Supporting Information

Investigation of Au/Co_3O_4 Nanocomposites by Tailoring Co_3O_4 Morphology

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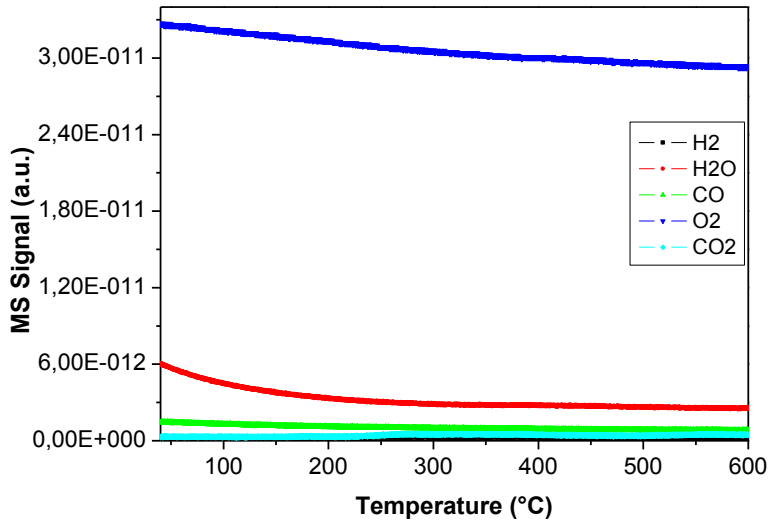


