Supporting Information

Restructure of Co_3O_4 particles from polycrystalline microspheres to single-crystalline polyhedra under the assistance of acetic acid

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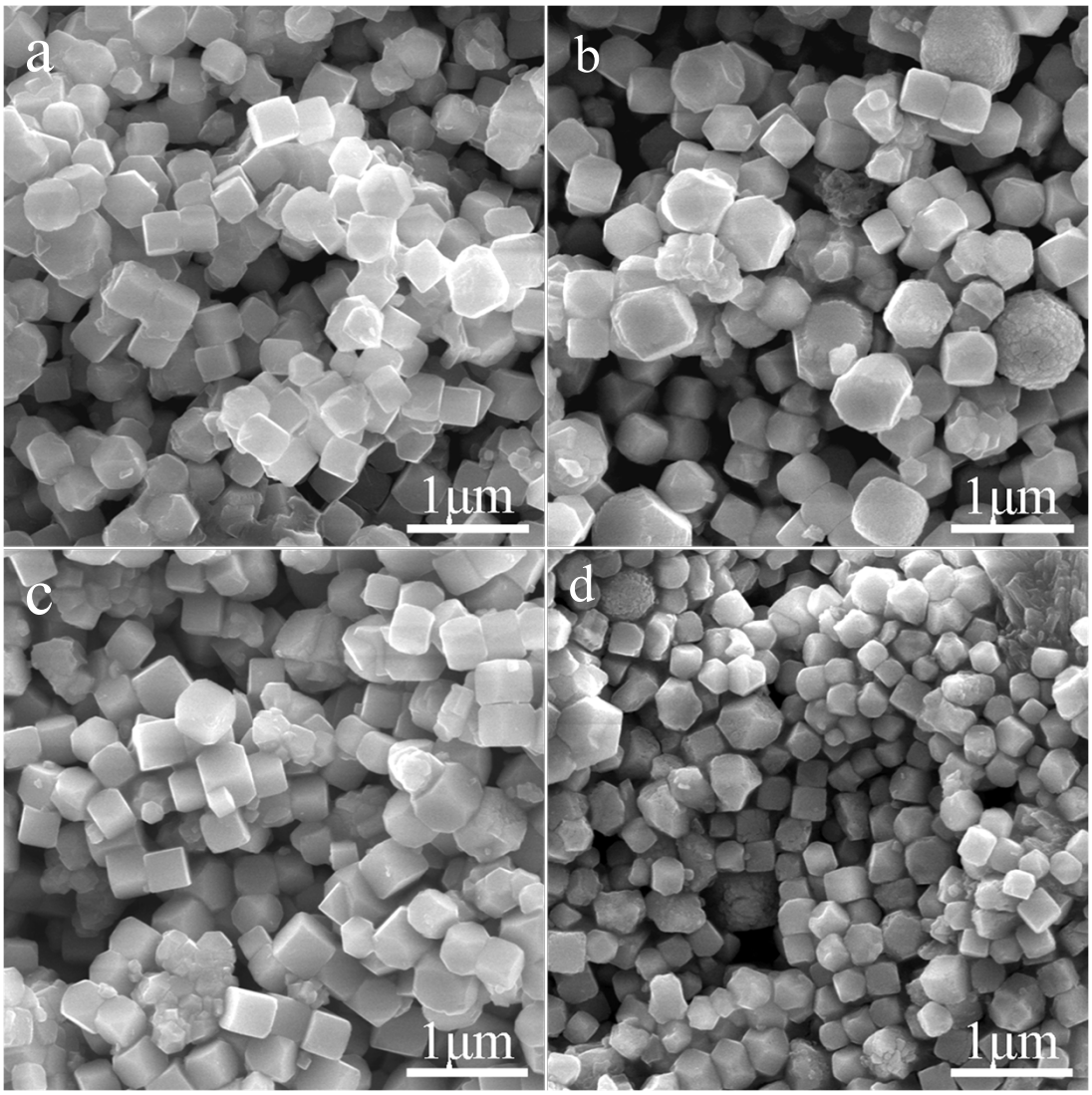

Fig. S1. SEM images of samples obtained at different concentration of H_2SO_4 aqueous solution: (a) 1%, (b) 5%, (c) 10% and (d) 20%.

