

CO GAS SENSING PROPERTIES OF HETERO-JUNCTION CuO(M)/ZnO (M=Al, Pd) SENSOR

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ABSTRACT

Hetero-junction of *p*-type CuO and *n*-type ZnO semiconductors have been prepared by mechanically pressing pellets of the two oxides. The pellets were successfully fabricated by sintering at 800°C for 3 h in air. We have studied the effect of Al₂O₃ and PdCl₂ doping in CuO on the sensitivity of the CuO(M)/ZnO (M=Al, Pd) towards CO gas. The *I*-*V* characteristic and sensing properties are investigated for samples in 200-ppm CO, 200-ppm H₂ and air. The sample of containing 1-mol% PdCl₂ doped with CuO shows the highest sensitivity to the gas.

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REFERENCES

- [1] W. J. Moon, J. H. Yu, G. M. Choi, *Sens. Actuators B* 87 (2002) 464.
- [2] D. H. Yoon, J. H. Yu, G. M. Choi, *Sens. Actuators B* 46 (1998) 15.
- [3] T. Ishihara, S. Matsubara, *J. Electrochem. Soc.* 145 (1998) 213.
- [4] C. C. Wang, S. A. Akbar, M. J. Madou, *J. Electrochem. Soc.* 145 (1998) 273.
- [5] G. J. Parker, Prentice Hall Inc, London, 1994. p. 162.
- [6] J. H. Yu, G. M. Choi, *Sens. Actuators B* 75 (2001) 56.
- [7] J. H. Yu, G. M. Choi, *Sens. Actuators B* 45 (1997) 251.
- [8] W. J. Moon, J. H. Yu, G. M. Choi, *Sens. Actuators B* 80 (2001) 21.
- [9] J. Xu, Q. Pan, Y. Shun, Z. Tian, *Sens. Actuators B* 66 (2000) 277.
- [10] S. J. Jung, H. Yanagida, *Sens. Actuators B* 37 (1996), 55.
- [11] M. Miyayama, K. Hikita, G. Uozumi, H. Yanagida, *Sens. Actuators B* 24-25 (1995) 383.
- [12] J. H. Yu, G. M. Choi, *Sens. Actuators B* 52 (1998) 251.
- [13] X. M. Wu, X. H. Li, Y. H. Zhang, M. F. Xu, Z. Q. He, *Materials letters* 58 (2004) 1227
- [14] Y. Nakamura, Y. Ariga, A. Kishimoto, M. Miyayama, *J. Electrochem. Soc.* 146 (1999) 105.
- [15] J. H. Yu, G. M. Choi, *Sens. Actuators B* 61(1999) 59.
- [16] J. D. Choi, G. M. Choi, *Sens. Actuators B* 69 (2000) 120.
- [17] R. C. Buchanan, 2nd ed., rev, and expanded, Marcel Dekker Inc, New York, 1991. p.213.