Supporting Information

Densely Populated Mesopores in Microcuboid CeO_2 Crystal Leads to a Significant Enhancement of Catalytic Activity

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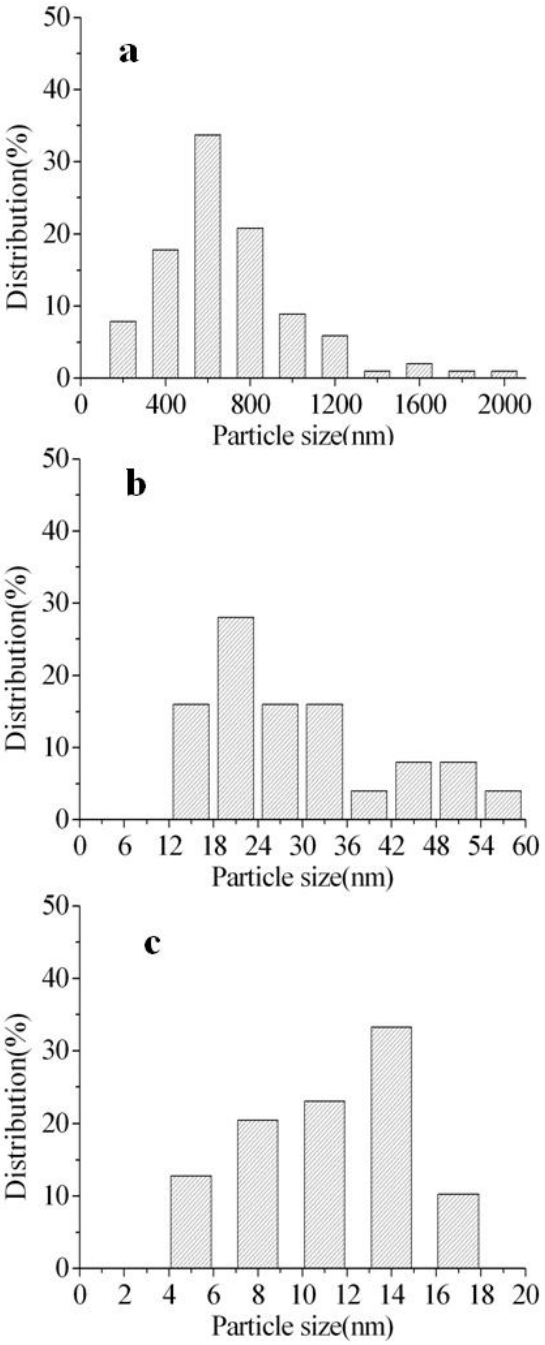

Figure S1. The particle size distribution of the CeO_2 samples: (a) MMC-CeO_2, (b) NC-CeO_2 and (c) NP-CeO_2 .

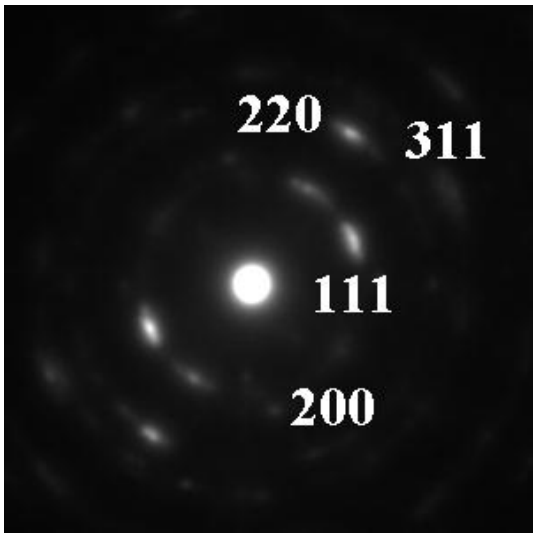

Figure S2. Selected area diffraction (SAD) of a mesoporous microcuboid CeO_2.

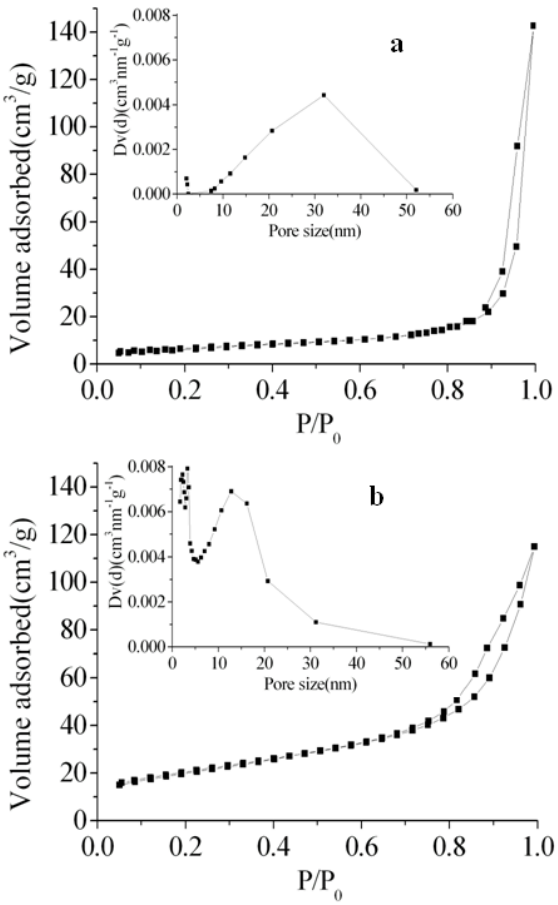

Figure S3. N_2 adsorption-desorption isotherms and BJH desorption pore size distribution (inset in Figure) of NC-CeO_2 (a) and NP-CeO_2(b).

