Supporting Information

Dual Carbon-Modified Nickel Sulfide Composites Toward High-Performance Electrodes for Supercapacitors

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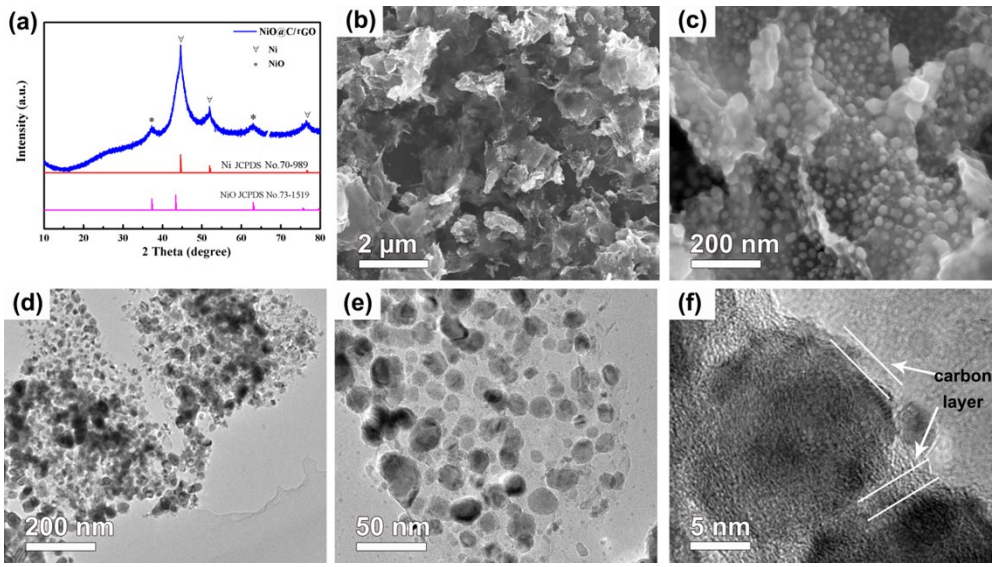

Figure S1. (a) XRD pattern, (b, c) SEM images and (d-f) TEM images of NiO@C/rGO precursor.

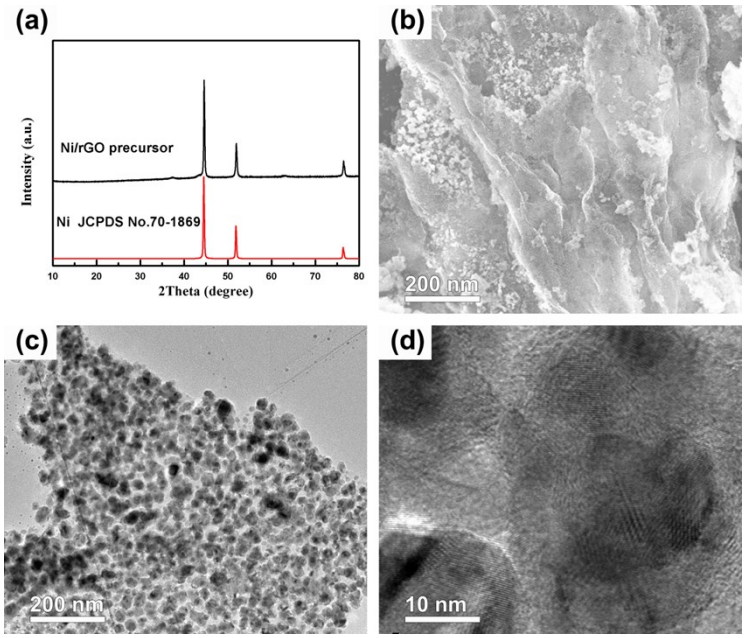

Figure S2. (a) XRD pattern, (b) SEM image and (c, d) TEM images of Ni/rGO precursor.

