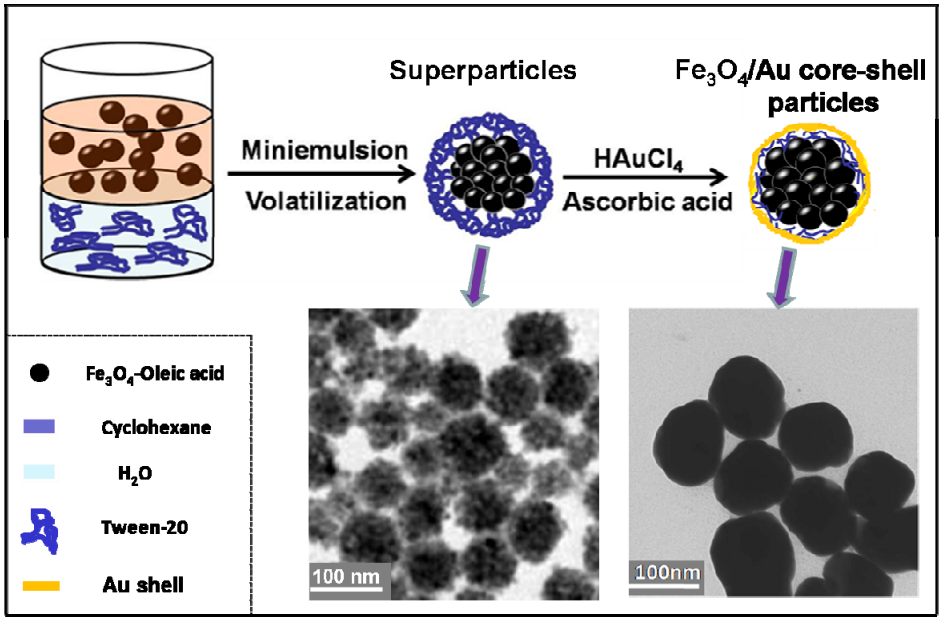
Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B


# Supplementary Information

## Facile deposition of continuous gold shell on Tween-20 modified $Fe_3O_4$ superparticles

Xiumei Jin, Jinglun Liang, Chunfeng Yang, Ruijun Hao, Jiaqi Zhuang and Wensheng Yang*




**Scheme S1** Schematic presentation of the synthetic procedure for the $Fe_3O_4$/Au core-shell particles.

Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B

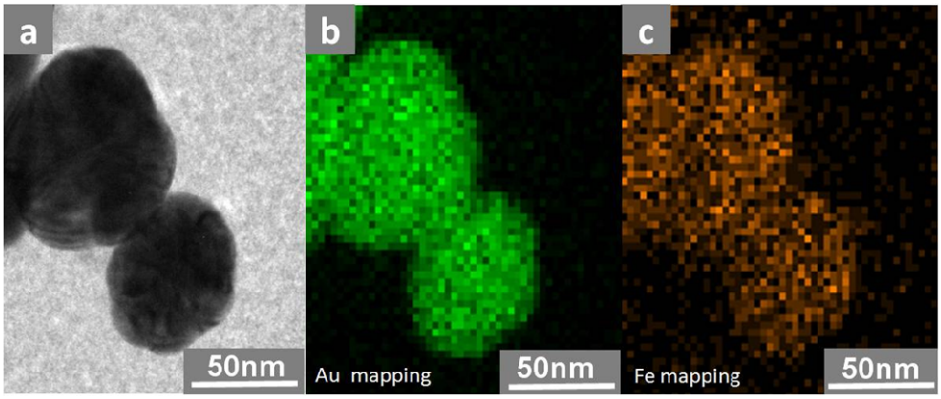




**Figure S1.** (a) High angle annular dark field scanning TEM (HAADF-STEM) image and (b, c) HAADF-STEM energy dispersive spectrometer (HAADF-STEM-EDS) mapping images of the $Fe_3O_4$/Au core-shell particles prepared with 8.4 mM. $HAuCl_4$.

