

Synthesis and Characterization of Tin oxide Thin Film for Gas Sensor Applications

Monday 21 May 2018 16:45 (15 minutes)

The effects of annealing temperature on the structural and electrical properties of tin dioxide (SnO_2) thin films were systematically studied for a gas sensing application. Tin dioxide thin films with different number of layers and annealing temperature were prepared on indium tin oxide substrates by sol-gel dip-coating technique. SEM micrographs show that the approximately grain size of the SnO_2 thin films increased with increasing number of layers and annealing temperature. X-ray diffraction analysis showed that the SnO_2 thin film was tetragonal at 400 °C. The calculating crystallite size from Scherrer's formula was about 40-60 nm. Dielectric property of desired SnO_2 thin films was investigated by LCR meter. It was found that the dielectric constant decrease when the frequency of applied signal and annealing temperature increases. Those properties of SnO_2 films were promising for electronics devices like gas sensor.

Primary authors: ██████████, ██████████; KHAENAMKAEW, PANYA (Kasetsart University); Ms MANOP, Dhonluck (Department of Basic Science and Physical Education, Faculty of Science at Si Racha, Kasetsart University, Chonburi, 20230, Thailand); Mr TANGHENGJAROEN, Chaileok (Department of Basic Science and Physical Education, Faculty of Science at Si Racha, Kasetsart University, Chonburi, 20230, Thailand); Mr PALAKAWONG NA AYUTHAYA, Worasit (Department of Resources and Environment, Faculty of Science at Si Racha, Kasetsart University, Chonburi, 20230, Thailand)

Presenter: ██████████, ██████████

Session Classification: A5: Nanoscale and Surface

Track Classification: Surface, Interface and Thin Film