Templating synthesis of metal oxides by an incipient wetness impregnation route and their activities for CO oxidation

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Table S1. Amount of H_2 adsorbed from Co/SBA-16_T (obtained directly from the reduction of Co_3O_4/SBA-16_T) and the corresponding cobalt dispersion

Catalyst	Amount of H_2 desorbed (μmol/g)	Dispersion (%)
Co/SBA-16_80	310.2	27
Co/SBA-16_100	259.4	20
Co/SBA-16_120	226.9	15

Table 2. Comparison in the CO oxidation activity of the herein materials with that in literature

Catalyst [a]	**Reaction conditions**	**T_{ig} (°C)**	**T_{100} (°C)**	**Ref.**
Co_3O_4-16_80	50 mg catalyst; 50 mL min^{-1};	90	140	This work
$Ce_{0.7}Cu_{0.3}O_2$-15_100	0.5% CO-7.5% O_2/Ar	100	210	
Co_3O_4-40	200 mg catalyst; 60 mL min^{-1};	-30	30	1
Co_3O_4-100	1% CO in air	-20	80	
Co_3O_4-130		5	150	
Meso-Co-250	100 mg catalyst; 20 mL min^{-1};	-67	-35	2
Meso-Co-350	1% CO-1% O_2/N_2	-75	-60	
Meso-Co-450		-45	0	
m-Co_3O_4	50 mg catalyst; 37 mL min^{-1};	-80	-55	3
	1% CO in air			
Co_3O_4-450	100 mg catalyst; 33.3 mL min^{-1};	< -100	-37	4
Co_3O_4-500	1% CO-21% O_2/He	< -100	-49	
Co_3O_4-600		< -100	-29	
$(CuO)_{5\%}/CeO_2$,	1500 mg catalyst; 200 mL min^{-1};	85	131	5
$(CuO)_{10\%}/CeO_2$,	1% CO-10% O_2/N_2	65	111	
$(CuO)_{15\%}/CeO_2$,		85	151	
$CuCe_{0.33}$	50 mg catalyst; 25 mL min^{-1};	60	71	6
$CuCe_{0.46}$	1% CO in air	62	81	
$CuCe_{0.22}$		80	84	

[a] for the meaning of the catalyst's name, see the respective literature

References

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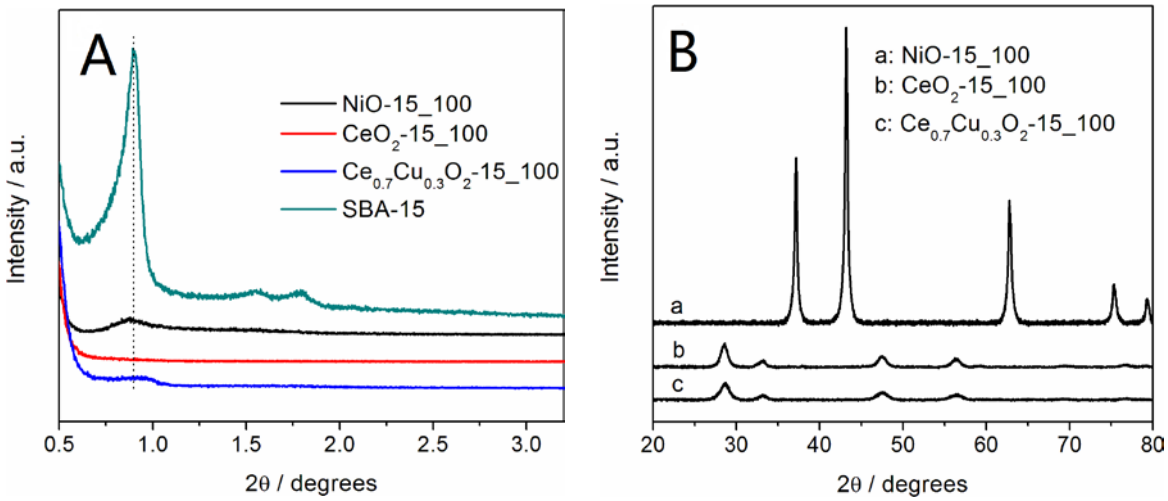

Figure S1. The small-angle XRD patterns (A) and the wide-angle XRD patterns (B) of NiO, CeO_2 and $Ce_{0.7}Cu_{0.3}O_2$ replicated from SBA-15

