

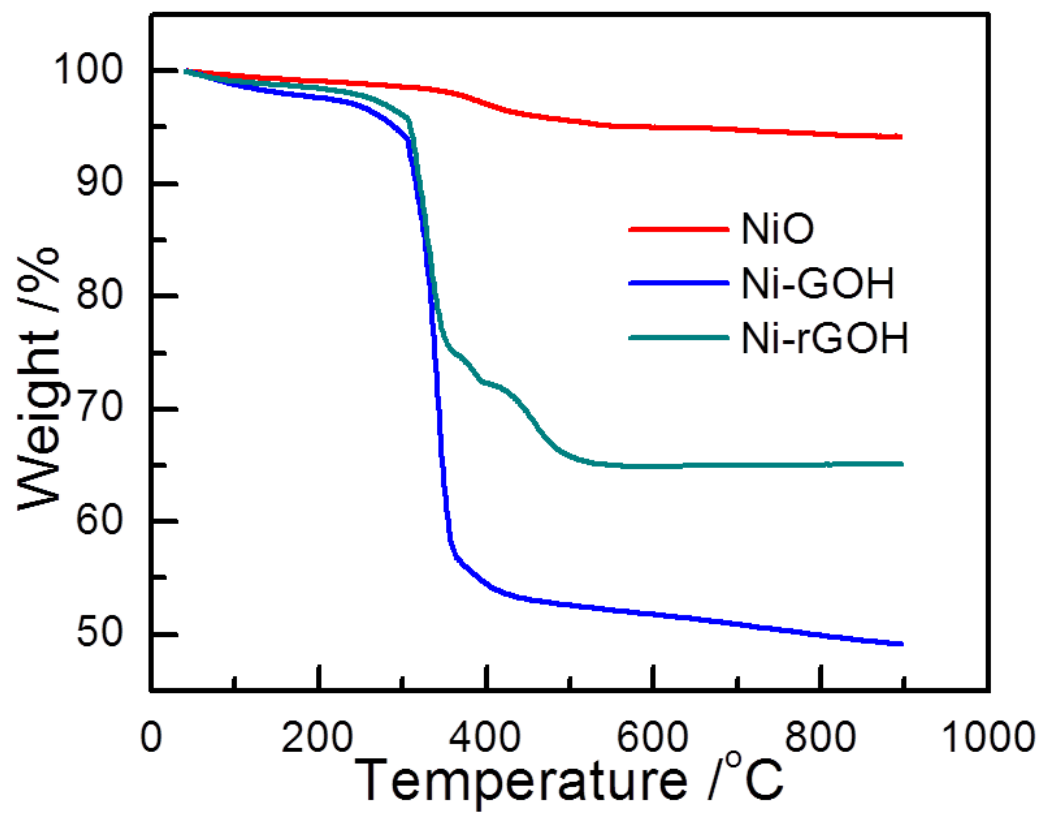
**Electronic Supplementary Information for:**

