Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Controllable Synthesis of Cube-like $ZnSnO_3$@TiO_2 Nanostructures as Lithium Ion Batteries Anodes

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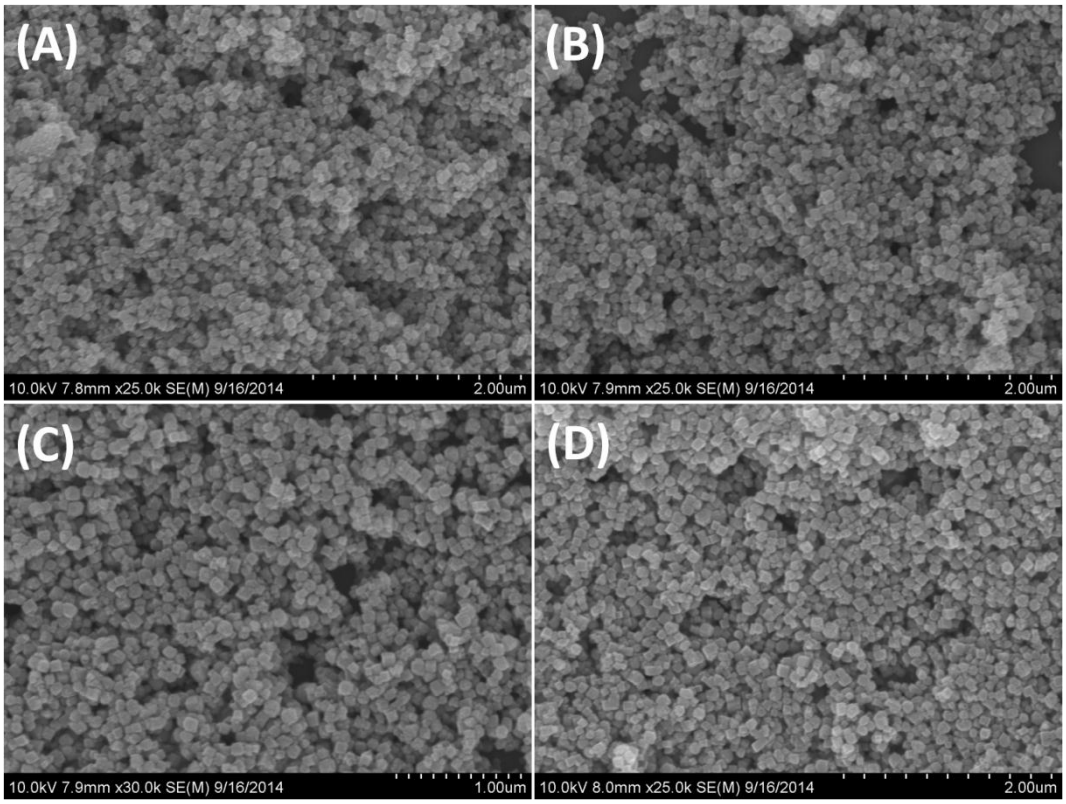

Figure S1. SEM images of the ZnSn-based product prepared through thermal treatment at (A) 150 ^{o}C, (B) 300 ^{o}C, (C) 450 ^{o}C, (D) 600 ^{o}C.

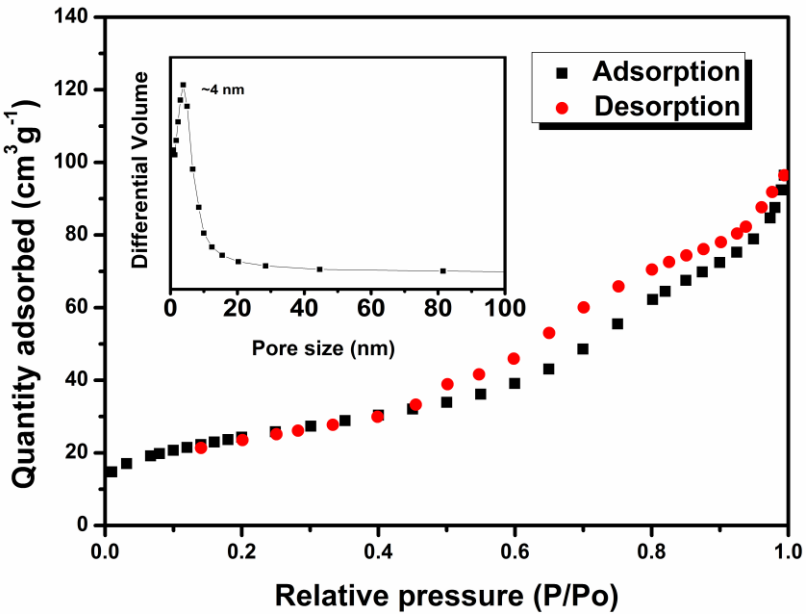

Figure S2. N_2 adsorption-desorption isotherms and (Inset) pore size distribution of $ZnSnO_3$@TiO_2 nanoparticles.

