

**Self-assembled reduced graphene hydrogels by facile chemical
reduction using acetaldehyde oxime for electrode materials in
supercapacitors**

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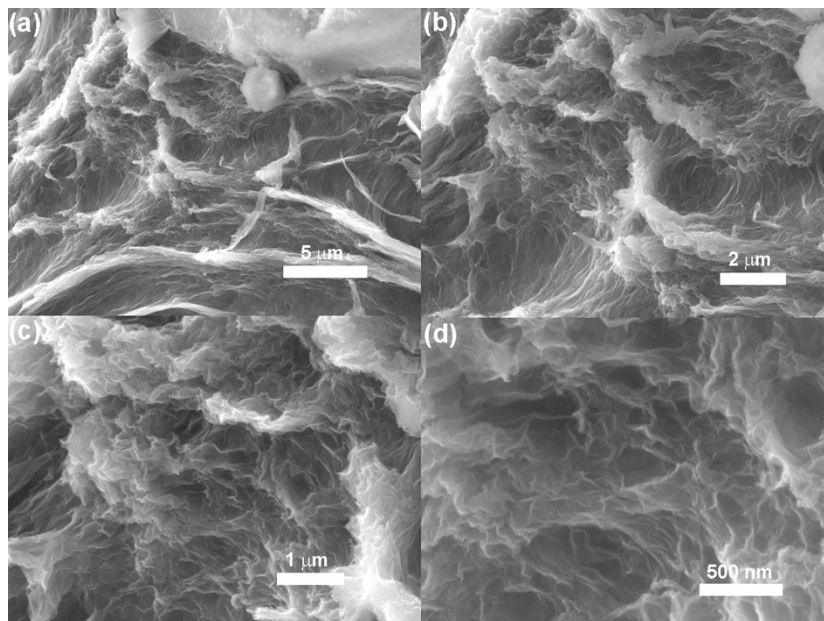


Fig. S1 SEM images of RGHS-1 of the interior microstructures with different magnifications.

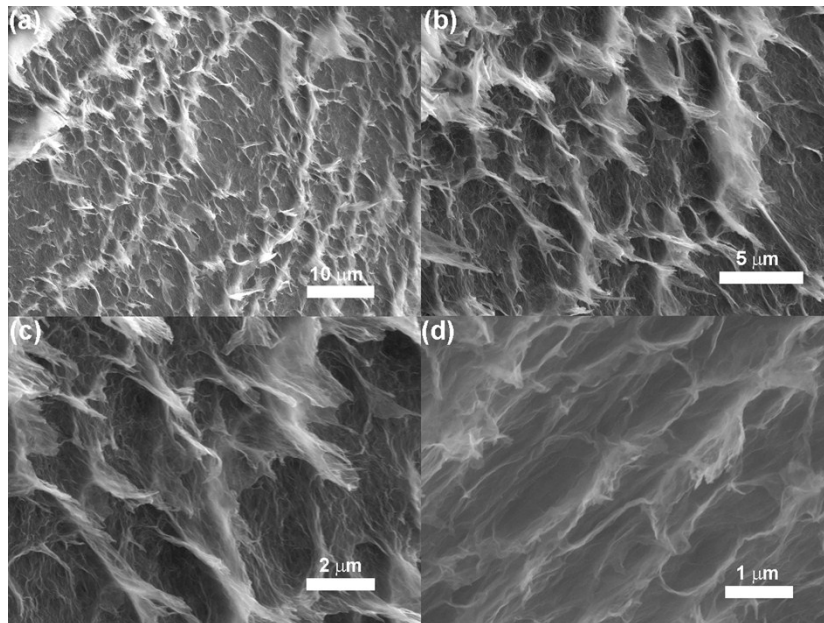


Fig. S2 SEM images of RGHS-2 of the interior microstructures with different magnifications.