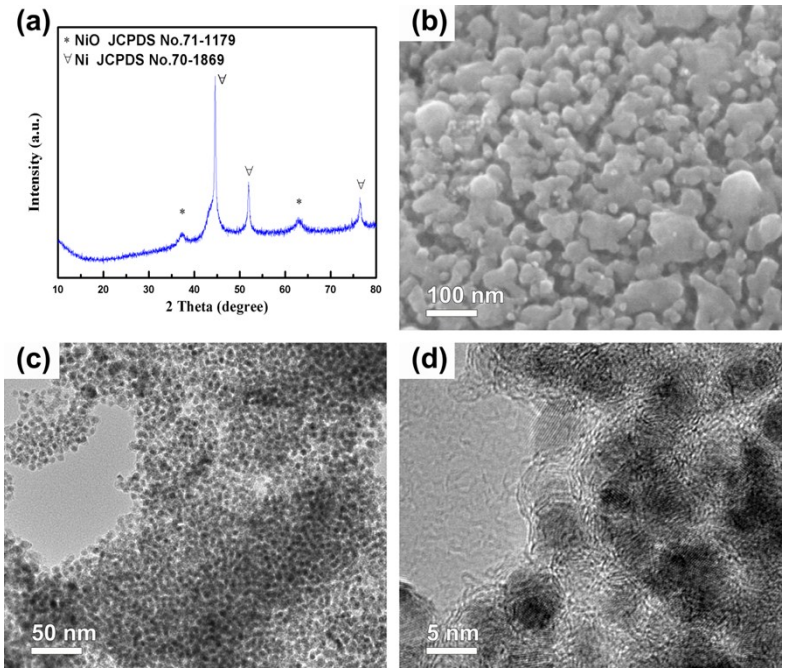

Figure S3. (a) XRD pattern, (b) SEM image and (c, d) TEM images of NiO@C precursor.

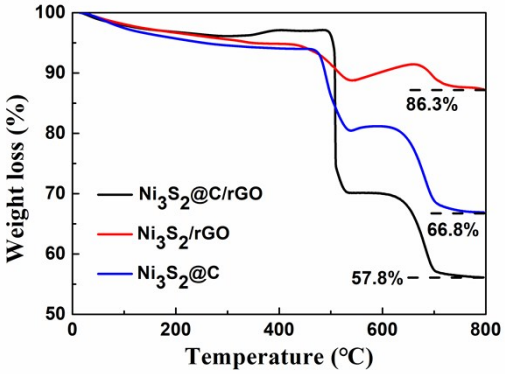

Figure S4. TGA curves of the as-prepared Ni_3S_2@C/rGO, Ni_3S_2/rGO and Ni_3S_2@C composites.

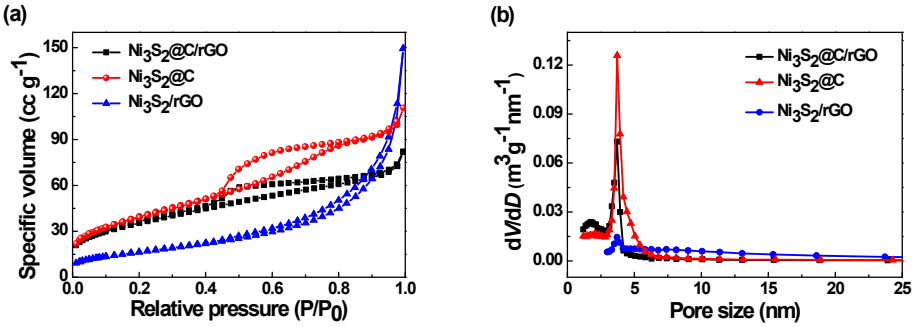

Figure S5. (a) N_2 adsorption-desorption isotherms and (b) pore size distributions of the as-prepared Ni_3S_2@C/rGO, Ni_3S_2/rGO and Ni_3S_2@C composites.

