

Supplementary Information

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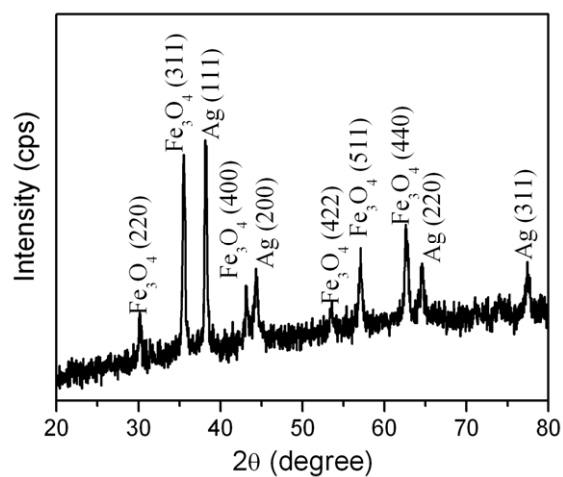


Fig. S1 XRD pattern of the as-prepared Ag@Fe₃O₄ core/shell nanostructures.

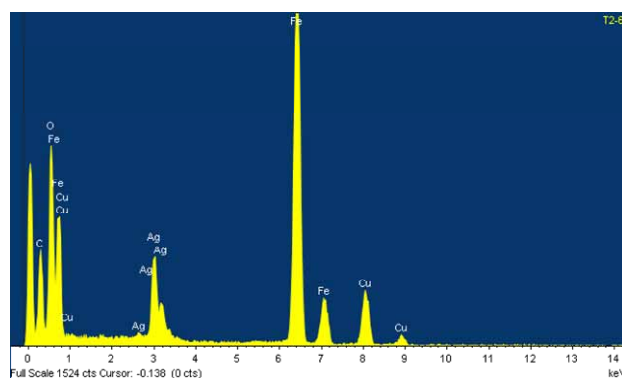


Fig. S2. EDS spectrum of the as-prepared Ag@Fe₃O₄ core/shell nanostructures.

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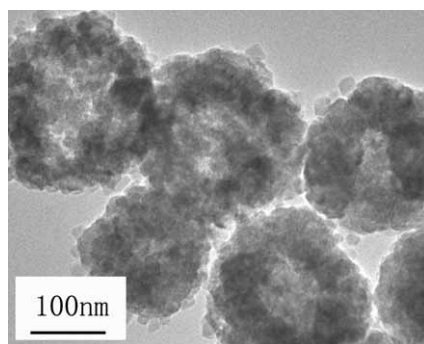


Fig.S3 TEM image of hollow Fe_3O_4 nanoshells after etching silver core with NaCl solution from core/shell nanoparticles.

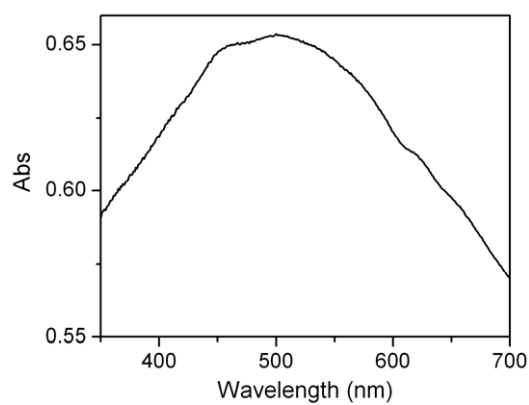


Fig.S4 UV-visible absorption spectrum of Fe_3O_4 nanoshells.

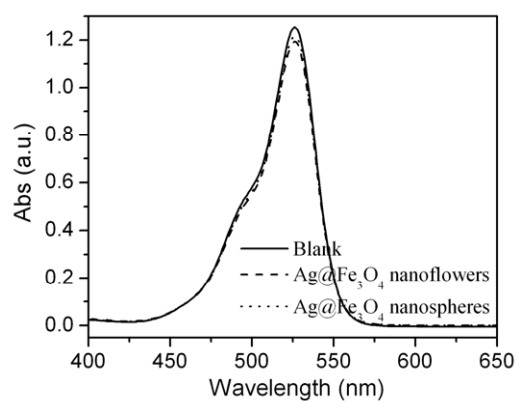


Fig.S5 UV-visible absorption spectra of R6G after adding the as-prepared $\text{Ag}@\text{Fe}_3\text{O}_4$ nanostructures for 60 min in the absence of NaBH_4 .

