Supporting Information

New-type nanoscale coordination particles：toward modification free detection of hydrogen sulfide gas

Chenghua Zong, Xiaojuan Liu, Hongmei Sun, Guo Zhang and Lehui Lu*

E-mail: lehuilu@ciac.jl.cn

[†]State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, 5625 Renmin Street, Changchun 130022, P. R. China

[‡] Graduate School of the Chinese Academy of Sciences, Beijing, 100039, P. R. China

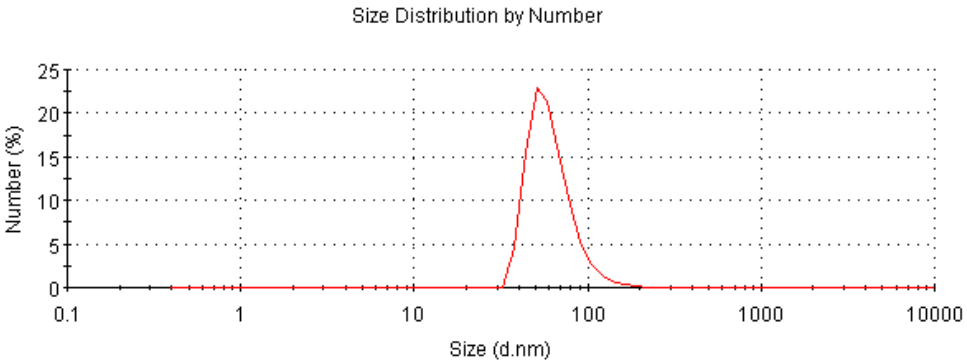

Fig. S1† Particle size distribution of the as-prepared NCPs determined by dynamic light scattering.

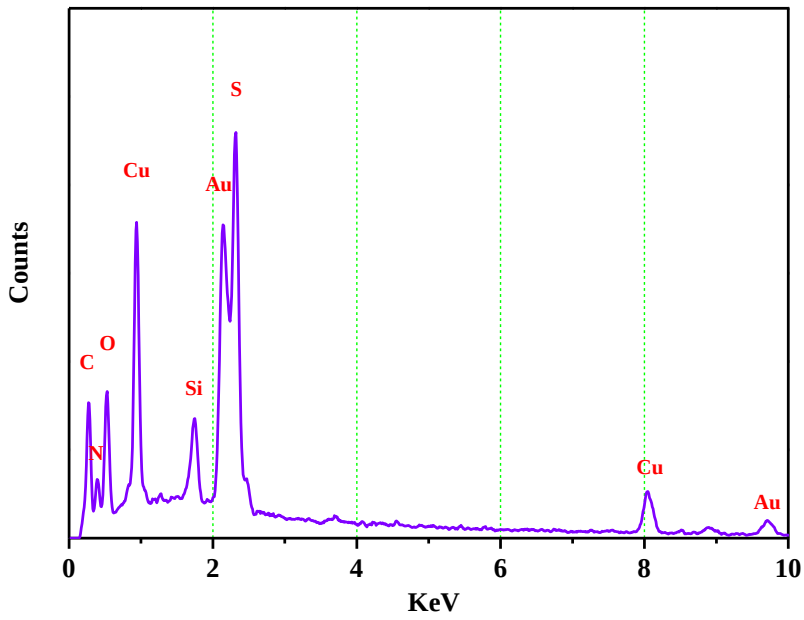

Fig. S2† Energy-dispersive X-ray spectrum (EDX) of the obtained NCPs.

