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Electronic Supporting Information

Vertically ordered SnO_2 nanobamboos for substantially improved detection of volatile reducing gases†

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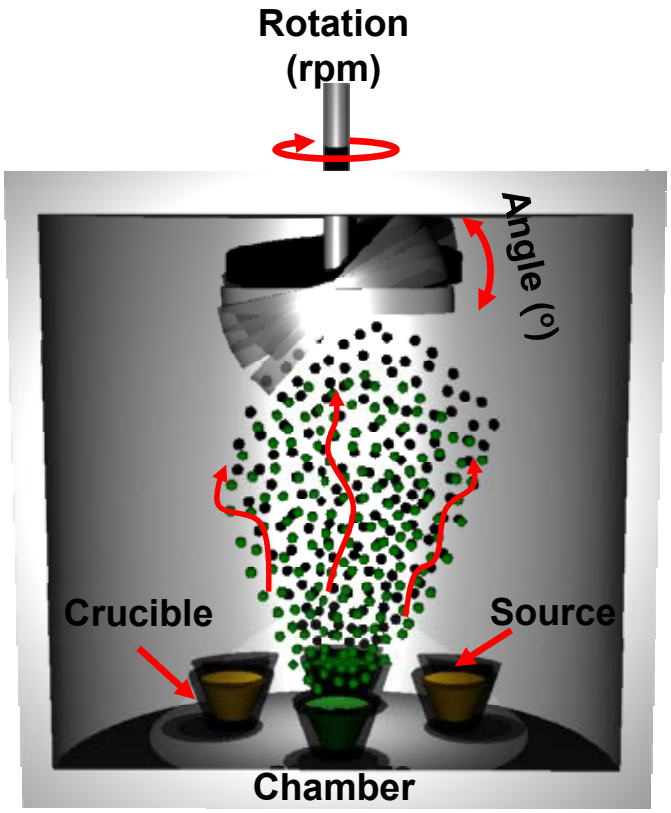

Figure S1. Schematic diagram of the GLAD setup using e-beam evaporator.

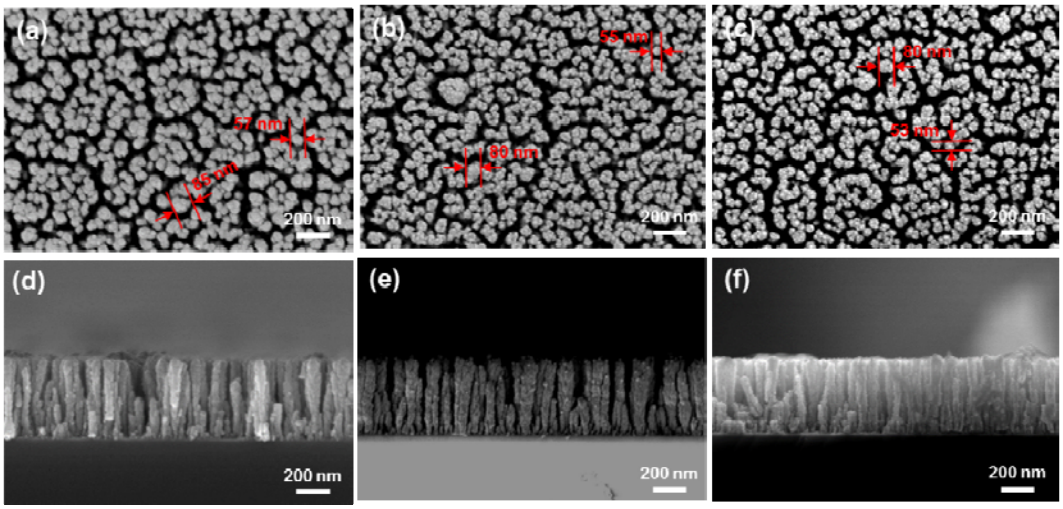

Figure S2. Plain-view SEM micrographs of the (a) bare, (b) top-surface Au-decorated SnO_2 nanorods, and (c) the SnO_2 nanobamboos. Cross-sectional SEM micrographs of the (d) bare, (e) top-surface Au-decorated SnO_2 nanorods, and (f) the SnO_2 nanobamboos.

