molecules

MDPI

Supporting Information

Cu_2O-Ag Tandem Catalysts for Selective Electrochemical Reduction of CO_2 to C_2 Products

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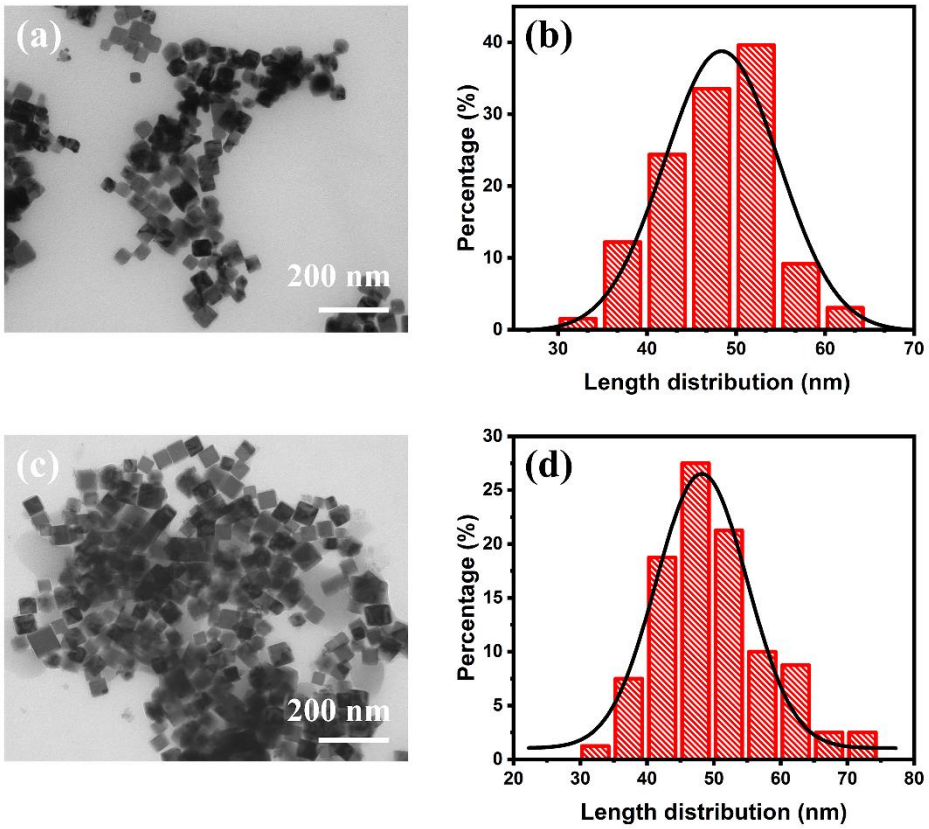

Figure S1. (**a**) TEM image and (**b**) size distribution of Cu_2O-Ag nanocubes. (**c**) TEM image and (**d**) size distribution of Cu_2O nanocubes.