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

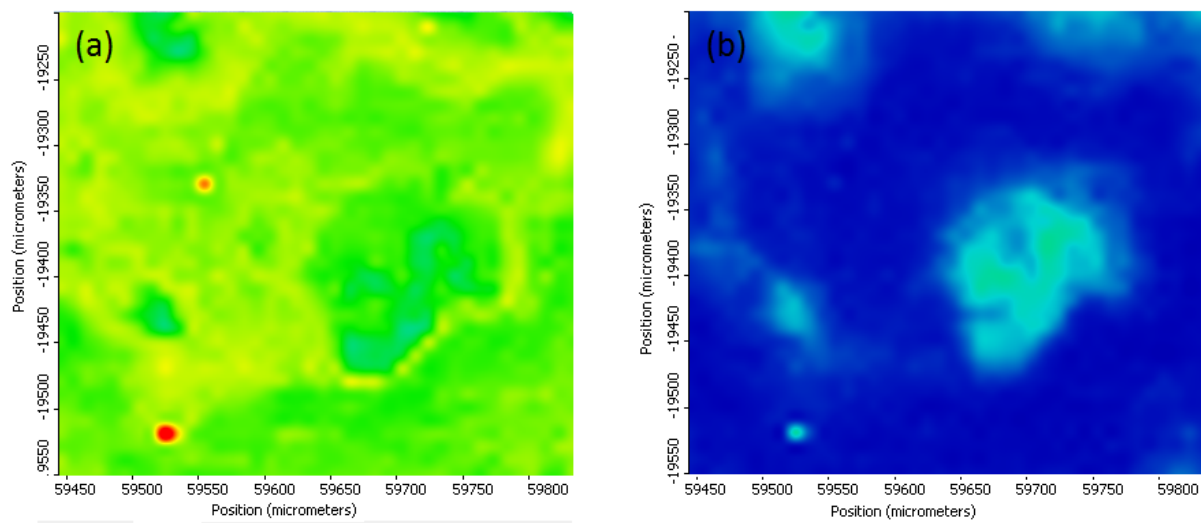
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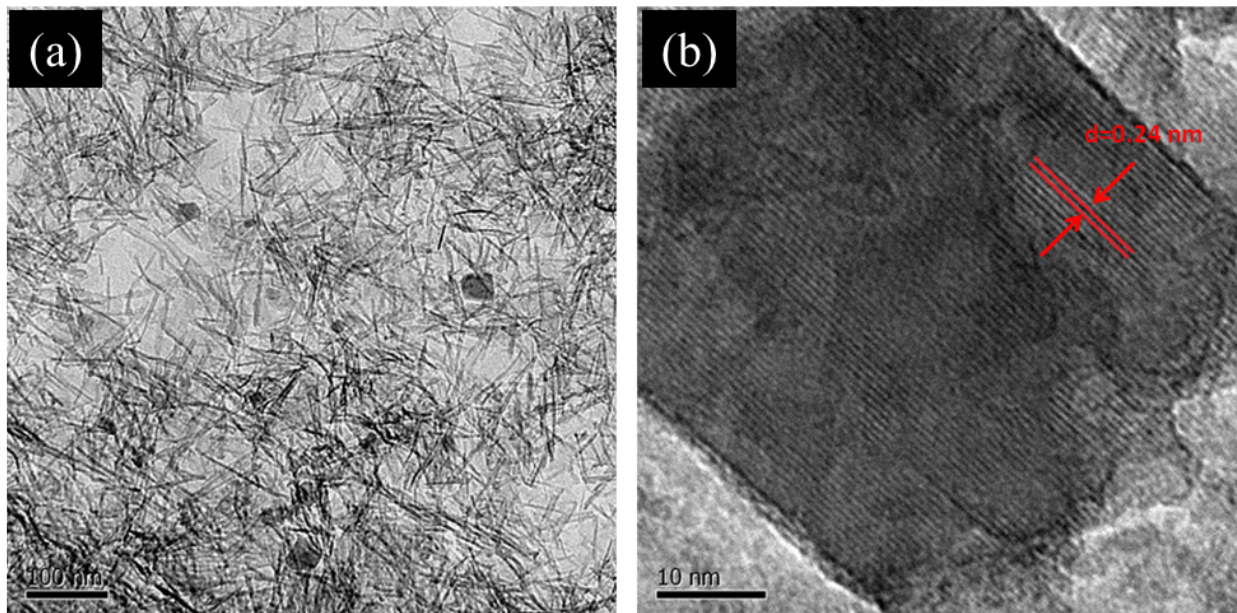
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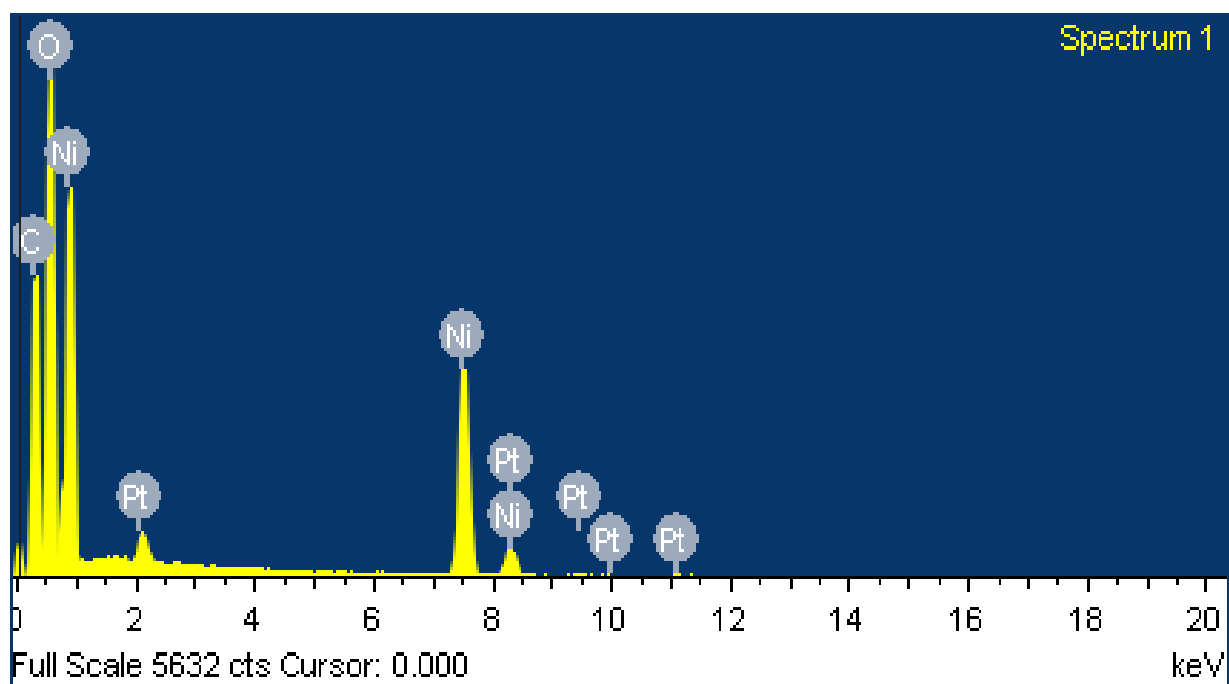
**Fig. S1.** TGA curves of NiO, Ni-GOH and Ni-rGOH.



