

Abstract Submitted
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Anyons in a weakly interacting system GILAD ROSENBERG, University of British Columbia, BABAK SERADJEH, University of Illinois, CONAN WEEKS, MARCEL FRANZ, University of British Columbia — I will present our recent theoretical proposal for the realization and manipulation of anyons in a weakly interacting system. This system consists of a two-dimensional electron gas in the integer quantum Hall regime, adjacent to a type-II superconducting film with an artificial array of pinning sites. The anyons are realized in response to defects in the pinned vortex lattice and carry charge $\pm e/2$ and have an exchange phase $\pi/4$. We establish this result using a 2D continuum model of electrons in the magnetic field caused by the vortex lattice of the superconducting film. The charge of the defects is evaluated numerically, using the Aharonov-Casher exact solution (for $g = 2$) for the ground state of a 2D system in magnetic field.

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