Sonderforschungsbereich 689

Spinphänomene in reduzierten Dimensionen

Seminarankündigung
(gem. mit Seminar Fabian)

Sprecher: **Dr. Peter Stano**
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Ort: PHY 4.1.13

Zeit: Mittwoch, 19. März 2014, 14.15 Uhr

Thema: Helical order in one dimensional semiconductors

Abstract

I will talk about the helical spin order which arises in the thermodynamical equilibrium in a one-dimensional (semi)conductor with spin impurities (e.g., nuclear spins, or spins of localized magnetic impurities). The helical order in localized spins is a consequence of the dimensionality, and thus very general, arising in metals, semiconductors, and even gapped phases, like superconductors.

I will show that the order follows from the resonant peak of the response (spin susceptibility) of a one-dimensional system. I will discuss recent low temperature transport experiments with semiconducting wires which suggest that such helical order was established in nuclear spins of atoms of the wire.

I will explain how such a helical order can be useful in the semi-super hybrid platform to stabilize Majorana fermions and to produce even more exotic many body excitations like fractionally charged fermions and parafermions.

Ansprechpartner:J. Fabian