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W_3O Nanowires as Gas Sensors SHARVIL DESAI, University of Louisville, Department of Physics, BISWAPRIYA DEB, University of Louisville, Department of Chemical Engineering, GAMINI SUMANASEKERA[1], University of Louisville, Department of Physics, MAHENDRA SUNKARA, University of Louisville, Department of Chemical Engineering — N_2O interaction on thin films of W_3O nanowires and nanoparticles at different temperatures and concentrations was investigated. W_3O nanowire and nanoparticle films were synthesized on quartz substrates by Hot Filament Chemical Vapor Deposition. DC resistance measurements in the Van der Pauw geometrical methods were conducted on the films. It was observed that the W_3O nanowire thin film as a gas sensor resulted in an improved sensitivity as compared to the W_3O nanoparticle thin film. Impedance Spectroscopy measurements (1mHz - 100kHz) were also performed in both films to understand the underlying mechanism for these different responses. Measurements on single W_3O nanowire will also be presented.

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