



Sonderforschungsbereich 631
Festkörperbasierte Quanteninformationsverarbeitung



Seminarankündigung

SFB-631 Seminar

Department für Physik
der Ludwig-Maximilians-Universität
Theresienstr. 37, **Seminarraum 249**

Datum: **Mittwoch, 12. Juli 2006 um 13:00 Uhr**

Vortragender: **Dr. Alexander Khaetskii**
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Titel: **Manifestation of a spin-orbit coupling in transport phenomena**

Abstract:

Spin-orbit coupling brings about a number of interesting effects, one of which is a generation of a spin flux in the plane perpendicular to the charge current direction. I will give a brief review of the current status of this field distinguishing different contributions into the spin current like intrinsic, extrinsic and the side-jump ones. Exact solution for the spin current is obtained for an arbitrary 2D spin-orbit Hamiltonian and arbitrary smoothness of the disorder potential.

Spin current depends explicitly on the disorder properties, namely a smoothness of the disorder potential, even in the ballistic limit.

In this sense a universal intrinsic spin current does not exist.

The magnetotransport phenomena in the presence of a classical magnetic field and the spin-orbit coupling are studied.

New interesting features which occur beyond the Born approximation are found in the magnetoresistance and classical (charge) Hall effect.
