

Supporting Information

Synthesis of CuO-CdS composite nanowires and its ultrasensitive ethanol sensing property

Nan Zhang^{a,1}, Xiaohui Ma^{a,1}, Yanyang Yin^a, Yu Chen^{a, b}, Chuannan Li^a, Jingzhi Yin^{a,*}, Shengping Ruan^{a,*}

^a State Key Laboratory on Integrated Optoelectronics and College of Electronic Science and Engineering, Jilin University, Changchun 130012, P. R. China.

^b Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, PR China.

E-mail: Ruansp@jlu.edu.cn (S. Ruan)

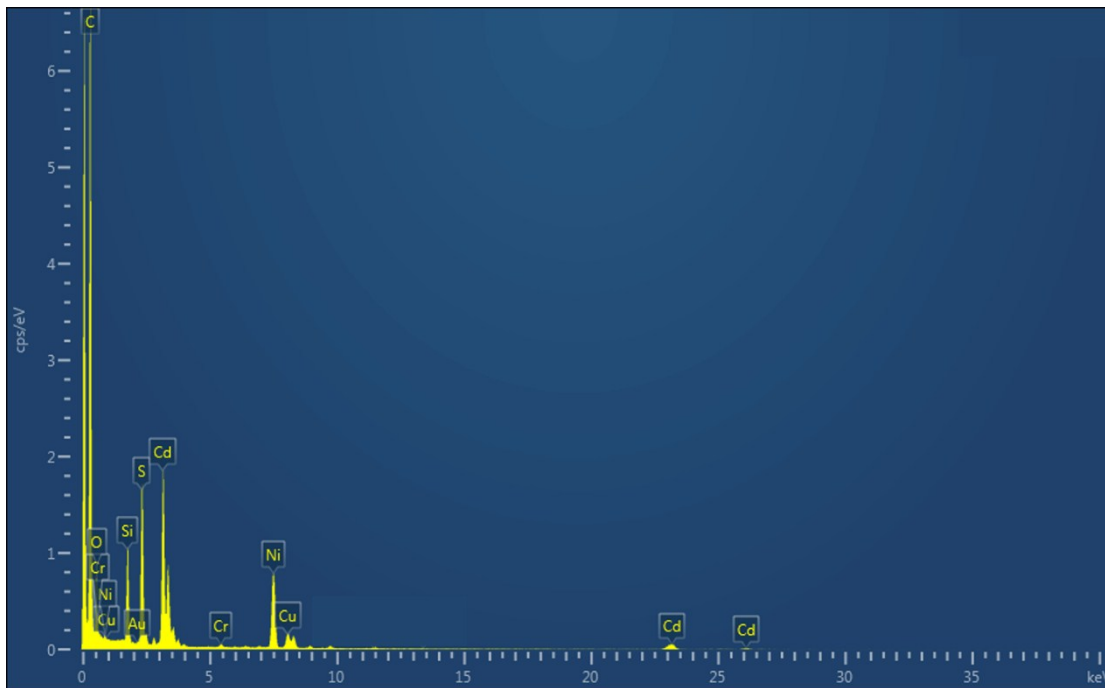


Figure S1. EDS elemental spectrum of the 0.05 at% CuO-CdS nanowires.

