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Edge state tunneling in a point contact at filling fraction $\nu=5/2$ IULIANA P. RADU, MIT, J.B. MILLER, C.R. DILLARD, C.M. MARCUS, Harvard University, M.A. KASTNER, MIT, L.N. PFEIFFER, K.W. WEST, Bell Labs, Alcatel-Lucent — We investigate low temperature transport properties of quantum point contacts (QPCs) fabricated in a GaAs/AlGaAs 2-dimensional electron gas (2-DEG) with mobility 2000 m²/Vs in a perpendicular magnetic field. The 2-DEG exhibits fractional quantum Hall effect, including a well-quantized plateau at $\nu=5/2$. We study the temperature and DC current bias dependence of the transport through the QPC at $\nu=5/2$ while preserving the same filling number in both the QPC and the bulk of the sample. We compare our results to theoretical predictions for quasiparticle tunneling in the weak coupling regime, and extract the quasi-particle charge and the strength of the Coulomb interaction, as reflected by the Luttinger liquid parameter g. This work was partially supported by ARO (W911NF-05-1-0062), by the NSEC program of NSF (PHY-0117795), by NSF (DMR-0353209) at MIT and by Project Q of Microsoft Corporation at Harvard University.

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