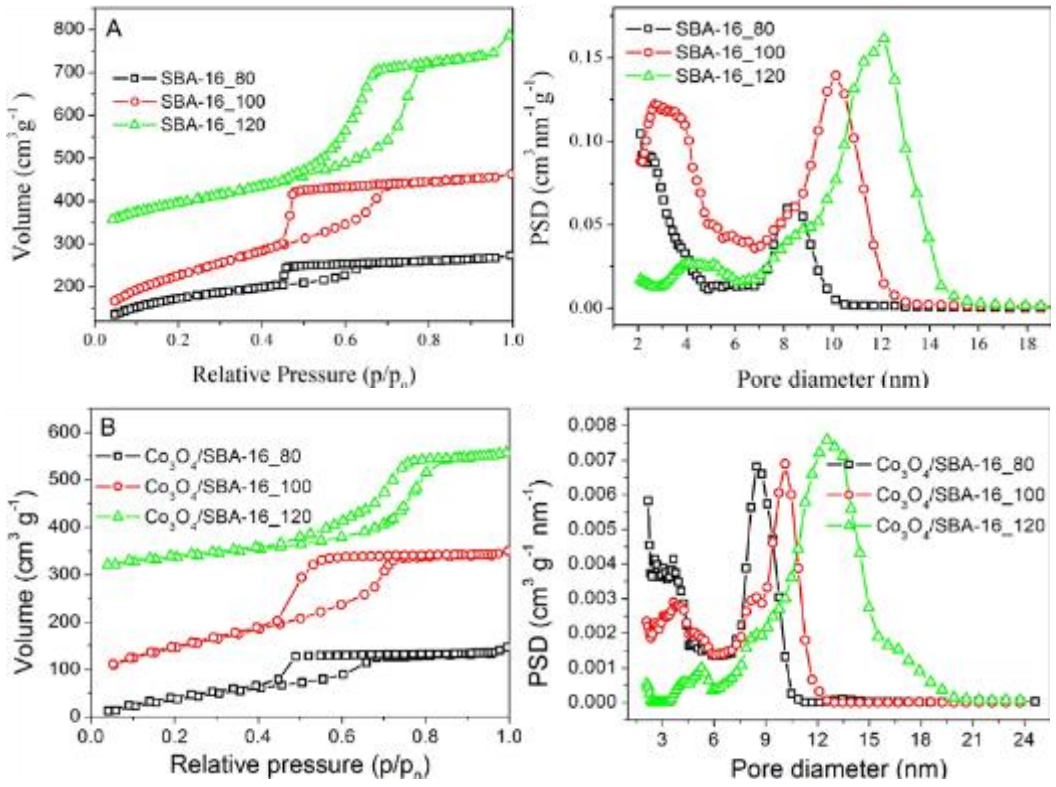

Figure S2. N_2 adsorption–desorption isotherms of (A) the silica templates SBA-16_T and (B) the Co_3O_4-silica composites, and the corresponding pore size distribution for each.

