

Supplementary Information

Fabrication of Bimetallic Cu/Au Nanotubes and Their Sensitive, Selective, Reproducible and Reusable Electrochemical Sensing of Glucose

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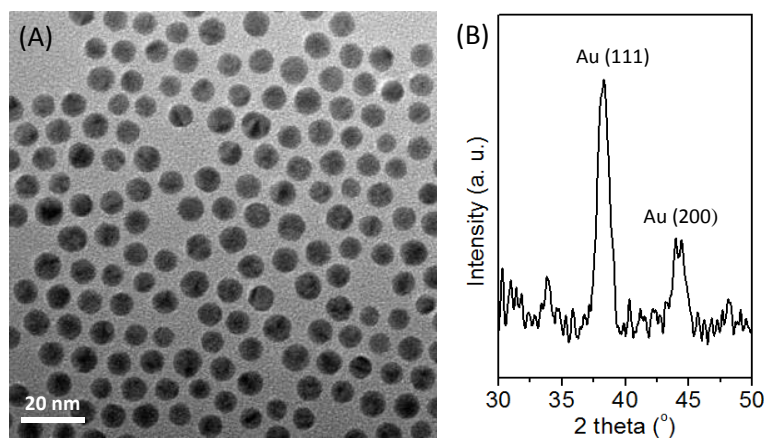


Fig. S1 (A) TEM image of uniform gold nanoparticles prepared by reacting 0.1 mmol of AuBr_3 in oleylamine at 140 °C for 30 min. (B) XRD pattern of the spherical gold nanoparticles with fcc structure (JCPDS #04-0784).

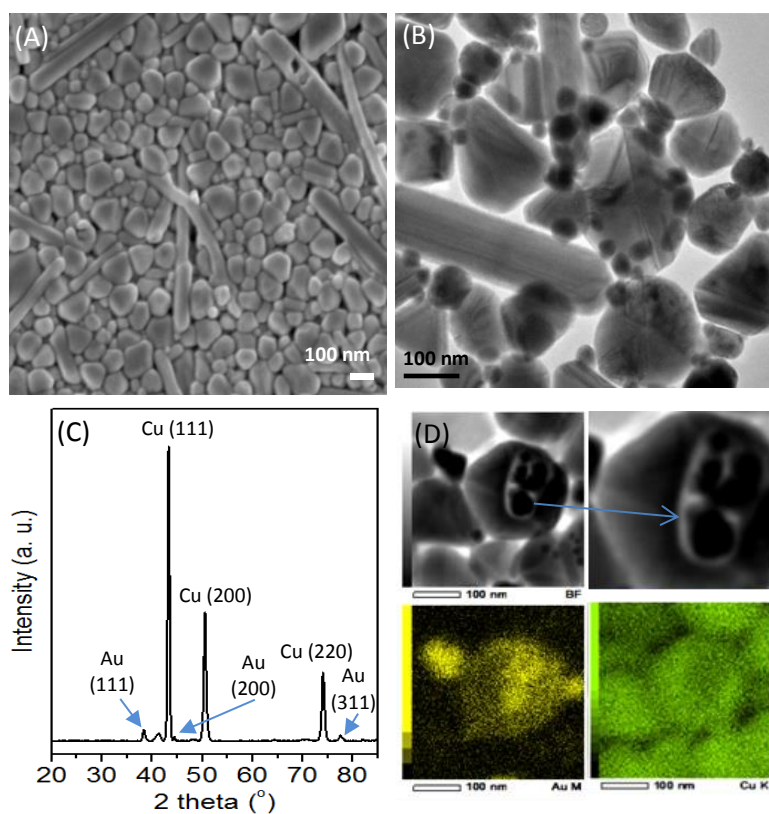


Fig. S2 (A) SEM image, (B) TEM image, (C) XRD pattern and (D) TEM EDX mapping of Cu/Au nanostructures prepared by heating the as-prepared copper nanowires at 220 °C after injecting a low amount of Au^{3+} in the solution.