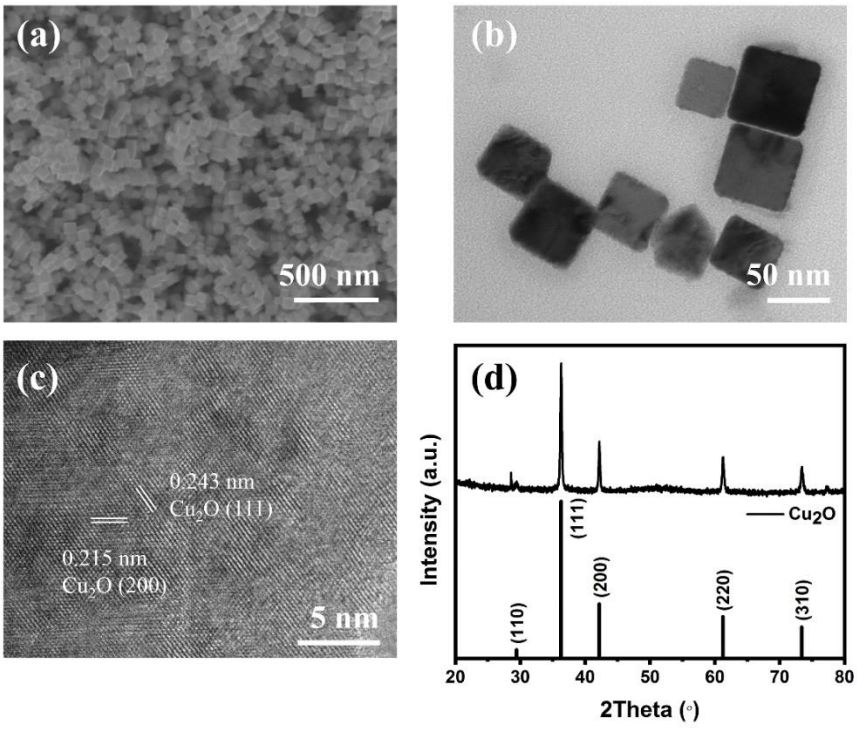

Figure S2. (**a**) SEM image of Cu_2O nanocubes. (**b**) TEM image of Cu_2O nanocubes. (**c**) HRTEM image of Cu_2O nanocubes. (**d**) XRD pattern of Cu_2O nanocubes.

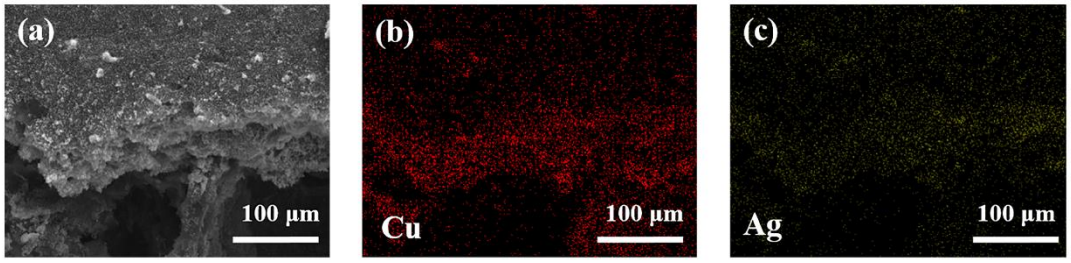

Figure S3. (**a**–**c**) SEM-EDS elemental mapping of Cu_2O-Ag nanocubes, showing the distribution of elemental (**b**) Cu and (**c**) Ag within the particles.

