Supporting Information

Dunaliella Salinas Based Sn-Carbon Anode for High Performance Li-Ion Batteries

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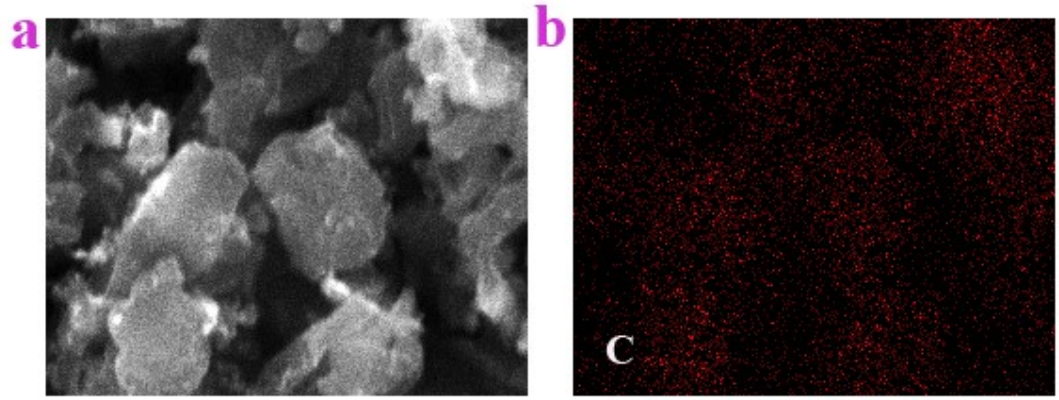
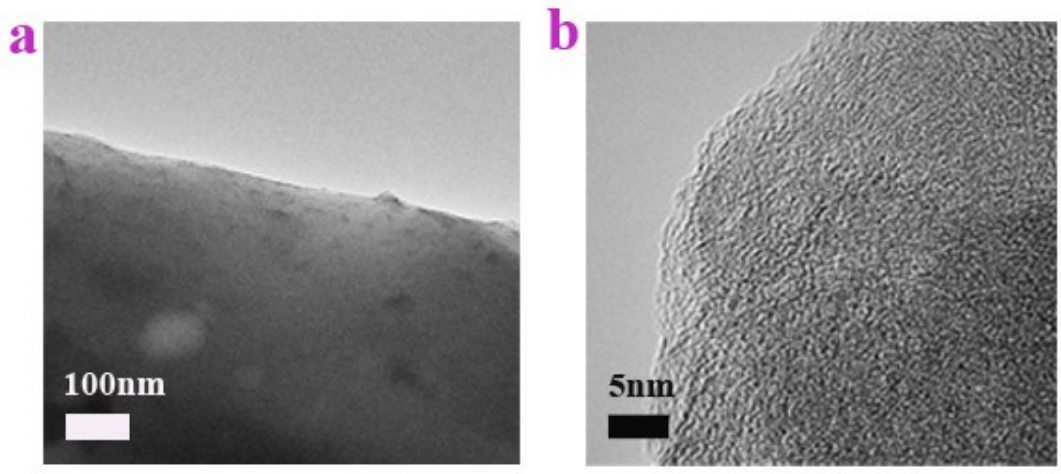
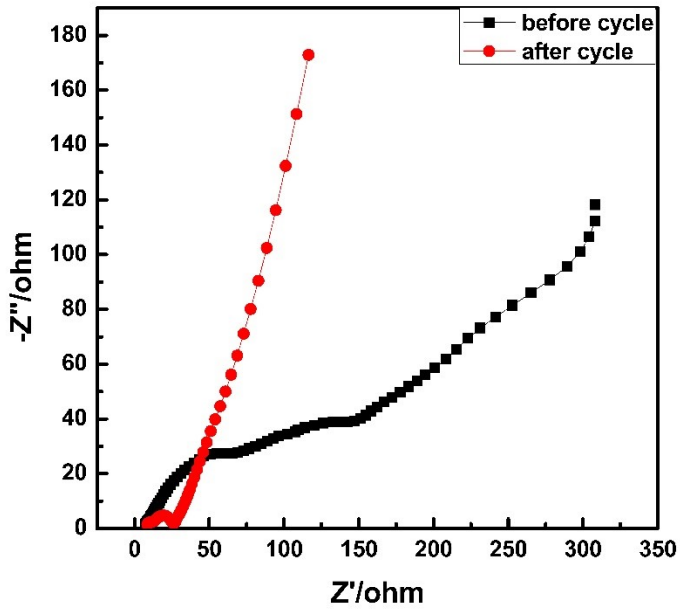


