Facile fabrication of stable and high-rate Si/NiSix/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.
Fig S2† (a) SEM image of Si/NiSiₓ/CNTs composite, (b) Energy-dispersive X-ray spectroscopy (EDX) and (c) weight ratio of different elements corresponded in white box in (a).

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
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<tbody>
<tr>
<td>C K</td>
<td>62.28</td>
</tr>
<tr>
<td>O K</td>
<td>24.43</td>
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<tr>
<td>Si K</td>
<td>10.75</td>
</tr>
<tr>
<td>Ni K</td>
<td>2.54</td>
</tr>
</tbody>
</table>
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<sub>x</sub>/CNTs composite. (b, c) HR-TEM images corresponded in white box1 and box 2 in (a).