Supporting Information

Core-shell Magnetic Mesoporous 3-Aminophenol-Formaldehyde Resin Microspheres with Rich Functional Groups via Interface Co-assembly and Polymerization

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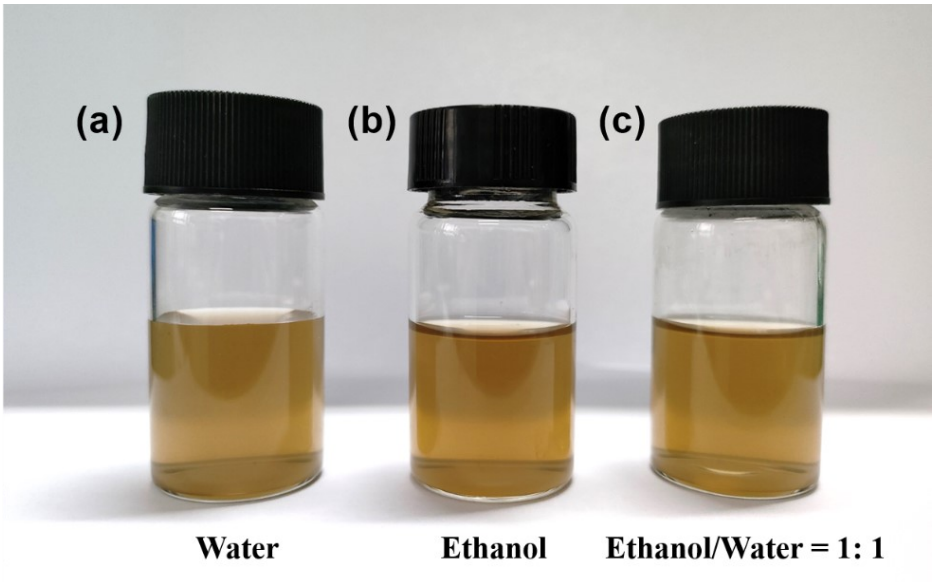


Fig. S1 Optical images of Fe_3O_4 particles dispersed in water (a), ethanol (b), and their mixed solutions(c), respectively.

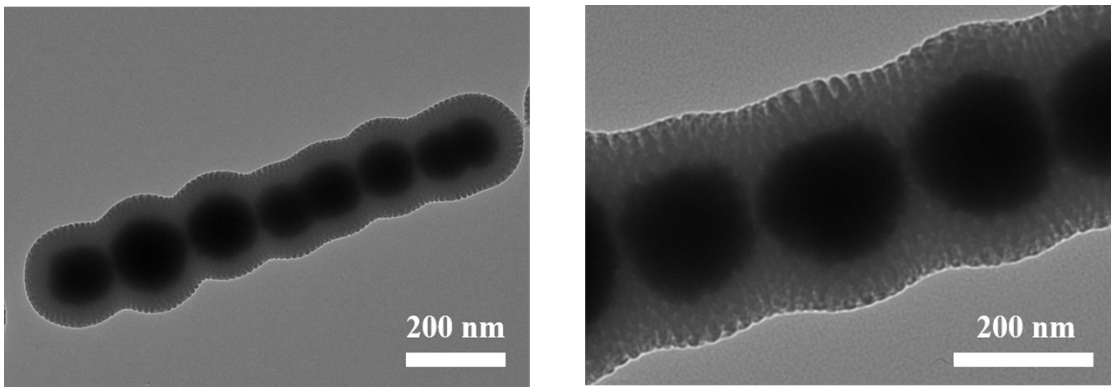


Fig. S2 TEM images of MMAPF nanochains (a) and the enlarged image (b).

MMAPF nanochains were synthesized by introducing an applied magnetic field into the interface coating of the phenolic resin. In a typical synthesis, 3.5 g of F127, 3.5 mL of TMB, 1.4 g of 3-aminophenol, 1.75 mL of formaldehyde, and 50 μL of EDA were added into the ethanol/water mixed solution in sequence under continuous stirring. Then the solution was placed in a static magnetic field of 28.5 mT for 90 seconds to induce the alignment of Fe_3O_4 particles. After standing for 4 hours, ethanol extraction was performed to remove F127 and TMB, and finally MMAPF nanochains were obtained.

