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Supporting Information

# Mesoporous High-Surface-Area Copper–Tin Mixed-Oxide Nanorods: Remarkable for Carbon Monoxide Oxidation

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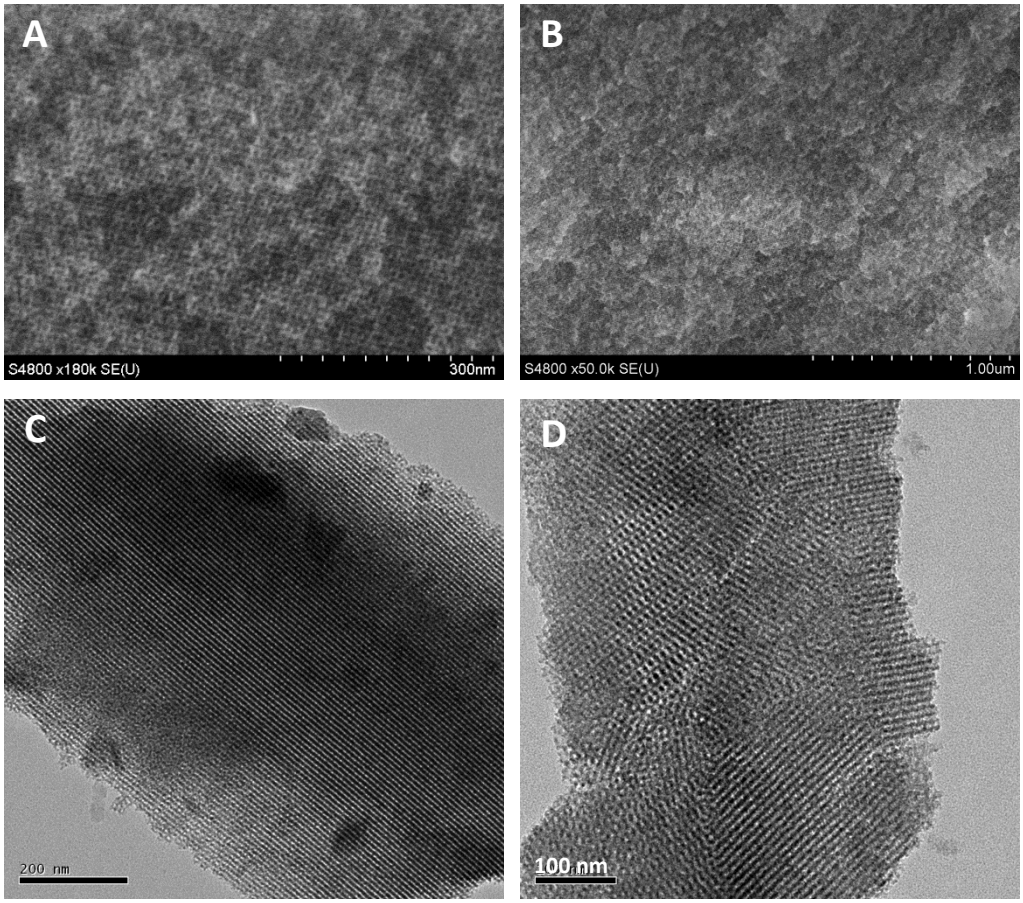