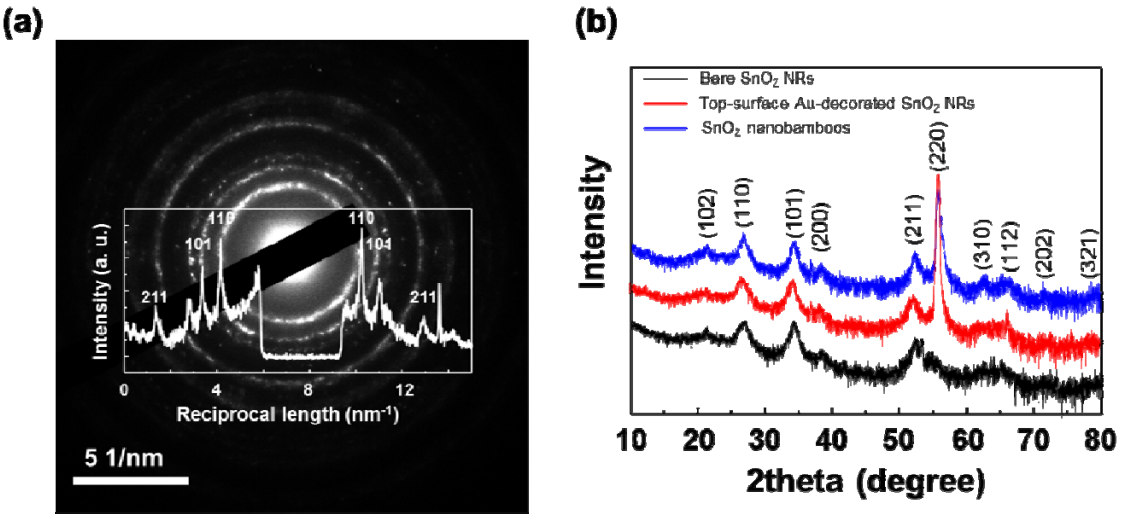

Figure S3. (a) Diffraction patterns of the vertically ordered SnO_2 nanorods. (b) Glancing angle X-ray diffraction patterns of the bare SnO_2 nanorods (NRs), of the top-surface Au-decorated SnO_2 NRs, and of the SnO_2 nanobamboos annealed at 550 °C for 1 h.

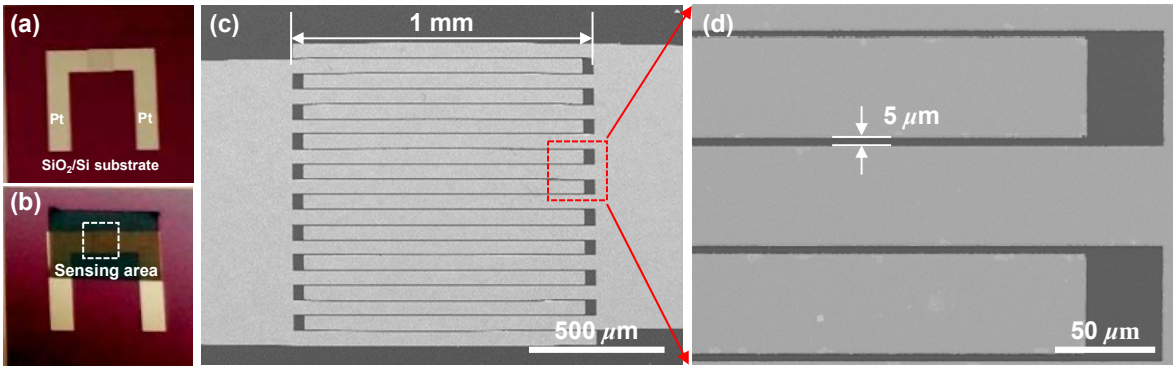

Figure S4. Photographs of the sensing device (a) before and (b) after deposition of the SnO_2 nanobamboos. Plain-view SEM micrographs of the (c) Pt IDEs patterned substrate and (d) high magnification SEM image of selected area in (c).

