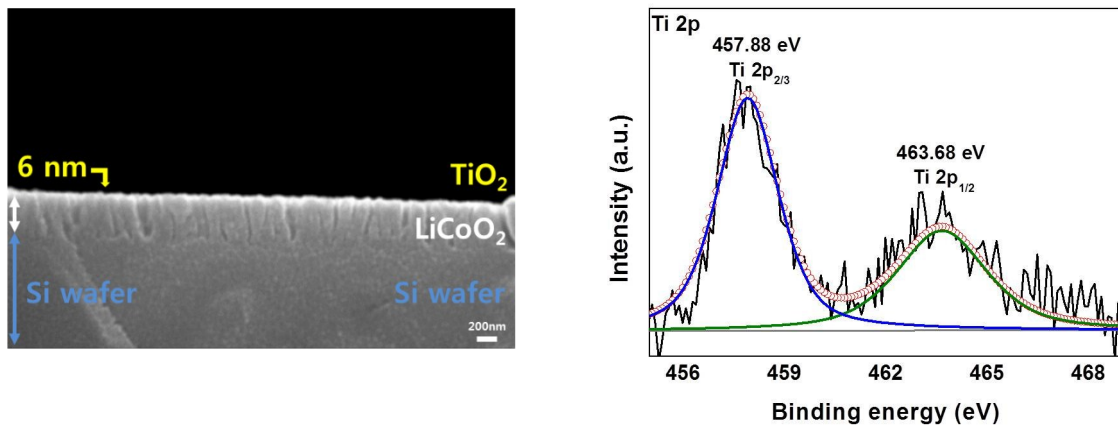


Figure S1. Ex-situ SEM cross-section image (left) and Ti2p XPS spectrum (right) of LCO-TiO₂(90).

