Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Pinning mode of 2D electron stripe phase around 9/2 Landau level filling G. SAMBANDAMURTHY[1], R.M. LEWIS, H. ZHU, Y.P. CHEN, NHMFL-FL and Princeton University, L.W. ENGEL, NHMFL-FL, D.C. TSUI, Princeton University, L.N. PFEIFFER, Bell Labs, K.W. WEST, Bell Labs-Lucent Technologies — We present finite frequency conductivity measurements on ultra high mobility two-dimensional electron systems in GaAs/AlGaAs. At low temperature $T \leq 150$ mK, strong anisotropy of the DC resistivities [1] for higher Landau levels (LL) near half filling is present, and is taken to be due to a striped phase, in which the charge density is anisotropically modulated. In our AC studies, we observe a sharp resonance at $f_{pk} \approx 100$ MHz in the real part of the diagonal conductivity, in range of LL filling ν between 4.4 and 4.6, when the AC electric field is polarized along the "hard" direction, nominally perpendicular to the stripes. The resonance vanishes for $T \geq 120$ mK. No resonance is observed with the electric field along the easy direction, parallel to the stripes. Resonances are present [2] in both orientations, in the bubble phases found at higher and lower ν than the stripe phase.
1. M. P. Lilly *et al.*, Phys. Rev. Lett. **82,** 394 (1999);
R. R. Du *et al.*, Solid State Comm. **109**, 389 (1999).
2. R. M. Lewis *et al.*, Phys. Rev. Lett. **89**, 136804 (2002).

[1]Present address: University at Buffalo-SUNY

Sambandamurthy Ganapathy
University at Buffalo-SUNY

Date submitted: 28 Nov 2006 Electronic form version 1.4