

Supporting Information

Superhydrophobic Cuprous Oxide Nanostructures on Phosphor-Copper Meshes and Their Oil–Water Separation and Oil Spill Cleanup

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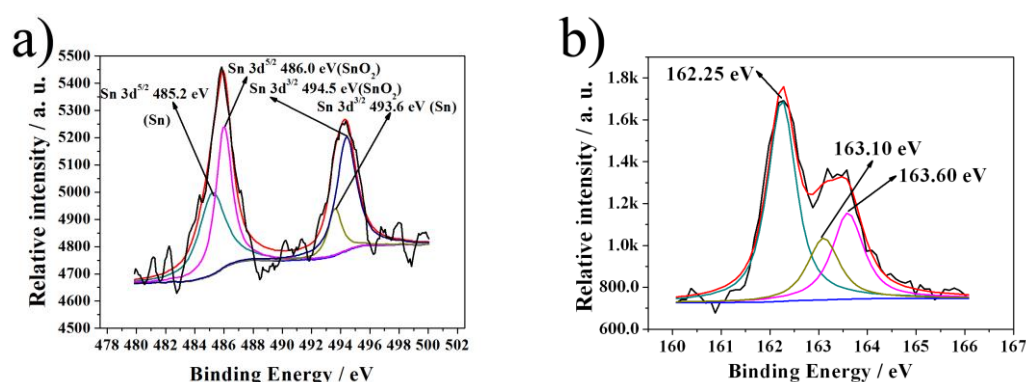


Figure S1. High-resolution XPS spectra of (a) Sn 3d region of as-prepared phosphor-copper mesh, (b) S 2p region of as-prepared Cu₂O nanostructure modified with 1-dodecanethiol (reaction conditions: 25 °C, 3 h).

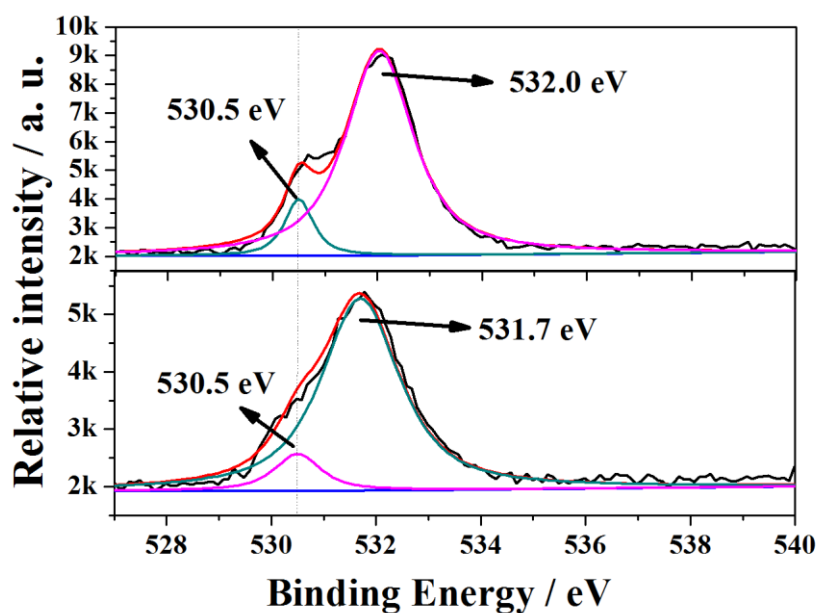


Figure S2. The high-resolution XPS spectra of O 1s region of as-prepared Cu₂O nanostructures (upper part) and the as-prepared Cu₂O nanostructures modified with 1-dodecanethiol (lower part).

