Supporting information (SI)

Observation of lithiation induced structural variations in TiO_2 nanotube arrays by X-ray absorption fine structures

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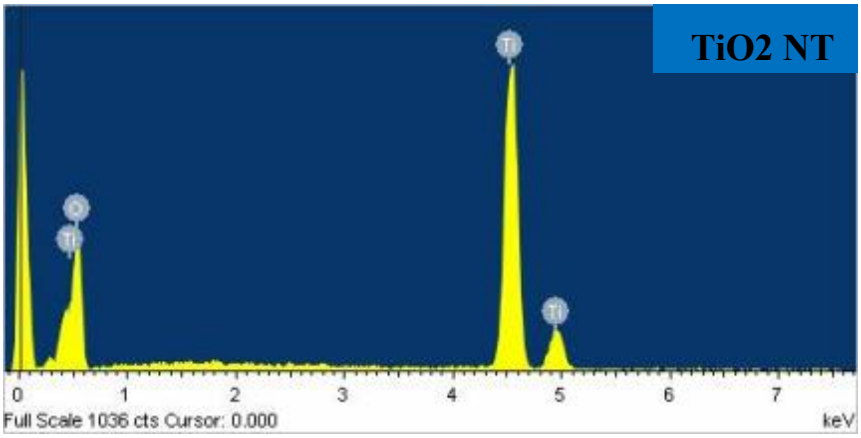

Figure S1 EDS spectra of the amorphous TiO_2 NT.

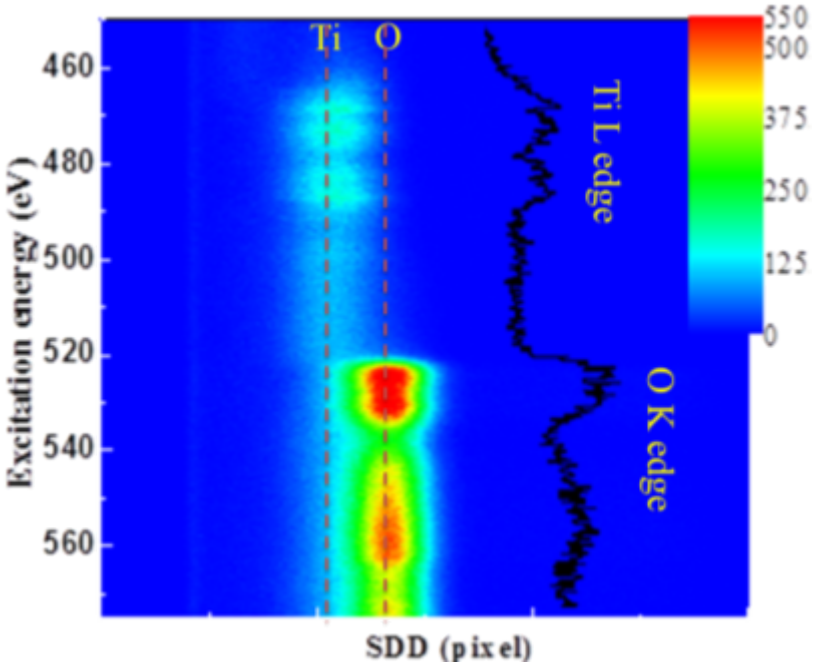

Figure S2 2-D display of excitation energy across the Ti $L_{3,2}$-edge and O K edge (y-axis) vs. fluorescence/scattered X-ray energy (x-axis) from Ti and O detected with a silicon drift detector (SDD). The fluorescence X-ray energy from Ti $L_{3,2}$ shell and O K shell, respectively, are marked with a vertical dotted line with the intensity colour coded. The Ti L and O K edge XANES is also shown (black trace).

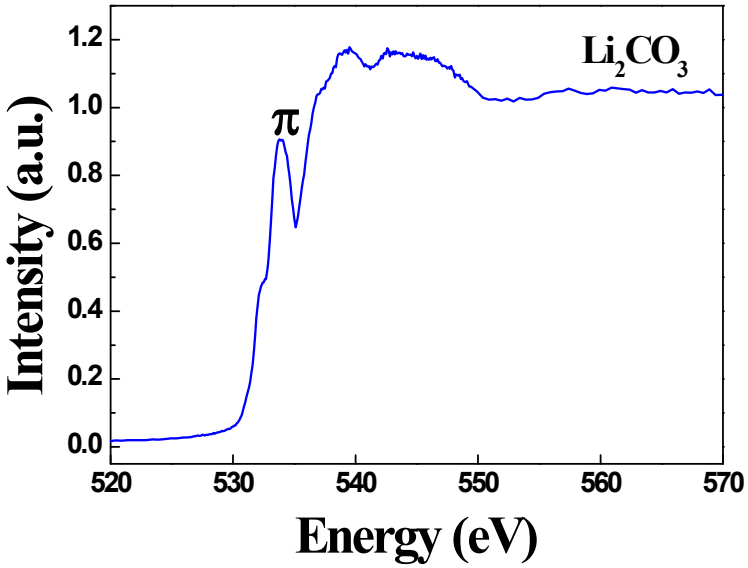

Figure S3 O K edge XANES of Li_2CO_3 powder.

