

## Supporting information

### **SnSb/TiO<sub>2</sub>/C nanocomposite fabricated by high energy ball milling for high-performance lithium-ion batteries**

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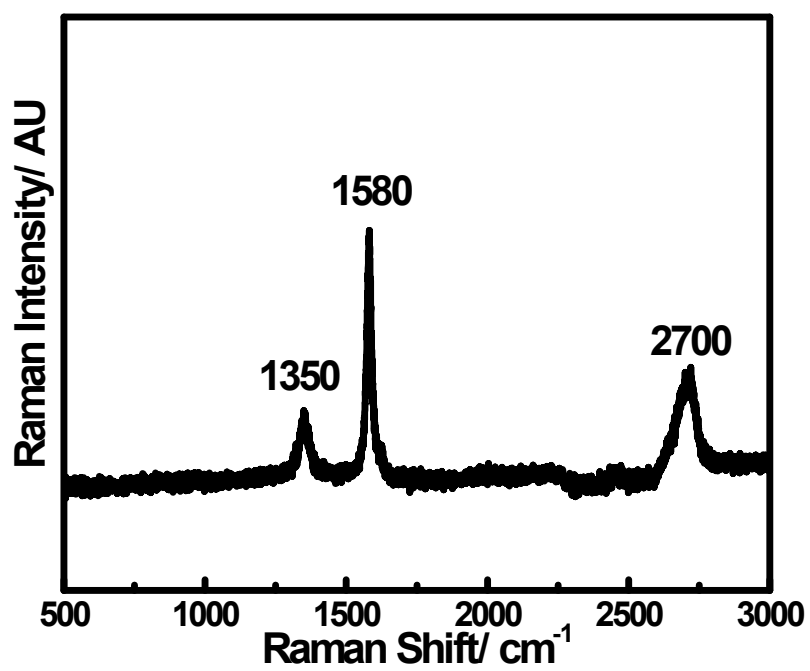
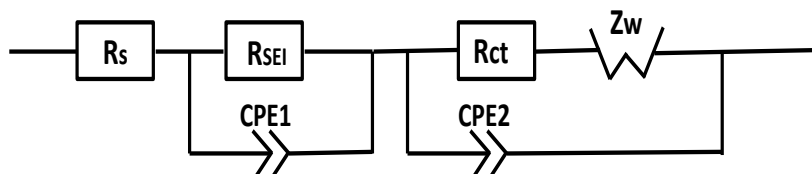


Figure S1. Raman spectrum of the raw graphite material.

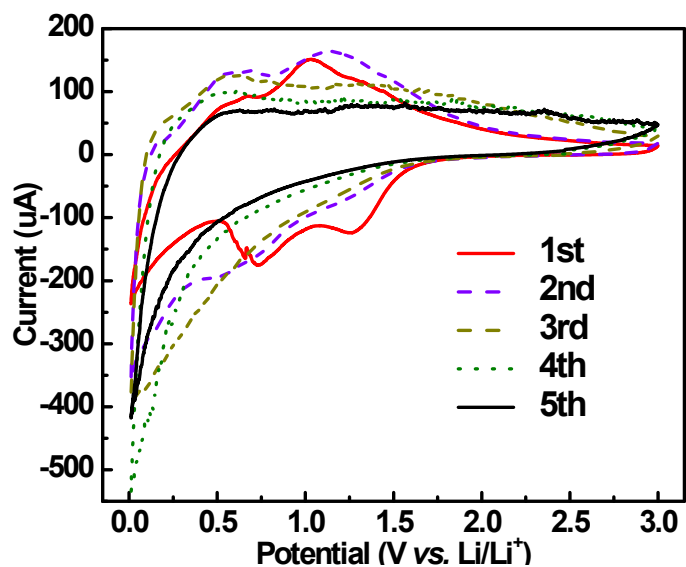
(a)



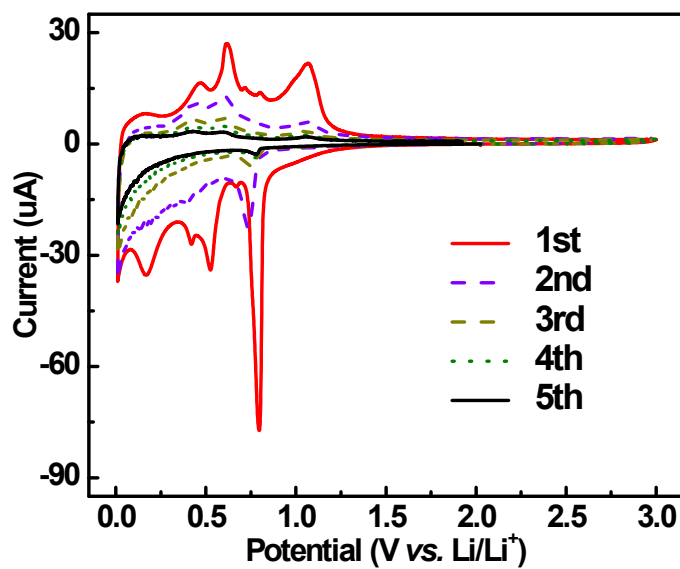
(b)

|                    | SnSb/TiO <sub>2</sub> | SnSb/TiO <sub>2</sub> /C | SnSb/C |
|--------------------|-----------------------|--------------------------|--------|
| $R_{SEI} (\Omega)$ | 123                   | 117.9                    | 309.6  |
| $R_{ct} (\Omega)$  | 102.1                 | 72.8                     | 269.6  |

**Figure S2.** (a) Equivalent circuit model used for calculation of  $R_{SEI}$  and  $R_{ct}$  of SnSb/TiO<sub>2</sub>, SnSb/TiO<sub>2</sub>/C, SnSb/C electrodes, (b)  $R_{SEI}$  and  $R_{ct}$  results for SnSb/TiO<sub>2</sub>, SnSb/TiO<sub>2</sub>/C, SnSb/C after the 1<sup>st</sup> discharge process at current density of 1 A g<sup>-1</sup>.



**Figure S3.** CV curves of SnSb/C nanocomposite tested at  $0.1 \text{ mV s}^{-1}$  in the potential window of 0.01-3 V vs. Li/Li<sup>+</sup>.



**Figure S4.** CV curves of SnSb/TiO<sub>2</sub> nanocomposite tested at  $0.1 \text{ mV s}^{-1}$  in the potential window of 0.01-3 V vs. Li/Li<sup>+</sup>.