

Abstract Submitted
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Measurement of Spin Excitations in the Fractional Quantum Hall Regime of $1/2 < \nu < 1$ JUN YAN, Columbia University, YANN GALLAIS, Columbia University, ARON PINCZUK, Columbia University, Bell Labs, LOREN PFEIFFER, Bell Labs, KEN WEST, Bell Labs — We use inelastic light scattering methods to investigate quasiparticle excitations of the fractional quantum Hall liquid in the filling factor range $1/2 < \nu < 1$. The long wavelength spin wave mode at the Zeeman energy shows intriguing behavior. The mode is observed at the filling factors $\nu=1, 2/3$ and $3/5$ of the quantized Hall states but its intensity collapses for filling factors away from these states. In the filling factor range $1/2 < \nu < 2/3$ spin excitations are observed below the Zeeman energy. These modes are interpreted as spin flips where the composite fermion Landau level quantum number and spin orientation change. The spectral lineshapes of spin flip excitations suggest a spin polarization transition between $\nu=3/5$ and $\nu=2/3$ [1]. [1] Irene Dujovne et al, PRL 95, 056808 (2005)

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