

**Natural Carbon Nanodots Assisted Development of Size-Tunable Metal (Pd, Ag)
Nanoparticles Grafted on Bionic Dendritic α -Fe₂O₃ for Cooperative Catalytic Applications**

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Supporting Information

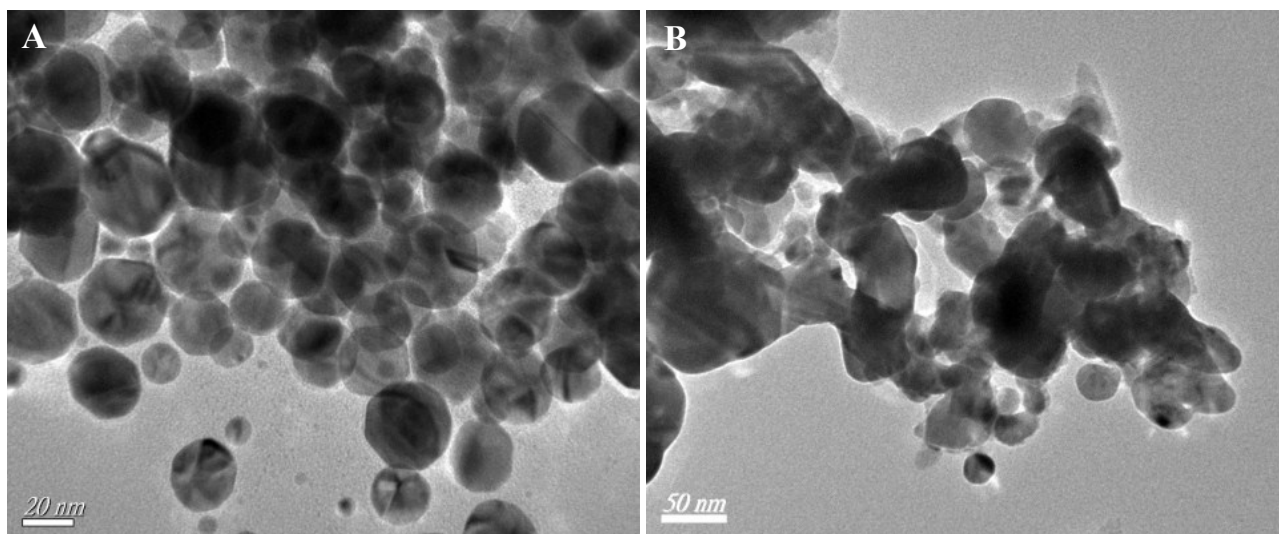


Fig. S1 (A) Pure Pd nanoparticles, (B) pure Ag nanoparticles.

