Supporting Information for

Towards the Sub-15nm CeO_2 Nanowires with Increased Oxygen Defects and Ce^{3+} Sites for Selective Oxidation of Aniline at Room-temperature with a Non-Noble Metal Catalyst

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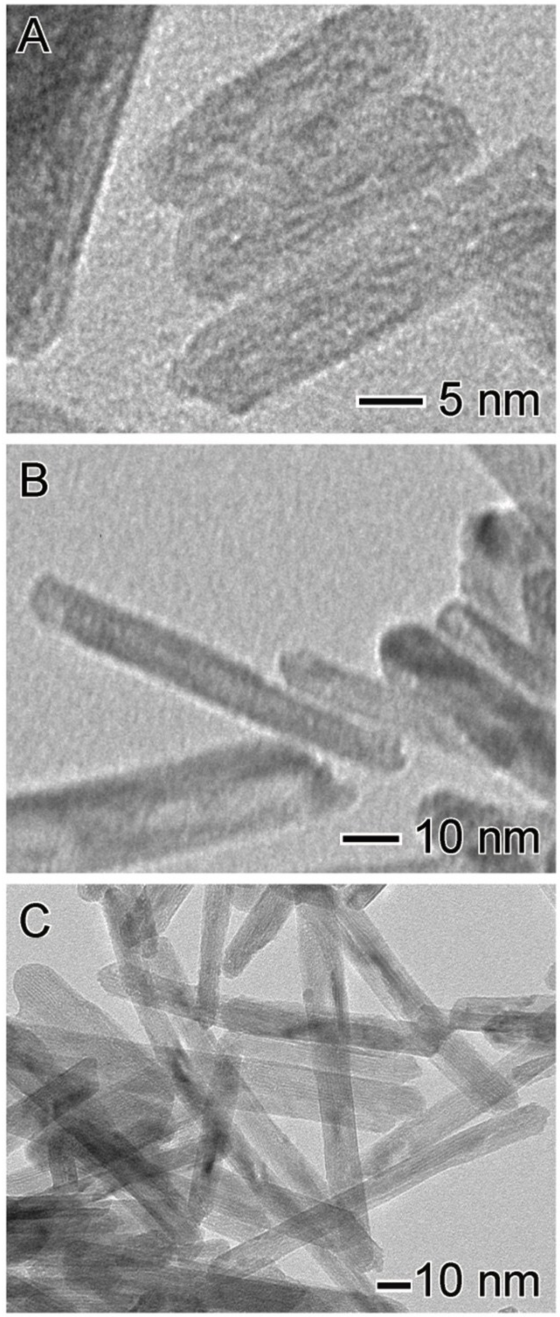


Figure S1. (A-C) TEM images of sub-15 nm CeO_2 nanomaterials obtained for a hydrothermal method as a function of the CeO_2 growth time: (A) 1 h, (B) 3 h, and (C) 6 h.

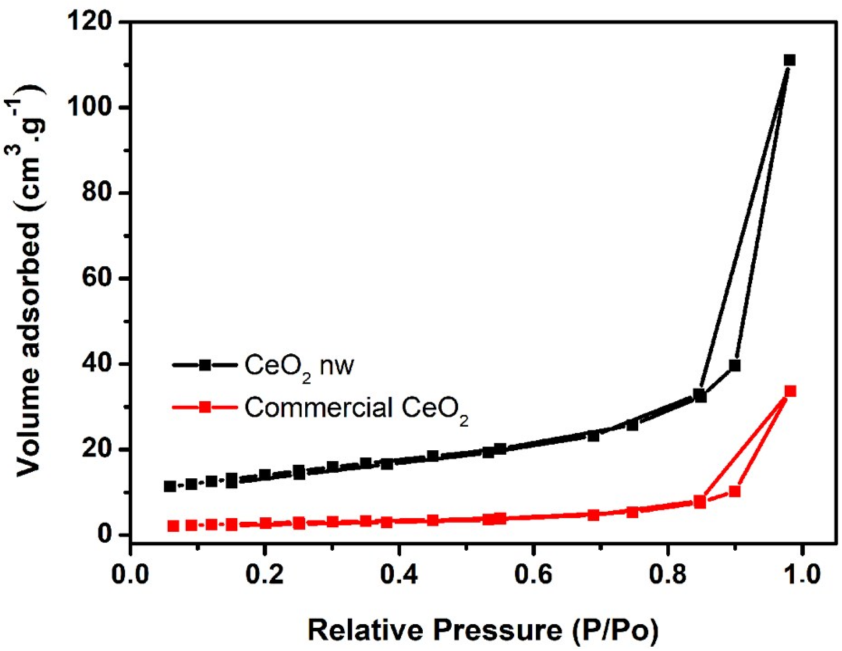


Figure S2. Isotherms for sub-15 nm CeO_2 nanowires and commercial CeO_2 materials generated from the N_2-adsorption-desorption curves.

