Supporting Information

Microwave-Derived Fe_2O_3/rGO Electrodes for Photo-Assisted Supercapacitors with Enhanced Charge Storage

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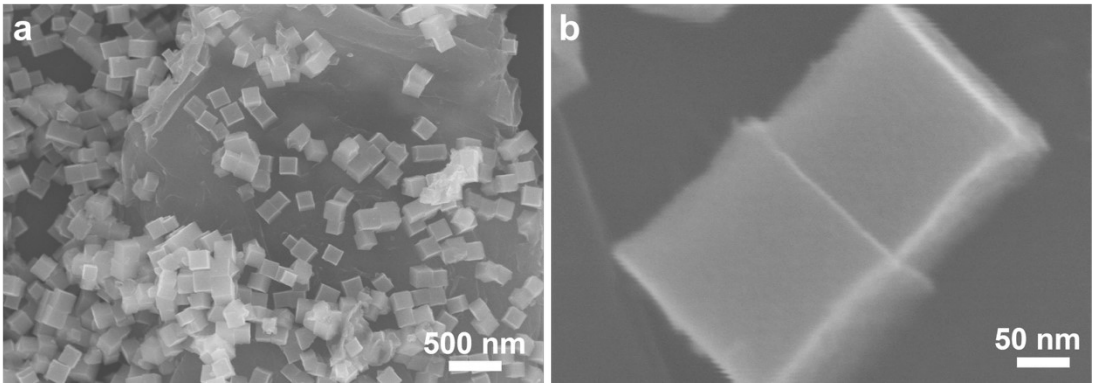

Figure S1. SEM images of Fe_2O_3/rGO.

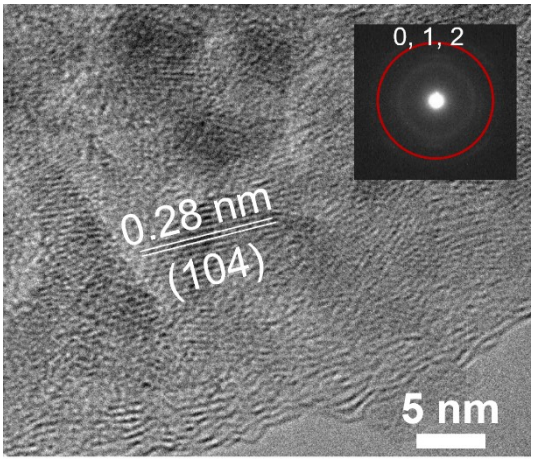

Figure S2. HRTEM image of Fe_2O_3/rGO (Inset: SAED).

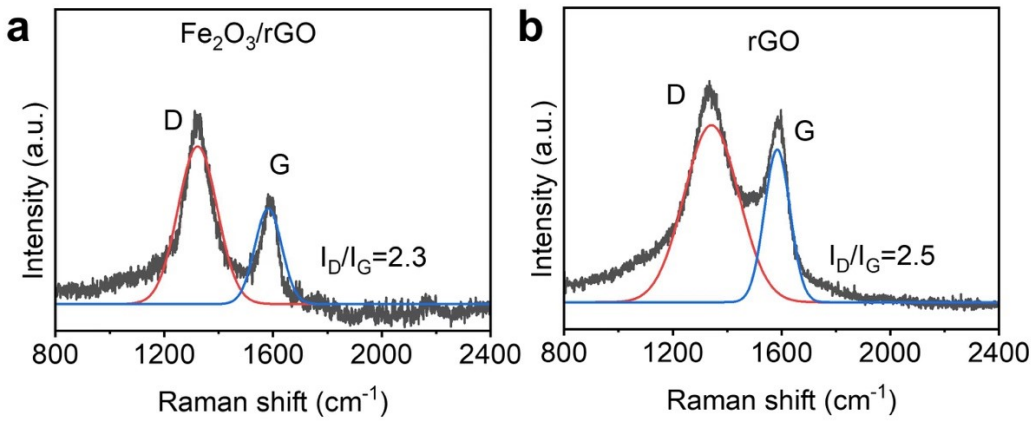

Figure S3. Raman spectra of (a) Fe_2O_3/rGO and (b) rGO.

