

Electronic supplementary information

Visible-light-driven photocatalytic degradation of safranin-T dye using functionalized graphene oxide nanosheets FGS/ZnO nanocomposites

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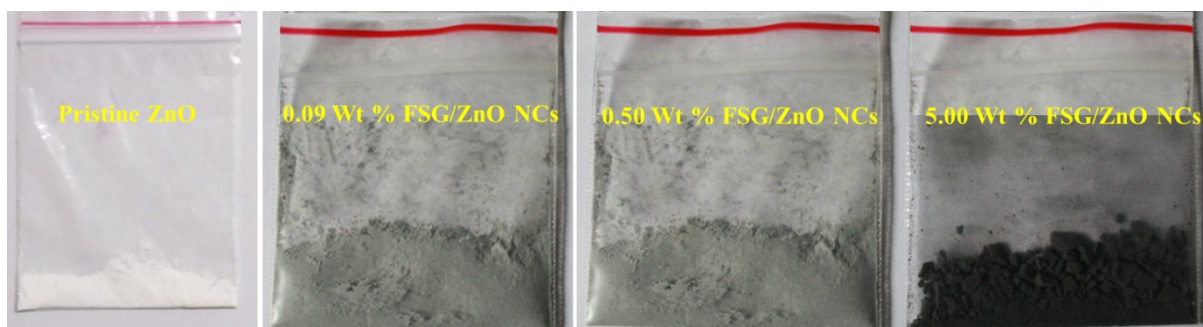


Fig. S1 The photographs of pristine ZnO and various FGS/ZnO NCs (0.09 wt %, 0.50 wt %, and 5.00 wt %).

