Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Synthesis of Monodisperse Single-crystal Cu_2O Spheres and their Application in Generating Structural Colors

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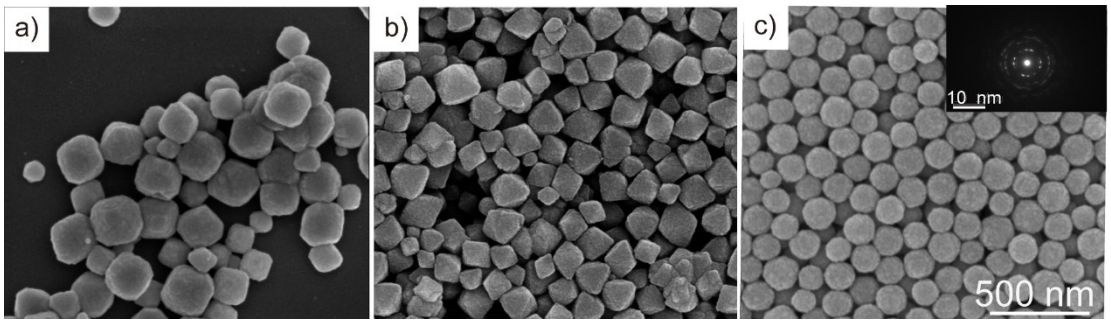

Fig. S1. SEM images of Cu_2O with different amount of additives in different solvents (a-b) R separately is 10.3, 15.4 and H_2O as solvent; (c) P = 7.7:1:1 and the solvent ratio of EG to H_2O is 3.3

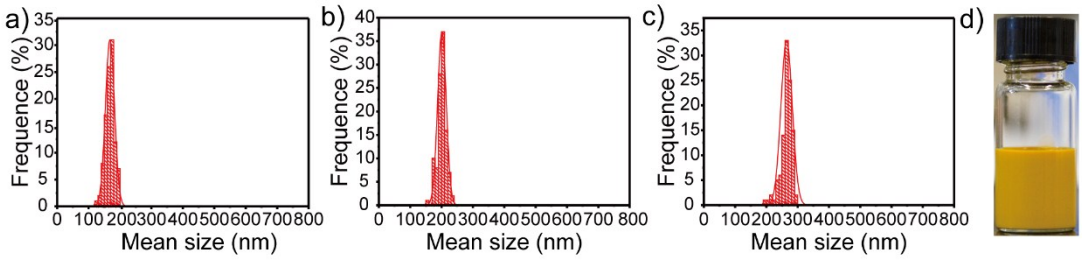

Fig. S2. Particle size distribution of monodisperse single-crystal solid Cu_2O spheres with different size (a) 168 nm; (b) 202 nm; (c) 265 nm; d) the ethanol suspension of Cu_2O single-crystal solid spheres with mass fraction 3%

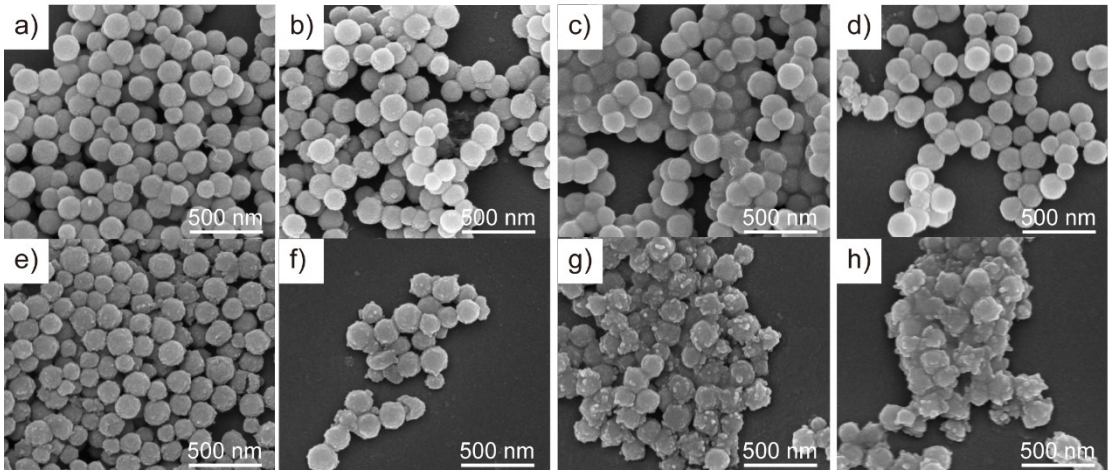

Fig. S3 The SEM of single-crystal spheres (average diameter of 155 nm) and polycrystalline spheres (average diameter of 152 nm) were in aqueous solution with pH 10 for different times (a, e) 0 h, (b, f) 1h, (c, g) 2h, (d, h) 3h.