Supplementary Figure 1: Elemental maps of the C in the sample



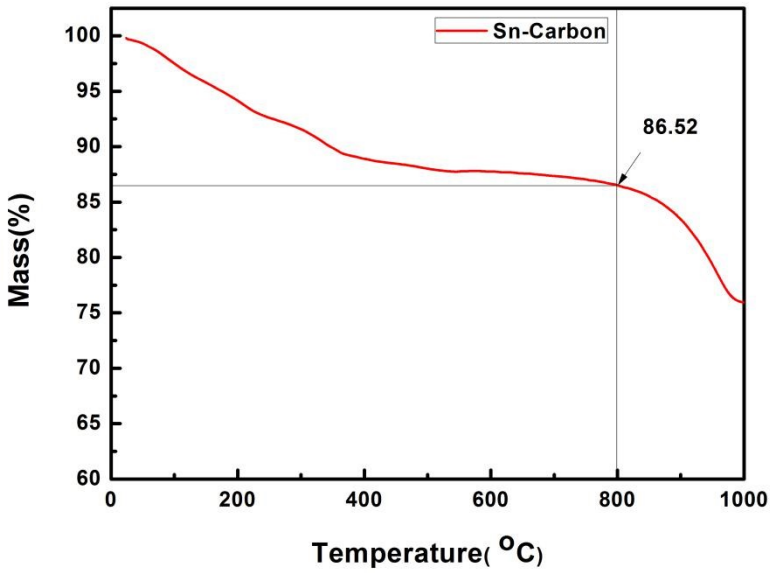
Supplementary Figure 2: TEM image of the amorphous carbon (a) and HRTEM image of the amorphous carbon (b)



Supplementary Figure 3: The electrochemical impedance spectra (EIS) before discharging (black line) and after 470 cycling (red line) for the Sn-Carbon composite Anode

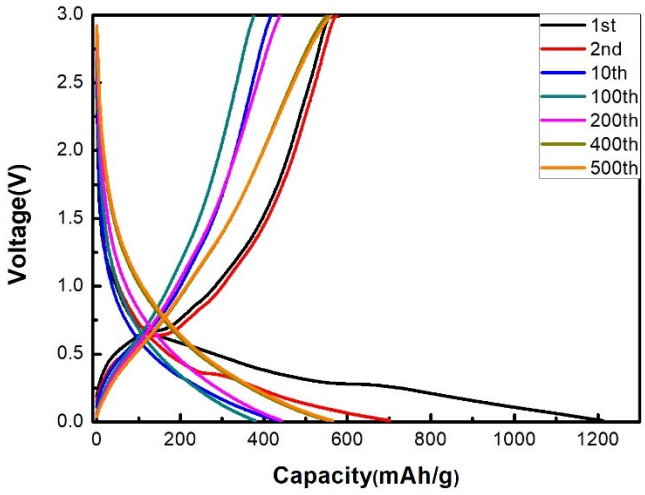
Supplementary Figure 3 shows the Electrochemical Impedance Spectroscopy（EIS）of the Sn-

Carbon composite Anode before discharging and after 470 cycling. The radius of curvature of the Sn-Carbon composite in the high and medium frequency region before discharging （125 Ω）is far bigger than the corresponding data after 470 cycling（25 Ω）, implying the low meliorative internal resistance with the activation of anode after 470 cycling.



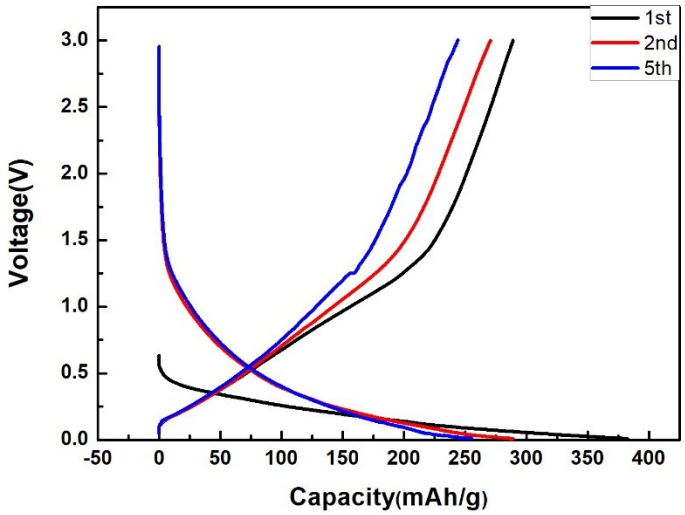
Supplementary Figure 4: TGA data of the Sn-Carbon composite.

Supplementary Figure 4 shows the TGA data of the Sn-Carbon composite, under the 350 °C, the weight of Sn-Carbon composite decreases constantly and fleetly, it mainly due to the loss of C; during the 350-800 °C, its weight decreases slowly, it means that the carbon is almost gone. After 800 °C, it loses its weight sharply, it dues to the change of Sn mainly.



Supplementary Figure 5: Charge/discharge curves at a current density of 1000 mA g^{-1} at the 1^{st}, 2^{nd}, 10^{th}, 100^{th}, 200^{th}, 400^{th}, 500^{th} cycles.

Supplementary Figure 5 displays that the 400^{th} and 500^{th} Charge/discharge curves coincide very well, and they are in high specific capacities. The 1^{st}, 2^{nd}, 10^{th} specific capacities present a gradual decrease, the 100^{th}, 200^{th}, 400^{th} specific capacities present gradual increase, which evidences the activation phenomenon and the specific capacities have a decrease in the first stage, a succedent increase in the second stage in capacity while cycling.



Supplementary Figure 6: The Charge/discharge curves of amorphous carbon at a current density of 100 mA g^{-1} at the 1^{st}, 2^{nd}, 5^{th} cycles.