Supplementary Information

Au/Co promoted CeO_2 catalysts for formaldehyde total oxidation at ambient temperature: role of oxygen vacancies

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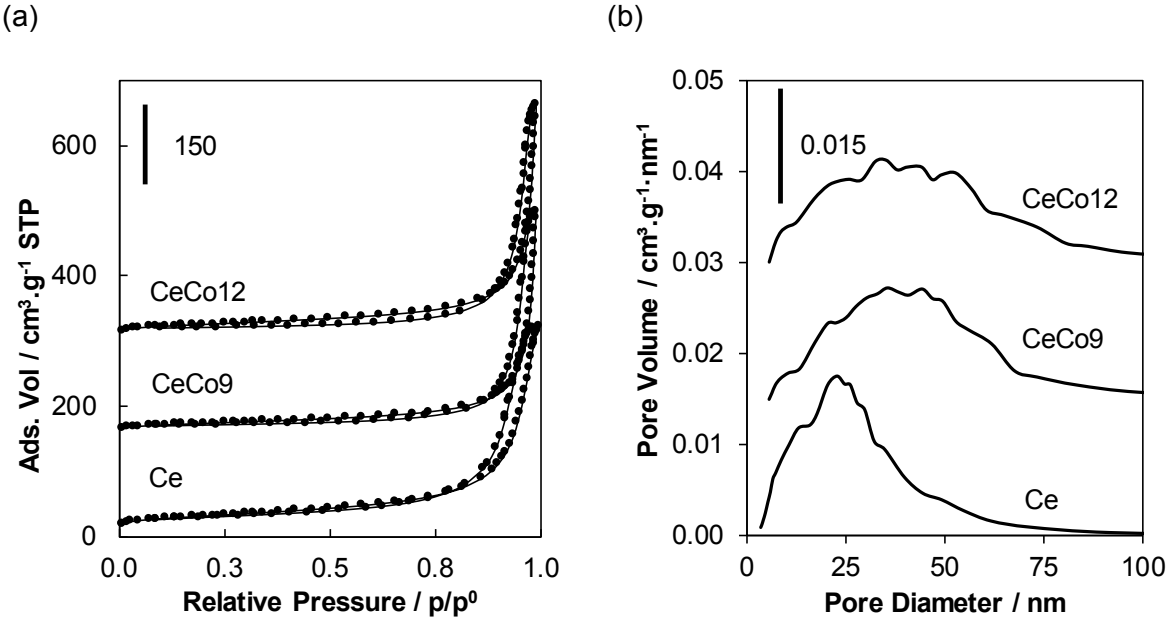


Figure S1 : (a) BET Isotherms and (b) pore size distribution obtained for Ce and CeCOx samples