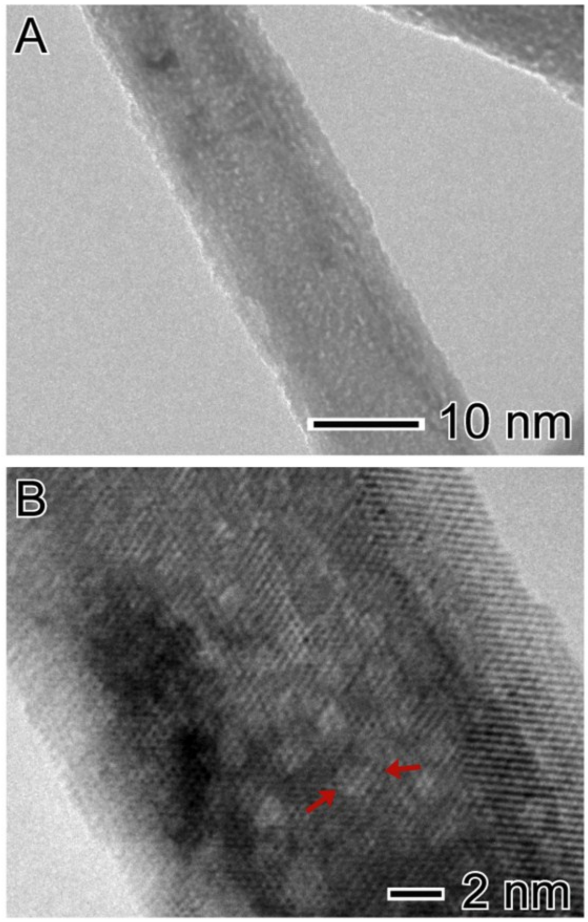
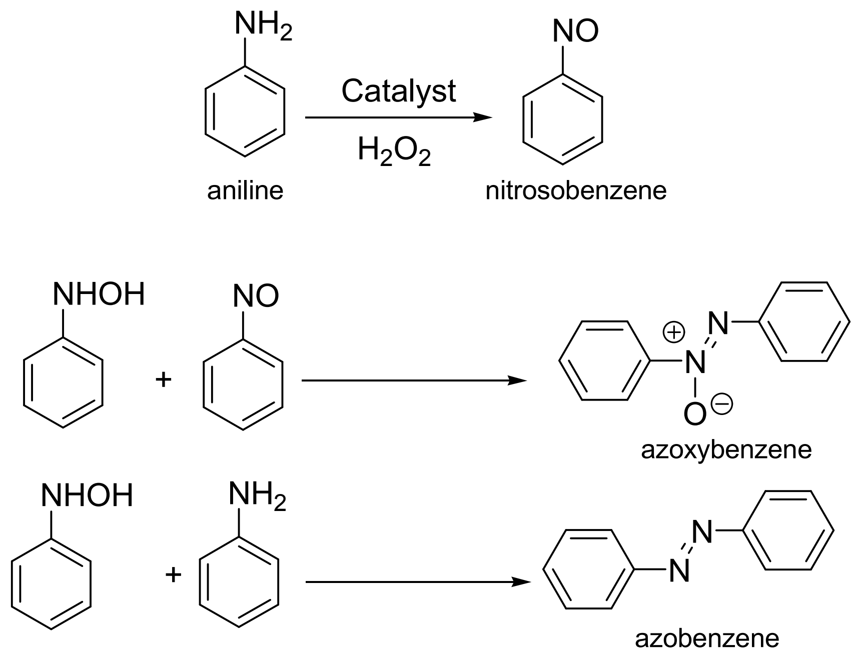


Figure S3. HRTEM (A-B) images for a single sub-15 nm CeO_2 nanowire showing the presence of several 1-2 nm mesoporous at the nanostructure surface.



Scheme S1. Main pathways for the formation of nitrosobenzene, azoxybenzene and azobenzene as products during the aniline catalytic oxidation using H_2O_2 as oxidant.

