

Electronic Supporting Information

A bio-inspired nanofibrous silicon/carbon composite as an anode material for lithium-ion batteries

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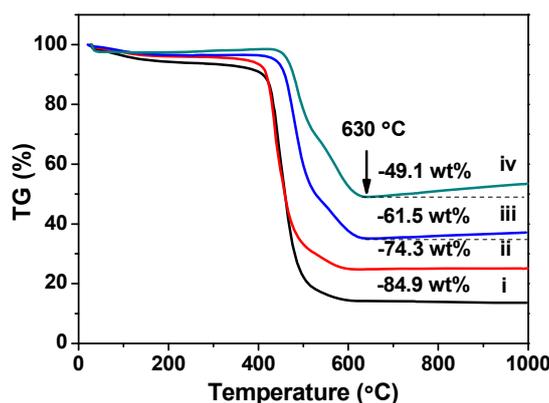


Fig. S1 Thermogravimetric analysis (TGA) curves of the silicon/carbon composites with varied silicon contents. (i) sample silicon-15.1%–carbon, (ii) sample silicon-25.7%–carbon, (iii) sample silicon-38.5%–carbon, and (iv) sample silicon-50.9%–carbon.

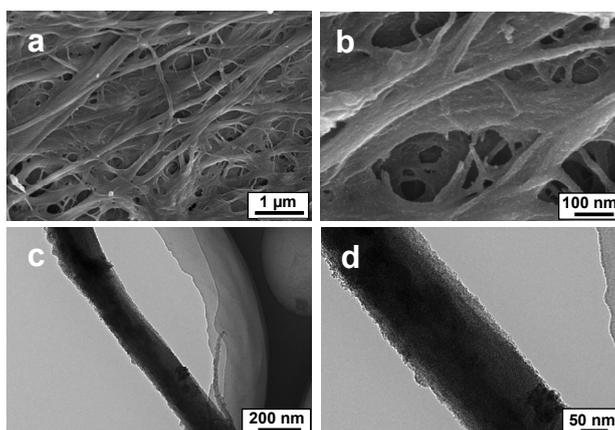


Fig. S2 Electron micrographs of the nanofibrous silicon-15.1%–carbon composite material derived from the natural cellulose substance. (a) and (b), field emission scanning electron micrographs (FE-SEM) images of the sample, showing nanofiber assemblies at different magnifications; (c) and (d), transmission electron micrographs (TEM) of an individual composite nanofiber isolated from the nanofiber assemblies at different magnifications.

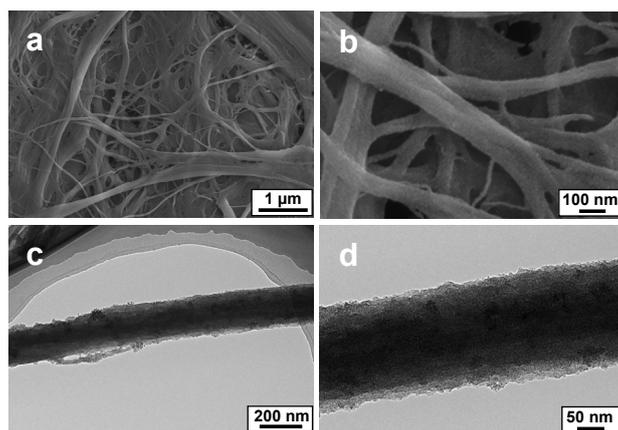


Fig. S3 Electron micrographs of the nanofibrous silicon-38.5%–carbon composite material derived from the natural cellulose substance. (a) and (b), FE-SEM images of the sample, showing nanofiber assemblies at different magnifications; (c) and (d), TEM micrographs of an individual composite nanofiber isolated from the nanofiber assemblies at different magnifications.

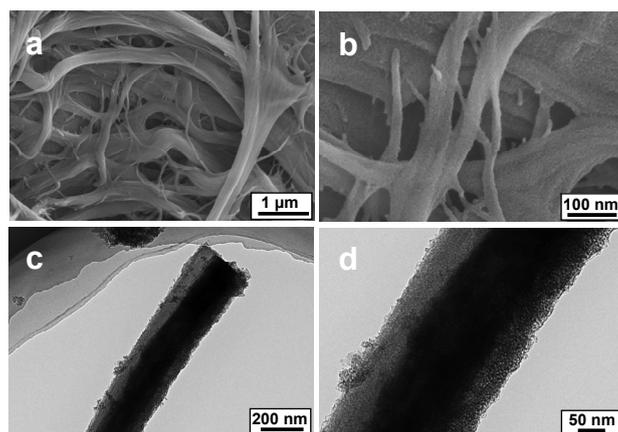


Fig. S4 Electron micrographs of the nanofibrous silicon-50.9%–carbon composite material derived from the natural cellulose substance. (a) and (b), FE-SEM images of the sample, showing nanofiber assemblies at different magnifications; (c) and (d), TEM micrographs of an individual composite nanofiber isolated from the nanofiber assemblies at different magnifications.

