Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

High Frequency FMR spectroscopy of Thin MnAs Epilayers grown on (111) and (100) GaAs[1] M. CUBUKCU, H.J. VON BARDELEBEN, J.L. CANTIN, Institute of Nanosciences de Paris, Université Paris 6 and UMR 7588 au CNRS, Paris, France, M.J. WILSON, D. RENCH, P. SCHIFFER, N. SAMARTH, Dept. of Physics, Penn State University, University Park PA 16802 — The magnetic anisotropies of thin ferromagnetic epilayers can be conveniently studied by ferromagnetic resonance spectroscopy [1] with 9 or 35 GHz spectrometers. The case of α-MnAs – a metallic ferromagnet of interest for hybrid semiconductor spintronics – presents technical challenges because the large structure-related anisotropy field limits such measurements to close to easy axis orientation. We have overcome this difficulty by applying high frequency FMR at 115 GHz with magnetic fields up to 11 T. This allows us to map out complete angular variation patterns and to thus deduce the corresponding anisotropy constants. We report on a systematic investigation of the influence of epilayer thickness and temperature on the magnetic anisotropy.

[1] Kh.Khazen et al, Phys.Rev.B bf 77, 165204 (2008).

[1]This work was supported by ONR-MURI and NSF.

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Date submitted: 29 Dec 2009 Electronic form version 1.4