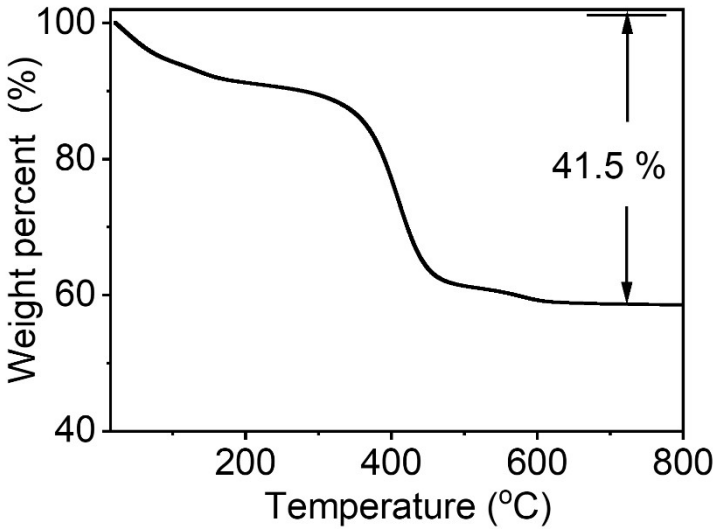

Figure S4. TG curve of Fe_2O_3/rGO.

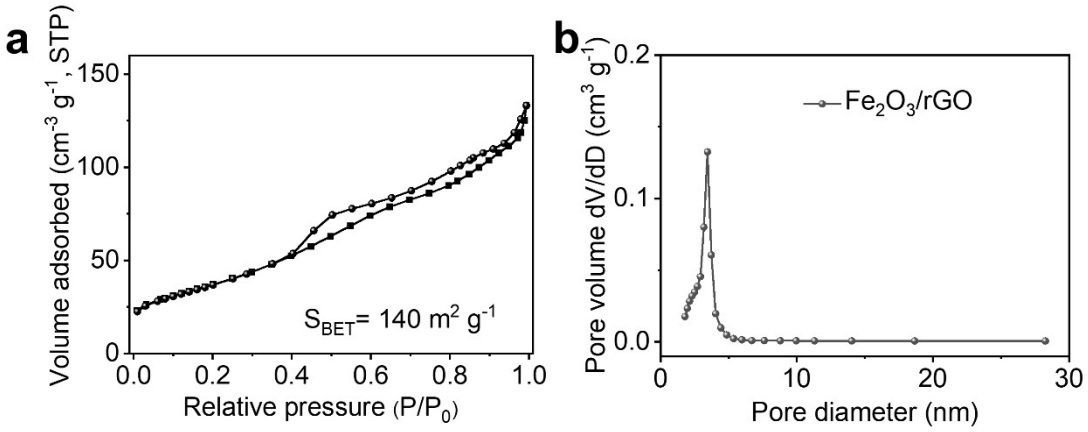

Figure S5. (a) N_2 adsorption-desorption isotherms and (b) corresponding pore size distribution curve of Fe_2O_3/rGO.

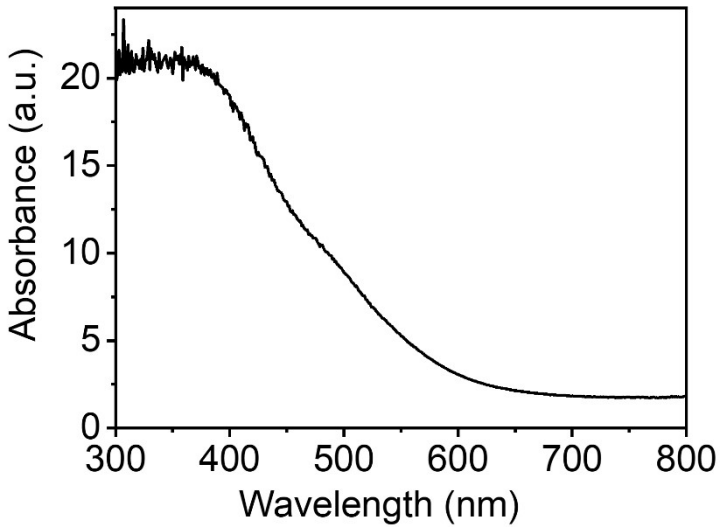

Figure S6. UV-Vis absorption spectrum of Fe_2O_3/rGO.