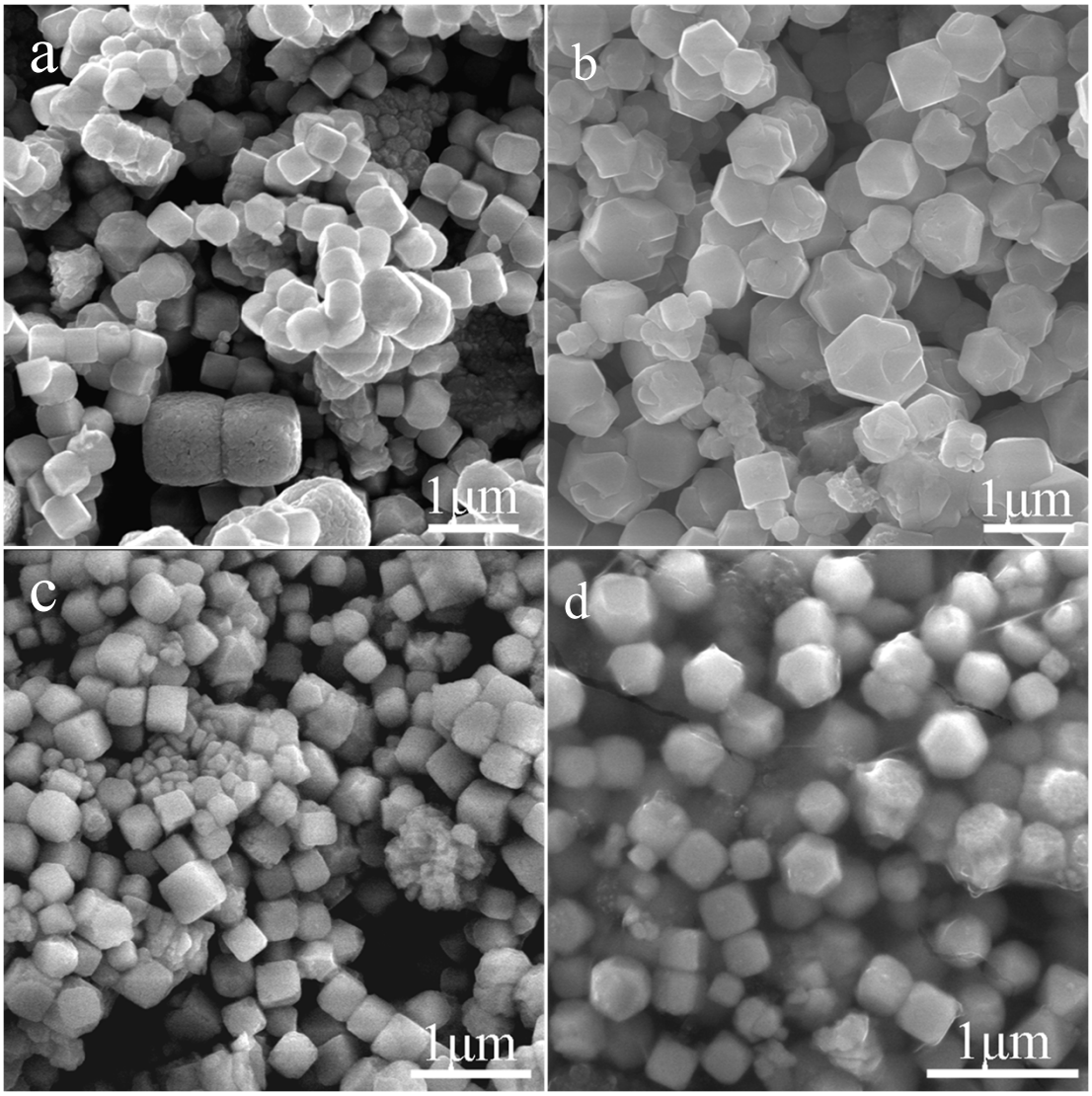

Fig. S2. SEM images of samples obtained at different concentration of citric acid aqueous solution:

(a) 1%, (b) 5%, (c) 10% and (d) 20%.

