



Sonderforschungsbereich 631
Festkörperbasierte Quanteninformationsverarbeitung



Seminar Announcement

Festkörpertheorieseminar

Donnerstag, 12 Mai 2005

16.15 Uhr

Seminarraum 450, Theresienstr. 37

PD Anders Fritjof

Universität Bremen

***Real-Time Dynamics in Quantum Impurity Systems:
A Novel Approach to Non-Equilibrium Properties in Mesoscopic
Quantum Systems***

In contrast to equilibrium conditions, the understanding of real-time evolution of many-particle quantum systems is still at its infancy. A novel approach to time dependent non-equilibrium quantum impurity systems is presented. It is based on a combination of Feynman's concept of a reduced density matrix and Wilson's numerical renormalization group. I will discuss how dissipation and decoherence arises and benchmark the approach using the know exact solution of the resonant-level model. As a first application, the two different time scales for spin- and charge-relaxation processes in ultra-small quantum dots are extracted. An outlook to pulse-driven quantum dots as well as biological problems is given.

gezeichnet: von Delft
