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Effect of O2 Pressure of Fe-Doped TiO2 Nanostructure on Morphology Properties for Gas Sensing

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Abstract : Pure nanostructure TiO2 and thin films doped with transition metal Fe were prepared by pulsed laser deposition (PLD) on Si (111) substrate. The thin films structures were determined by X-ray diffraction (XRD). The morphology properties were determined from atomic force microscopy (AFM), which shows that the roughness increases when TiO2 is doped with Fe. Results show TiO2 doped with Fe metal thin films deposited on Si (111) substrate has maximum sensitivity to ethanol vapor at 10 mbar oxygen pressure than at 0.01 and 0.1 mbar with optimum operation temperature of 250°C.

Keywords : pulsed laser deposition (PLD), TiO2 doped thin films, nanostructure, gas sensor
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