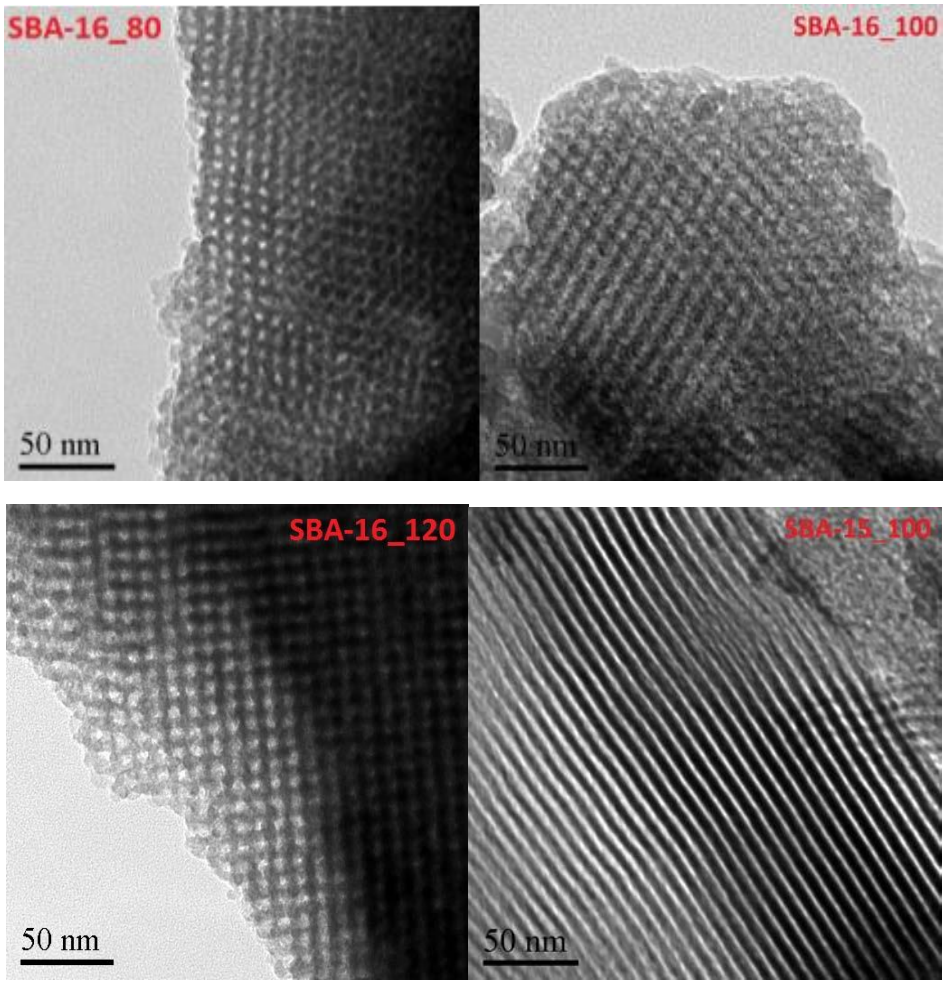

Figure S3. TEM images of the SBA-15_100 and SBA-16_T templates

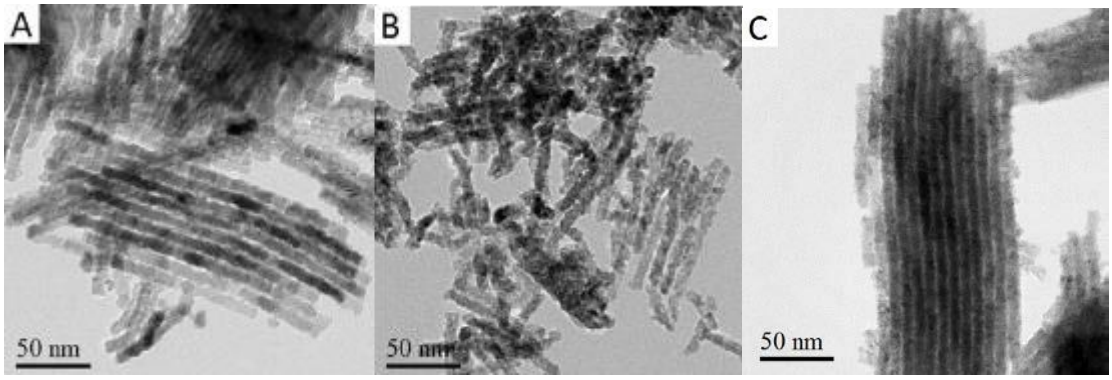

Figure S4. TEM images of (A) NiO-15_100, (B) CeO_2-15_100 and (C) $Ce_{0.7}Cu_{0.3}O_2$-15_100.

