

## Supporting Information

# **Controlled Fabrication of Iron Oxides/Mesoporous Silica Core-Shell Nanostructures**

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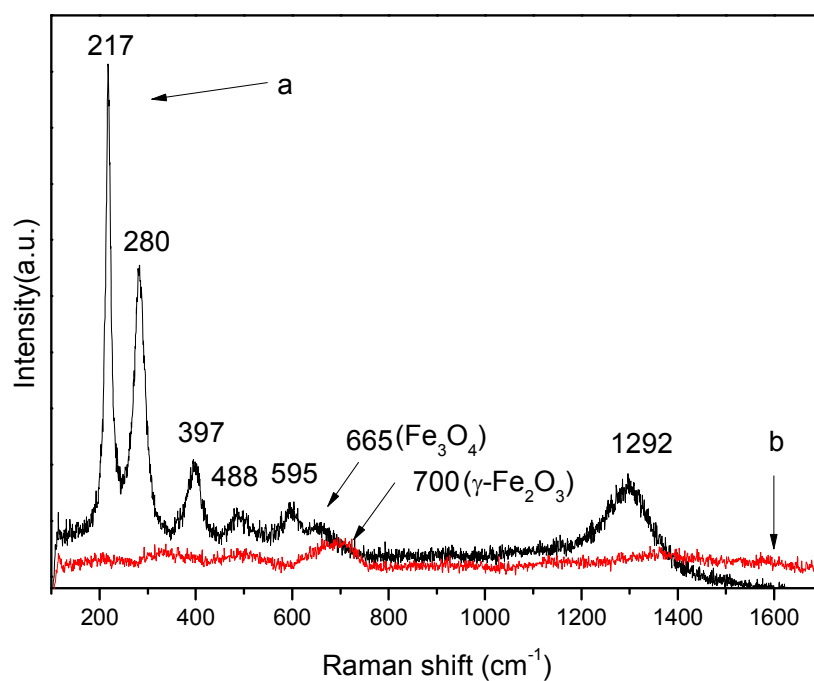


Figure S1. (a) Raman spectrum of the as-synthesized iron oxides sample; (b) Raman spectrum of the core-shell structure after calcination.

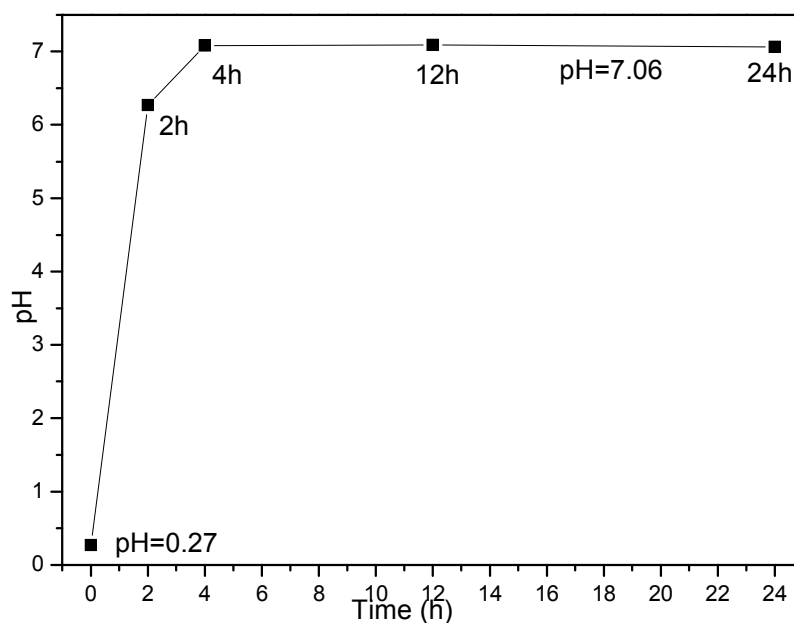


Figure S2. The variation of the pH value in nanocube synthesis process (the pH value variation of other samples with 0.5 mL and 3 mL acetic acid addition are similar to this)

