

Abstract Submitted
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Direct observation of edge state transport in a QPC via scanning gate microscopy NOBUYUKI AOKI¹, CARLO DACUNHA, DAVID FERRY, Arizona State University — Direct imaging of edge state transport through a quantum point contact (QPC) has been achieved using scanning gate microscopy (SGM). With a metallic tip floating about 40nm above the surface, it was possible to scatter electrons in such a way that their trajectories do not hit the QPC and produce a significant change in conductance. This could be achieved at high magnetic fields and small constrictions. Images indicate clear differences from images taken at no magnetic field. The images change depending on the gate bias, which moves them on the conductance plateaus in the transmission curve at constant magnetic field, indicating the formation of edge channels crossing the constriction near its potential walls. Furthermore, some features present below the first plateau could suggest a direct imaging of composite fermions.

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