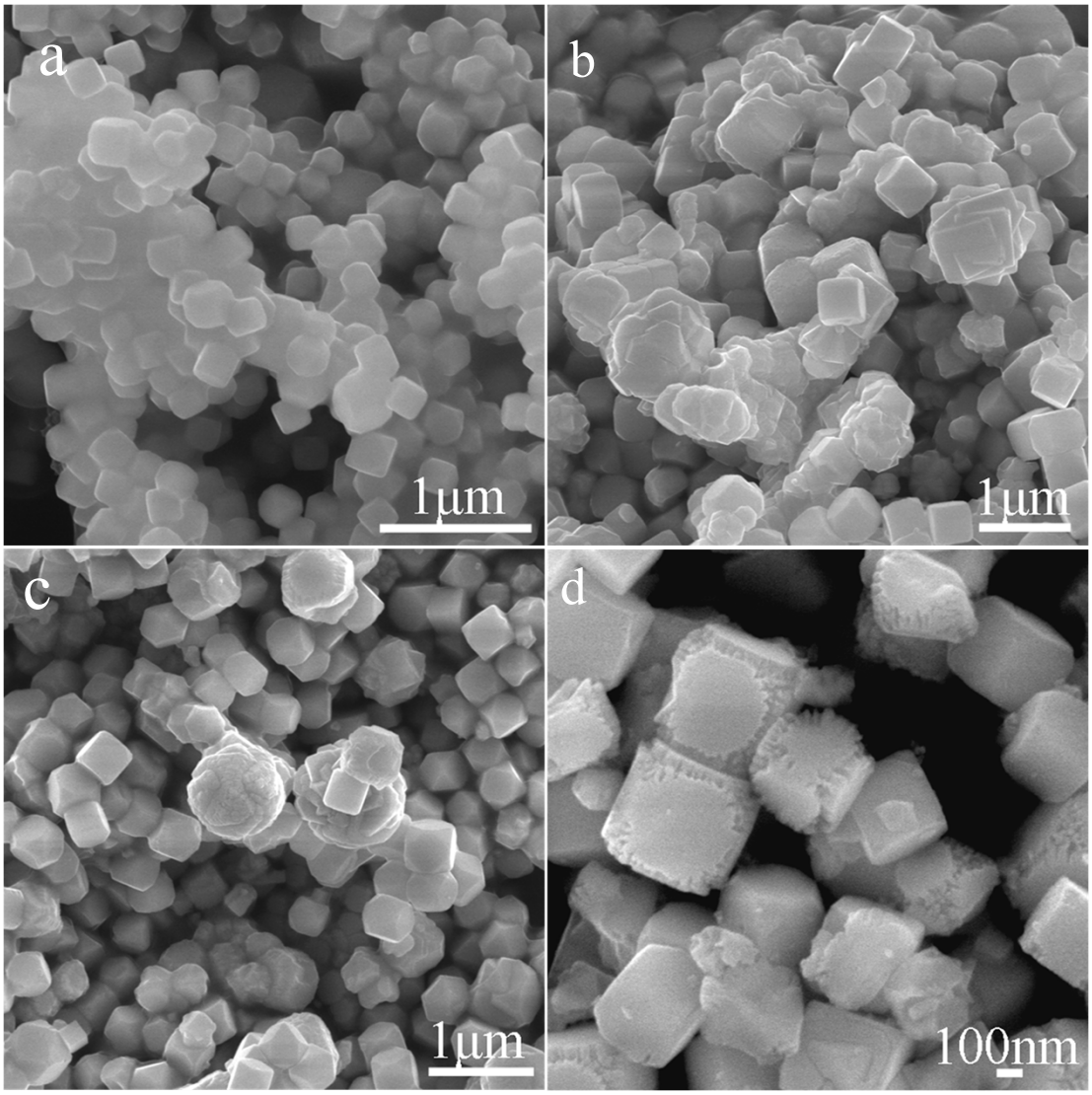

Fig. S3. SEM images of samples obtained at different treating temperatures with 5% H_2SO_4 aqueous solution: (a) 10 °C, (b) 30 °C, (c) 60 °C and (d) 90 °C.

