

## Supporting Information

### Facile morphology control of 3D porous CeO<sub>2</sub> for CO oxidation

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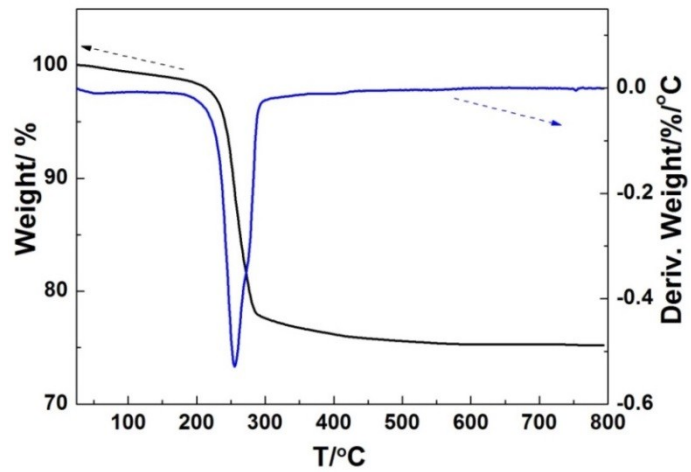


Fig. S1. The TG and DTG of A-CeO<sub>2</sub> (3:2:1).

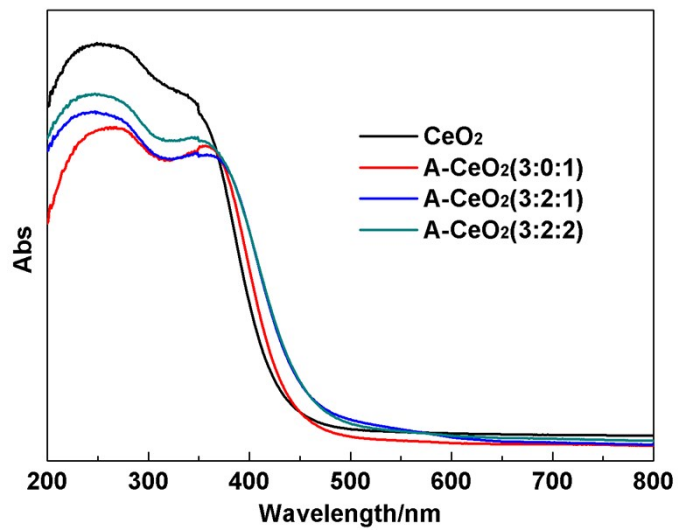


Fig. S2. UV-vis diffuse reflectance spectra of A-CeO<sub>2</sub> (3:2:1)

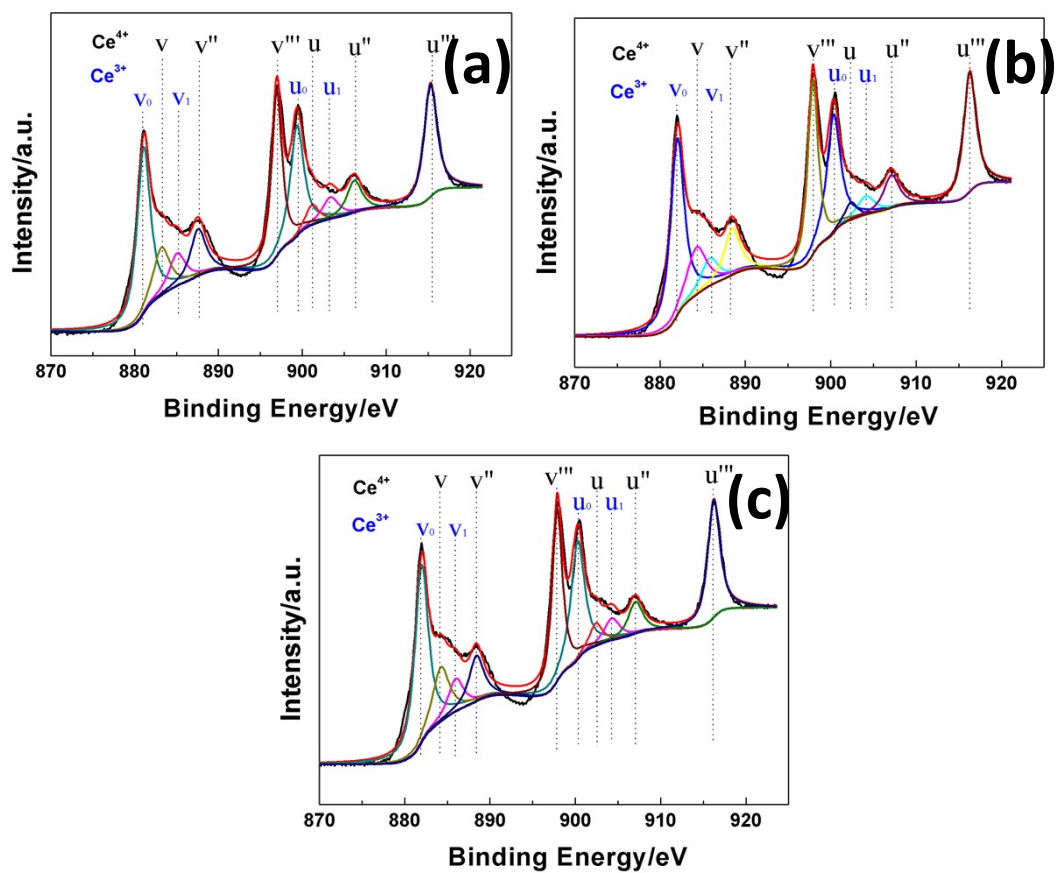


Fig. S3. Ce 3d core level XPS pattern of CeO<sub>2</sub> (a), A-CeO<sub>2</sub> (3:0:1) (b) and A-CeO<sub>2</sub> (3:2:2).

