Electronic Supplementary Information (ESI) for

Investigation of carbon coating on the electrochemical performance of $Li_4Ti_5O_{12}$/C nanocomposites

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Table S1. The potential differences (ΔU) between discharge and charge plateaus for the samples with different carbon contents at each rate (50% depth of discharge state).

Sample	Polarization ΔU / V						
	0.2C	**1C**	**2C**	**3C**	**5C**	**7C**	**10C**
0	0.054	0.096	0.118	0.173	0.199	0.240	0.306
0.4 wt%	0.020	0.064	0.076	0.109	0.161	0.179	0.223
1.8 wt%	0.028	0.056	0.075	0.107	0.144	0.168	0.205
9.6 wt%	0.062	0.079	0.104	0.157	0.206	0.259	0.317

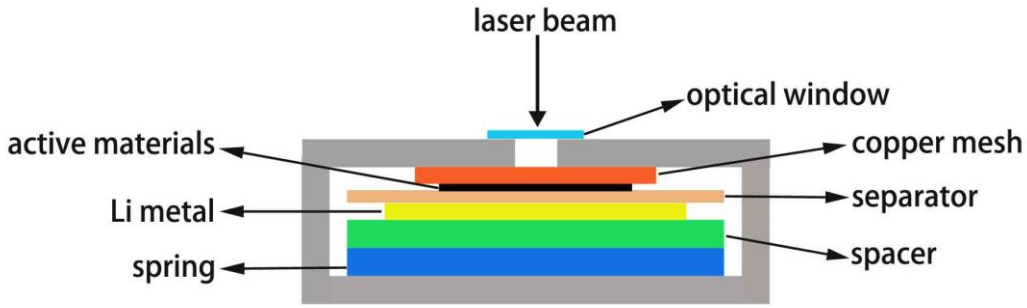

Figure S1. Structure of the laboratory-made cell used for the in situ Raman measurements.

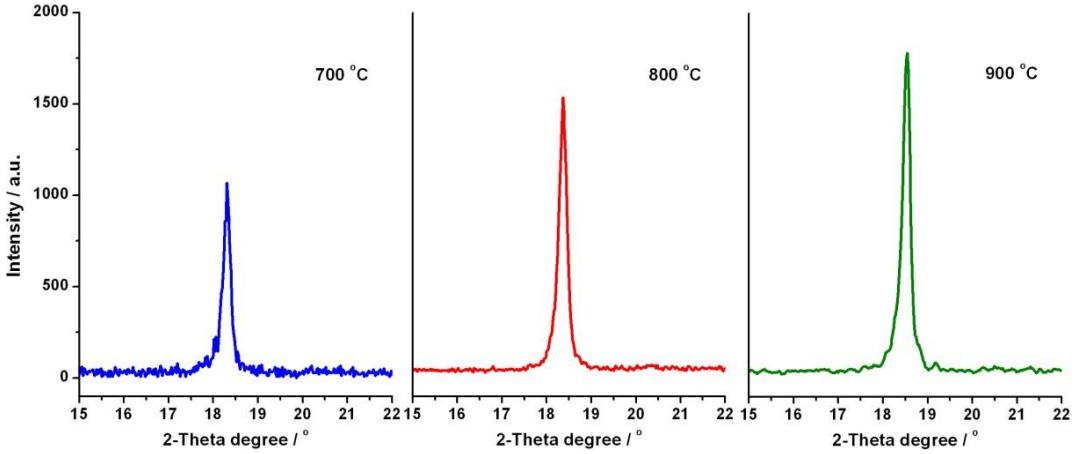

Figure S2. The (111) plane diffraction peaks of carbon coated LTO synthesized at different indicated temperatures. By using Scherer's formula based on the (111) peak, the crystalline sizes of the samples obtained at 700, 800 and 900 °C are calculated to be 42.8, 49.2 and 65.4 nm, respectively.