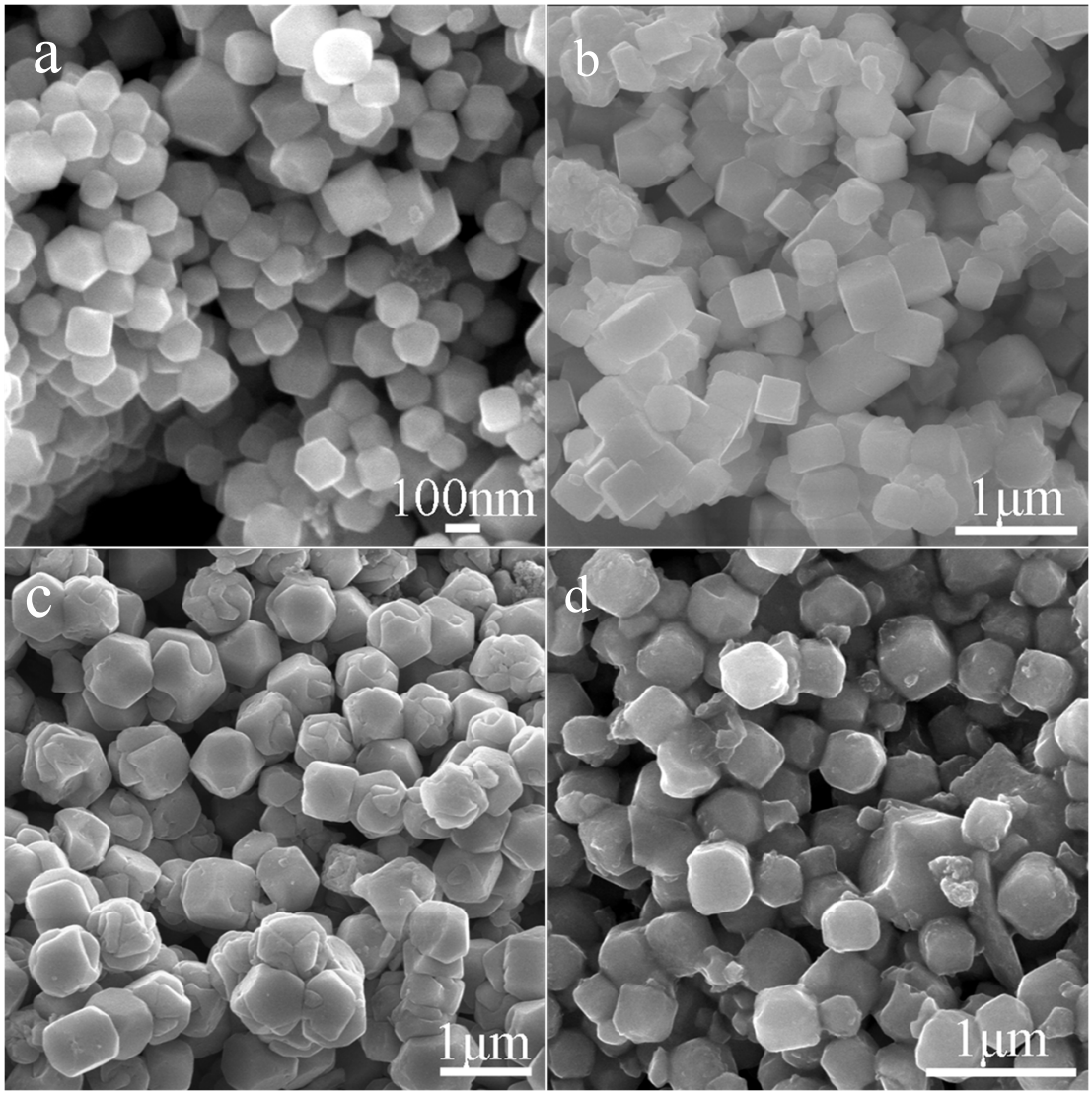

Fig. S4. SEM images of samples obtained at different treating temperatures with 5% citric acid aqueous solution: (a) 10 ^{o}C, (b) 30 ^{o}C, (c) 60 ^{o}C and (d) 90 ^{o}C.