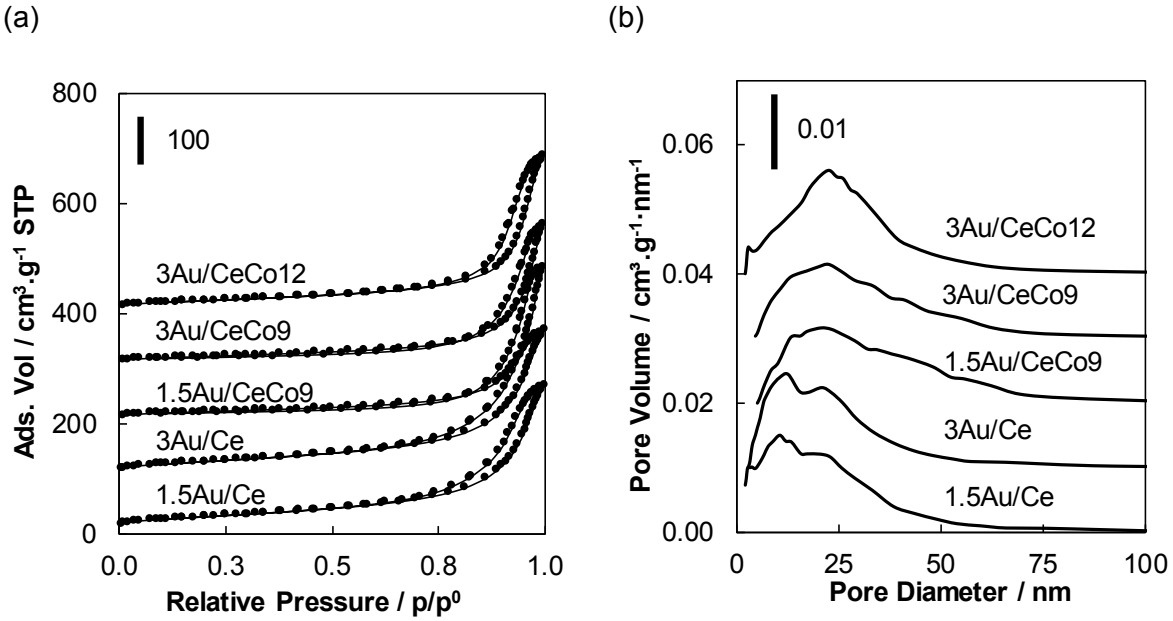


Figure S2 : (a) BET Isotherms and (b) pore size distribution obtained for yAu/CeCOx samples

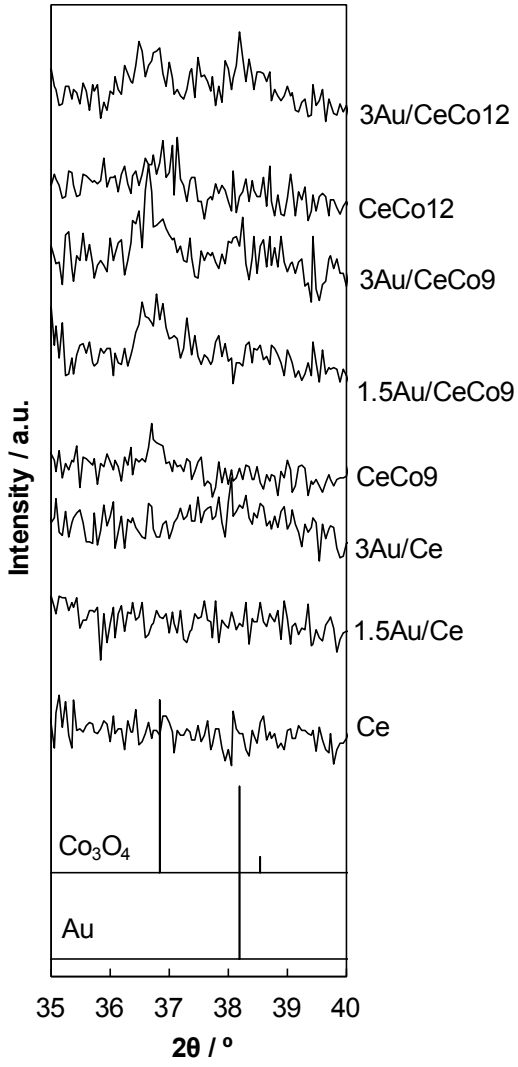


Figure S3 : Zoom of XRD patterns of Ce, CeCox and yAu/CeCox samples between 2θ = 35° and 40°

