Electronic Supplementary Information

Synthesis, characterization and their photocatalytic degradation properties of $ZnO/ZnFe_2O_4$ magnetic heterostructures

Yan Xu,[a,#,*] Shumin Wu,[a,#] Xianliang Li,[b,*] Yehang Huang,[a] Zhuopeng Wang,[a] Yide Han,[a] Junbiao Wu,[a] Hao Meng,[a] Xia Zhang[a,*]

[a]*Department of Chemistry, College of Science, Northeastern University, Shenyang, Liaoning 110819, China.*

[b]*College of Materials Science and Engineering, Shenyang University of Chemical Technology, Shenyang, Liaoning 110142, China.*

[#]*These authors contributed equally to this work.*

[*]To whom correspondence should be addressed: xuyanjlu@126.com (Yan Xu); lixianliang007@163.com (Xianliang Li); xzhang@mail.neu.edu.cn (Xia Zhang); Fax: +86-024-83684533; Tel.: +86-024-83684533.

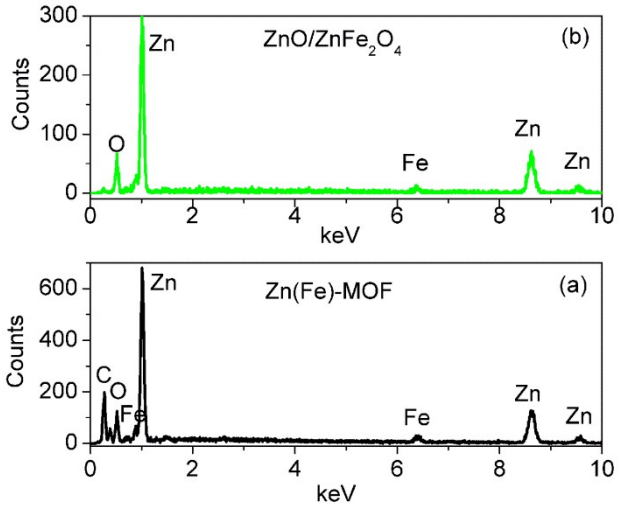

Fig. S1 EDS spectra of (a) Zn(Fe)-MOF and (b) $ZnO/ZnFe_2O_4$ derived from Zn(Fe)-MOF.

Table S1. Main parameters of processing and refinement of the ZnO/Fe_2ZnO_4 sample

Phase	Weight (%)	Space group	Cell parameters (Å), Cell volume (Å^3)	R_B (%)	R_{wp} R_p (%) χ^2
ZnO	98.4 (1)	$P6_3mc$	a = 3.2515 (1) Å, c = 5.2076 (2) Å, V = 47.680 (5) Å^3	1.78	10.06, 7.18, 1.78
$ZnFe_2O_4$	1.6 (1)	Fd-3m	a = 8.412 (1) Å V = 595.3 (3) Å^3	6.82	

Table S2. Fractional atomic coordinates and isotropic displacement parameters (Å^2) of ZnO phase

	x	y	z	B_{iso}
Zn	1/3	2/3	0	0.7 (2)
O	1/3	2/3	0.3850 (5)	0.5 (2)

Table S3. The pseudo-first order rate constant of photodegradation of RhB and MB over ZnO/Fe_2ZnO_4 sample**.** Reaction confitions: 80 mg of photocatalyst, 100 mL of 10 mg L^{-1} of RhB or MB, pH = 7.

photocatalyst	Dye molecule	k (min^{-1})	R
ZnO/Fe_2ZnO_4	RbB	0.0135	0.9656
ZnO/Fe_2ZnO_4	MB	0.0155	0.9554