Supporting Information for

Facile synthesis, shape evolution and magnetic properties of Polyhedral 50-Facet Fe_3O_4 nanocrystals: Partially Enclosed by {311} High-Index Planes

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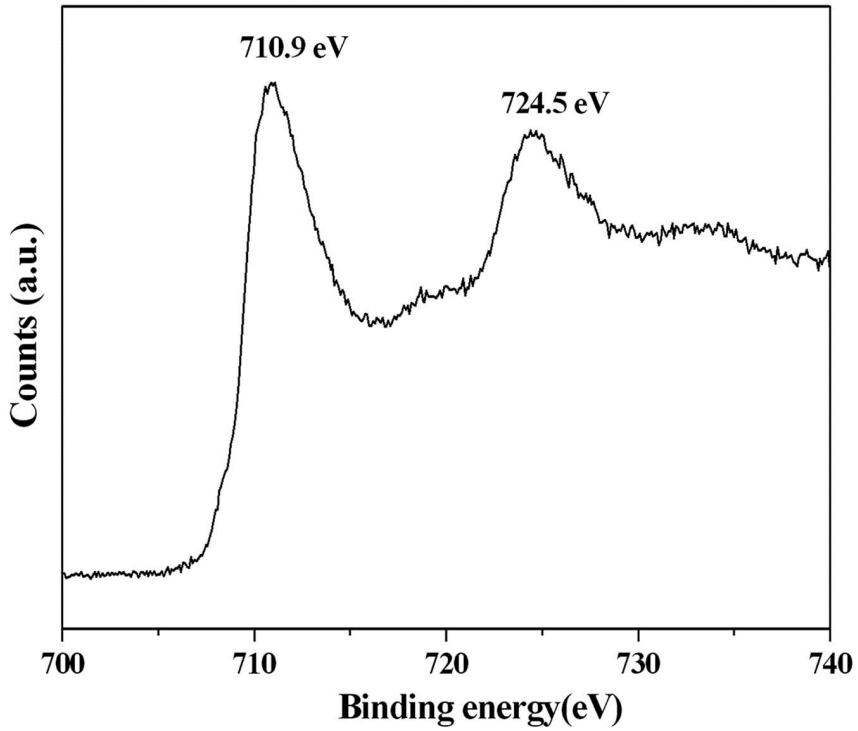

Fig. S1. Fe 2p XPS spectrum of as-synthesized polyhedral 50-facet Fe_3O_4 nanocrystals.