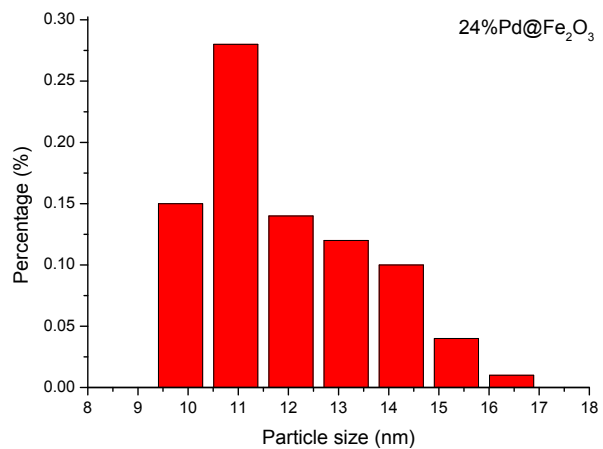
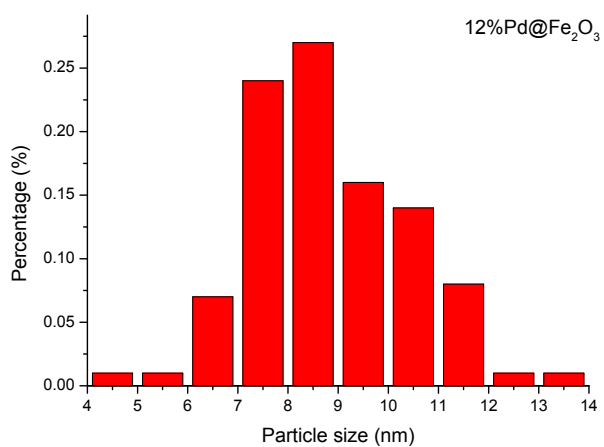
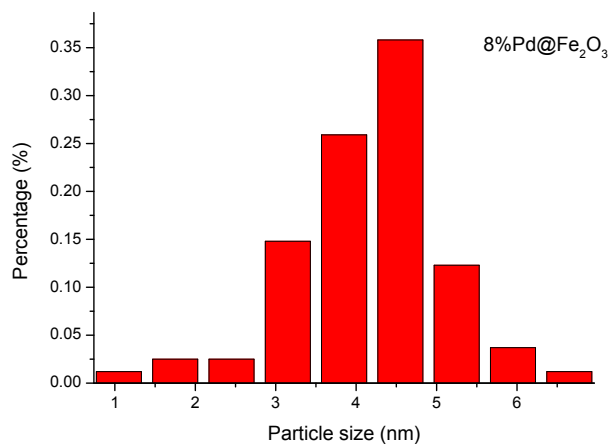
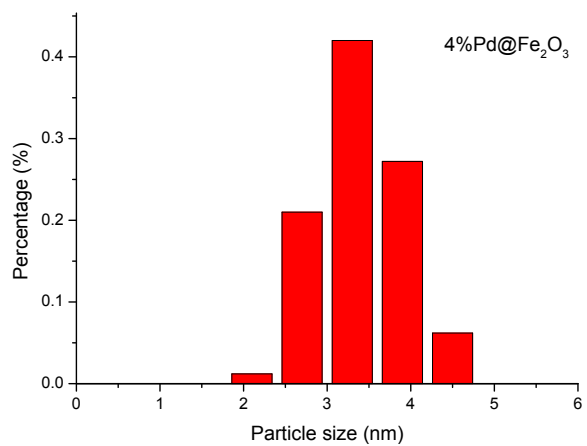


Fig. S2 Size distribution of Pd nanoparticles.

