

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Fabrication of Submicron Devices on the (011) Cleave Surface of a Cleaved-Edge-Overgrowth GaAs/AlGaAs Crystal¹ HAO ZHANG, Duke University, LOREN PFEIFFER, KENNETH WEST, Princeton University, ALBERT CHANG, Duke University — We describe the fabrication of submicron devices on the (011)cleave surface of a GaAs heterostructure crystal, in which this surface is extremely narrow. Special purpose devices are produced, which take advantage of the unique characteristics of Cleaved-Edge-Overgrowth. The successful fabrication relies on understanding the surface tension of the electron beam PMMA resist, the workable degree of variation in resist thickness, and on gluing the crystal onto a backing substrate to increase structural strength. We demonstrate a functional gate-controlled point contact constriction placed 9 um from one edge of the cleave surface. This technique may enable the study of fractional quantum Hall fluid in a novel structure.

¹Work supported by NSFDMR-0701948

Hao Zhang
Duke University

Date submitted: 29 Nov 2012

Electronic form version 1.4