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In_2O_3 Nanoparticles for Gas Sensors ZENGXING ZHANG, DANIELA CARUNTU, CHARLES J. O'CONNOR, WEILIE ZHOU, Advanced Materials Research Institute, University of New Orleans, New Orleans, LA 70148 — In the last decades, sensors based on nanostructured materials have attracted much attention. Generally, nanosensors often demonstrate excellent sensitivities because of their high specific surface area and comparable size to the detected targets (chemicals or biomolecules). So far, lots of efforts have been put on the fabrication of nanowires based nanosensors. In this talk, we reported our recent work on employing wet-chemically synthesized indium oxide (In_2O_3) nanoparticles for gas sensing. The nanoparticles were self-assembled between the gold electrodes patterned on silicon substrates covered with thermal oxide film using e-beam nanolithography. Several gases, such as ammonia (NH_3), hydrogen sulfide (H_2S), etc., were used for the testing. The results exhibit that the sensitivity can be reached down to PPM order. In addition, the sensitivity in terms of nanoparticle size, temperature, etc, were also investigated.

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