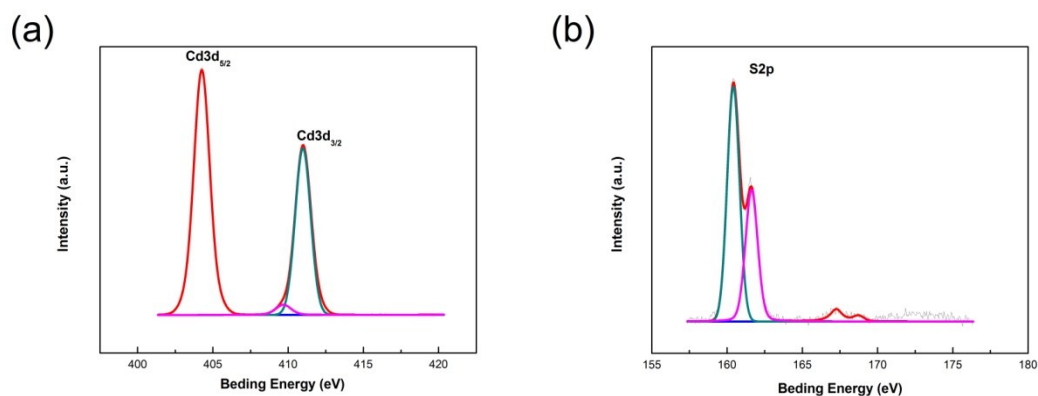


Figure S2. the XPS spectra of the CdS: (a) Cd element, (b) S element

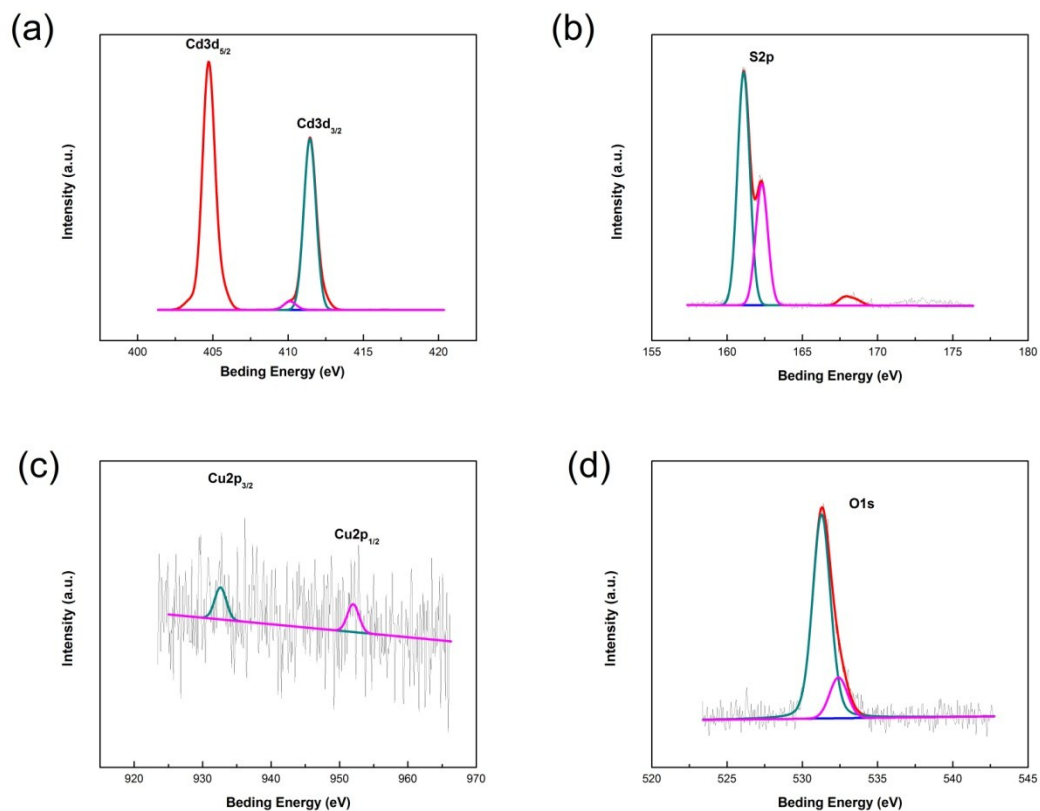


Figure S3. the XPS spectra of the 0.01 at% CuO-CdS: (a) Cd element, (b) S element, (c) Cu element and (d) O element.