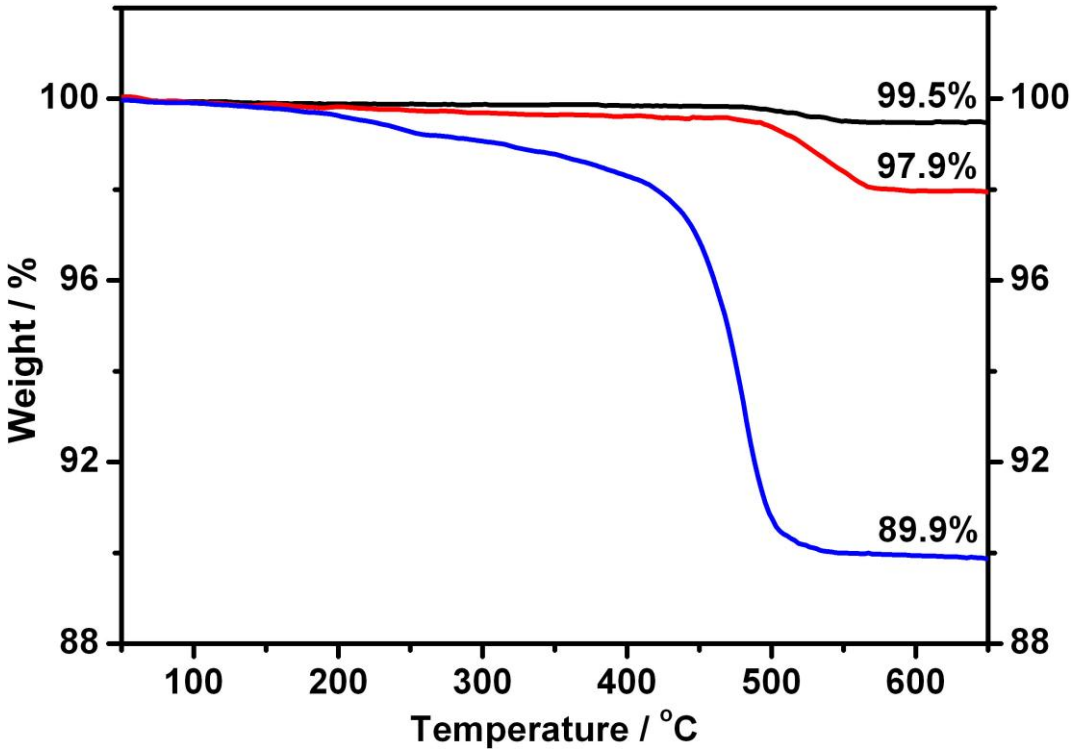

Figure S3. TG curves of the prepared LTO with different carbon contents in air with a heating rate of 5 °C per min. The weight losses for the three samples are 0.5%, 2.1% and 10.1%, respectively. These values are a little larger than those obtained from the elemental analysis. The difference could be ascribed to the weight loss derived from the evaporation of moisture during the TG measurement.

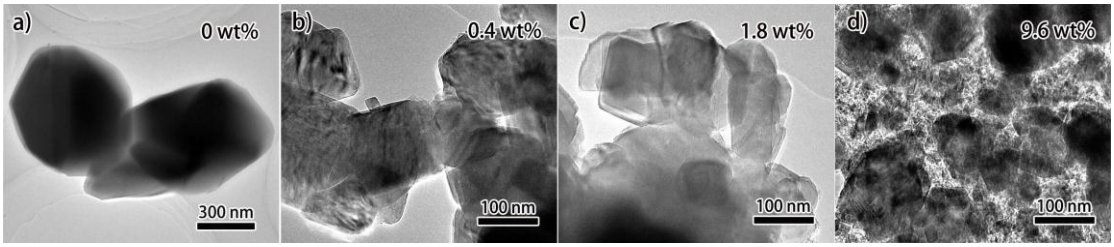

Figure S4. TEM images of the prepared LTO with different carbon contents of (a) 0 wt%, (b) 0.4 wt%, (c) 1.8 wt%, (d) 9.6 wt%.