**Figure. S1** SEM (A, B) and TEM (C, D) images of KIT-6.

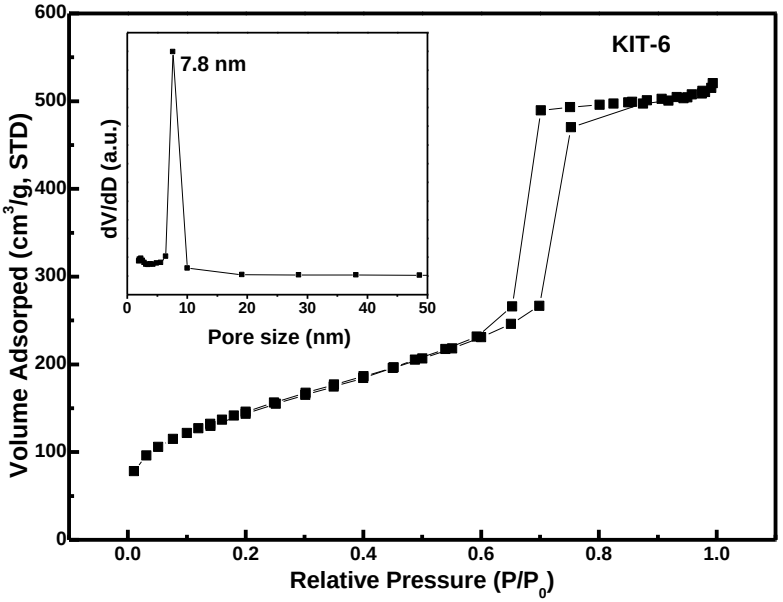


**Figure. S2** $N_2$ adsorption-desorption isotherm and pore size distribution curve of KIT-6.

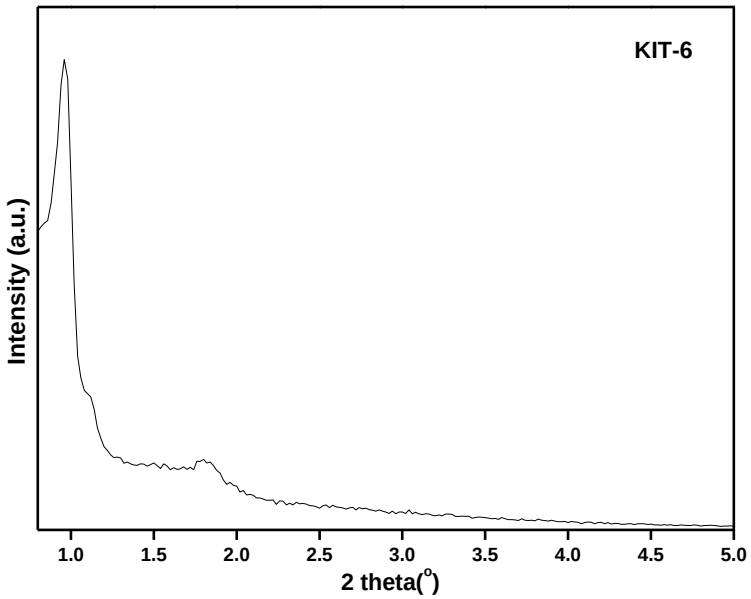


**Figure. S3** Small angle XRD patterns of KIT-6.

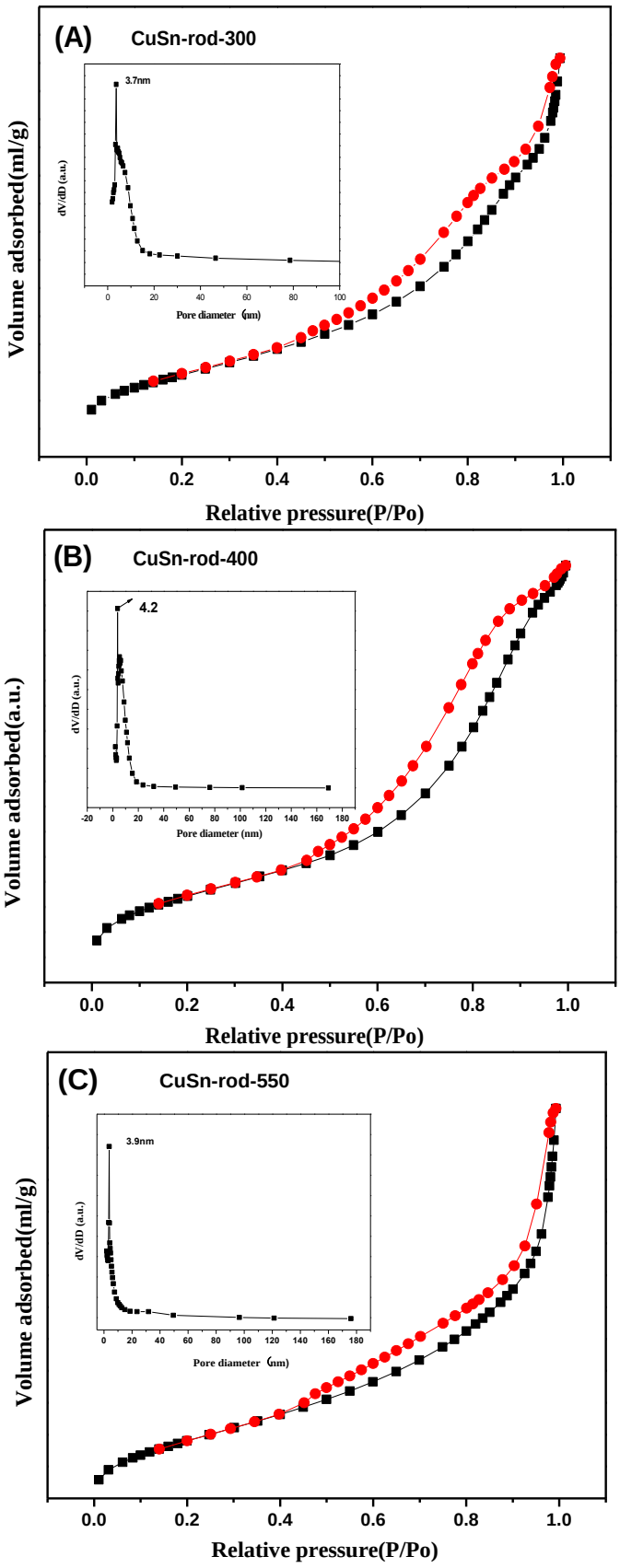


**Figure. S4** $N_2$ adsorption-desorption isotherms and pore size distribution curves of (A)

CuSn-rod-300, (B) CuSn-rod-400 and (D) CuSn-rod-550.

