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# Hierarchical Porous Hollow SnO<sub>2</sub> Nanofiber Sensing Electrode for High Performance Potentiometric H<sub>2</sub> Sensor

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## Highlights

- Mixed-potential sensor of SnO<sub>2</sub> nanofiber sensing electrode was obtained.
- The sensor showed high response, fast kinetics, and excellent selectivity to H<sub>2</sub>.
- Performance was discussed based on gas diffusion and heterogeneous reaction.
- Superior sensing was ascribed to the highly porous 3D hierarchical architecture.
- Results highlight importance of morphology to mixed potential sensors.

## ABSTRACT

A planar mixed-potential sensor was prepared based on SnO<sub>2</sub> sensing electrode of hierarchical porous hollow nanofibers. The electrode was featured by three-dimensional scaffold architecture with high porosity, large pore size, and excellent pore interconnectivity. A response value of -289.1 mV and response time of 5 s were achieved at 450 °C for 1000 ppm H<sub>2</sub>, which were 5 and 2.6 times better than

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