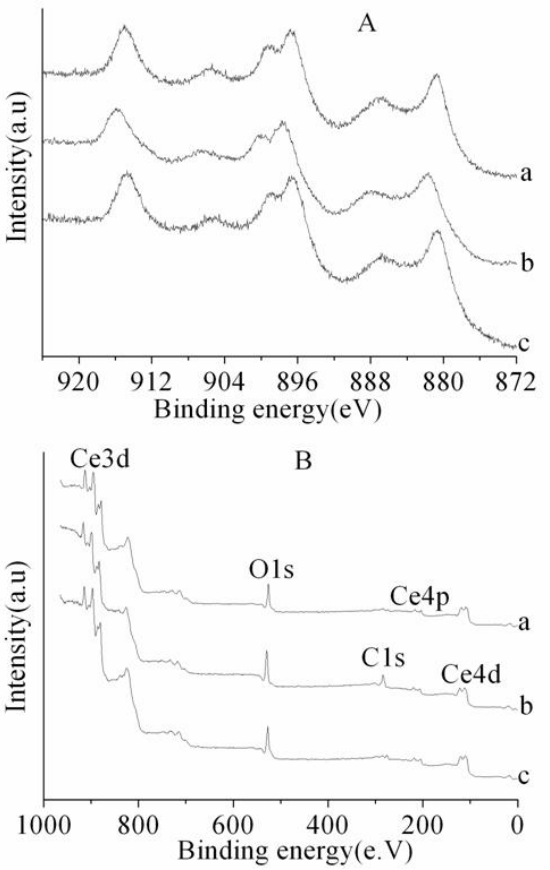

Figure S4. Ce3d XPS spectra (A) and XPS full spectra (B) of the CeO_2 samples: (a) MMC-CeO_2, (b) NC-CeO2 and (c) NP-CeO_2 : The Ce^{3+} species that peak at 881.6, 885.8, 898.6 and 915.3eV are clearly observed for MMC-CeO_2, NC-CeO_2 and NP-CeO_2.[1, 2] The XPS full spectra of the CeO_2 samples indicate that there are only cerium and oxygen element in the samples (the weak C1s peak is due to the contamination of the samples). Through the full spectra analysis, we could exclude the incorporation of nitrogen into the CeO_2 samples which may involve in the samples due to the use of urea and ammonia as reactant in the preparation procedures of MMC-CeO_2 and NP-CeO_2, respectively.

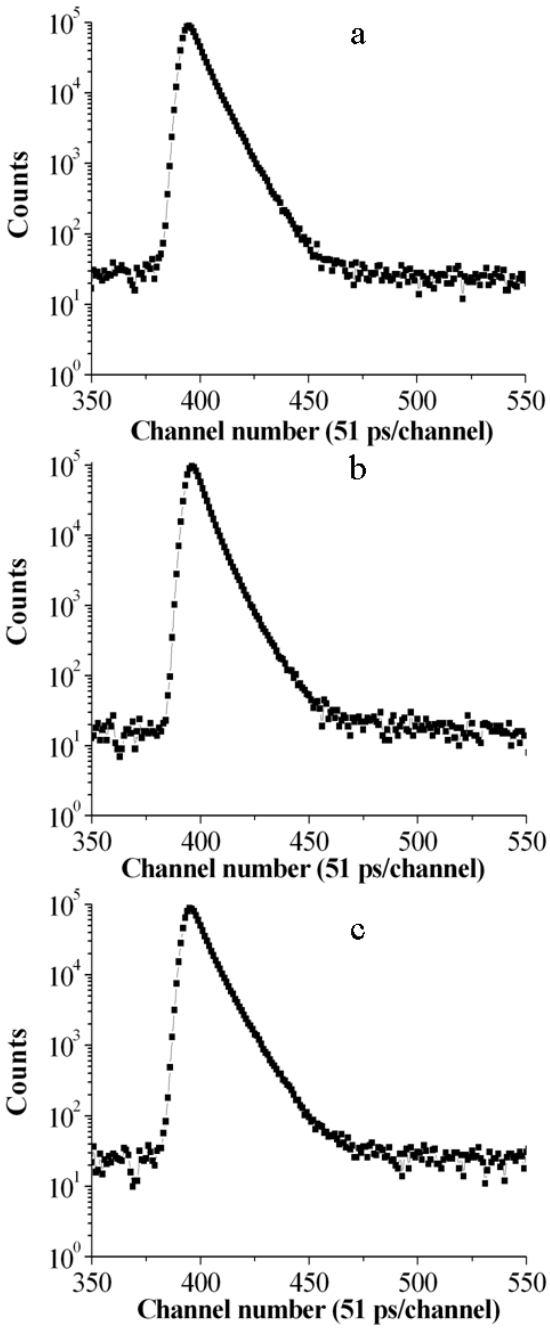

Figure S5. The positron annihilation spectroscopy (PAS) of the CeO_2 samples: (a) MMC-CeO_2, (b) NC-CeO_2 and (c) NP-CeO_2 .

Reference.

1 Natile, M. M.; Boccaletti, G.; Glisenti, A. *Chem. Mater*. 2005, **17**, 6272.

2 Salvi, A. M.; Decker, F.; Varsano, F.; Speranza, G. *Surf. Interface Anal*. 2001, **31**, 255.