Electronic Supplementary Material (ESI) for Nanoscale

Supplementary Information

Silicon Nanowires-Reduced Graphene Oxide Composite as a High-Performance Lithium Ion Battery Anode Material

Jian-Guo Ren,[a] ChundongWang,[a] Qi-Hui Wu,[*b] Xiang Liu,[c] Yang Yang,[a] Lifang He,[a] and Wenjun Zhang[*a]

[a] Centre of Super-Diamond and Advanced Films (COSDAF) and Department of Physics and Materials Science, City University of Hong Kong, Hong Kong SAR, P. R. China. E-mail: apwjzh@cityu.edu.hk; Fax: 852-3442-0538; Tel: 852-3442-7433.

[b] Department of Chemistry, College of Chemistry and Life Science, Quanzhou Normal University, Quanzhou 362000, P. R. China. E-mail: qhwu@qztc.edu.cn.

[c] Institute of Advanced Materials, Nanjing University of Technology, Nanjing 210009, P. R. China.

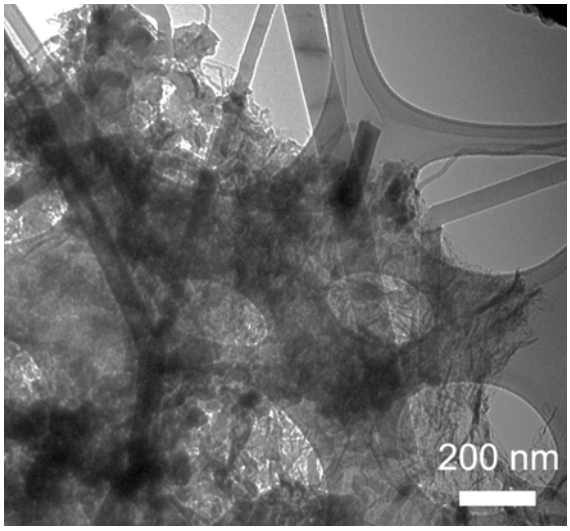

Figure S1. TEM image of the CVD–synthesized Si NWs–rGO composite. The well dispersed Si NWs were sandwiched between rGO sheets, achieving the lateral contact between NW and rGO sheet.

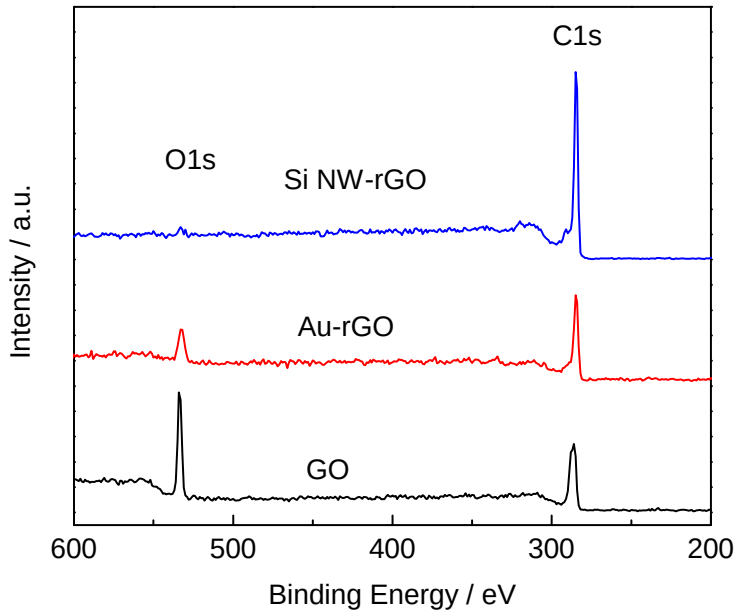

Figure S2. XPS survey spectra of the GO, Au-rGO, and Si NWs-rGO samples. C/O ratios for GO, Au-rGO, and Si NWs-rGO were calculated to be 2.39, 4.05, and 25.04, respectively.

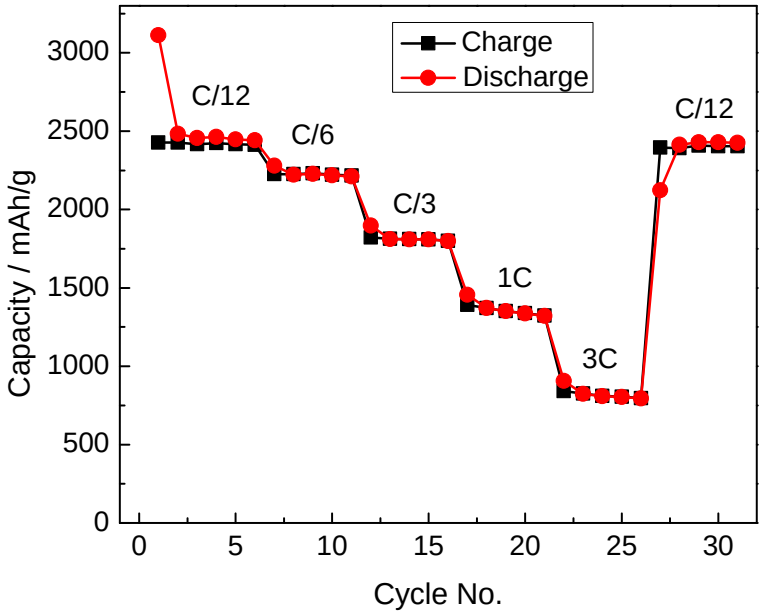

Figure S3. Rate capabilities of Si NWs-rGO composite electrode (1C = 3.6 A g^{-1}).

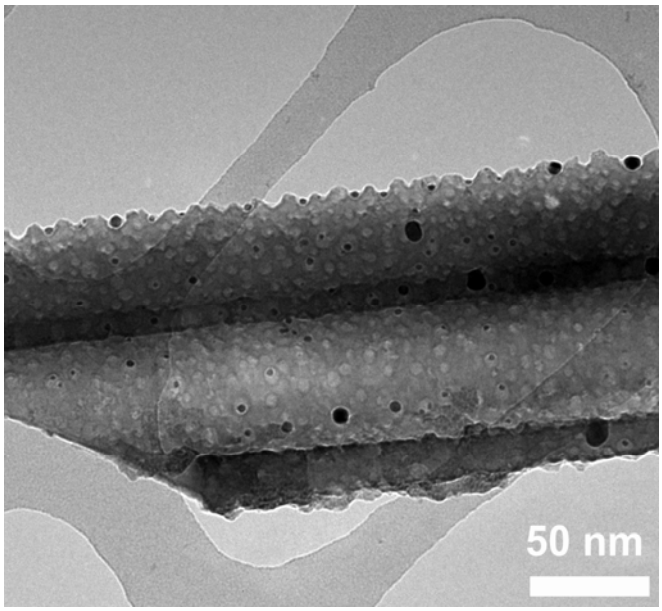

Fig S4. TEM image of a Si NW after 100 cycles at C/3 rate. The Si NW was transformed to a porous structure, and its diameter increased to about 120 nm.