Supporting Information

SnO₂ nanorods based sensing material as an isopropanol vapor sensor

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Scheme S1. Schematic diagram of testing principle for SnO₂ nanorods gas sensors. $V_H$ is heating voltage and $R_H$ is heating resistance.

According to Scheme S1, the electrical resistance of sensor can be obtained as following:

$$ R = \frac{10 - V_o}{V_o} \cdot R_L $$

where $R$ is the resistance of the sensor, $R_L$ is a constant load resistance unchanged with the surrounding gas partial pressure, $V_o$ is the sensor export voltage. The gas response $\beta$ was defined as the ratio of the electrical resistance in air ($R_o$) to that in gases ($R_g$):

$$ R_o = \frac{10 - (V_o)_{air}}{(V_o)_{air}} \cdot R_L, \quad R_g = \frac{10 - (V_o)_{gas}}{(V_o)_{gas}} \cdot R_L, \quad \beta = \frac{R_o}{R_g} $$

where $(V_o)_{air}$ is the export voltage in air, and $(V_o)_{gas}$ is in gases.
Scheme S2. A schematic diagram of the proposed reaction mechanism of porous SnO$_2$ nanorods based sensor to IPA. (a) in dry air, (b) in IPA.
Figure S1 Nitrogen adsorption/desorption isotherm of SnO$_2$ nanorods