

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**AFM, and EDX Study of Self Assembled Au Nanostructures on P doped Si(100) Under Ambient Conditions**<sup>1</sup> JOSHUA TATHAM, JOSHUA BUCHHEIT, INDRAJITH SENEVIRATHNE, Department of Geology and Physics, Lock Haven University of Pennsylvania — Noble metal nanostructures systems on semiconductor surface under ambient conditions are interesting but complex due to the presence of surface adsorbed species. Apart from various possible plasmonic and catalytic applications and these may give insights into thermodynamics and kinetics of such systems. The observed nanostructures have deformed spherical shape. The Au was magnetron sputter deposited at RT (300K), on Si(100) P doped cleaned with acetone and IPA. Ambient IC mode Atomic Force Microscopy (AFM) used to elucidate structure. Elemental composition and distribution on the deposited system was measured with Energy Dispersive X ray Spectroscopy (EDX). Self assembled Au nanostructures on the surface was observed with likely Stranski - Krastanov growth mode At 30 ML Au coverage of nucleated nanostructures observed to have a mean diameter of 2 nm and mean height of 2 nm. At Au coverage of 120 ML, nanostructures had a mean diameter of 25 nm and mean height of 4 nm. Observed variations when annealed at successively higher temperatures will also be discussed

<sup>1</sup>NSF Grant #: 0923047 and PASSHE FPDC (LOU # 2010-LHU-03).

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Date submitted: 15 Nov 2010

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