

HYDROGEN GAS SENSING PERFORMANCE OF Pt/SnO₂ NANOWIRES/SiC MOS DEVICES

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Abstract- This paper presents material and gas sensing properties of Pt/SnO₂ nanowires/SiC metal oxide semiconductor devices towards hydrogen. The SnO₂ nanowires were deposited onto the SiC substrates by vapor-liquid-solid growth mechanism. The material properties of the sensors were investigated using scanning electron microscopy, transmission electron microscopy and X-ray photoelectron spectroscopy. The current-voltage characteristics have been analyzed. The effective change in the barrier height for 1% hydrogen was found to be 142.91 meV. The dynamic response of the sensors towards hydrogen at different temperatures has also been studied. At 530°C, voltage shift of 310 mV for 1% hydrogen was observed.