

Supporting Information

A Study on Rapid and Stable Catalytic Reduction of 4-Nitrophenol by 2- Hydroxyethylamine stabilized Fe₃O₄@Pt and Its Kinetic Factors

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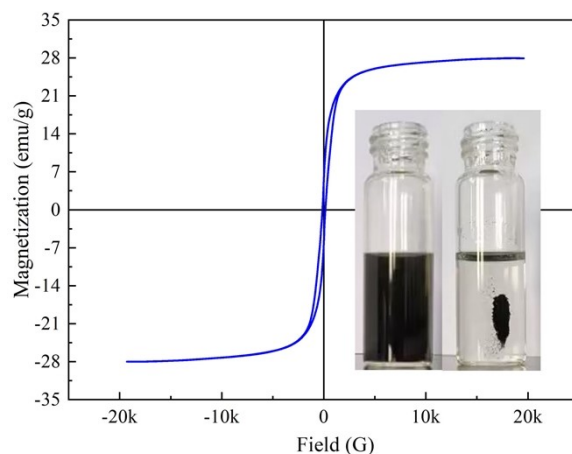


Fig. S1 The magnetometer hysteresis loops of 2-hydroxyethylamine stabilized $\text{Fe}_3\text{O}_4@Pt$, and the effect of the recycling of the catalyst by magnetic separation.

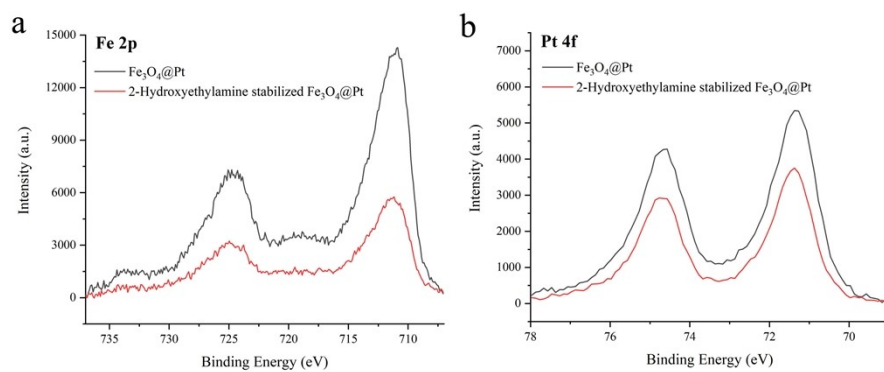


Fig. S2 XPS fine spectra of (a) Fe 2p and (b) Pt 4f.

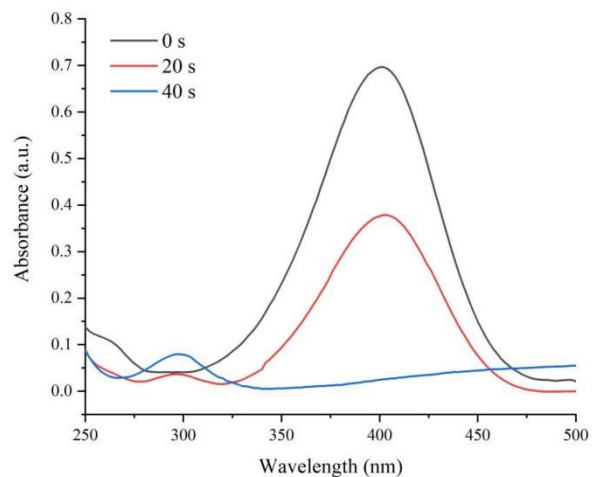


Fig. S3 Time-dependent UV-vis absorption spectra for 4-NP catalyzed by 2-hydroxyethylamine stabilized $\text{Fe}_3\text{O}_4@\text{Pt}$.

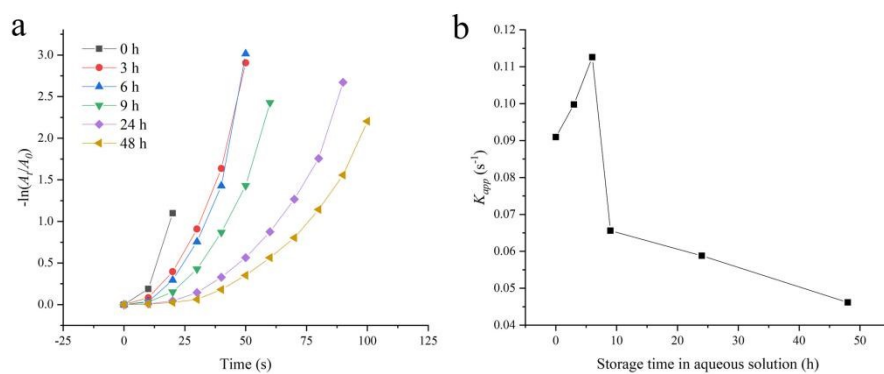


Fig. S4 (a) Plots of $-\ln(A_t/A_0)$ versus the reaction time t and (b) the relationship between reaction rate k_{app} and storage time in aqueous solution for 4-NP catalyzed by 2-hydroxyethylamine stabilized $\text{Fe}_3\text{O}_4@\text{Pt}$ under the condition of 0.2 mL 2-hydroxyethylamine.

