

Supporting Information

Enhanced gas-sensing performance of SnO₂/Nb₂O₅ hybrid nanowires

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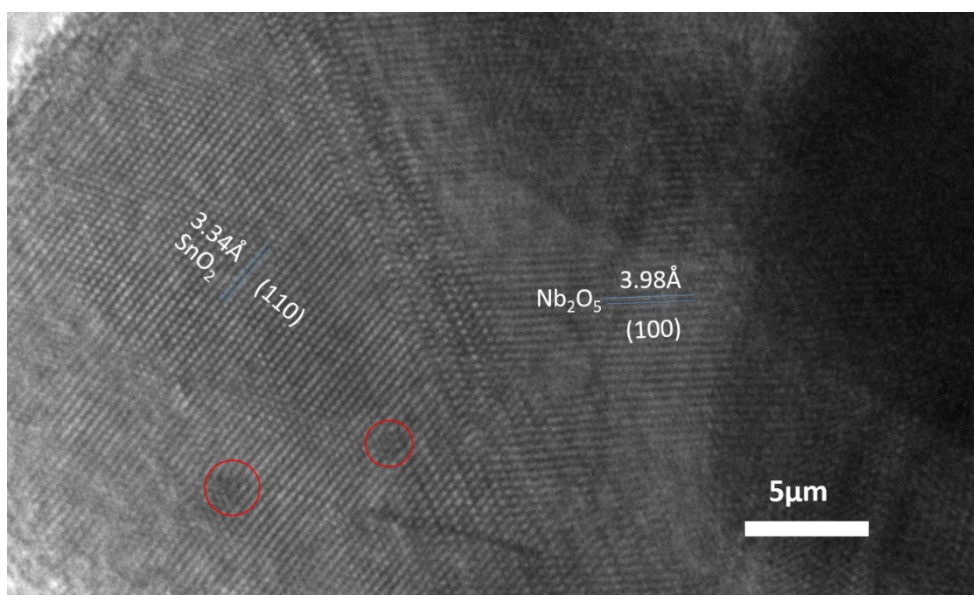


Figure S1 The HRTEM image of SnO₂/Nb₂O₅.