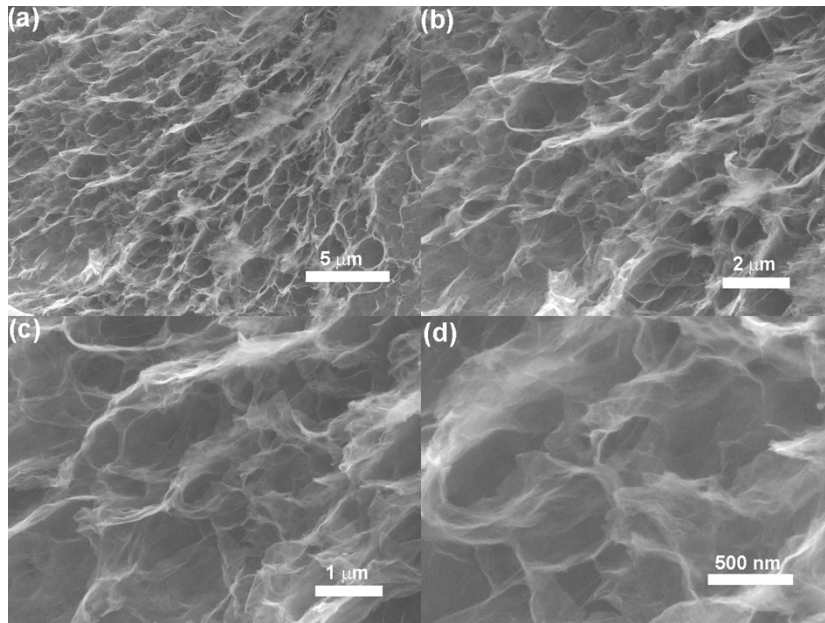


Fig. S3 SEM images of RGHS-10 of the interior microstructures with different magnifications.

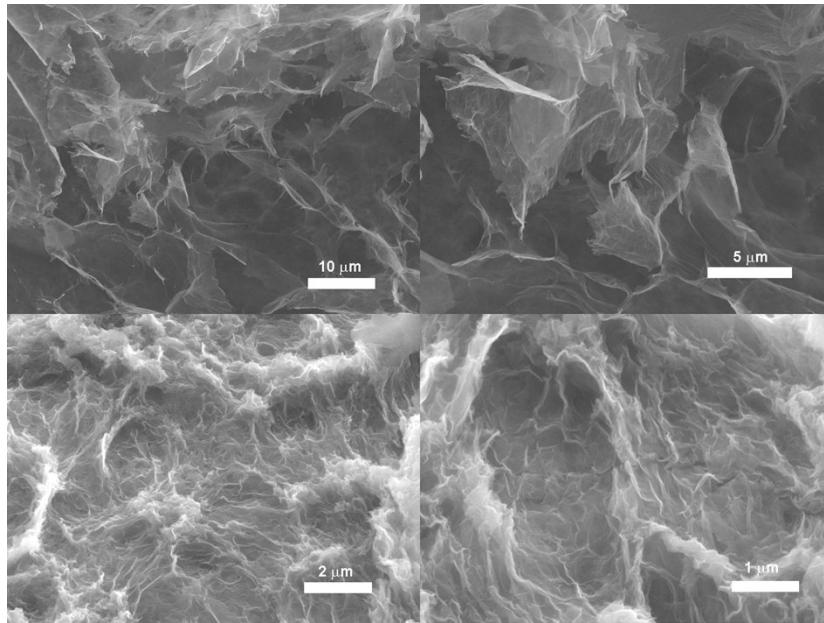


Fig. S4 SEM images of RGHS-15 of the interior microstructures with different magnifications.