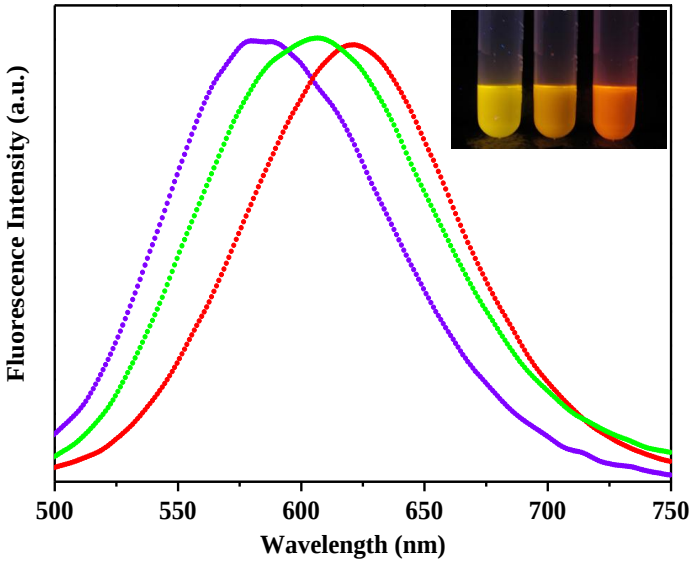

Fig. S3† Fluorescence spectra of the interest that were taken at different reaction times (from left to right: 30 s, 1 mins, 5 mins). All of the reaction agents were pre-heated to 80℃, before mixing together, and then samples were taken out at different reaction times to monitor their fluorescence changes).

