

Electronic Supplementary Material (ESI)

Hollow-Structure Engineering of Silicon-Carbon Anode for Ultra-Stable Lithium-ion Batteries

Hongbin Liu,^a Yun Chen,^a Bo Jiang,^a Yue Zhao,^a Xiaolin Guo^{*b} and Tingli Ma^{*a,b}

^a Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology 2-4 Hibikino, Wakamatsu, Kitakyushu, Japan

E-mail: tinglima@life.kyutech.ac.jp

^b College of Materials and Chemistry, China Jiliang University, Hangzhou, 310018, PR China

E-mail: guoxiaolin@cjlu.edu.cn

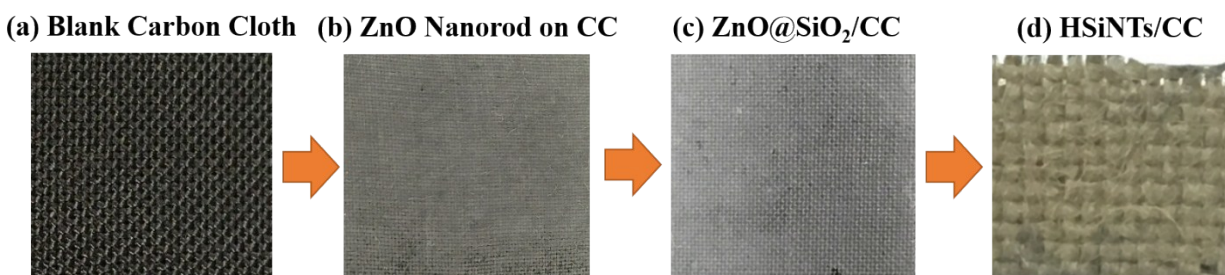


Figure S1. The photo image of several materials: (a) The blank carbon cloth; (b) growing ZnO nanorods on carbon cloth; (c) coating SiO₂ on ZnO nanorods; and (d) The final HSiNTs/CC material.

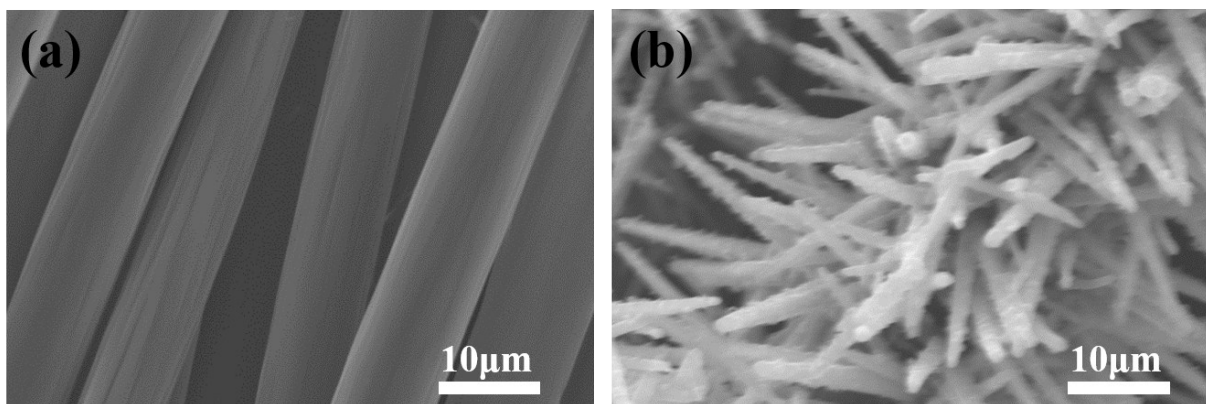


Figure S2. The SEM images of (a) Blank carbon cloth (CC); (b) ZnO@Si/CC.

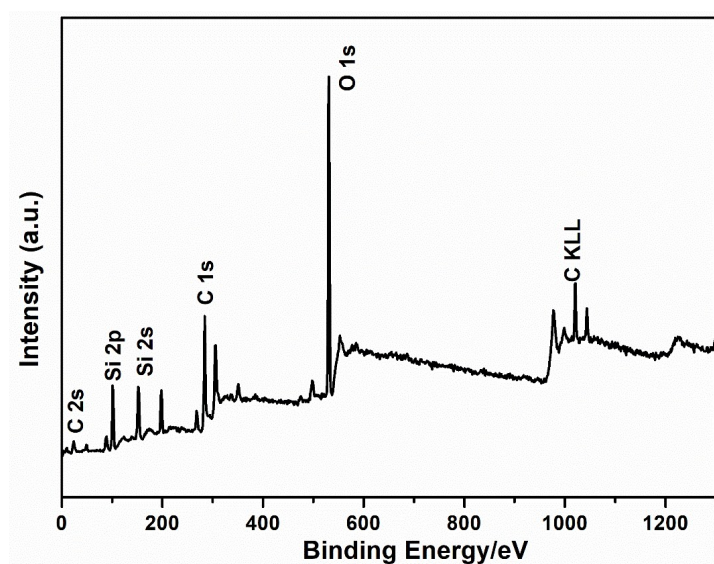


Figure S3. The whole XPS spectra of the HSiNts/CC.