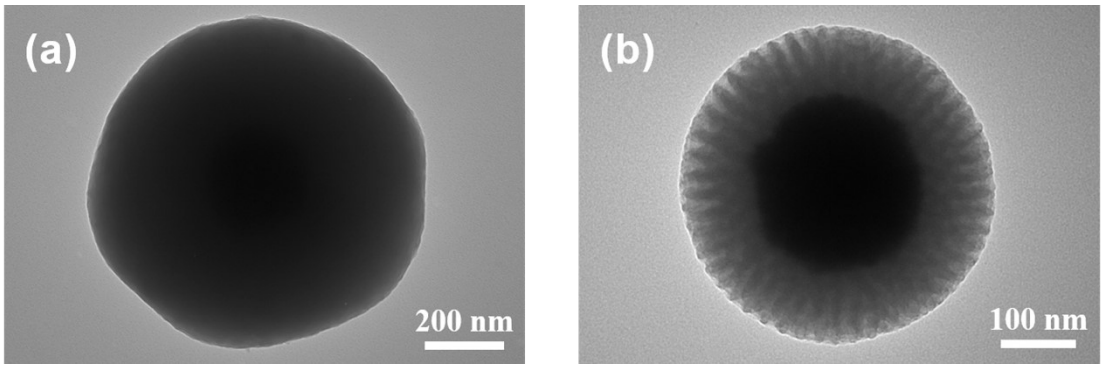


Fig. S3 TEM images of magnetic aminophenol-formaldehyde resin microspheres synthesized without using F127 (a) and using 3.5 g of F127 (b).

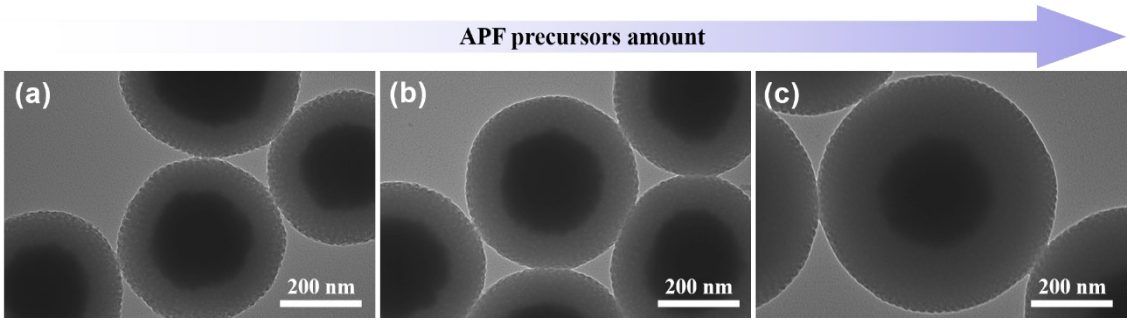


Fig. S4 TEM images of MMAPF microspheres synthesized with different amounts of 3-aminophenol and formaldehyde: (a) 0.7 g and 0.8 mL, (b) 1.4 g and 1.75 mL, (c) 2.8 g and 3.5 mL.

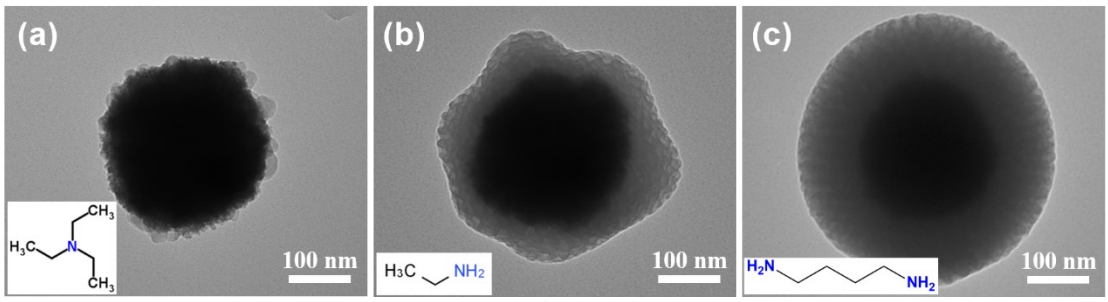


Fig. S5 TEM images of magnetic aminophenol-formaldehyde resin microspheres synthesized using different organic amines (a) triethylamine, (b) ethylamine, and (c) 1,4-diaminobutane.