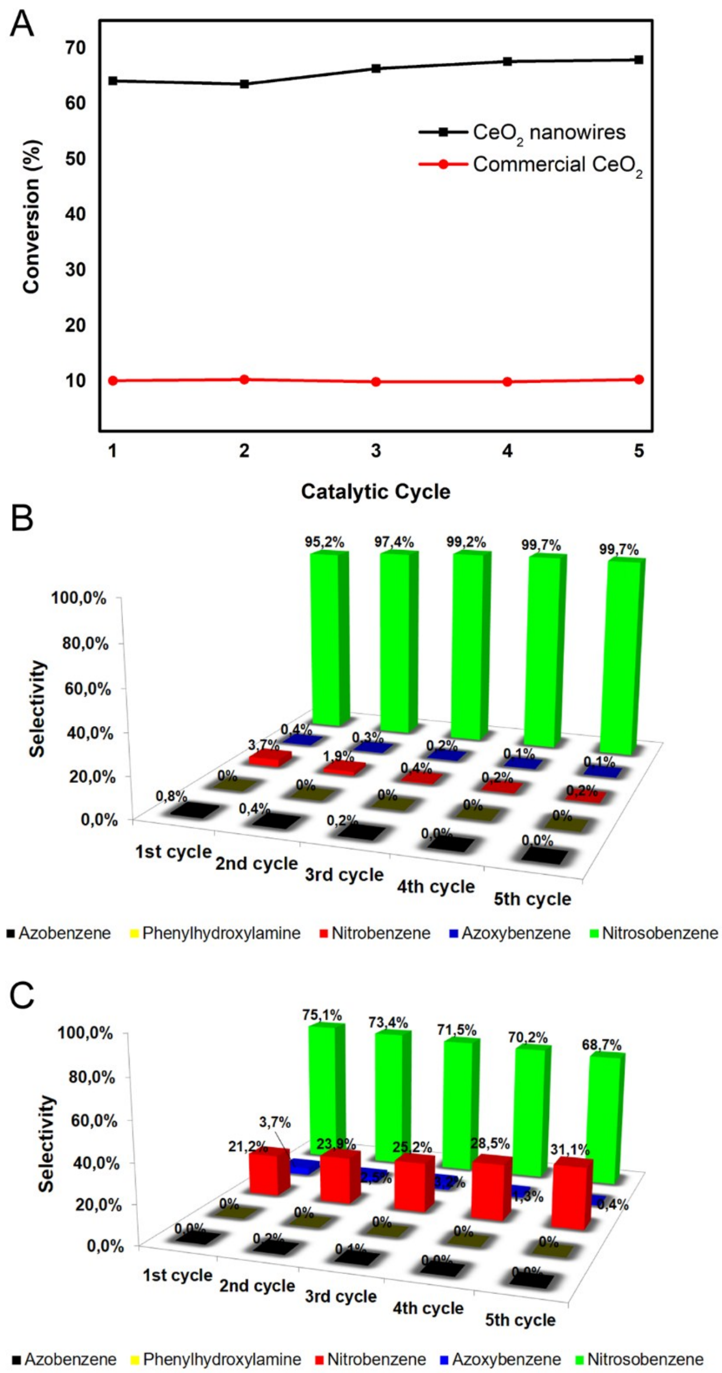


Figure S4. (A) Aniline conversion (%) and (B-C) selectivity for oxidation products as a function of number of catalytic cycles employing sub-15 nm CeO_2 nanowires (B) and commercial CeO_2 (C). Reaction conditions: 100 μL of aniline, 150 μL of H_2O_2, 10 mg of CeO_2 catalyst, 3 mL of acetonitrile as the solvent, 12 h of reaction and, room-temperature.

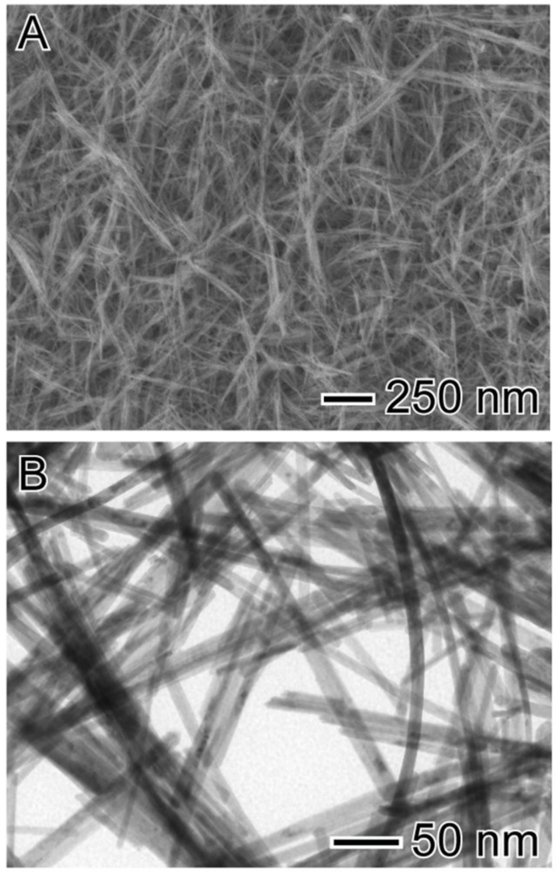


Figure S5. (A) SEM and (B) TEM images of sub-15 nm CeO_2 nanowires after the 5^{th} catalytic cycle.

