

Abstract Submitted
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Measurements of the Spin Susceptibility of 2D GaAs/AlGaAs Heterostructures into the Weak Interacting Region Y.-W. TAN, Phys. Dept., Columbia Univ., J. ZHU, Phys. Dept., Cornell Univ., H.L. STORMER, Phys. Dept. and Appl. Phys. Dept, Columbia Univ., and Bell Labs, L.N. PFEIFFER, K.W. BALDWIN, K.W. WEST, Bell Labs — We determine the spin susceptibility χ of a two-dimensional electron system in GaAs/AlGaAs heterostructures using the tilted-field method. The measurements are done on a very high quality heterojunction-insulated gate field-effect transistor (HIGFET) with a mobility as high as $1 \times 10^7 \text{cm}^2/Vs$. We report the χ measurements on a single HIGFET specimen over a wide range of densities, from $1 \times 10^{10} \text{cm}^{-2}$ to $4 \times 10^{11} \text{cm}^{-2}$; deep into the weak interacting regime. The value of χ decreases monotonically with increasing density. In the low density region, χ follows an empirical formula proposed by Zhu et al. (*Phys. Rev. Lett.*, **90**, 056805, 2003), but deviates from it as density increases beyond $6 \times 10^{10} \text{cm}^{-2}$. After corrections for nonparabolicity of mass and g-factor, our χ measurements are very close to the most recent theoretical calculation (De Palo et al., cond- mat/0410145) over the whole density range.

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