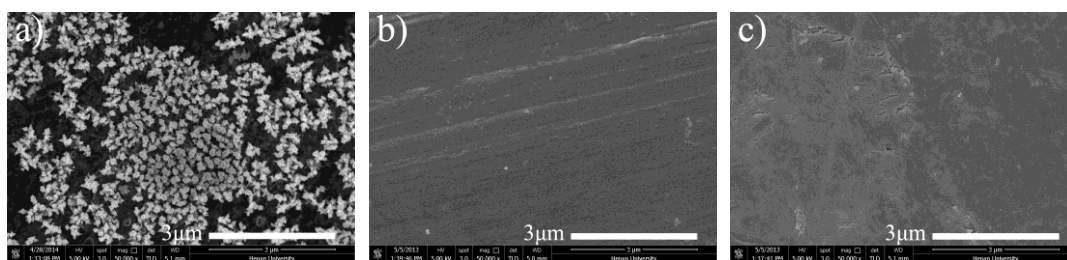


Figure S3. (a) SEM image of Cu₂O nanostructure on phosphor-copper mesh (prepared in double distilled water at a room temperature of 25 °C and a reaction time of 3 h); (b) SEM image of the surface of copper mesh (prepared in distilled water at a room temperature of 25 °C and a reaction time of 3 h); (c) SEM image of the surface of phosphor-copper mesh (prepared in distilled water at a room temperature of 25 °C and a reaction time of 3 h without washing with nitric acid).