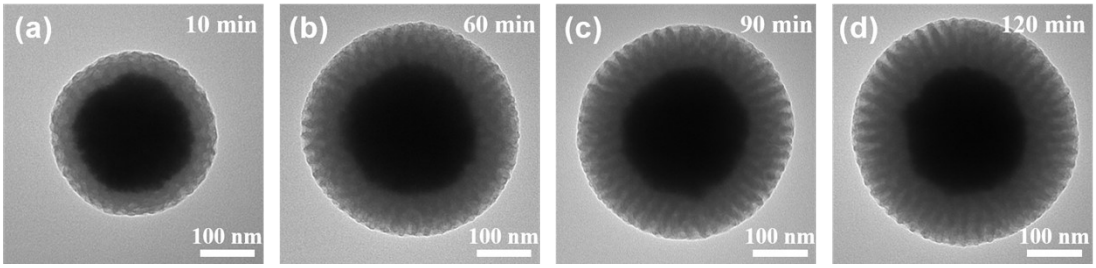


Fig. S6 TEM images of MMAPF microspheres obtained at different reaction intervals during the synthesis: (a) 10, (b) 60, (c) 90, and (d) 120 min.

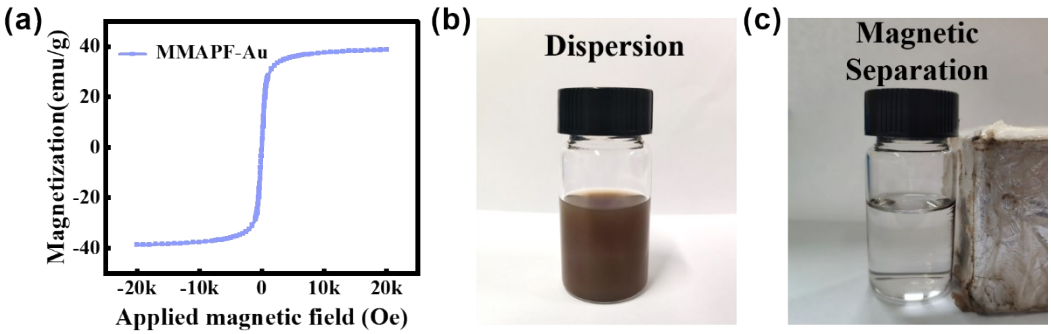


Fig. S7 Magnetic hysteresis loop of MMAPF-Au (a) and the optical images (b-c) of the aqueous dispersion (ca.1.5wt%) of MMAPF-Au before and after 1 min. separation with a magnet (200 mT).

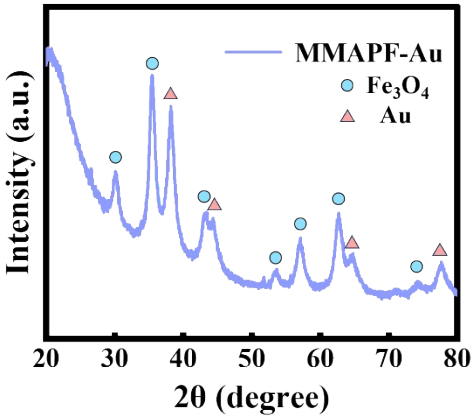


Fig. S8 XRD pattern of MMAPF-Au, indicating the presence of both magnetite and metallic gold components.

