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Magnetic moment coupled to a helical edge can make weak correlations seem strong JUKKA VAYRYNEN, Yale University, FLORIAN GEISSLER, University of Würzburg, LEONID GLAZMAN, Yale University — We study the effect of a localized magnetic moment on the helical edge electron transport. The spin flips caused by the moment can be effective in the electron backscattering. We evaluate the resulting differential conductance as a function of temperature T and applied bias V for any value of V/T. At temperatures T above the Kondo temperature, the deviation of the conductance from its quantized value displays a power-law temperature dependence, $\delta G \propto T^{-\alpha}$. We show that the Luttinger liquid effects with $3/4 < K < 1$ may lead to a small exponent $\alpha < 1/2$. Values of K close to 1 correspond to weakly-correlated electrons. Our results provide an alternative interpretation of the recent experiment by Li et al. [1] where a power-law behavior of the conductance was attributed to strong correlation effects with the value of K fine-tuned close to 1/4.

References

Li et al. Phys. Rev. Lett. **115**, 136804 (2015)

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