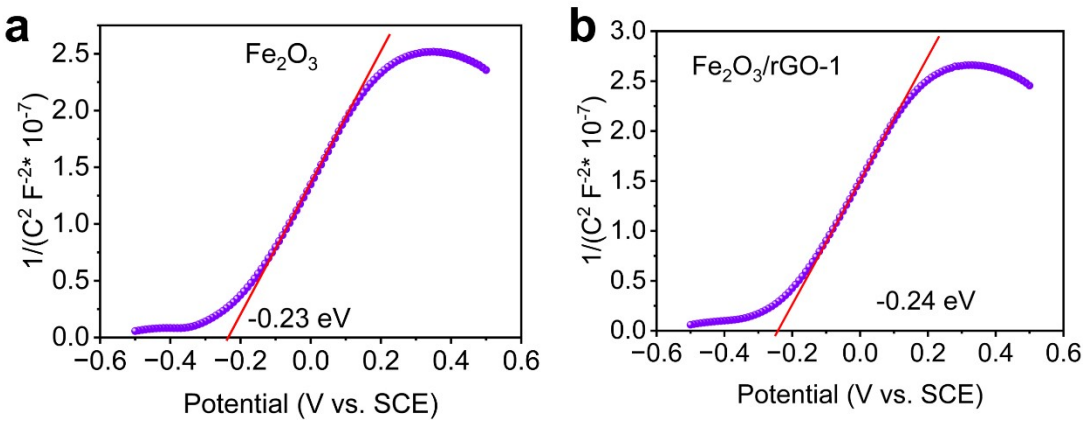

Figure S7. Mott-Schottky plots (a) Fe_2O_3 and (b) Fe_2O_3/rGO-1 measured in 1 M KOH.

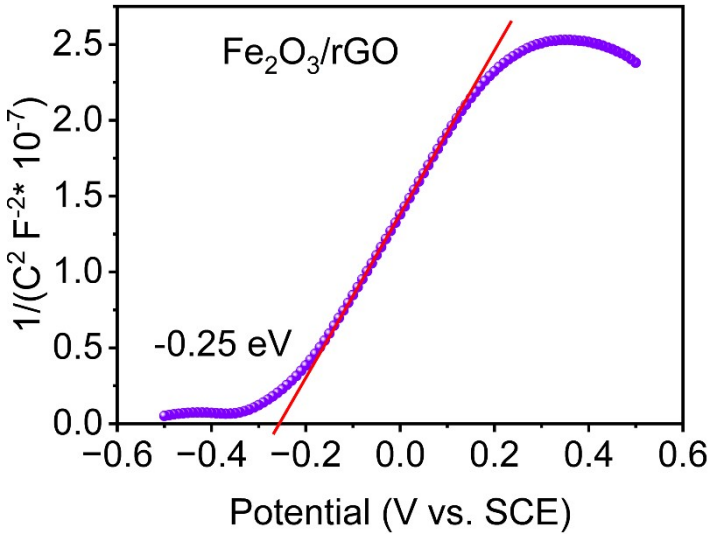

Figure S8. Mott-Schottky plots of Fe_2O_3/rGO measured in 1 M KOH.

