

Supplementary Materials

Pd-decorated SnO₂ Nanofilm Integrated on Silicon Nanowires for Enhanced Hydrogen Sensing

Tiejun Fang¹, Tianyang Mo¹, Xianwu Xu¹, Hongwei Tao², Hongbo Wang², Bingjun Yu¹, and Zhi-Jun Zhao^{1,2,*}

¹ Tribology Research Institute, School of Mechanical Engineering, Southwest Jiaotong University, Chengdu, 610031, China

² Institute of Smart City and Intelligent Transportation, Southwest Jiaotong University, Chengdu, 611756, China

* Correspondence: Zhaozhijun@swjtu.edu.cn (Prof. Zhao)

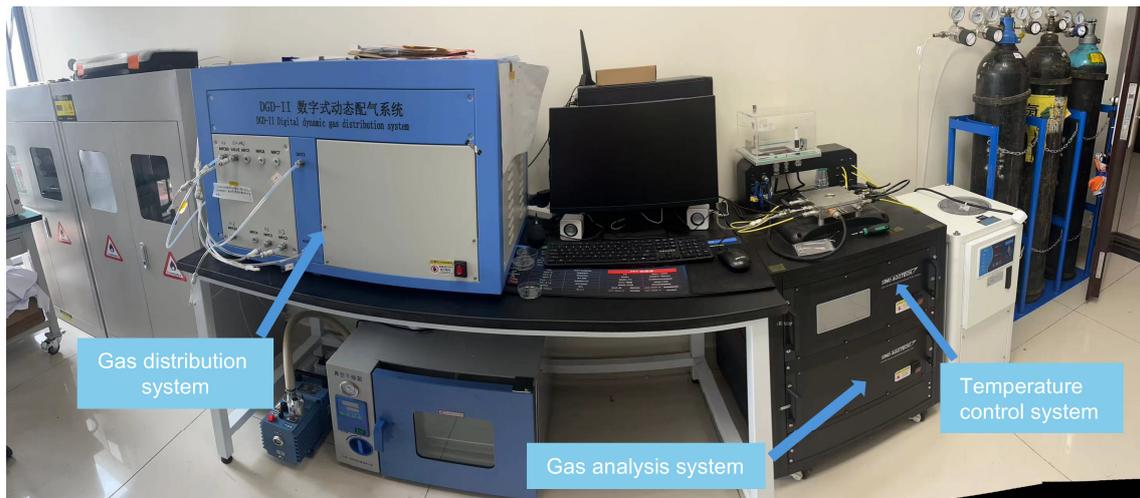


Figure S1. Optoelectrical integrated test platform.