**Table S1** Physicochemical properties of mesoporous Cu-Sn nano-rods (molar ratio of Cu：Sn=1：1) calcined at different temperatures

| Samples | Cu/Sn Molar ratio[a] | Cu/Sn Molar ratio[b] | $S_{BET}$ ($m^2$ $g^{-1}$) | Pore size (nm) [c] | Average pore Volume ($cm^3$ $g^{-1}$) |
|---|---|---|---|---|---|
| KIT-6 | - | - | 796 | **7.8** | 1.10 |
| CuSn-rod-300 | 0.81 | 0.76 | 263 | 3.7 | 0.56 |
| CuSn-rod-400 | 1.12 | 1.23 | 157 | 4.2 | 0.28 |
| CuSn-rod-550 | 1.15 | 1.09 | 112 | 3.9 | 0.28 |

[a] Measured by ICP. [b] Obtained from XPS.

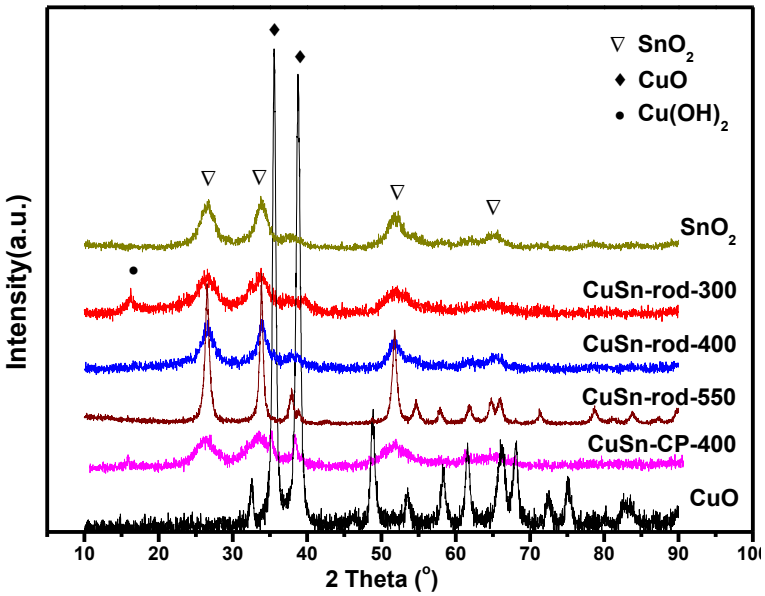


**Figure. S5** XRD patterns of mesoporous Cu-Sn nano-rods (molar ratio of Cu：Sn=1：1) calcined at different temperatures

**Table S2** Quantitative XRD results mesoporous Cu-Sn nano-rods (molar ratio of Cu：Sn=1：1) calcined at different temperatures

| Catalysts | $SnO_2$ mean crystallite size[nm] | $SnO_2$(110) | | $SnO_2$(101) | |
|---|---|---|---|---|---|
| | | 2θ (°) | d(Å) | 2θ(°) | d(Å) |
| $SnO_2$ | 3.9 | 26.86 | 3.32 | 33.74 | 2.65 |
| CuSn-rod-300 | 3.3 | 26.76 | 3.33 | 33.69 | 2.65 |
| CuSn-rod-400 | 3.6 | 26.72 | 3.36 | 33.67 | 2.66 |
| CuSn-rod-550 | 6.6 | 26.74 | 3.35 | 33.67 | 2.66 |