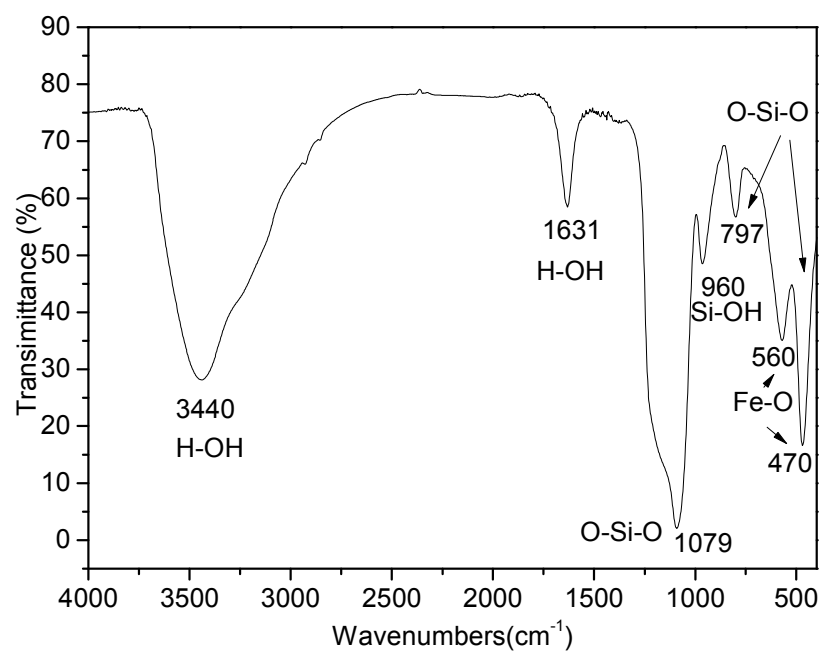


Figure S3. FT-IR absorption spectra of the Fe<sub>2</sub>O<sub>3</sub>@SiO<sub>2</sub> core-shell nanoparticles after calcination at 550 °C.

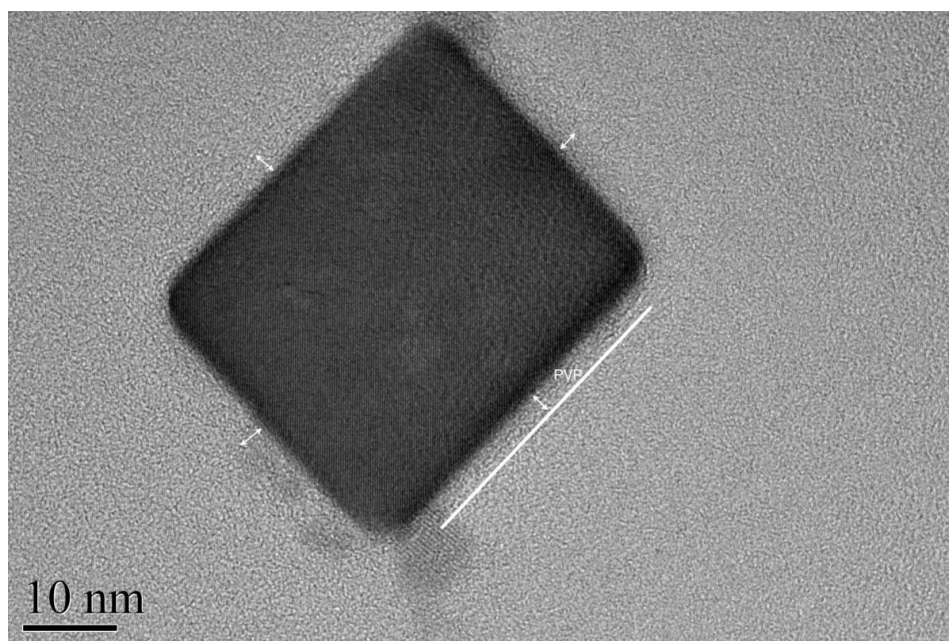


Figure S4. TEM image of an individual iron oxides nanocube coated with PVP.