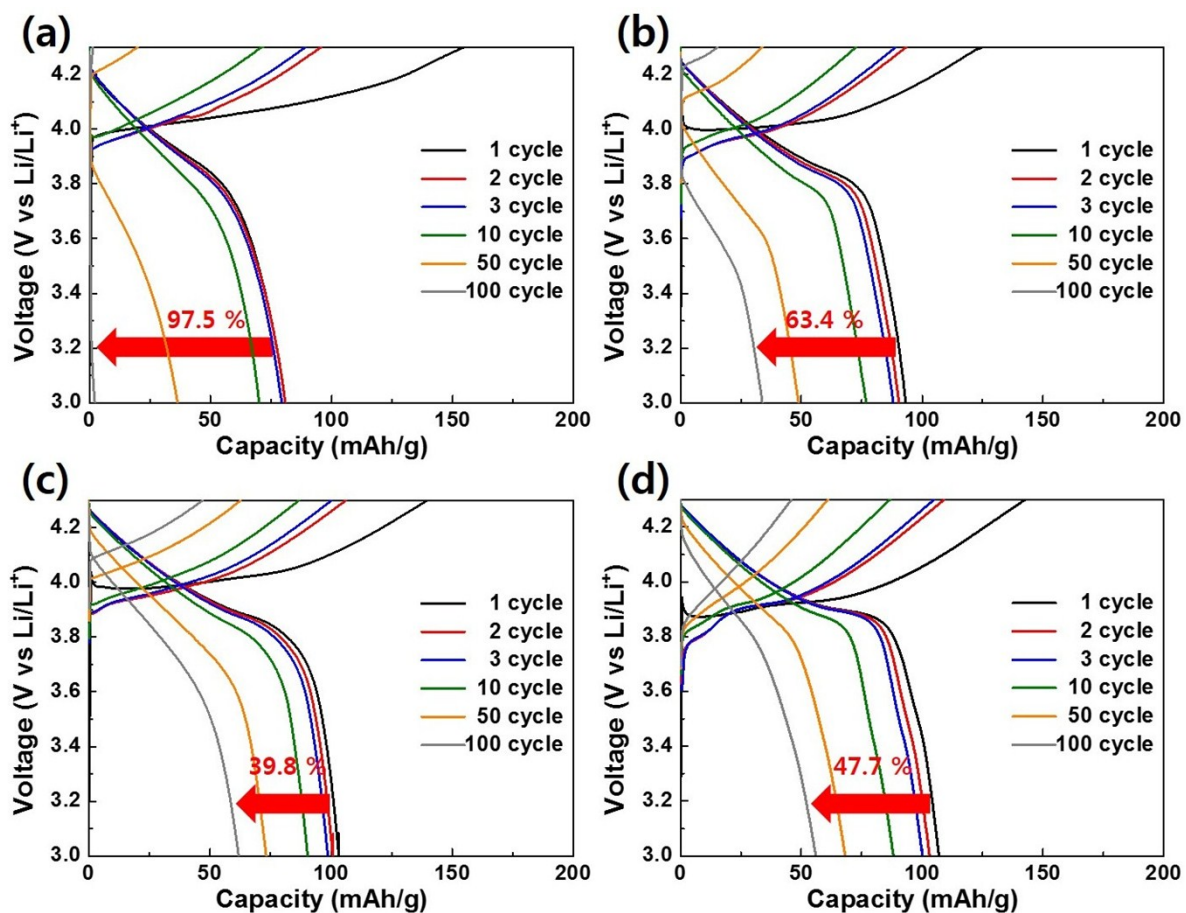
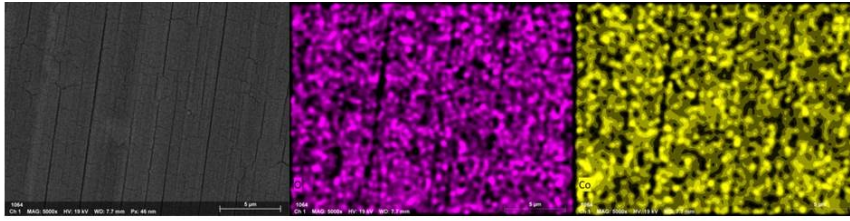
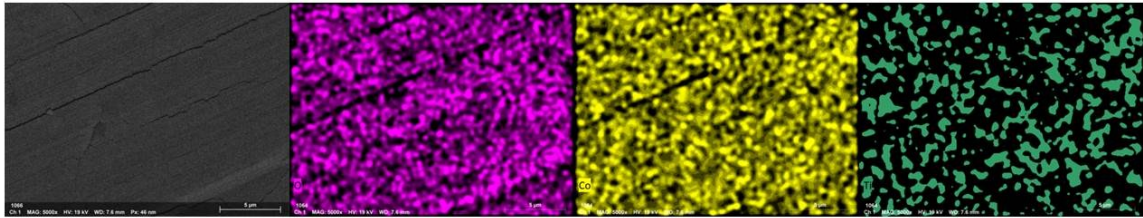


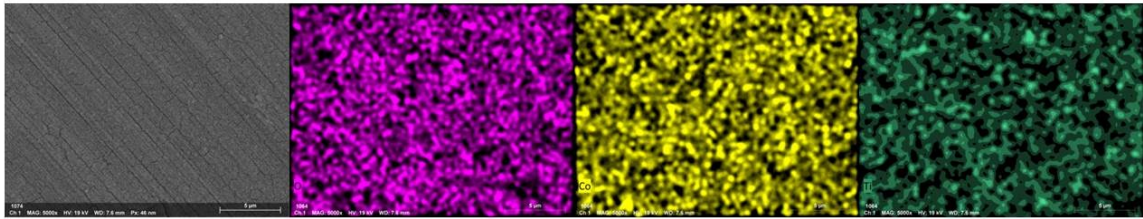
Figure S2. Charge/discharge curves of (a) LCO-TiO₂(0), (b) LCO-TiO₂(60), (c) LCO-TiO₂(90) and (d) LCO-TiO₂(120) measured at 0.5 C in the potential range of 3.01-4.30 V vs. Li/Li⁺.