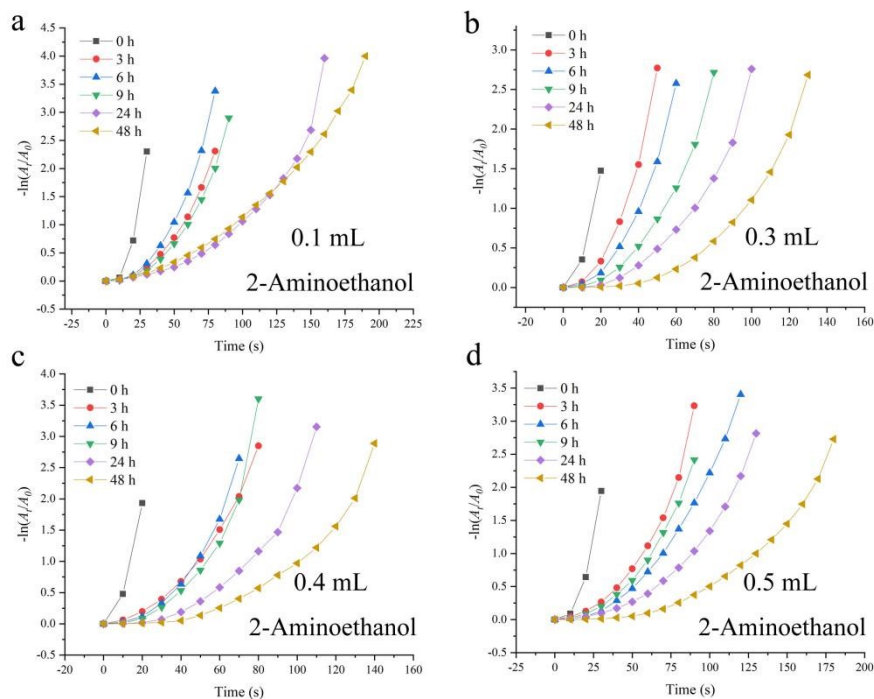


Fig. S5 Plots of $-\ln(A_t/A_0)$ versus the reaction time t for 4-NP catalyzed by 2-hydroxyethylamine stabilized $\text{Fe}_3\text{O}_4@\text{Pt}$ under the condition of (a) 0.1 mL 2-hydroxyethylamine, (b) 0.3 mL 2-hydroxyethylamine, (c) 0.4 mL 2-hydroxyethylamine and (d) 0.5 mL 2-hydroxyethylamine.

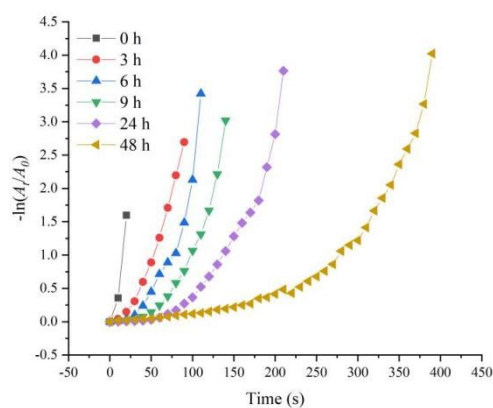


Fig. S6 Plots of $-\ln(A_t/A_0)$ versus reaction time t for the reduction of 4-NP catalyzed by $\text{Fe}_3\text{O}_4@\text{Pt}$.