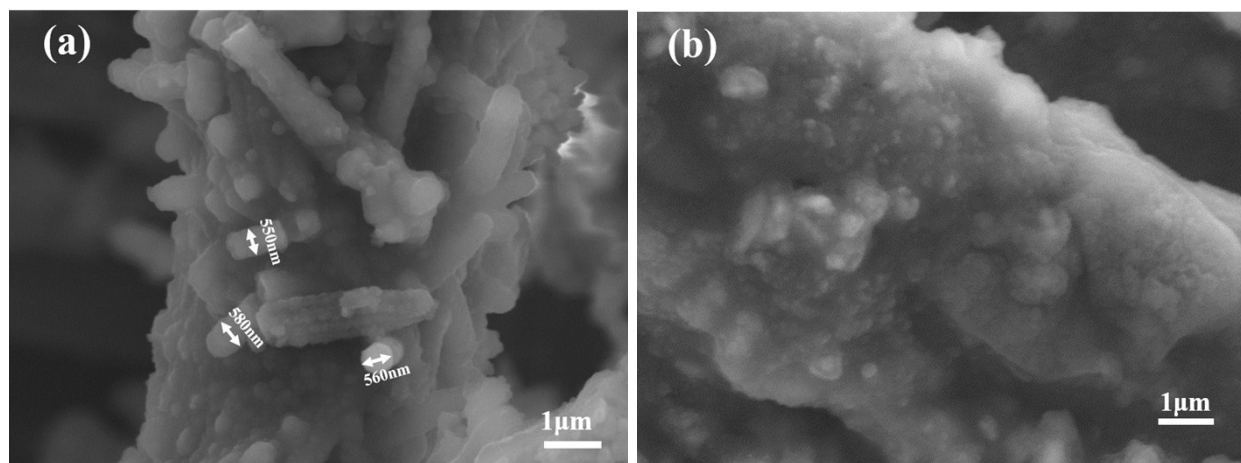


Figure S4. The SEM images of HSiNTs/CC (a) and pure Si/CC (b) after 100 cycles.

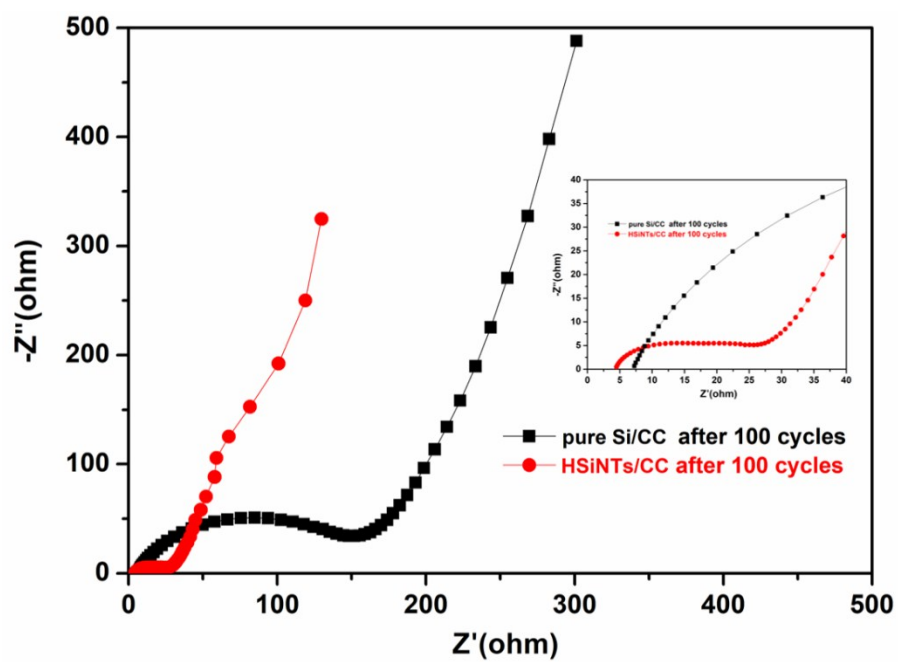


Figure S5. The EIS of HSiNTs/CC and pure Si/CC anode after 100 cycles.

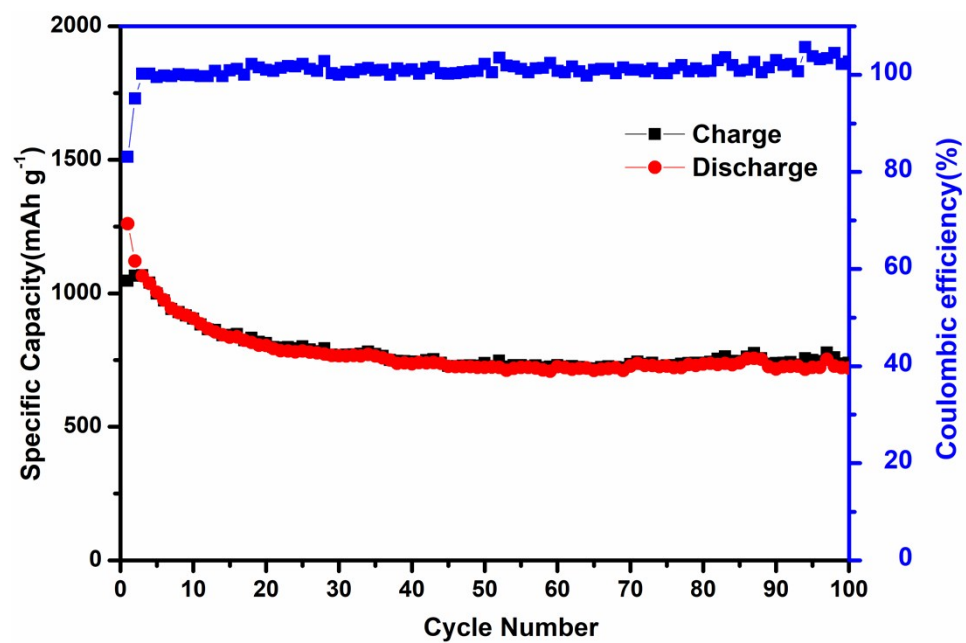


Figure S6. Cycling performance of sample without etching ZnO at 1000 mA g^{-1} between the range of 0.01-3.0V. The specific capacity of ZnO@Si/CC anode declines continuously during the cycling.