## **Supporting Information**

## Synthesis of porous Co<sub>3</sub>O<sub>4</sub> nanonetworks to detect toluene at low

## concentration

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Fig. S1. (a and b) TEM and HRTEM images of precursor CoOOH nanosheets, (inset b is the corresponding SAED pattern), (c) XRD pattern of the CoOOH nanosheets.



Fig. S2. An EDX spectrum of  $Co_3O_4$  NNWs. C and Cu peaks come from the copper-carbon grid of TEM.



Fig. S3. HADDF-STEM image of  $Co_3O_4$  products calcined at 400 °C.



**Fig. S4.** Responses of the sensors *versus* the toluene concentrations range from 1 to 1000 ppm at an operating temperature of 150 °C, the inset is the stability of the sensor to 100 ppm toluene for three weeks.