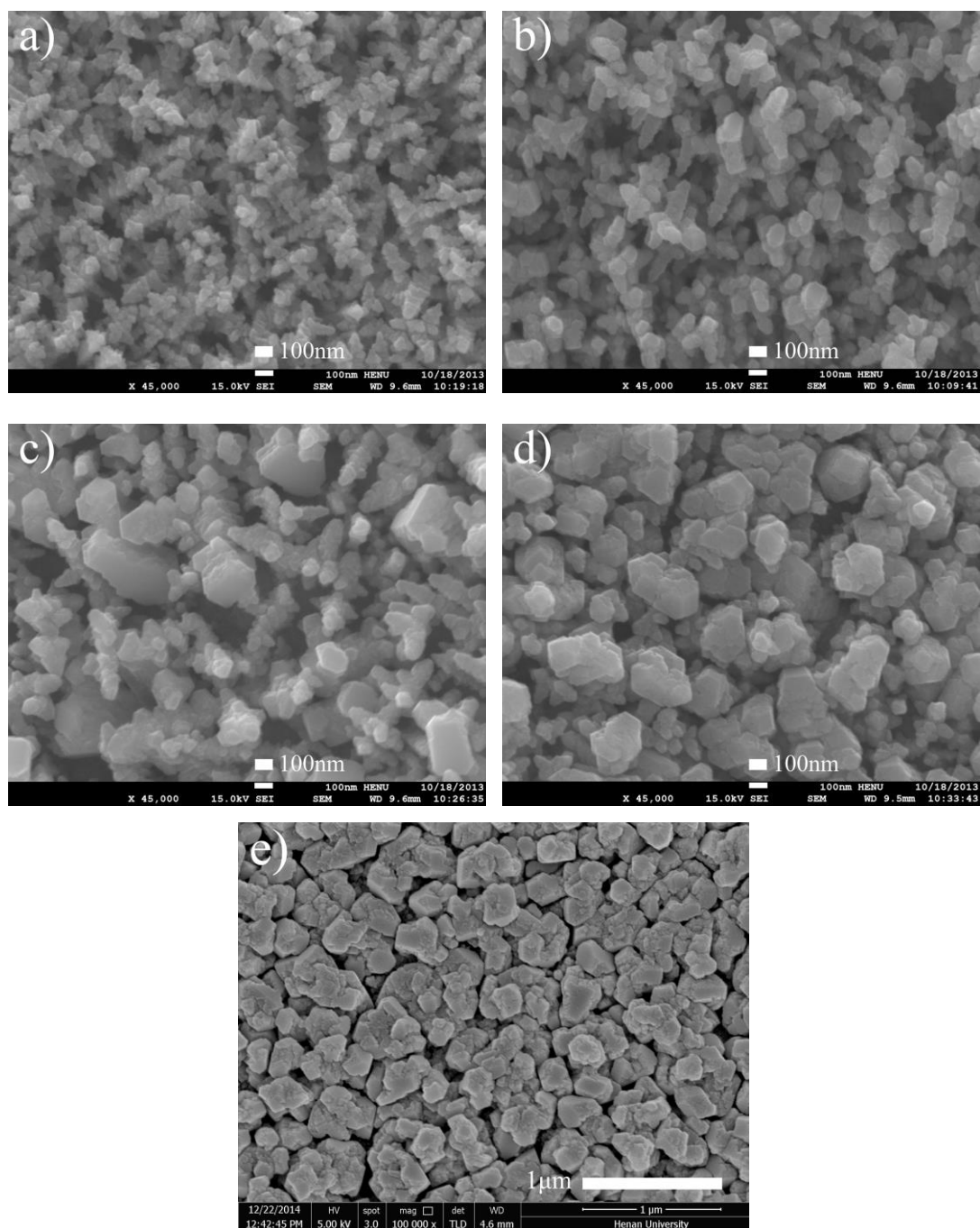
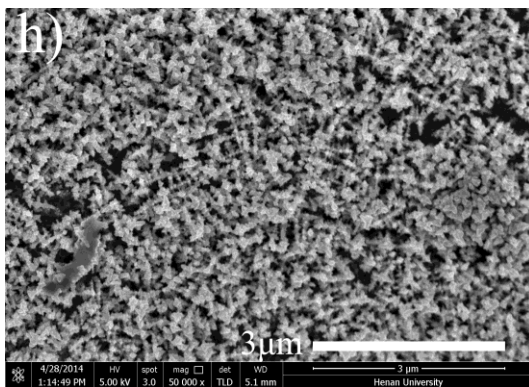
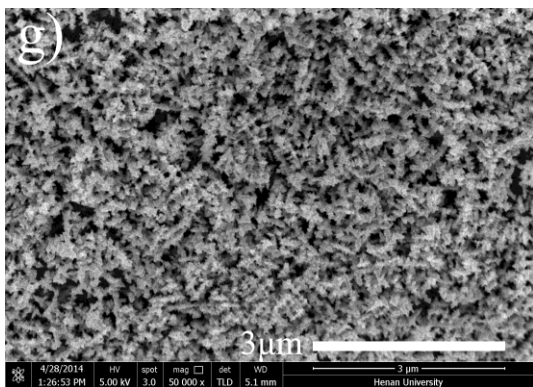
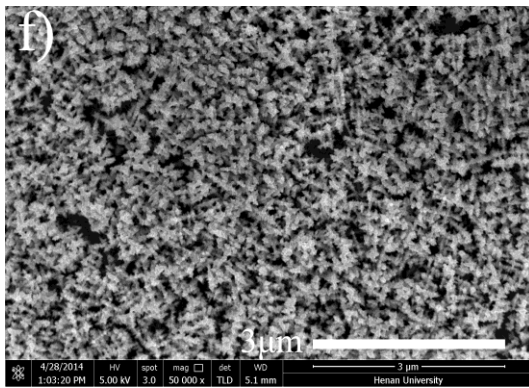
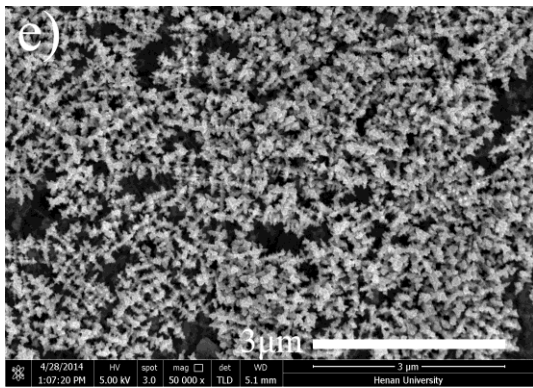
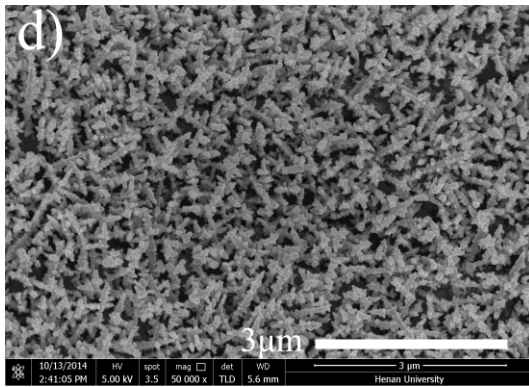
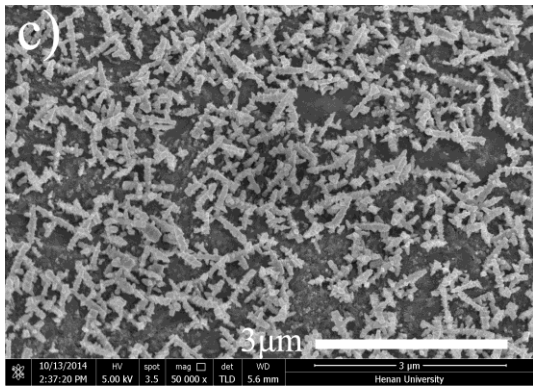
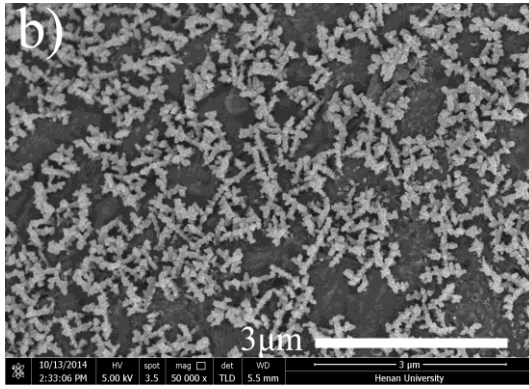
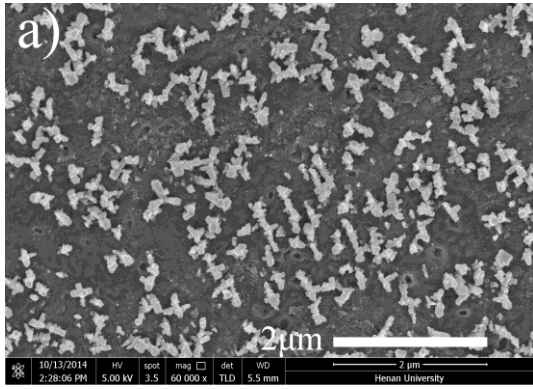


