Supporting Information

**Cu$_2$O@PNIPAM core-shell microgels as novel inkjet materials for the preparation of CuO hollow porous nanocubes gas sensing layers**

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**Figure s1.** The waveform used for jetting.

**Figure s2.** The photographs of the films of (a) bare Cu$_2$O nanocubes and (b) Cu$_2$O@PNIPAM core-shell nanoparticles with the same solid content of 0.026 wt. % on polystyrene (PS) substrates.
Figure s3. TGA spectra of Cu$_2$O@PNIPAM core-shell nanoparticles.

Figure s4. The photos of Cu$_2$O@PNIPAM core-shell nanoparticles and bare Cu$_2$O nanocubes kept in water at room temperature for different time.
Figure s5. The photos of the droplets kept for 30 min for different samples: (a) bare 
Cu$_2$O nanocubes with 1.5 wt.% solid content, (b) Cu$_2$O@PNIPAM core-shell 
nanoparticles with 1.5 wt.% solid content and (c) bare Cu$_2$O nanocubes with 8 wt.% 
solid content.

Figure s6. (a, b, c) Overview SEM images of gas sensor devices of Cu$_2$O (1.5 wt.%), 
Cu$_2$O (8 wt.%) and Cu$_2$O@PNIPAM (1.5 wt.%) before heating treatment. (d) Overview 
SEM image of gas sensor device of Cu$_2$O@PNIPAM (1.5 wt.%) after heating treatment.
Figure s7. SEM image of CuO hollow porous sensing layers.