

Supporting Information for

**Cu₂O Microcrystals: A Versatile Class of Self-templates for the
Synthesis of Porous Au Nanocages with Various Morphologies**

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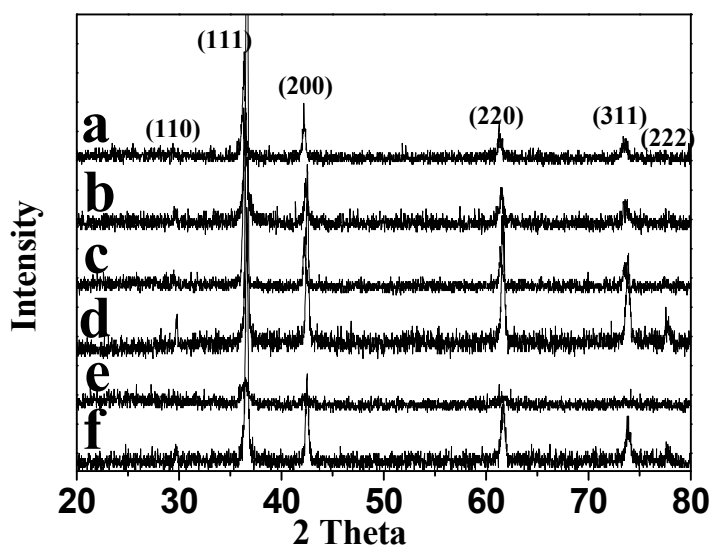


Figure S1. XRD patterns of Cu₂O crystals with different shapes. (a) cube, (b) octahedron, (c) truncated octahedron, (d) cuboctahedron, (e) spherical particle and (f) concave cube.

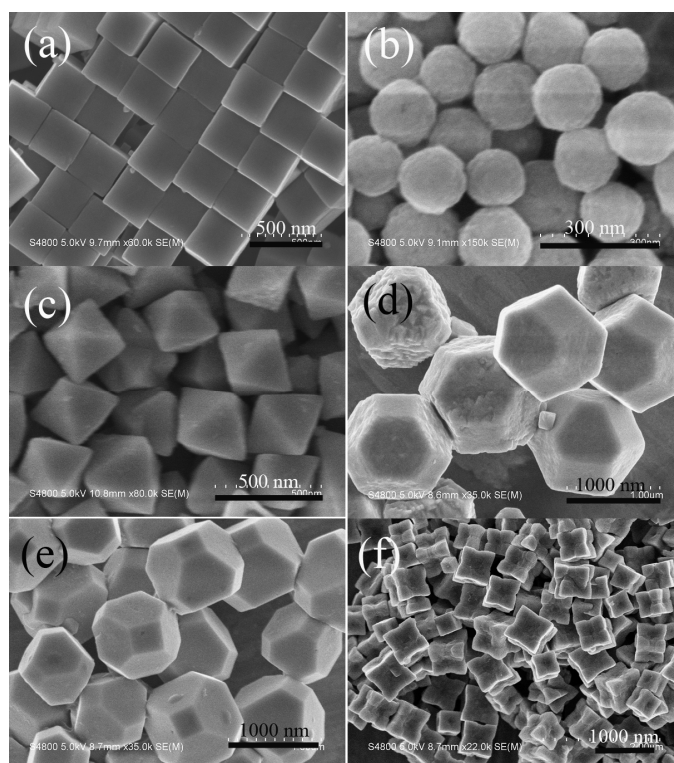


Figure S2. SEM images of as-prepared Cu_2O crystals with various shapes. (a) cube, (b) spherical particle, (c) octahedron, (d) cuboctahedron, (e) truncated octahedron (f) concave cube.