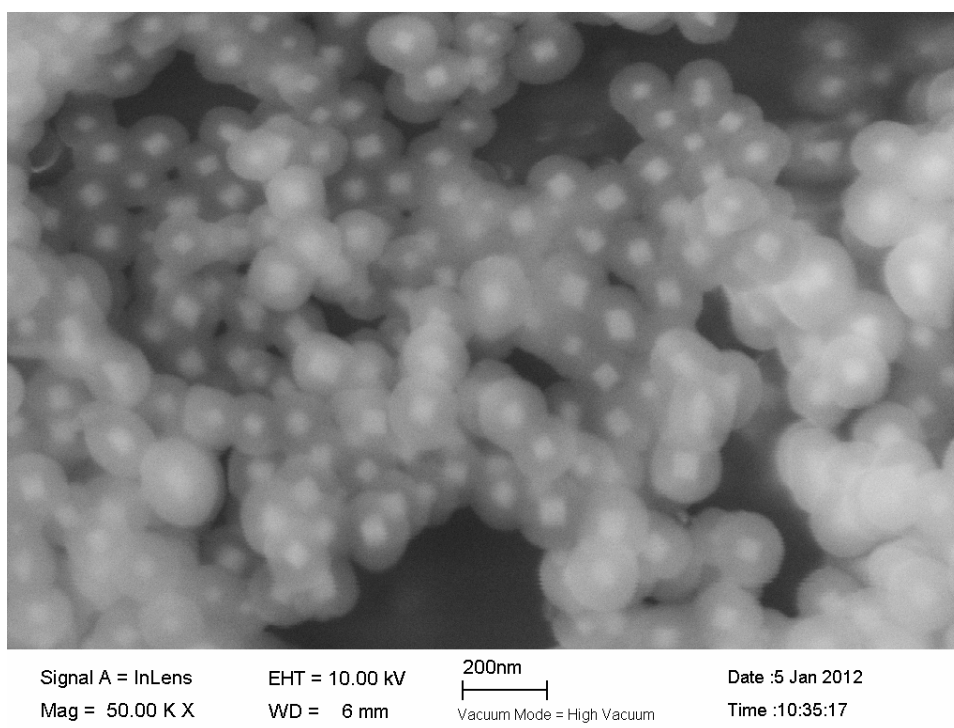
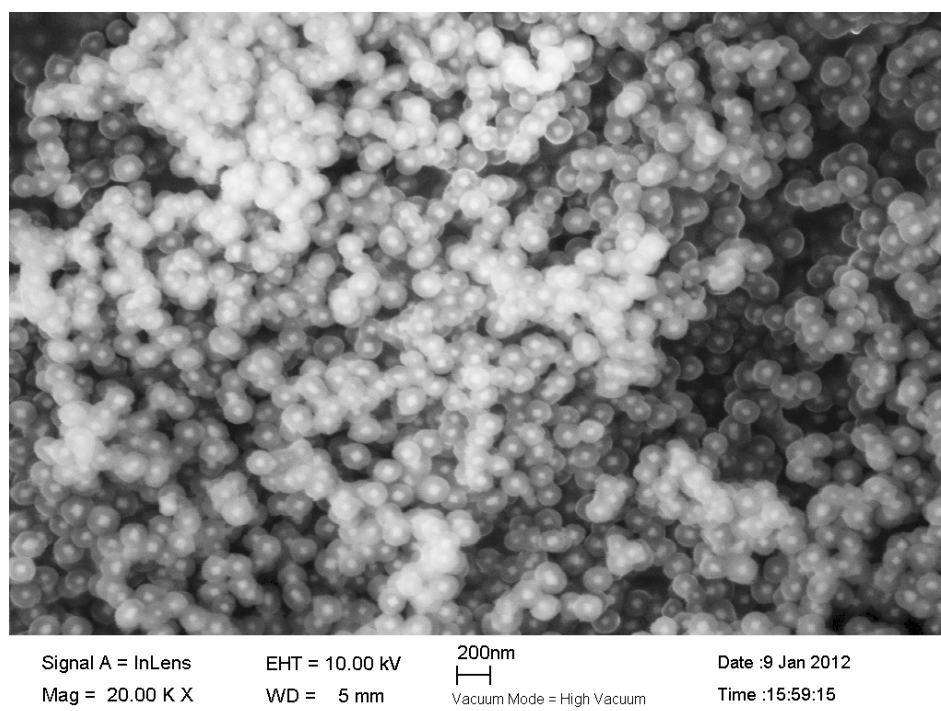


Figure S5. Backscattered electrons images of  $\text{Fe}_2\text{O}_3@\text{SiO}_2$  core-shell structure with cubic core morphology.

