Superconducting correlations at the edge of a quantum Hall insulator

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I will give an overview of our work on transport properties of junctions between quantum Hall samples and superconductors. First I will discuss how propagating Bogoliubons (known as chiral Andreev edge states) emerge at the interface between these two phases of matter, possible transport experiments to detect them will be discussed [1].
Josephson junctions where superconductors are coupled via chiral Andreev edge channels have been experimentally implemented. I will show how the critical supercurrent profiles and the current-voltage characteristics of such junctions could be used as a hallmark of chiral edge mediated transport in these hybrid devices [2].

[1] Lucila Peralta Gavensky, Gonzalo Usaj, and C. A. Balseiro, Phys. Rev. B **104**, 115435 (2021) , ibid **103**, 024527 (2021)
[2] Lucila Peralta Gavensky, Gonzalo Usaj, and C. A. Balseiro Phys. Rev. Research 2, 033218 (2020)