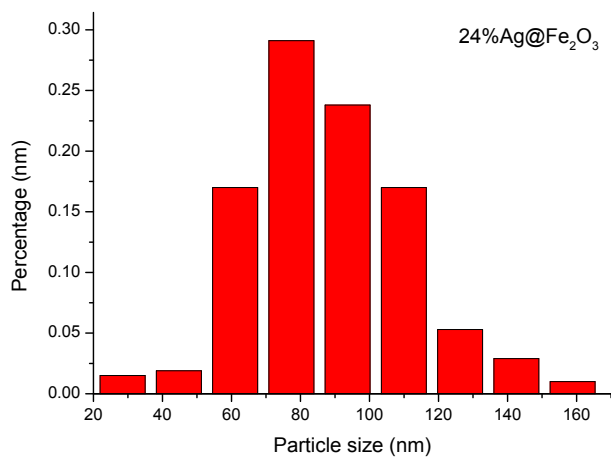
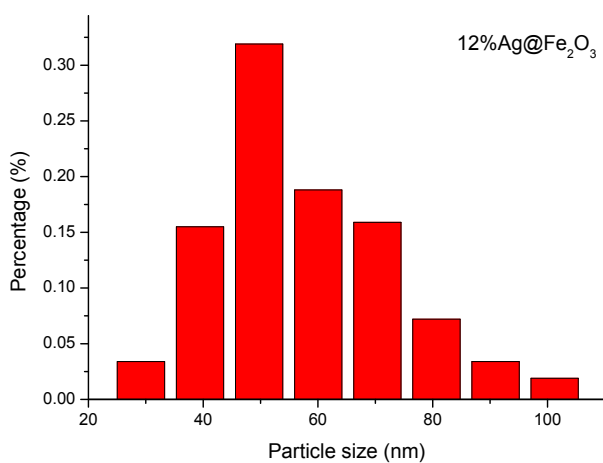
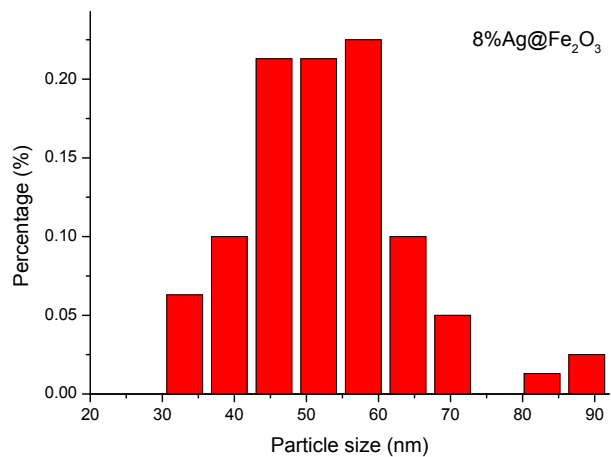
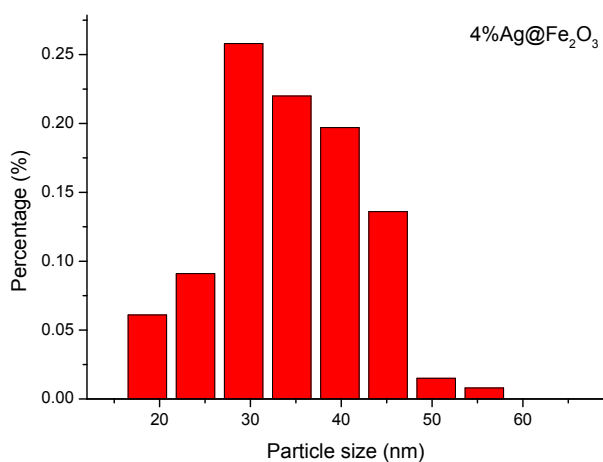


Fig. S3 Size distribution of Ag nanoparticles.

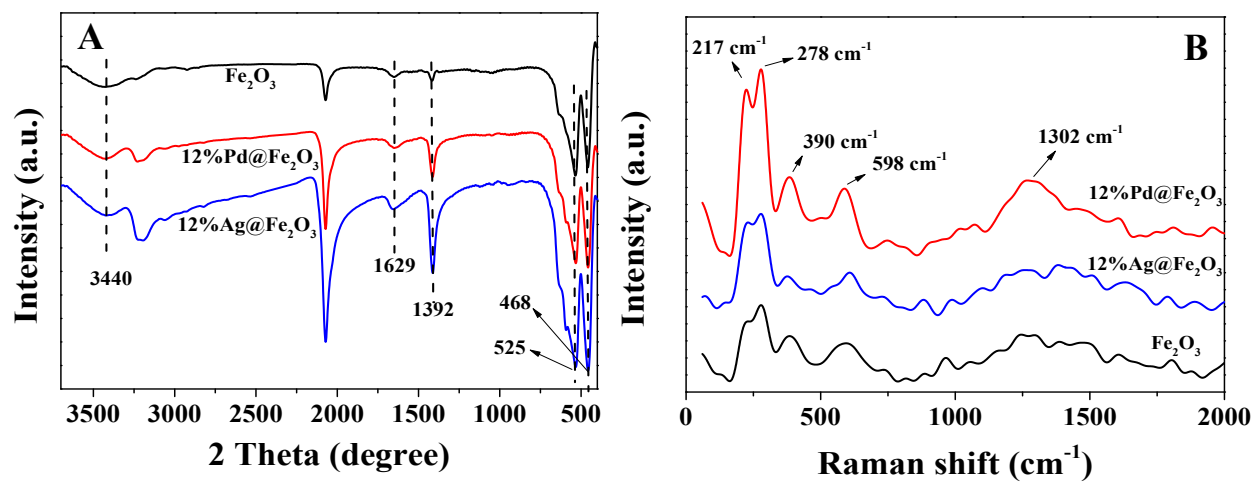


Fig. S4 FTIR (A) and Raman (B) spectra of dendritic α - Fe_2O_3 , 12%Pd@ Fe_2O_3 and 12%Ag@ Fe_2O_3 .

