

Abstract Submitted
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Quantum Conductance and Magnetic Focusing in InSb Heterostructures DAVID DEEN, A.R. DEDIGAMA, S.Q. MURPHY, N. GOEL, J. KEAY, M.B. SANTOS, University of Oklahoma, K. SUZUKI, S. MIYASHITA, Y. HIRAYAMA, NTT Basic Research Laboratories — Both single and double quantum point contact devices have been fabricated using in-plane gating in symmetrically doped InSb/InAlSb heterostructures. The devices were designed with typical dimensions of 0.5micron which preserves ballistic transport up to 185K as measured in separate experiments. Quantized conductance was observed at 4.2K in the single quantum point contact devices. With the application of a small perpendicular magnetic field, the double quantum point contact devices should act as current focusers. Preliminary measurements display such current focusing peaks. It is predicted that the large spin-orbit effect in InSb may lead to spin split focusing peaks. This work is supported by the National Science Foundation under grants No.DMR-0209371 and DMR-0080054.

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