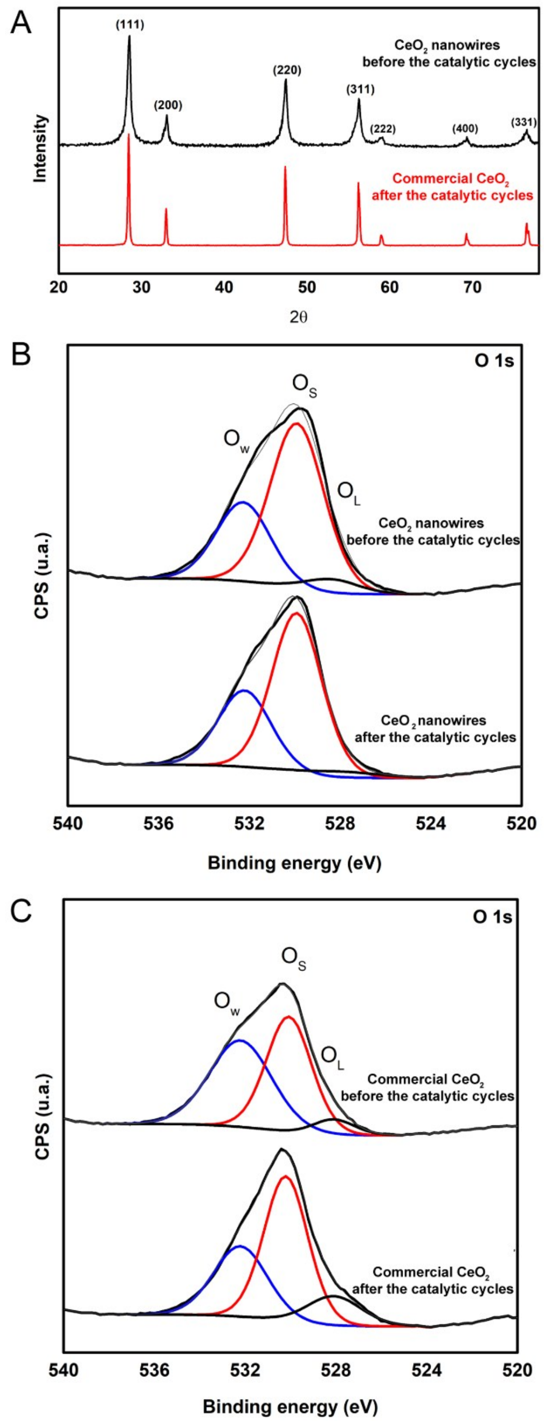


Figure S6. (A) XRD and (B-C) deconvoluted O 1s spectra for sub-15 nm CeO_2 nanowires (B) and commercial CeO_2 (C) after the stability catalytic studies.

