

## Integriertes Seminar

### Aktuelle Probleme dimensionsreduzierter Festkörper

Ort: Seminarraum 718 (Wilhelm-Klemm-Straße 10)

Zeit: **Mittwoch, 12.11.2014, 10:00 Uhr c.t.**

### Spin-orbit interaction effects in quantum dots and doped semiconductors

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The spin-orbit interaction plays a crucial role in proposed semiconductor spintronic applications. On the one hand, it can be used constructively to control the electronic spin via gate voltages, and, on the other hand, it may act destructively causing dephasing and decoherence. In this talk I will present theoretical descriptions of experimental situations where these two roles of the spin-orbit interaction are manifested. The first type of system is that of quasi-one-dimensional quantum dots, where the spin-orbit interaction enables spin control with AC voltages, and the second one is n-doped bulk semiconductors, where long relaxation times were measured in a classic work by Kikkawa and Awschalom.

Einladender: T. Kuhn