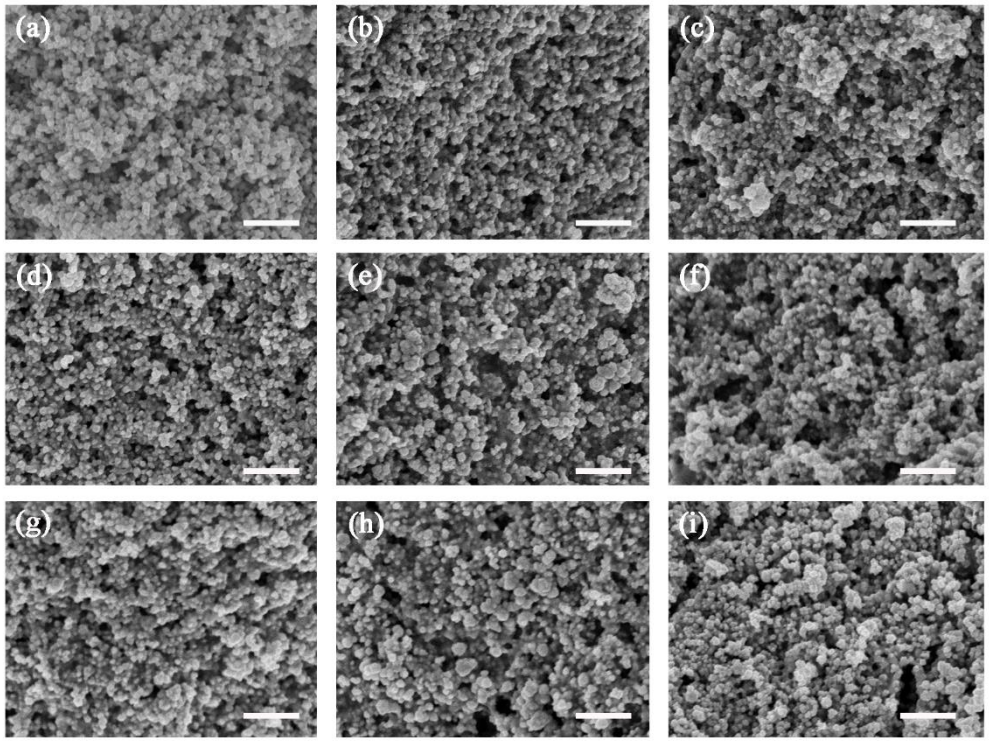

Figure S4. The SEM images of the Cu_2O-Ag during CO_2RR. (**a**) 0 min, (b) 5 min, (**c**) 10 min, (**d**) 15 min, (**e**) 20 min, (**f**) 25 min, (**g**) 30 min, (**h**) 35 min, (**i**) 40 min. Scale bar=500 nm.

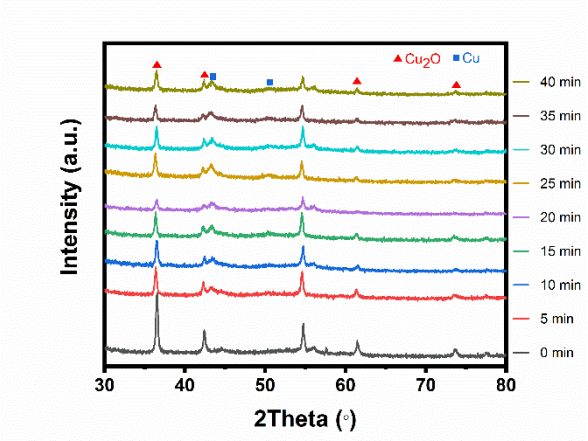

Figure S5. The XRD patterns of the Cu_2O-Ag during CO_2RR.

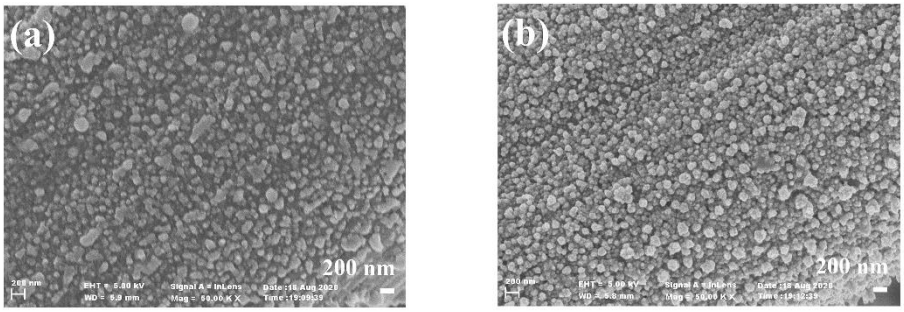

Figure S6. SEM images of (**a**) Cu_2O-Ag nanocubes and (**b**) Cu_2O nanocubes after CO_2RR.

