Supporting Information:

Controlled synthesis of Au-Fe_3O_4 hybrid hollow spheres with excellent SERS activity and catalytic properties

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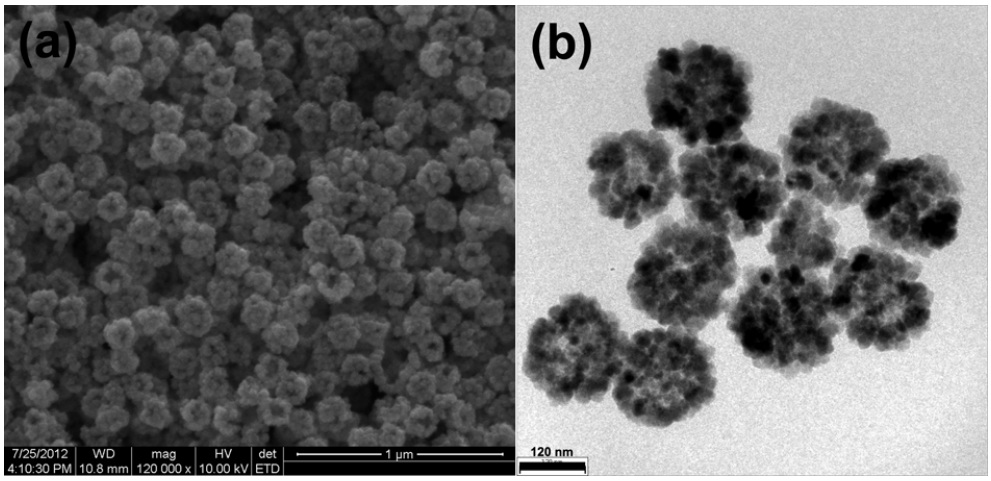