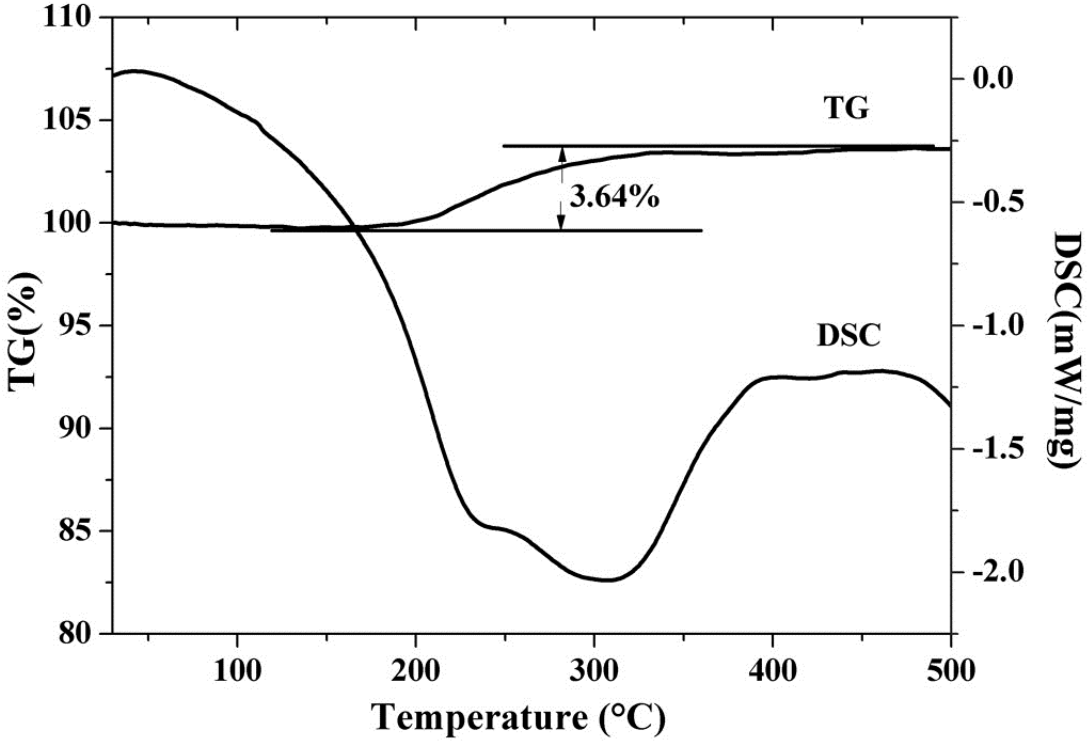

Fig. S2. TG and DSC curves of of as-synthesized polyhedral 50-facet Fe_3O_4 nanocrystals.

Fig. S3. Low magnification SEM image of as-synthesized polyhedral 50-facet Fe_3O_4 nanocrystals.

