Supporting information

Synthesis of silicon-doped reduced graphene oxide and its applications in dye-sensitive solar cells and supercapacitors

Zegao Wang,abc Yuanfu Chen,*a Pingjian Li,*a Jiarui He,a Wanli Zhang,a Zheng Guo,c Yanrong Li,a and Mingdong Dongb

aState Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu 610054, P. R. China. E-mail: yfchen@uestc.edu.cn; lipingjian@uestc.edu.cn
bInterdisciplinary Nanoscience Center (iNANO), Aarhus University, DK-8000 Aarhus C, Denmark
cDepartment of Engineering, Aarhus University, DK-8000 Aarhus C, Denmark

Figure S1. TGA curves of GO, rGO and Si-rGO
Figure S2. UV-vis absorption spectra of GO, rGO and Si-rGO. The spectrum of GO has a peak at 235 nm which is related to π-π* electron transition. After reduction, a wider peak would be observed at 300 nm, which shows the electronic conjugation of GO was restored. The spectrum of Si-rGO also has a wider peak at 300 nm, which is similar with rGO. The un-sharp of the peak for rGO and Si-rGO should be originated from their poor dispersibility in water.

Figure S3. FTIR spectra of GO, rGO and Si-rGO. FTIR bands at 1045, 1221, 1405, 1621 and 1734 were observed for GO. The wider band at 3400 cm\(^{-1}\) is corresponded to -OH group, which disappear in rGO and Si-rGO. Compared to rGO, there is no observed new band detected in Si-rGO, which should be caused by the lower Si doping concentration.