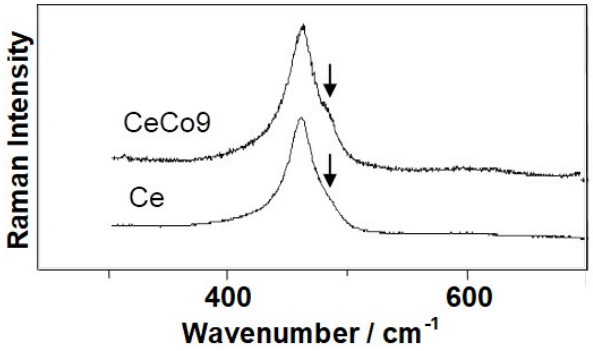


Figure S4 : Micro Raman spectra of Ce and CeCo9 samples

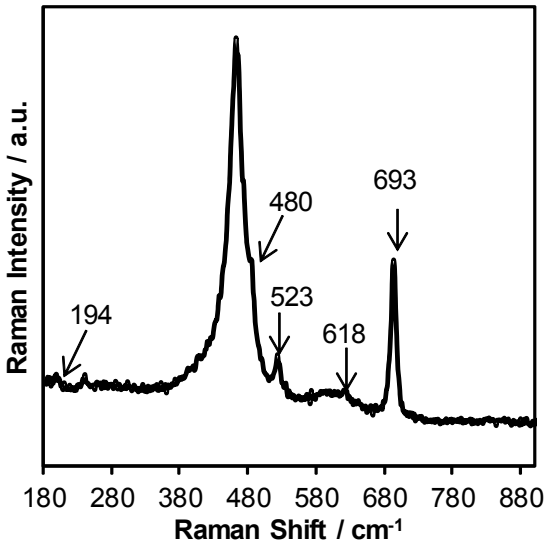


Figure S5 : Micro Raman spectrum of CeCo9 sample

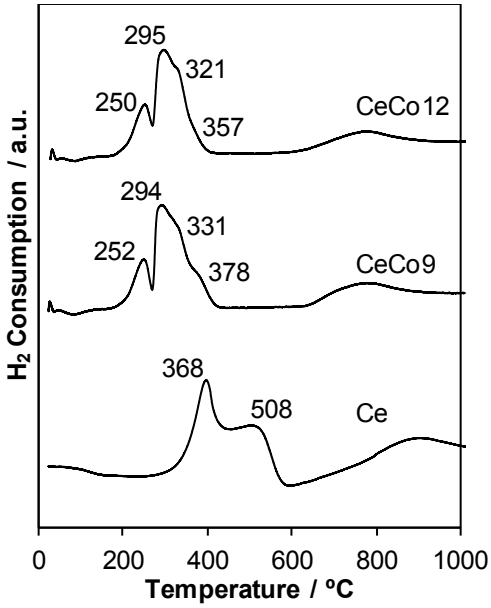


Figure S6 : H_2-TPR profiles of Ce and CeCox samples

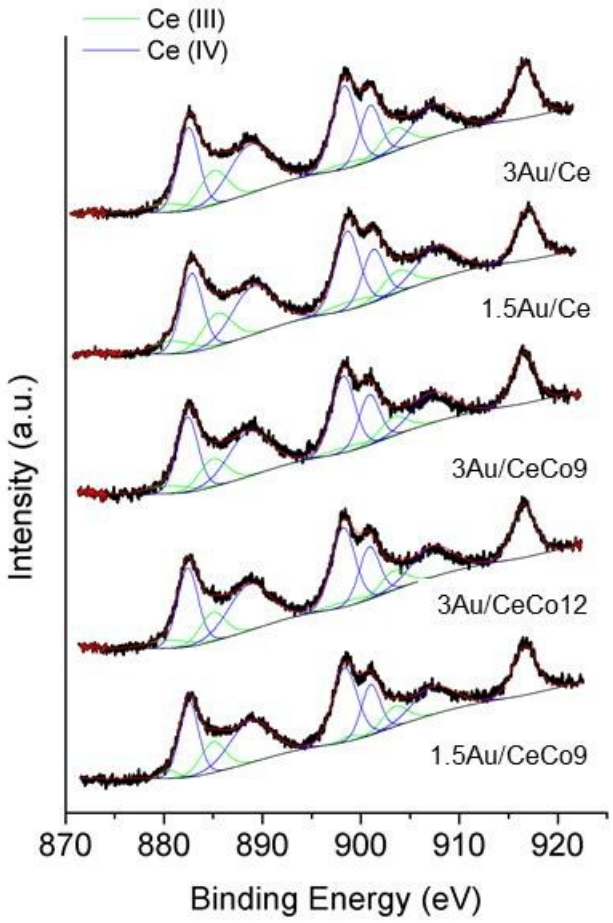


Figure S7 : Ce3d XPS spectra for yAu/CeCox

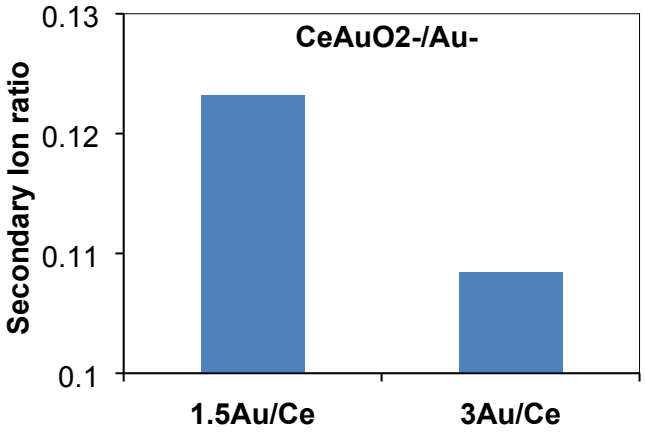


Figure S8 : $CeAuO_2^-/Au^-$ ratio of 1.5Au/Ce and 3Au/Ce

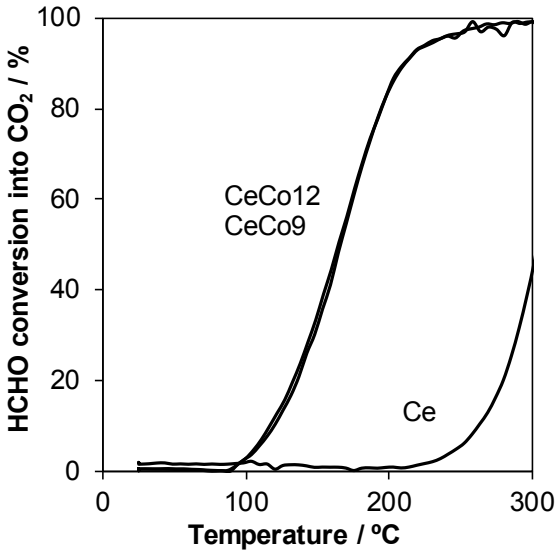
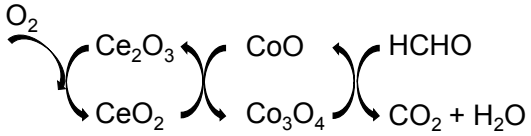


Figure S9 : HCHO light-off curves for the CeCo and Ce supports

Table S1 : Intensity ratio extracted from negative and positive ToF-SIMS spectra

	Ce	CeCo9	CeCo12	1.5Au/Ce	3Au/Ce	1.5Au/CeCo9	3Au/CeCo12
$^{37}Cl^-$/ Total	0.0002	0.0174	0.0060	0.1054	0.0089	0.1884	0.0462
$AuCl_2^-/Au^-$	-	-	-	0.9665	0.0587	1.1876	0.1984
Au_4^-/Au^-	-	-	-	0.0065	0.0136	0.0090	0.0171
$CoOCl^-$ /CoO^-	-	1.9035	0.2889	-	-	1.8714	0.7018
$CeCl_2^+/Ce^+$	1.5004	0.0103	0.0130	0.0035	0.0231	0.0056	0.0138
$CeOCl^+/Ce^+$	1.3645	0.0370	0.0689	0.0130	0.1100	0.0239	0.0632



Scheme S1 : Illustration of the possible synergistic effect between CeO_2 and Co_3O_4 oxides for HCHO oxidation over CeCox catalysts