

## Electronic Supplementary Information

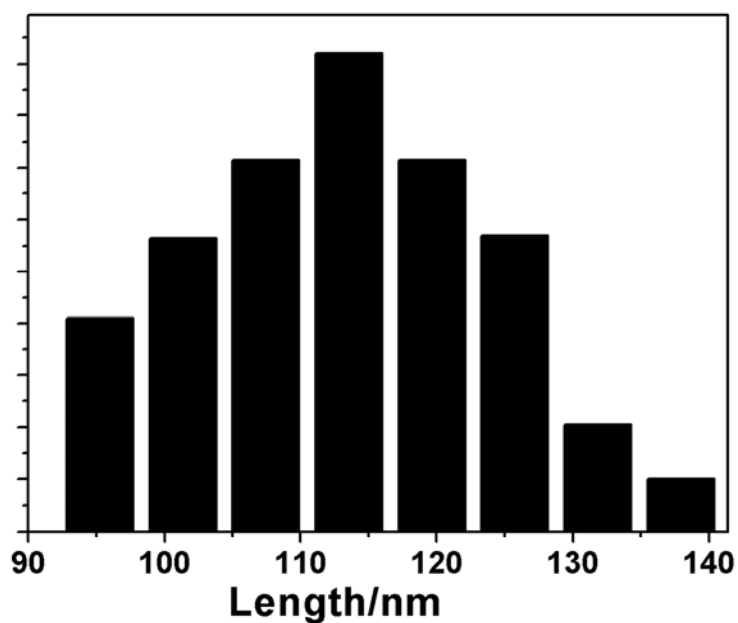
### Direct hydrothermal synthesis of single-crystalline triangular nanoprism structure of Fe<sub>3</sub>O<sub>4</sub>

