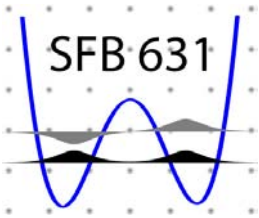

Sonderforschungsbereich 631

Festkörperbasierte Quanteninformationsverarbeitung

TECHNISCHE UNIVERSITÄT MÜNCHEN

SEMINAR ANNOUNCEMENT

Tuesday, 03th February 2004

05.15 p.m.

WSI, Seminarraum S 101

„Quasiparticle tunneling between fractional quantum Hall edges ”

Abstract:
In a two dimensional electron gas under the application of peculiar values of a perpendicular magnetic field, the lowest-energy charged excitations of fractional quantum Hall (FQH) liquids are confined at the edge of the sample in one-dimensional branches whose excitations propagate only in one direction. In macroscopic samples this behaviour is the basis for the vanishing longitudinal resistivity characteristic of QH effects. By appropriately designing the sample, however, inter-edge scattering can be driven. This can be achieved, for instance, by adding nanogates that form a narrow constriction. Different inter-edge coupling regimes are accessible in such a nanostructure. In this quasiparticles between chiral Luttinger liquids and thus provide further experimental support for the non-Fermi liquid nature of FQH edge states. The evolution of the tunneling conductance by tuning the coupling strength will be also discussed.

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