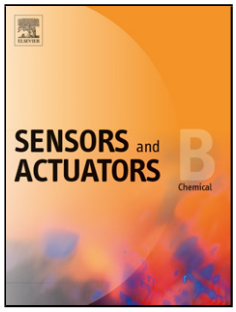

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Light-activated gas sensing activity of ZnO nanotetrapods enhanced by plasmonic resonant energy from Au nanoparticles

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Highlights

1. The performance of light-activated chemi-resistive gas sensor operating at room temperature was sharply improved by utilization of localized surface plasmon resonance.
2. A sputtering-annealing process was developed to decorate Au nanoparticles onto ZnO nanotetrapods. This decoration approach is facile, contaminant-free, scalable and easy to be extended to other materials.
3. The reported room-temperature gas sensor is prospective for practical application because it exhibited long-term stability and higher response to ethanol vapor than a commercial alcohol vapor sensor operating at its optimal working temperature of 370°C.