Supplementary Information

Self-assembly encapsulation of Si in N-doped reduced graphene oxide as lithium ion battery anode with significantly enhanced electrochemical performance

Xing Li,[1,*] Yongshun Bai,[1] Mingshan Wang,[1,*] Guoliang Wang,[1] Yan Ma,[1] Lei Li,[1] Bensheng Xiao[1], Jianming Zheng[2,*]

[1]The Center of New Energy Materials and Technology, School of Materials Science and Engineering, Southwest Petroleum University, Chengdu, Sichuan 610500, China

[2]Research Institute (RI), NingDe Amperex Technology Limited, Ningde, Fujian 352100, China

Corresponding authors:

E-mail addresses: lixing@swpu.edu.cn, wangmingshan@swpu.edu.cn, jianming.zheng@pnnl.gov

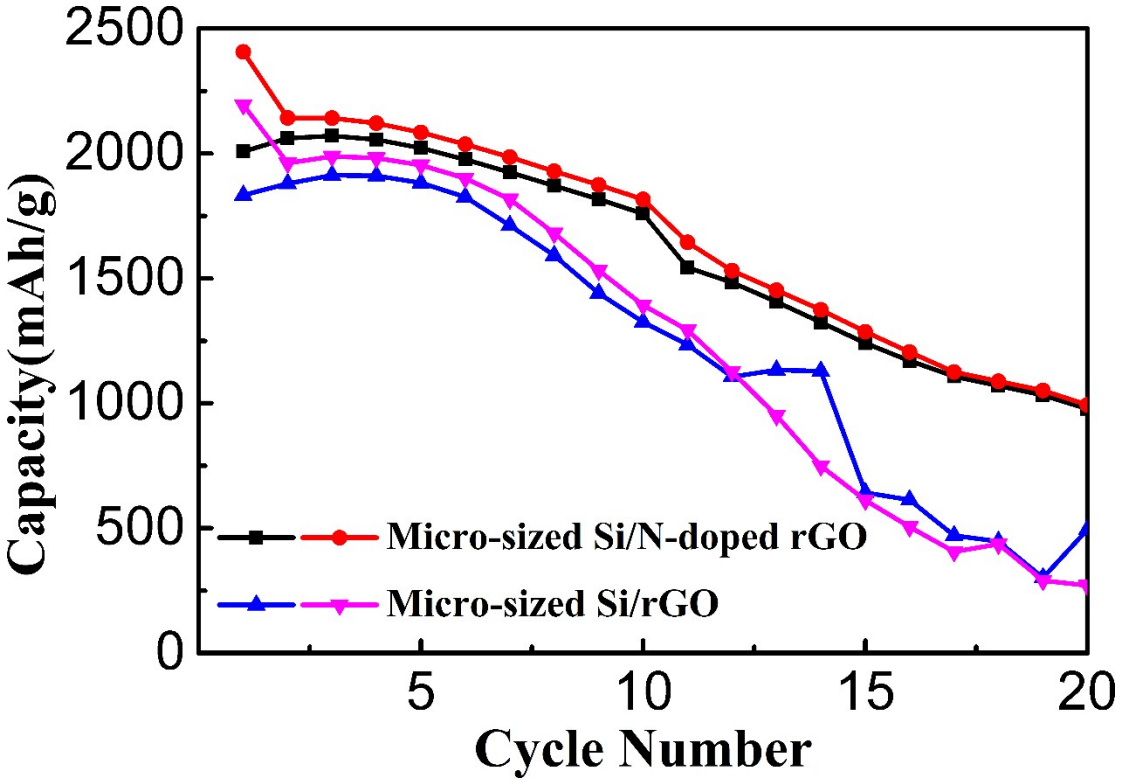

Figure S1 Cycling performances of mrcro-sized Si/rGO and micro-sized Si/N-doped rGO anode at current density of 200 mA g^{-1}.

