

Supporting Information

Characterization of Cu₂O/CuO Heterostructure Photocathode by Tailoring CuO Thickness for Photoelectrochemical Water Splitting

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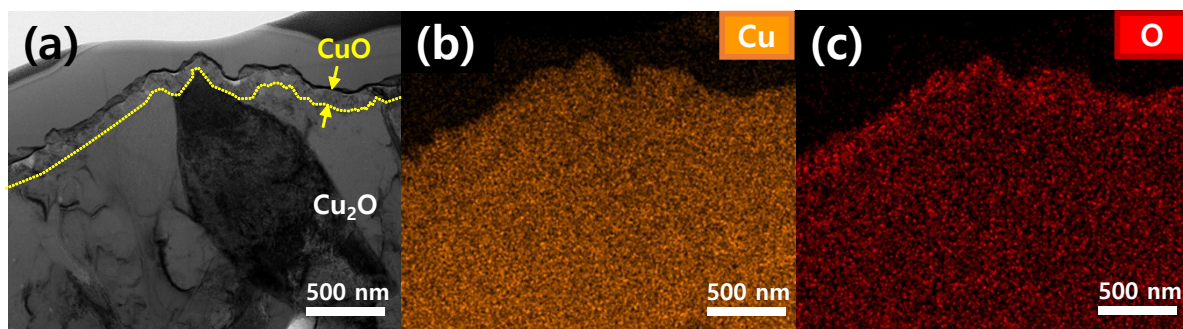


Figure S1. TEM and element mapping analysis of the annealed Cu₂O film at 350 °C for 20 min.

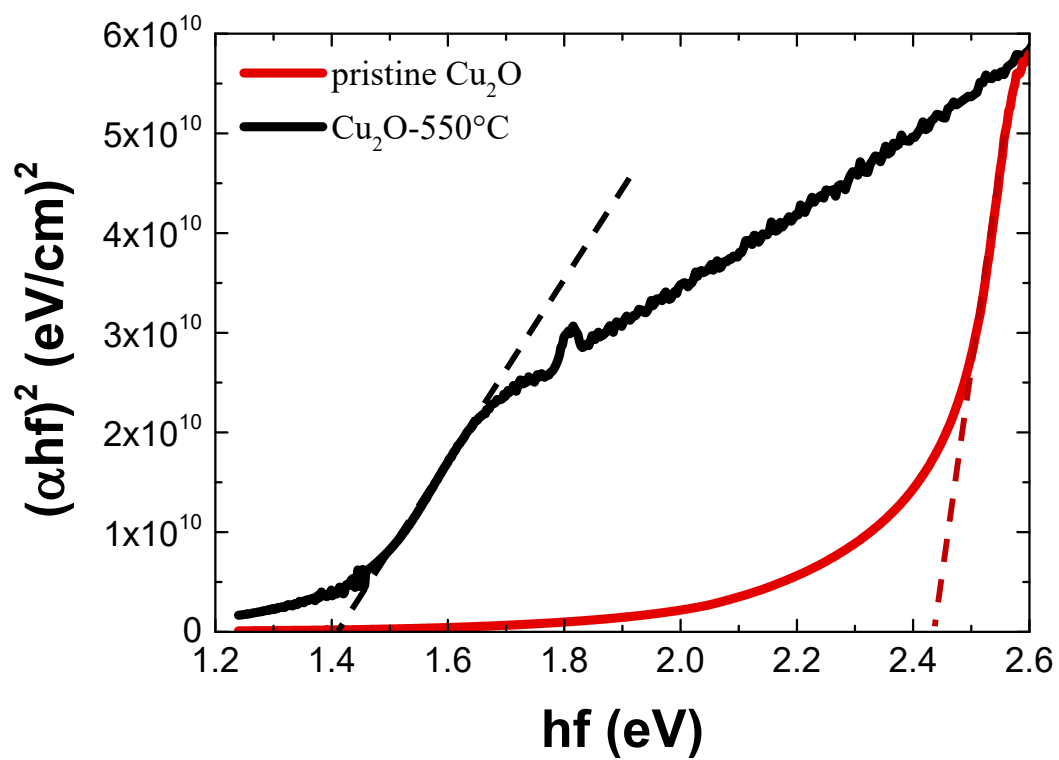


Figure S2. Tauc plot of pristine Cu_2O (pure Cu_2O) and annealed Cu_2O (pure CuO) at 550 °C for 20 min.