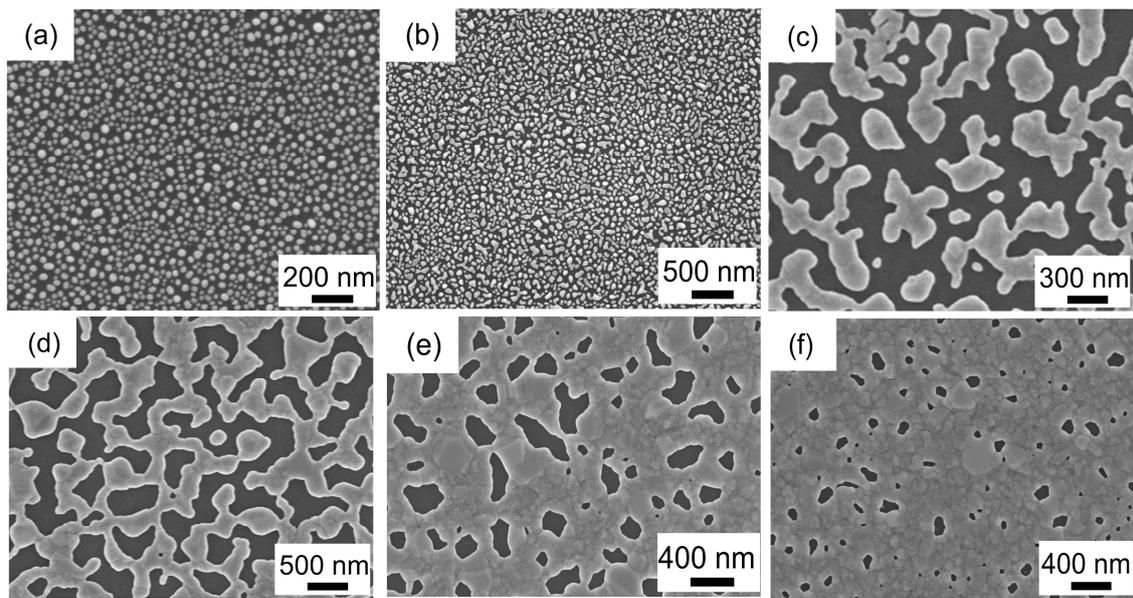


Figure S2. Top-view SEM images of Ag nanofilms with various thicknesses after annealing at 250°C for 30 minutes: (a) 10 nm, (b) 20 nm, (c) 25 nm, (d) 30 nm, (e) 35 nm, and (f) 40 nm.

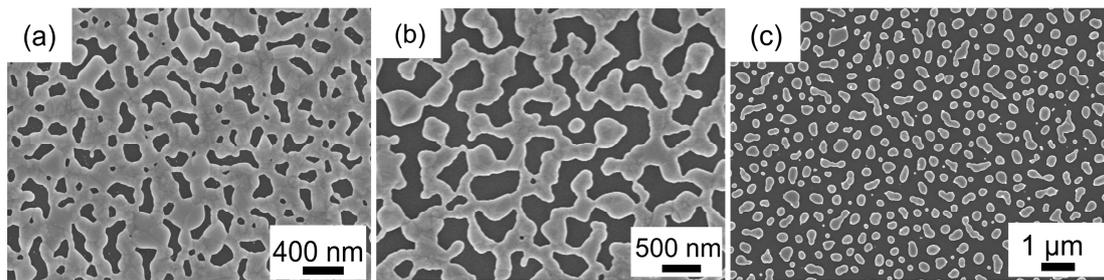


Figure S3. Top-view SEM images of 30 nm-thick Ag nanofilms annealed at 180°C (a), 250°C (b), and 350°C (c) for 30 minutes, respectively.

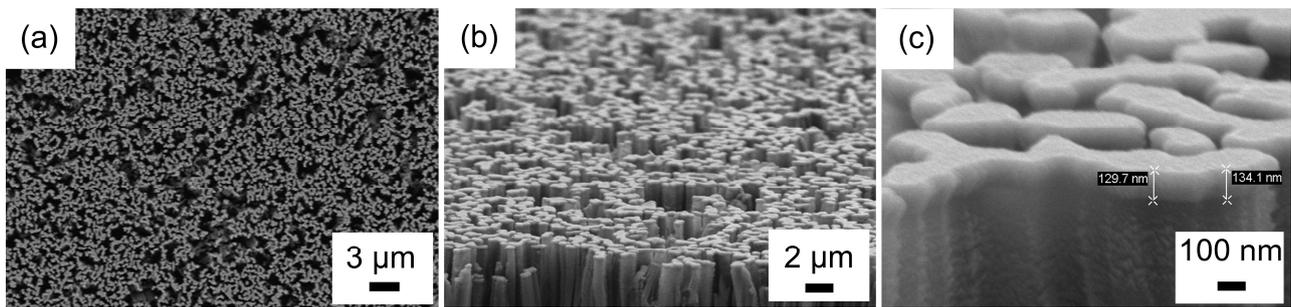


Figure S4. SEM images of 130 nm-thick SnO₂ deposited on SiNWs.

