

Supporting Information

Synthesis of dendritic iridium nanostructures based on the oriented attachment mechanism and their enhanced CO and ammonia catalytic activities

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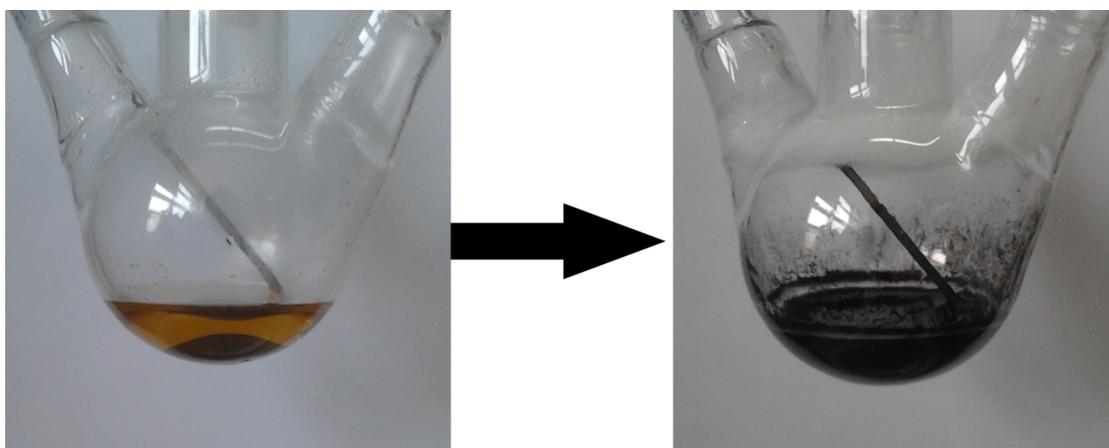


Fig. S1 The photographs of color evolution of Ir NDs during different synthesis steps.

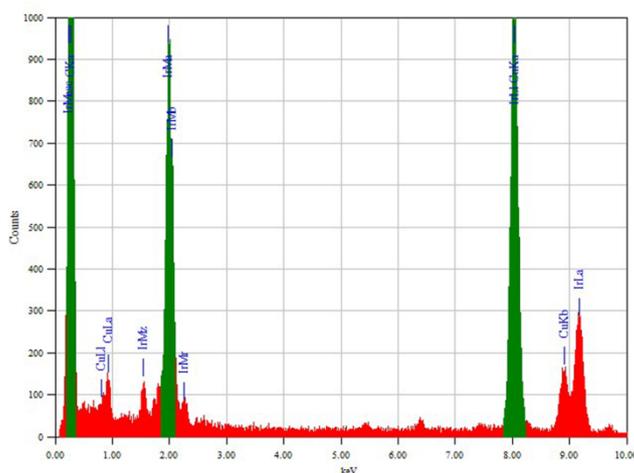


Fig. S2 EDX spectrum of Ir NDs.

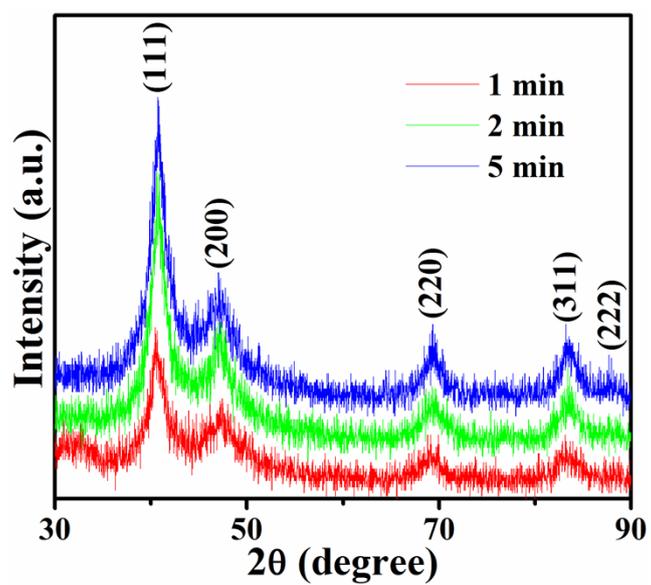


Fig. S3 Temporal XRD patterns evolution of the as-synthesized Ir NCs.