Xiyan Li, Zhenjun Si, Yongqian Lei, Jinkui Tang, Song Wang, Shengqun Su, Shuyan

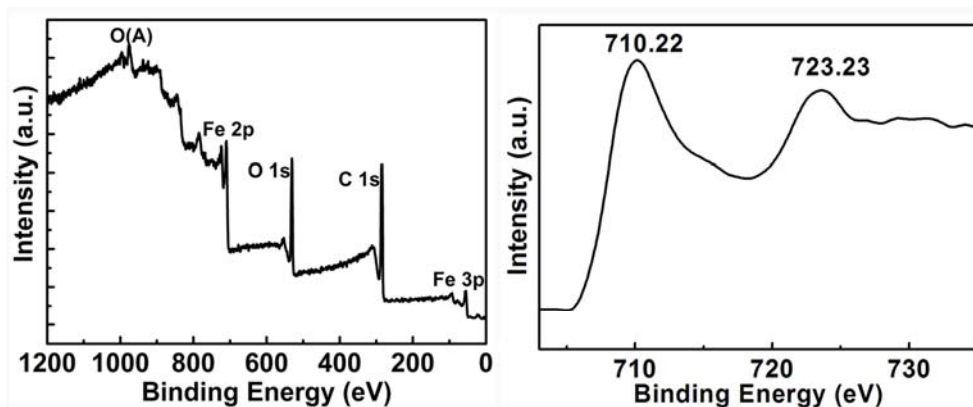
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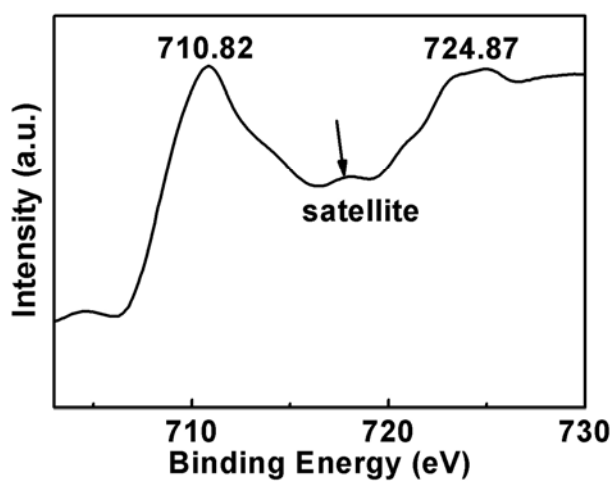
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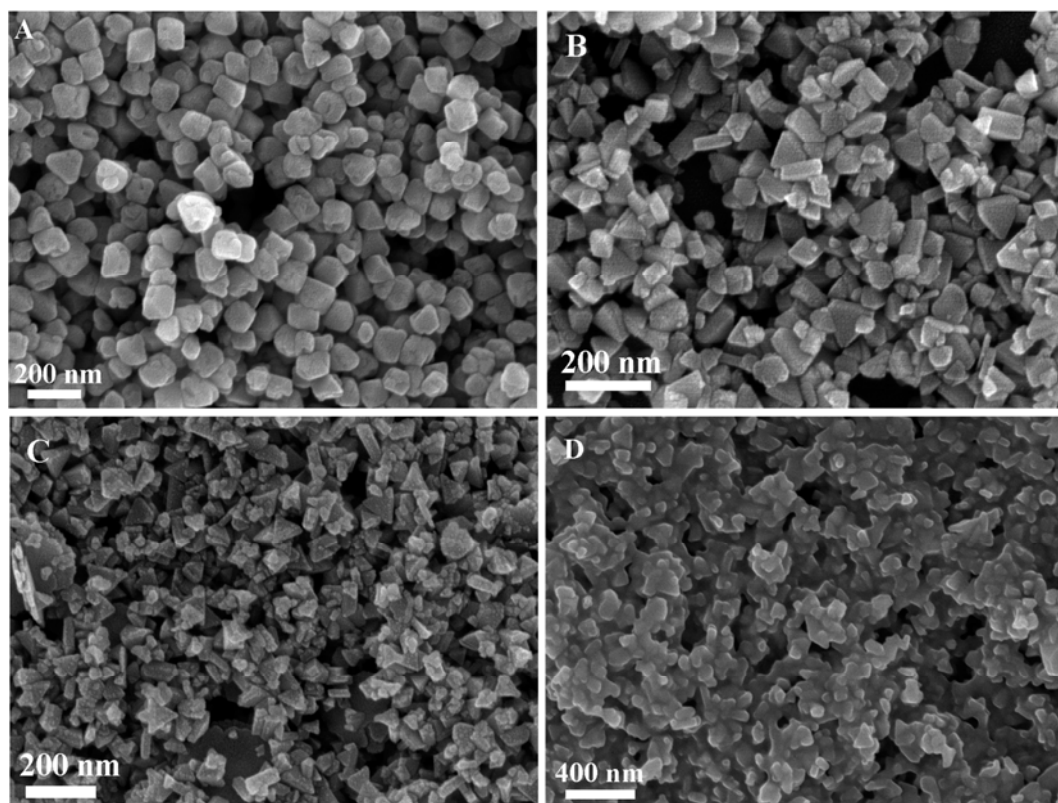
**Fig. S1** The edge length distribution of the TNPs.