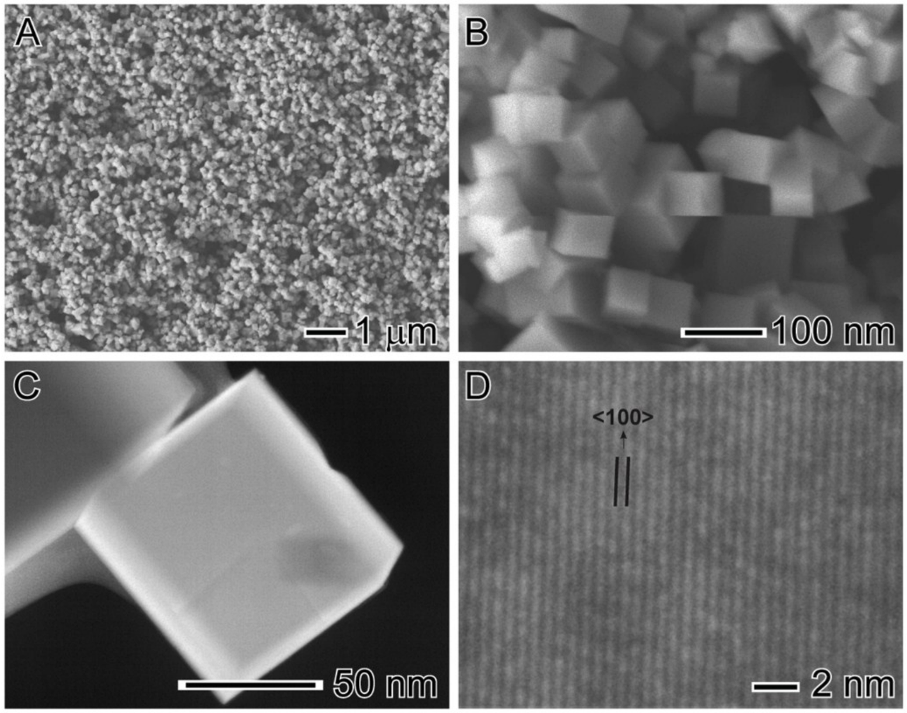


Figure S7. (A-B) SEM and (C) STEM-HAADF, and (D) HRTEM images of CeO_2 nanocubes obtained by a hydrothermal method at 140 ^oC.

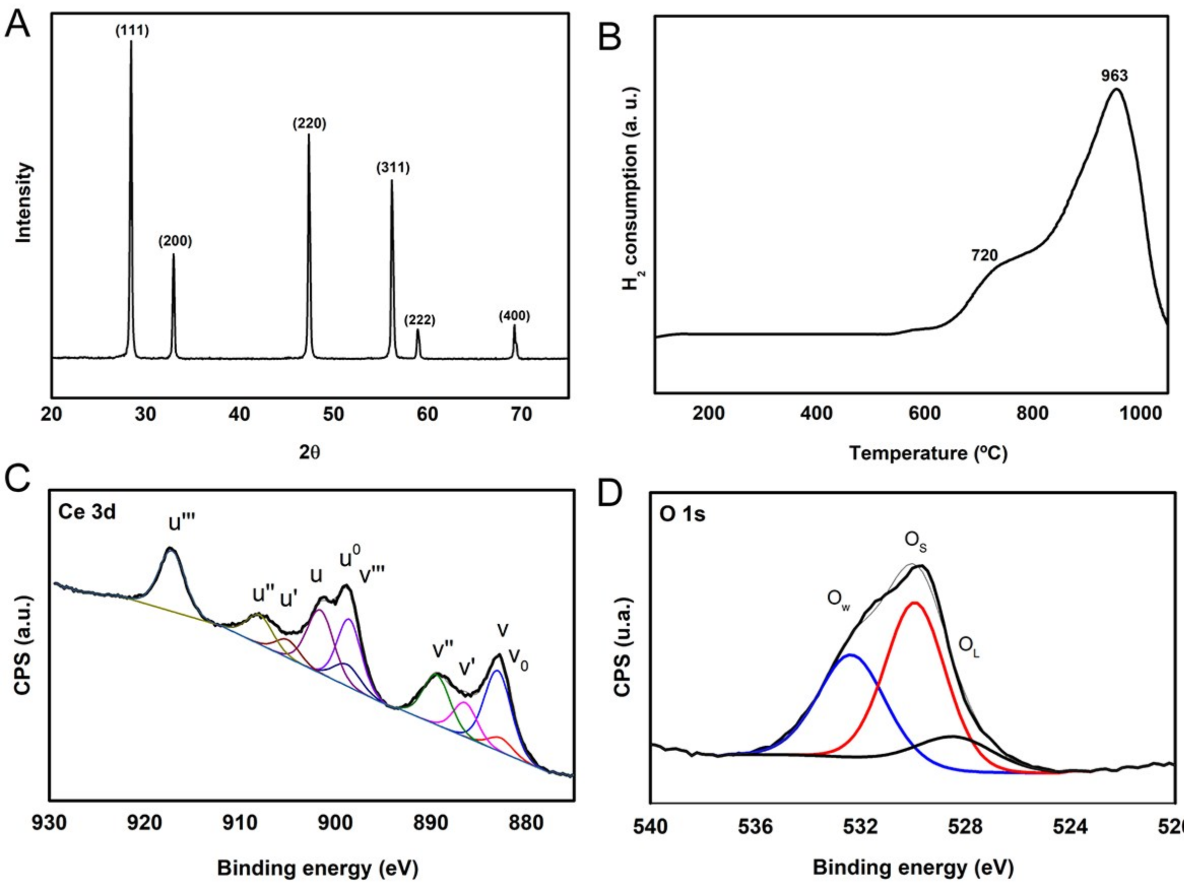


Figure S8. (A) XRD, (B) TPR, and (C-D) deconvoluted Ce 3d (C) and O 1s (D) core level XPS spectra for CeO_2 nanocubes obtained by a hydrothermal method at 140 ^{o}C.