

Supporting information

Chemical reaction controlled synthesis of Cu_2O hollow octahedra and core-shell structures

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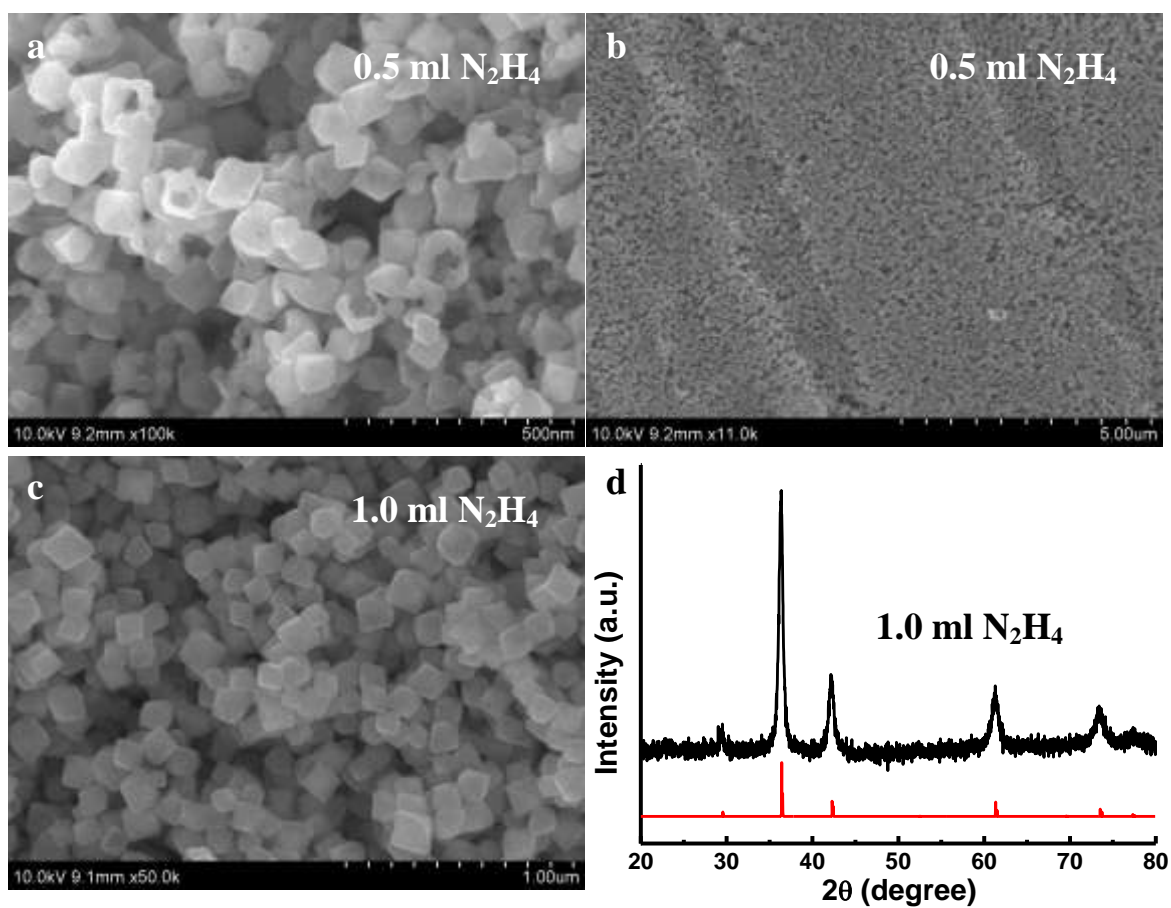


Fig. S1 SEM images (a-c) and XRD patterns (d) of final products with adding different amounts of N_2H_4 .



Fig. S2 Photo images show the change of reaction solution after adding 0.5ml N_2H_4 to $CuAc_2$ solution. The reaction was fast, where the solution colors were changed from light blue to dark blue, to yellow green with the reaction time less than 1s. Orange solutions were obtained when the reaction time was less than 2s. After 2h, the reaction solution turned to yellow color.

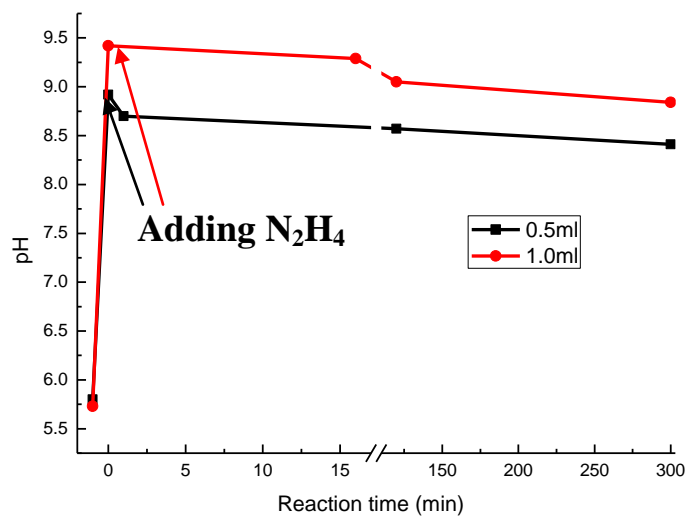


Fig. S3 pH change upon reaction times with adding different concentrations of N₂H₄.

