



SFB 631

Festkörperbasierte Quanteninformationsverarbeitung



Seminar Announcement

Location Walther-Meissner-Institut
Seminarraum 143

Time Freitag, 30.01.2009
13:30 Uhr st

Speaker Stefano Poletto
Physikalisches Institut
Universität Karlsruhe, Karlsruhe
Germany

Title Coherent oscillations in a superconducting tunable flux qubit
manipulated without microwaves

Abstract I'll report on an experimental demonstration of coherent oscillations in a tunable superconducting flux qubit by manipulating its energy potential with a nanosecond-long pulse of magnetic flux. The occupation probabilities of the two persistent current states oscillate at a frequency ranging from 6 GHz to 21 GHz, with a theoretical maximum oscillation frequency of 40 GHz. The frequency of the measured oscillations can be tuned in situ by changing the amplitude of the fast magnetic flux. The demonstrated operation mode could allow to realize quantum gates in less than 100 ps, which is much shorter than gate times attainable in other superconducting qubits.

gez. R. Gross