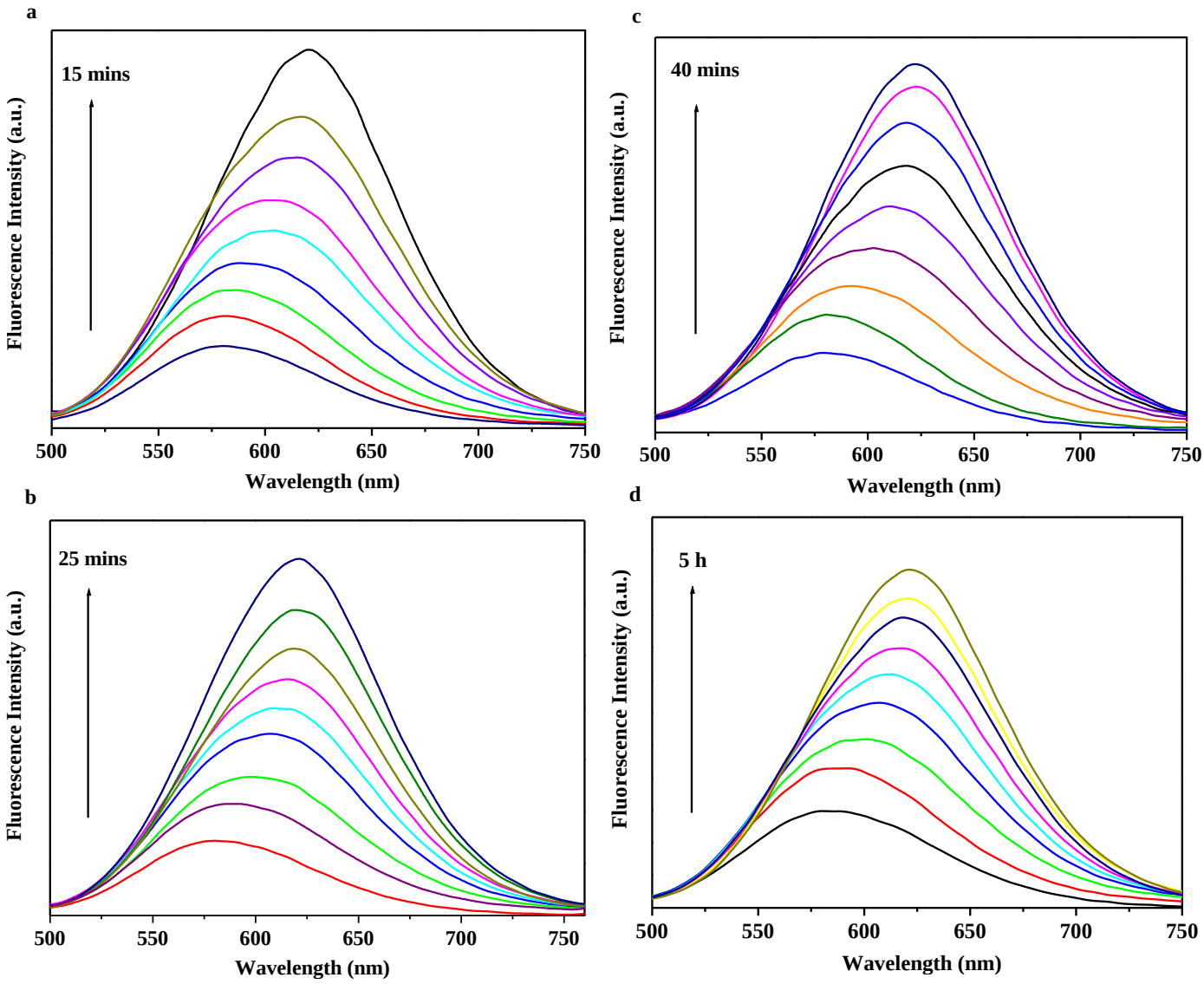

Fig. S4† Fluorescence spectral shifts of NCPs obtained at different reaction temperatures. (a) 60 ℃, (b) 50℃, (c) 40℃, (d) 30℃.

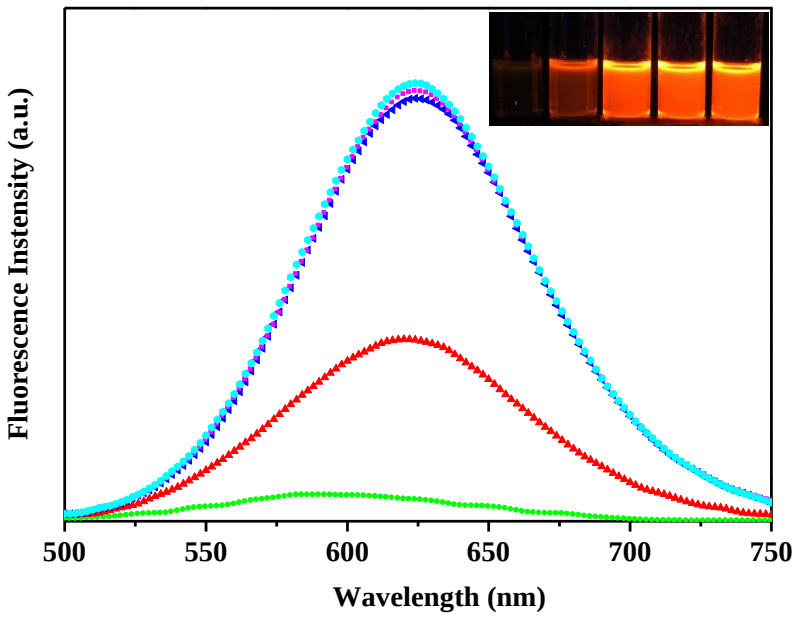

Fig. S5† Fluorescence spectral changes by varying the amount of Vc, while keep other conditions unchanged (form bottom to top the Vc/Cu (I) molar ratios were increased as follows: 2.5:1; 5:1; 10:1; 15:1; 30:1). Inset showed the corresponding photographs taken under a UV hand lamp.

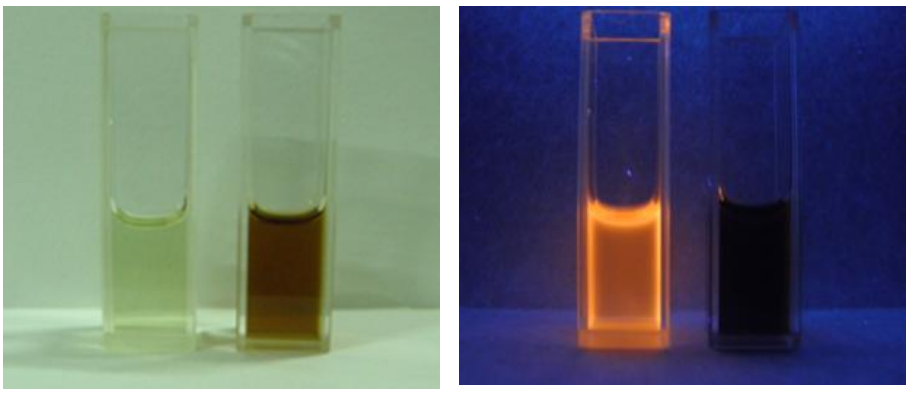

Fig. S6† Visual color changes of the NCPs after treated with 600 ppm H_2S (left: under the daylight; right: under the UV hand lamp).

