



# SFB 631

Festkörperbasierte Quanteninformationsverarbeitung

## Seminar Announcement

- Location** University of Regensburg, Dept. of Physics  
Room PHY 4.1.13
- Time** Wednesday, 6<sup>th</sup> December 2006  
10:15 a.m.
- Speaker** **Prof. Dr. Elzbieta Zipper**  
Physics Institute, University of Katowice, Poland
- Title** Flux Qubit on a Mesoscopic Nonsuperconducting Ring
- Abstract** The possibility of making a flux qubit on nonsuperconducting mesoscopic ballistic quasi 1D ring is discussed. We showed that such ring can be effectively reduced to a two-state system with two external control parameters. The two states carry opposite persistent currents and are coupled by tunneling which leads to a quantum superposition of states. The qubit states can be manipulated by resonant microwave pulses. The flux state of the sample can be measured by a SQUID magnetometer. Two or more qubits can be coupled by the flux the circulating currents generate. The problem of decoherence is also discussed.

Contact: Prof. Milena Grifoni