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Supporting Information

Three-dimensional nitrogen-doped porous carbon anchored CeO₂

quantum dots as an efficient catalyst for formaldehyde oxidation

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Fig. S1. SEM image of PMMA spheres.



Fig. S2. a) TEM, b) HRTEM images of CeO₂@CN, TEM image of c) CeO₂/CN and d) bulk CeO₂.



Fig. S3. a) N_2 adsorption-desorption isotherm and b) DFT pore size distribution of $CeO_2@CN$.



Fig. S4. a) N₂ adsorption-desorption isotherm and b) DFT pore size distribution of bulk CeO₂.



Fig. S5. TG curve of CeO₂@CN synthesized with different mass ratio of ceric ammonium nitrate to dopamine calcined at 650 °C and Ar atmosphere.



Fig. S6. Deconvolution of Ce 3d XPS spectrum of 3D-CeO₂@CN and bulk CeO₂.



Fig. S7. HCHO oxidation conversion values as function of temperature at 100000 h⁻¹ over 3D-CeO₂@CN with a) different calcination temperature at ceric ammonium nitrate to dopamine of 20/1, b) with different ratio of ceric ammonium nitrate to dopamine at calcination temperature of 650 °C.



Fig. S8. HCHO oxidation conversion values as function of temperature over CeO₂@CN, CeO₂/CN and CeO₂ at 100000 h⁻¹.