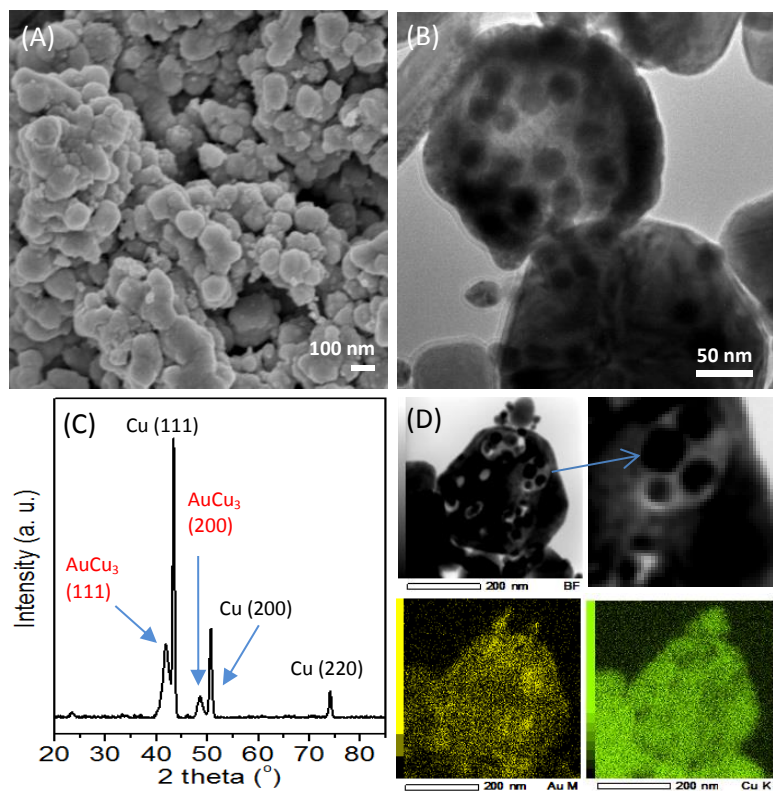


Fig. S3 (A) SEM image, (B) high resolution TEM image, (C) XRD pattern and (D) TEM EDX mapping of Cu/Au nanostructures prepared by heating the as-prepared copper nanowires at 300 °C after injecting a low amount of Au^{3+} at 220 °C.

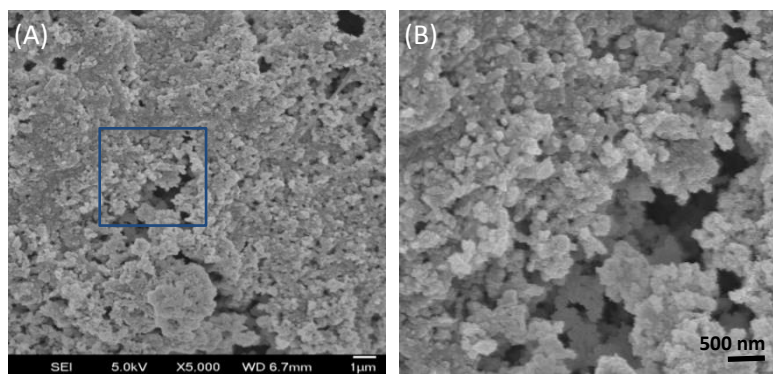


Fig. S4 (A) SEM image of copper nanoparticles obtained by disproportionation of CuCl at 220 °C for 30 min followed by further heat treatment at 300 °C for 20 min. (B) Enlarged region of the blue box in (A).

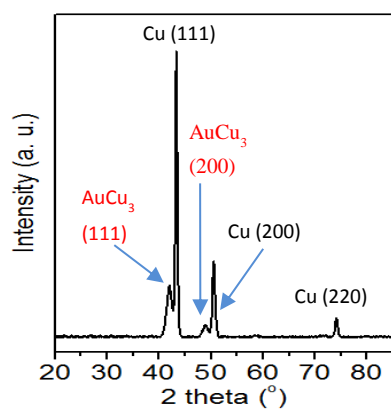


Fig. S5 (A) XRD pattern of the Cu/Au nanostructures (220/220 °C) after annealing in vacuum at 220 °C.

