Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Effective mass suppression in interacting, fully spin-polarized 2D electron systems in narrow AlAs quantum wells TAYFUN GOKMEN, MEDINI PADMANABHAN, K. VAKILI, M. SHAYEGAN, Department of Electrical Engineering, Princeton University — Similar to the study described by M. Padmanabhan et al. (previous abstract), we perform effective mass measurements in a two-dimensional electron system (2DES) confined to a narrow (45Å-wide) AlAs quantum well. In contrast to the 2DESs confined to wide AlAs quantum wells, in this system the electrons occupy a single out-of-plane valley with an isotropic in-plane Fermi contour. We confirm that the effective mass for the fully spin-polarized 2DES is suppressed compared to the partially spin-polarized value.

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Date submitted: 27 Nov 2007 Electronic form version 1.4