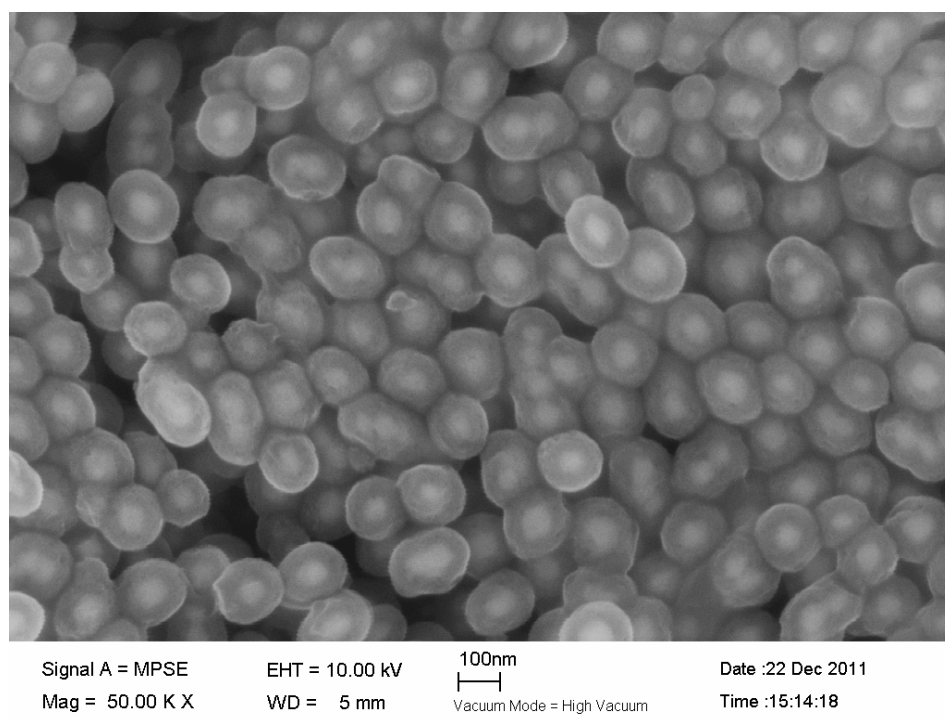
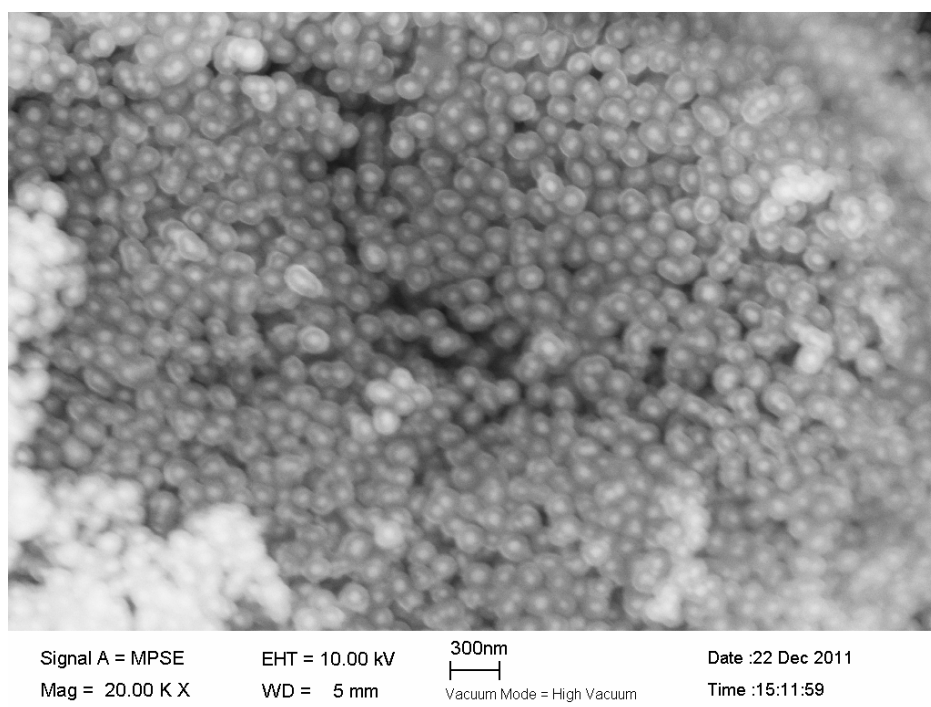