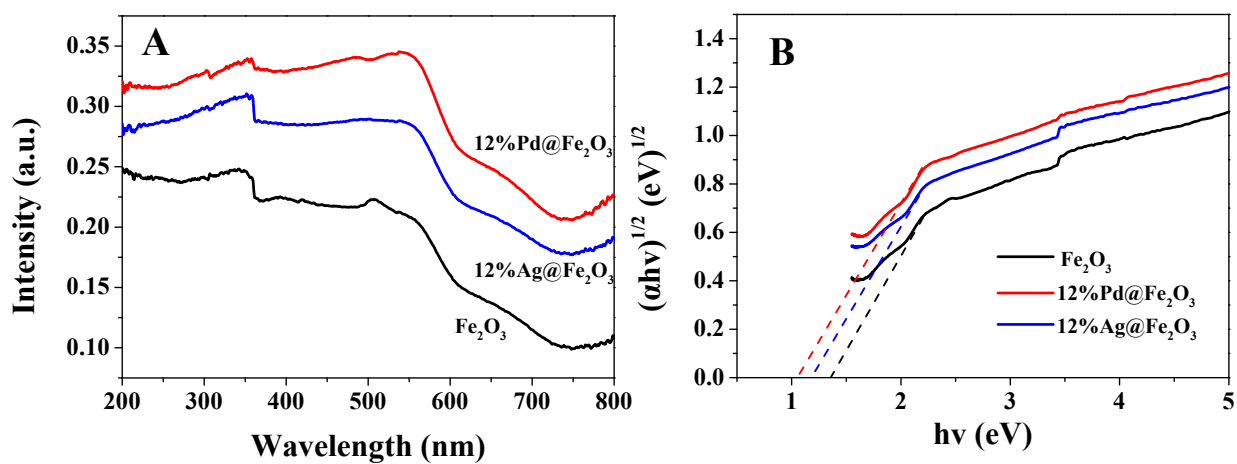


Fig. S5 UV-vis diffuse reflectance spectra (A) and band gaps (B) of the $M@Fe_2O_3$ ($M=\text{Pd}, \text{Ag}$) composites as well as dendritic $\alpha\text{-Fe}_2\text{O}_3$.

Table S1

Catalyst	Catalyst dose	PNP	Rate	Ref.
Fe ₃ O ₄ @SiO ₂ -Ag, 1g (0.1 wt%)	1g (0.1 wt%)	0.12 mM	7.67 s ⁻¹ g ⁻¹	1
Ag@halloysite nanotubes, 6*10 ⁻⁶ M, 20 mL	6*10 ⁻⁶ M, 20 mL	6*10 ⁻⁵ M	0.087 s ⁻¹ g ⁻¹	2
Ag@carbon sphere, 1 mg	1 mg	5*10 ⁻⁵ M	1.69 s ⁻¹ g ⁻¹	3
Ag@hollow poly(N- isopropylacrylamide) sohere, 0.5 g	0.5 g	0.32 mg, 50 g H ₂ O	0.014 s ⁻¹ g ⁻¹	4
Ni-Co-Pd-P	25 mg	0.05 mmol	0.316 s ⁻¹ g ⁻¹	5
Ag/Fe ₂ O ₃	2 mg	2.65*10 ⁻⁵ M	1.54 s ⁻¹ g ⁻¹	6
Fe ₃ O ₄ @SiO ₂ /Ag	3 mg	0.005 M	4.6 s ⁻¹ g ⁻¹	7
Fe@Au-ATPGO	1.4g/L, 250 mL	0.06 M	0.035 s ⁻¹ g ⁻¹	8
Ag/SBA-15	0.9 mg	9.0 × 10 ⁻² mM	1.97 s ⁻¹ g ⁻¹	9

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