

Supporting information

Hydrothermal synthesis of Fe₃O₄/RGO composites and investigation of electrochemical performances for energy storage application

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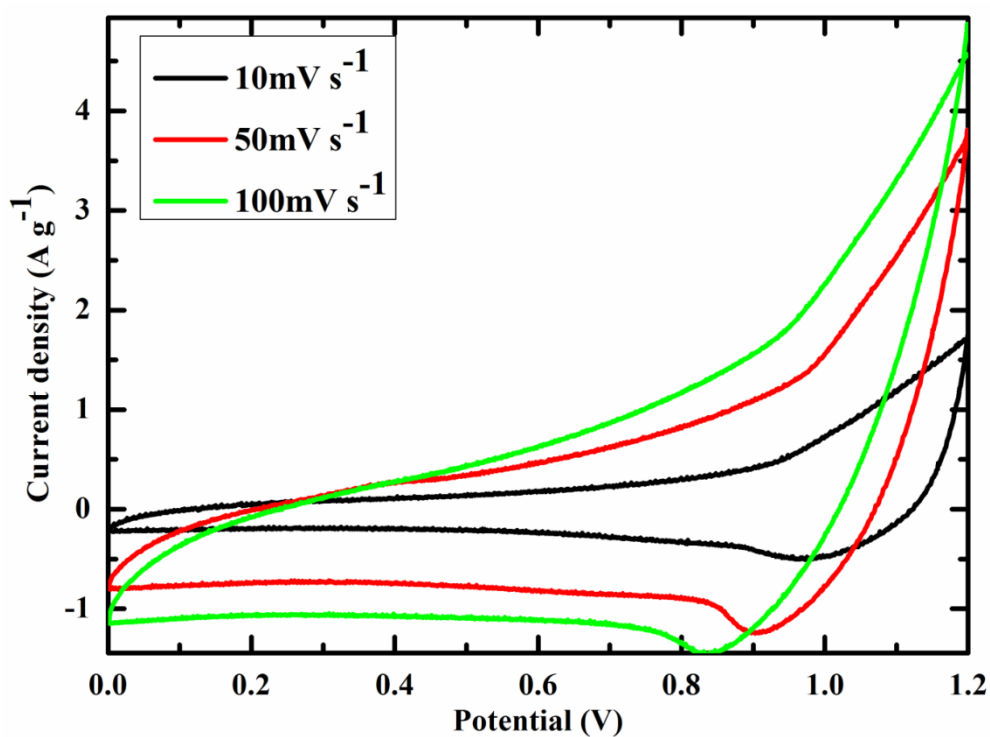


