10.1071/CH15126_AC

Australian Journal of Chemistry 2015, 68(10), 1569-1576

Supplementary Material

Facile synthesis of hierarchical CuO microspheres and their gas sensing properties for NO_x at room temperature

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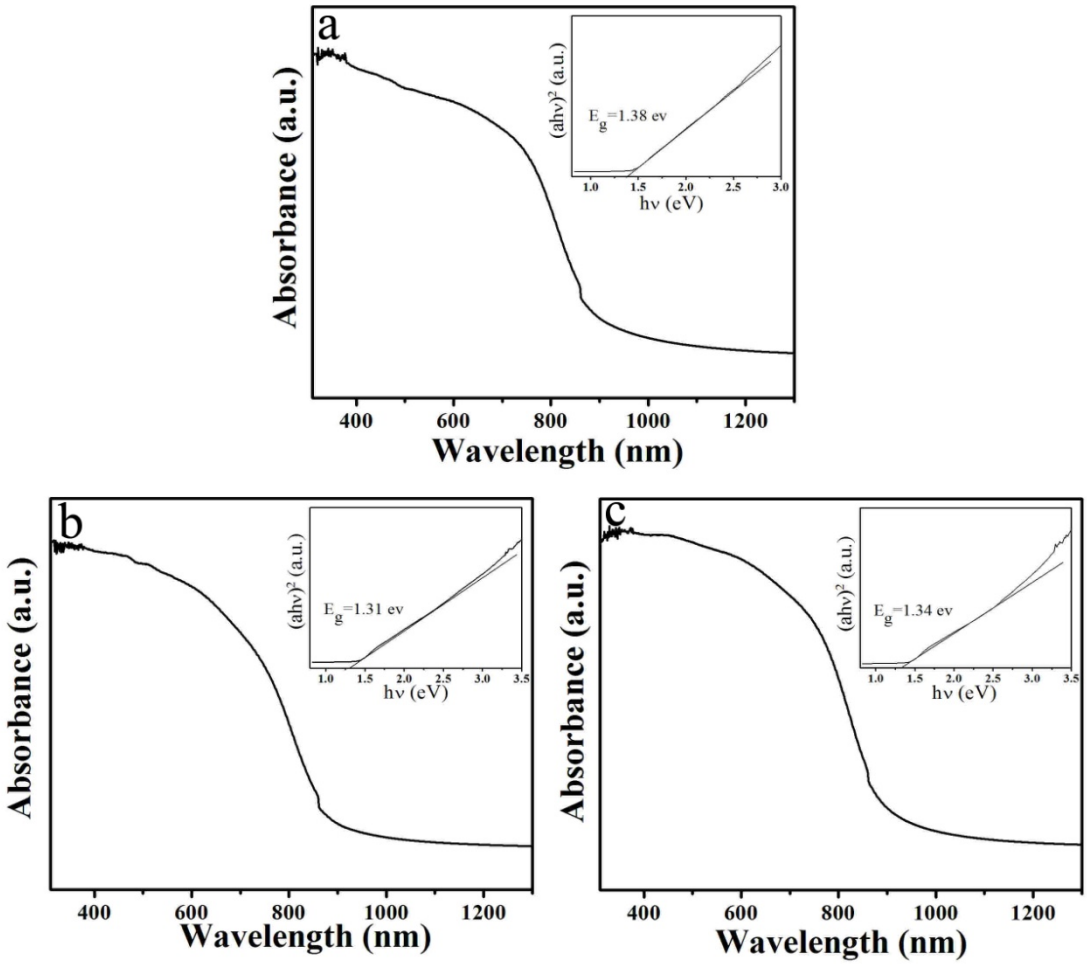

Fig. S1 UV-vis diffuse reflectance spectra of (a) CuO-1 (b) CuO-2 and (c) CuO-3 samples. The inset shows plots of $(\alpha h\nu)^2$ versus incident photon energy (hν) for (a) CuO-1 (b) CuO-2 and (c) CuO-3 samples, respectively.

Table S1 Fitted impedance parameters of the samples

Samples	$R_{\Omega}(\Omega)$	$C(F\ cm^{-2})$	$R_{ct}(\Omega)$
CuO-1	311.6	2.22×10^{-6}	4575
CuO-2	174.4	3.98×10^{-6}	2576
CuO-3	281.3	2.00×10^{-6}	3307

Table S2 Gas response results of CuO-2 sensor to NO_x at RT in air

NO_x Concentration (ppm)	97	48.5	29.1	9.7	4.85	2.91	0.97
Response (%)	64.93	63.48	55.04	27.92	11.20	7.44	1.14
Response time (s)	5.33	6.67	7.33	9.33	14.67	17.33	18.67