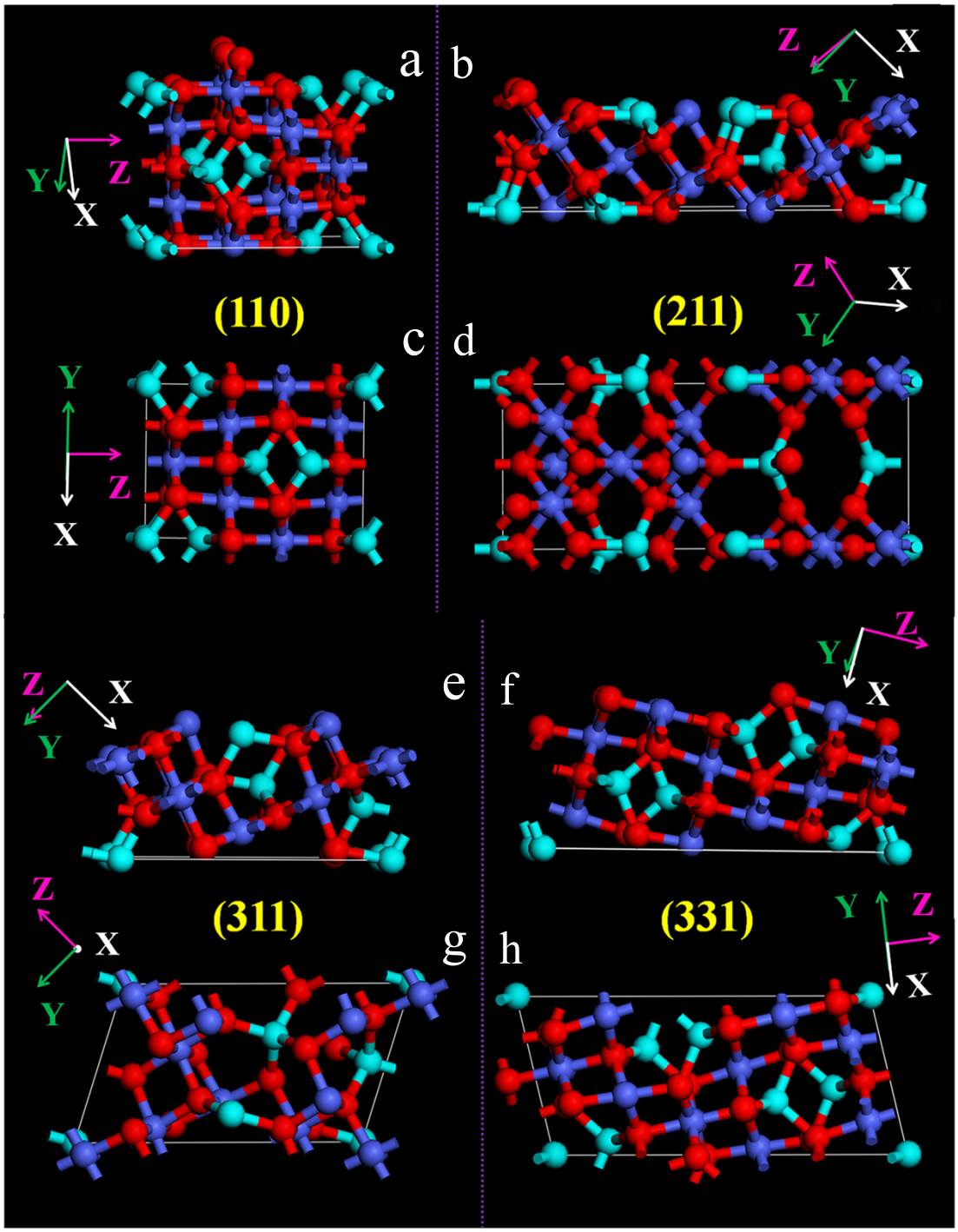

Fig. S5. Crystal structures of (110), (211), (311) and (331) facets of Co_3O_4. (a), (b), (e) and (f) are side view images; (c), (d), (g) and (h) are top view images of (110), (211), (311) and (331) facets, respectively. The red, blue and cyan balls represent O，Co^{3+}, and Co^{2+}, respectively. The X, Y, and Z directions show scheme of the crystal structure, and the white point in (g) represent that the X direction perpendicular to the paper.