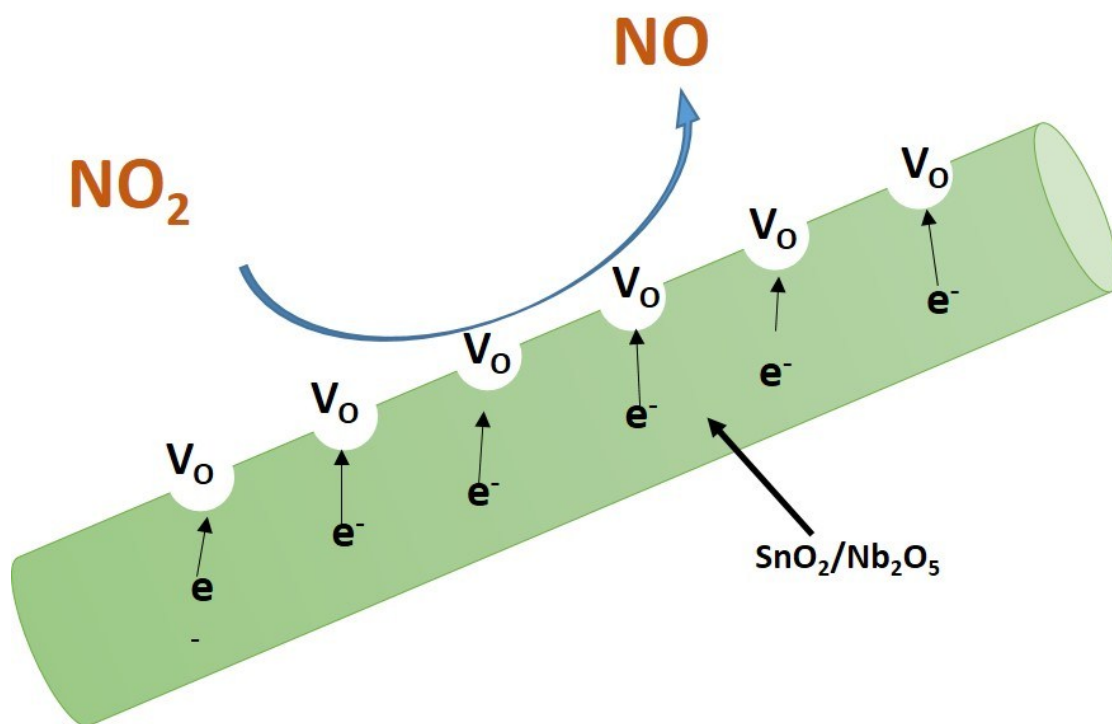


Figure S2 Schematic diagram on sensing mechanism of $\text{SnO}_2/\text{Nb}_2\text{O}_5$. V_o represents oxygen vacancies.