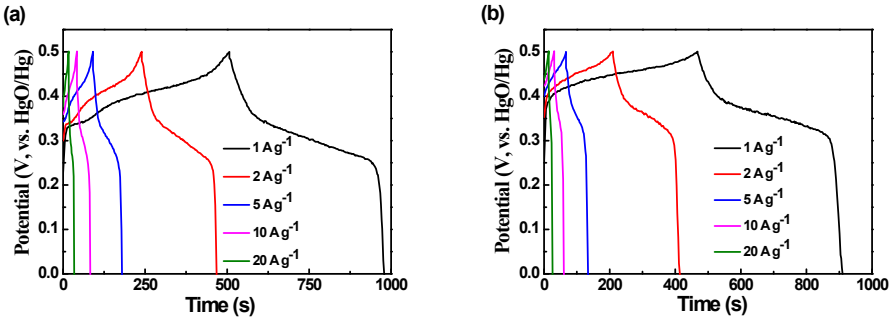

Figure S6. Charge-discharge curves of (a) Ni_3S_2/rGO and (b) Ni_3S_2@C electrodes at different current densities.

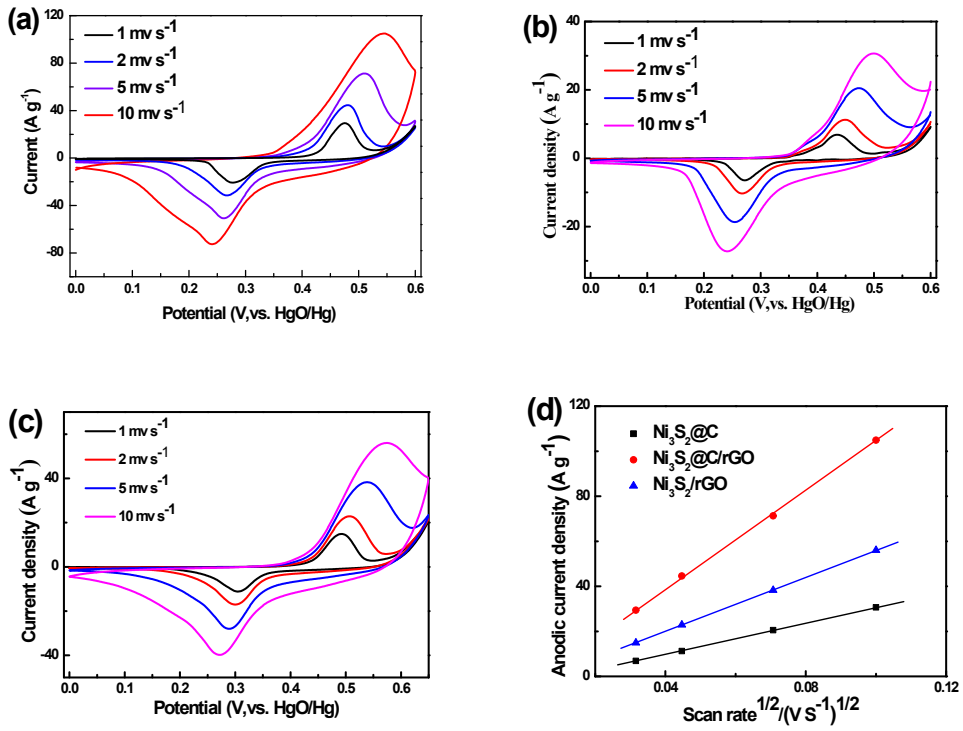

Figure S7. CV curves of the (a) Ni_3S_2@C/rGO, (b) Ni_3S_2@C and (c) Ni_3S_2/rGO electrode at different scan rates. (d) Dependence of the peak current density on square root of sweep rate for the as-prepared Ni_3S_2 electrodes (cathodic peaks).