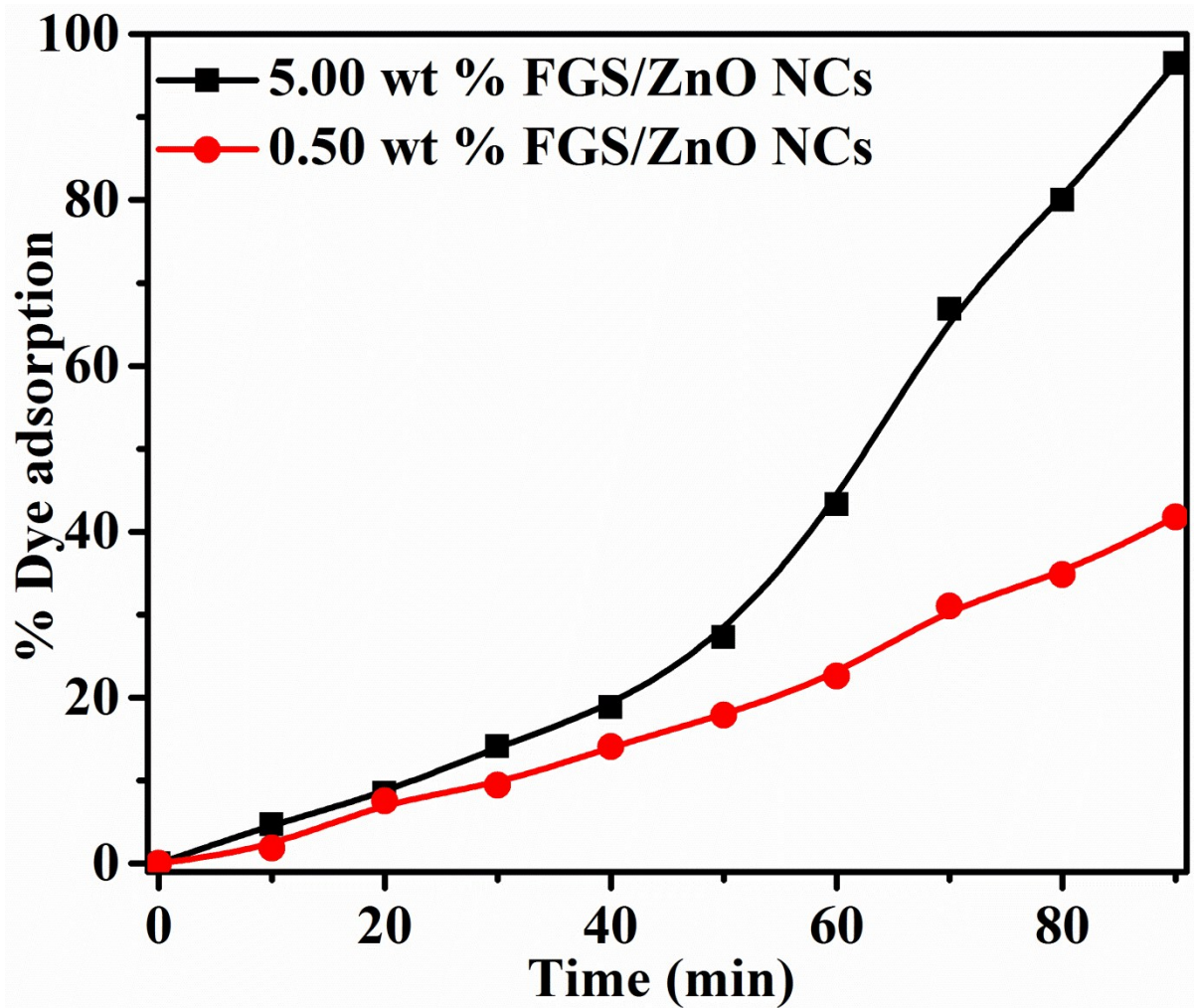


Fig. S2 The effect of FGS concentration in FGS/ZnO NCs on adsorption of safranin-T dye.

