

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Negative spin wave dispersion for composite fermions**<sup>1</sup> U. WURST-BAUER, Columbia Univ., D. MAJUMDER, S. MANDAL, Indian Association for the Cultivation of Science, I. DUJOVNE, A. RIGOSI, T.D. RHONE, Columbia Univ., B. DENNIS, Alcatel-Lucent, K. WEST, Princeton Univ., L. PFEIFFER, Princeton Univ, J. JAIN, Pennsylvania State Univ., A. PINCZUK, Columbia Univ. — The FQHE is a result of strongly interacting electrons that can be understood as QHE of composite fermions. We use inelastic light scattering experiments to study the collective excitations of CF with 2 flux quanta focusing on filling factors  $\nu = 4/9$ ,  $3/7$  and  $2/5$ . For these fillings, the lowest collective excitation modes are spin-waves, which display a distinct spectral weight below the bare Zeeman energy indicating a negative dispersion relation. The determined energies for these “spin-wave roton minima” are in excellent quantitative agreement with numerical calculations. Using the real experimentally transferred momentum the addressed DOS and hence inelastic light scattering spectra can be modeled. We demonstrate that the observed modes are very similar for positive and negative effective magnetic field at the same CF-filling factor.

<sup>1</sup>Supported by NSF and AvH.

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Date submitted: 14 Dec 2010

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