

Abstract Submitted  
for the TSF17 Meeting of  
The American Physical Society

**Electrical Characterization of Thin Films**<sup>1</sup> CHANDLER HUTTON, Texas State Univ-San Marcos, AHAD TALUKDER, NICK TALBERT, WILHELMUS GEERTS, Department of Physics, Texas State University — NiO samples are being investigated for possible application in Resistive RAM devices (RRAM). RRAM is non-volatile memory technology that is currently being considered to replace Flash memory beyond the 14 nm technology node. The material that is being studied are RF sputtered NiO thin films made by reactive sputtering. We also measured resistivity of Al and Pt films and devices. The samples were characterized through four different methods; 2-point probe (2pp), linear 4-point probe (4pp), the Van der Pauw method (VDP) techniques, and by direct measurement on manufactured devices. We acquired measurements using a Keithley 2182A nanovoltmeter, a Keithley 6514 system electrometer, a Keithley 6221 DC and AC current source, and a Keithley 7001 switching system furnished with a Hall card all controlled by a labview program. Some samples were measured at both 298K and 77K by use of a cryostat. The resistivity parallel to the surface has semiconductor-like properties. Measurements were done as a function of the oxygen pressure during deposition. For 60 nm thickness, it was unveiled that the resistivity varied with the oxygen concentration in the sputter gas showing a maximum for 10 percent Oxygen and an average resistivity of 2.47E+6 ohms.

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Date submitted: 11 Oct 2017

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