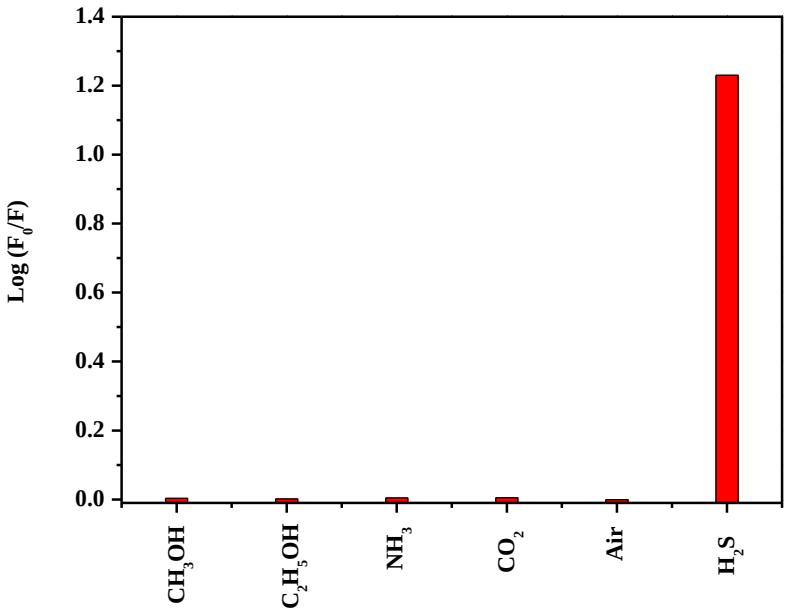

Fig. S7† Selectivity of the NCPs for H_2S over the representative gases (the concentrations of the detected gases were all 600 ppm).

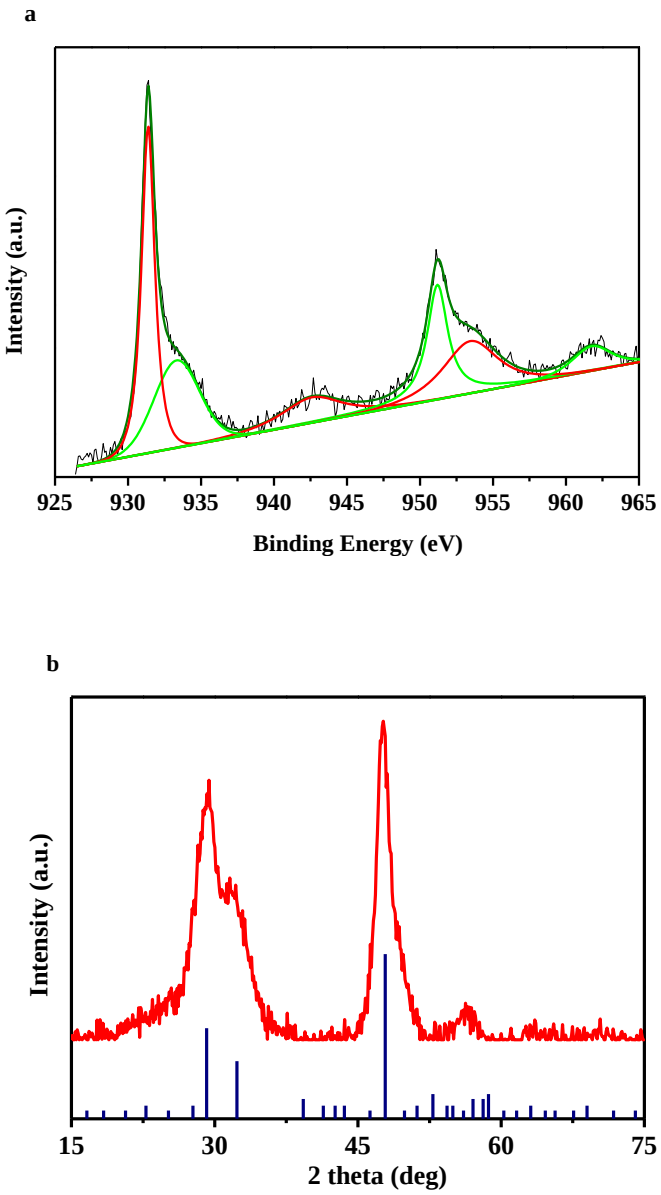

Fig. S8† (a) XPS spectral in the Cu 2p region for NCPs treated with excess H_2S. (b) The corresponding XRD pattern.

