Supplementary Information

Temperature-dependent selectivity of bead-like TeO₂ nanostructured gas sensors

Sun-Woo Choi[a], and Changhyun Jin[*b]

[a]*Sensor System Research Center, Korea Institute of Science and Technology, 14-gil 5 Hwarang-ro, Seongbuk-gu, Seoul 136-791, Republic of Korea.*

[b]*School of Mechanical Engineering, Konkuk University, 120 Neungdong-ro, Gwangjin-gu, Seoul 143-701, Republic of Korea.*

* Corresponding author: *E-mail address: jinch@konkuk.ac.kr; Fax: +82 2 450 3482; Tel: +82 2 447 5886*

Table S1. Comparison of sensing properties of p-TeO$_2$ NWs' with those of p-type nanostructured materials-based sensors.

Materials	Gas species	Concentration (ppm)	Temperature (°C)	Response (R$_a$/R$_g$ or R$_g$/R$_a$)	Reference
TeO$_2$ nanowires	C$_2$H$_5$OH	200	250	7.45	This work
hollow Co$_3$O$_4$ nanospheres	C$_2$H$_5$OH	1000	100	6.3	1
Single CuO nanowire	C$_2$H$_5$OH	500	200	1.6	2
Hollow NiO hemispheres	C$_2$H$_5$OH	200	300	5	3
Porous Co$_3$O$_4$ nanorods	C$_2$H$_5$OH	20552	300	1036 % ($\Delta R/R_0$)×100	4
NiO nanowires	C$_2$H$_5$OH	1000	R.T.	7 % ($\Delta G/G_0$)×100	5

References

1. J. Park, X. Shen, G. Wang, *Sens. Actuators B*, 2009, **136**, 494-498.

2. L. Liao, Z. Zhang, B. Yan, Z. Zheng, Q. L. Bao, T. Wu, C. M. Li, Z. X. Shen, J. X. Zhang, H. Gong, J. C. Li, T. Yu, *Nanotechnology*, 2009, **20**, 085203.

