

## Supplementary Material (ESI)

# Formaldehyde-assisted hydrothermal synthesis of one-dimensional CeO<sub>2</sub> and their morphology-dependent properties

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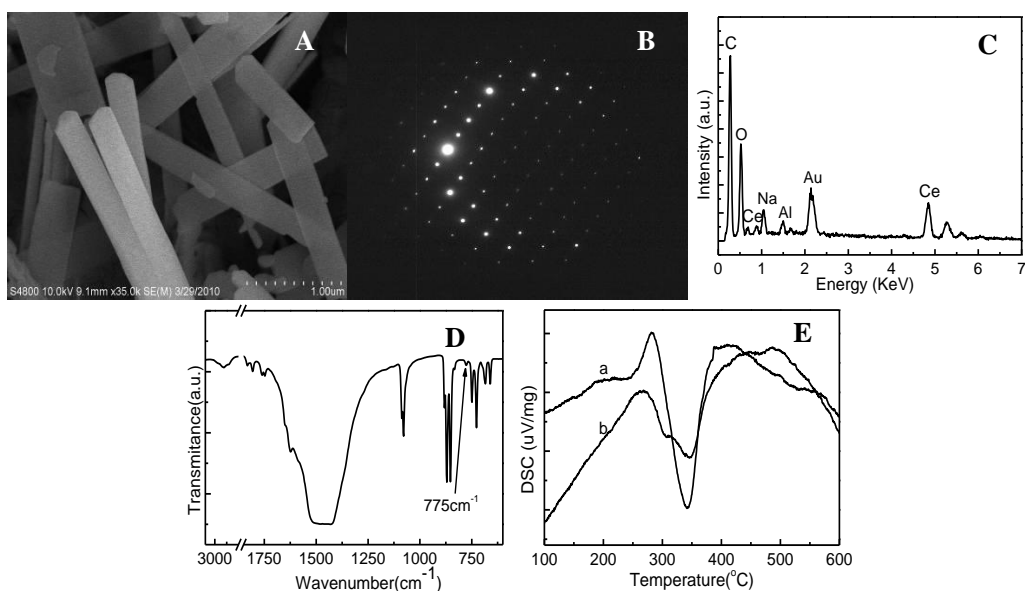


Figure S1 (A) SEM image (B) SAED pattern; (C) EDS spectrum; (D) FT-IR spectra of CeO<sub>2</sub> nanobelt precursors; (E) DSC curves of cerium formate (a) and CeO<sub>2</sub> nanobelt precursors (b).

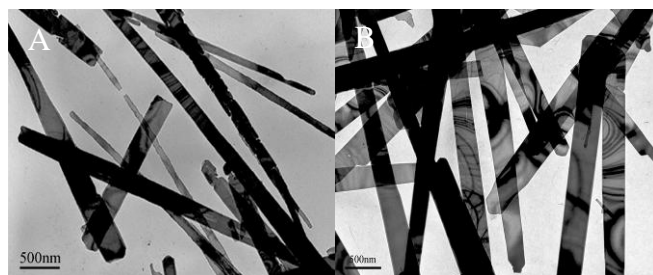
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5 Fig.S2 TEM images of CeO<sub>2</sub> beltlike precursors. (A) NaOH: 1.5g; Temperature: 120°C; Time: 20h. (B) NaOH: 1g; Temperature: 140°C; Time: 40h.

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**Table S1** Summary of synthetic CeO<sub>2</sub> precursors using different hydrothermal conditions

	Alkali (g)	Ce(NO <sub>3</sub> ) <sub>3</sub> ·6H <sub>2</sub> O(g)	Na(K)/Ce molar ratio	Hydrothermal temperature (°C)	Hydrothermal time (h)	Morphology of precursors	Phase
NaOH	1	1	10.8	120	20	Nanorod	Ce(HCOO) <sub>3</sub>
	1.5	1	16.3	100	20	Nanorod	Ce(HCOO) <sub>3</sub>
	1.5	1	16.3	120	20	Nanobelt	
	1.5	1	16.3	140	20	Nanobelt	
	1.5	1	16.3	180	20	Not forming	
	0.3	1	3.3	140	40	Nanorod	Ce(HCOO) <sub>3</sub>
	1	1	10.8	140	40	Nanobelt	
	1.5	1	16.3	140	40	Nanobelt	
	2	1	21.6	140	40	Nanobelt	
	3	1	32.4	140	40	Nanobelt (Broken)	
	1	3	3.6	140	40	Nanorod	Ce(HCOO) <sub>3</sub>
	1	4	2.7	140	40	Nanorod	Ce(HCOO) <sub>3</sub>
KOH	2.1	1	16.3	120	20	Nanowires	Ce (CO <sub>3</sub> )OH