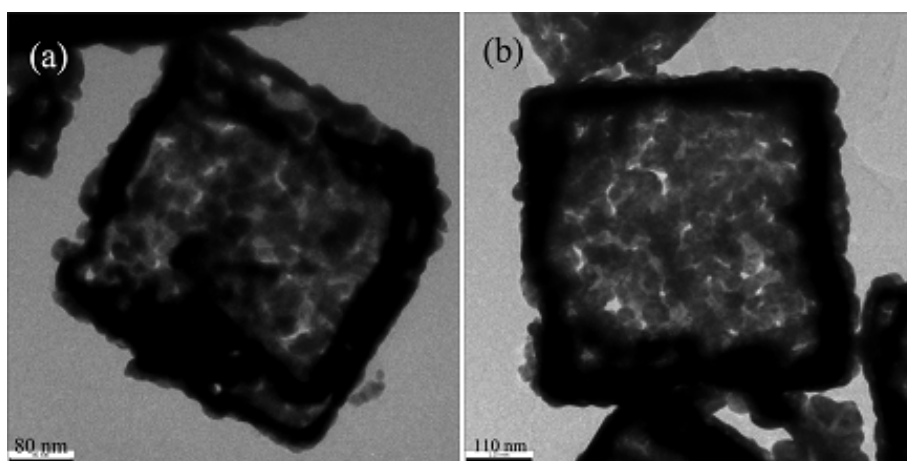


Figure S3. TEM images of Au nanocages synthesized by etching Cu_2O -Au nanocomposites, which were prepared by using 3.00 and 3.50 mM gold precursor, respectively.

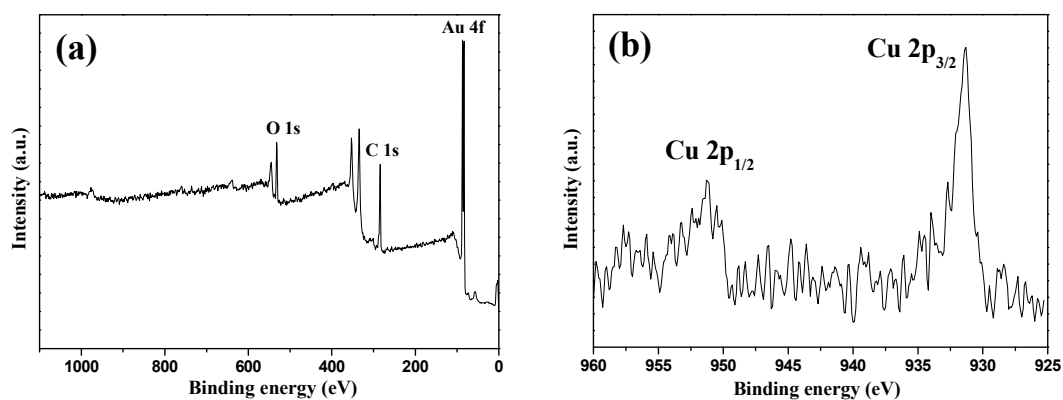


Figure S4. XPS spectra of as-synthesized Cu₂O-Au nanocomposites; (a) overview XPS spectrum of the products and (b) Cu 2p spectrum.

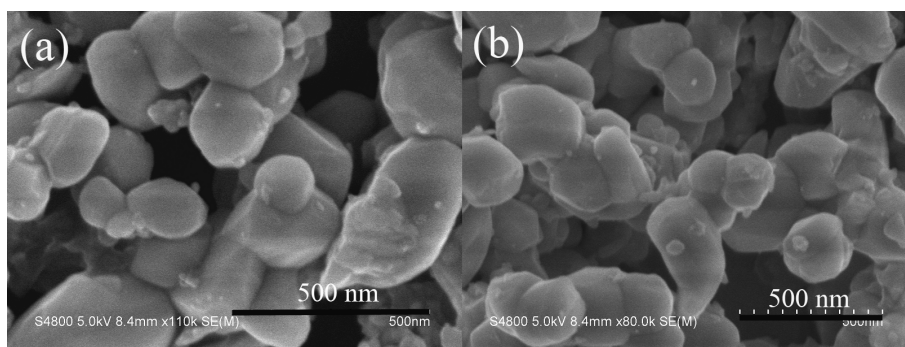


Figure S5. SEM images of CuO microcrystals before (a) and after (b) addition of HAuCl₄ (0.50 mM).

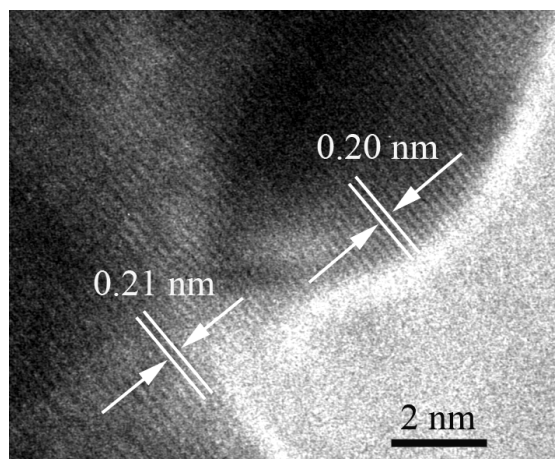


Figure S6. HRTEM image of cubic Cu₂O-Au nanocomposites.