3. N. G. Cho, I.-S. Hwang, H.-G. Kim, J.-H. Lee, I-D. Kim, *Sens. Actuators B*, 2011, **155**, 366-371.

4. H. Nguyen, S. A. El-Safty, *J. Phys. Chem. C*, 2011, **115**, 8466-8474.

5. J. Wang, L. Wei, L. Zhang, C. Jiang, E. S.-W. Kong, Y. Zhang, *J. Mater. Chem.*, 2012, **22**, 8327-8335.
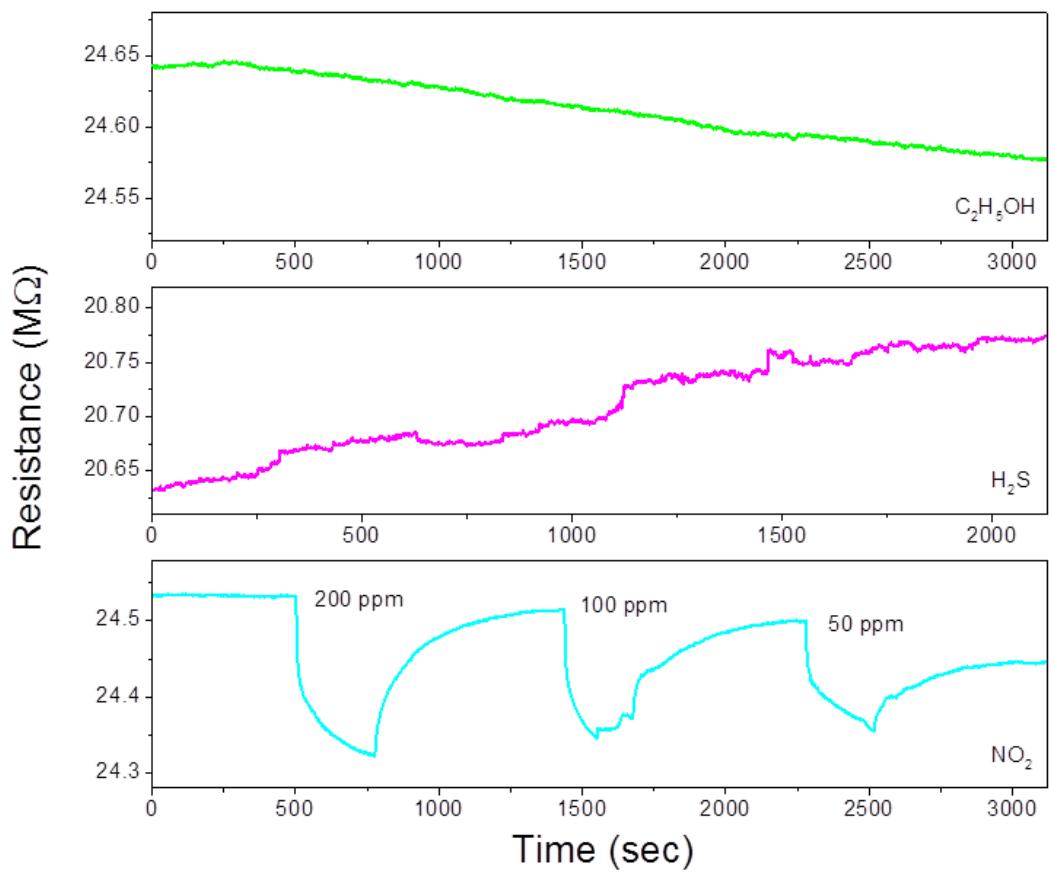
Fig. S1 Response curves of p-TeO$_2$ NWs for C$_2$H$_5$OH, H$_2$S, and NO$_2$ at room temperature.
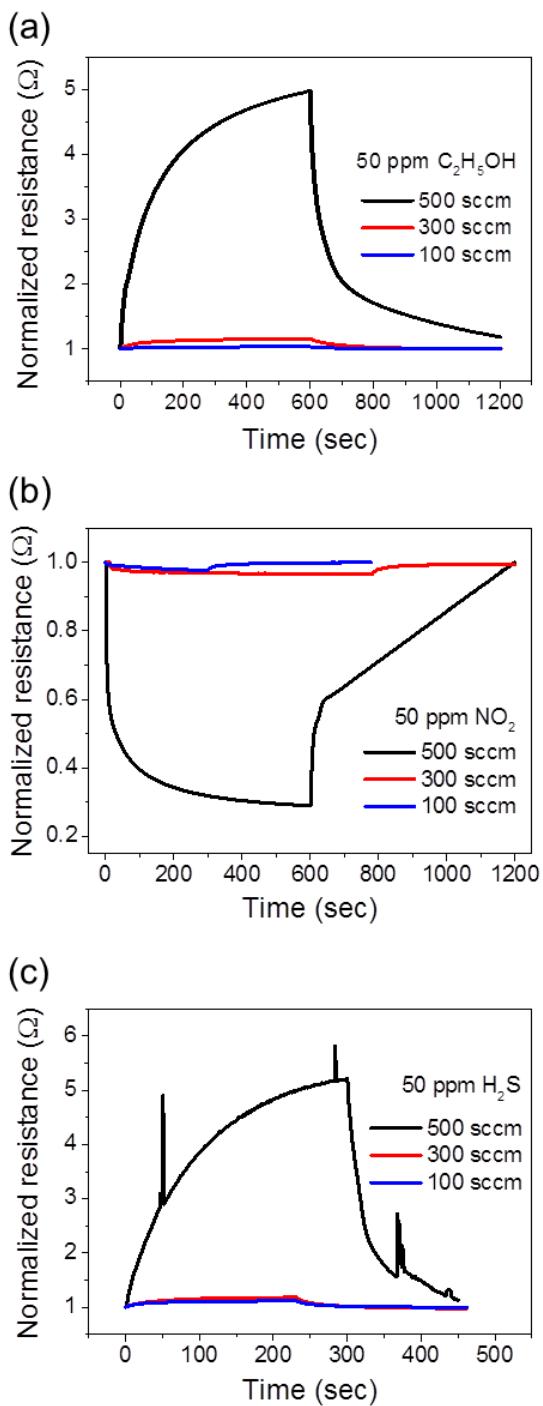
Fig. S2 Response to the gas flow rate of (a) C_2H_5OH, (b) NO_2, and (c) H_2S at 250, 350, and 400 ^oC, respectively.