Supplementary material (ESI) for Journal of Materials Chemistry

Facile and controllable electrochemical reduction of graphene oxide and its applications

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Supplementary information

1. Morphology

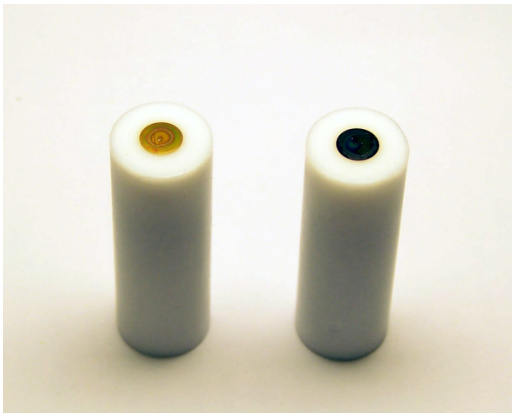

Fig. S1 The images of graphene oxide on gold disk electrodes before (left) and after (right) the electrochemical reduction.

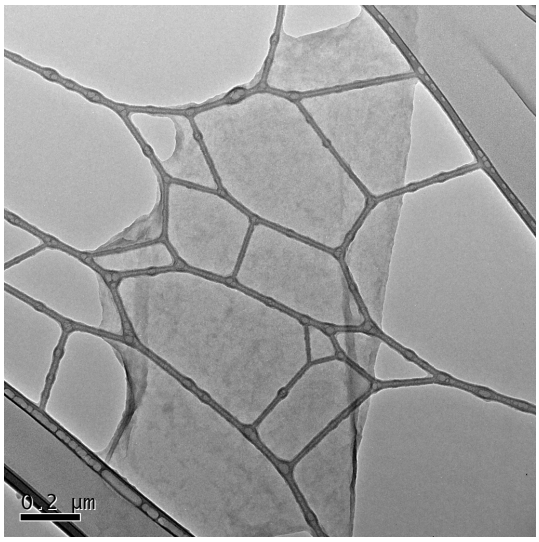

Fig. S2 TEM images of electrochemically reduced graphene oxide.

2. Electrochemical capacitance

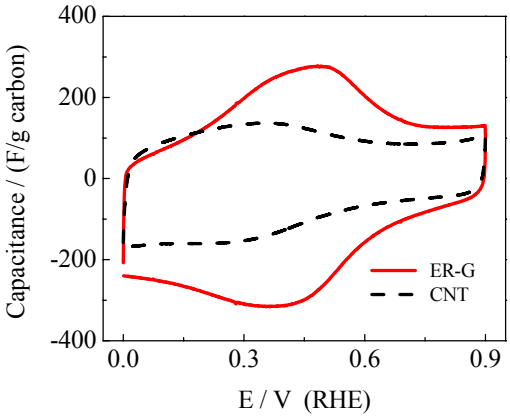

Fig. S3 Cyclic voltammograms on electrochemically reduced graphene oxide (ER-G) and carbon nanotube (CNT) electrodes in 0.1 M Na_2SO_4 (20 mV/s).

