Supplementary Information

Microwave assisted fabrication of nanostructured reduced graphene oxide (rGO)/Fe₂O₃ composite as a promising next generation energy storage material

Mohit Saraf, Kaushik Natarajan and Shaikh M. Mobin

aDiscipline of Metallurgy Engineering and Materials Science, Indian Institute of Technology Indore, Simrol-453552, India
bDiscipline of Chemistry, School of Basic Sciences, Indian Institute of Technology Indore, Simrol-453552, India
cCentre for Bioscience and Biomedical Engineering, Indian Institute of Technology Indore, Simrol-453552, India

*E-mail: xray@iiti.ac.in
Tel: +91 731 2438 762
**Calculation of parameters**

The discharge capacitance \((C_s)\) of both the electrodes was calculated by following equation\(^1,2\):

\[
C_s = \frac{I}{m} \times \frac{dt}{dv}
\]

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:

\[
E = \frac{1}{2} \times C_s V_i^2
\]

Where \(V_i\) is the potential window\(^1,2\).

The power density was calculated by following equation:

\[
P = \frac{E}{\Delta t}
\]

Where \(\Delta t\) is the discharge time.
Fig. S1 XRD spectrum of graphene oxide (GO).
**Fig. S2** EDX spectrum of rGO-Fe$_2$O$_3$ composite.
**Fig. S3** Plots between energy and power densities and current density for rGO-$\text{Fe}_2\text{O}_3$/GCE.
References
