Abstract Submitted
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Formation of a helical channel in a 2D system in a quantum Hall regime[1] ALEKSANDR KAZAKOV, Purdue University, V. KOLKOVSKY, Z. ADAMUS, G. KARCZEWSKI, T. WOJTOWICZ, Institute of Physics, Polish Academy of Sciences, LEONID ROKHINSON, Purdue University — A two-dimensional system with reconfigurable network of one-dimensional p-wave superconducting channels is a perfect platform to perform braiding of non-Abelian excitations. Such channels can be realized in CdTe:Mn quantum wells in a quantum Hall effect regime, where counterpropagaring edge states with opposite spin polarization can be formed by electrostatic gating. These edges form helical channels similar to the edges of 2D topological insulators and, coupled to a superconductor, should support non-Abelian excitations. While long channels are localized at low temperatures, we found that resistance in short (¡6 μm) helical channels remains finite at low temperatures. Transport data and resistance scaling with channel length will be presented.

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