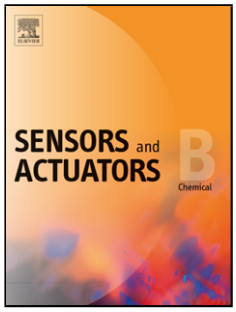

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Amorphous Pd-assisted H_2 detection of ZnO nanorod gas sensor with enhanced sensitivity and stability

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Highlights:

- Facile synthesis of ultrathin amorphous Pd layer (2 - 5 nm) on ZnO nanorods.
- Comparison of sensing behavior between amorphous and crystalline Pd-coated ZnO nanorods sensors.
- Demonstration of superior sensing response (12,400%) of amorphous Pd-coated ZnO nanorods sensors.
- High stability of amorphous Pd-coated ZnO nanorods sensors.

Abstract

For monitoring H_2 concentrations in air, diverse resistive gas sensors have been demonstrated. In particular, Pd-decorated metal oxides have shown remarkable selectivity and sensing response for H_2 detection. In this work, H_2 sensing behavior of amorphous Pd layer covering ZnO nanorods (am-Pd/ZnO NRs) is investigated. This is the first report on the