

Abstract Submitted  
for the TSS09 Meeting of  
The American Physical Society

**Studying Amorphous Ternary Materials Using RBS and Channeling**<sup>1</sup> ANTHONY RAYMOND, KEVIN WOLLER, DANIEL MARBLE, Department of Engineering and Physics, Tarleton State University — Amorphous ternary materials are leading candidates for use as diffusion barriers and high temperature resistors and sensor in future electronic devices. Tarleton researchers have already successfully applied Rutherford backscattering spectrometry (RBS) to reactively sputtered Ta-S-N films to determine stoichiometry and film thickness as part of a collaborative research program in amorphous ternary films with scientists in Switzerland and at the California Institute of Technology and Motorola. In these previous studies, test films were deposited on specially treated carbon substrates rather than on the silicon substrates needed for device fabrication in order to improve sensitivity. This talk will discuss the difficulties in applying RBS to study the diffusion of nitrogen in Ta-Si-N films deposited on Silicon substrates and laser patterned for high temperature resistor applications and our recent efforts to construct a channeling system in order to overcome these difficulties.

<sup>1</sup>Authors acknowledge financial support from Tarleton Organized Research and Dr. Khalid Hossain and Dr. Jerome L Duggan of the University of North Texas for the thin SiO<sub>2</sub> on Si sample and technical assistance

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Date submitted: 15 Mar 2009

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