Ultrasmall Cu$_2$O Nanocrystals: Facile Synthesis, Controllable Assembly and Photocatalytic Properties

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Figure S1 XRD patterns of Cu$_2$O USNCs with different amount surfactants: (a) 0.2g PVP and 0.2ml OA; (b) 0.2g PVP and 2ml OA; (c) 0.5g PVP and 0.5ml OA; (d) 0.5g PVP and 2ml OA.
Figure S2. TEM images of Cu$_2$O USNCs: (a) 0.5g PVP and 0.5ml OA; (b) 0.5g PVP and 1ml OA; (c) 0.2g PVP and 0.2ml OA; (d) 0.2g PVP and 1ml OA.

Figure S3. SAED images of the Cu$_2$O USNCs
Figure S4  SEM image of the self-assembly Cu$_2$O superlattices with 3ml DEC in cyclohexane

Figure S5 TEM image of the Cu$_2$O nanoparticles.
Figure S6 TEM images of the self-assembly of Cu$_2$O nanoparticles in cyclohexane: (a) 0.5ml DEC; (b) 1.0ml DEC; (c) 1.5ml DEC and; (d) 3ml DEC.
Figure S7 XRD pattern of CuO sample by directly evaporating in air in a beaker

Figure S8 SEM and TEM image of the as-obtained Cu$_2$O-Au samples: (a) SEM image of the Cu$_2$O-Au; (b) TEM image of the single Cu$_2$O-Au colloidal spheres; (c) HRTEM image of the Au nanoparticle
Figure S9  UV–vis diffuse reflectance spectra of Cu$_2$O(a) and Cu$_2$O–Au(2)(b)

Figure S10 UV–vis absorption spectra of MO aqueous solution with the Cu$_2$O–Au(2).