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Electrical control of the Kondo effect in a helical edge liquid ERIK ERIKSSON, ANDERS STRÖM, University of Gothenburg, Sweden, GIRISH SHARMA, Ecole Polytechnique, France, HENRIK JOHANNESSON, University of Gothenburg, Sweden — Magnetic impurities affect the transport properties of the helical edge states of quantum spin Hall insulators by allowing single-electron backscattering. We study such a system in the presence of a Rashba spin-orbit interaction induced by an external electric field, showing that this can be used to control the Kondo temperature, as well as the correction to the electrical conductivity due to the impurity. In particular, the impurity contribution to the dc conductivity can be switched on and off by properly adjusting the strength of the Rashba coupling.

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