***Figure S1**. TPO analysis of Co_3O_4-C oxides after 350 °C calcination.*

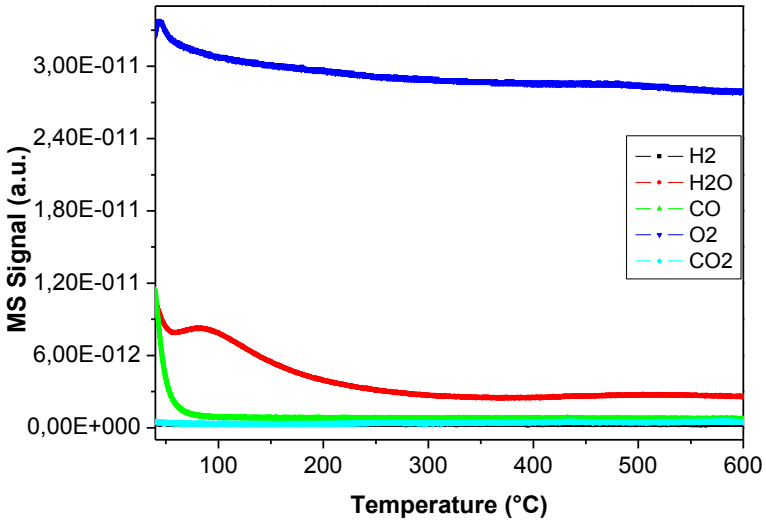


Figure S2. *TPO analysis of Co_3O_4-P oxides after 350 °C calcination.*

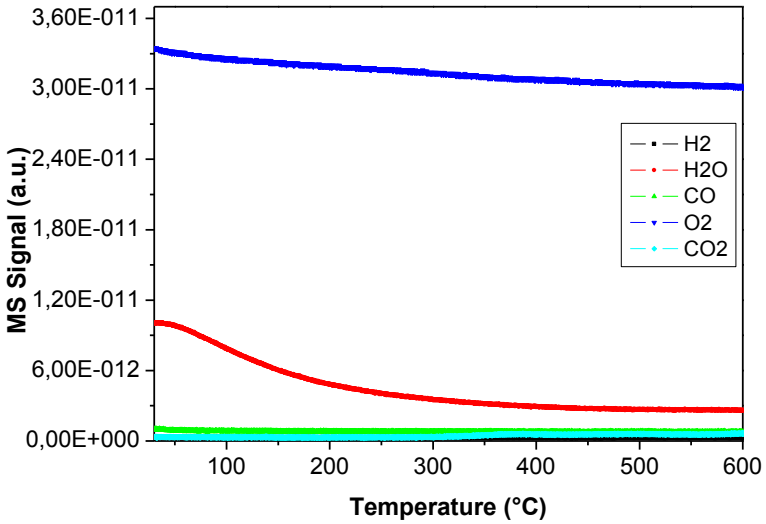


Figure S3. *TPO analysis of Au/Co_3O_4-C catalysts after 300 °C calcination.*

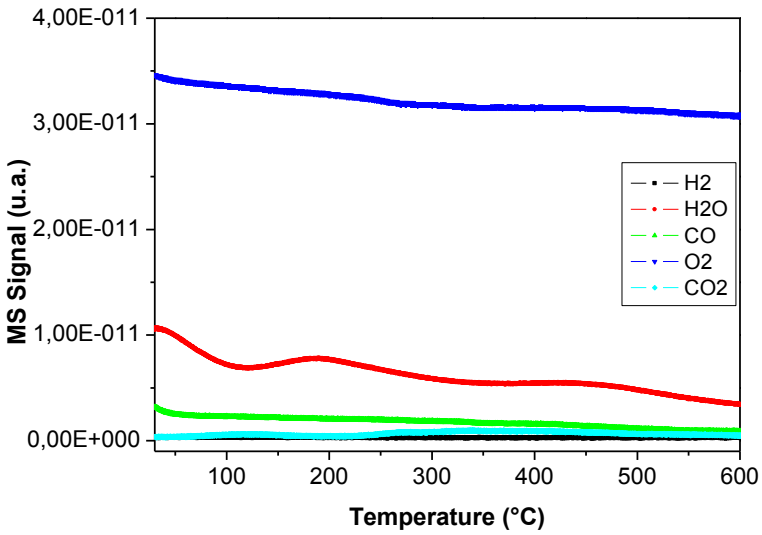


Figure S4. *TPO analysis of Au/Co_3O_4-P catalysts after 300 °C calcination. Only some adsorbed water species on the Co_3O_4-P surface are observed at ~450 ºC.*

