Facile fabrication of stable and high-rate Si/NiSi*x*/CNTs Li-ion anodes with buffering interface

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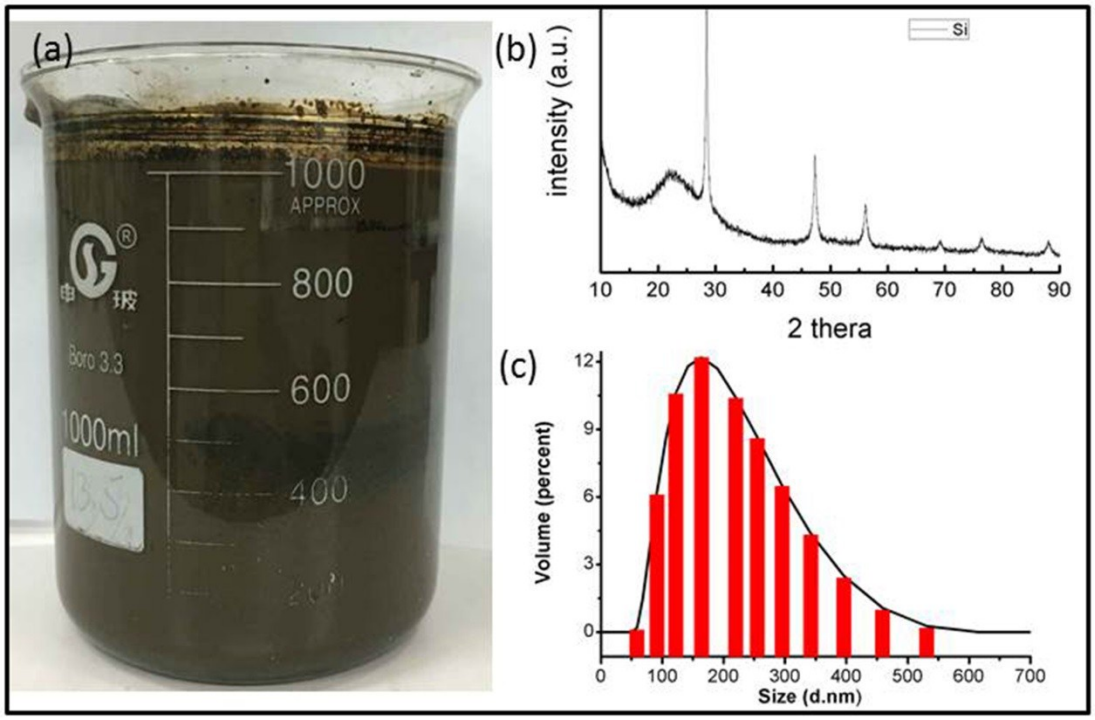
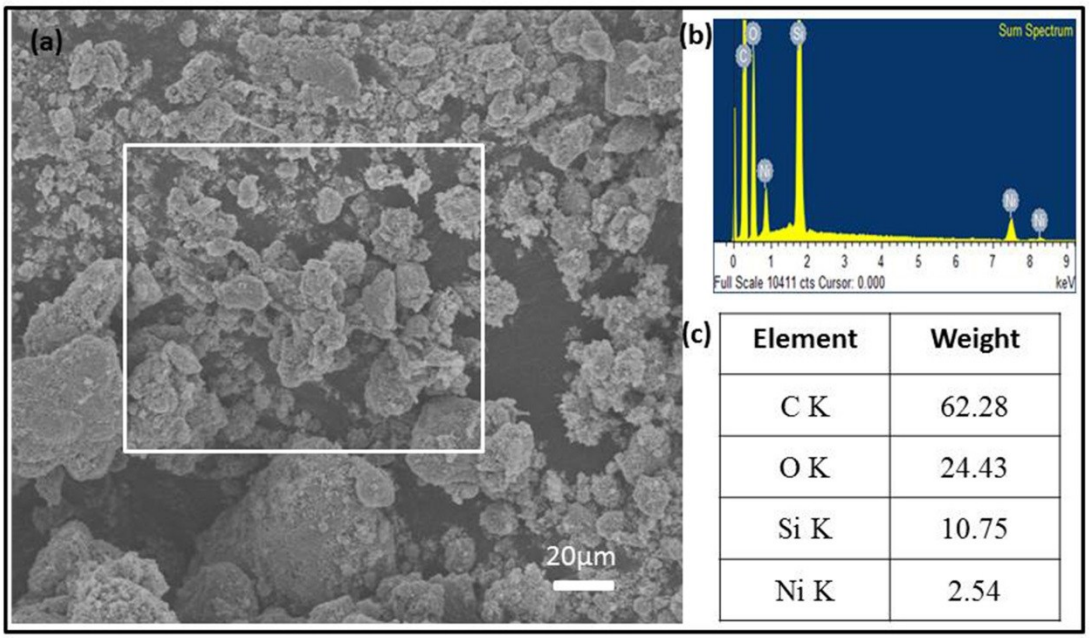


Fig. S1† (a) Optical photo of Si nanoparticle slurry. (b) XRD pattern and (c) size distribution of Si nanoparticles.



