Support Information

Facile preparation of copper based amorphous/crystalline heterophase nanocatalysts and their applications as efficient non-enzymatic biosensors

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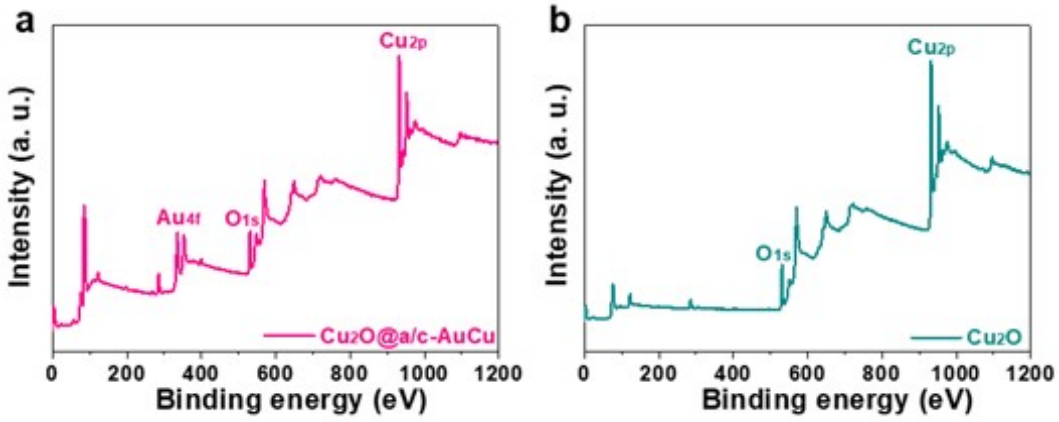

Figure S1. The XPS spectrum of (a) Cu_2O@a/c-AuCu, and (b) Cu_2O.

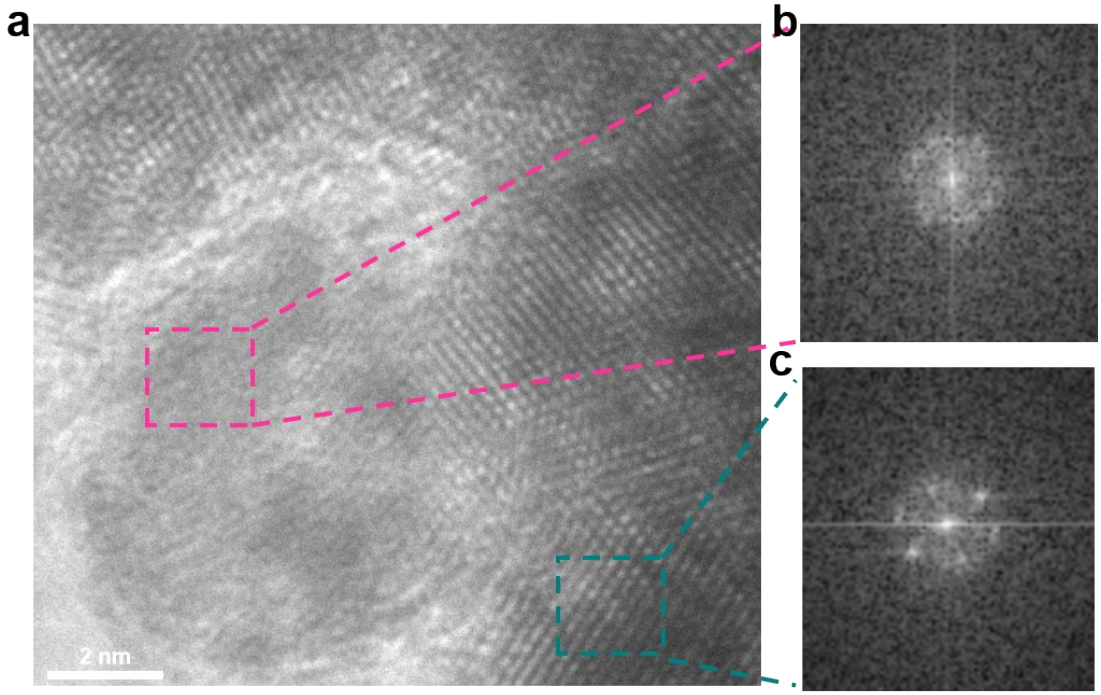

Figure S2. (a) High-resolution TEM image of the Cu_2O@a/c-AuCu alloy; (b) & (c) the corresponding fast Fourier transform (FFT) patterns from the different selected regions of (a).