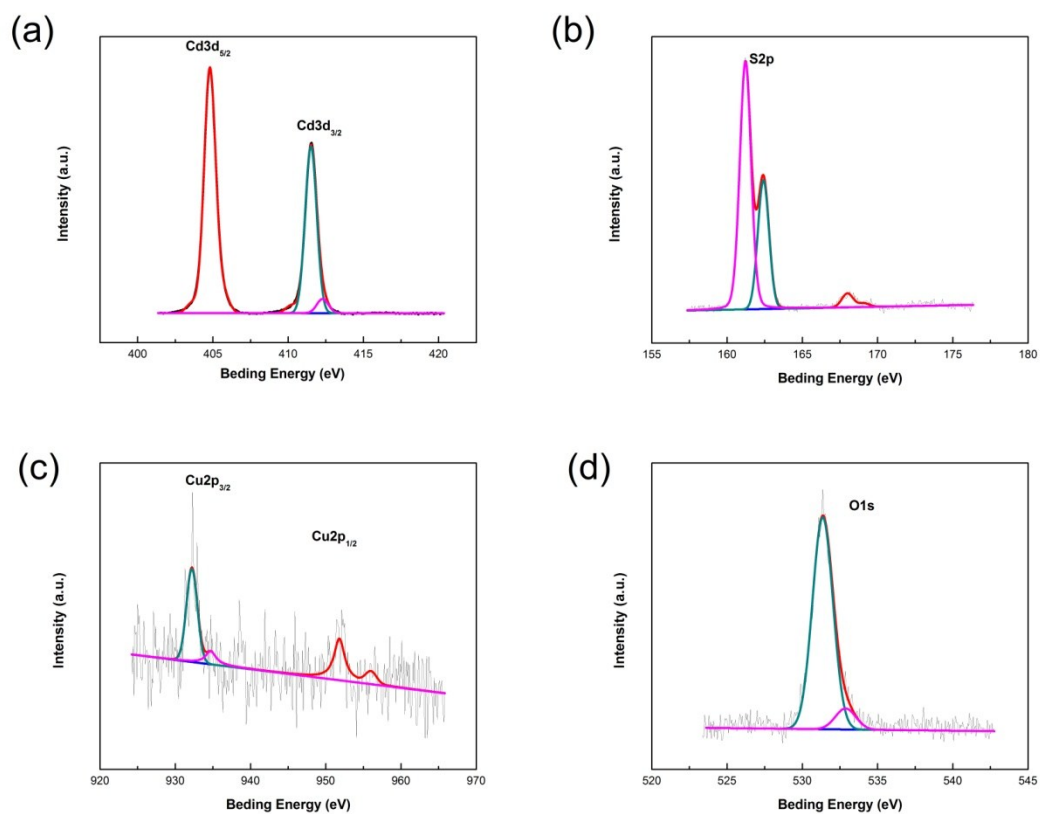


Figure S4. the XPS spectra of the 0.05 at% CuO-CdS: (a) Cd element, (b) S element, (c) Cu element and (d) O element.

