

Abstract Submitted  
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**Resistively-Detected NMR in a 2DES near  $\nu = 1$ : Clues to the Origin of the Dispersive Lineshape** J.P. EISENSTEIN, L.A. TRACY, Caltech, L.N. PFEIFFER, K.W. WEST, Bell Labs — Resistively-detected NMR (RDNMR) measurements on 2D electron systems near the  $\nu = 1$  quantum Hall state are reported. In agreement with previous RDNMR studies, we observe a dispersive lineshape, where  $R_{XX}$  vs. frequency shows both negative and positive excursions from the equilibrium  $R_{XX}$  value. However, in contrast to recent results of Gervais, et al. [Phys. Rev. Lett. 94, 196803 (2005)], this dispersive lineshape is found at all RF powers, and a conventional, Korringa temperature dependence ( $T_1 T = \text{const}$ ) of the nuclear spin- lattice relaxation rate is observed. The shape of the unexplained dispersive lineshape is found to invert when the temperature derivative of the longitudinal resistance changes sign. This suggests that both Zeeman and thermal effects are important to RDNMR in this regime.

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