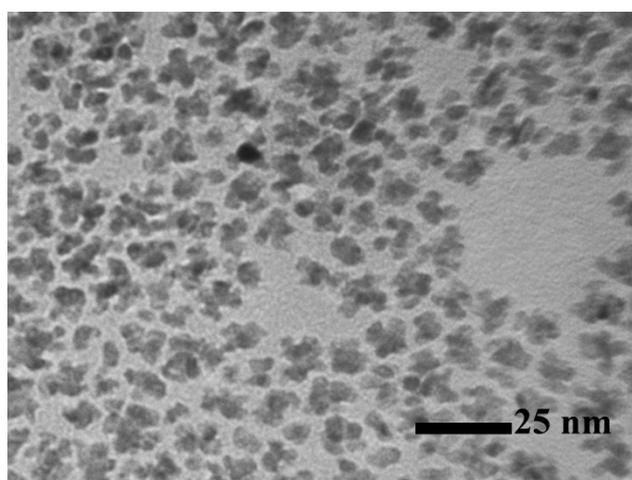


Fig. S4 TEM images of the Ir NDs obtained after the reaction proceeded for 2 h.

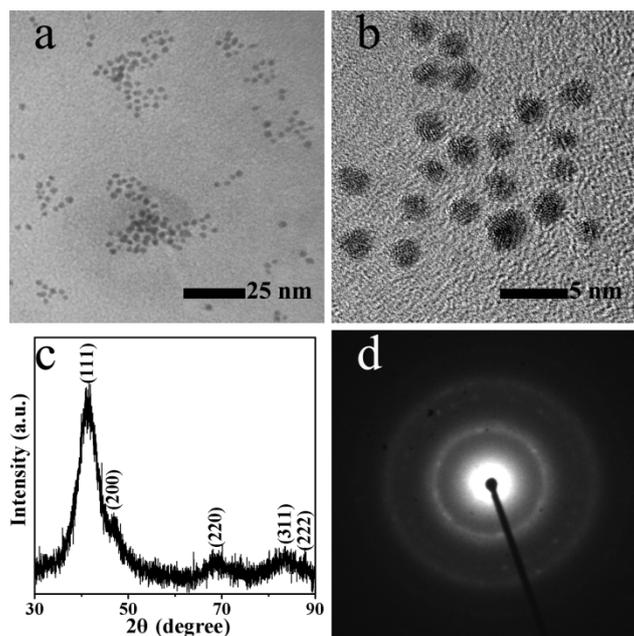


Fig. S5 Characterization of Ir NPs prepared by the reduction of IrCl₃ in the mixed solution of ODA and TOP: (a, b) typical TEM and HRTEM images; (c) power XRD pattern; (d) representative SAED pattern.

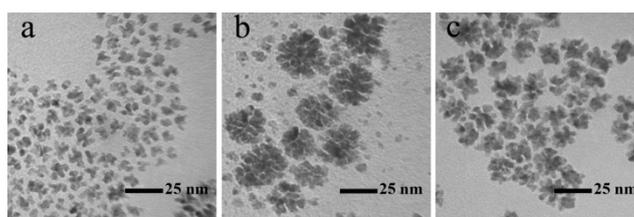


Fig. S6 TEM images of Ir NDs acquired by using different solvent. (a) HDA; (b) OLA; (c) ODA.

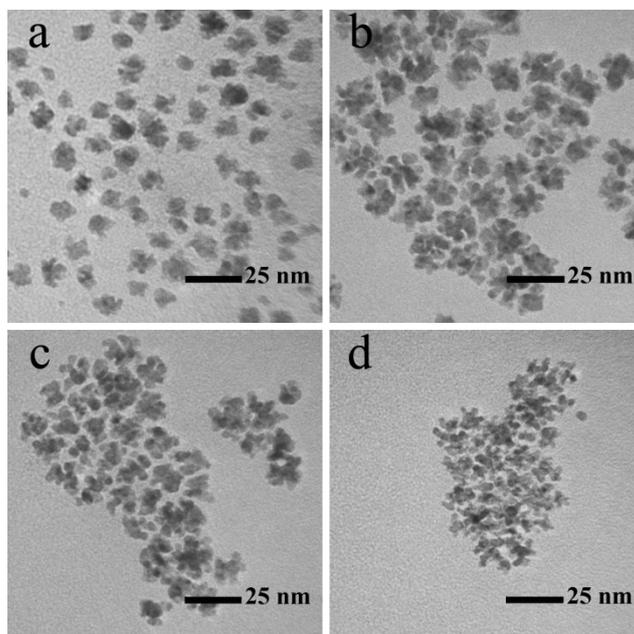


Fig. S7 Representative TEM images of the as-prepared Ir NDs at different initial Ir precursor concentrations: (a) 1×10^{-4} M; (b) 3.4×10^{-4} M; (c) 5×10^{-4} M; (d) 7.5×10^{-4} M, respectively.

