Electronic Supplementary Information (ESI)

High-Performance Asymmetric Supercapacitor Fabricated with Graphene-Based Electrodes

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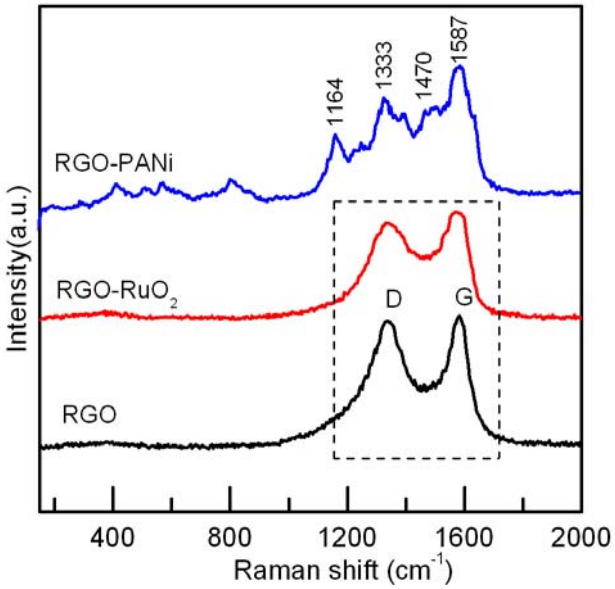

Figure S1. Raman spectra of samples RGO, RGO-RuO_2, and RGO-PANi.

Figure S2. A TEM image showing wrinkles on the surface of RGO.

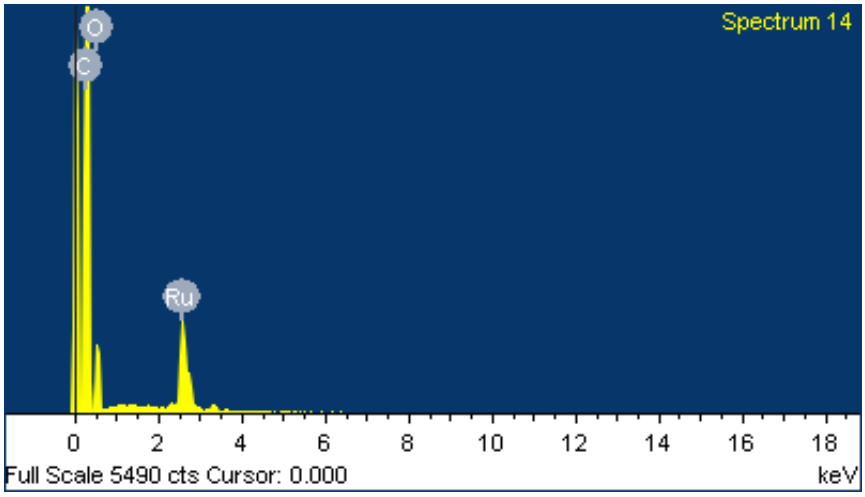

Figure S3. EDS analysis of sample RGO-RuO_2.