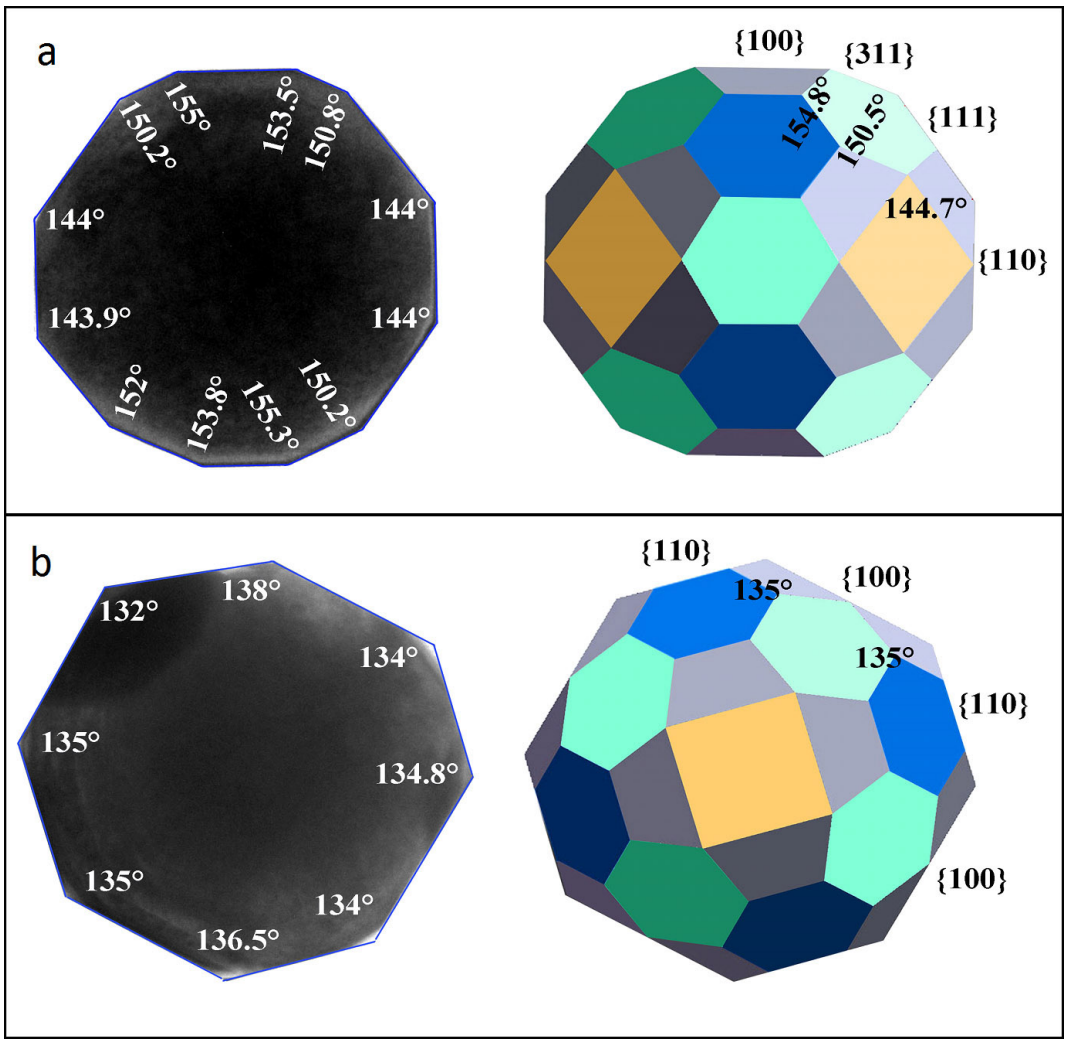

Fig. S4. TEM images (left side) and corresponding models (right side) of two polyhedral 50-facet Fe_3O_4 nanocrystals projected from [011] (a) and [001] (b) directions.

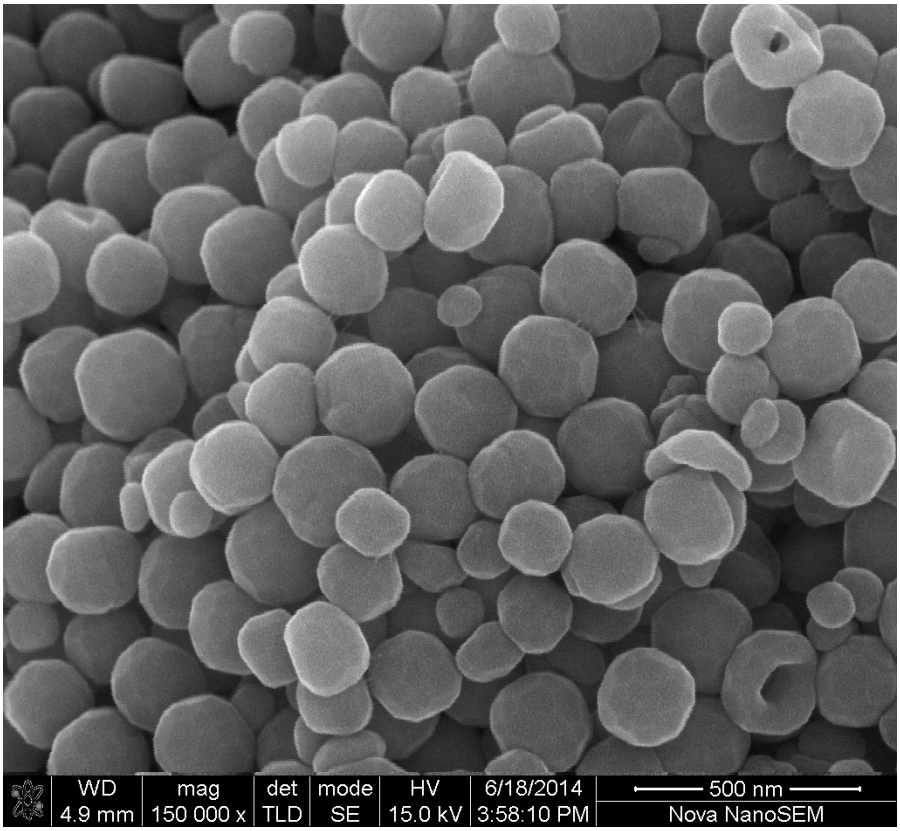

Fig. S5. SEM image of the polyhedral 50-facet Fe_3O_4 nanocrystals obtained at 220°C for 18h.