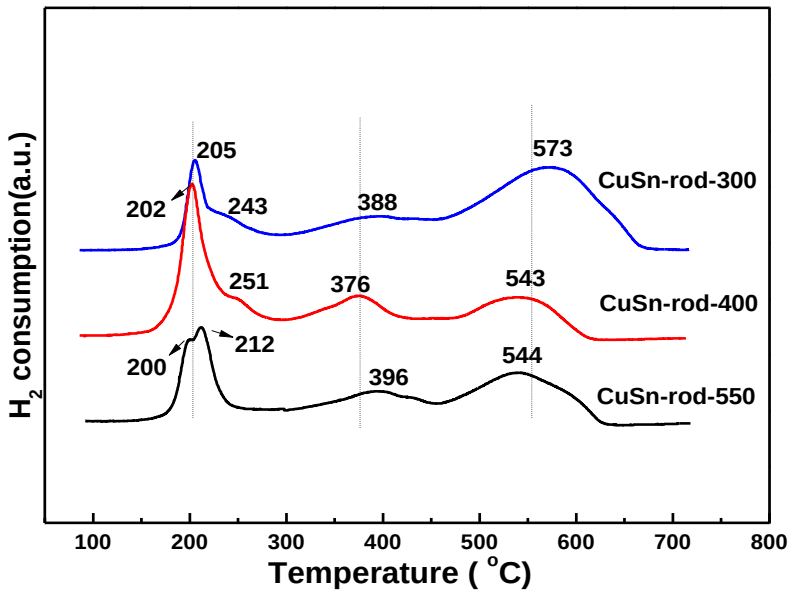


**Figure. S6** $H_2$-TPR profiles of mesoporous Cu-Sn nano-rods (molar ratio of Cu：Sn=1：1) calcined at different temperatures

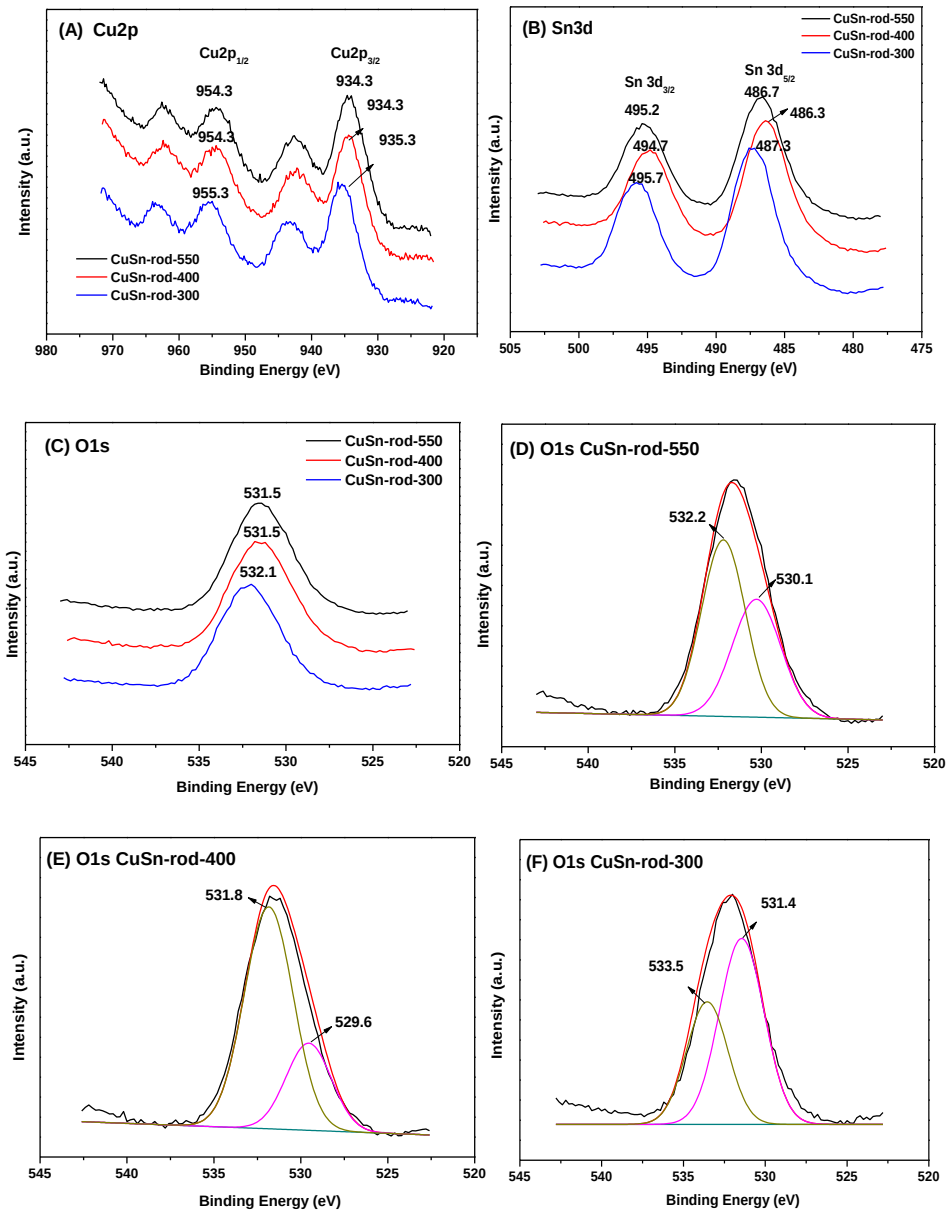


**Figure. S7** XPS profiles of mesoporous Cu-Sn nanorods (molar ratio of Cu：Sn=1：1).