SnO/SnO_2 heterojunction: an alternative candidate for sensing NO_2 with fast response at room temperature

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Supplementary materials

Characterizations: The phase composition, crystallinity of the products were characterized by X-ray diffraction (XRD; Dandong Haoyuan Instrument Co. Ltd., China) with Cu $K\alpha_1$ radiation (λ = 1.5406 Å). The surface microstructures of the products were observed by scanning electron microscopy (SEM, Hitachi S-4800, Japan). The morphologies and structure of SnO/SnO_2 heterojunction was characterized by transmission electron microscope and high-resolution transmission electron microscopy (HRTEM, Tecnai G2, USA). The elemental analysis and the chemical valence state were examined using X-ray photoelectron spectroscopy (XPS) utilizing a Perkin-Elmer model PHI 5600. The specific surface area and porosity properties of samples were measured by nitrogen adsorption–desorption experiments (ASAP2460, Micromeritics, USA).

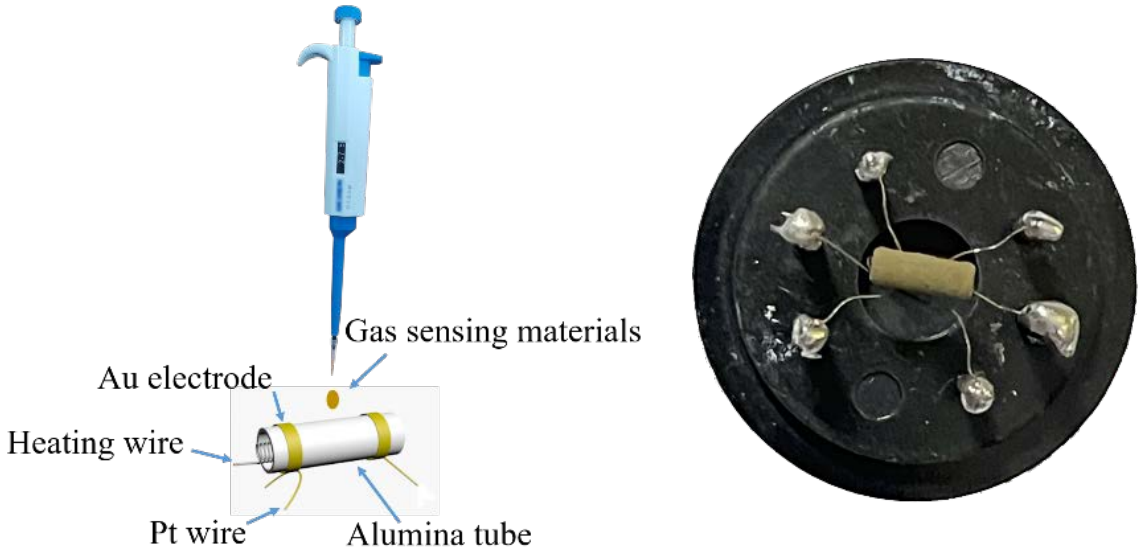

Fig. S1 Schematic diagram of the gas sensor: **(a)** the structure diagram of gas sensor configuration; **(b)** photograph of the completed sensor.

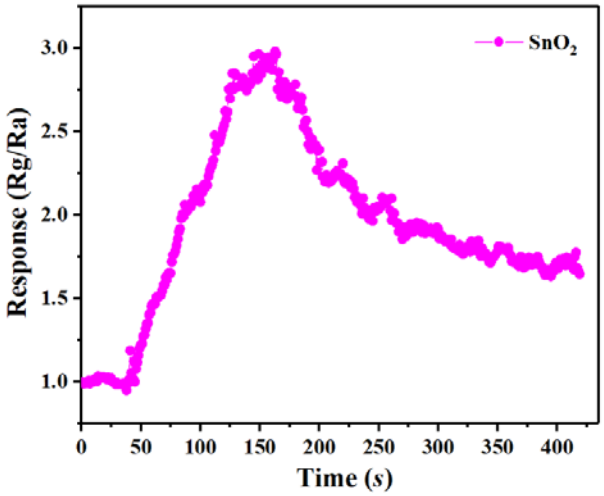

Fig. S2 Response of SnO_2 to 50 ppm NO_2 at room temperature.