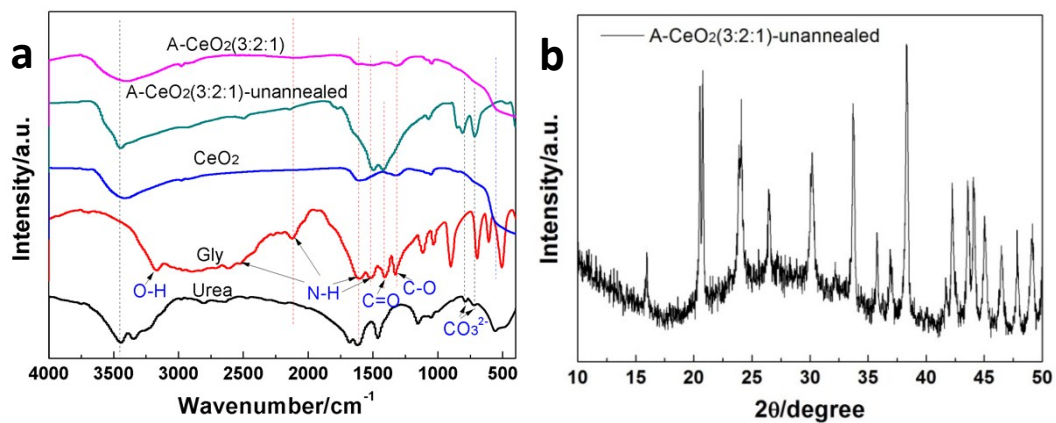
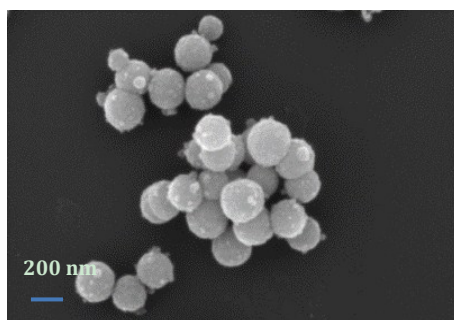
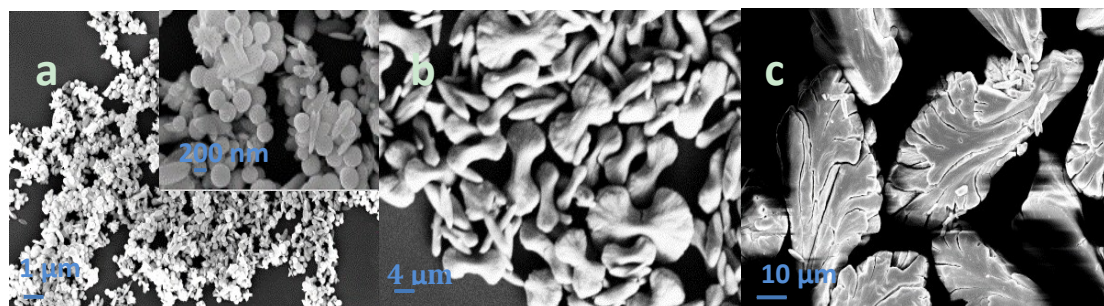
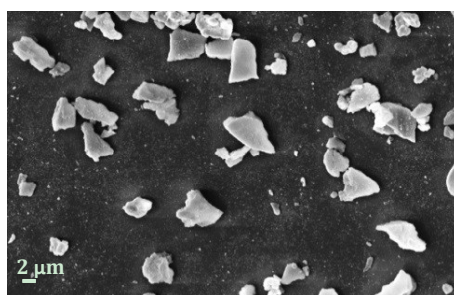


Fig. S4. FTIR spectra of reactants and CeO<sub>2</sub> (a); XRD patterns of A-CeO<sub>2</sub> (3:2:1) without calcination (b)

**Table S1**The yield of A-CeO<sub>2</sub> with different ratio of reactants

Sample	Theoretical mass/g	Actual mass/g	yield/%
A-CeO <sub>2</sub> (3:0:1)	1.39	1.13	81.29
A-CeO <sub>2</sub> (3:1:1)	1.39	0.72	51.80
A-CeO <sub>2</sub> (3:2:1)	1.39	0.38	27.34
A-CeO <sub>2</sub> (3:4:1)	1.39	0.07	5.04
A-CeO <sub>2</sub> (1.5:2:1)	1.39	0.06	4.32
A-CeO <sub>2</sub> (6:2:1)	1.39	0.87	62.59
A-CeO <sub>2</sub> (3:2:2)	2.78	0.37	13.31

**Fig. S5.** SEM images of A-CeO<sub>2</sub> (3:2:1) with different solvent (ethanol: water=1:10).**Fig. S6.** SEM images of A-CeO<sub>2</sub> (3:2:1) with different reaction time (a: 6 h; b: 12 h; c: 24 h).**Fig. S7.** SEM of bulk CeO<sub>2</sub>.