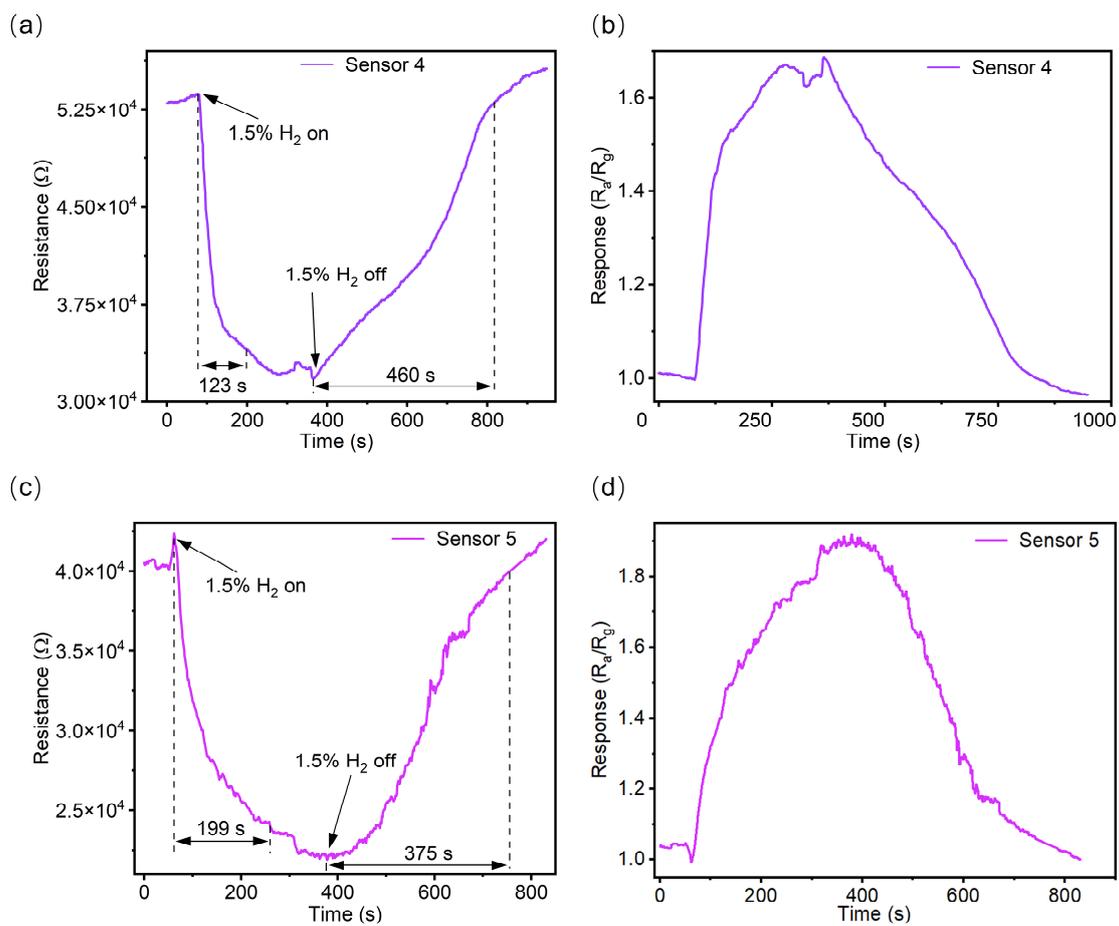


Figure S5. Response and recovery time graph (a), response graph (b) of Sensor 4 towards 1.5% H₂ at 300°C; response and recovery time graph (c), response graph (d) of Sensor 5 towards 1.5% H₂ at 300°C.