(b)



(c)



(d)

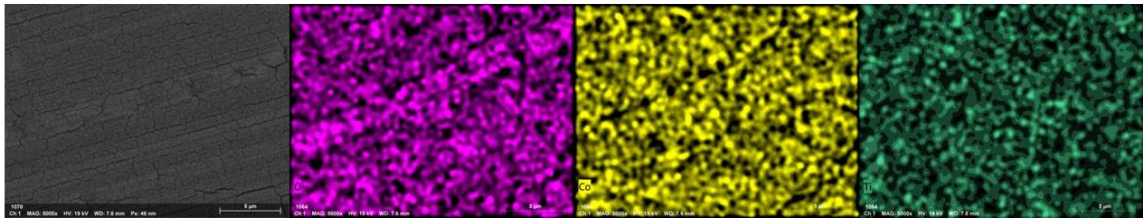


Figure S3. EDX mapping images of the as-prepared (a) LCO-TiO₂(0), (b)LCO-TiO₂(60), (C)LCO-TiO₂(90) and (d)LCO-TiO₂(120).

Table S1. Elemental composition from EDS data of LCO-TiO₂(0), LCO-TiO₂(60), LCO-TiO₂(90) and LCO-TiO₂(120)

	LCO-TiO₂(0)	LCO-TiO₂(60)	LCO-TiO₂(90)	LCO-TiO₂(120)
	At (%)	At (%)	At (%)	At (%)
Co	26.03	25.70	25.71	25.76
Ti	0	0.03	0.06	0.08
O	73.97	74.27	74.23	74.16
Total	100.00	100.00	100.00	100.00

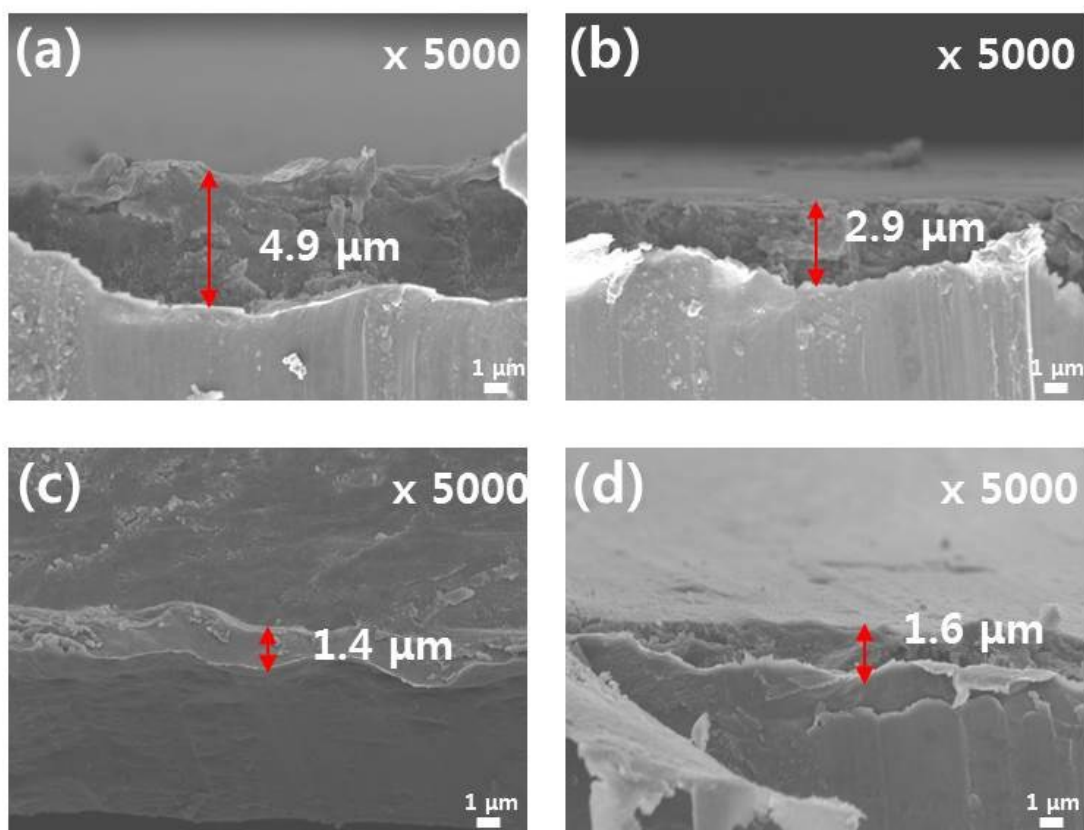


Figure S4. cross-section SEM images of (a) LCO-TiO₂(0), (b)LCO-TiO₂(60), (C)LCO-TiO₂(90) and (d)LCO-TiO₂(120) after charging/discharging process.

