



Department of Physics (Autonomous) University of
Mumbai

Ph.D. Seminar
of

PATIL UDAYKUMAR VITTHAL KRISHNA
Department of Physics, University of Mumbai

Supervisor: **Prof. D.C. Kothari**
Department of Physics, University of Mumbai

Synthesis, characterization and gas sensing properties of conducting polymer/ metal oxide nanocomposites

In the present research work we have prepared highly conductive form of polyaniline ie protonated polyemeraldine or polyemeraldine salt. This polymer is used to get various nanocomposite thin film sensors which selectively sense ammonia gas with high sensitivity, response and recovery times. Overall these sensors are better than their counterparts reported in recent literature. The stability of sensor films is also checked over a period of around one month and they are found to be highly stable. It is also confirmed that NH_3 interaction with PANI and NC mainly occurs via protonation and deprotonation process using spectroscopic techniques. Morphology and catalytic effect of nanoparticles/nanorods plays an important role in governing the sensor-response kinetics. Work function measurements using KPFM confirmed the Ohmic contact of electrodes with the sensor films.

Friday 9th June 2017

at

Seminar Hall, Department of Physics, 3rd floor,
Tilak Bhavan.

Time: 12.00 hrs

Prof. Vaishali Bambole
Head, Dept. of Physics
Professor & Head
Department of Physics
University of Mumbai