Supporting Information

Sb-coated SiC Nanoparticles as Stable and High Capacity Anode Materials for Li-ion Batteries

Zhongxue Chen, Yuliang Cao,*ab Jiangfeng Qian, Xinping Ai and Hanxi Yang*

*a Hubei Key Lab. of Electrochemical Power Sources, College of Chemistry and Molecular Science, Wuhan University, Wuhan 430072, (P. R. China). Tel: 86-027-68754526; E-mail: hxyang@whu.edu.cn

*b Pacific Northwest National Laboratory, Richland, Washington 99352, USA. E-mail: ylcao@whu.edu.cn

Figure S1. SEM image of the as prepared SiC-Sb-C nanocomposite.
**Figure S2.** *Ex situ* XRD patterns of the anode at various depths of charge-discharge state

After first charge at 0.01V, most of the diffraction peaks of the Sb-phase disappeared and correspondingly several XRD peaks emerged, characterizing the formation of Li$_3$Sb alloy phase. After a reversed discharge at 2.0V, the XRD signals of elemental Sb phase reappeared, suggesting a superduper electrochemical reversibility of this SiC-Sb-C composite.