Abstract Submitted
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Fabry-Perot Interferometry in the Integer and Fractional Quantum Hall Regimes[1] DOUGLAS MCCLURE, WILLY CHANG, ANGELA KOU, CHARLES MARCUS, Harvard University, LOREN PFEIFFER, KEN WEST, Princeton University — We present measurements of electronic Fabry-Perot interferometers in the integer and fractional quantum Hall regimes. Two classes of resistance oscillations may be seen as a function of magnetic field and gate voltage, as we have previously reported. In small interferometers in the integer regime, oscillations of the type associated with Coulomb interaction are ubiquitous, while those consistent with single-particle Aharonov-Bohm interference are seen to co-exist in some configurations. The amplitude scaling of both types with temperature and device size is consistent with a theoretical model. Oscillations are further observed in the fractional quantum Hall regime. Here the dependence of the period on the filling factors in the constrictions and bulk of the interferometer can shed light on the effective charge of the interfering quasiparticles, but care is needed to distinguish these oscillations from those associated with integer quantum Hall states.

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