SFB 631

Festkörperbasierte Quanteninformationsverarbeitung

TECHNISCHE UNIVERSITÄT MÜNCHEN

Seminar Announcement

Location Walther-Meissner-Institut

Seminarraum 143

Time Friday, 16.07.2004

13:30 Uhr st

Speaker Prof. Per Delsing

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Title Quantum computing and superconducting qubits

Abstract A short introduction to quantum computing is followed by a discussion of experiments on superconducting qubits, The qubit is fabricated in close proximity to a single electron transistor, operated in the radio frequency mode. Six samples with different charging energies (E_C) and Josephson coupling energies (E_J) have been tested. By making the charging energy of the qubits sufficiently small and/or applying a magnetic field to the samples, we can systematically obtain a purely 2e periodic Cooper-pair box. By manipulating the qubit (Cooper-pair-box) with fast dc-pulses we could place the system in the exited state which had a charge of 2e. By changing the duration of the pulses we could observe how the charge of the box oscillated as a function of the pulse duration time. We consistently observe coherent oscillations in all samples.

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