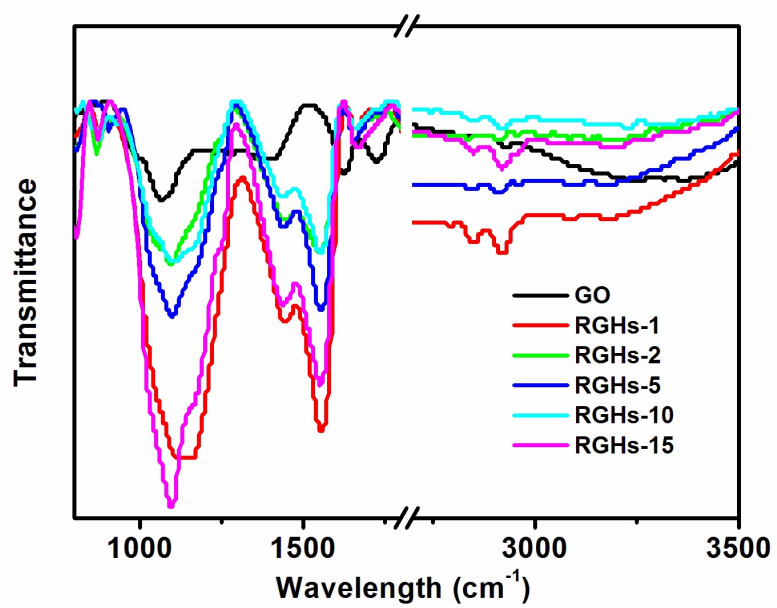


Fig. S5 FTIR spectra of RGHs.

Table S1. The relative elemental analysis (mass %) of C, H, O and N in GO and RGHs.

sample	C [mass%]	H [mass%]	O [mass%]	N [mass%]
GO	42.60	6.50	50.90	-
RGHs-1	64.39	2.45	25.51	7.65
RGHs-2	64.33	2.45	25.42	7.80
RGHs-5	63.77	2.52	25.62	8.09
RGHs-10	64.33	2.46	25.05	8.16
RGHs-15	63.57	2.60	25.46	8.37

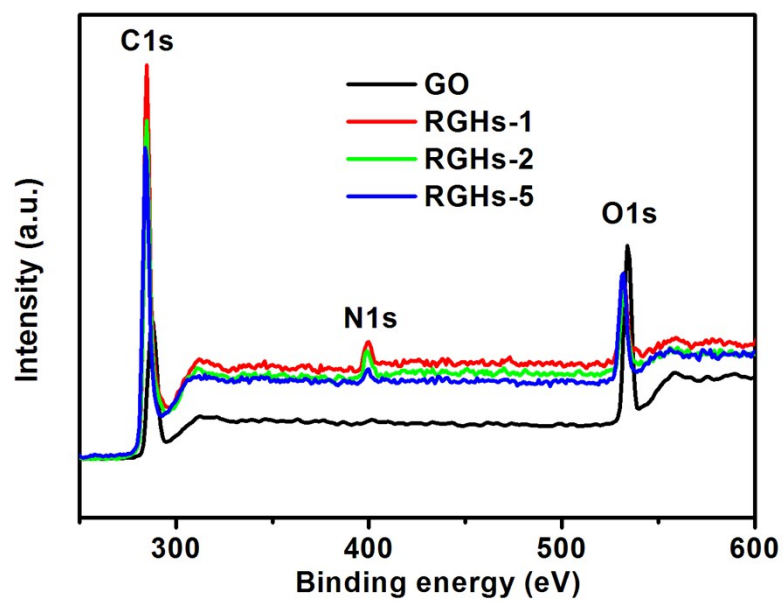


Fig. S6 XPS survey spectra of RGHs.

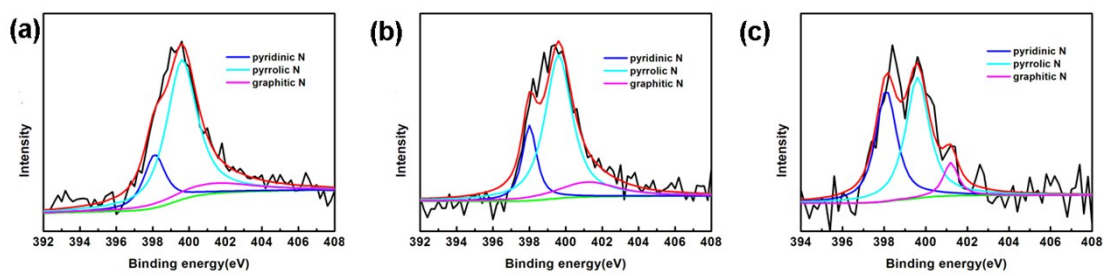


Fig. S7 High-resolution XPS spectra of N1s peaks for RGHs-1 (a), RGHs-2 (b) and RGHs-5 (c).