(c)

Element	Weight
C K	62.28
O K	24.43
Si K	10.75
Ni K	2.54

Fig S2† (a) SEM image of Si/$NiSi_x$/CNTs composite, (b) Energy-dispersive X-ray spectroscopy (EDX) and (c) weight ratio of diffident elements corresponded in white box in (a).

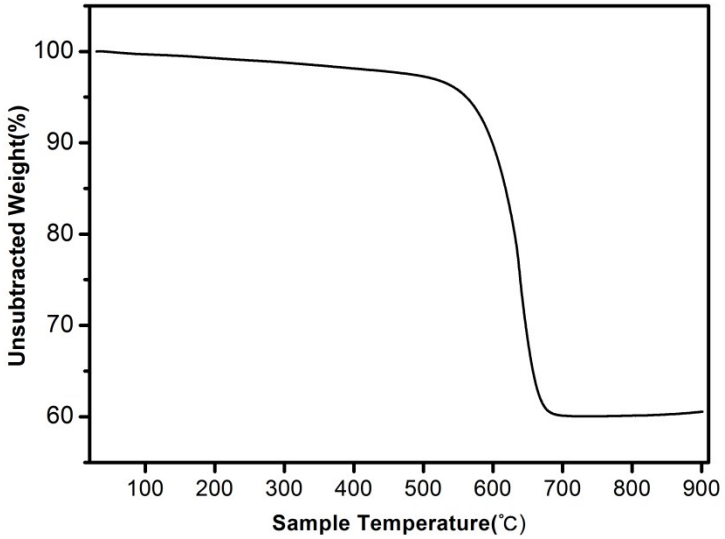


Fig S3. TGA curves of Si/NiSix/CNTs composite

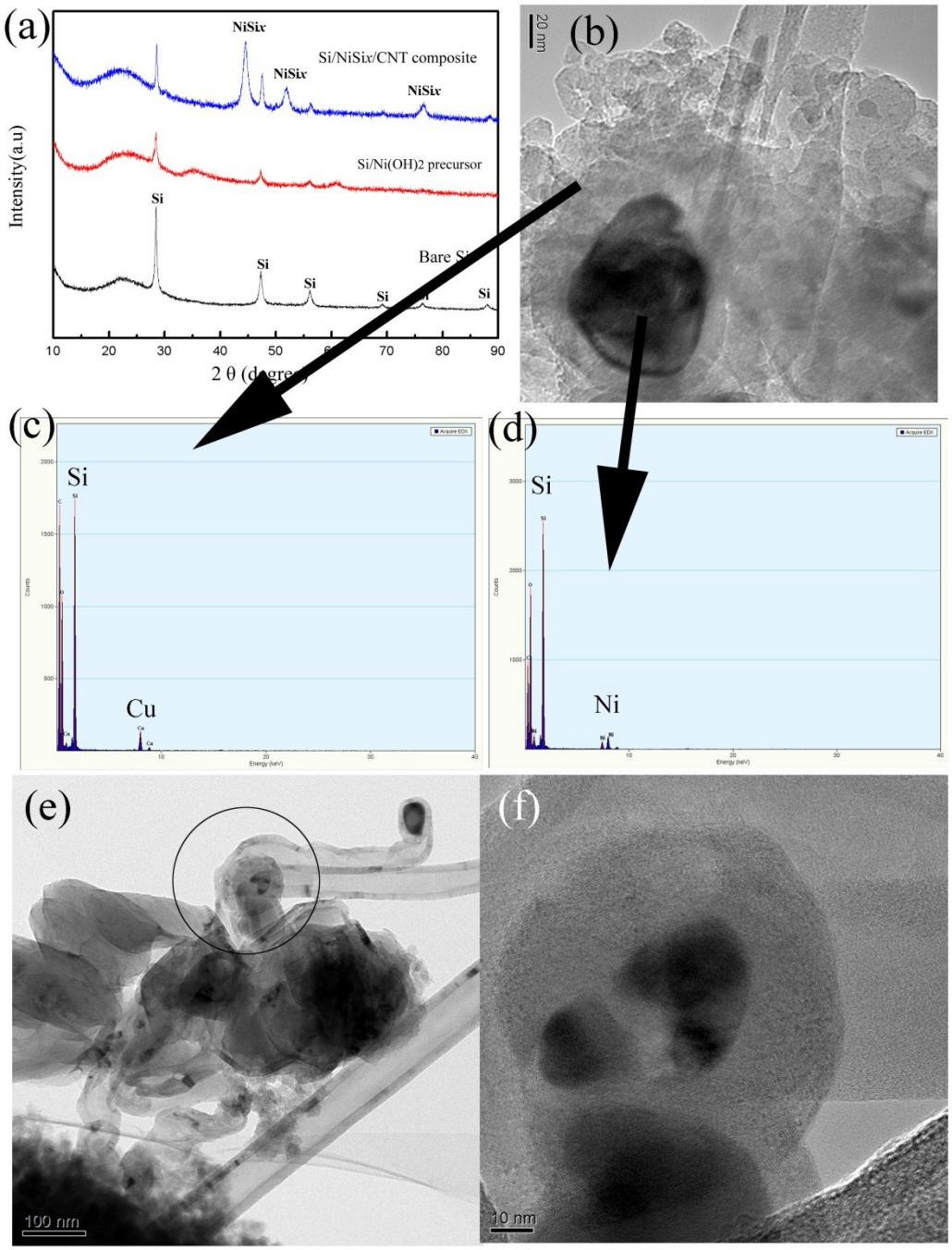


