

Abstract Submitted
for the TSF09 Meeting of
The American Physical Society

Spectroscopic analysis of WO_3 for sensor applications¹ JOSE LUIS ENRIQUEZ, FELICIA MANCIU, WILLIAM DURRER, Department of Physics, CHINTALAPALLE RAMANA, SATYA GULLAPALLI, Department of Mechanical Engineering, The University of Texas at El Paso, El Paso, TX 79968 — Samples of WO_3 thin films for use in gas sensors were grown using RF magnetron sputtering at a number of different substrate temperatures and Ar: O_2 pressure ratios. The structural properties of the samples were investigated, both experimentally and theoretically, with the goal of determining how variations in the above preparation parameters effect structural changes in the sensor materials. Such structural changes are of crucial importance to the question of improving the sensitivity, specificity, and durability of WO_3 based gas sensors. Experimental characterization was performed using the techniques of FT-IR, Raman, AFM, and XRD. The theoretical work involved software simulation techniques using Gaussian 09W®.

¹This work was supported by DOE grant DE-P26-09NT008022 and NSF-MRI grant # 0723115.

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Date submitted: 25 Sep 2009

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