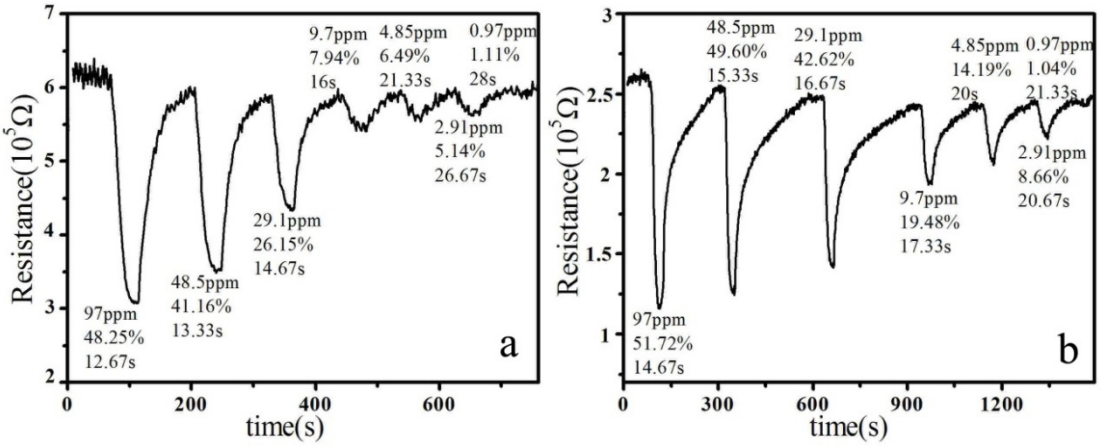

Fig. S2 Typical response curves of the CuO sensor to 97~0.97 ppm NO_x at **RT**. (a) CuO-1; (b) CuO-3

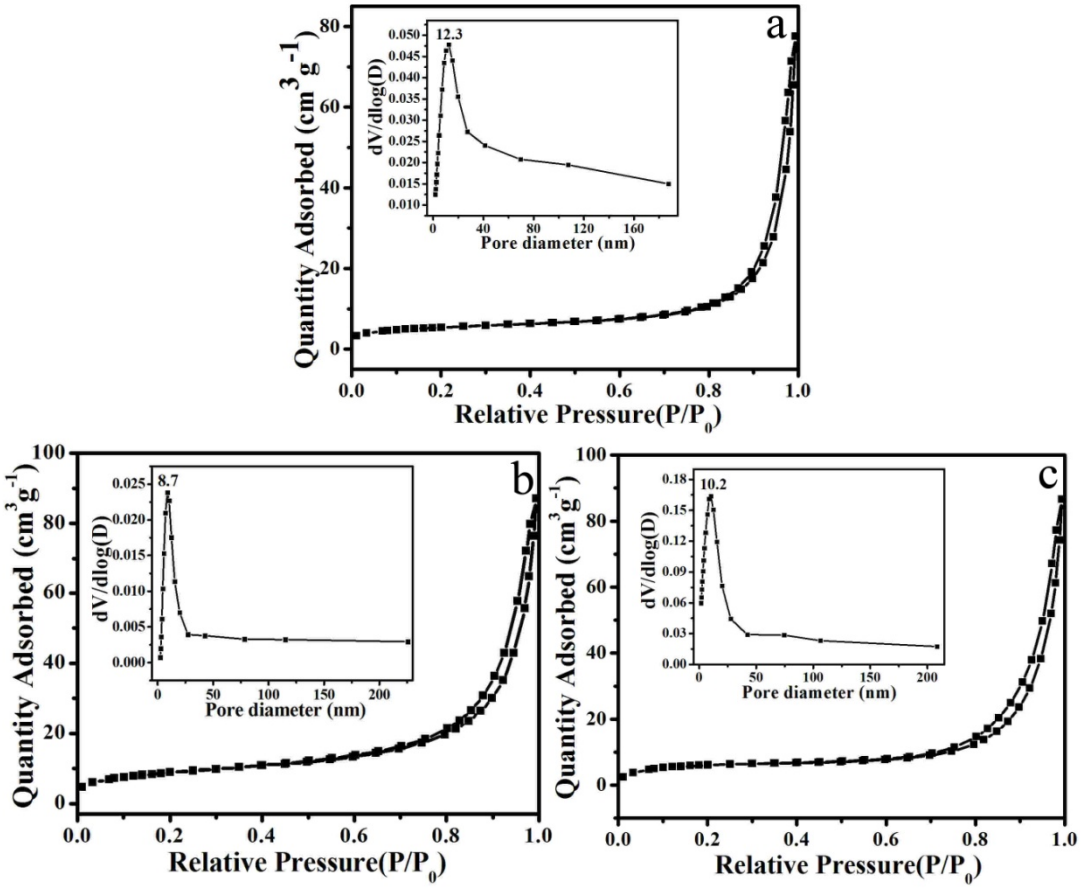

Fig. S3 Nitrogen adsorption-desorption isotherms of (a) CuO-1 (b) CuO-2 (c) CuO-3 and the insert shows the pore-size distribution curve of CuO-1, CuO-2 and CuO-3 samples.

Table S3 BET surface area of samples

sample	CuO-1	CuO-2	CuO-3
BET surface area ($m^2 \cdot g^{-1}$)	19.2	31.9	22.8
Dominant mesopore size (nm)	12.3	8.7	10.2