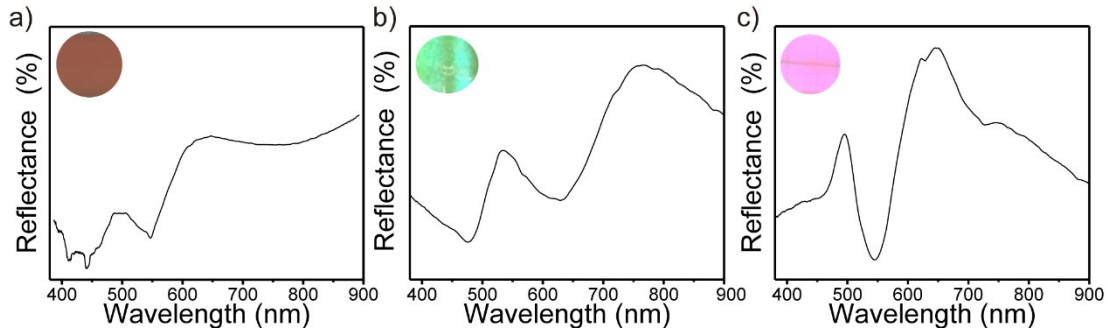

Fig. S4 (a-c) Reflection spectra of different color films built from the 168 nm, 202 nm and 265 nm single-crystal Cu_2O solid spheres（Inset the photograph from different color films）.

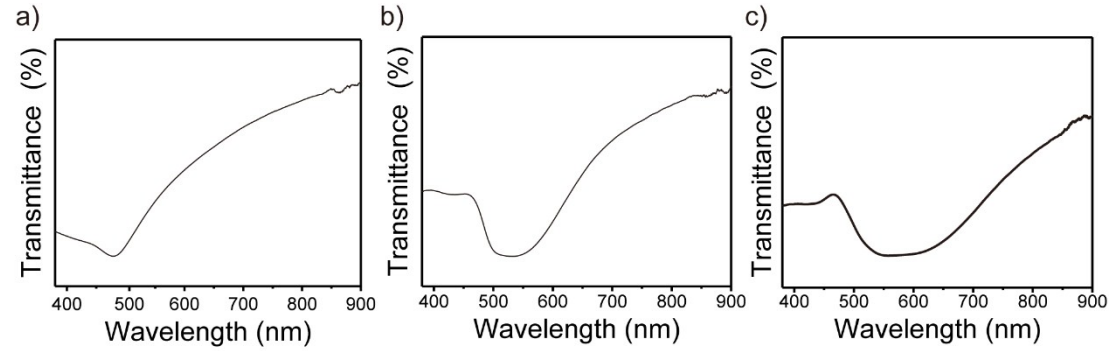

Fig. S5 (a-c) The transmission spectra of the different color films built from the 168 nm, 202 nm and 265 nm single-crystal Cu_2O solid spheres.

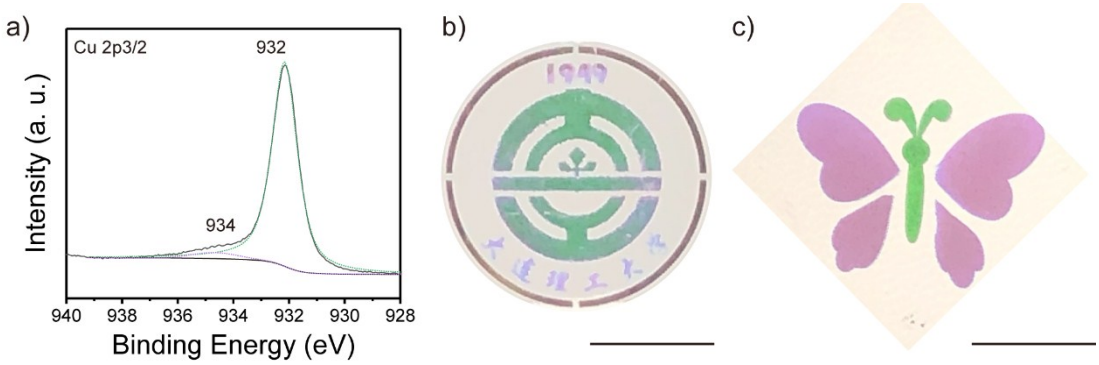

Fig. S6 a) XPS spectra of Cu_2O spheres with a diameter of 202 nm, (b-c) The artificial structural colors of the pattern kept in air for five months, scale bars: 1 cm.