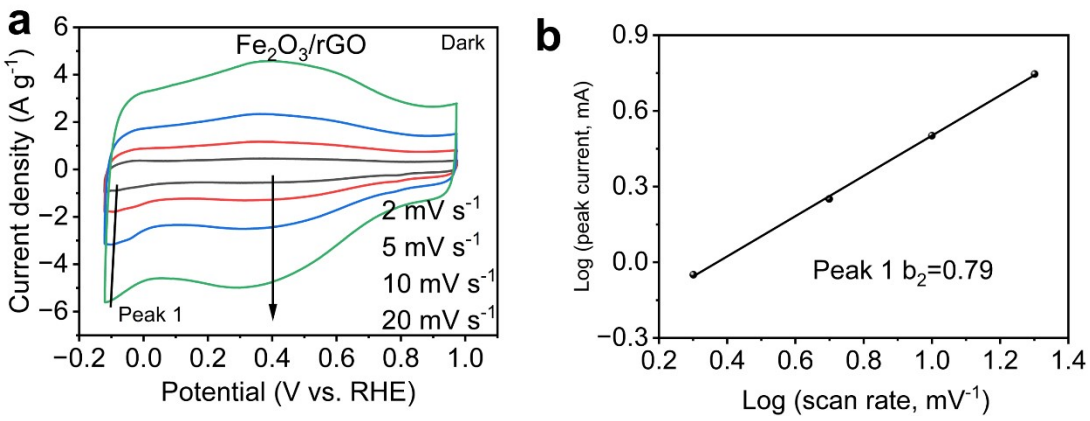

Figure S9. (a) CV curves of Fe_2O_3/rGO at different scan rates. (b) Logarithm relationship between peak current density and scan rate for Fe_2O_3/rGO in the dark.

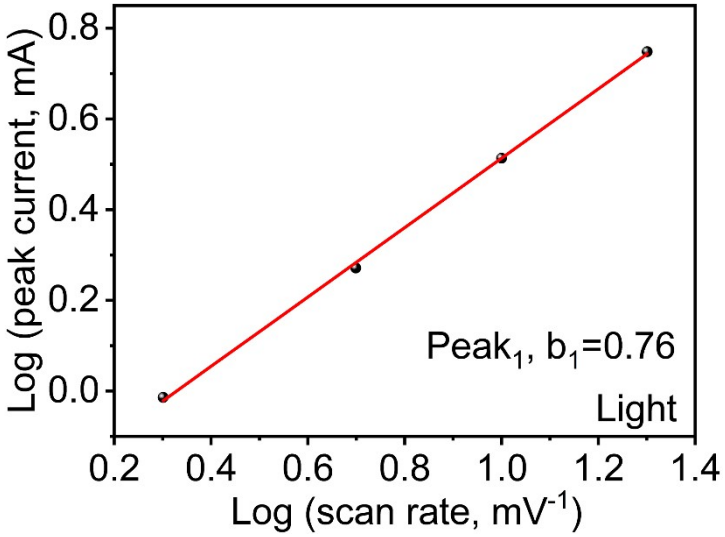

Figure S10. Logarithm relationship between peak current density and scan rate of the Fe_2O_3/rGO under illumination.

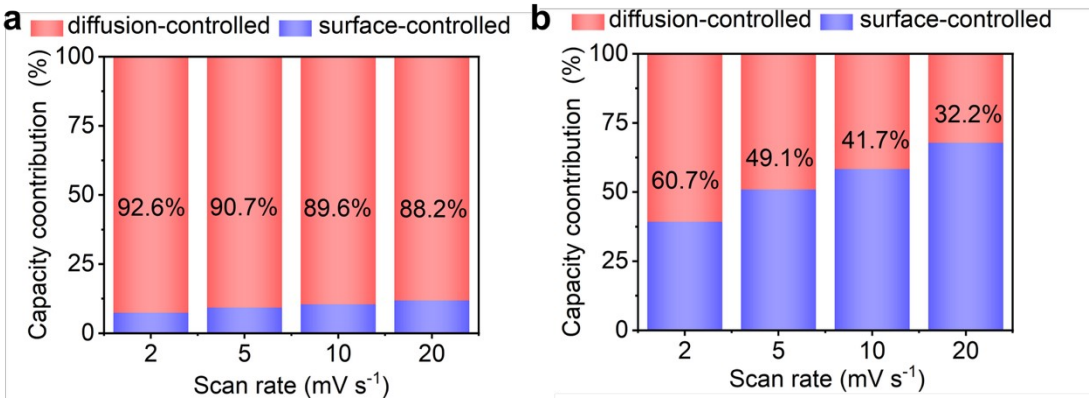

Figure S11. (a) Quantitative contributions of the surface-controlled capacity at different scan rate from 2 to 20 mV s^{-1} in the dark. (b) Quantitative contributions of the surface-controlled capacity at different scan rates from 2 to 20 mV s^{-1} under illumination.