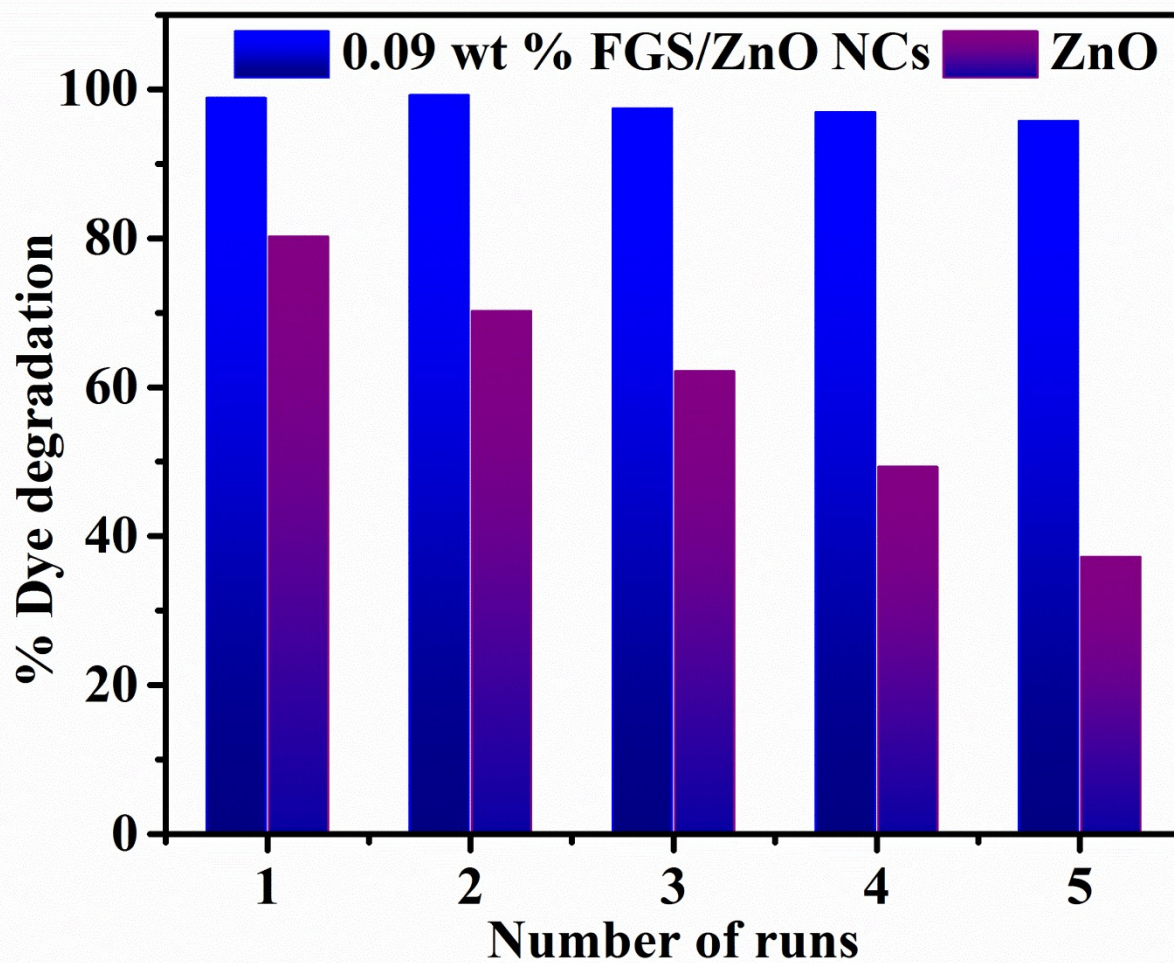


Fig. S3 The recyclability (photostability) of the FGS/ZnO NCs (0.09 wt % FGS/ZnO NCs) and pristine ZnO NPs for the photodegradation of safranin-T dye.

Table S1. The photodegradation efficiency of various ZnO/graphene or ZnO/graphene oxide composite photocatalysts.

Photocatalyst	Particle size of ZnO (nm)	Dye	Degradation efficiency (%)	Ref. no.
ZnO-rGO	150	Rhodamine B	92.9	1
ZnO/FG	~ 7	Rhodamine 6G	96.0	2
ZnO/G	10–20	Rhodamine B	100.0	3
ZnO-rGO	--	Methylene blue	88.0	4
ZnO/GO	500–1000	Methylene blue	98.1	5
ZnO/GO	~ 20–40	Crystal violet	95.0	6
ZnO/GO	100–200	Methylene blue/ Methyl orange	98.0	7
ZnO/G	16–22	Methylene blue/ Methyl orange	100.0	8
ZnO rods/rGO	Length 180, and diameter 16	Orange II	99.0	9
ZnO NPs@GO	15 ± 5 nm	Methylene blue	98.5	10
GO/ZnO NRs	Diameter 50–100	Methylene blue	90.0	11
ZnO/G	10	Rhodamine B	74.0	12
ZnO/G	10–20	Methylene blue	97.0	13
ZnO/G	90–120	Malachite green	78.0	14
ZnO/G	22 ± 6	Methylene blue	70.0	15
ZnO/G	6	Methylene blue	100.0	16
ZnO/G	13	Trypan blue	98.8	17
FGS/ZnO	10–20	Safranin-T	100.0	Current work

Table S2. The VB and CB band positions of various FGS/ZnO NCs and bare ZnO NPs.

Sample Name	Band gap (E_g , eV)	E_{VB} (eV)	E_{CB} (eV)
Bare ZnO NPs	3.16	2.98	- 0.18
0.05 wt % FGS/ZnO NCs	3.13	2.97	- 0.16
0.09 wt % FGS/ZnO NCs	3.10	2.95	- 0.15
0.10 wt % FGS/ZnO NCs	3.12	2.96	- 0.16
0.50 wt % FGS/ZnO NCs	3.18	2.99	- 0.19
5.00 wt % FGS/ZnO NCs	3.27	3.04	- 0.23

Supplementary references

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