Fig. S4. (a) XRD pattern evolution of precursor, Si matrix and composite; (b) HRTEM image of Si/NiSix/CNTs composite at root, and the corresponding EDS results in (c) area 1 and (d) area 2, and obvious contrast at root in HRTEM images (e) in low magnification and (f) high magnification.

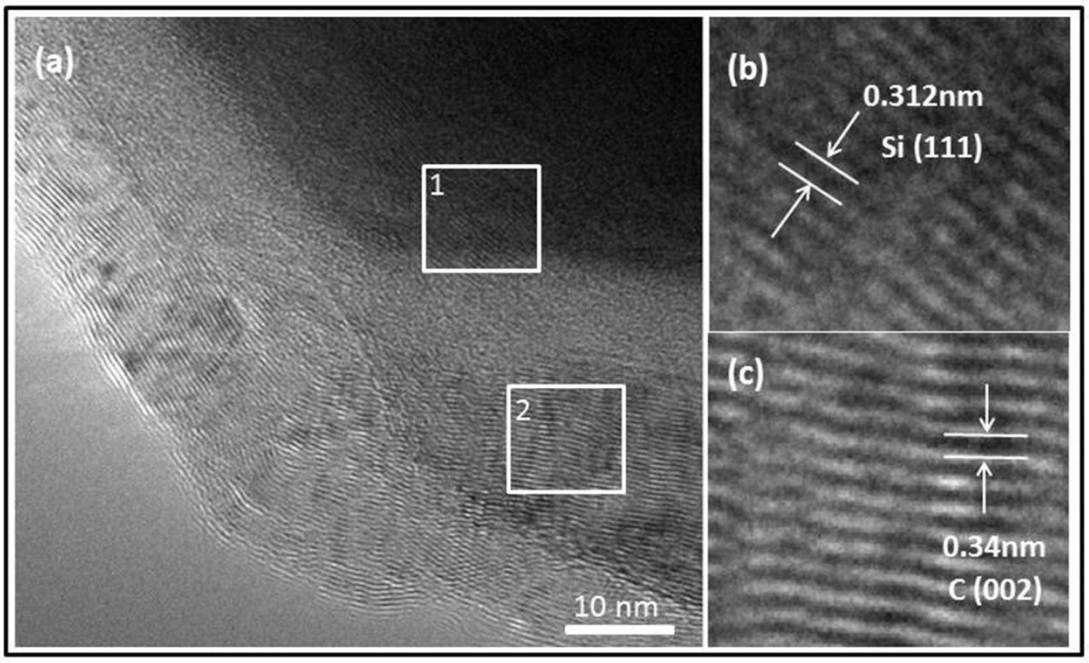


Fig. S5† (a) HR-TEM image of Si/$NiSi_x$/CNTs composite. (b, c) HR-TEM images corresponded in white box1 and box 2 in (a).