

Supporting Information

Facile Preparation of Mesoporous Cu-Sn Solid Solution as Active Catalysts for CO Oxidation

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Table S1. H₂-TPR quantification results of Cu_xSn_{1-x}O_y catalysts.

Samples	H ₂ consumption (mmol g ⁻¹)		
	Below 250 °C	~350 °C	Above 450 °C
SnO ₂	-	-	9.5
Cu _{0.15} Sn _{0.85} O _y	1.3	0.1	8.5
Cu _{0.2} Sn _{0.8} O _y	1.7	0.2	7.9
Cu _{0.3} Sn _{0.7} O _y	2.7	0.4	7.3
Cu _{0.4} Sn _{0.6} O _y	3.7	0.4	6.7
Cu _{0.5} Sn _{0.5} O _y	4.9	0.6	6.1
Cu _{0.6} Sn _{0.4} O _y	6.2	0.3	5.5
CuO	12.8	-	-

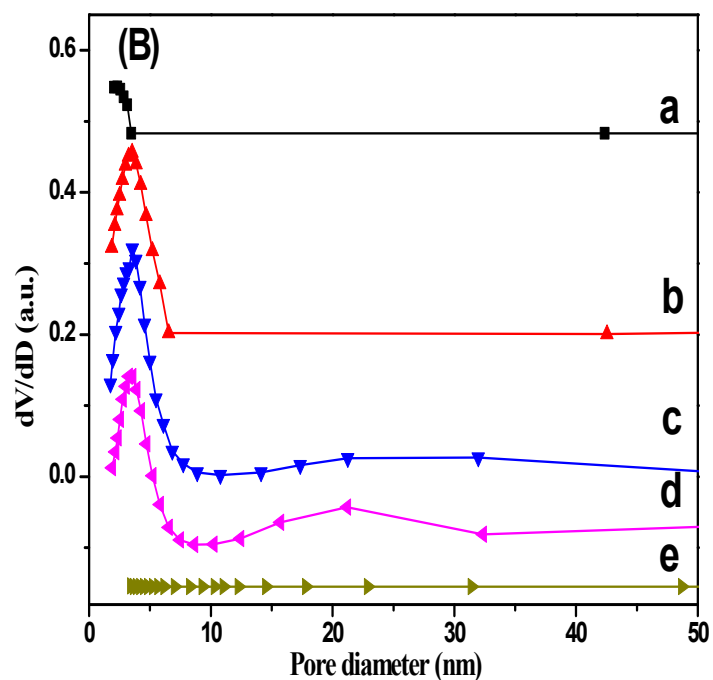
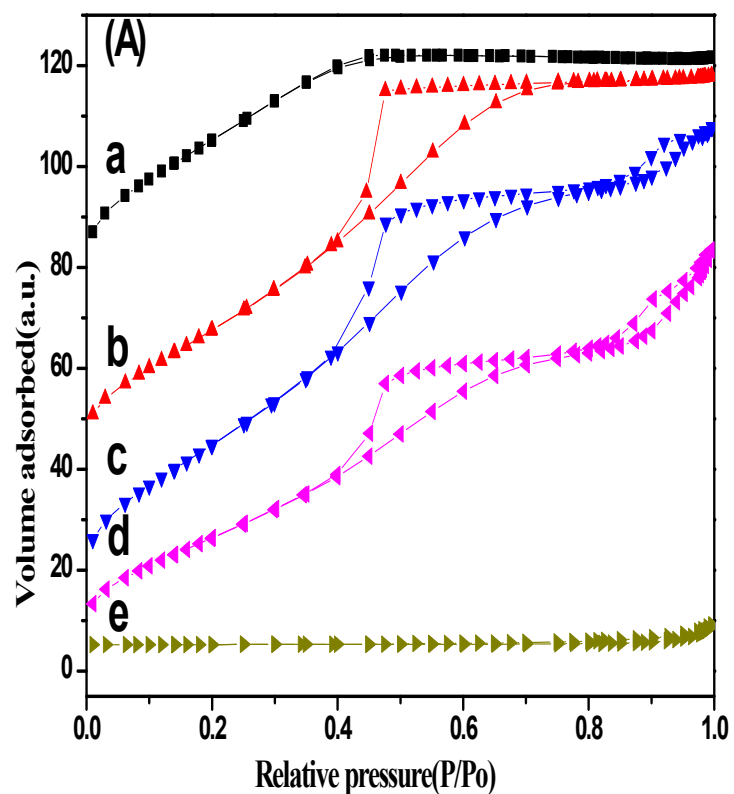


Fig. S1. N₂ adsorption-desorption isotherms (A) and pore size distributions (B).
 (a) SnO₂, (b) Cu_{0.2}Sn_{0.8}O_y, (c) Cu_{0.5}Sn_{0.5}O_y, (d) Cu_{0.6}Sn_{0.4}O_y, (e) CuO.