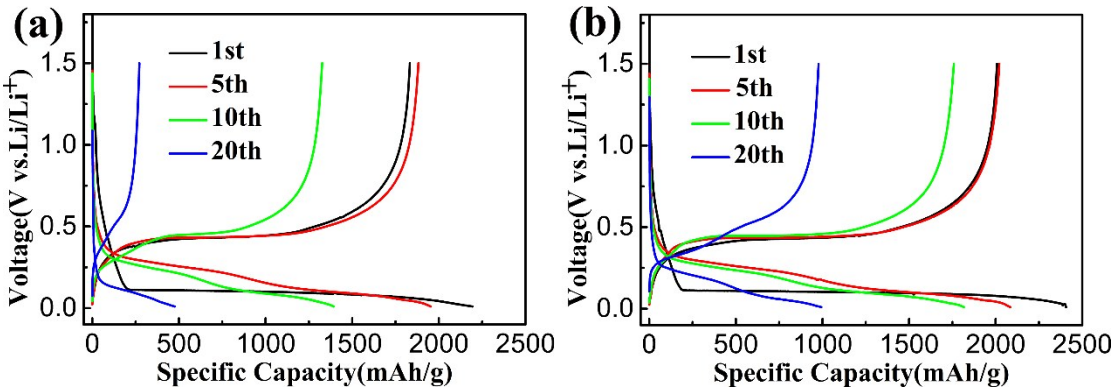

Figure S2 Galvanostatic discharge/charge profiles at different stage of cycling for (a) Micro-Si/rGO and (b) Micro-Si/N-doped rGO.

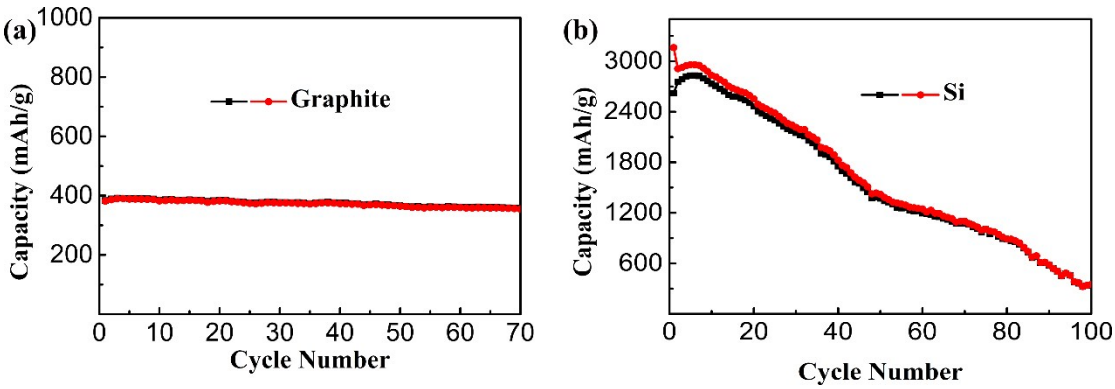

Figure S3 Cycling performances of (a) graphite and (b) Si at current density of 200 mA g^{-1}.

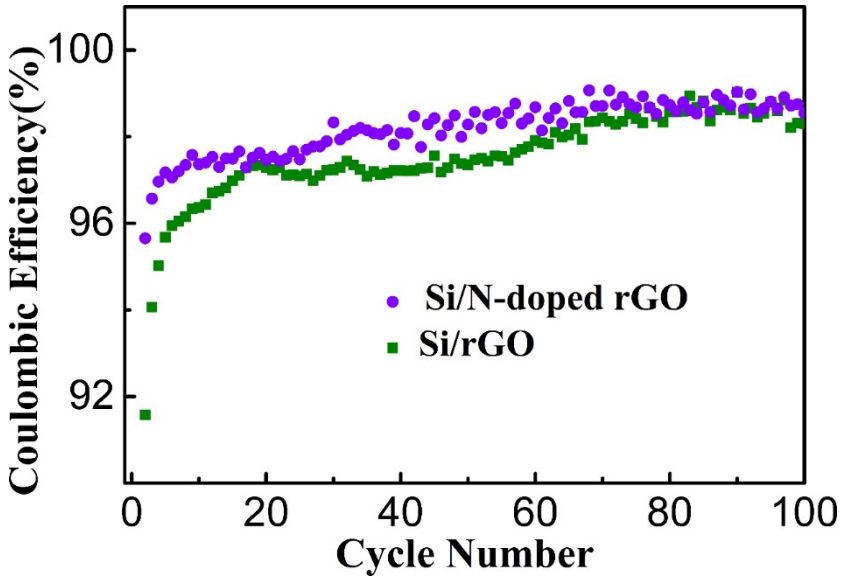

Figure S4 Coulombic Efficiency (excluding first coulomb efficiency) of the anode of Si/N-doped rGO and Si/rGO.

Table S1. The coulombic efficiencies and the corresponding capacity retention rates of Si/rGO and Si/N-doped rGO at different cycles

	2nd	**10th**	**50th**	**100th**
Coulomb efficiency of Si/rGO	92%	96%	97%	98%
Coulomb efficiency of Si/N-doped rGO	96%	97%	98%	99%
The corresponding capacity retention rate of Si/rGO	69%	70%	41%	10%
The corresponding capacity retention rate of Si/N-doped rGO	86%	86%	71%	61%