Supporting information

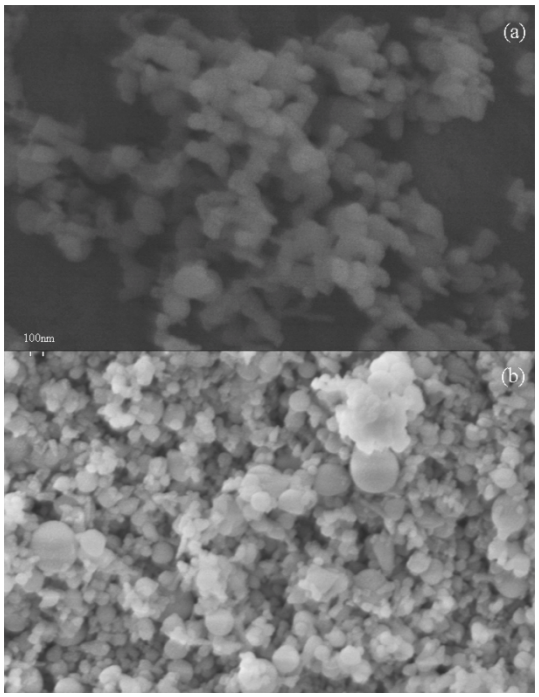

Figure 1 (a) SEM graph of pure nanosilicons, (b) SEM graph of the precursor of SS after the crosslinking step. Conglomeration of silicon nanoparticles was observed in (a), but none was observed in the precursor in (b).

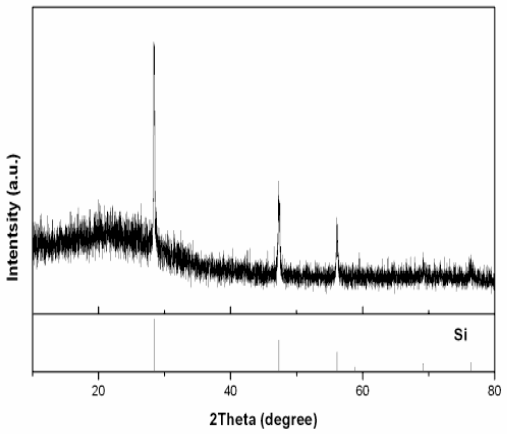

Figure2. XRD pattern of the formed Si/Si-O-C composite materials with a sol-gel method. The three most intense peaks at 2θ = 28.4°, 47.3°and 56.1° corresponds, respectively, to the diffraction of (111), (220), and (311) lattice planes of β-Si (PDF#27-1402). In addition, the amorphous diffraction peak at 2θ=22.8° correspond to the diffraction of amorphous Si-O-C glass and free carbon.

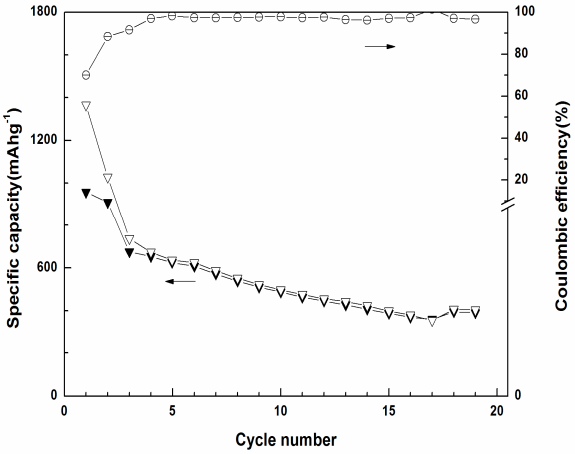

Figure3. Cyclic performances of the cell made from SD between 3.0 and 0.001V at 50mA^{-1}.

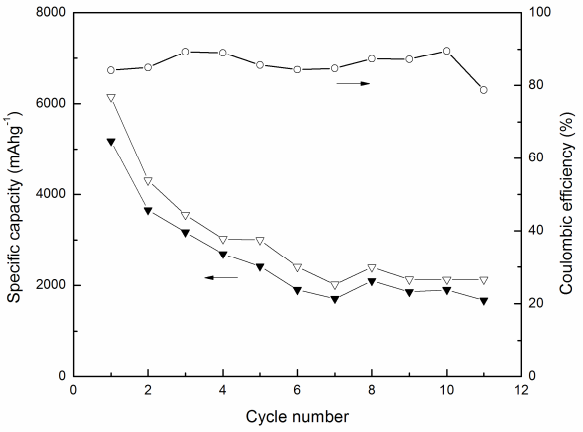

Figure4. Cyclic performances of the cell made from nano silicon anodes at 300mAg^{-1}.