Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Structural Properties of Gold Thin Films Deposited on Technologically Important Substrates by Magnetron Sputtering[1] CALEB GLASER, MICHAEL SCHELL, MARIAN TZOLOV, INDRAJITH SENEVIRATHNE, MONIRUZZAMAN SYED, Lock Haven University of Pennsylvania —
Gold (Au) thin films offer a wide range of applications and may be used for memory storage, energy harvesting, nanosensors, optics, and biosensing devices. Au thin films are currently being studied more closely since they are highly conductive and yet not easily oxidized. Therefore, it is necessary to understand the growth mechanisms of film on various substrates. The structural properties of gold thin films also play an important role on the film quality, which may affect its' optical properties and the sensing capability of the device. In this study, Gold (Au) thin films were deposited on glass (SiO2), silicon (100) and other substrates at room temperature (RT) in an argon (Ar) gas environment as a function of deposition time. The structural properties and surface morphology of the Au thin film has been studied using an Atomic Force Microscope (AFM), Scanning Electron Microscope (SEM), Energy Dispersive X-Ray Spectrometry (EDX), and X-Ray Diffraction (XRD) measurements. The deposition rate was found to be decreased monotonically as deposition time increased for the films on glass substrates. The effect of the annealing temperature on the structural properties of the Au film deposited on the aforementioned substrates will also be discussed in this study.

[1]Lock Haven University of Pennsylvania

Caleb Glaser
Lock Haven University of Pennsylvania

Date submitted: 26 Nov 2012 Electronic form version 1.4