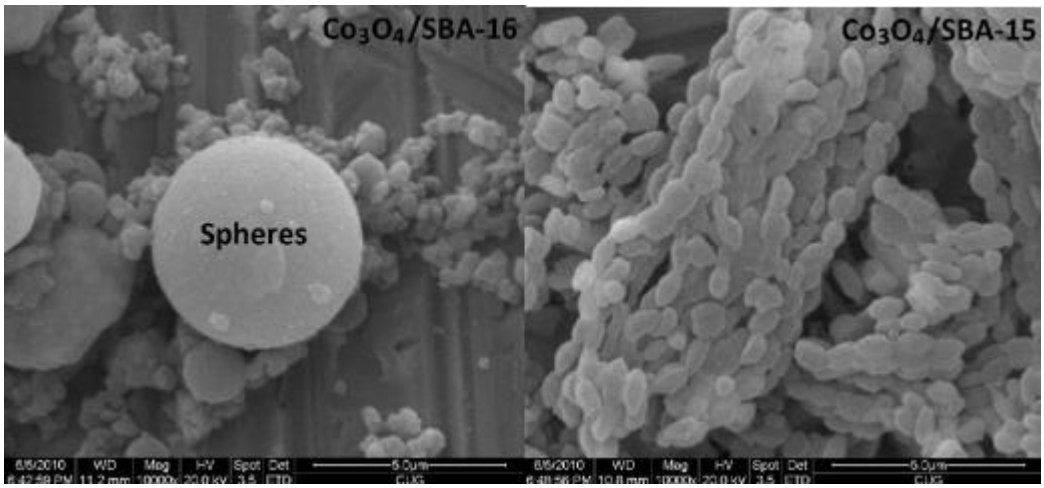

Figure S5. SEM images of the Co_3O_4/SBA-16_100 and Co_3O_4/SBA-15_100

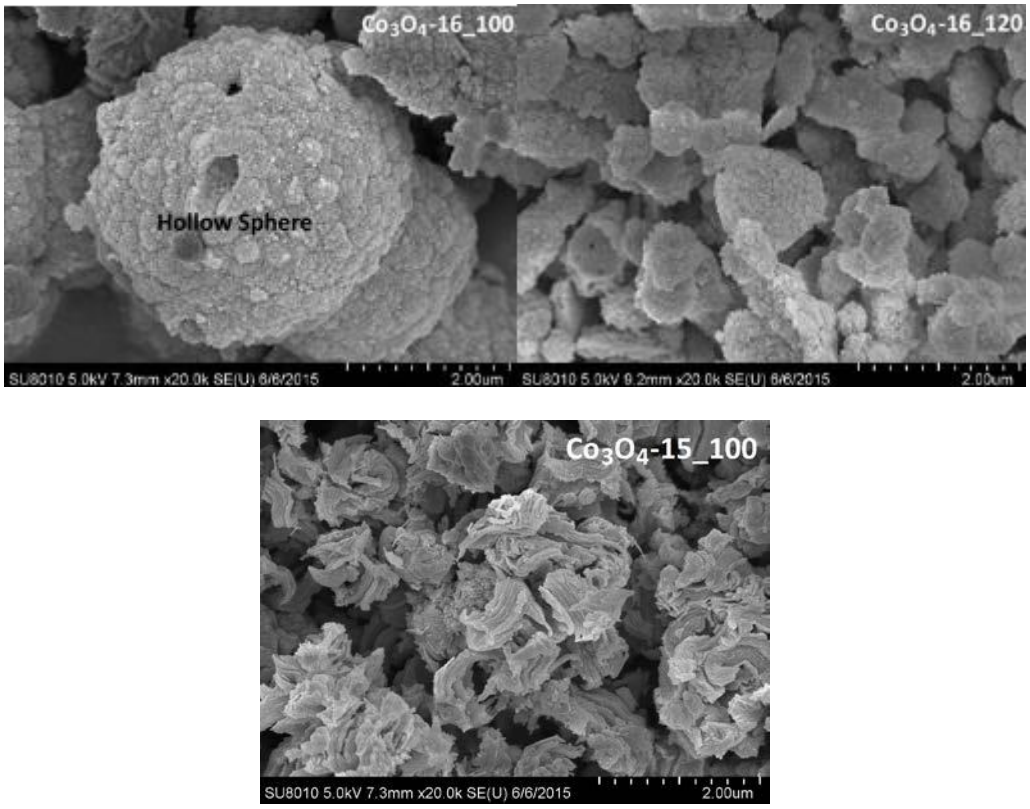

Figure S6. SEM images of the replicated Co_3O_4-16_100, Co_3O_4-16_120 and Co_3O_4-15_100