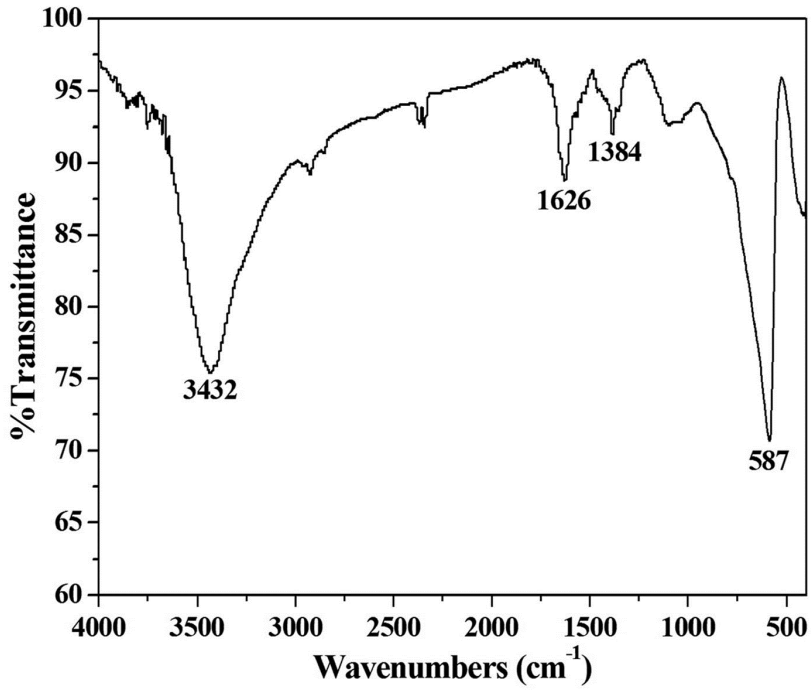

Fig. S6. IR spectrum of as-synthesized polyhedral 50-facet Fe_3O_4 nanocrystals.

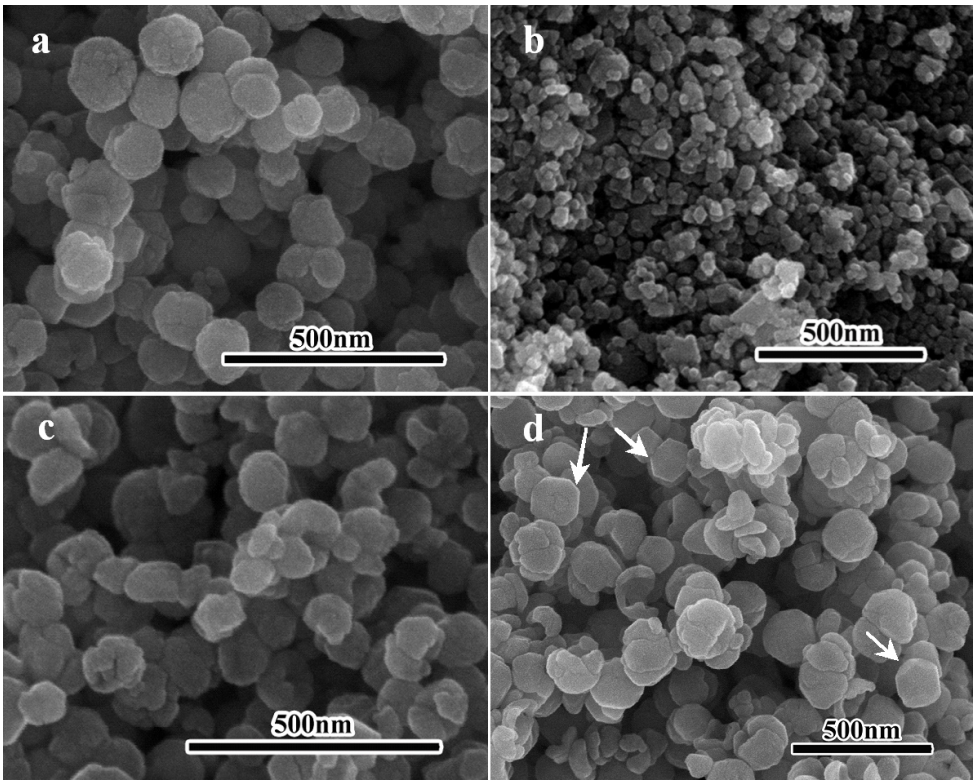

Fig. S7. SEM images of products synthesized with different types of alkaline: (a)0.5mmol NaOH; (b)5mmol NaOH; (c) 0.6mL of 25% ammonia; (d) 1.25 mmol NH_4HCO_3. The reaction condition was: 0.53mmol of $FeCl_3 \cdot 6H_2O$, 14.0 mL of ethylene glycol(EG) and 0.5 mL of distilled water, 220 °C 6h.