Figure S4. High-magnification SEM images of Cu_2O nanostructures prepared on phosphor-copper mesh under deposition temperatures of (a) 15, (b) 25, (c) 35, (d) 45 and (e) 60 °C.



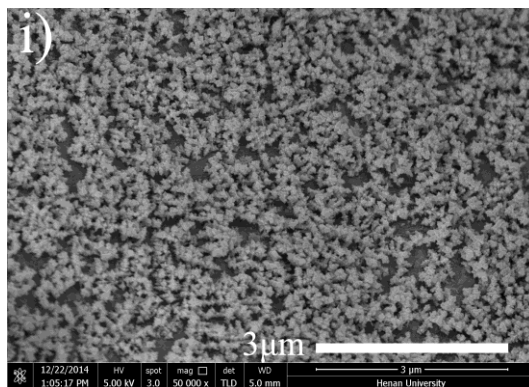


Figure S5. High-magnification SEM images of Cu₂O nanostructures prepared on phosphor-copper mesh under room temperature (about 20 °C) and deposition times of (a) 20 min, (b) 40 min, (c) 1 h, (d) 2 h, (e) 3 h, (f) 6 h, (g) 18 h, (h) 36 h and (i) 288h.

Table S1: The surface tensions of various tested oils

Oil	Surface tension (mN/m)	temperature (°C)
Diesel oil	28.6	30
n-hexane	27.5	20
Toluene	28.4	20
Chloroform	27.5	20