Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

**An investigation of Au/Ti multilayer thin-films: surface morphology, structure and interfacial/surface migration of constituents under applied thermal stress**[1] INDRAJITH SENEVIRATHNE, ERIC KEMBLE, JOHN LAVOIE, Lock Haven University — Multilayer thin films are ubiquitous in industry. Au/Ti/substrate is unique due to possible biological applications in proof of concept devices. Material used for substrates include borosilicate glass, and quartz. Typical Ti depositions on substrates give rise to Stanski-Krastonov (SK) like growth while Frank-van der Merwe (FM) like growth is preferred. Ti films with thickness of $\sim$ 100nm were deposited onto varying substrates using a thermal evaporator. The additional Au layer is then deposited via magnetron sputter deposition at 100mtorr at low deposition rates ($\sim$ 1ML/min) onto the Ti thin film. These systems were annealed at varying temperatures and at different durations. Systems were investigated via AFM (Atomic Force Microscopy) probes to examine the surface morphology, and structure. Further, the ambient contamination and elemental distribution/diffusion at annealing was investigated via Scanning Electron Microscopy (SEM) and Energy Dispersive X-ray spectroscopy (EDX).

[1]PASSHE FPDC Annual Grant (LOU # 2010-LHU-03)

Eric Kemble
Lock Haven University

Date submitted: 13 Nov 2013 Electronic form version 1.4