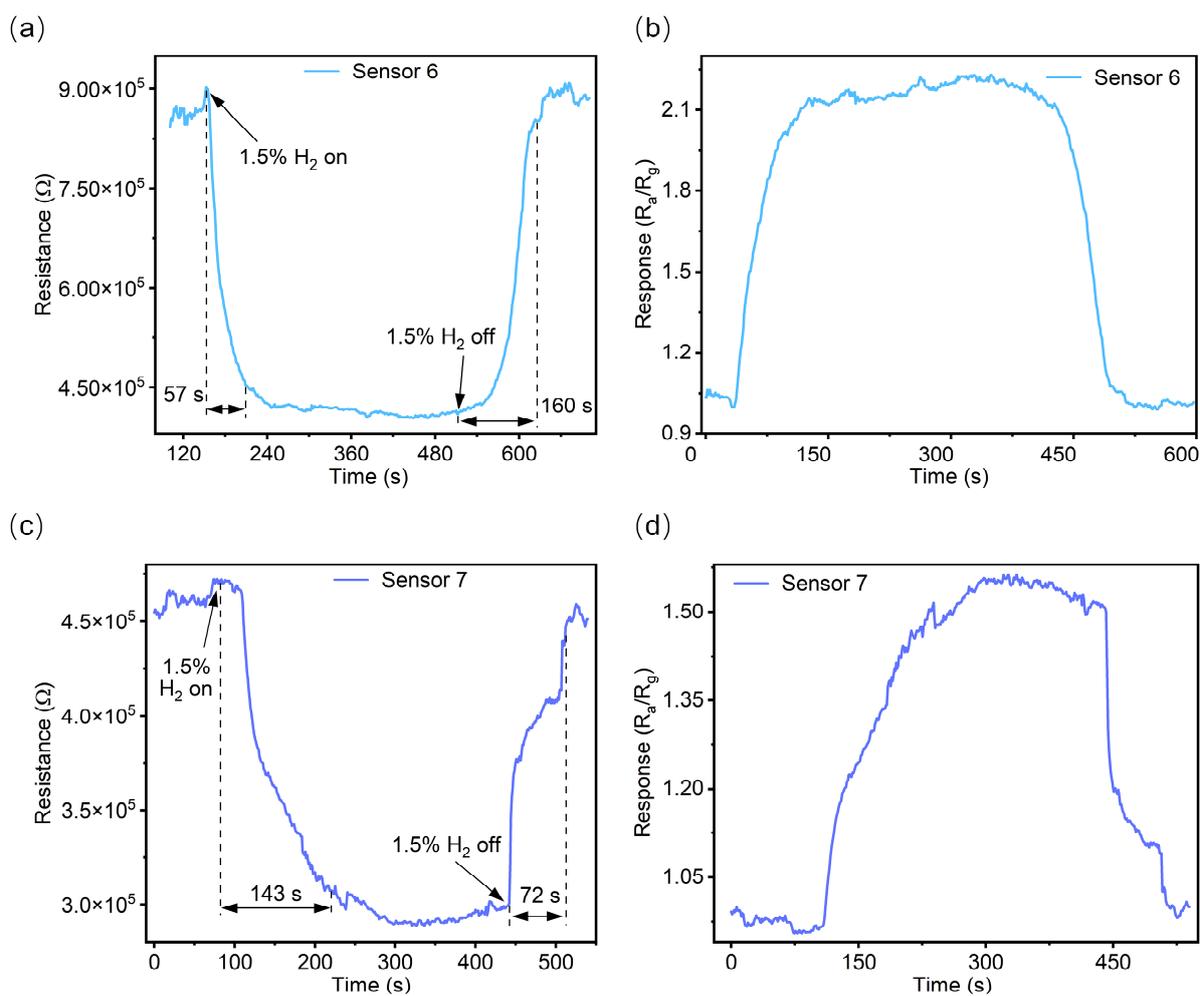


Figure S6. Response and recovery time graph (a), response graph (b) of Sensor 6 toward 1.5% H₂ at 300 °C; response and recovery time graph (c), response graph (d) of Sensor 7 1.5% H₂ at 300 °C.

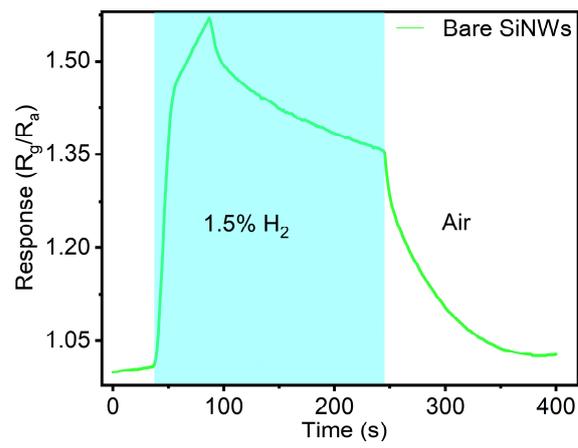


Figure S7. Response graph of bare SiNWs towards 1.5% H₂ at 300°C.

Table S1. Detection limits of H₂ sensors based on SnO₂.

Sensor	Limit of Detection (ppm)	T (°C)	Reference
0.50 at.% Pd/SnO ₂	10	125	[1]
Pd/SnO ₂ thin film	25	300	[2]
1.0 at. % Pd/SnS ₂ /SnO ₂	10	300	[3]
Pd ₁ Ag _{0.50} @SnO/SnO ₂	25	225	[4]
Pd-SnO ₂ composite nanofiber	20	280	[5]
SiNW-based Pd-decorated SnO ₂ nanofilm	1	300	This work

Reference

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