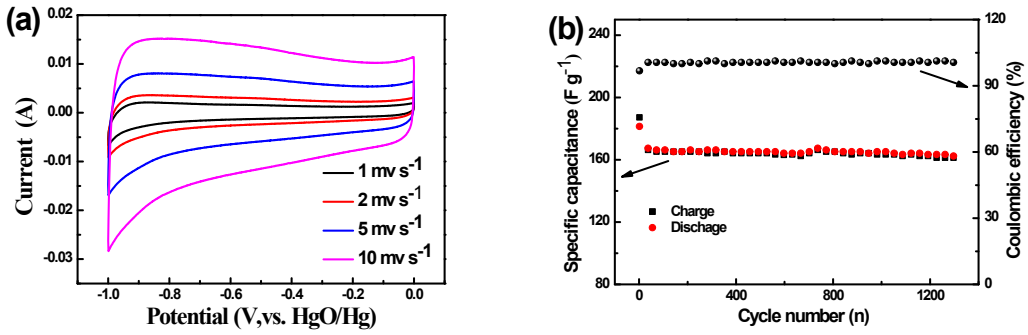

Figure S8. (a) CV curves of the AC electrode at different scan rates. (b) Cycle performance of AC electrode at 5 A g^{-1}.

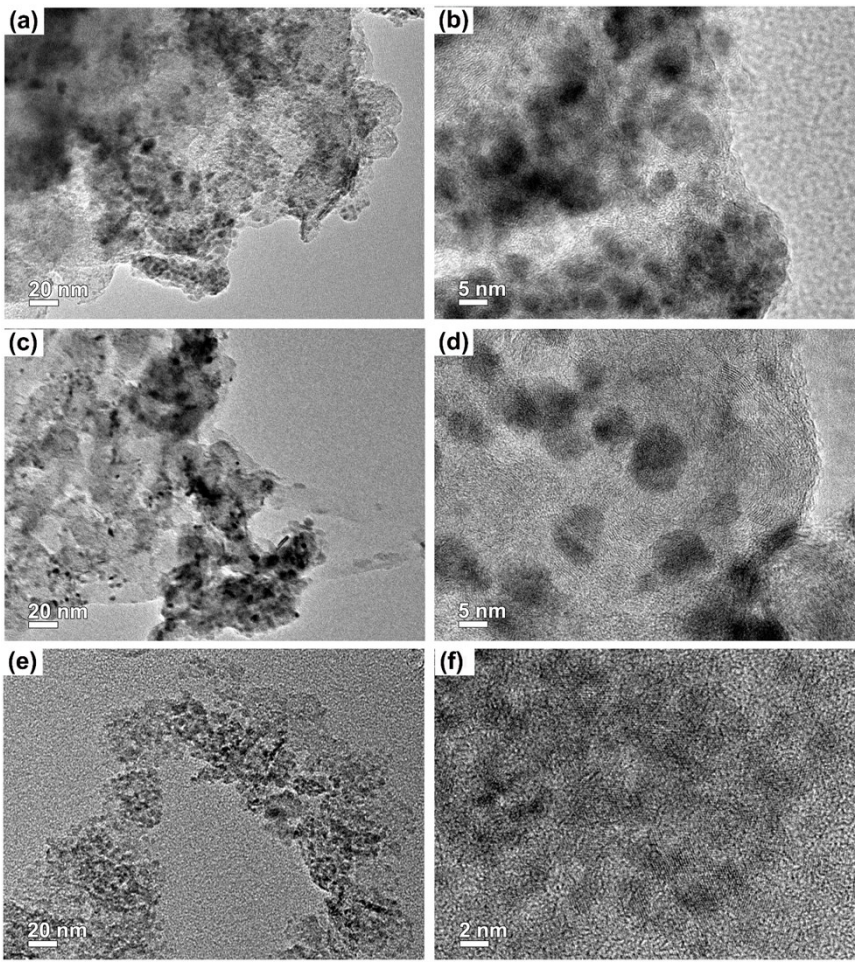

Figure S9. TEM images of (a, b) Ni_3S_2@C/rGO, (c, d) Ni_3S_2@C and (e, f) Ni_3S_2/rGO electrodes after 1000 cycles at 5 A g^{-1}.

Table S1 Rate performance of Ni_3S_2@C/rGO, Ni_3S_2@C and Ni_3S_2/rGO electrodes at different current densities

Current density ($A\ g^{-1}$)	Ni_3S_2@C/rGO ($F\ g^{-1}$)	Ni_3S_2/rGO ($F\ g^{-1}$)	Ni_3S_2@C ($F\ g^{-1}$)
1	1171	980	910
2	1107	936	830
5	1023	900	670
10	936	830	620
20	848	680	510