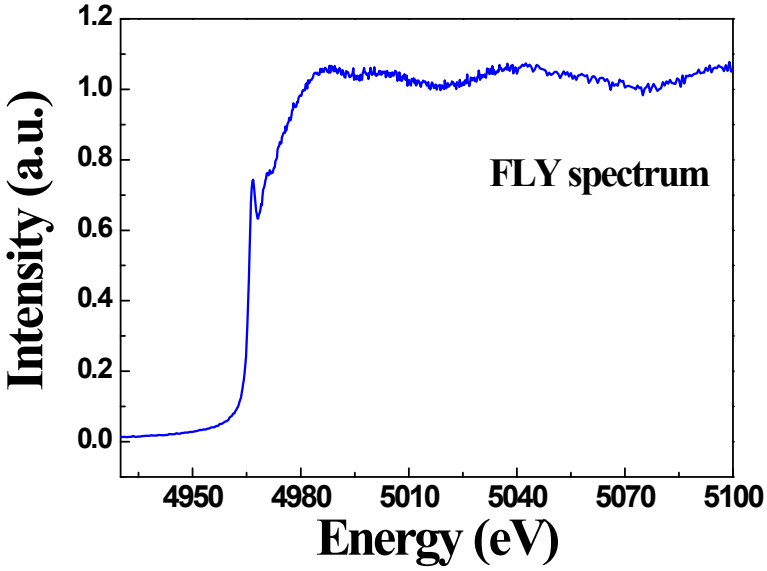

Figure S4 FLY spectrum of amorphous TiO_2 rooted on Ti foil.

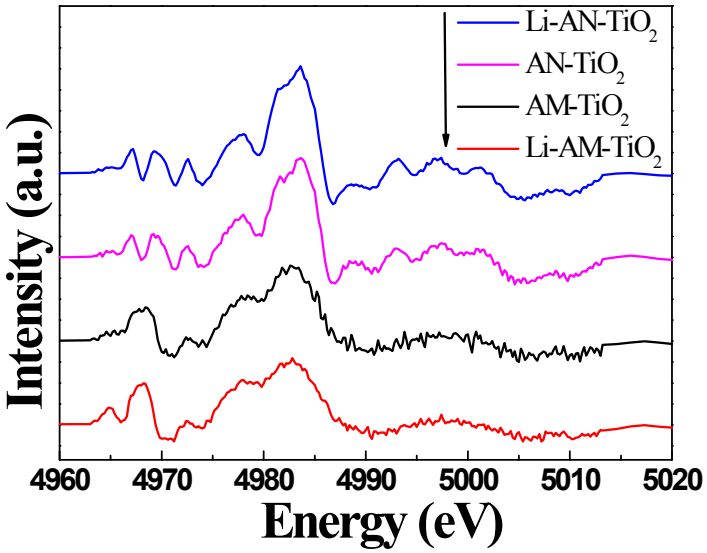

Figure S5 First derivative spectra of Ti K edge XAFS for amorphous and anatase TiO_2, both before and after lithiation

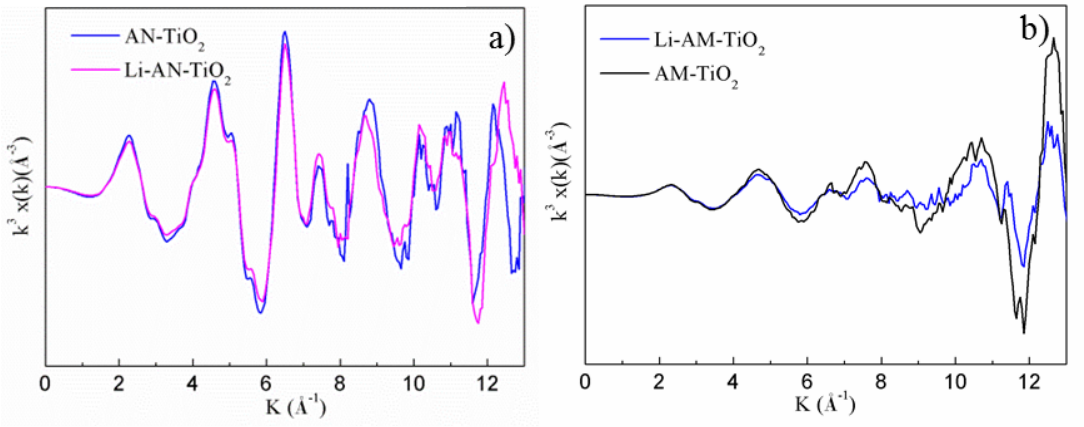

Figure S6. Ti K-edge EXAFS spectra (k^3-weighted) of (a) anatase and (b) amorphous TiO_2 both before and after lithiation.