Supplementary Information

Microwave assisted fabrication of nanostructured reduced graphene oxide (rGO)/Fe_2O_3 composite as a promising next generation energy storage material

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Calculation of parameters

The discharge capacitance (*Cs*) of both the electrodes was calculated by following equation.[1,2]

$$Cs = \frac{I}{m} \times \frac{dt}{dv}$$

Where *I* the discharge current in ampere (A) and *dt/dv* is the slope inverse of the discharge curve (V s^{-1}) and *m* is the mass of the active material deposited on the GCE.

The maximum energy density values were calculated from the following equation:

$$E = \frac{1}{2} \times CsVi^2$$

Where V_i is the potential window.[1,2]

The power density was calculated by following equation:

$$P = \frac{E}{\Delta t}$$

Where Δt is the discharge time.

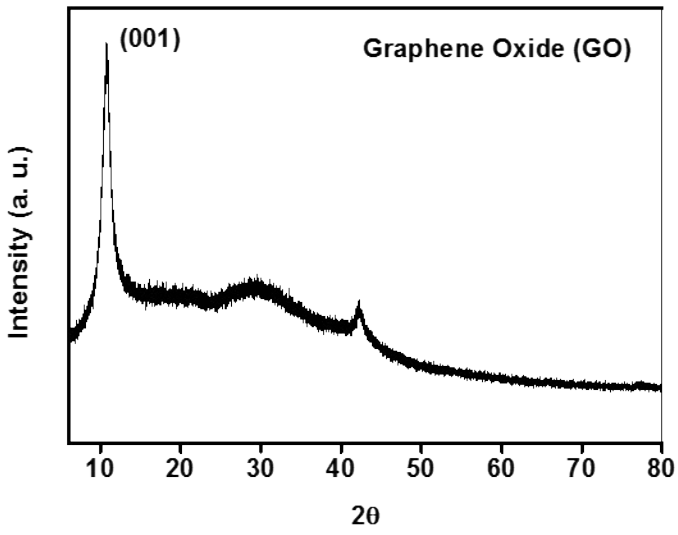

Fig. S1 XRD spectrum of graphene oxide (GO).

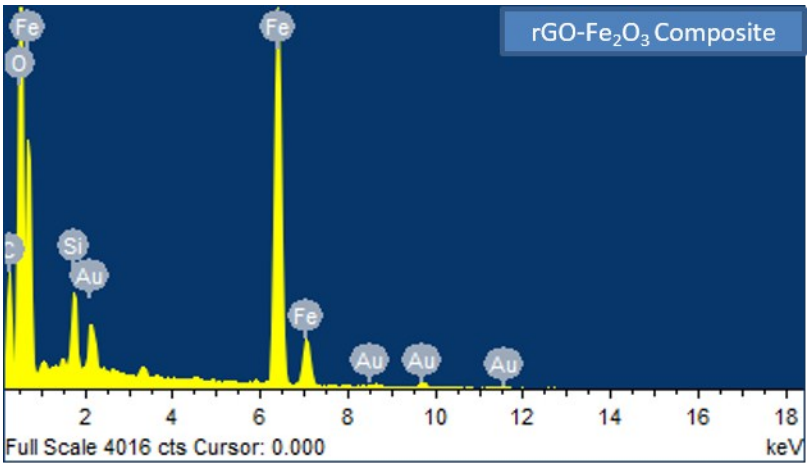

Fig. S2 EDX spectrum of rGO-Fe_2O_3 composite.

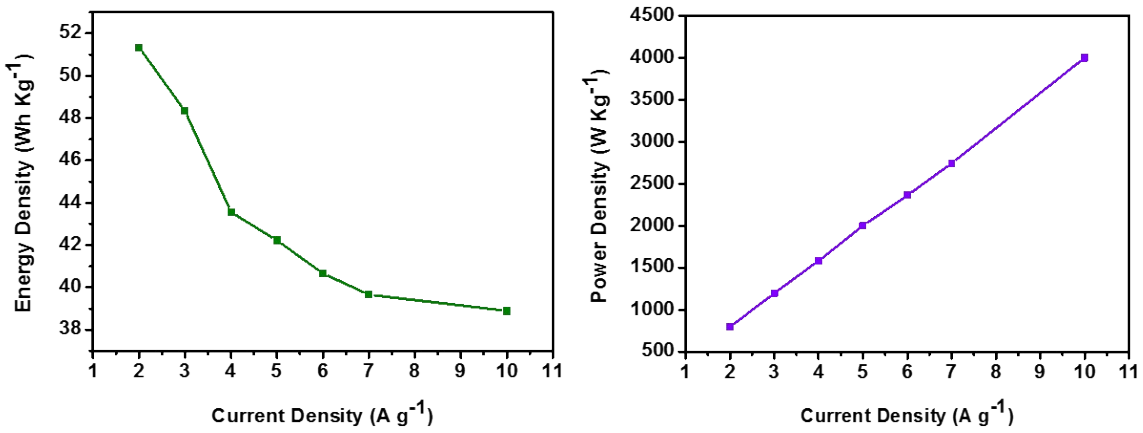

Fig. S3 Plots between energy and power densities and current density for rGO-Fe_2O_3/GCE.

References

1 R. A. Dar, G. A. Naikoo, P. K. Kalambate, L. Giri, F. Khan, S. P. Karna and A. K. Srivastava, *Electrochim. Acta*, 2015, **163**, 196-203.
2 M. Saraf, R. A. Dar, K. Natarajan, A. K. Srivastava and S. M. Mobin, *ChemistrySelect*, 2016, **1**, 2826-2833.