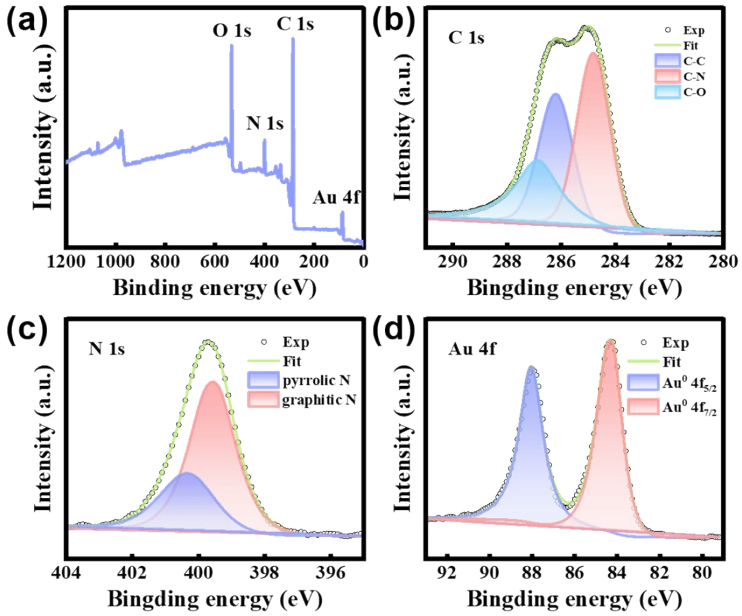


Fig. S9 XPS survey spectra and high resolution XPS spectra of C 1s (a), N 1s (b), O 1s (c), and Au 4f (d) for MMAPF-Au.

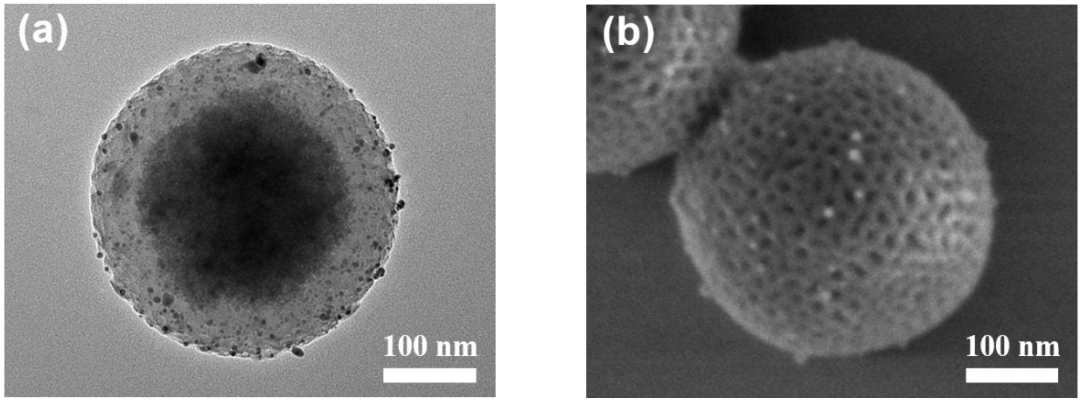


Fig. S10 TEM (a) and SEM (b) images of the recycled MMAPF-Au microspheres.

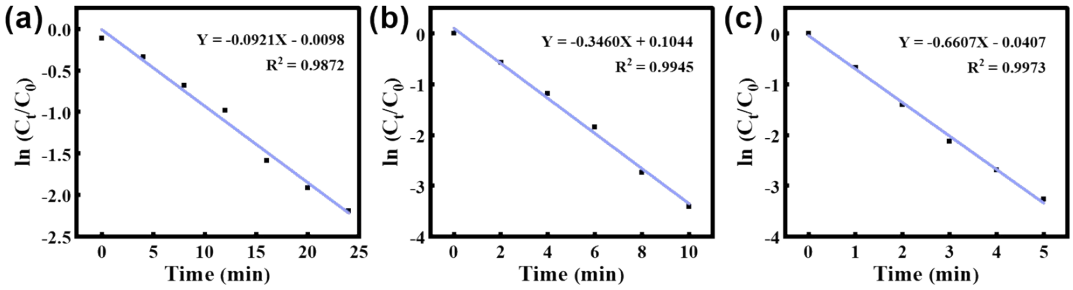


Fig. S11 The pseudo-first-order rate plot curve of the reaction under different amount of MMAPF-Au catalysts: (a) 0.2, (b) 0.6, and (c) 1.4 mg.

