

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Spin and NMR at  $\nu = 5/2$**  L.A. TRACY, J.P. EISENSTEIN, Caltech, L.N. PFEIFFER, K.W. WEST, Bell Labs — The spin degree of freedom in a 2DES at  $\nu = 5/2$  has been probed using resistively-detected NMR (RDNMR). We have measured the nuclear spin-lattice relaxation time  $T_1$  of the host semiconductor  $^{75}\text{As}$  nuclei and the response of the 2DES longitudinal resistance to a NMR-induced reduction of the nuclear spin polarization. Measurements were made at temperatures ranging from 200 mK down to 75 mK, where the  $\nu = 5/2$  quantum Hall state is just beginning to form. Via the hyperfine coupling, a decrease in nuclear spin polarization increases the electronic Zeeman splitting. Within this model, our RDNMR signal implies that the 2DES resistivity depends on Zeeman energy and, therefore, that the electronic spin polarization at  $\nu = 5/2$  is incomplete in this temperature regime.

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Date submitted: 17 Nov 2006

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