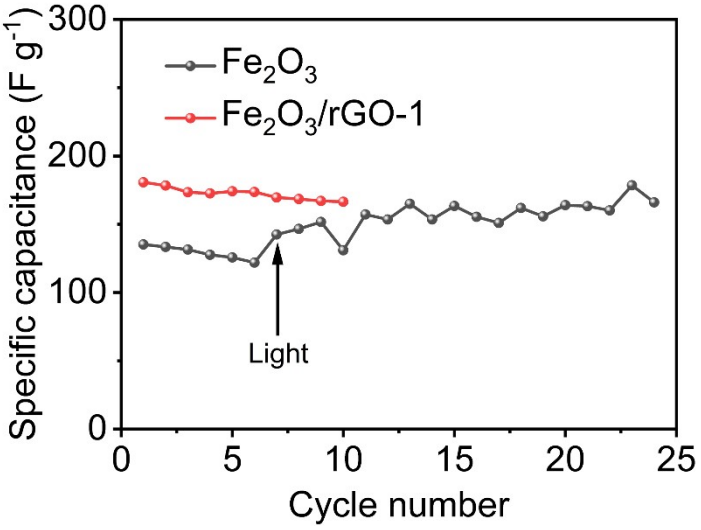

Figure S12. Comparison of the cycling performances of Fe_2O_3 and Fe_2O_3/rGO-1 at a current density of 2 A g^{-1}.

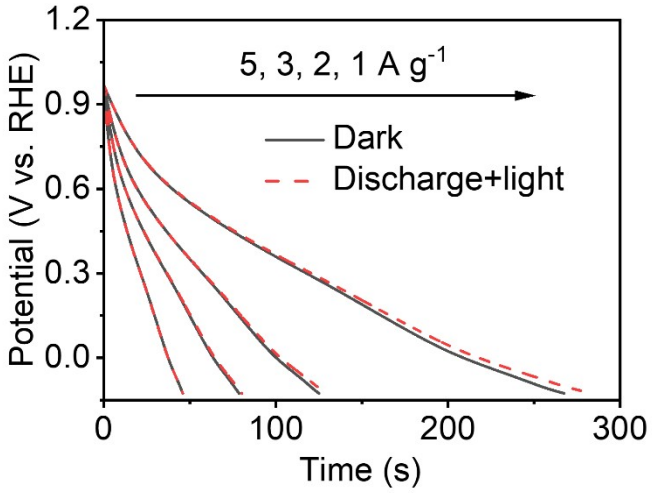

Figure S13. Galvanostatic discharge curves of Fe_2O_3/rGO under dark and illuminated conditions at current densities of 1, 2, 3, and 5 A g^{-1}.

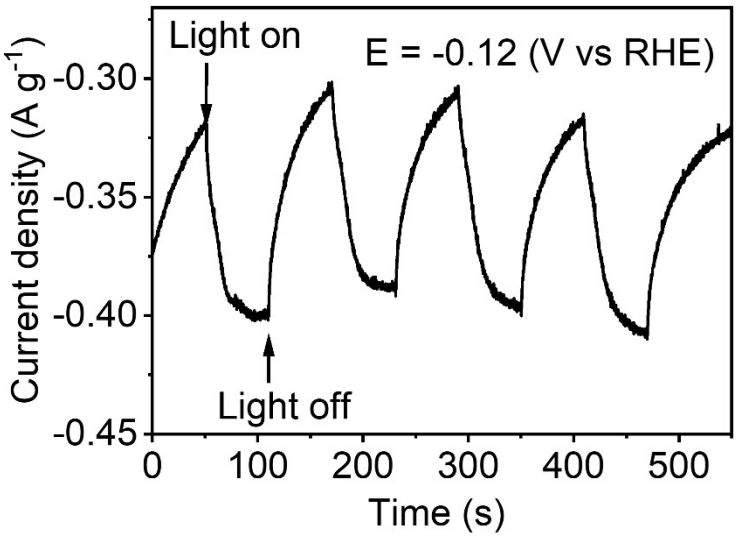

Figure S14. Transient photocurrent response of Fe_2O_3/rGO under repeated light on/off cycles.