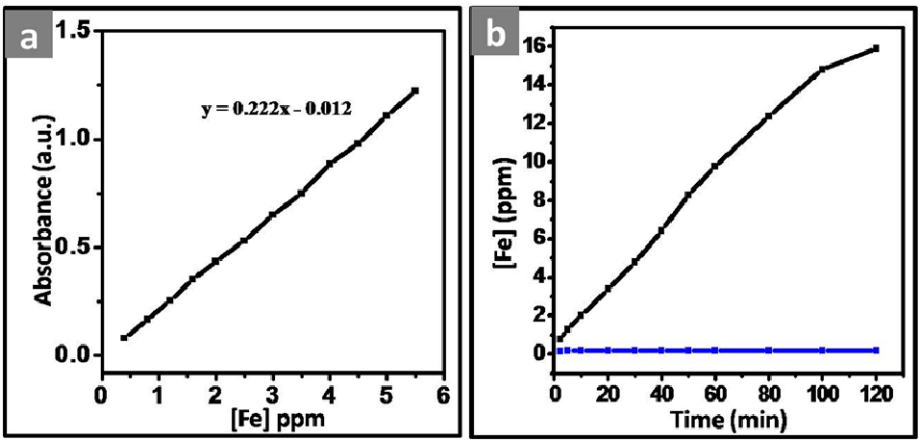



**Figure S2.** (a) The standard curve of $Fe^{2+}$ (the abosrbance of $Fe^{2+}$-o-phenanthroline complex versus concentration of $Fe^{2+}$). (b) The concentrations of $Fe^{2+}$ ions released from the $Fe_3O_4$ SPs (black) and the flower-shaped $Fe_3O_4$/Au particles (blue) after being soaked in hydrochloric acid (3 M, 0.5 mL) for 2 h.

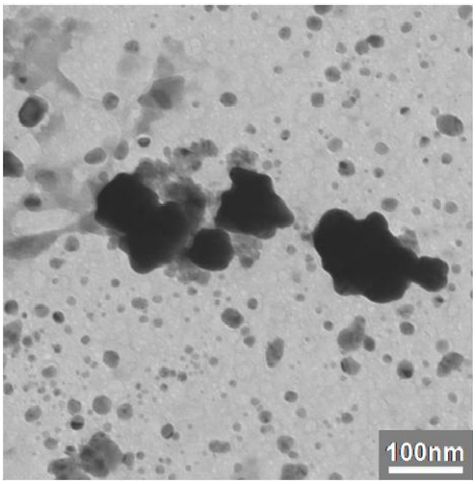



**Figure S3.** TEM image of the product prepared without pre-adsorption of $Au^{3+}$ ions before the addition of ascorbic acid reductant into the reaction mixture.

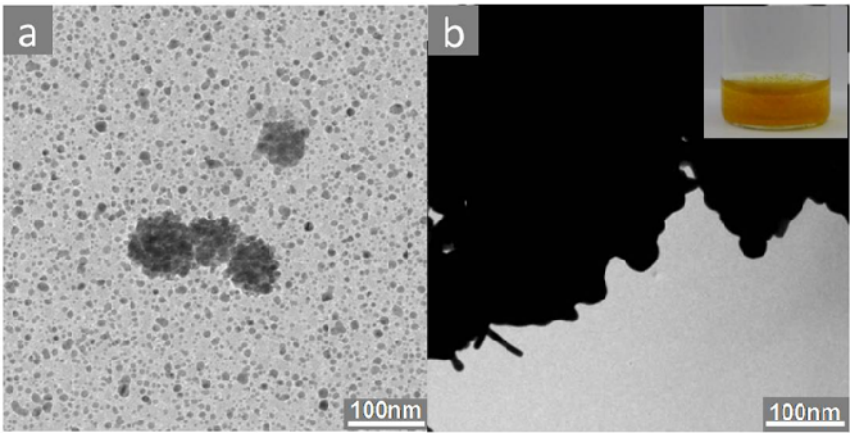



**Figure S4.** TEM images of the products prepared from (a) sodium dodecylsulfate (SDS) modified $Fe_3O_4$ SPs and (b) dodecyl trimethyl ammonium bromide (DTAB) modified $Fe_3O_4$ SPs. Insert of (b) shows the photograph of the dispersion of the DTAB modified $Fe_3O_4$ SPs after addition of $HAuCl_4$.