

Sensing Properties of Tin Acetylacetonate-Based Thin Films Doped with Platinum

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Thin sensing films based on tin acetylacetonate (SnAcAc) with a platinum catalyst were prepared *in situ* by pulsed laser deposition (PLD) with a Nd:YAG laser. The morphology and roughness of both as-deposited and annealed layers were characterized. These layers were also deposited on alumina sensor substrates with interdigital Pt electrodes and then used for the detection of hydrogen, *n*-butanol, toluene, and water vapors in synthetic air. The temperature dependence of the response of the prepared sensors was measured in the range of 40–350°C. It was proved that the selectivity to the above mentioned gases is easily tunable by adjusting the operating temperature of the sensor. The maximum response was achieved at 110°C for hydrogen, 220°C for *n*-butanol, 300°C for toluene, and 340°C for water vapor. The activation energy of surface reactions taking place during the detection process was also calculated.

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