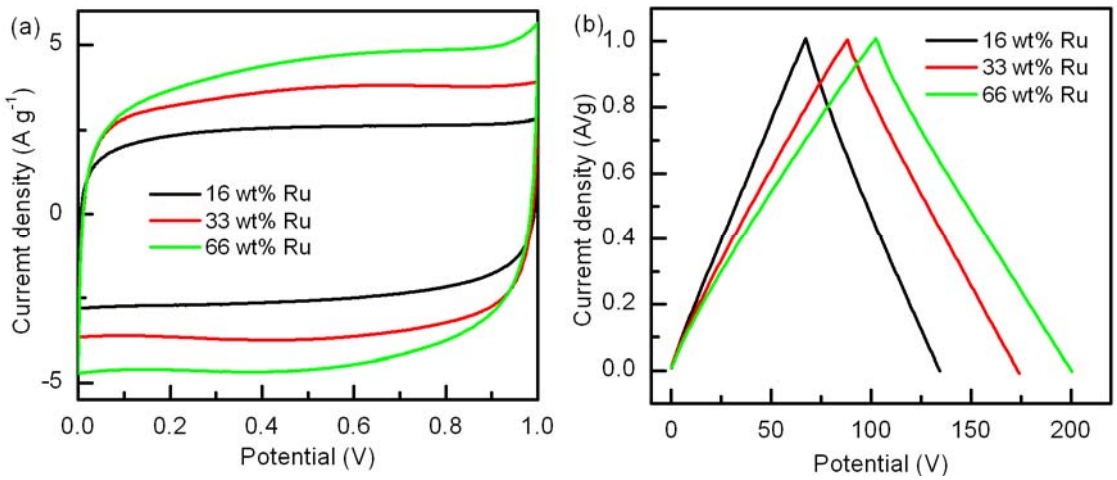

Figure S4. Cyclic voltammograms at a scan rate of 50 mV/s (a) and charge/discharge curves at a current density of 1 A g^{-1} (b) of symmetric supercapacitors RGO-RuO_2//RGO-RuO_2 with different Ru loadings.

The CV curves of (Fig. S4a) all exhibit a rectangle shape with a gradual increase in current density with increasing Ru content, showing the capacitance was increased. The charge/discharge curves (Fig. S4b) all show an equilateral triangle shape, suggesting good capacitive properties. On the basis of the charge/discharge curves, the specific capacitances of the RGO-RuO_2 electrodes with different Ru loadings were calculated to be about 268 F g^{-1} (16 wt% Ru loading), 344 F g^{-1} (33 wt% Ru loading), and 400 F g^{-1} (66 wt% Ru loading). In this study, we selected the RGO-RuO_2 sample with about 33 wt% Ru loading as an example to fabricated asymmetric supercapacitors.

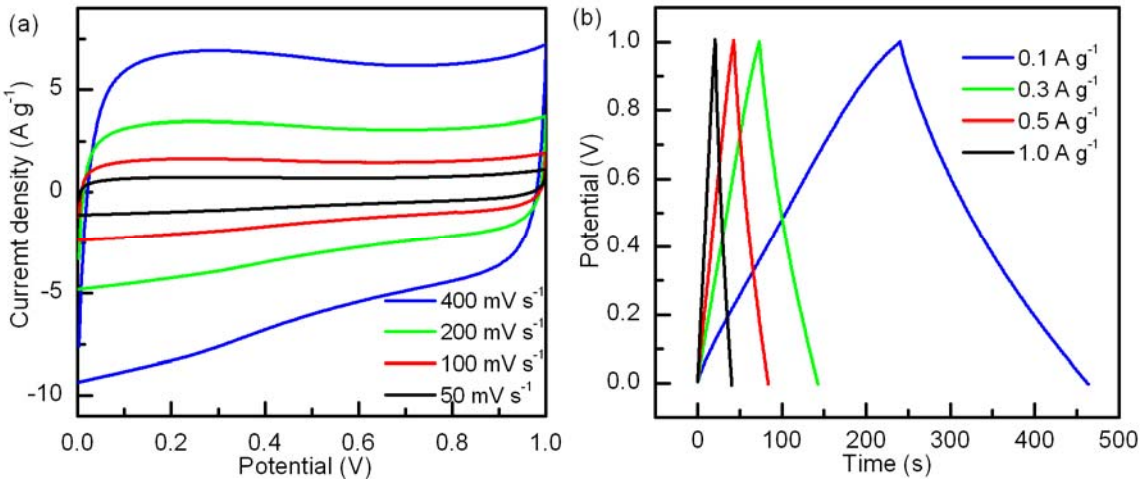

Figure S5. Cyclic voltammograms (a) and charge/discharge curves (b) of symmetric supercapacitor RGO //RGO.