



# SFB 631

*Festkörperbasierte Quanteninformationsverarbeitung*



## *Seminar Announcement*

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- Location** Walther-Meissner-Institut  
Seminarraum 143
- Time** Friday, 17.12.2004  
13:30 Uhr st
- Speaker** Dr. Thilo Bauch  
Department of Microtechnology and Nanoscience, Chalmers University
- Title** Macroscopic Quantum Tunneling in *d*-wave YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Josephson Junctions
- Abstract** Superconducting The escape rate from the zero voltage state in a superconducting Josephson junction (JJ) is determined by the temperature, but it saturates at low temperature due to Macroscopic Quantum Tunneling (MQT). Complications due to *d*-wave symmetry in a high temperature superconductor (HTS), like low energy quasi-particles and an unconventional current-phase relation, may influence the escape rate. We report, for the first time to our knowledge, about the observation of MQT in a YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> grain boundary bi-epitaxial JJ. This proves that dissipation can be significantly reduced by a proper junction configuration - of significance for quantum coherence.

*gez. A. Marx*