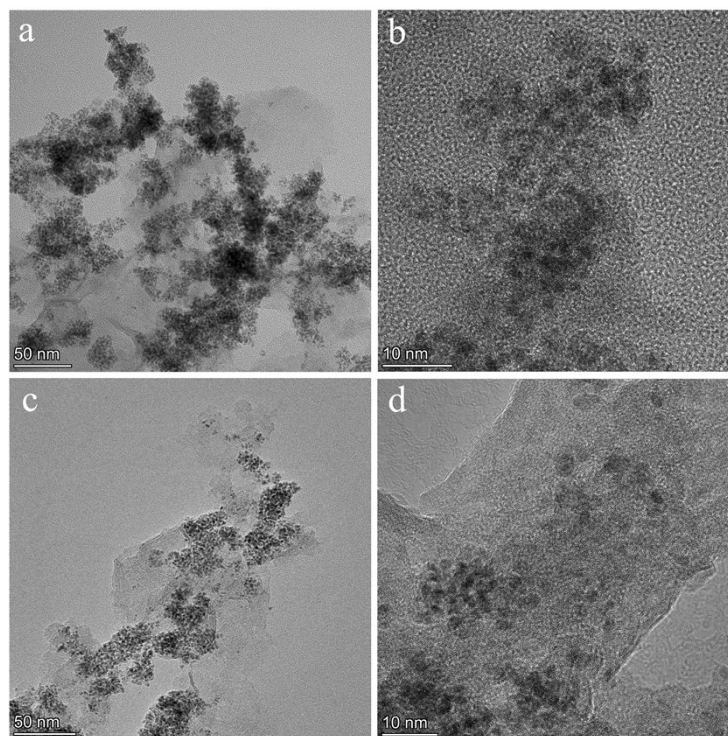


Fig. S7 The TEM image of 2-Hydroxyethylamine stabilized $\text{Fe}_3\text{O}_4@\text{Pt}$ under different amounts of 2-Hydroxyethylamine: (a, b) 0.2 mL 2-Hydroxyethylamine, (c and d) 0.5 mL 2-Hydroxyethylamine.

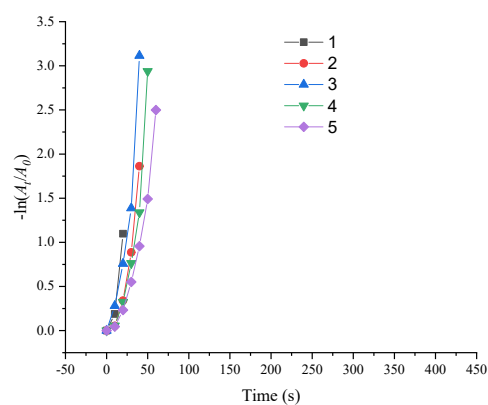


Fig. S8 The reusability of 2-Hydroxyethylamine stabilized $\text{Fe}_3\text{O}_4@\text{Pt}$ for five cycles of 4-NP reduction reaction.

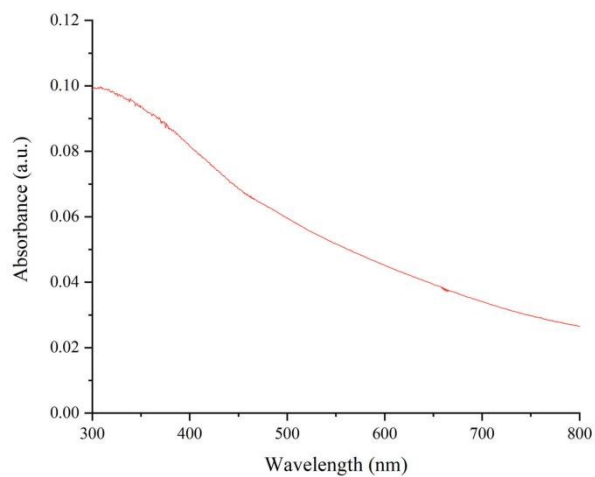


Fig. S9 UV-vis absorption spectra of 2-hydroxyethylamine stabilized Fe₃O₄@Pt.

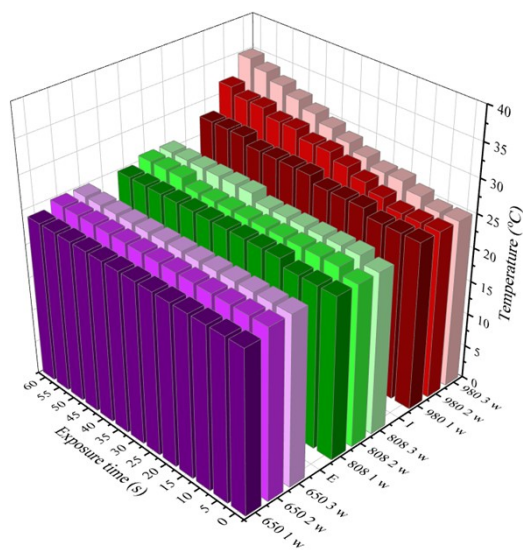


Fig. S10 The temperature changes of aqueous solutions caused by light radiation at different radiation wavelengths and powers.