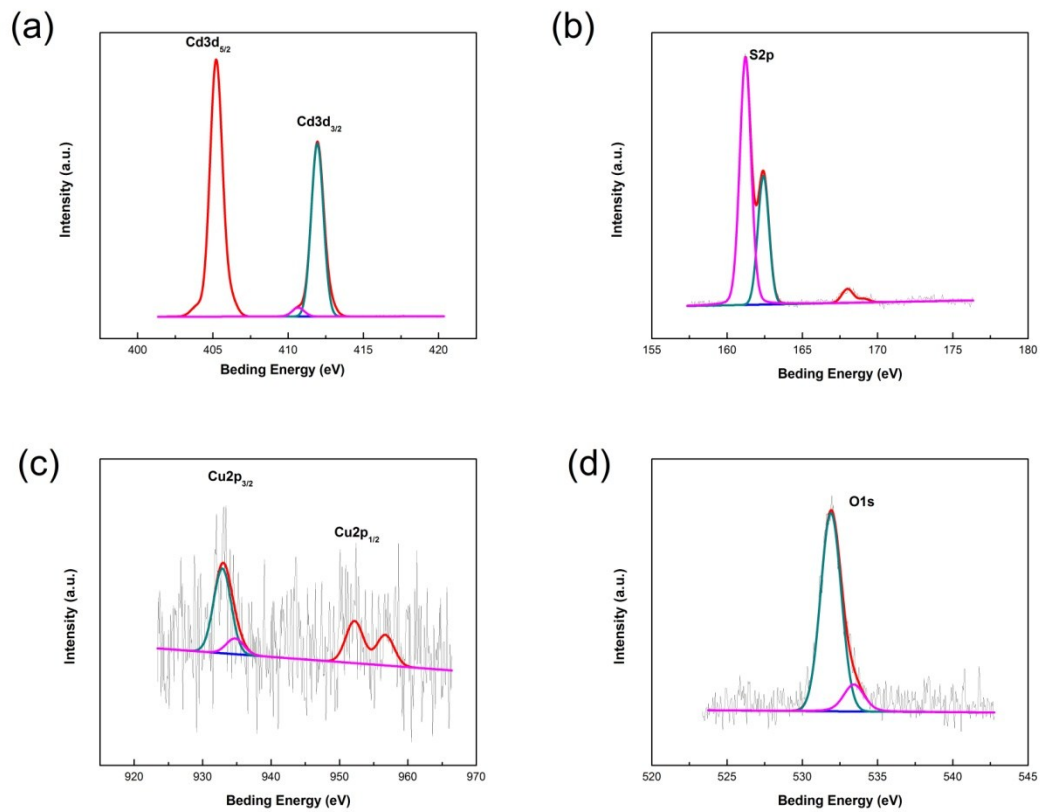


Figure S5. the XPS spectra of the 0.1 at% CuO-CdS: (a) Cd element, (b) S element, (c) Cu element and (d) O element.

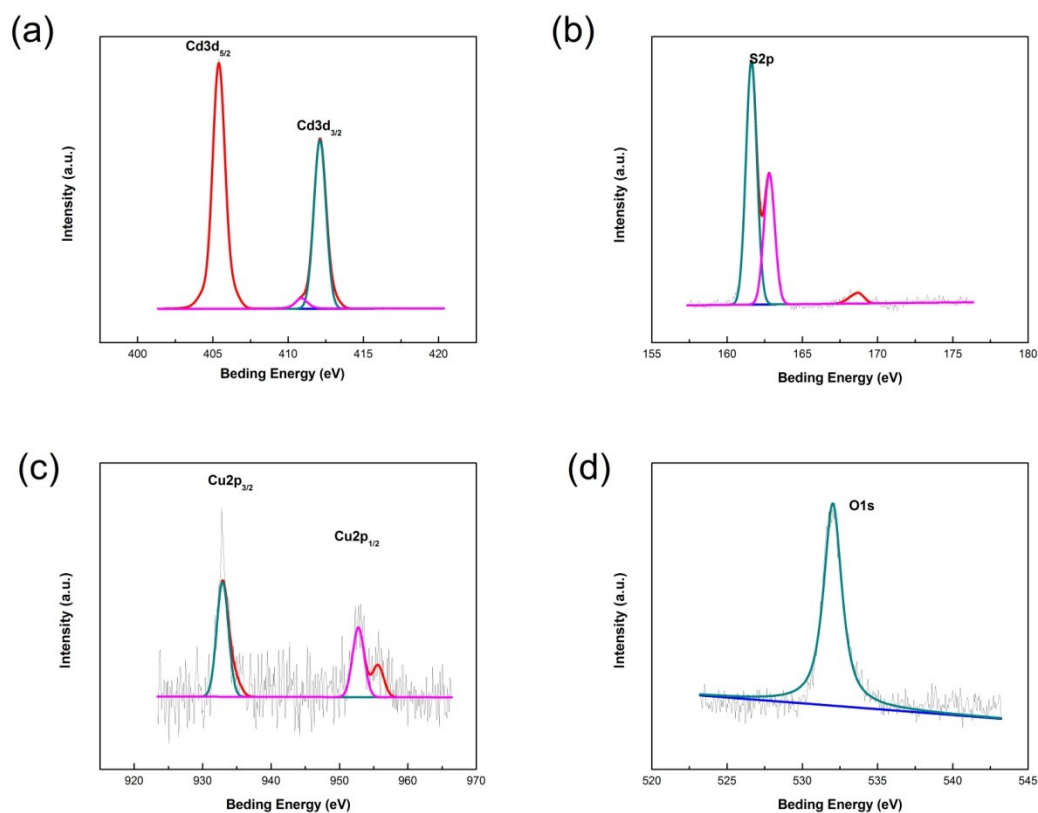


Figure S6. the XPS spectra of the 0.5 at% CuO-CdS: (a) Cd element, (b) S element, (c) Cu element and (d) O element.