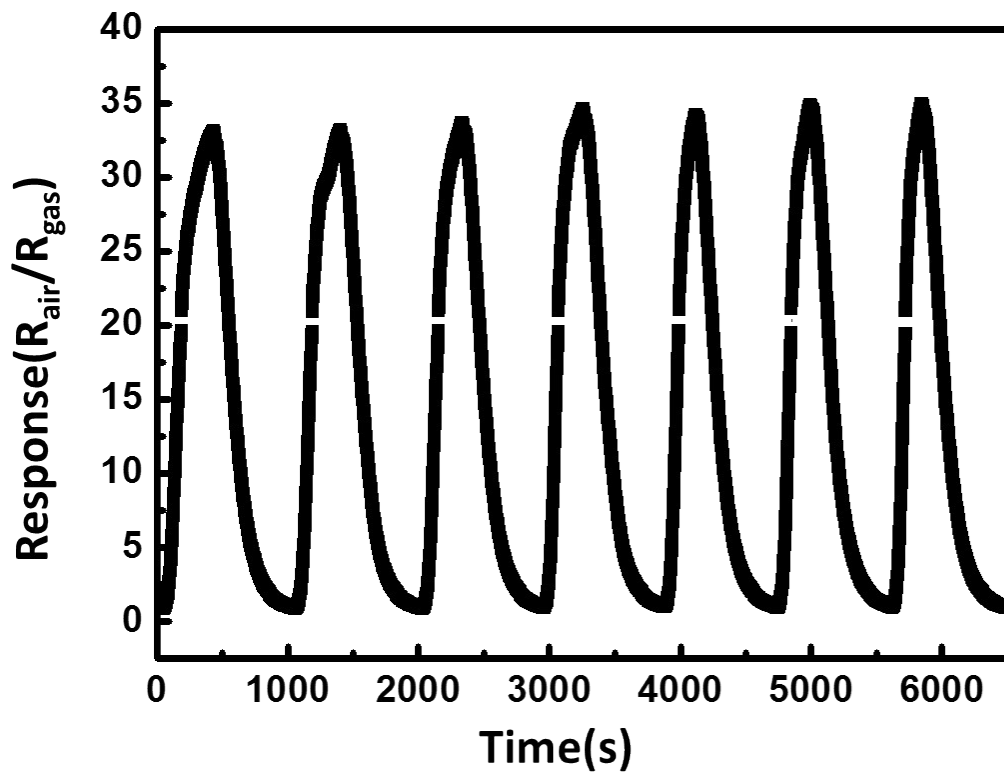


Figure S3 The stability of $\text{SnO}_2/\text{Nb}_2\text{O}_5$ sensor

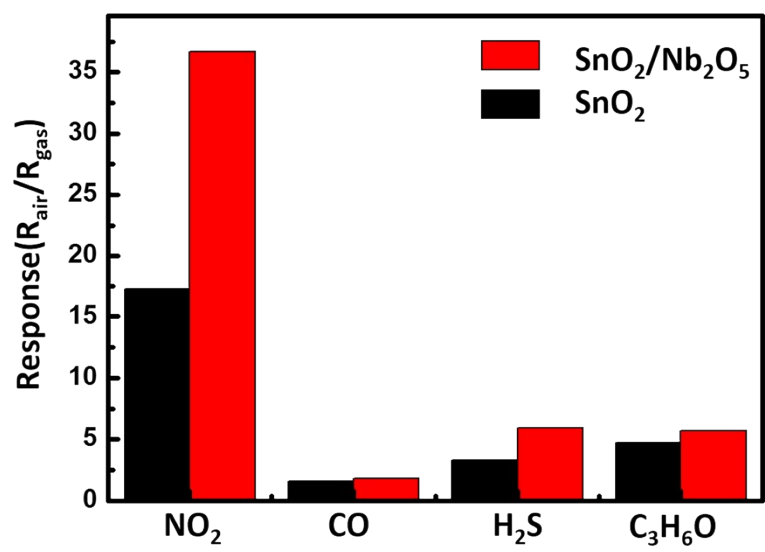


Figure S4 The selectivity of SnO₂ and SnO₂/Nb₂O₅ sensor

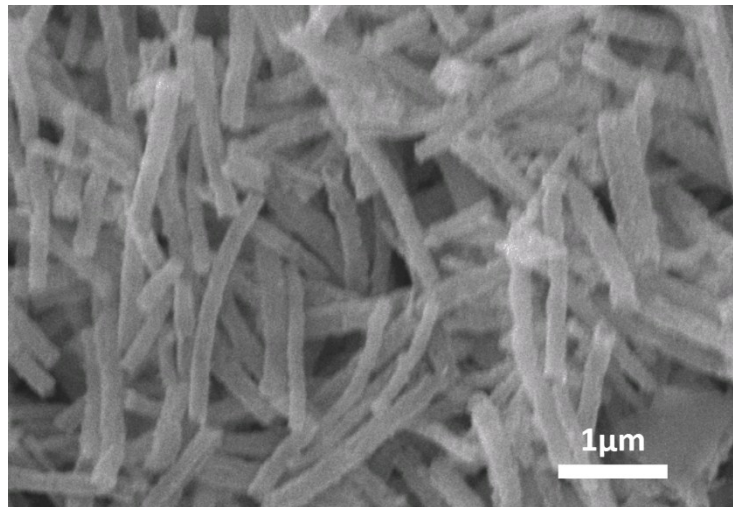


Figure S5 The SEM image of $\text{SnO}_2/\text{Nb}_2\text{O}_5$ after sensing measurements

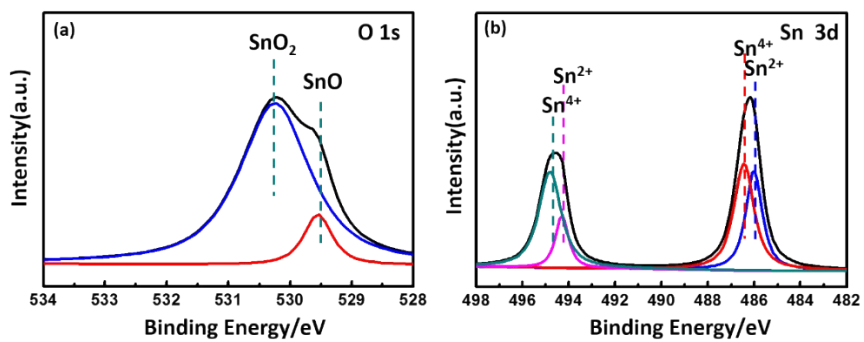


Figure S6 The high resolution XPS spectra showing the binding energy of (a) O 1s and (b) Sn 3d

Table S1 the response and recovery time of my sample and literature.

	State	Conditions	Response time	Recovery time
SnO ₂ ^{S1}	Thin films,	350°C, 0.1ppm	Several minutes	Several minutes
In ₂ O ₃ ^{S2}	Thick film	300°C, 0.1ppm	~1min	~10min
SnO ₂ /Nb ₂ O ₅	The sample, nanowire	250°C, 0.5ppm	~10min	~7.5min

References

- [S1] M. Epifania, E. Comini, J. Arbiol, R. Díaz, N. Sergent, T. Pagnier, P. Siciliano, G. Fagli, J. R. Morante, *Sensors and Actuators B: Chemical*, 2008, **130**, 483–487.
- [S2] L. Berry, J. Brunet, *Sensors and Actuators, B: Chemical*, 2008, **129**, 450–458.