

## Electronic Supplementary Information

### “Growth mechanism and electrochemical properties of hierarchical hollow SnO<sub>2</sub> microspheres with “chest-nut” morphology”

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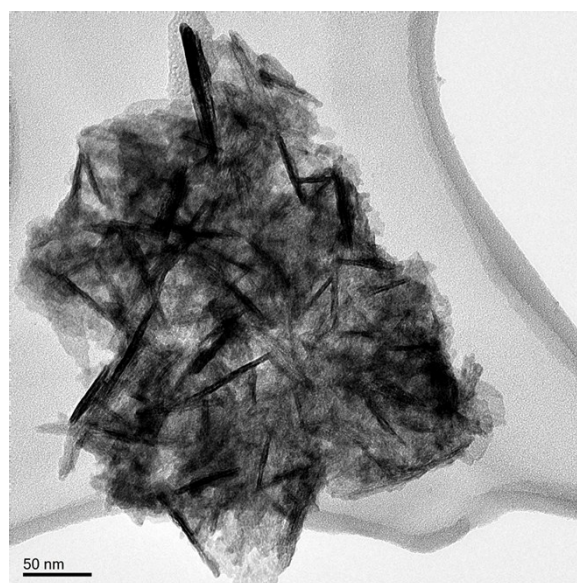


Fig.S1: A typical TEM image of SnO<sub>2</sub> prepared by conventional hydrothermal

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method without sonication pretreatment of  $\text{SnCl}_2$  in DI water

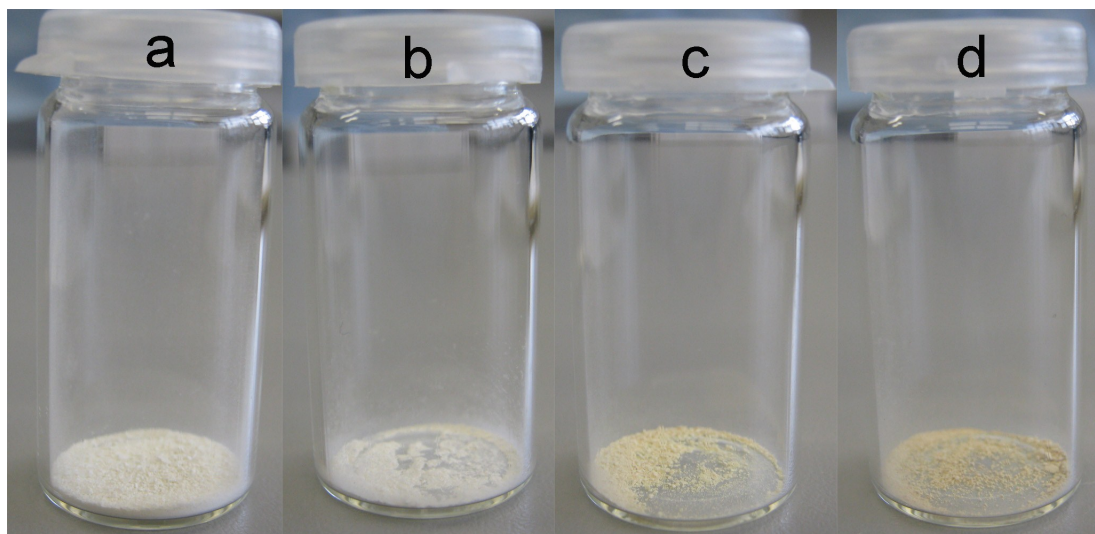


Fig. S2. Digital Photos of Products with different color collected after different hydrothermal reaction time during the preparation process of  $\text{SnO}_2$  HHMSs: (a) 0 h; (a) 0.5 h; (a) 2 h; (a) 6 h.