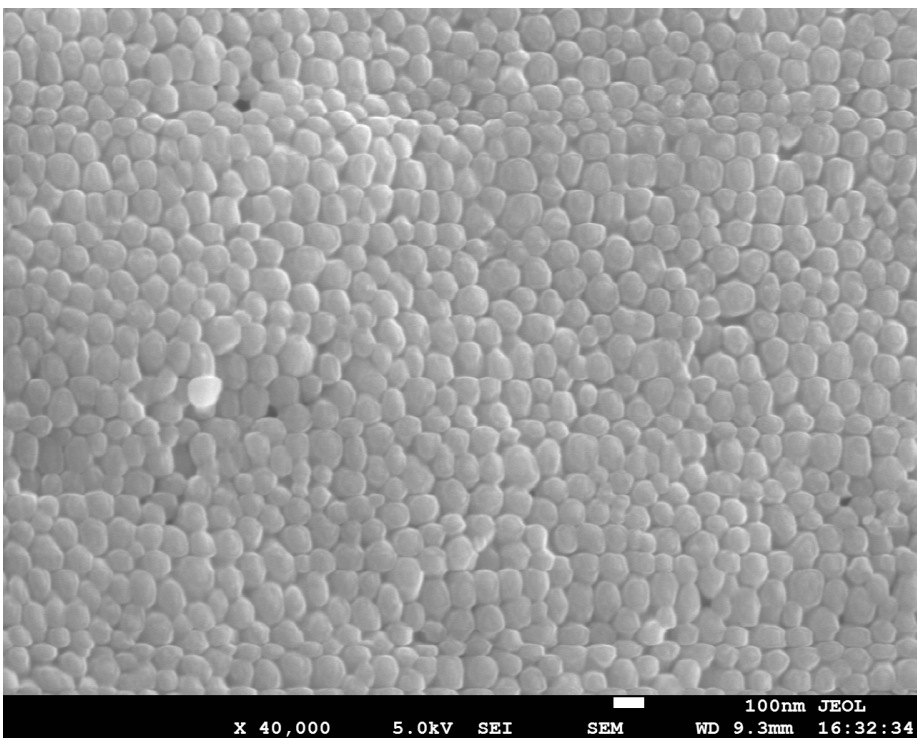
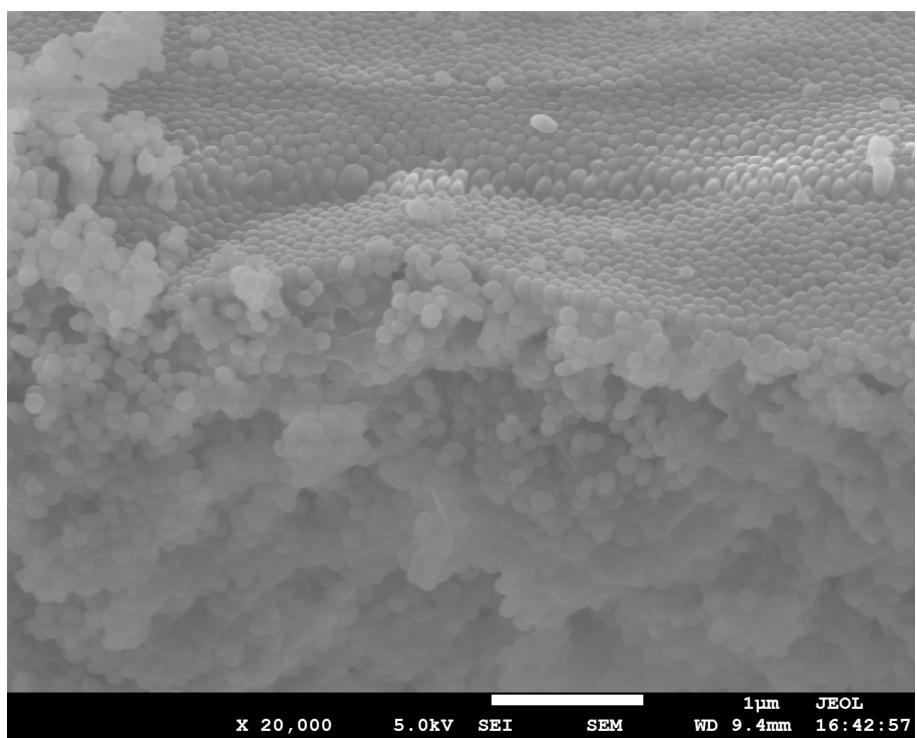