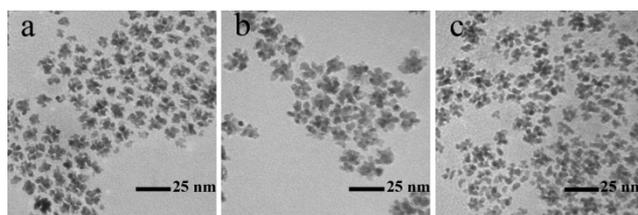


Fig. S8 TEM images of Ir NDs synthesized at different temperatures. (a) 250 °C; (b) 290 °C; (c) 310 °C.

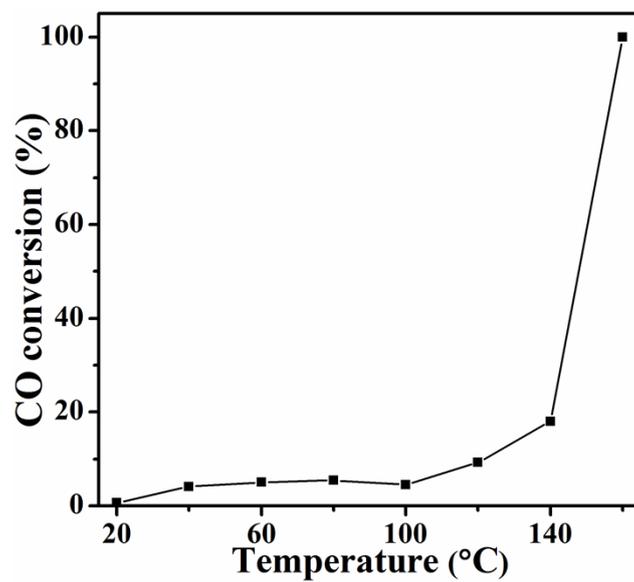


Fig. S9 CO conversions *versus* reaction temperature over Fe(OH)_x-supported Ir NPs with a 4 wt% Ir loading.

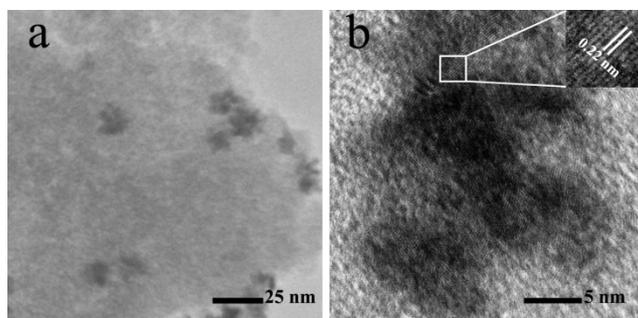


Fig. S10 TEM and HRTEM images of the as-synthesized IrFe₄ catalyst obtained by drying at 80 °C for 6 h.

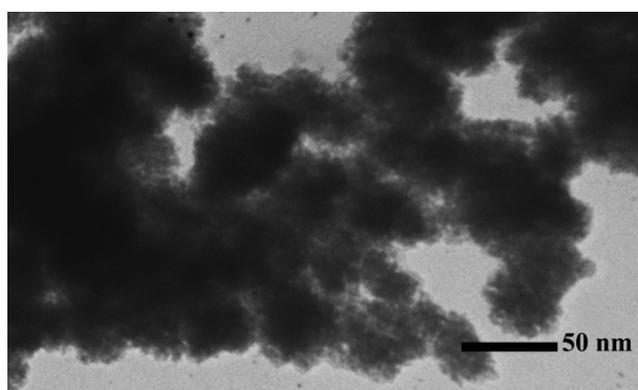


Fig. S11 TEM image of the commercial Ir black used in this study.