Fig. S1 CV of RGO at different scan rate

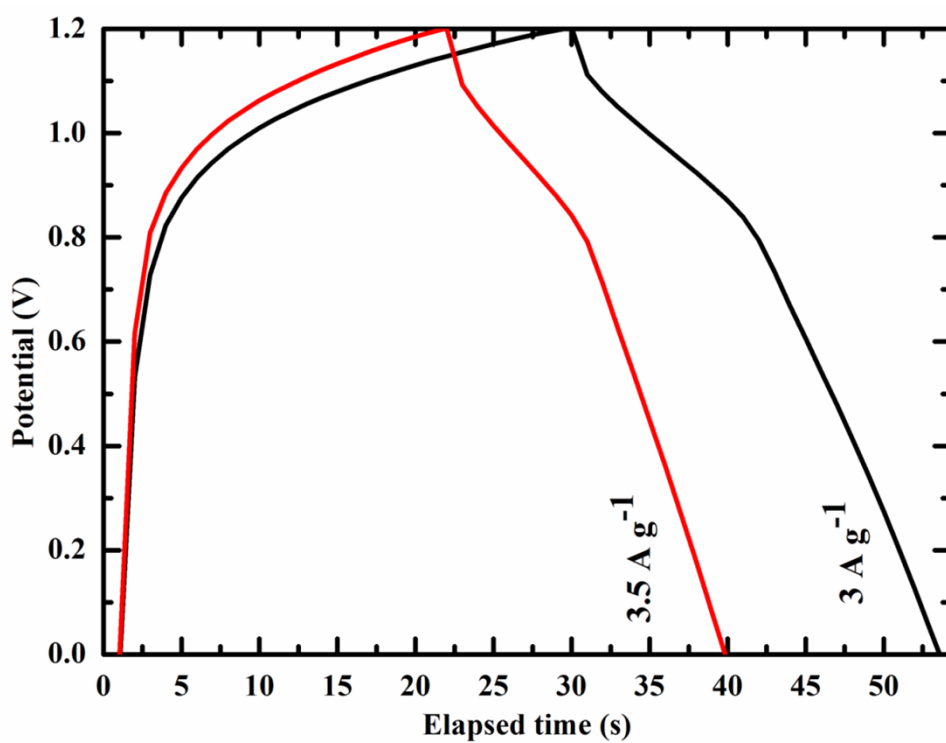


Fig. S2 CD of RGO at different current density

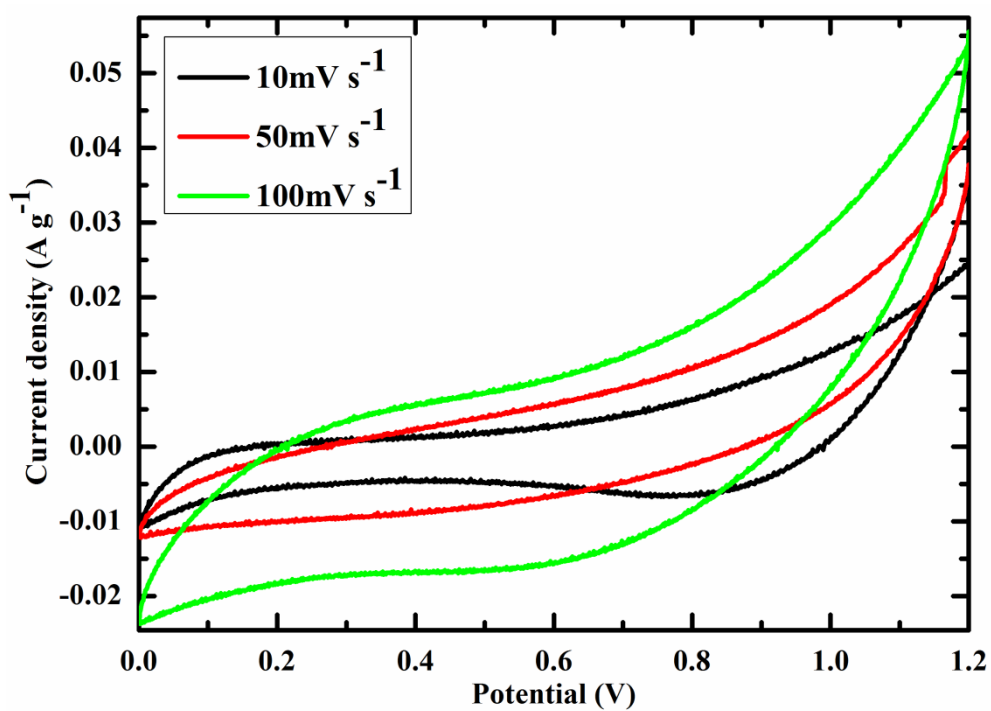


Fig. S3 CV of bare nickel foam at different scan rate

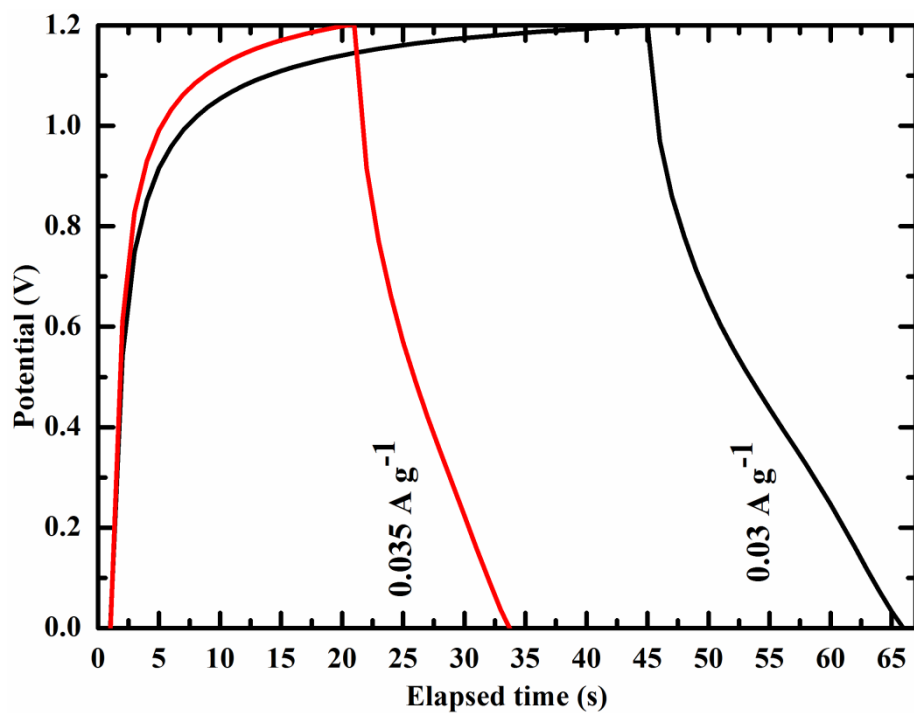


Fig. S4 CD of bare nickel foam at different current density

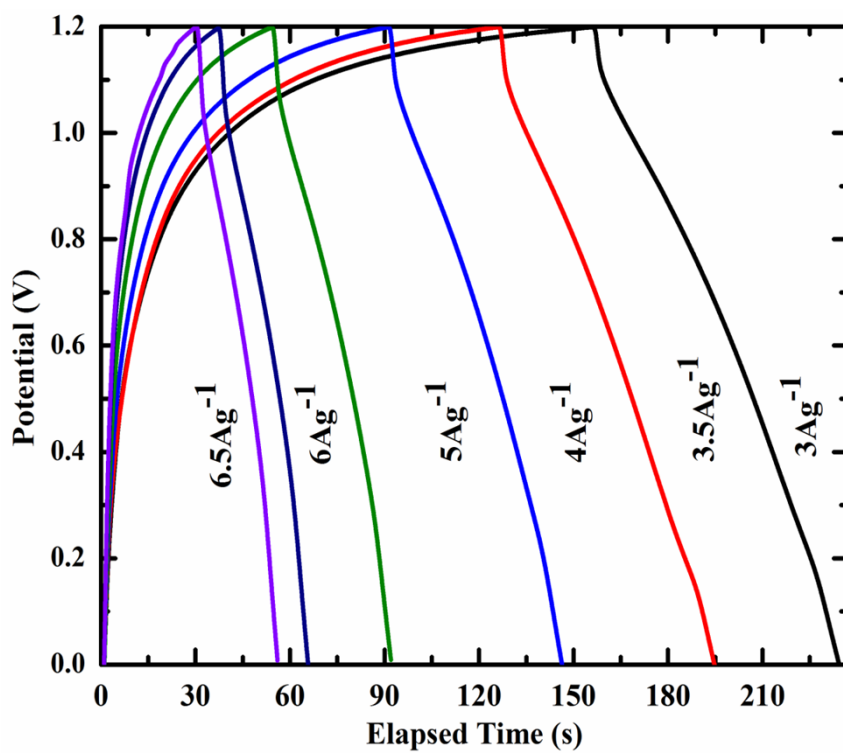


Fig. S5 CD of FRGO2 with higher current density

Table S1 Comparison of the coulombic efficiency of different reported supercapacitor

Materials	Working System	Coulombic efficiency (%)	Current density (A g⁻¹)	Reference
Co ₉ S ₈ nano tube	Two electrode	~61	4	1
graphene/Co ₃ O ₄ composites	Three electrode	~69	5	2
3D graphene oxide hydrogel	Two electrode	~69	1	3
Reduced Graphene Oxide/Manganese Dioxide Paper	Two electrode	~62	0.1	4
Functionalized Exfoliated Graphene Oxide	Two electrode	~73	20 mA cm ⁻²	5
Fe ₃ O ₄ /rGO composite	Three electrode	~62	0.5	6
Graphene nanoplatelets supported MnO ₂	Two electrode	~51	1.1	7
Co ₃ O ₄ /graphene	Three electrode	~73	1	8
Graphene Oxide/MnO ₂	Three electrode	~54	0.15	9
FRGO2	Two electrode	~50	3	Present work
FRGO2	Two electrode	~68	5	Present work
FRGO2	Two electrode	~80	6.5	Present work

