

Supporting information

Engineering of nanoscale defect patterns in CeO₂ nanorods via ex-situ and in-situ annealing

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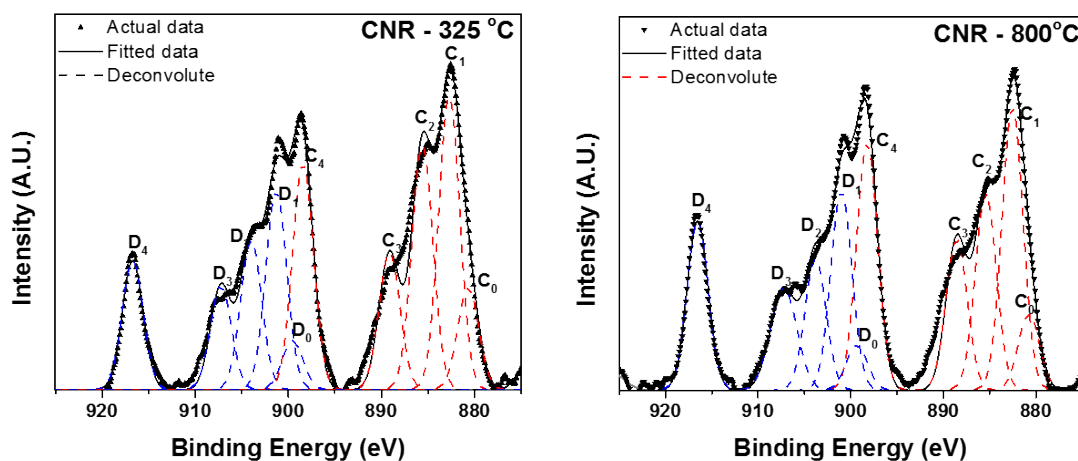


Figure S1: XPS Spectrum of Ce (3d) for CeO₂ nanorods annealed under oxidizing environment

Table S1: XPS binding energies of individual peak of the Ce (3d) spectrum for as-synthesized and post annealed CeO₂ nanorods

Materials	Ce (3d _{5/2})					Ce (3d _{3/2})				
	C ₀	C ₁	C ₂	C ₃	C ₄	D ₀	D ₁	D ₂	D ₃	D ₄
CNR – As	880.8	882.8	885.4	888.8	897.8	899.7	901.0	903.2	907.1	916.9
CNR – 325 °C	880.5	882.6	885.5	888.9	897.9	899.5	901.1	904.2	907.3	917.1
CNR – 800 °C	880.8	882.4	885.9	888.6	898.2	899.4	901.0	903.8	907.2	916.6

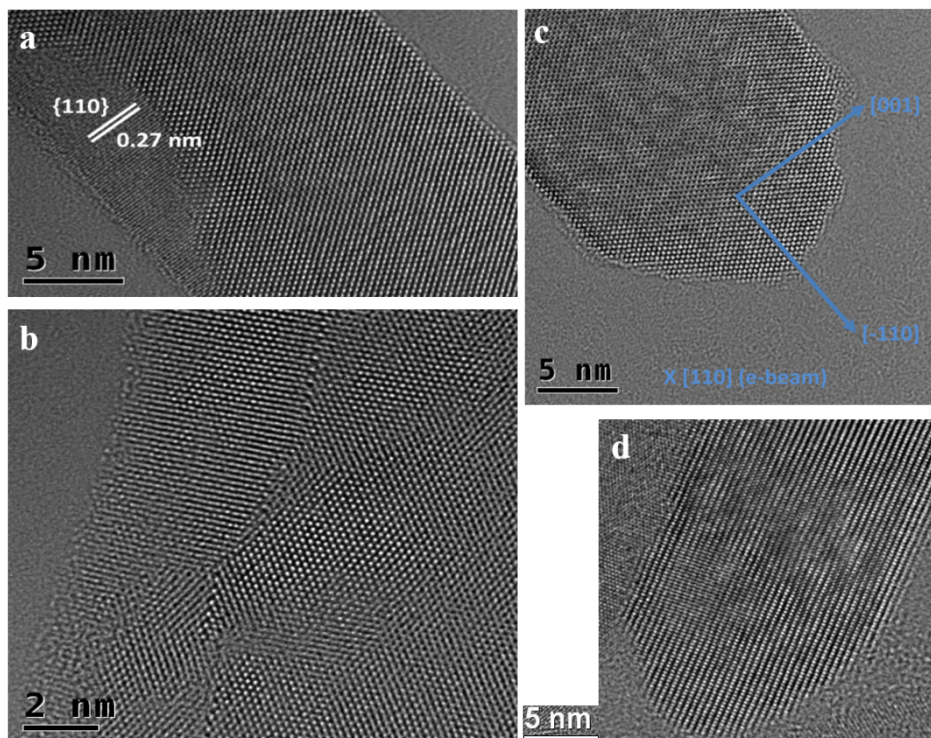


Figure S2: HRTEM images of as-synthesized CeO₂ nanorods from a minority of rods showing high crystallinity with occasional defects: (a) possible grain rotation, (b) some planar defect lines, (c) local {111} faceting leading to roundish tip avoiding flat {110} type face; (d) local lattice distortions / strain patches ($\langle 211 \rangle$ viewing direction). All rods are {110} directed.

