

## Supporting Information

### Iron Oxide Nanoparticle Layer Templated by Polydopamine Spheres: A Novel Scaffold toward Hollow-Mesoporous Magnetic Nanoreactors

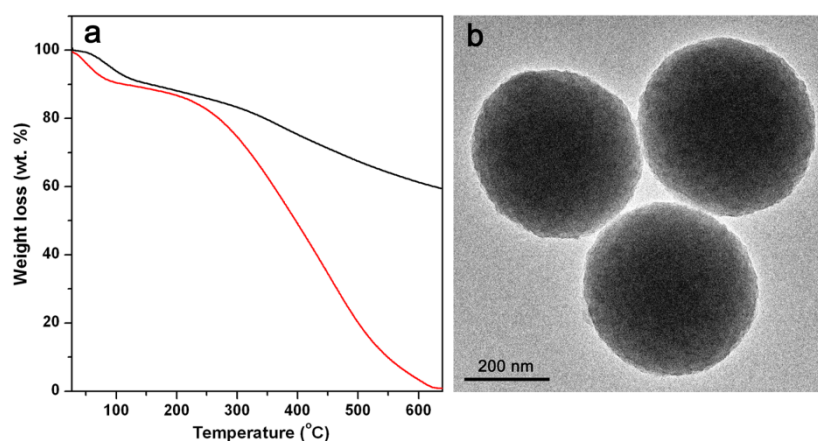
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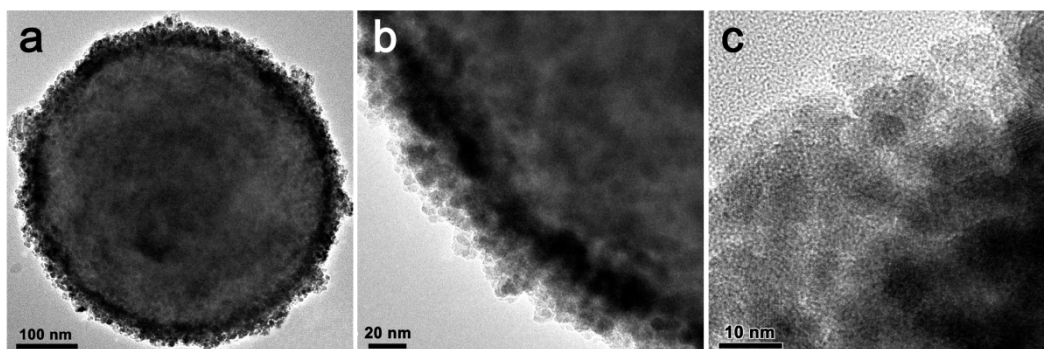
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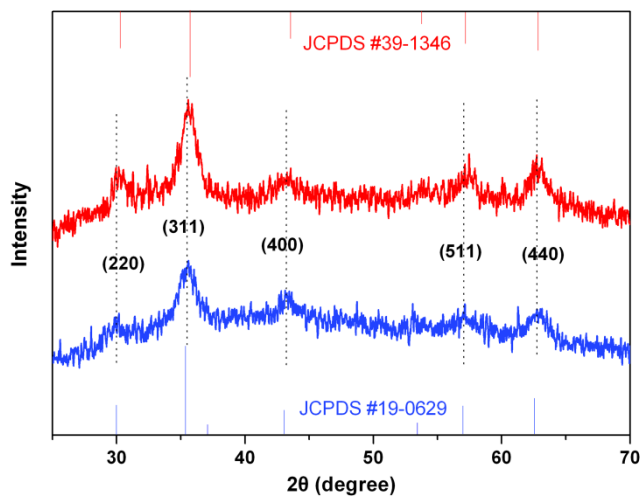
**Fig. S1** (a) TGA curves of PDA spheres under nitrogen (black) and air (red) atmospheres. (b) TEM image of PDA spheres after refluxed for 3 h in TEG (290 °C under nitrogen).



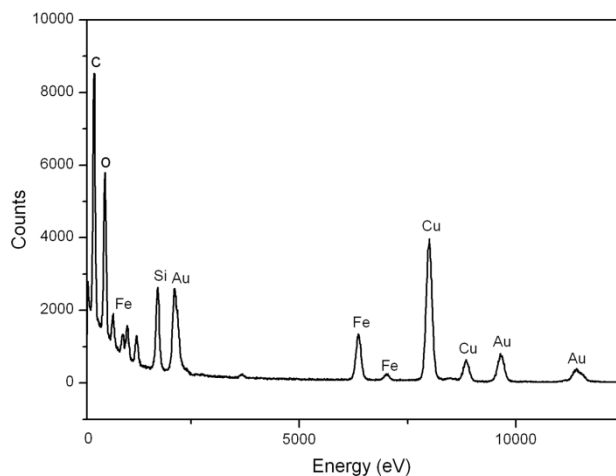
**Fig. S2** TEM (a,b) and HRTEM (c) images of PDA@Fe<sub>3</sub>O<sub>4</sub> composite spheres with a 50 nm thick Fe<sub>3</sub>O<sub>4</sub> nanoparticle layer.



**Fig. S3** Photographs of PDA@Fe<sub>3</sub>O<sub>4</sub>@SiO<sub>2</sub> (left) and the derivative Fe<sub>2</sub>O<sub>3</sub>@SiO<sub>2</sub> (right) composite spheres after calcination at 600 °C in air.



**Fig. S4** XRD patterns of PDA@Fe<sub>3</sub>O<sub>4</sub>@SiO<sub>2</sub> (blue) and Fe<sub>2</sub>O<sub>3</sub>@SiO<sub>2</sub> (red) composite spheres. The blue and red vertical lines stand for the (220), (311), (400), (511) and (440) diffraction peaks of cubic Fe<sub>3</sub>O<sub>4</sub> (JCPDS 19-0629) and cubic  $\gamma$ -Fe<sub>2</sub>O<sub>3</sub> (JCPDS 39-1346), respectively.



**Fig. S5** EDX spectrum of Fe<sub>2</sub>O<sub>3</sub>@Au@SiO<sub>2</sub> composite spheres.