Figure S6. Backscattered electrons images of  $\text{Fe}_2\text{O}_3@\text{SiO}_2$  core-shell structure with spherical core morphology.



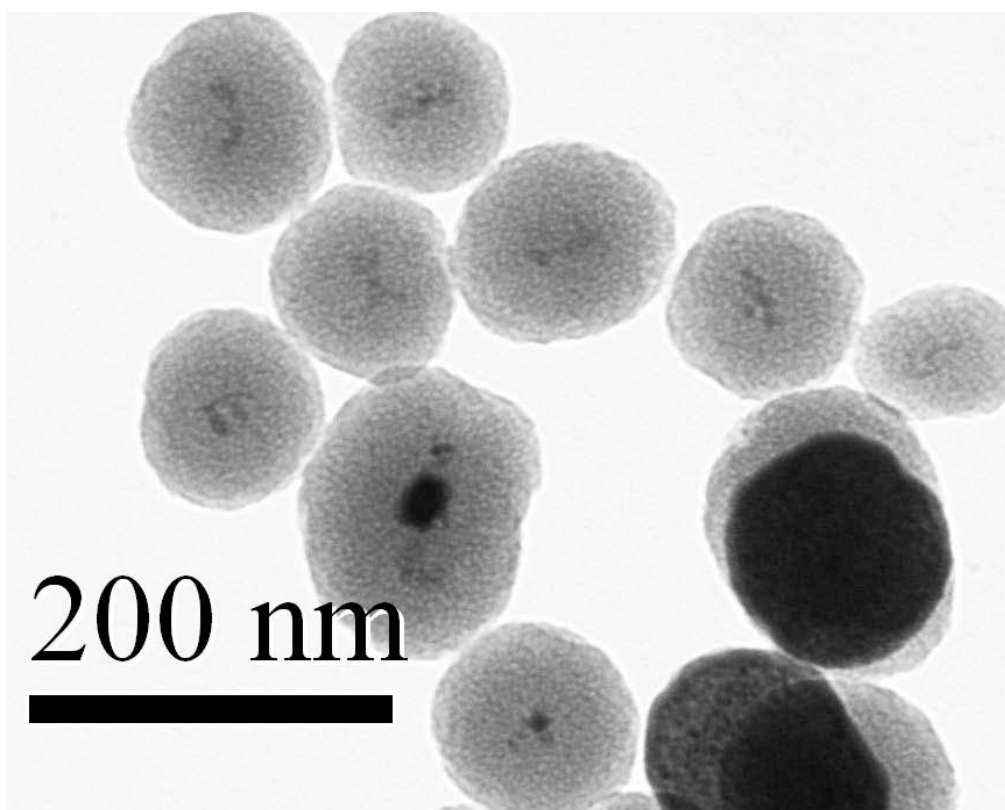


Figure S7. SEM and TEM images of Fe<sub>2</sub>O<sub>3</sub>@SiO<sub>2</sub> core-shell structure with iron oxides size of ~6 nm.