**Fig. S2** Raman mapping image of (a) G peak of GO and (b) NiO peak in Ni-rGOH



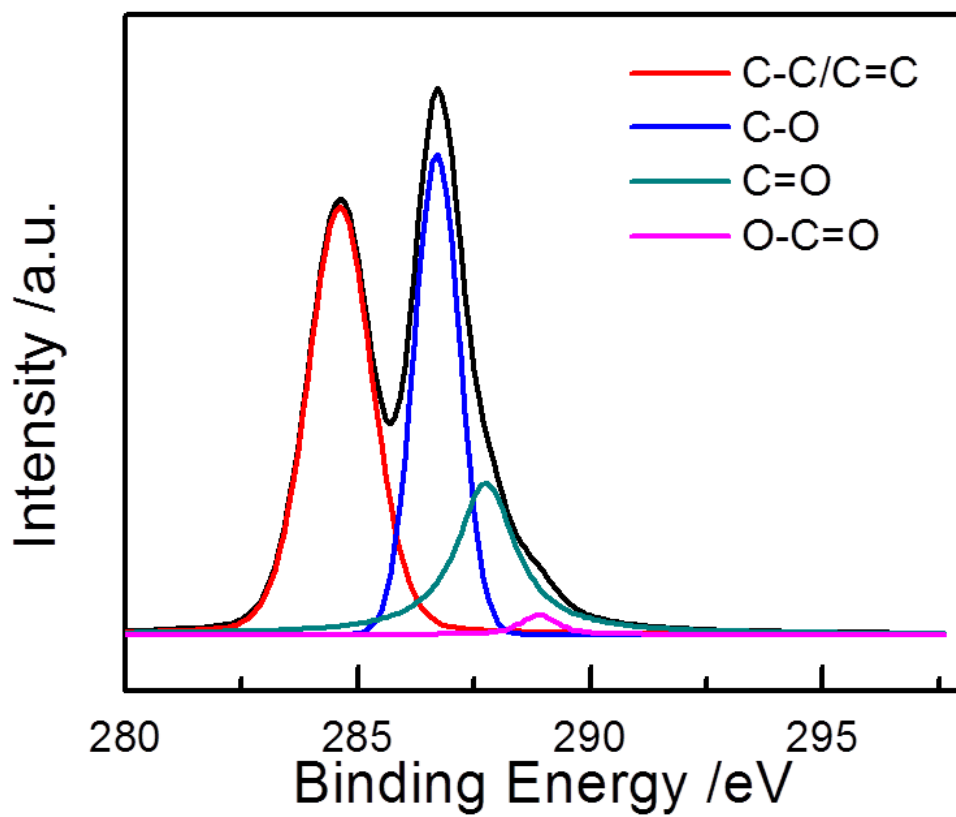
**Fig. S3** (a) TEM image and (b) high resolution TEM image of Ni-rGOH.



