

Abstract Submitted
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Electrical and Optical Properties of Sputtered Aluminum-doped Zinc Oxide DANIEL SEXTON, Georgia College State Univ — Transparent conducting oxides (TCO) are used in opto-electronic devices. This study investigates properties of Aluminum doped Zinc Oxide (AZO) as a possible TCO candidate for solar cells. AZO thin films were deposited using RF magnetron sputtering in the presence of argon and oxygen. The properties of AZO films deposited under different deposition parameters including pressure, power and temperature were characterized using UV/Vis spectroscopy, Hall-Effect measurement and four point probe measurements. Further, optical emission spectroscopy was used to correlate the properties of the deposited thin films to the behavior of the plasma during sputtering. Trends in transmittance, mobility, band gap, resistivity, and carrier density under different deposition parameters will be presented along with the correlation of these properties to the plasma behavior.

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