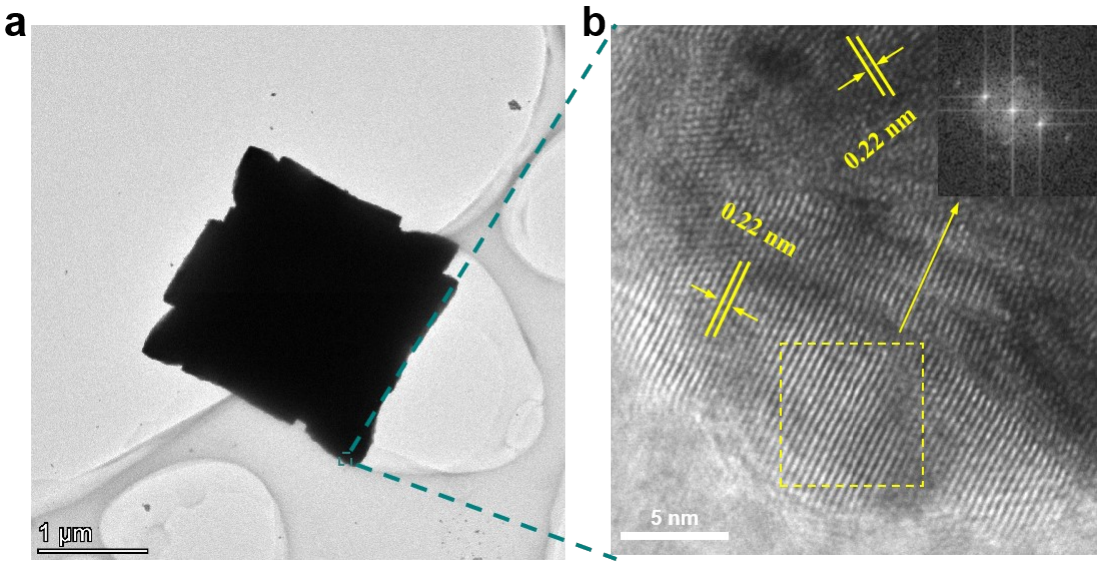

Figure S3. (a) TEM image and (b) High-resolution TEM image of the Cu_2O@c-AuCu alloy. Insert of (b): the corresponding fast Fourier transform (FFT) patterns of the selected yellow region.

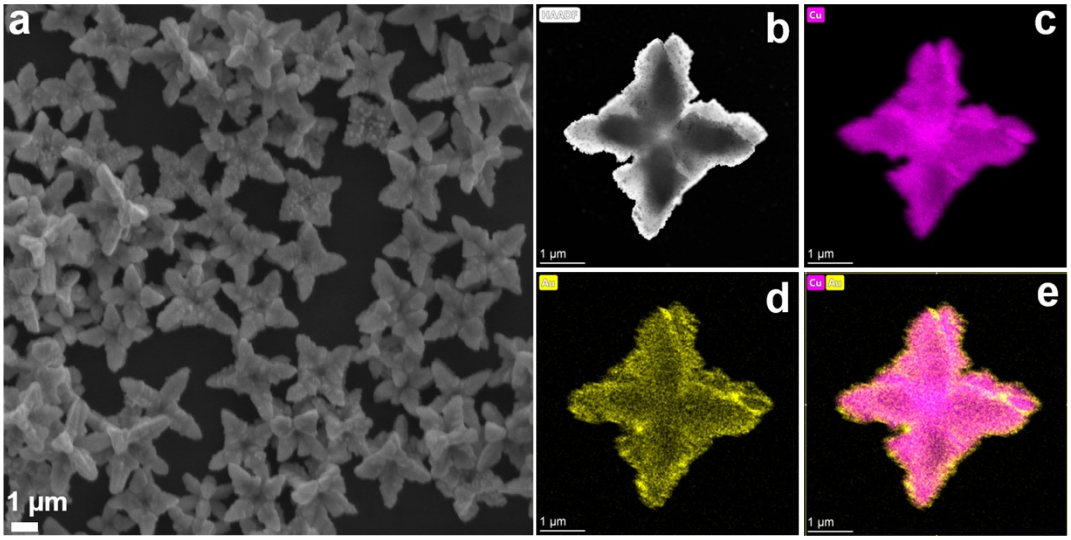

Figure S4. (a) SEM image and (b-e) element mapping images of the Cu_2O@c-AuCu alloy.