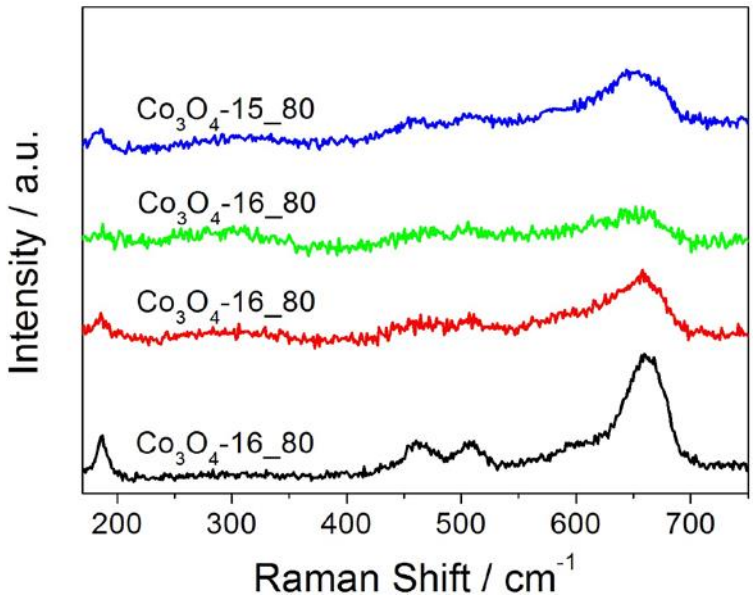

Figure S7. UV-Raman spectra of the replicated Co_3O_4-16_T and Co_3O_4-15_100

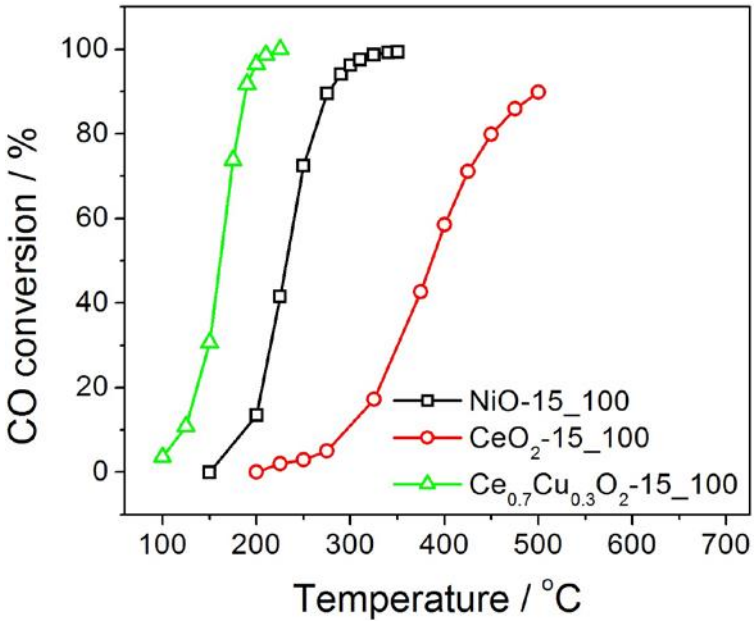

Figure S8. CO conversion obtained from NiO-15_100, CeO_2-15_100 and $Ce_{0.7}Cu_{0.3}O_2$-15_100. Reaction conditions: 50 mg Catalyst, 0.5% CO-7.5% O_2/Ar, flow rate of 50 mL min^{-1}.

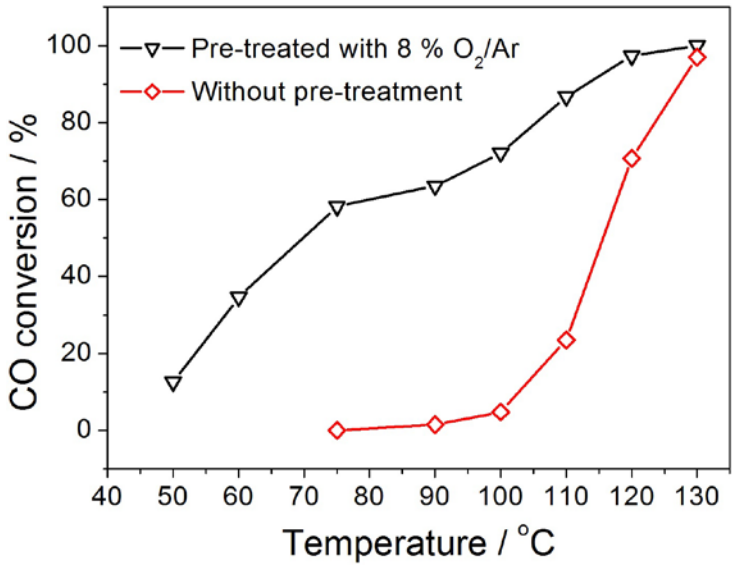

Figure S9. Comparison in the CO oxidation activity of Co_3O_4-16_80 pre-treated with and without 8% O_2/Ar at 120 °C for 30 min.