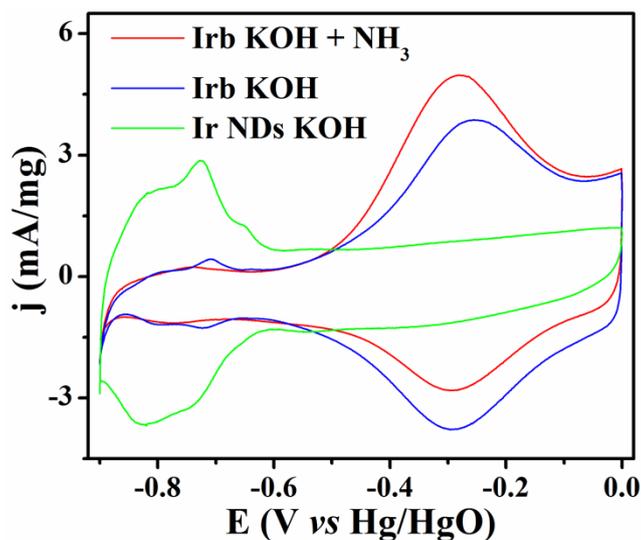


Fig. S12 Cyclic voltammograms of Ir black and Ir NDs in 1 M KOH and 1 M KOH + 0.1 M NH₃ with a scan rate of 5 mv/s.

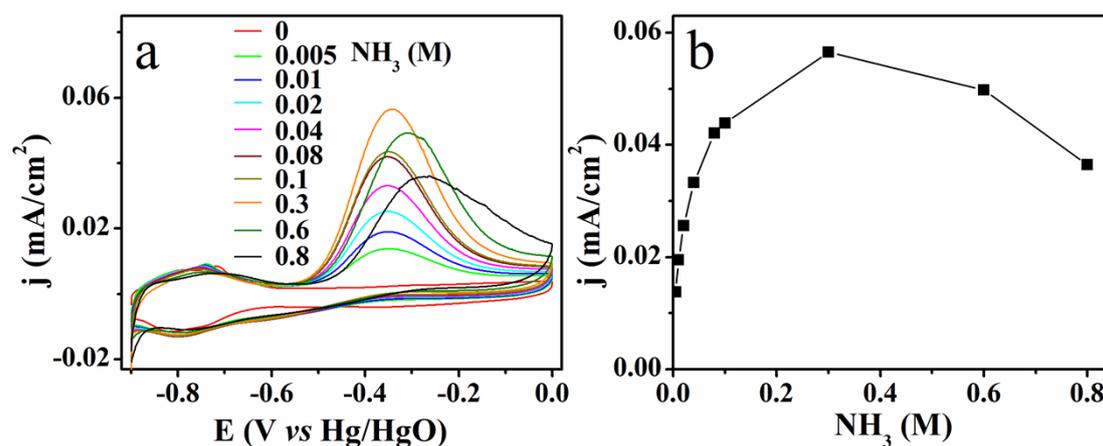


Fig. S13 (a) Cyclic voltammograms of Ir NDs with different concentrations of NH₃ in 1 M KOH aqueous solution; (b) a plot of peak current density as a function of ammonia concentration.

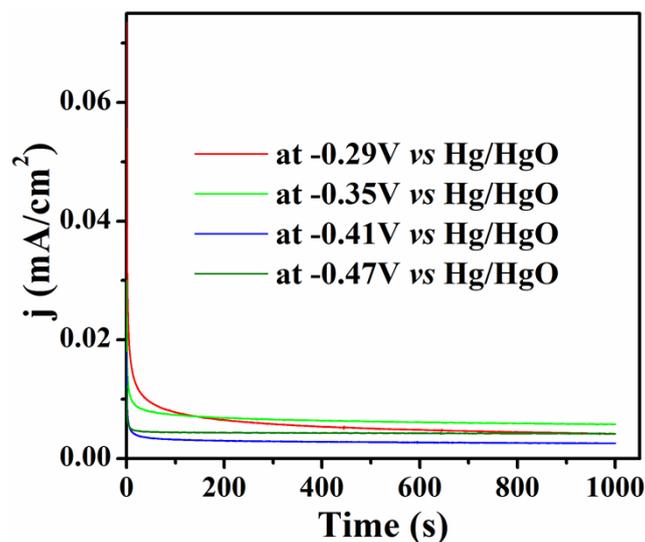


Fig. S14 Chronoamperometric results of ammonia oxidation at different potentials on Ir NPs catalyst in N₂-saturated 1 M KOH + 0.1 M NH₃ aqueous solution.