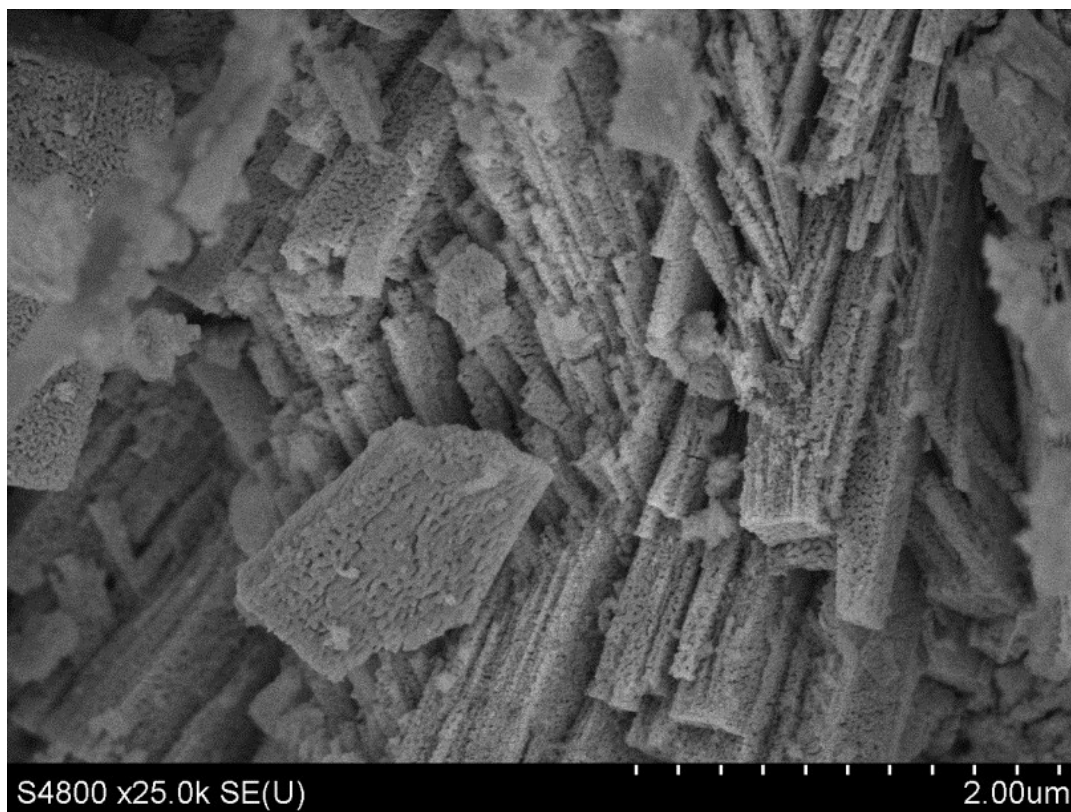


Fig. S2. SEM image of $\text{Cu}_{0.5}\text{Sn}_{0.5}\text{O}_y$ catalyst with a lower magnification.

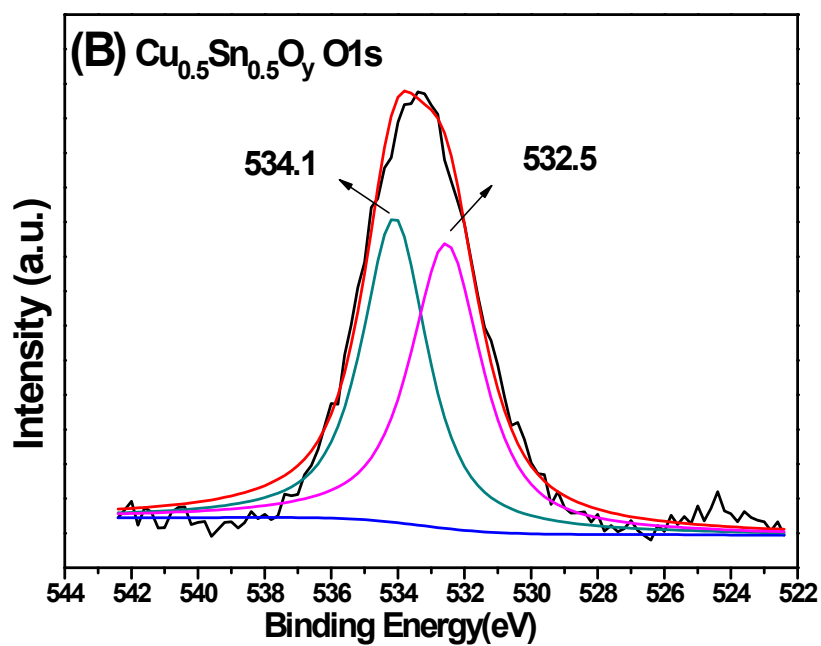
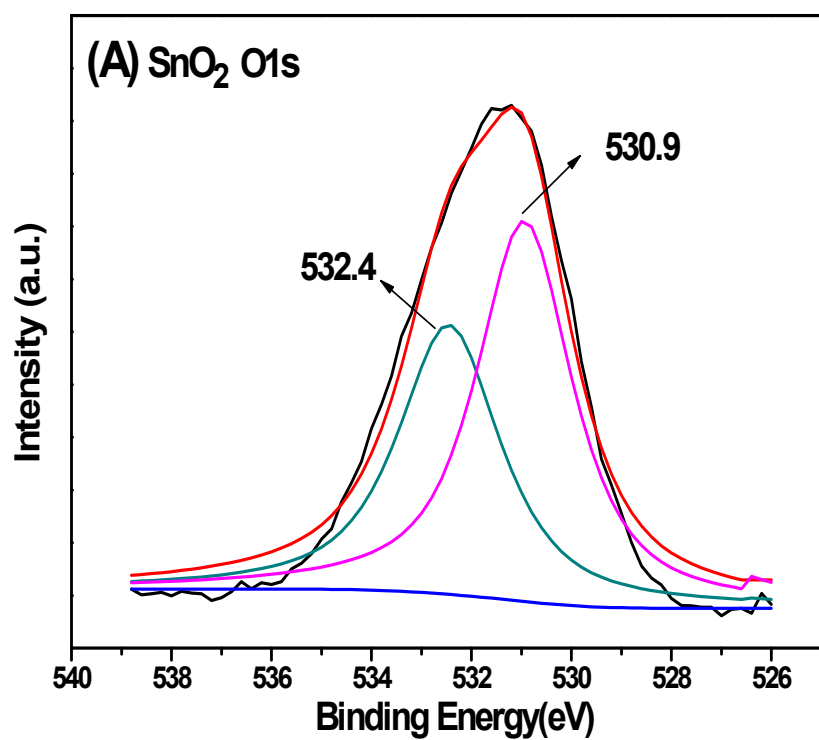