Table S2 Comparison of the performances of different reported metal oxide supercapacitor

Sample	Specific capacitance	Energy density (W h kg ⁻¹)	Power density (W kg ⁻¹)	References
Fe ₃ O ₄ /graphene	220.1 F g ⁻¹ at 0.5 A g ⁻¹	-----		6
α-Fe ₂ O ₃	256 F g ⁻¹ a scan rate of 1 mV s ⁻¹	13	1149	10
Graphene/Co ₃ O ₄ composite	443 F g ⁻¹ at of 5 A g ⁻¹	-----		2
Graphene/MnO ₂	315 Fg ⁻¹ at scan rate 2 mV s ⁻¹	12.5	110	11
Graphene/NiO composites	525 F g ⁻¹ at 200 mA g ⁻¹	-----		12
MnO ₂ Decorated Graphene	124 F g ⁻¹ at 200 mA g ⁻¹	16.5	200	13
Graphene/SnO ₂ /poly pyrrole	616 F g ⁻¹ at 1 mV s ⁻¹	19.4	9973	14
Fe ₃ O ₄ functionalised graphene	180 F g ⁻¹ at 10 mV s ⁻¹	-----		15
RuO ₂ -functionalized graphene (25 wt % RuO ₂)	265 F g ⁻¹ at 10 mV s ⁻¹	-----		15
Fe ₃ O ₄ with 10 wt % carbon black	5.3 F g ⁻¹ at constant current 15 mA g ⁻¹	-----		16
MnO ₂ /graphitic petal/carbon nanotube	580 F g ⁻¹ at 2 mV s ⁻¹	28	2500	17
NiCo ₂ O ₄ nanowires-graphene	737 F g ⁻¹ at 1 A g ⁻¹	-----		18
FRGO1	519 F g ⁻¹ at 3 A g ⁻¹	25.95	1800	Present work
FRGO2	782 F g ⁻¹ at 3 A g ⁻¹	39.1	1800	Present work
FRGO3	553.8 F g ⁻¹ at 3 A g ⁻¹	27.15	1800	Present work

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