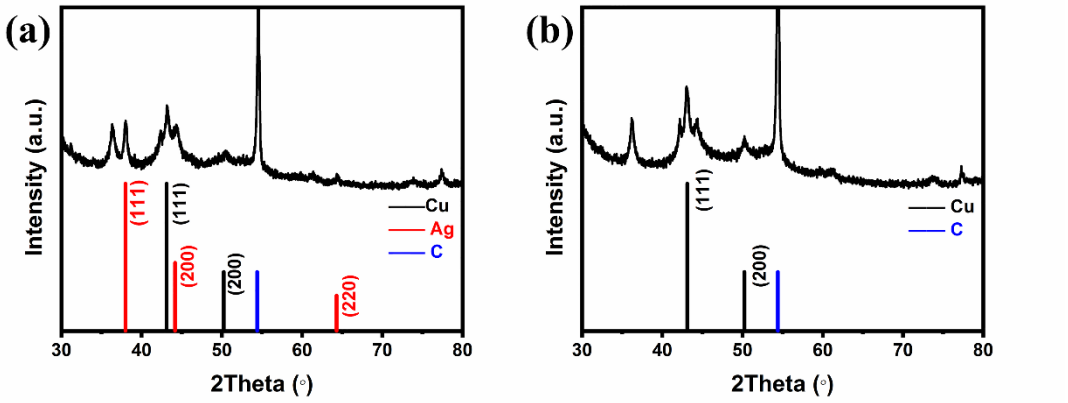

Figure S7. XRD patterns of (**a**) Cu_2O-Ag nanocubes and (**b**) Cu_2O nanocubes after CO_2RR.

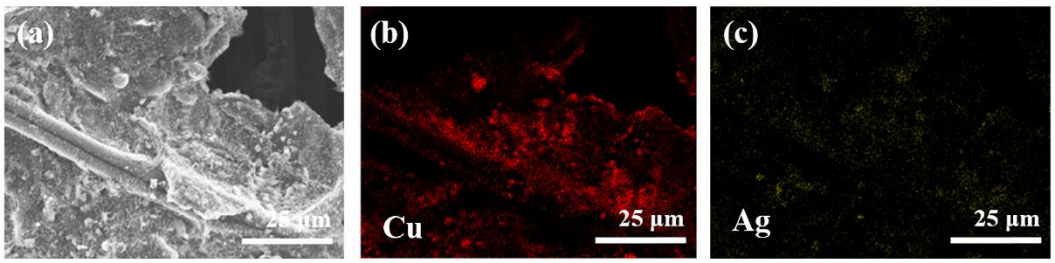

Figure S8. (**a**–**c**) SEM-EDS elemental mapping of Cu_2O-Ag nanocubes of (**b**) Cu and (**c**) Ag after CO_2RR.

Table S1. Cu and Ag contents of Cu_2O-Ag nanocubes before and after CO_2RR.

Element Content	Cu	Ag
Before CO_2RR	90.28%	9.72%
After CO_2RR	92.61%	7.39%

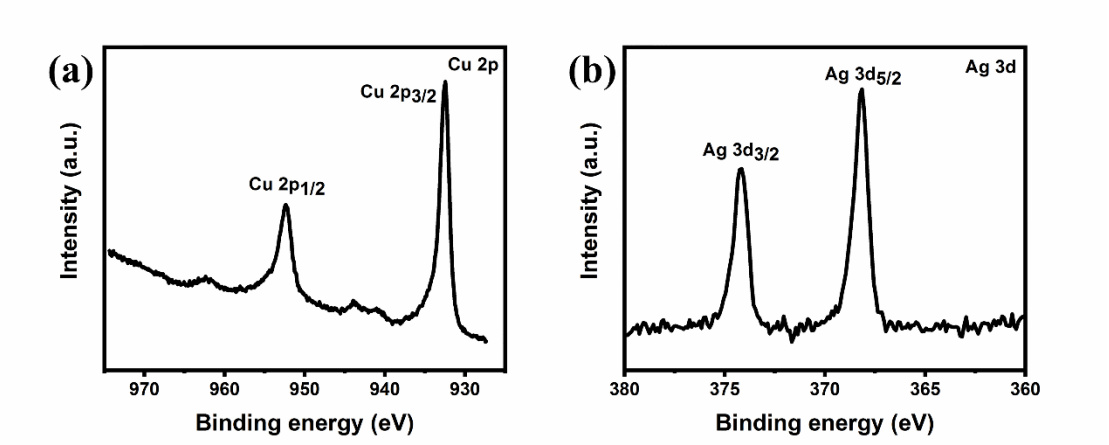

Figure S9. XPS spectra for (**a**) Cu and (**b**) Ag of Cu_2O-Ag nanocubes after CO_2RR.