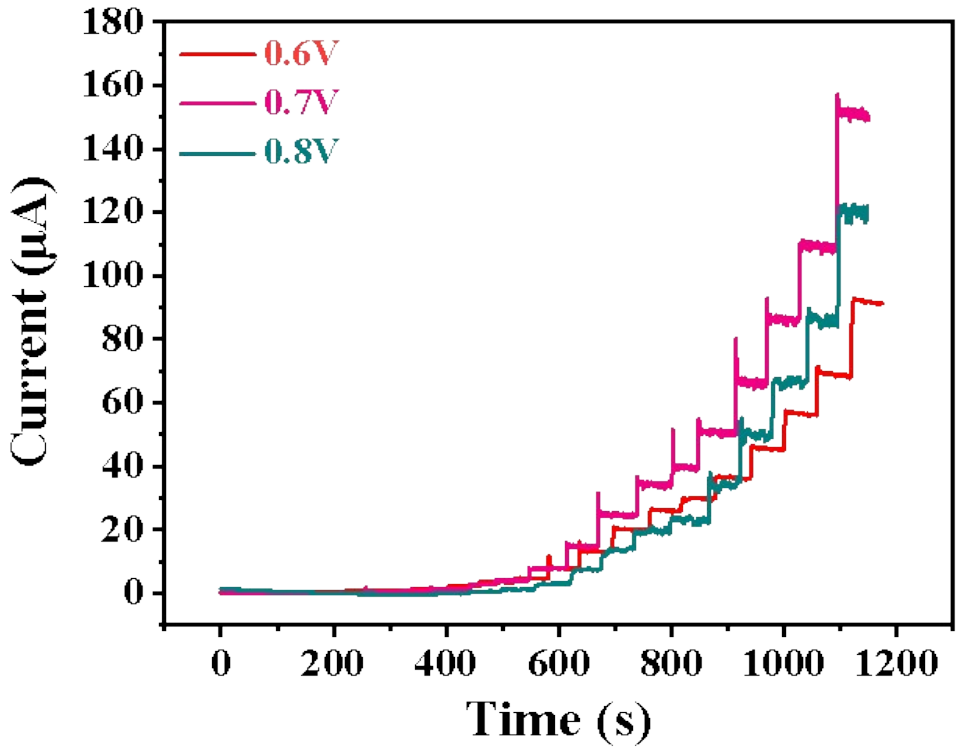

Figure S5. The chronoamperometry measurements polarized at different potentials after the continuous addition of glucose into 0.1 M NaOH solution.

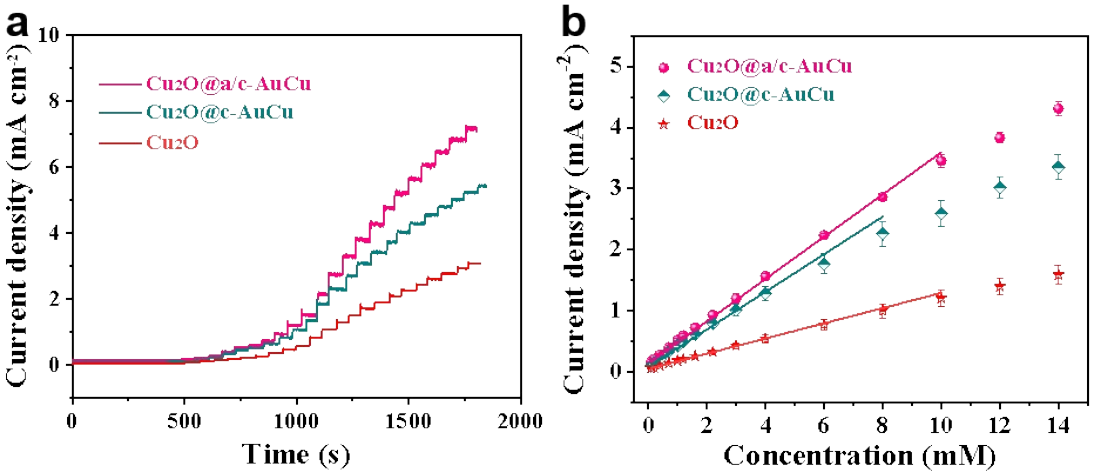

Figure S6. (a) The sensing performance of different sensors after the continuous addition of glucose at 0.7 V; (b) the corresponding calibration curves.

