

Publication**Spin transport in a graphene normal-superconductor junction in the quantum Hall regime****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 4493566**Author(s)** Sekera, Tibor; Bruder, Christoph; Tiwari, Rakesh P.**Author(s) at UniBasel** [Bruder, Christoph](#) ; [Sekera, Tibor](#) ;**Year** 2018**Title** Spin transport in a graphene normal-superconductor junction in the quantum Hall regime**Journal** Physical review B: Condensed matter and materials physics**Volume** 98**Number** 19**Pages / Article-Number** 195418

The quantum Hall regime of graphene has many unusual properties. In particular, the presence of a Zeeman field opens up a region of energy within the zeroth Landau level, where the spin-up and spin-down states localized at a single edge propagate in opposite directions. We show that when these edge states are coupled to an s-wave superconductor, the transport of charge carriers is spin-filtered. This spin-filtering effect can be traced back to the interplay of specular Andreev reflections and Andreev retro-reflections in the presence of a Zeeman field.

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