Figure S1 (a) SEM and (b) TEM images of Au-Fe_3O_4-0 hybrid hollow spheres

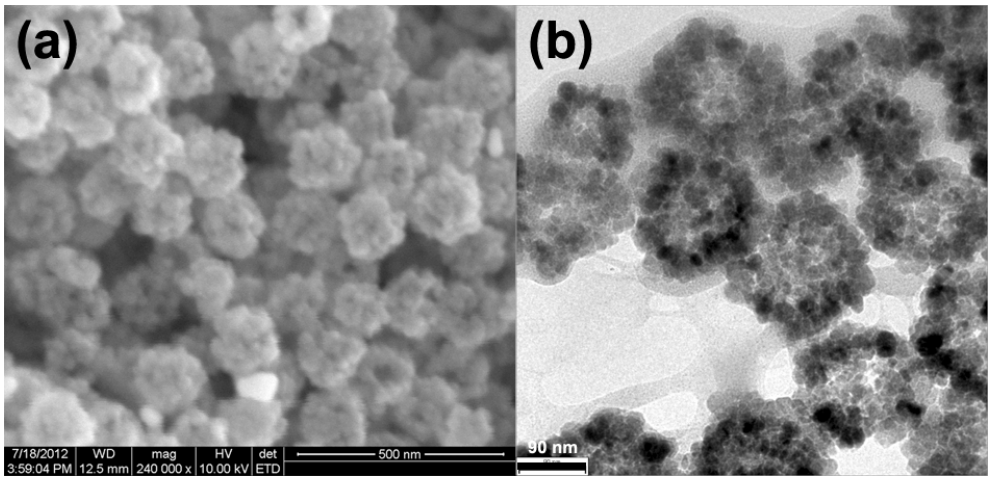

Figure S2 (a) SEM and (b) TEM images of Au-Fe_3O_4-0.05 hybrid hollow spheres

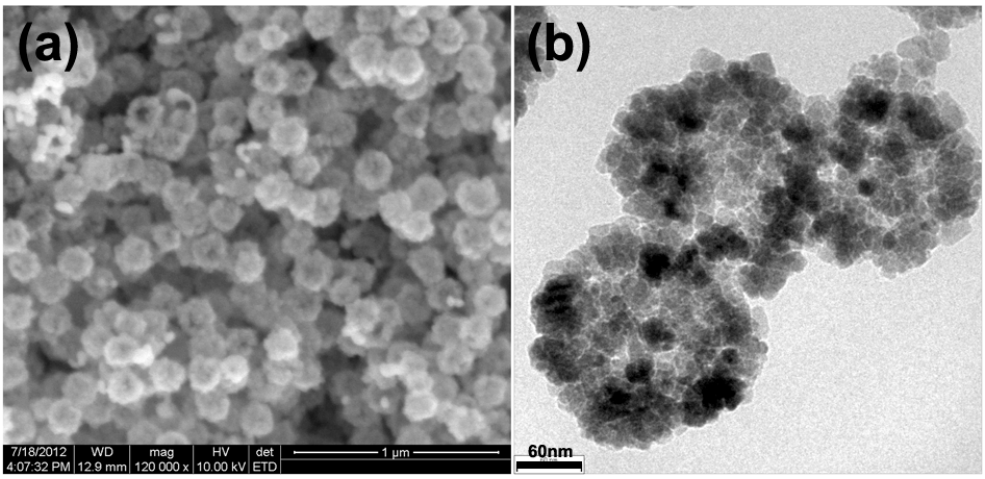

Figure S3 (a) SEM and (b) TEM images of Au-Fe_3O_4-0.1 hybrid hollow spheres

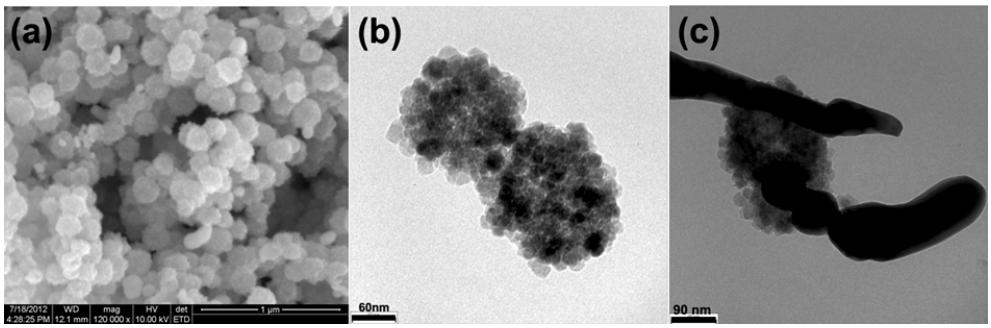

Figure S4 (a) SEM and (b, c) TEM images of Au-Fe_3O_4-0.5 hybrid hollow spheres

Catalyst	Type	Initial concentration of the 4-NP	Final amount of catalyst	Rate constant	References
Au-Fe_3O_4	Hybrid hollow sphers	5 x 10^{-5} M	0.67 mg/mL	1.76 min^{-1}	This work
Polystyrene-Au	Supported	1 x 10^{-4} M	2 mg/mL	0.016-0.02 min^{-1}	1
Au@hm-ZrO_2	Yolk-shell	2.83 x 10^{-3} M	0.4 mL of 6.25 x 10^{-5} M (Au precursor)	0.31 min^{-1}	2
Fe_3O_4@Au	Core-shell	6.15 x 10^{-4} M	0.77 mg/mL	100% conversion within 68 min	3
Fe_3O_4@SiO_2-Au@mSiO_2	Nanocomposites	2.4 x 10^{-4} M	1.43 mg/mL	0.20-0.35 min^{-1}	4
Au-Fe_3O_4	Dumbell-like	1.81 x 10^{-3} M	0.91 mg/mL	0.63 min^{-1}	5
Au-Fe_3O_4	Flower-like	1.81 x 10^{-3} M	0.91 mg/mL	0.38 min^{-1}	5
Fe_3O_4@P(4-VP-DVB)@Au	Nanocomposites	4.5 x 10^{-4} M	2.26 mg/mL	0.45-5.02 min^{-1}	6

Table S1 Comparison of pseudo-first-order rate constants for 4-NP reduction by nanomaterials containing gold nanoparticles.

Reference

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