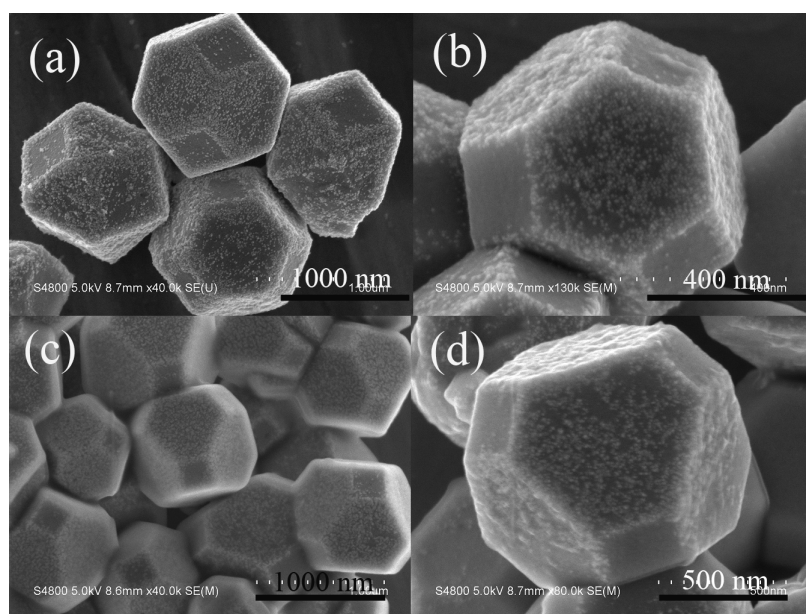


Figure S7. SEM images with different magnifications of cuboctahedron (a-b) and truncated octahedron (c-d) after addition of gold precursor (0.50 mM).

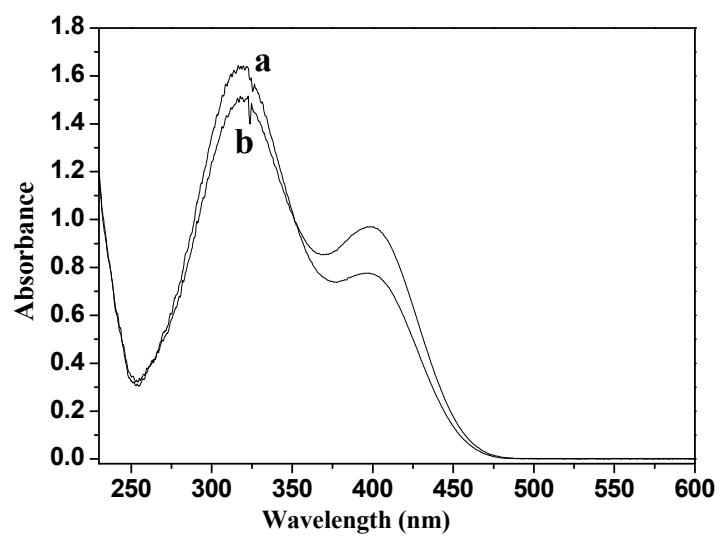


Figure S8. UV-vis absorption spectra of 4-nitrophenol before (a) and after (b) addition of Au nanocages.

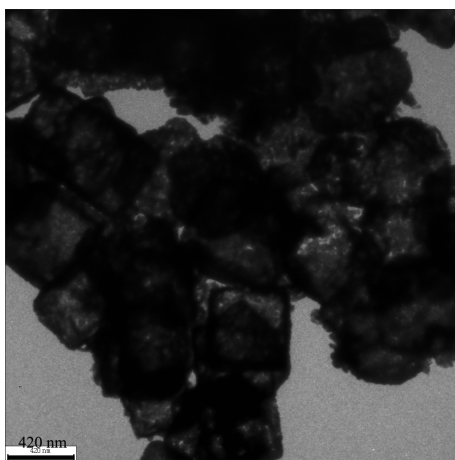


Figure S9. TEM image of used Au nanocages in the catalytic reaction.