Electronic Supplementary Information

Construction of magnetic Z-scheme photocatalyst for enhanced the oxidation/reduction ability and recyclable availability on degradation of tetracycline

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Fig. S1 FT-IR spectra of g-C$_3$N$_4$ (a), Fe$_3$O$_4$/g-C$_3$N$_4$ (b), WO$_3$/Fe$_3$O$_4$/g-C$_3$N$_4$ (c)

These spectra show the vibrational modes of NH and NH$_2$ groups, with peaks at 1639, 1575, and 808 cm$^{-1}$ for different samples.
**Fig. S2** UV–vis absorbance spectra of Fe$_3$O$_4$/g-C$_3$N$_4$ with different Fe$_3$O$_4$ content: 40 wt.%, 20 wt.%, 10 wt.%, 5.0 wt.%, and 3.0 wt.%;

**Fig. S3** Photocurrent response curves of WO$_3$/Fe$_3$O$_4$/g-C$_3$N$_4$ with different WO$_3$ content, 0.5 wt.% (a), 1.0 wt.% (b), 2.0 wt.% (c), 5.0 wt.% (d), 10 wt.% (e)
**Fig. S4** EIS spectra of WO$_3$/Fe$_3$O$_4$/g-C$_3$N$_4$ with different WO$_3$ content, 0.5 wt.% (a), 1.0 wt.% (b), 2.0 wt.% (c), 5.0 wt.% (d), 10 wt.% (e)

**Fig. S5** Hysteresis loops of Fe$_3$O$_4$/g-C$_3$N$_4$ (a), WO$_3$/Fe$_3$O$_4$/g-C$_3$N$_4$ (b), inset image is WO$_3$/Fe$_3$O$_4$/g-C$_3$N$_4$ attracted by magnetic field
Fig. S6 Recyclability of WO$_3$/Fe$_3$O$_4$/g-C$_3$N$_4$ for degradation of tetracycline