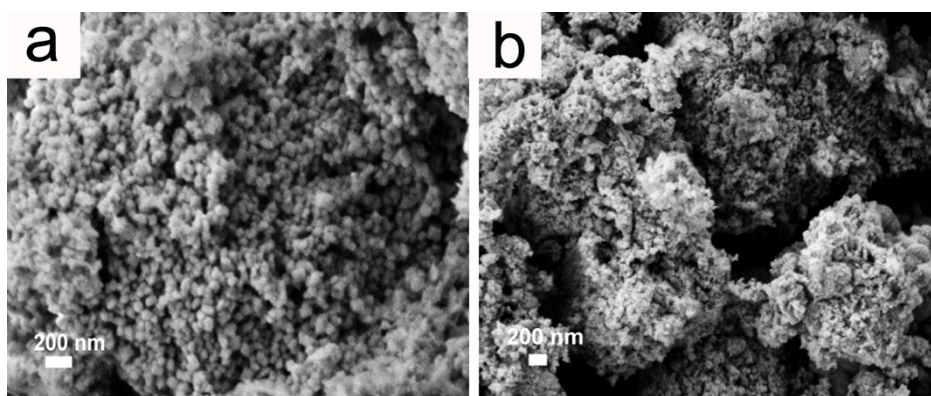
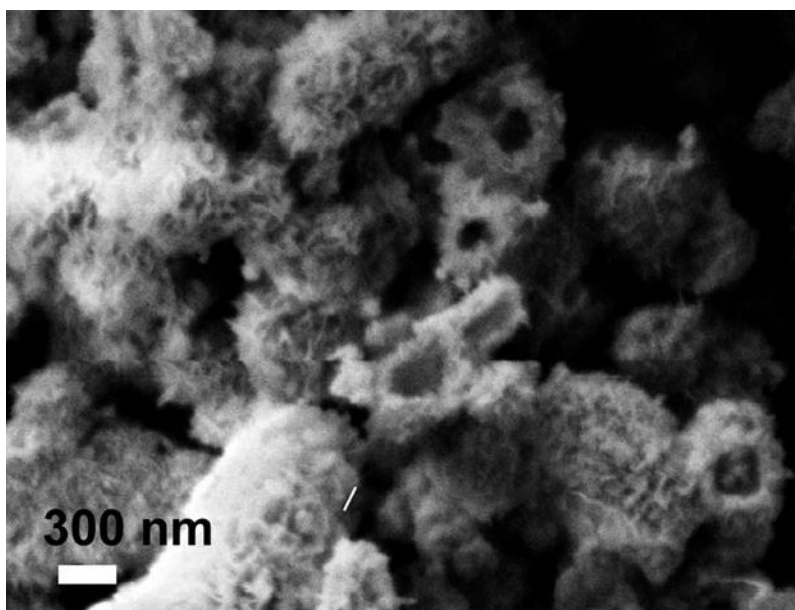
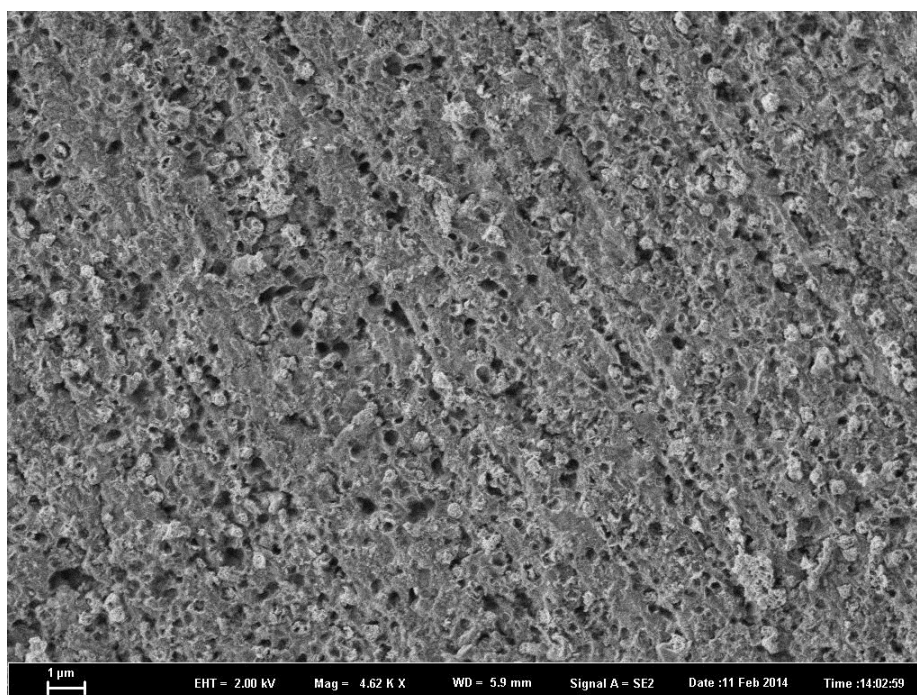


Fig. S3 SEM images of  $\text{SnO}_2$  prepared at higher temperature: (a) 180 °C; (b) 210 °C respectively. The other experimental conditions are the same as that of  $\text{SnO}_2$  HHMSs. Interesting it's found that at higher reaction temperature (i.e., 180 or 210 °C) only  $\text{SnO}_2$  nanoparticles (NPs) or NPs aggregations rather than HHMSs could be obtained.



**Fig. S4** SEM image of final products obtained by sonication assistant method with  $\text{SnCl}_2$  concentration of 0.11 g/mol



**Fig. S5** SEM image of  $\text{SnO}_2$  HHMSs based anode taken from LIBs after 50th cycling.