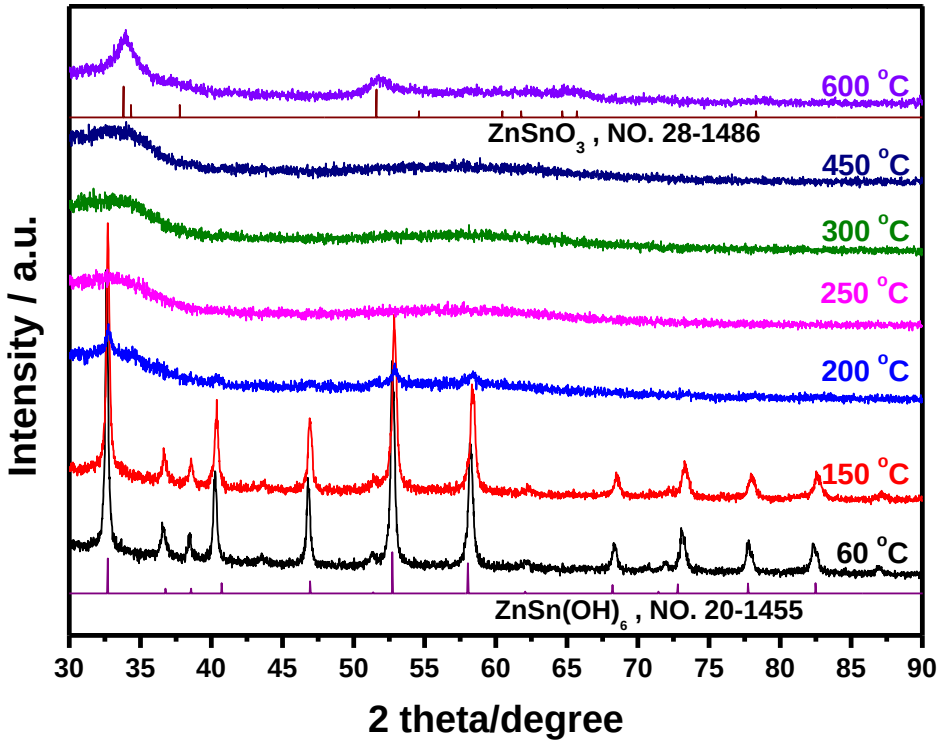

Figure S3. XRD patterns of $ZnSn(OH)_6$ heated at different temperature.

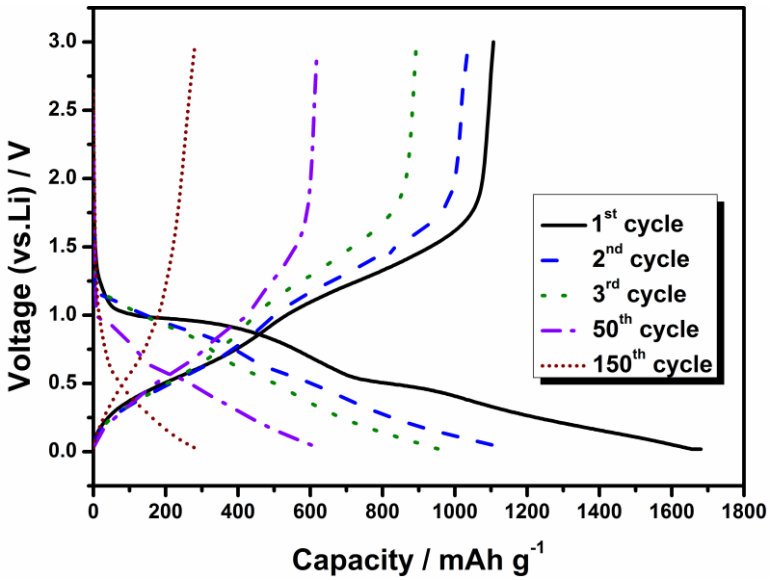

Figure S4. Discharge-charge curves of $ZnSnO_3$ at a current density of 100 mA g^{-1}.