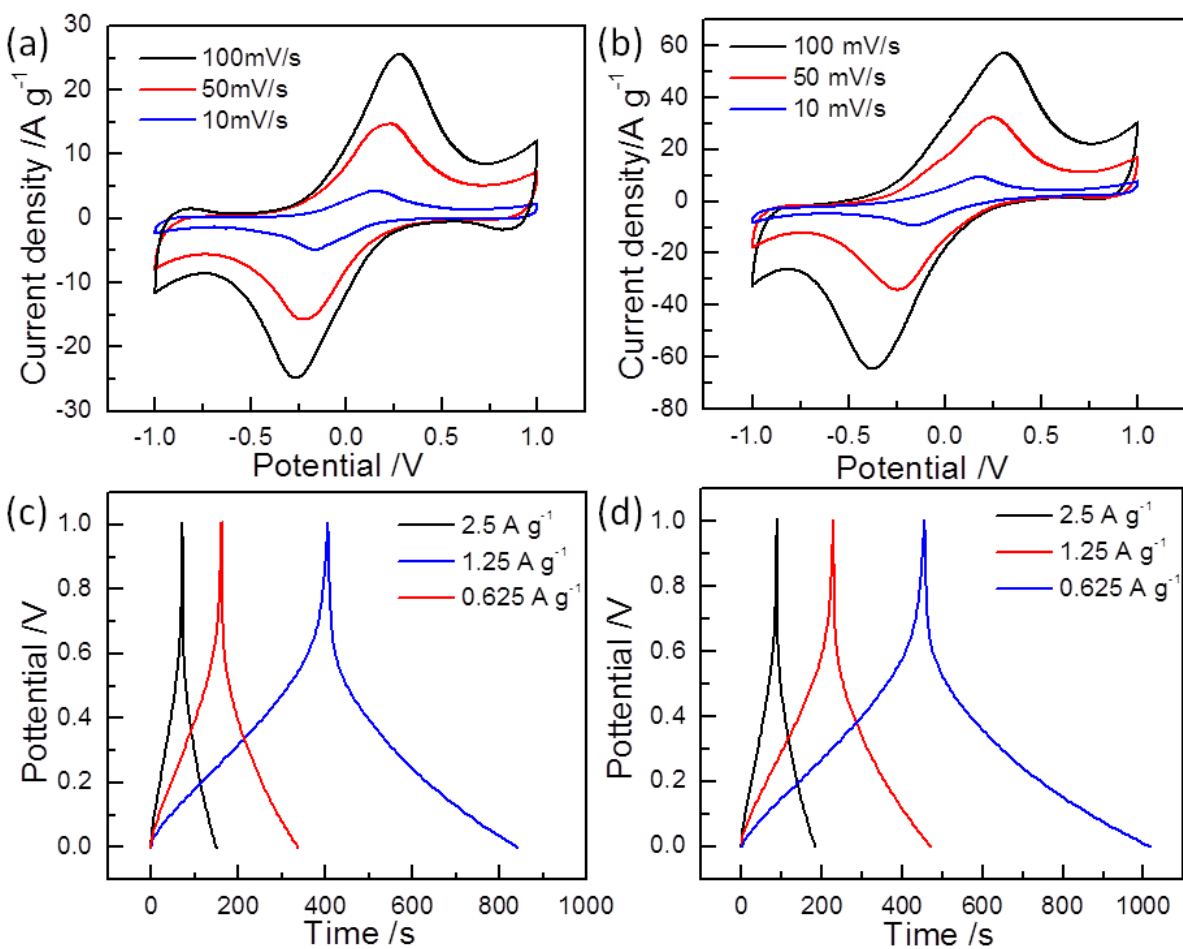
**Fig. S4.** Energy dispersive X-ray spectra (EDS) of Ni-rGOH

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

| Element | Weight /% | Atomic /% |
|---------|-----------|-----------|
| C       | 38.49     | 50.21     |
| O       | 46.85     | 45.88     |
| Ni      | 14.65     | 3.91      |



**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.