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Magnetron Sputtering of Arsenic Doped Zinc Oxide Thin Films<sup>1</sup> MICAH SHELLEY, JOHN COLTON, J. RYAN PETERSON, GARY RENLUND, DAVID ALLRED, Brigham Young Univ - Provo — Zinc Oxide (ZnO) is a wide band gap semiconductor (3.37 eV) with potential applications in LEDs and military technology. ZnO has native n-type defects, making production of p-type material difficult. In order to form p-type material we have deposited arsenic doped ZnO thin films (~25 microns) by radio frequency magnetron sputtering of a ZnO target onto sapphire substrates coated with evaporated zinc arsenide (ZnAs). Annealing has been employed to improve sample structure. Thin film growth has been refined through characterization by x-ray diffraction techniques, Seebeck effect measurements, and photoluminescence. We will report on the quality of the thin films produced.

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