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Response of Helical Luttinger Liquid in InAs/GaSb Edges to a Magnetic Field[1] TINGXIN LI, BINGBING TONG, XIAOXUE LIU, ZHONGDONG HAN, CHI ZHANG, ICQM, Peking University, GERARD SULLIVAN, Teledyne Scientific and Imaging, RUI-RUI DU, Rice University — Electron-electron interactions have been shown to play an important role in InAs/GaSb quantum spin Hall (QSH) edge states, leading to power-law behaviors of the helical edge conductance as a function of temperature and bias voltage (Li *et al*, Phys. Rev. Lett. **115** 136804). A variety of inelastic and/or multiparticle backscattering processes could occur in helical edges when taking electron-electron interactions into account. On the other hand, in the presence of an external magnetic field, single-particle elastic backscattering is also allowed in QSH edge due to the breaking of time-reversal symmetry (TRS). It would be interesting to pursue experimental investigations for the combined effect of electron-electron interactions and TRS breaking on QSH edge transport. We report work in progress for low temperature conductance measurements of the helical edge in InAs/GaSb under perpendicular or in-plane magnetic fields. We found that the magnetic field responses are generally correlated with the interaction strength in the edge states.

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