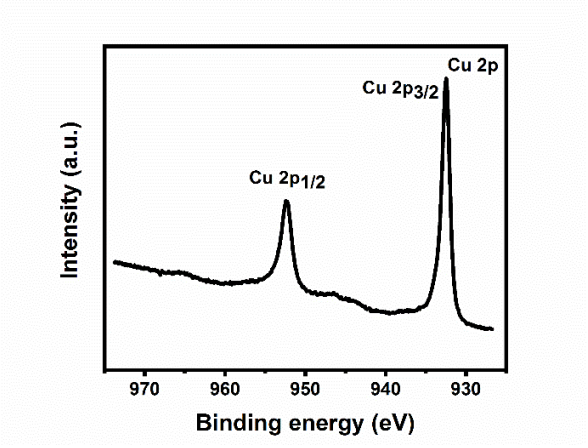

Figure S10. XPS spectra for Cu of Cu_2O nanocubes after CO_2RR.

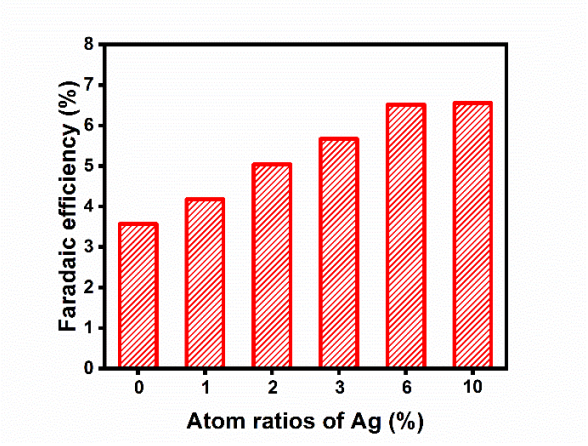

Figure S11. Faradaic efficiency of acetate of the different mass ratios of Ag in the Cu_2O-Ag nanocubes.

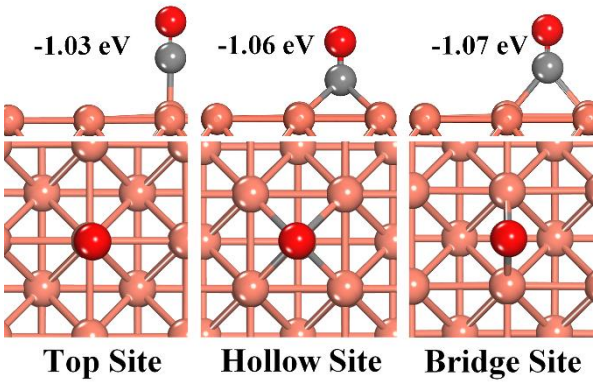

Figure S12. Adsorption energy and corresponding configuration of CO at three type sites on Cu(100) surface.

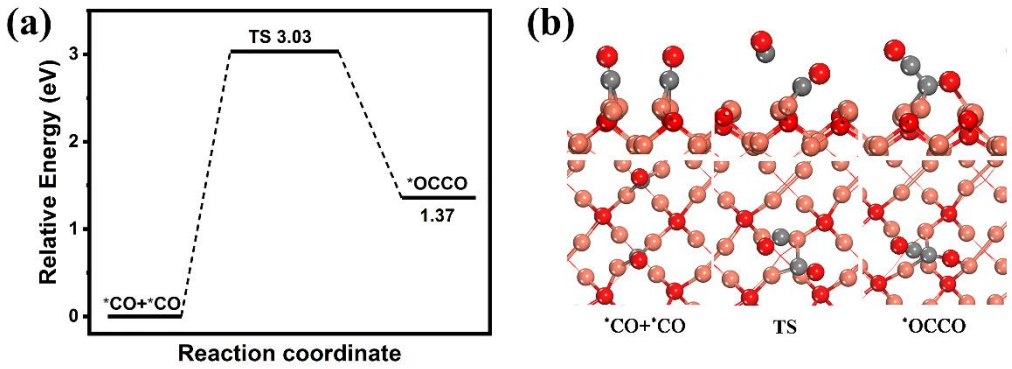

Figure S13. (**a**) Reaction energy barrier diagram of the C-C coupling step on the $Cu_2O(100)$ surface with the (**b**)corresponding configurations of two *CO forming an *OCCO. Light red, copper; grey, carbon; red, oxygen; TS, transition state.