

Abstract Submitted
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New Observations in the $N \geq 1$ Landau Levels of Wide GaAs Quantum Wells D.R. LUHMAN, Princeton University, W. PAN, Sandia National Laboratories, D.C. TSUI, Princeton University, L.N. PFEIFFER, K.W. BALDWIN, K.W. WEST, Bell Laboratories — We have studied a series of high-quality wide GaAs/AlGaAs quantum wells at various tilt angles (θ) with respect to magnetic field. Several interesting observations have been made when the Landau level index is $N \geq 1$. The quantum Hall states corresponding to total odd filling factors are seen to be reentrant with increasing θ , i.e. they disappear and reemerge as θ is increased. This observation can be explained by considering oscillations in the tunnelling amplitude with increasing θ . As θ is increased further, anisotropy emerges at values of half filling. This is particularly visible in the $N = 1$ Landau level at total filling factors $\nu = 9/2$ and $11/2$. For even larger values of θ , anisotropy develops at $\nu = 5$ followed by $\nu = 7$. We will discuss how each of these observations are effected by quantum well width and also in the context of previous theoretical and experimental results.

D.R. Luhman
Princeton University

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