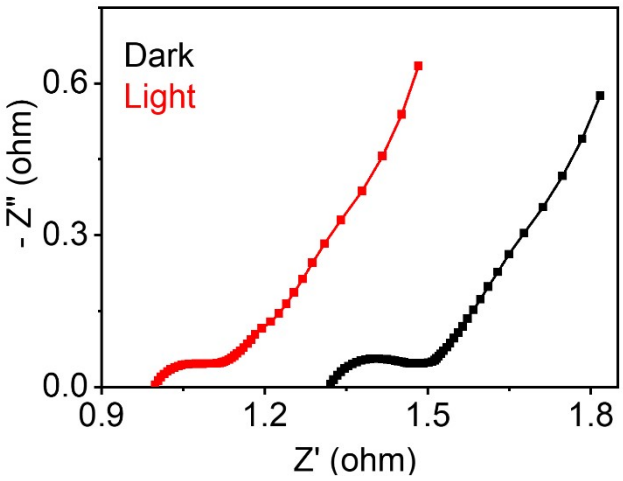

Figure S15. Nyquist plots of Fe_2O_3/rGO measured under dark and illuminated conditions.

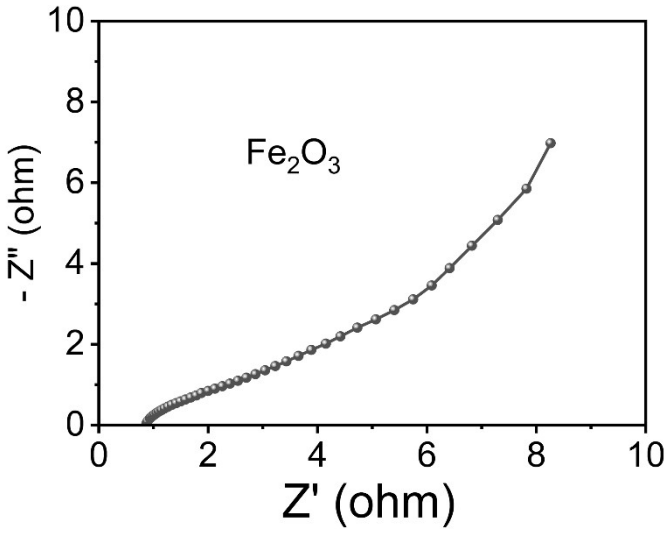

Figure S16. Nyquist plot of the Fe_2O_3 in the dark.

Table S1. Comparison of the photo-assisted supercapacitor performance of this work with that of recent reports.

Electrode	Light	Speciffc capacitance	Ref.
Fe_2O_3/rGO	8W UV LED	249 F g^{-1} (2 A g^{-1}, 19%)	Our works
CNT@$Co_2V_2O_7$/BPQD	Xe-lamp	210 F g^{-1} (2 A g^{-1}, 35.6%)	1
GN/MnO_2	300 W Xenon lamp	210 F g^{-1} (0.7 A g^{-1}, 23.5%)	2
Co_3O_4 nanospheres	500 W Xenon lamp	523 F g^{-1} (1 A g^{-1}, 16.7%)	3
ZCO NF	500 W Xenon lamp	563 F g^{-1} (1 A g^{-1}, 21.9%)	4
$BiFeO_3$	300 W Xenon lamp	110.5 F g^{-1} (2 A g^{-1}, 26.7%)	5
N-Ov-MCO	500 W Xenon lamp	567 F g^{-1} (1 A g^{-1}, 20.7%)	6
Ni-BiOBr//rGO	125 W LED lamp	136 F g^{-1} (1 A g^{-1}, 123.6%)	7

References

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