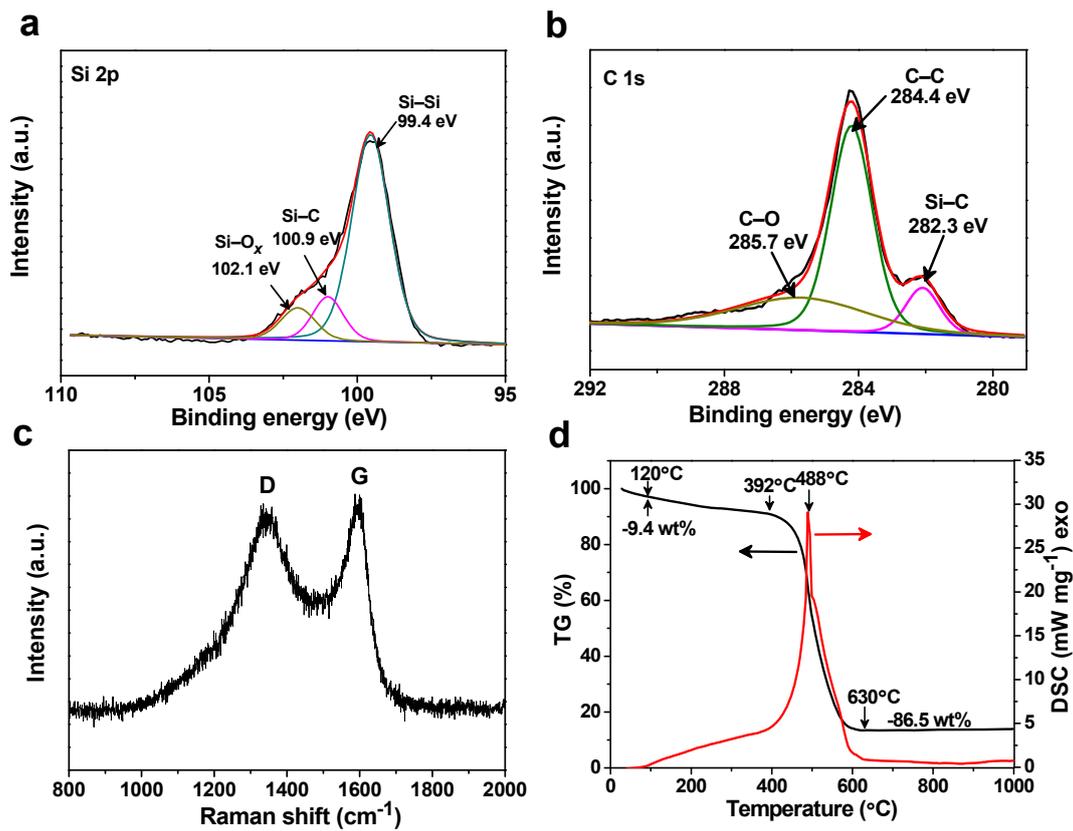


Fig. S5 High-resolution X-ray photoelectron spectroscopy (XPS) spectra of Si 2p (a) and C 1s (b) regions of the carbon/silicon/carbon composite. (c) Raman spectra and (d) TGA/DSC curves of the sample.

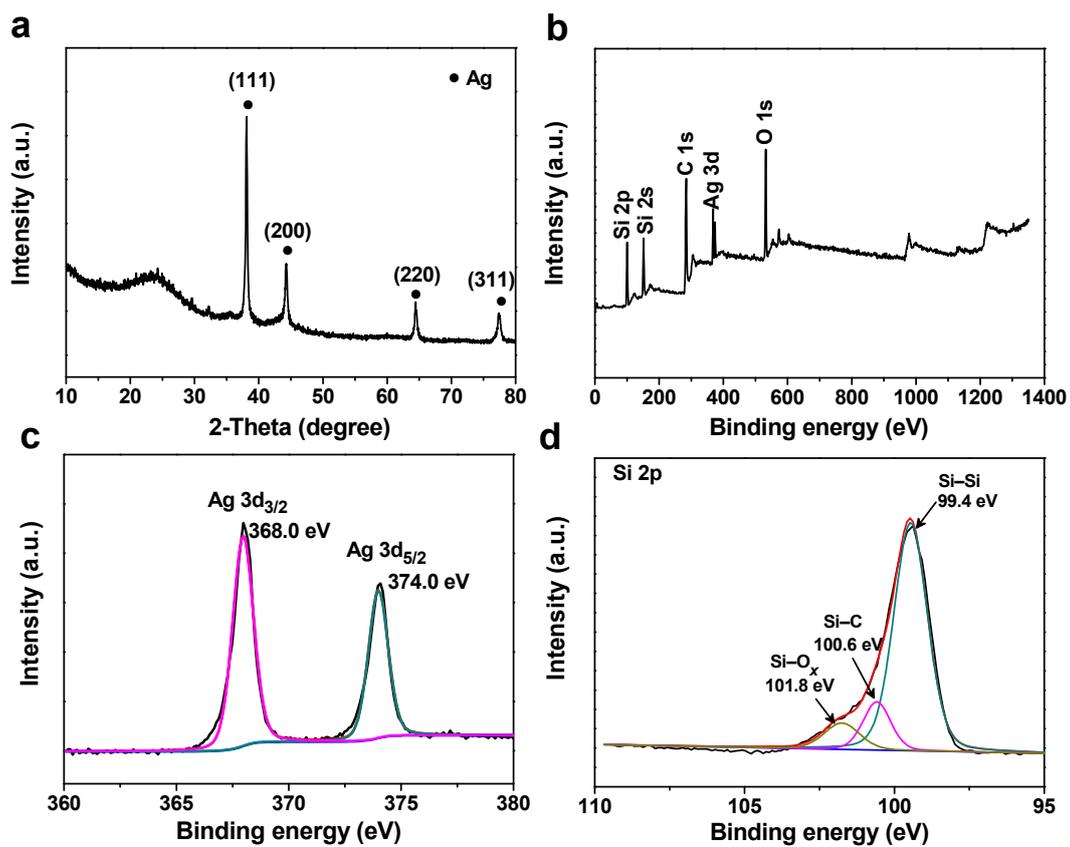


Fig. S6 (a) X-ray diffractometer (XRD) pattern and (b) XPS survey spectral of the Ag-NP/silicon/carbon composite. High-resolution XPS spectra of Ag 3d (c) and Si 2p (d) regions of the sample.