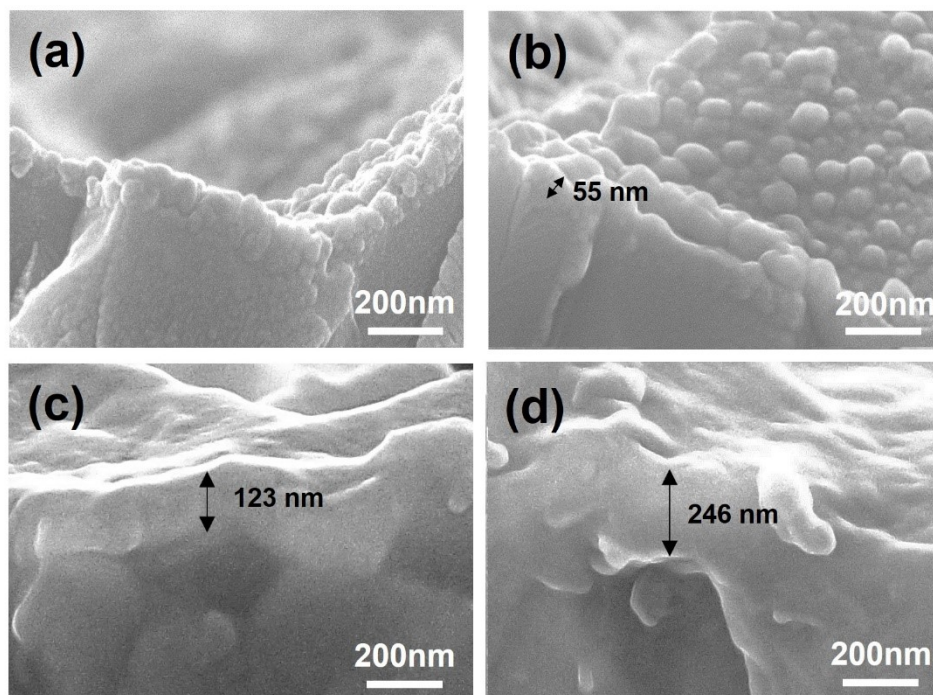


Figure S3. Cross-sectional SEM images of Cu₂O/CuO films annealed at 350 °C for (a) 5 min, (b) 10 min, (c) 30 min, (d) 40 min.

Table S1. PEC performances of Cu₂O/CuO photocathodes in our work and other literatures.

Photocathode	Electrolyte	Current density (mA/cm ²)	Reference
Cu ₂ O/CuO	0.5 M Na ₂ SO ₄ (pH 6)	- 2.8 (0 V vs RHE)	[4]
Cu ₂ O/CuO	1 M Na ₂ SO ₄	- 1.4 (0 V vs RHE)	[11]
Cu ₂ O/CuO	0.5 M Na ₂ SO ₄ (pH 6)	- 0.45 (0.25 V vs RHE)	[12]
Cu ₂ O nanowire/CuO nanoflake	0.5 M Na ₂ SO ₄ (pH 6)	- 4 (0V vs RHE)	[13]
Cu ₂ O nanowire/CuO/TiO ₂	1 M Na ₂ SO ₄ (pH 5)	- 0.87 (0 V vs RHE)	[14]
Cu ₂ O/CuO/CuWO ₃	1 M Na ₂ SO ₄ (pH 7)	- 1.9 (0 V vs RHE)	[15]
Cu ₂ O/CuO/C	1 M Na ₂ SO ₄ (pH 5.5)	- 6.5 (0 V vs RHE)	[16]
Cu ₂ O/CuO/CuS/Pt	1 M Na ₂ SO ₄ (pH 5)	- 6 (0V vs RHE)	[17]
Cu ₂ O/CuO/CuS	0.5 M Na ₂ SO ₄ (pH 5)	- 1.38 (0V vs RHE)	[18]
Cu ₂ O/CuO/Pt	.	- 1.99 (0V vs RHE)	[19]
Cu ₂ O/CuO/Cu(OH) ₂	0.5 M Na ₂ SO ₄ (pH 6.8)	- 2.3 (0V vs RHE)	[20]
Cu ₂ O/CuO	0.1 M Na ₂ SO ₄ (pH 6.25)	- 1.2 (0V vs RHE)	Our work