Table S1 atom ratio of Cu to Cd of the as-prepared samples according to XPS

Samples	Pure CdS	0.01 at% CuO-CdS	0.05 at% CuO-CdS	0.1 at% CuO-CdS	0.5 at% CuO-CdS
Atom ratio Cu/Cd	0	0.2 %	0.75 %	0.84 %	1.38 %

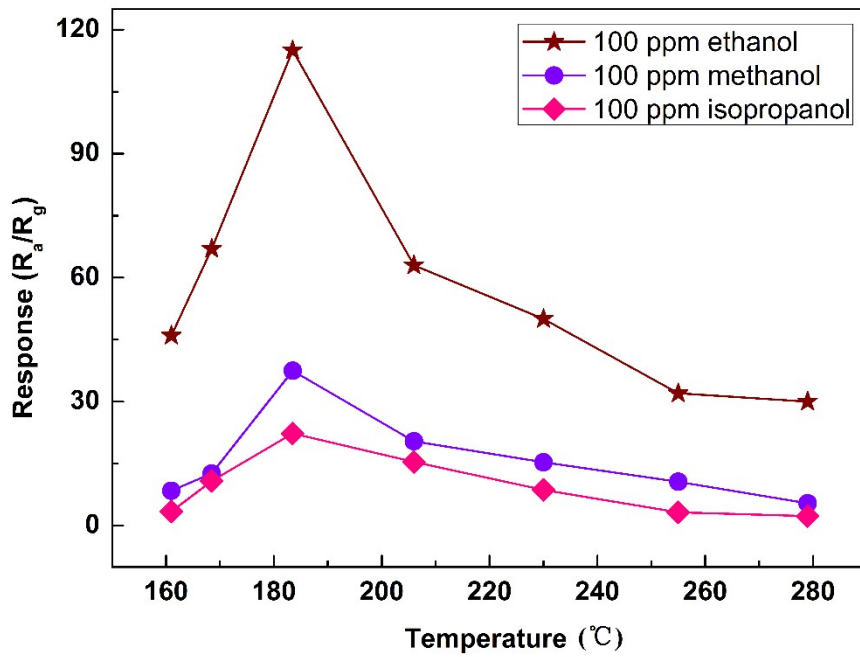


Figure S6. Response of 0.05% CuO/CdS composite based sensor to 100 ppm ethanol, isopropanol and methanol at different operating temperature.

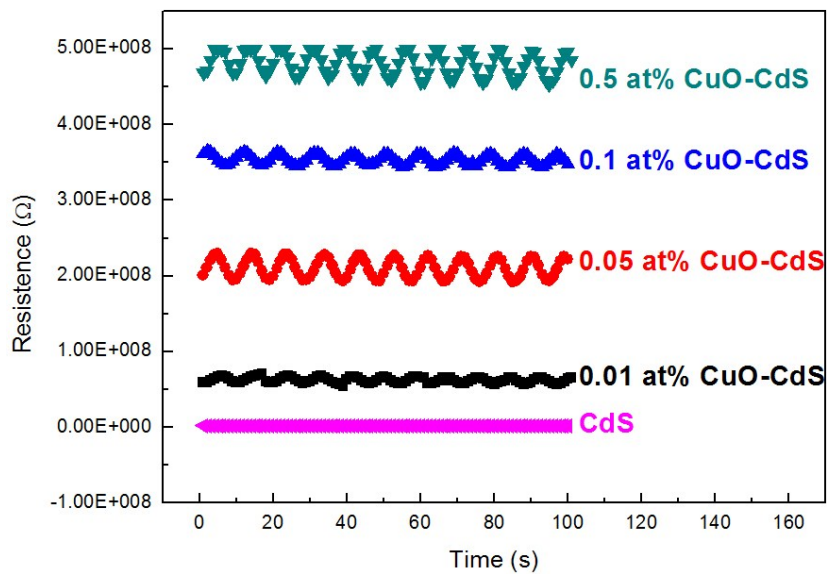


Figure S7. The change in sensor resistance in air around 185°C with the additive amounts of CuO.