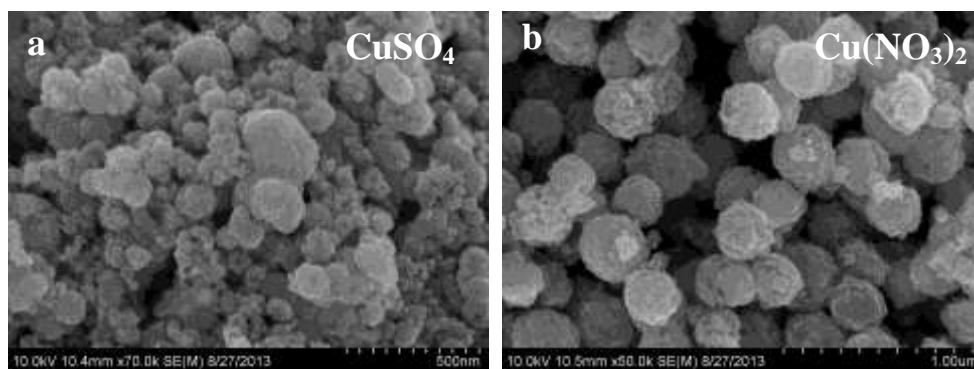


Fig. S4 SEM images of products obtained with using CuSO₄ (a) and Cu(NO₃)₂ (b) as starting copper salts. Both of them are nanoparticles aggregated spheres.

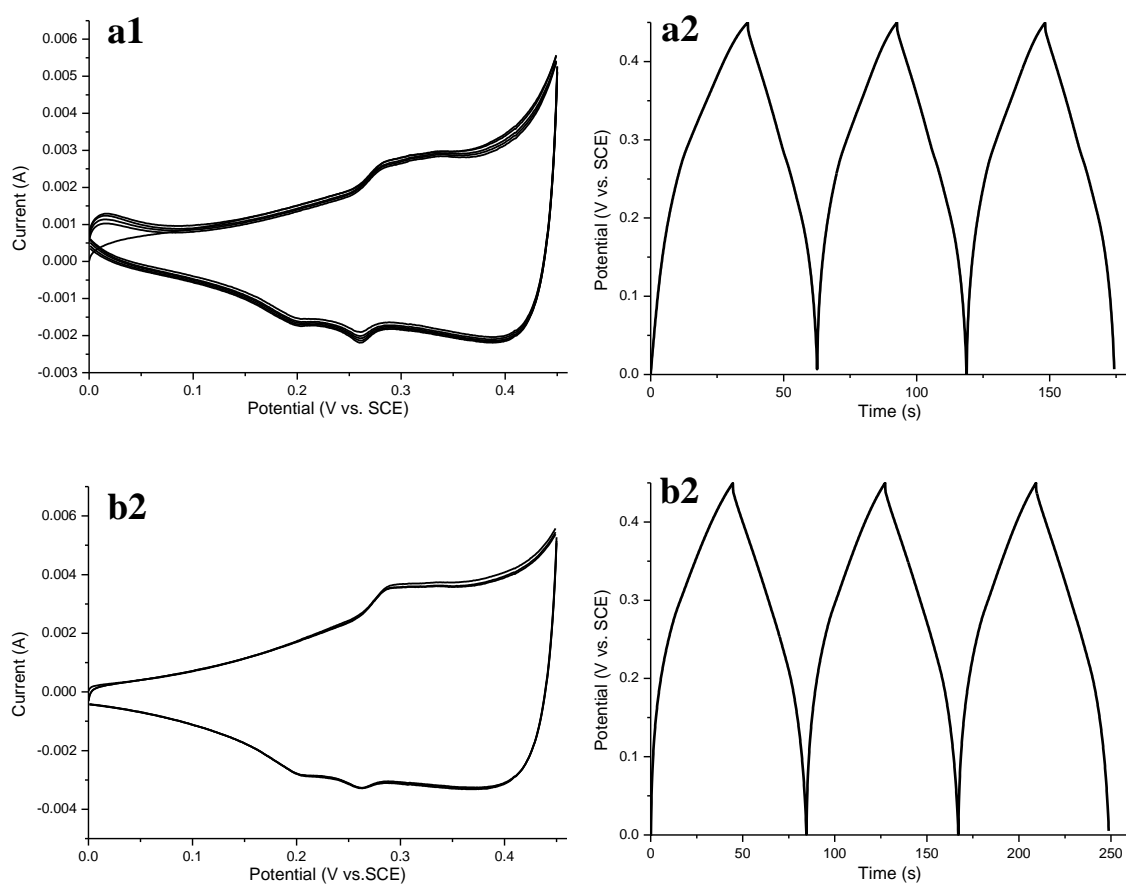


Fig. S5 Electrochemical properties of Cu₂O hollow octahedra (a) and core@shell structures (b) for supercapacitor in 2M KOH. (a1,b1) CV curves at scan rates of 10mV/s and (a2, b2) galvanostatic charge/discharge curves at current density of 1A/g of Cu₂O electrodes.

Table S1. Specific capacitances of Cu₂O hollow octahedra and core@shell structures
as supercapacitor electrodes

Material	Specific capacitance (F g ⁻¹) with $\Delta V=0.45V$, and current density of 1A/g
Cu ₂ O hollow octahedra	58
Cu ₂ O core@shell structures	88