3. ELectrocatalysis

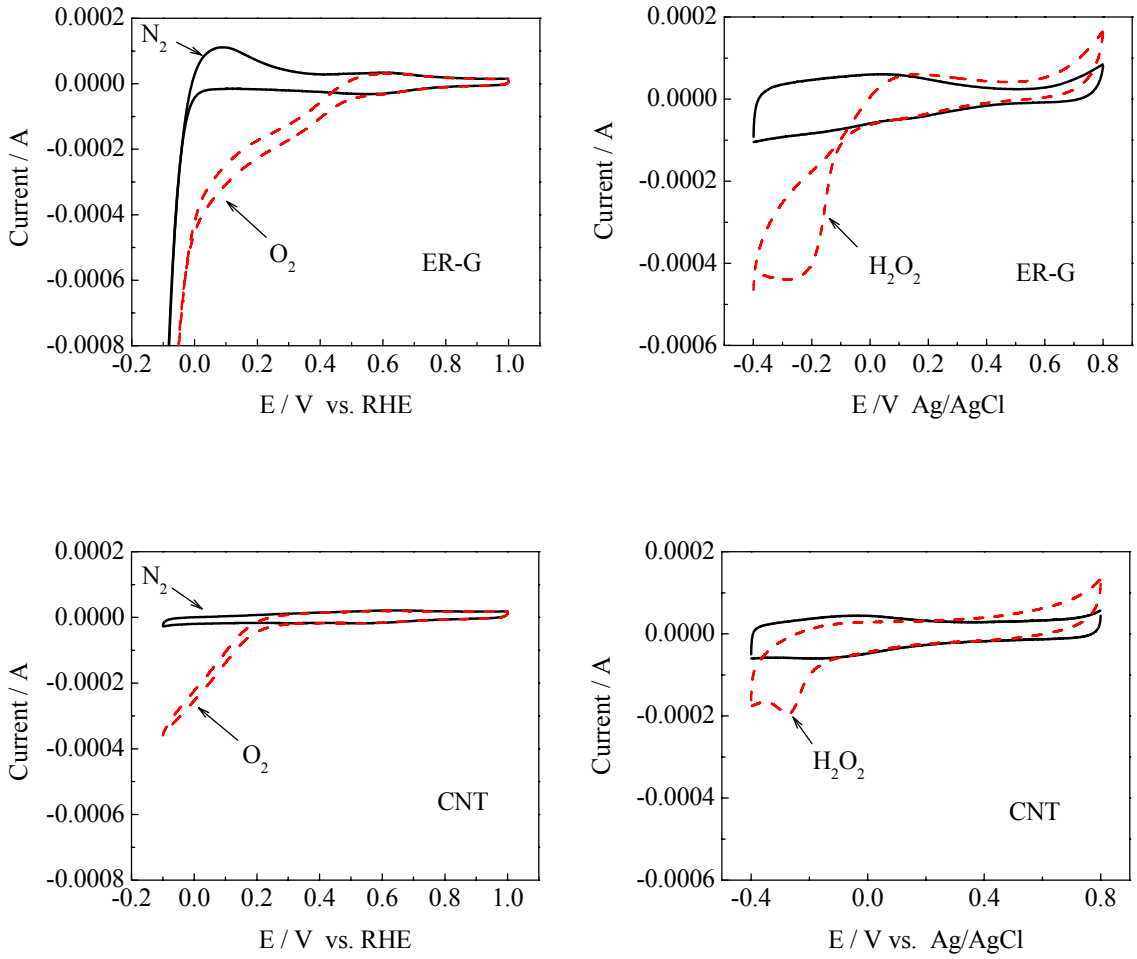

Fig. S4 Cyclic voltammograms of the electrochemically reduced graphene oxide (ER-G) and carbon nanotube (CNT) electrodes in N_2 or O_2 saturated 0.5 M H_2SO_4 (10 mV/s, 1600 RPM) and N_2 saturated 10 mM PBS + 0.1 M KCl w/o 5mM H_2O_2 (50 mV/s).

4. XPS characterization

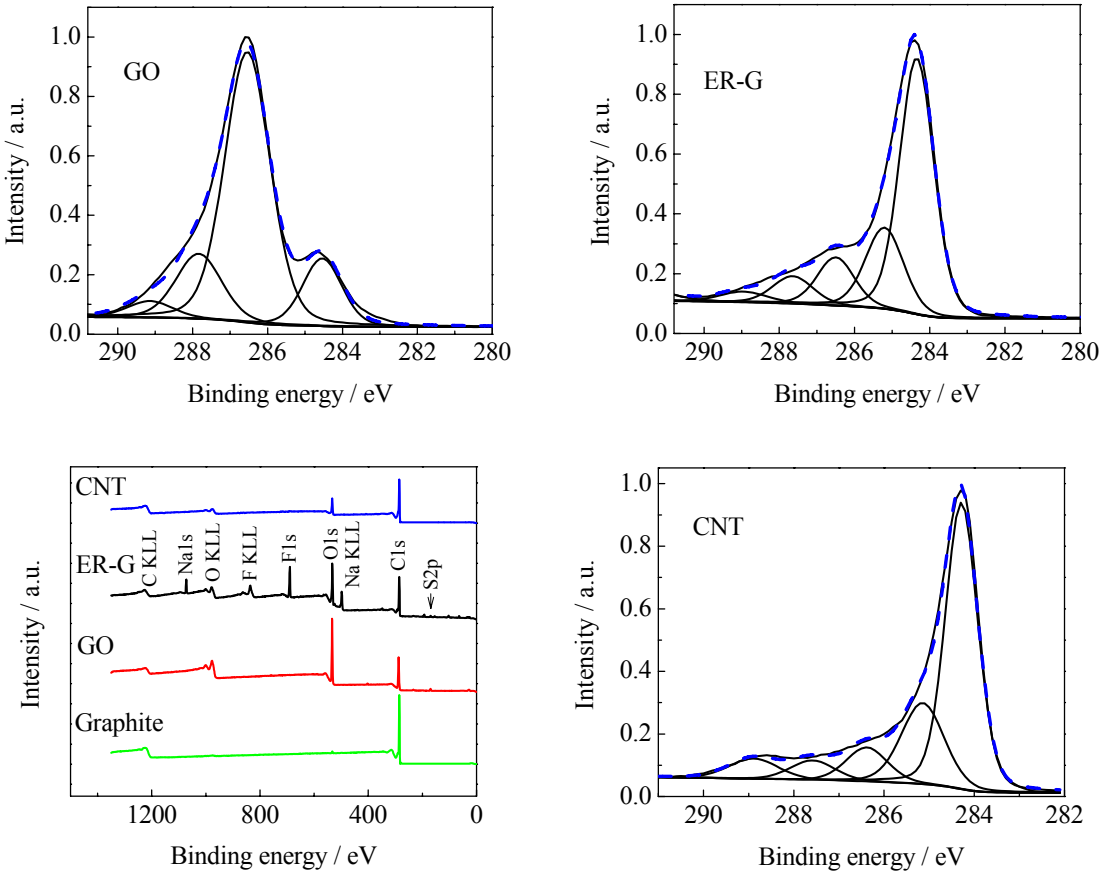

Fig. S5 XPS spectra of graphite, graphene oxide (GO), electrochemically reduced graphene oxide (ER-G), and carbon nanotubes (CNT) (F is from Nafion. Na at%=4.7% and S at%=0.6% for ER-G, implying that in addition to trace Na_2SO_4, a certain amount of Na^+ ions are intercalated in graphene oxide/ER-G).