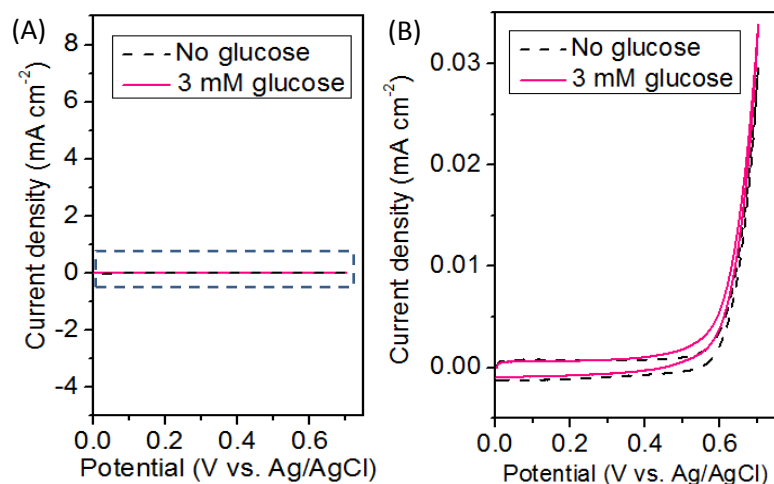


Fig. S6 (A) CV profiles of FTO substrates as electrodes at a potential window of 0-0.7 V (vs. Ag/AgCl) and a scan rate of 50 mV s^{-1} without (black line) and with (red line) 3 mM glucose. (B) Enlarged region of the dotted blue box in (A).

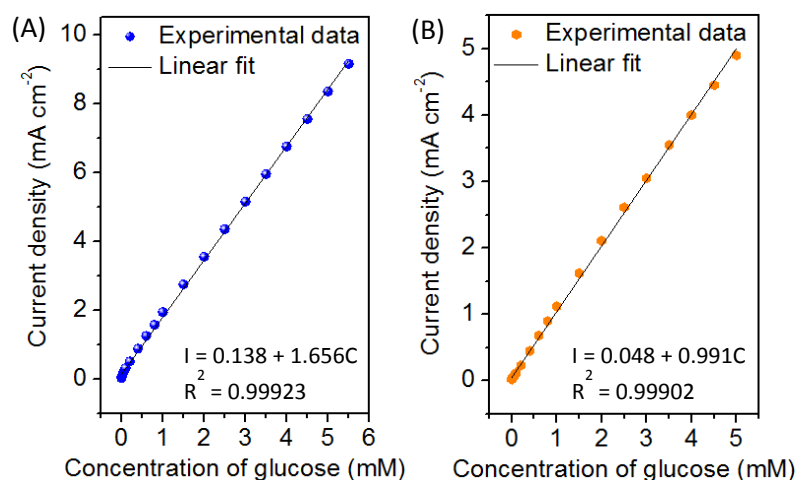


Fig. S7 Linear range of (A) Cu/Au nanotubes at 3 mol% Au (220/140 °C) and (B) Cu/Au porous nanowires at 1 mol% Au as glucose sensors at an applied potential of 0.6 V.

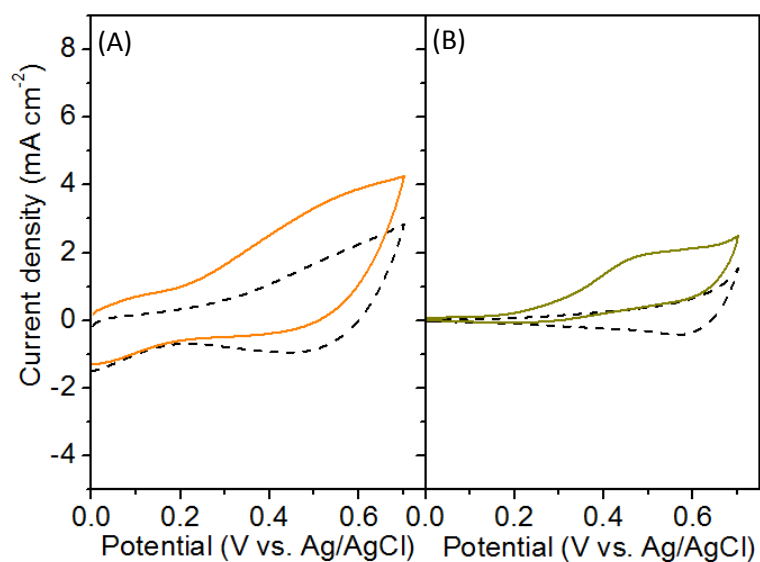


Fig. S8 CV profiles of different composition gold-incorporated copper nanowires on FTO substrates as electrodes at a potential window of 0-0.7 V (vs. Ag/AgCl) and a scan rate of 50 mV s⁻¹ without (--- dash line) and with (— solid line) 3.0 mM of glucose. (A) Molar ratio of Au/CuCl at 1:100 (*i.e.* 1 mol% Au) and (B) molar ratio of Au/CuCl at 1:1000 (*i.e.* 0.1 mol% Au).