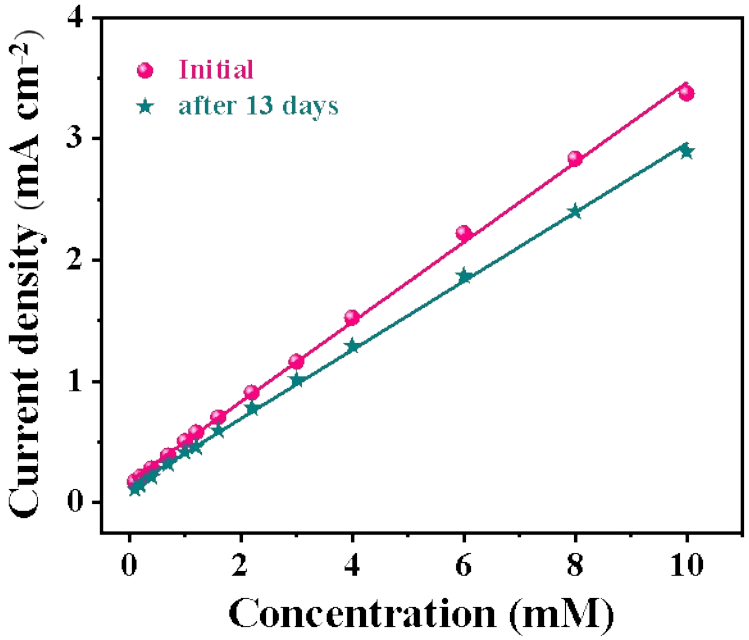

Figure S7. The corresponding calibration curves obtained from the long-term sensing stability test.

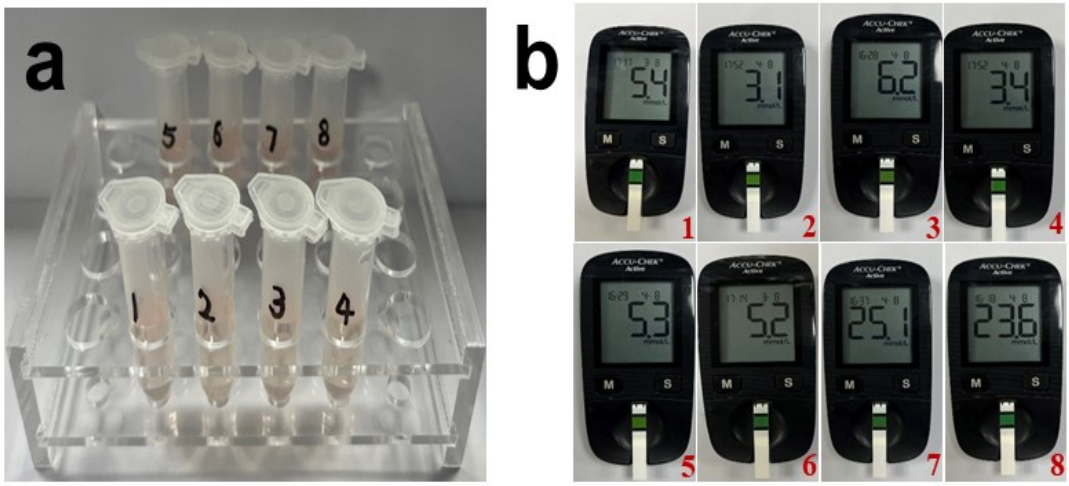

Figure S8. (a) Digital photos of the rat serum samples; and (b) the glucose testing results using the commercial glucometer.

Table S1. The glucose detection performance of the Cu_2O@a/c-AuCu sensor compared to the other reported non-enzymatic sensors.

No.	Catalysts	Linear range (mM)	Sensitivity ($\mu A\ mM^{-1}\ cm^{-2}$)	Detection Limit (μM)	Ref
1	Pt@Pd nanoparticles	0.01-9.2	247.3	3	1
2	PtCu Nanochains	0.01-17	135	2.5	2
3	$Cu@Cu_2O$	0.001-17.12	194.88	0.6	3
4	Cu_2O SLNs	0.01-2.97	0.933	0.035	4
5	$CuO/g\text{-}C_3N_4$	0.0005-8.5	274	0.15	5
6	Ag-CuO/rGO	0.01-28	214.37	0.76	6
7	Cu_2O nanocubes	0.3-3.3	285	3.3	7
8	Cu_2O@a/c-AuCu alloy	0.1-10	345	1.35	**This work**

Table S2. Detection and recovery of glucose in rat serums.

Sample	Added（μM）	Found (μM）	Recovery	RSD (n=3)
1	10.00	11.40	114.05%	3.30%
2	10.00	11.20	112.00%	1.81%
3	10.00	9.20	91.76%	8.34%

Reference

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