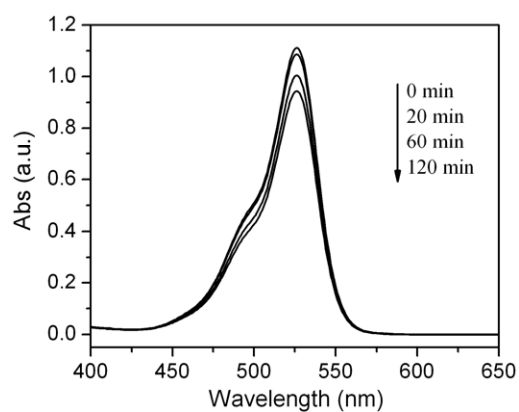


Fig.S6 UV-visible absorption spectra of R6G reduced by NaBH₄ during different reaction-time in the absence of the as-prepared samples.

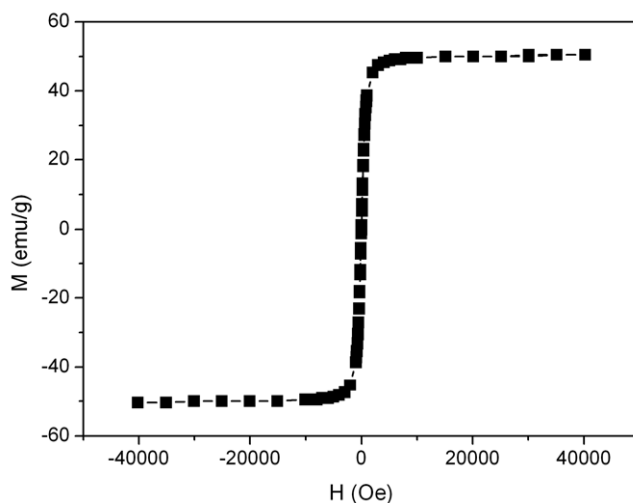


Fig.S7 Magnetic hysteresis loop of Ag@Fe₃O₄ nanoflowers with Ag/Fe ratio of 0.30 at 300 K.

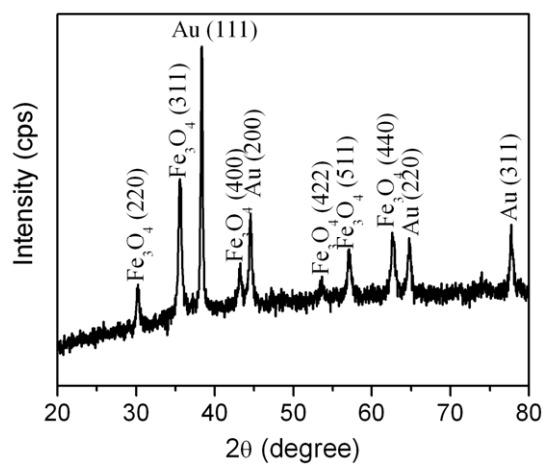


Fig. S8 XRD pattern of as-prepared Au@Fe₃O₄ samples.

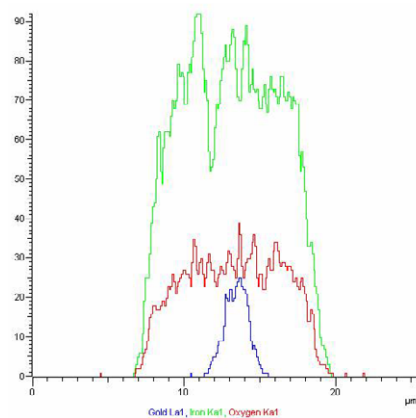


Fig. S9 Line profiles of Au (blue), Fe (green), and O (red) recorded along the red line shown in Fig. 7b.

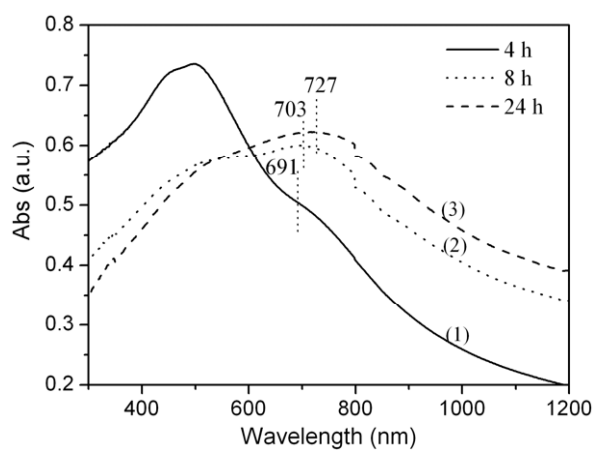


Fig. S10 UV/Vis/NIR spectra of Au@Fe₃O₄ samples at different reaction times: (1) 4hrs, (2) 8hrs; and (3) 24hrs.