

Abstract Submitted
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Transport Between Superconductors Coupled to Quantum Hall Edge Modes¹ STEPHANIE LAW, MICHAEL VISSERS, ALLISON DOVE, SERENA ELEY, NADYA MASON, JAMES ECKSTEIN, Department of Physics and Materials Research Laboratory, University of Illinois at Urbana-Champaign — We report IV characteristics and differential resistance measurements on two dimensional electron gases coupled to superconducting electrodes in high magnetic fields. The semiconductor layer is grown by MBE, followed by in-situ deposition of a superconducting NbTi film. For measurement, the samples are fabricated into Hall bars with the superconducting contacts connected to points along the edge. Differential resistance and IV characteristics are then measured in two and four terminal setups at low temperatures in magnetic fields, on and off quantum Hall plateaus. We are thus able to investigate the ability of chiral edge modes to couple to a superconductor and mediate a supercurrent. Samples are made both with high critical field superconducting contacts and with normal metal contacts, allowing us to isolate the effect of injecting Cooper pairs.

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