Fig. S3. The deconvolution and peak fitting of O1s peaks
(A) SnO₂, (B) Cu_{0.5}Sn_{0.5}O_y

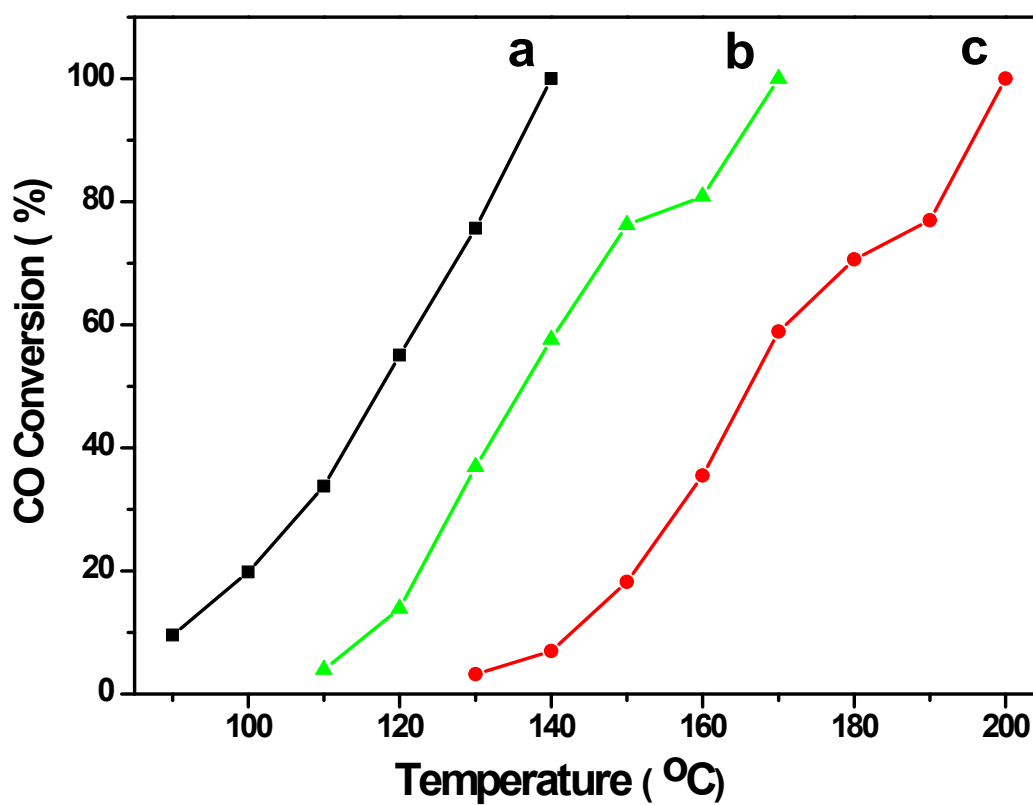


Fig. S4. CO oxidation on Cu-Sn oxide catalysts with a Cu/Sn molar ratio of 0.5/0.5 prepared by different methods.

(a) $\text{Cu}_{0.5}\text{Sn}_{0.5}\text{O}_y$: prepared with co-precipitation method

(b) IMP-300: prepared by impregnating $\text{Cu}(\text{NO}_3)_2$ solution onto SnO_2 powder calcined at 300 °C

(c) IMP-110: prepared by impregnating $\text{Cu}(\text{NO}_3)_2$ solution onto SnO_2 powder dried at 110 °C