Supporting Information for

Facile synthesis, shape evolution and magnetic properties of Polyhedral 50-Facet Fe₃O₄ nanocrystals: Partially Enclosed by \{311\} High-Index Planes

Yanyan Xu,* Hongying Hao, Ping Liu, Qian Wang, Yaqiu Sun, Guoying Zhang

Tianjin Key Laboratory of Structure and Performance for Functional Molecules; Key Laboratory of Inorganic–Organic Hybrid Functional Material Chemistry, Ministry of Education; College of Chemistry, Tianjin Normal University, Tianjin 300387, PR China

Fig. S1. Fe 2p XPS spectrum of as-synthesized polyhedral 50-facet Fe₃O₄ nanocrystals.
Fig. S2. TG and DSC curves of as-synthesized polyhedral 50-facet Fe₃O₄ nanocrystals.

Fig. S3. Low magnification SEM image of as-synthesized polyhedral 50-facet Fe₃O₄ nanocrystals.
Fig. S4. TEM images (left side) and corresponding models (right side) of two polyhedral 50-facet Fe$_3$O$_4$ nanocrystals projected from [011] (a) and [001] (b) directions.
Fig. S5. SEM image of the polyhedral 50-facet Fe$_3$O$_4$ nanocrystals obtained at 220°C for 18h.

Fig. S6. IR spectrum of as-synthesized polyhedral 50-facet Fe$_3$O$_4$ nanocrystals.
Fig. S7. SEM images of products synthesized with different types of alkaline: (a) 0.5 mmol NaOH; (b) 5 mmol NaOH; (c) 0.6 mL of 25% ammonia; (d) 1.25 mmol NH₄HCO₃. The reaction condition was: 0.53 mmol of FeCl₃·6H₂O, 14.0 mL of ethylene glycol (EG) and 0.5 mL of distilled water, 220 °C 6h.