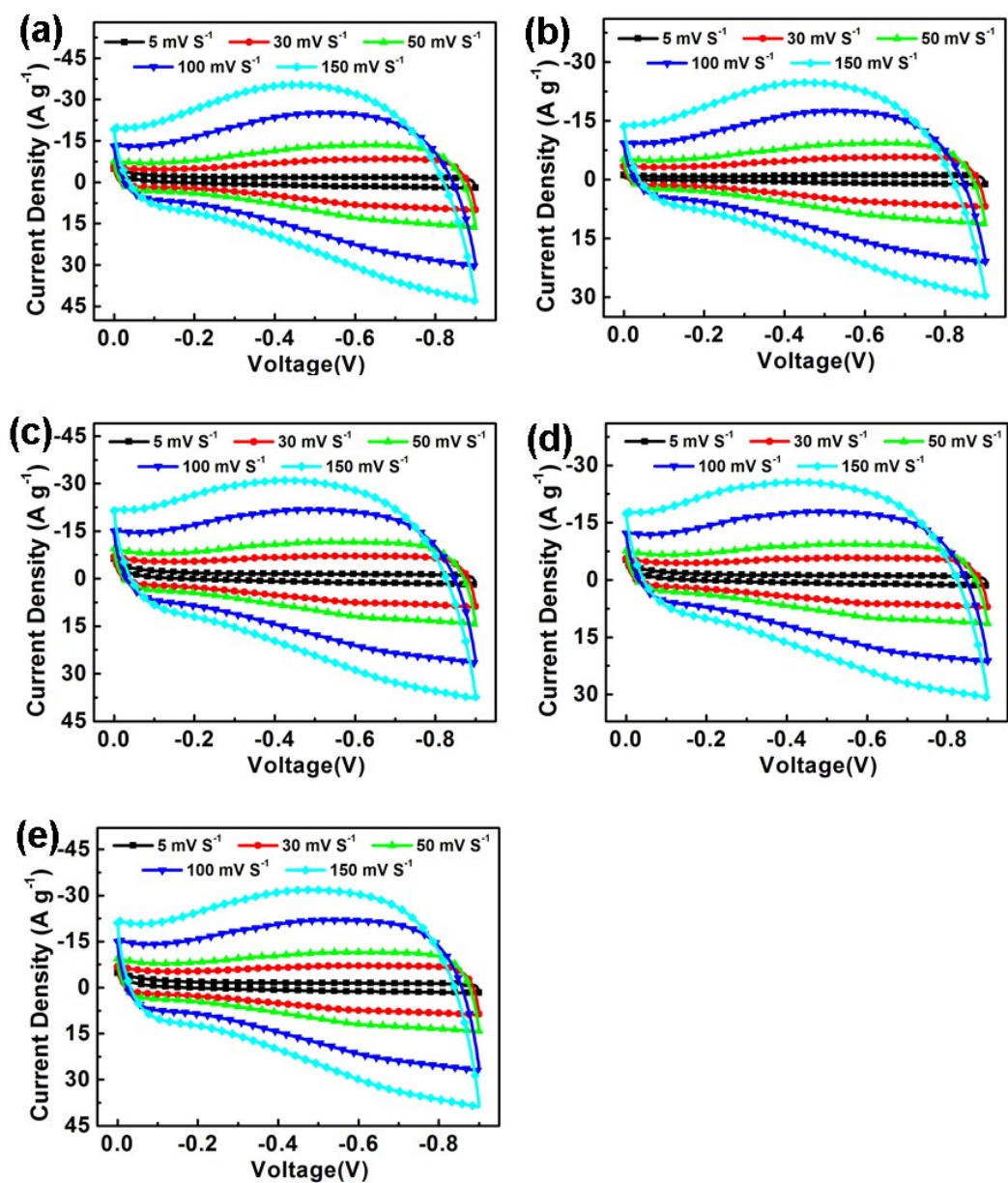


Fig. S8 Cyclic voltammograms of the supercapacitor based on RGHs at different scan rates from 5 to 150 mV s⁻¹.