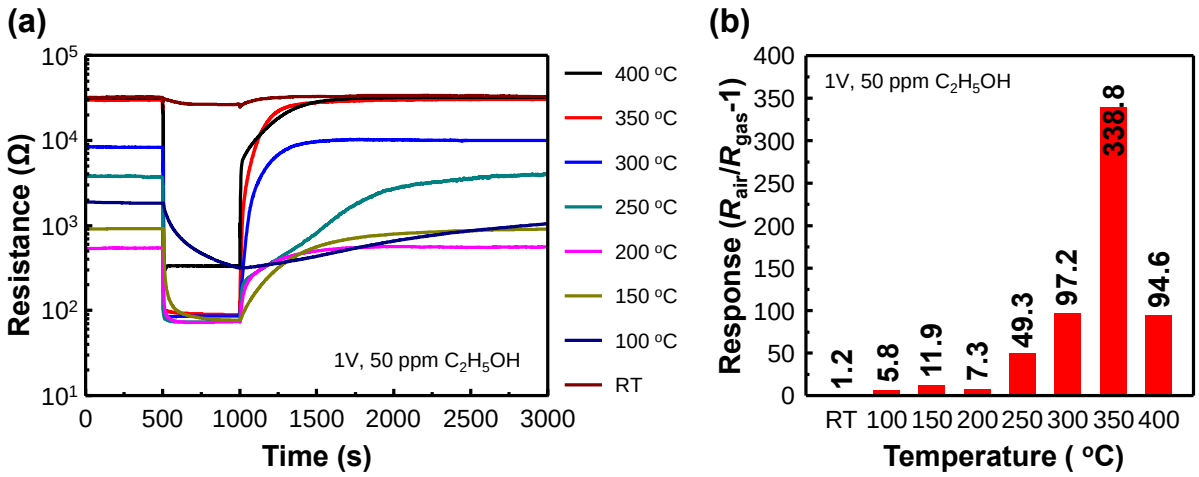

Figure S5. (a) The response curves and (b) responses of the SnO_2 nanobamboos to 50 ppm C_2H_5OH as a function of temperature.

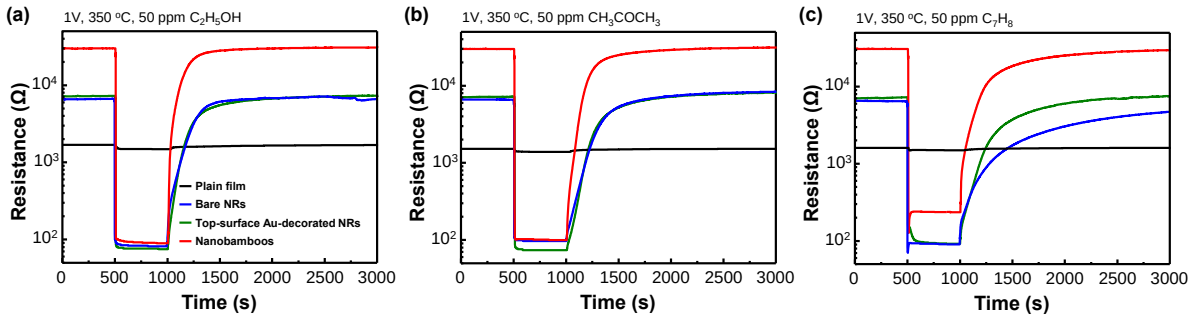

Figure S6. The response curves of the plain SnO_2 film, bare SnO_2 nanorods (NRs), top-surface Au-decorated SnO_2 NRs, and the SnO_2 nanobamboos to (a) 50 ppm C_2H_5OH, (b) CH_3COCH_3, and (c) C_7H_8.

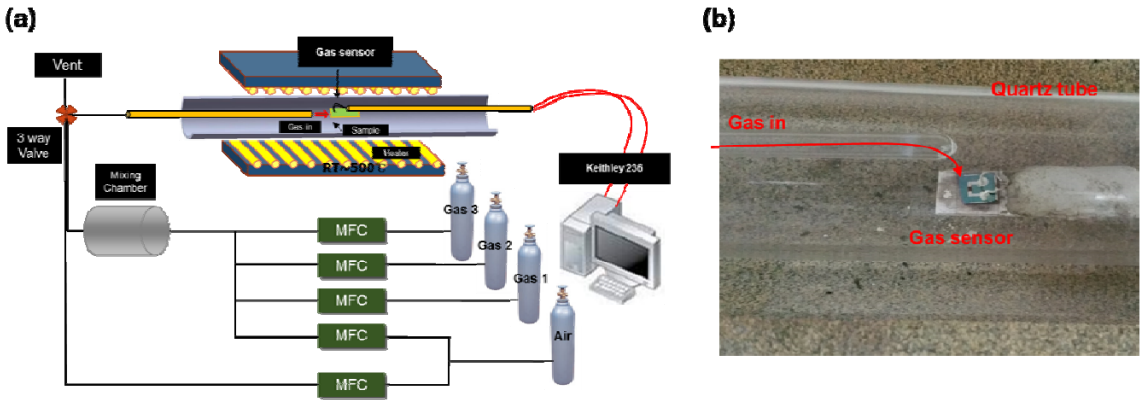

Figure S7. (a) Schematics of sensing measurement system and (b) photograph of gas injection in quartz tube