Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Infrared magneto-spectroscopy of narrow bandgap metamorphic $\mathbf{InAs_{1-x}Sb_x}$ JONATHAN LUDWIG, Florida State University and National High Magnetic Field Laboratory, S. SUCHALKIN, State University of New York at Stony Brook, Y. JIANG, School of Physics, Georgia Institute of Technology, G. KIPSHIDZE, Y. LIN, L. SHTERENGAS, S. LURYI, G. BELENKY, State University of New York at Stony Brook, D. SMIRNOV, National High Magnetic Field Laboratory — Metamorphic InAsSb alloys are a promising narrow gap semiconductor with bandgaps as low as 0.12eV, corresponding to approximately 10μm, much smaller either InAs or InSb. The effect of bowing on the reduction in the bandgap over its binary counterparts is not completely understood. Here, we report on the systematic low-temperature infrared magneto- absorption study of a series of $InAs_{x-1}Sb_x$ layers with varying Sb concentration performed in magnetic fields up to 17.5 T. Several cyclotron resonance series, including interband transitions, are observed. These results allow us to extract and compare the bowing coefficients for the effective mass and bandgap.

Jonathan Ludwig
Florida State University and National High Magnetic Field Laboratory

Date submitted: 14 Nov 2014 Electronic form version 1.4