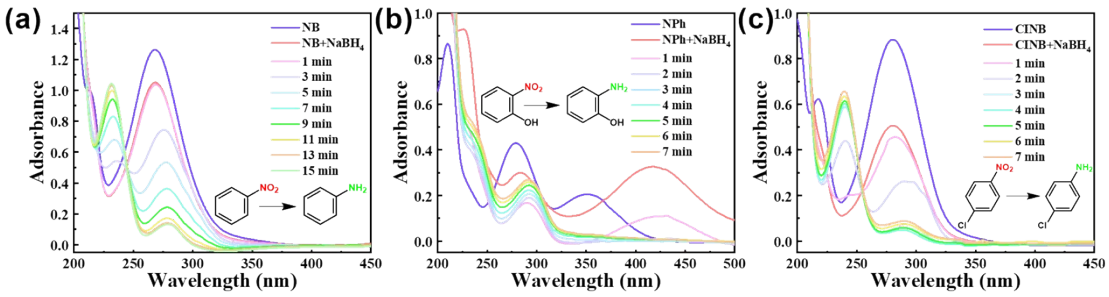


Fig. S12 UV-vis absorption spectra of the reduction of various nitroaromatic compounds to the corresponding aminoarenes in the presence of MMAPF-Au catalysts.

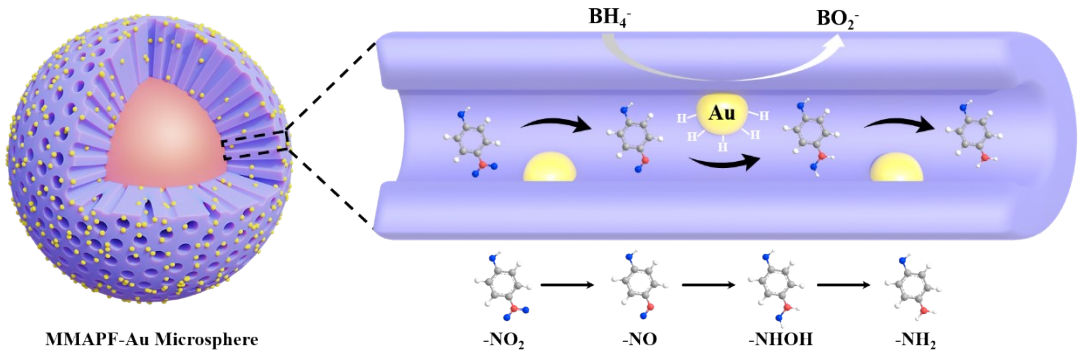
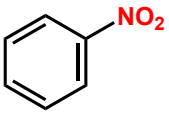
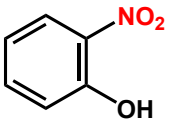
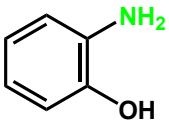
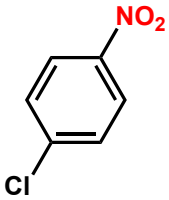
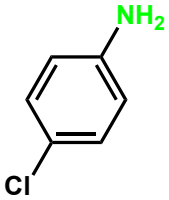


Fig. S13 Schematic illustration of the reaction mechanism for 4-NP hydrogenation reaction over MMAPF-Au catalyst.

Table S1 The results of 4-NP reduction under different amount of MMAPF-Au catalysts.

Catalyst (mg)	Reducing Agent	Solvent	Temperature (℃)	Time (min)	Conversion (%)
0.2	$NaBH_4$	H_2O	25	25	88
0.6	$NaBH_4$	H_2O	25	10	99
1.0	$NaBH_4$	H_2O	25	6	99
1.4	$NaBH_4$	H_2O	25	5	99

Table S2 Efficiency of MMAPF-Au catalysts in the reduction of various nitroaromatic compounds.

Substrate	Product	Catalyst (mg)	Reducing Agent	Solvent	Time (min)	Conversion (%)
		1.0	$NaBH_4$	C_2H_5OH	15	87
		1.0	$NaBH_4$	C_2H_5OH	7	98
		1.0	$NaBH_4$	C_2H_5OH	7	84