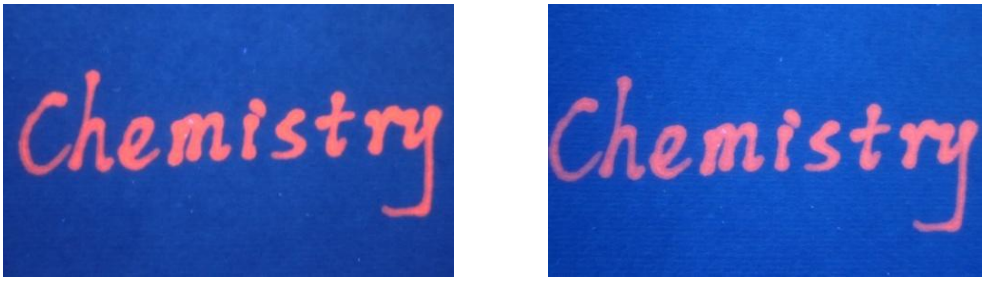

Fig. S9† Optical images of the fluorescent text written on a filter paper by using the NCPs inks (left) and the corresponding optical images after treated with 80 ppm H_2S (right).

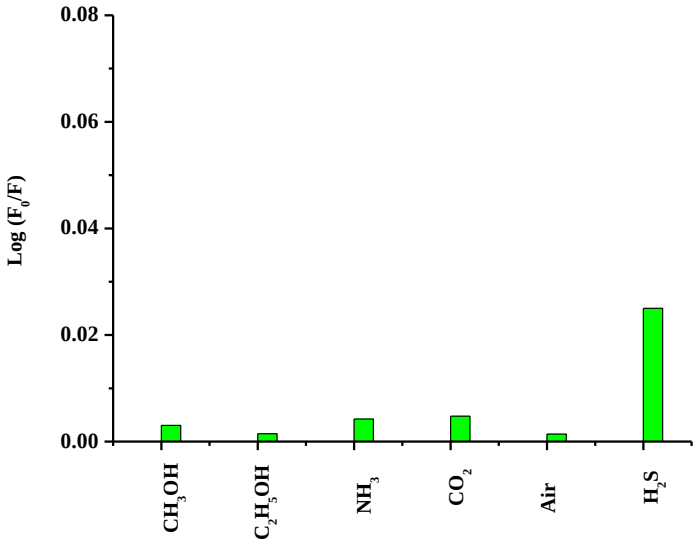

Fig. S10† Selectivity of the NCPs for H_2S over the representative gases (the concentration of H_2S was 8 ppm, while other interference gases were all 80 ppm).

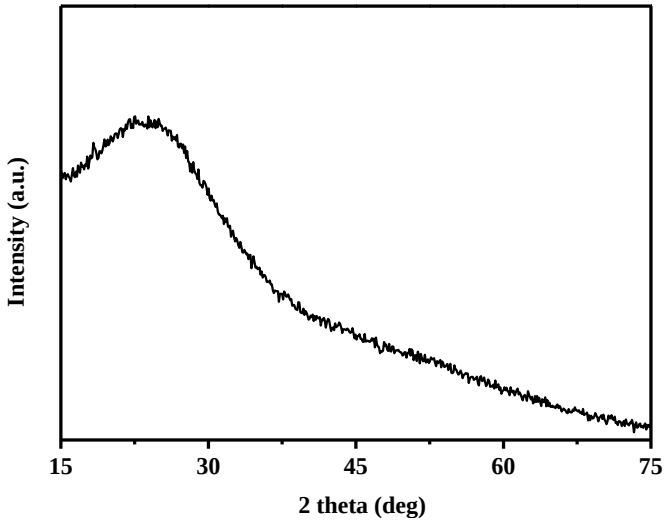

Fig. S11† X-ray diffraction (XRD) patterns of the as-prepared NCPs. No sharp diffraction peaks was observed, indicating the amorphous nature of the as-prepared NCPs.