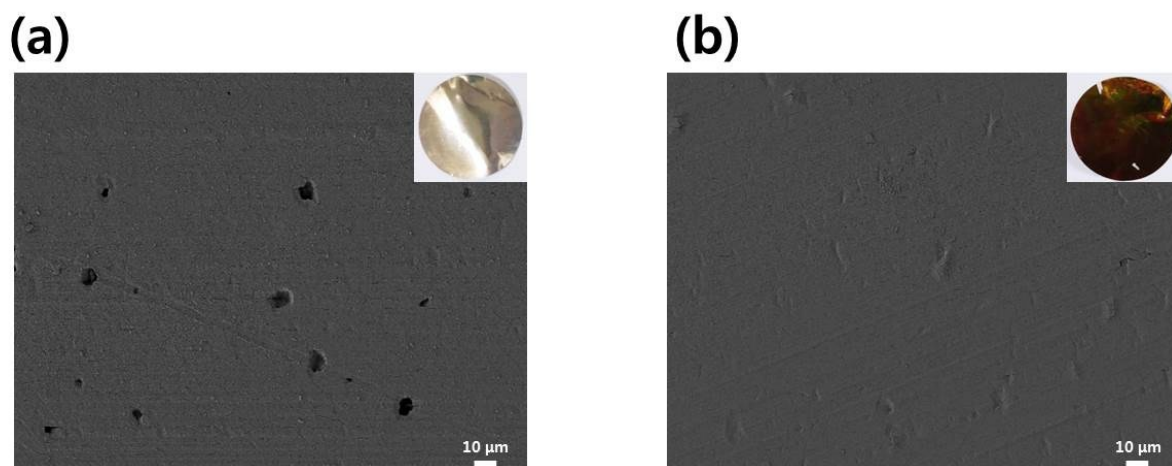


Figure S5 Ex-situ SEM top-view images of (a)LCO-TiO₂(0) and (b)LCO-TiO₂(90) after charging/discharging process in the potential range of 3.01-4.50 V vs. Li/Li⁺. The insets are photo images of LCO-TiO₂(0) and LCO-TiO₂(90) after the cycling process.

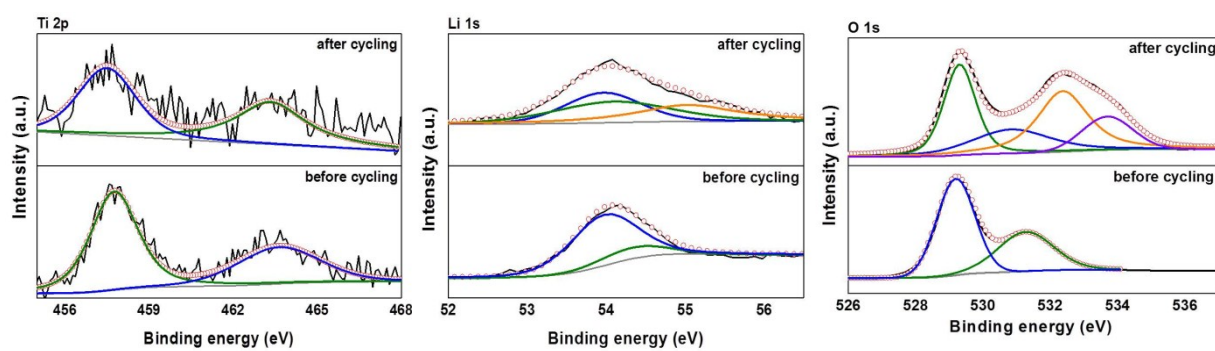


Figure S6 Ti2p, Li1s, and O1s XPS spectra of LCO-TiO₂(90) after charging/discharging process in the potential range of 3.01-4.50 V vs. Li/Li⁺.