

Abstract Submitted
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Effective mass suppression in interacting, fully spin-polarized 2D electron systems in wide AIAs quantum wells MEDINI PADMANABHAN, T. GOKMEN, N.C. BISHOP, M. SHAYEGAN, Dept. of Electrical Engineering., Princeton University — We report effective mass measurements, via analyzing the temperature dependence of the Shubnikov-de Haas oscillations, in dilute two-dimensional electron systems (2DESs) confined to wide AIAs quantum wells. In this system electrons have an anisotropic in-plane Fermi contour. When the 2DES is partially spin-polarized, the effective mass is larger than its band value and increases as the density is reduced, consistent with previous results in various 2DESs. An unexpected trend emerges as we fully spin-polarize the 2DES by subjecting it to a strong parallel magnetic field: the mass falls below the band value and tends to decrease with decreasing density.

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