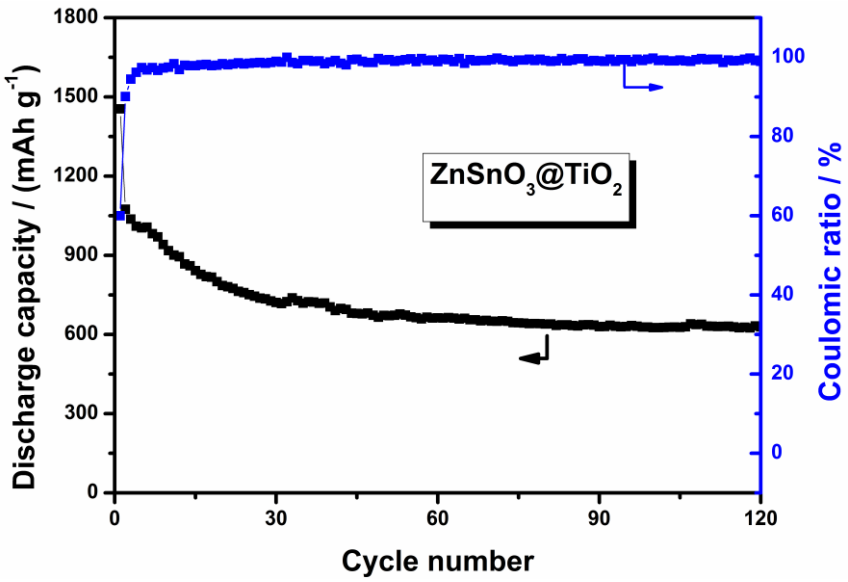

Figure S5. Coulombic efficiency and electrochemical cycling performance of the $ZnSnO_3@TiO_2$ at a current density of 200 mA g^{-1}.

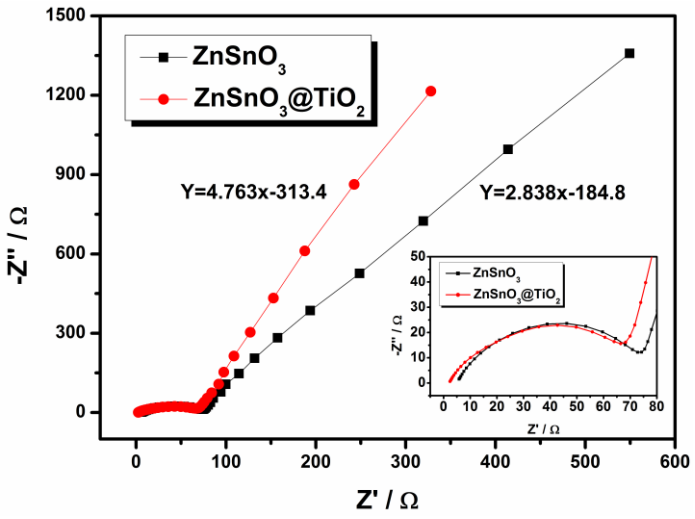

Figure S6. EIS spectra of $ZnSnO_3$ and $ZnSnO_3@TiO_2$.

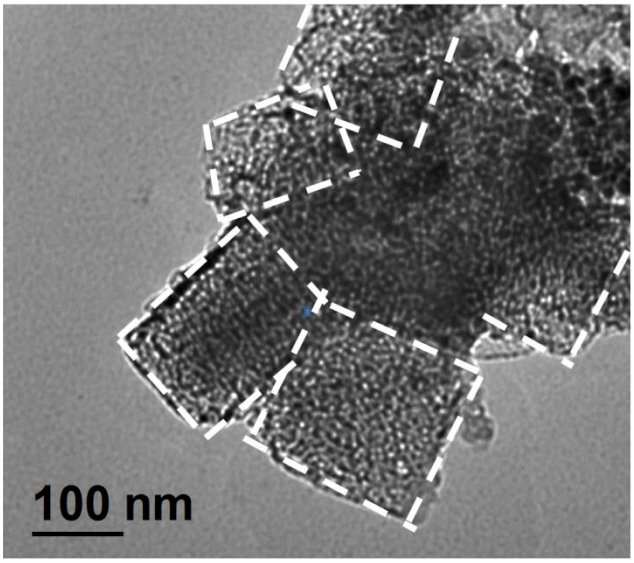

Figure S7. TEM image of de-lithiated $ZnSnO_3$@TiO_2 anode after 200 cycles.

Table S1. Comparison of the electrochemical properties of $ZnSnO_3$ and $ZnSnO_3@TiO_2$.

Samples	$ZnSnO_3$ (at 100 mA g^{-1})	$ZnSnO_3@TiO_2$ (at 100 mA g^{-1})	$ZnSnO_3@TiO_2$ (at 200 mA g^{-1})
First discharge capacity / mAh g^{-1}	1680.7	1590	1454
First charge capacity / mAh g^{-1}	1106	1038	964
Discharge Capacity after 10^{th} cycle / mAh g^{-1}	1008.5	950.7	918
Discharge Capacity after 100^{th} cycle / mAh g^{-1}	384.7	732.6	625.7
Discharge Capacity after 200^{th} cycle / mAh g^{-1}	<300	782.7	<600