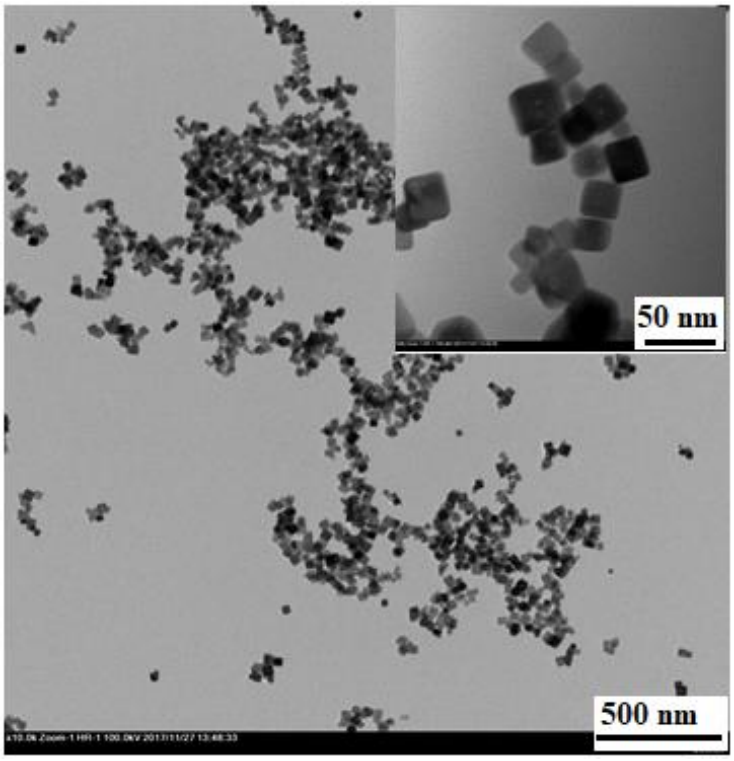


Figure S5. *TEM images of as-prepared Co_3O_4-C oxide.*

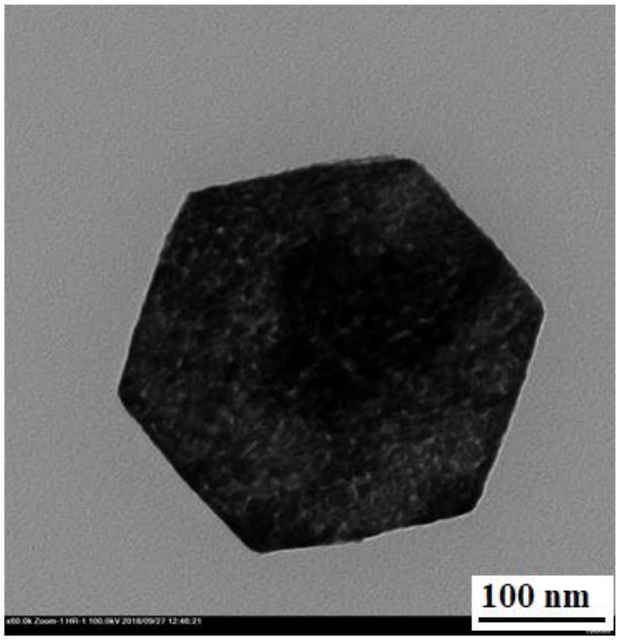


Figure S6*. TEM images of as-prepared Co_3O_4-P oxide.*

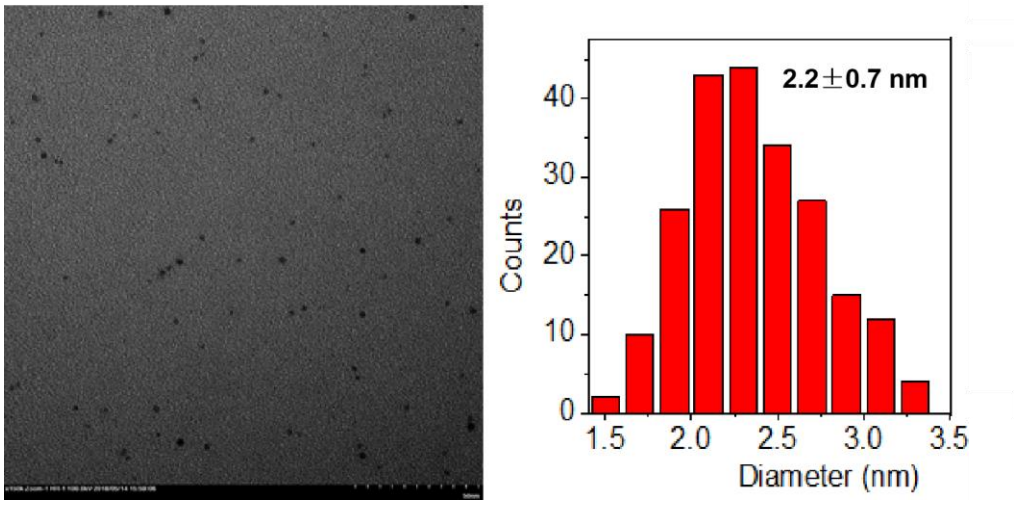


Figure S7. *TEM images and size distribution of as-prepared Au colloids.*

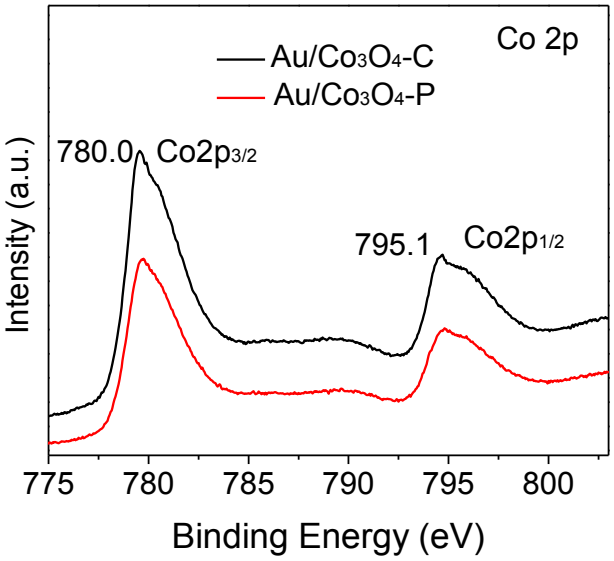
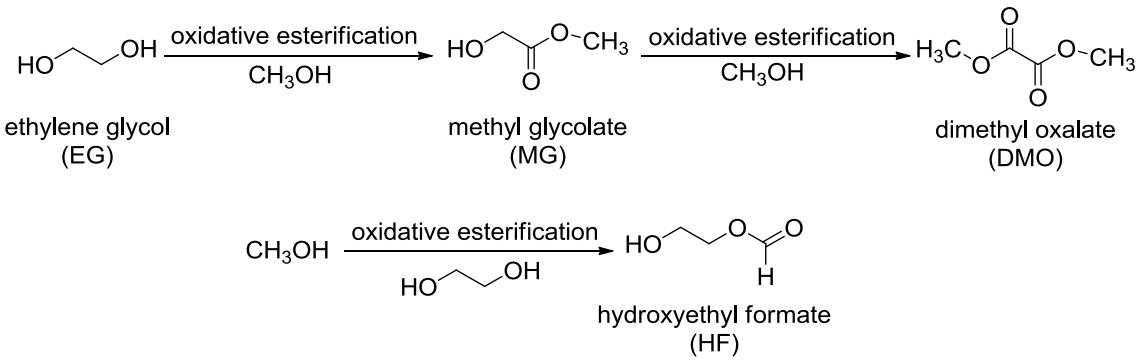


Figure S8. *Co 2p XPS spectra of Au/Co_3O_4-C and Au/Co_3O_4-P.*

Table S1. The atomic configuration of the gold particles supported on the Co_3O_4 catalysts

Au/Co_3O_4 catalysts	Au/Co_3O_4-P(111)	Au/Co_3O_4-C(001)
Size of Au particle (nm)	2.56	2.62
Height of Au particle (nm)	2.08	1.46
Layers of Au atoms	9	7
Adhesion energy (J m^{-2})	1.02	1.17
Total number of Au atoms	549	441
Number of atoms at corners	24	24
Number of atoms at edges	54	42
Number of atoms on flat surfaces	142	115
Number of atoms at the interfacial perimeter	21	27



Scheme S1. The pathway of EG conversion during the oxidation reactions.