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Probing bulk physics in the 5/2 fractional quantum Hall effect using the Corbino geometry BENJAMIN SCHMIDT, McGill University, KEYAN BENNACEUR, Sherbrooke University, SIMON BILODEAU, SAMUEL GAUCHER, McGill University, MICHAEL LILLY, JOHN RENO, Sandia National Laboratories, LOREN PFEIFFER, KEN WEST, Princeton University, BERTRAND REULET, Sherbrooke University, GUILLAUME GERVAIS, McGill University — We present two- and four-point Corbino geometry transport measurements in the second Landau level in GaAs/AlGaAs heterostructures. By avoiding edge transport, we are able to directly probe the physics of the bulk quasiparticles in fractional quantum Hall (FQH) states including 5/2. Our highest-quality sample shows stripe and bubble phases in high Landau levels, and most importantly well-resolved FQH minima in the second Landau level. We report Arrhenius-type fits to the activated conductance, and find that σ_0 agrees well with theory and existing Hall geometry data in the first Landau level, but not in the second Landau level. We will discuss the advantages the Corbino geometry could bring to various experiments designed to detect the non-Abelian entropy at 5/2, and our progress towards realizing those schemes. The results of these experiments could complement interferometry and other edge-based measurements by providing direct evidence for non-Abelian behaviour of the bulk quasiparticles. Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL8500.

Benjamin Schmidt
McGill University

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