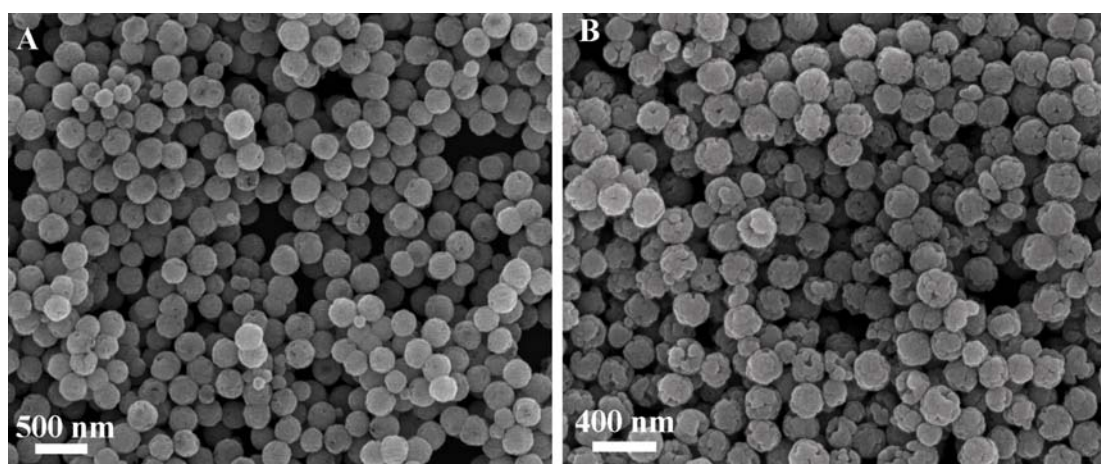
**Fig. S2** (a) XPS spectrum of the as-prepared Fe<sub>3</sub>O<sub>4</sub> TNPs. (b) The expanded spectrum of Fe 2p.



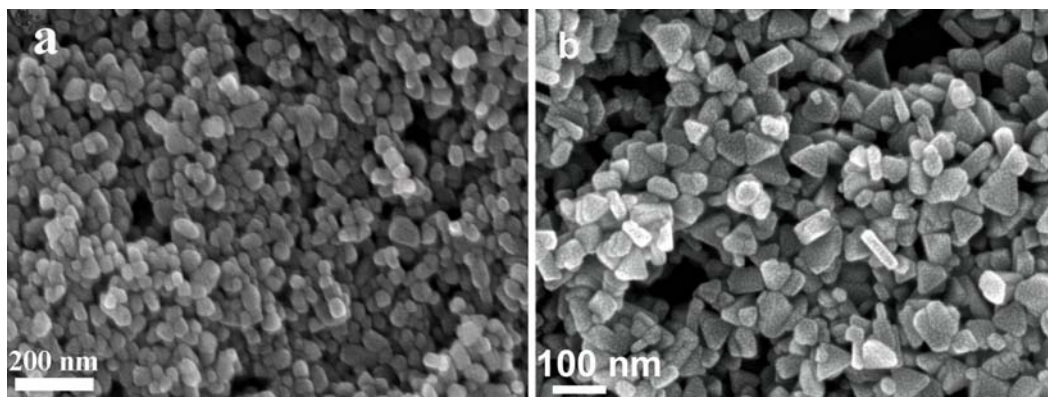
**Fig. S3** XPS spectrum of Fe 2p for  $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>.



**Fig. S4** SEM images of  $\text{Fe}_3\text{O}_4$  prepared using the quantity of NaAc: (a) 1 g, (b) 2 g, (c) 4 g, (d) 5 g with other experiment parameters kept constant ( $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$  1 g, EG 20 mL, PDA 10 mL, at  $200^\circ\text{C}$  for 12 h).



**Fig. S5** SEM images of as-prepared  $\text{Fe}_3\text{O}_4$  NCs using (a) 1,6-hexadamine (b) ethylenediamine with other experiment parameters kept constant ( $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$  1 g, NaAc 3 g, EG 20 mL, at  $200^\circ\text{C}$  for 12 h).



**Fig. S6** (a) SEM image of Fe<sub>3</sub>O<sub>4</sub> prepared using DEG as solvent with other experiment parameters kept constant (FeCl<sub>3</sub>·6H<sub>2</sub>O 1 g, NaAc 3 g, PDA 10 mL, at 200°C for 12 h). (b) SEM image of Fe<sub>3</sub>O<sub>4</sub> prepared with the volume ratio of EG to PDA (mL): 20:2, with other experiment parameters kept constant (FeCl<sub>3</sub>·6H<sub>2</sub>O 1 g, NaAc 3 g, at 200°C for 12 h).