Electronic Supplementary Information for:

Preparation of reduced graphene oxide hydrogel by Ni ions and its use in supercapacitor electrode

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Fig. S1. TGA curves of NiO, Ni-GOH and Ni-rGOH.
Fig. S2 Raman mapping image of (a) G peak of GO and (b) NiO peak in Ni-rGOH
Fig. S3 (a) TEM image and (b) high resolution TEM image of Ni-rGOH.
**Fig. S4.** Energy dispersive X-ray spectra (EDS) of Ni-rGOH

**Table S1.** All elements of Ni-rGOH

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight /%</th>
<th>Atomic /%</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>38.49</td>
<td>50.21</td>
</tr>
<tr>
<td>O</td>
<td>46.85</td>
<td>45.88</td>
</tr>
<tr>
<td>Ni</td>
<td>14.65</td>
<td>3.91</td>
</tr>
</tbody>
</table>
Fig. S5. C 1s XPS spectra of GO.
Fig. S6 The cycle voltammetry (CV) test with different scan rates and the galvanostatic charge-discharge (CD) test with different current density of (a, c) Ni-GOH and (b, d) Ni-rGOH.