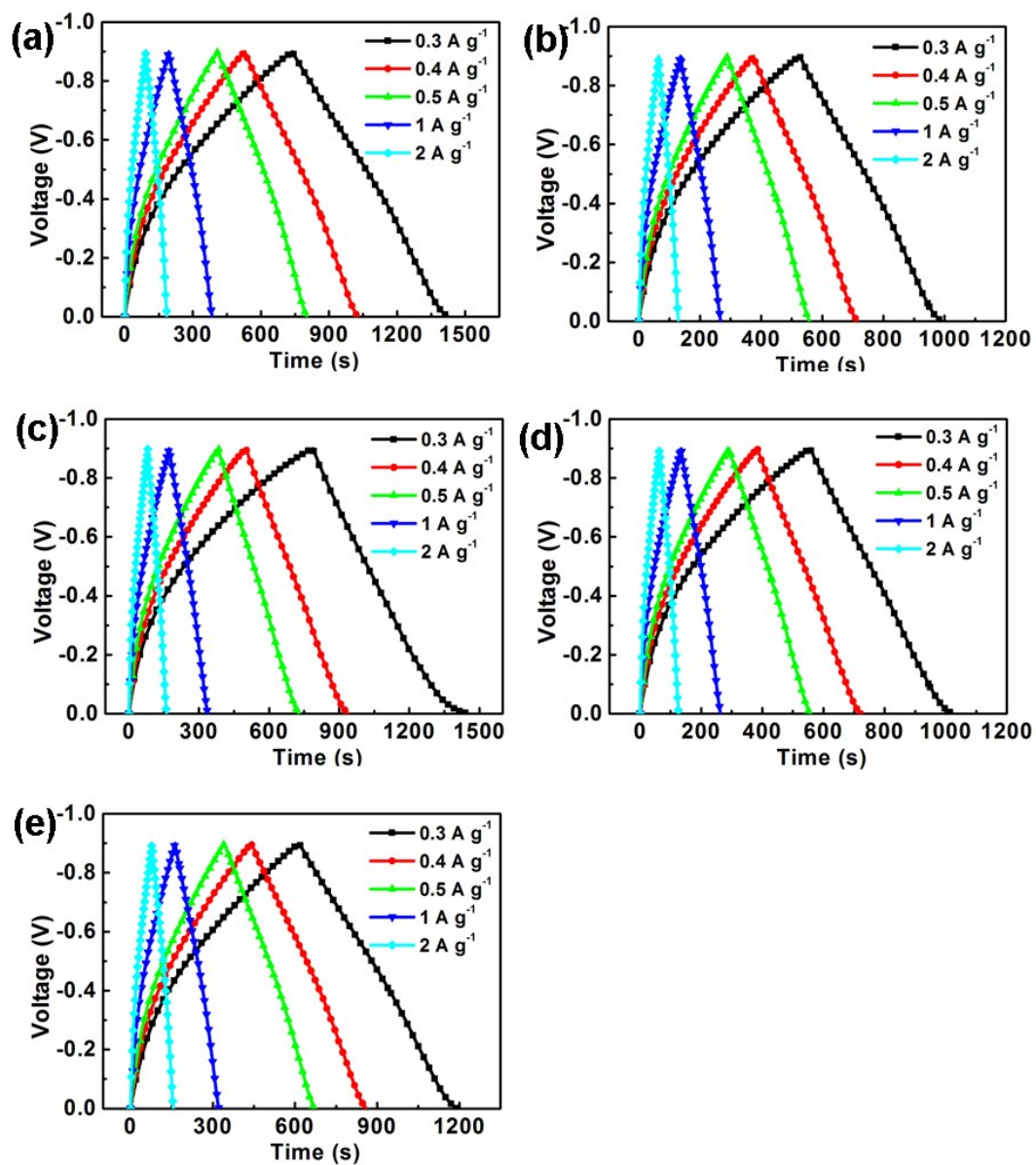


Fig. S9 galvanostatic charge/discharge curves of RGHs at different charging/discharging current density from 0.3 to 2 A g⁻¹.