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**Suppression of Landau level spin splitting in quantum point contacts** IULIANA RADU, MIT, J.B. MILLER, E. LEVENSON-FALK, Harvard U., S. AMASHA, MIT, D.M. ZUMBÜHL, U. Basel, M.A. KASTNER, MIT, C.M. MARCUS, Harvard U., L.N. PFFEIFER, K.W. WEST, Bell Labs, Lucent — We investigate low temperature transport properties of split-gate devices lithographically patterned on a GaAs/AlGaAs heterostructure containing a 2D electron gas with mobility 2000 $m^2$/Vs in a perpendicular magnetic field. By using quantum point contacts (QPCs) with different lithographic widths and varying the voltage applied on the gates for each QPC, we can control the width of the conduction channel continuously from ∼3000 to ∼100nm. The width of the channel is estimated from the low-field magnetic field dependence of the conductance through the QPC. We find that the spin-splitting of the Landau levels is suppressed in the QPCs compared to the bulk, and we measure the filling factor $\nu_{max}$ above which spin splitting can no longer be observed. Surprisingly, we find that $\nu_{max}$ is approximately half the number of quantum channels in the QPC for all widths less than 1200 nm. This work was partially supported by ARO (W911NF-05-1-0062), by the NSEC program of NSF (PHY-0117795), by NSF (DMR-0353209) and by Project Q of Microsoft.

Iuliana Radu
Massachusetts Institute of Technology

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