At 600C after (80+180 min) annealing

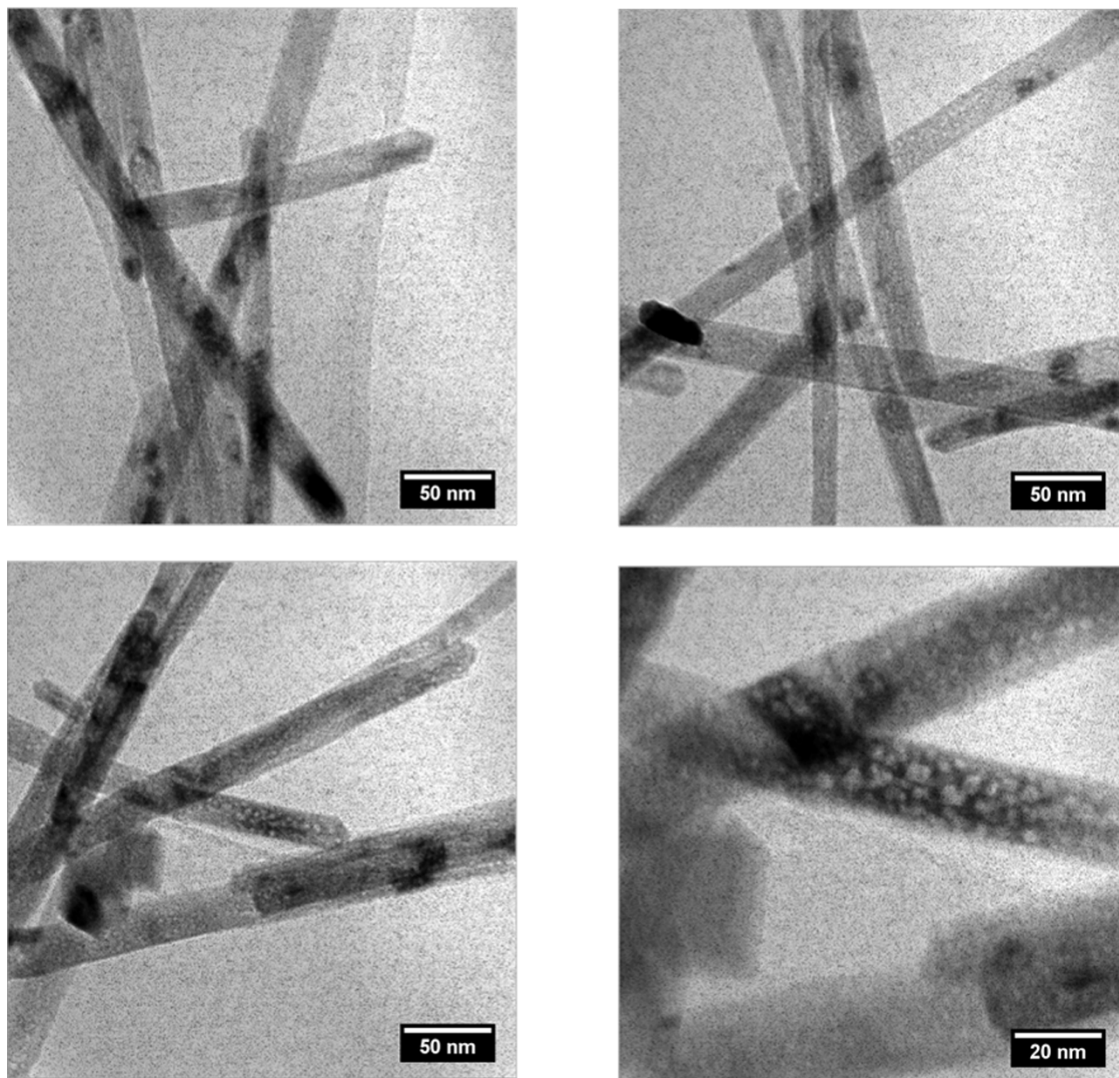


Figure S3: In situ TEM images in various places after heating at 600 °C.

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