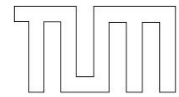


Sonderforschungsbereich 631

Festkörperbasierte Quanteninformationsverarbeitung



TECHNISCHE
UNIVERSITÄT
MÜNCHEN



Condensed Matter Theory Seminar

Friday, June 6, 10:15 am

Room 449, Theresienstr. 37, 4th floor

Speaker: **Prof. Alexander D. Mirlin**
Forschungszentrum Universität Karlsruhe

Titel: *Interacting electrons in quantum wires: Disordered and non-equilibrium Luttinger liquids*

Abstract:

Recent advances in the theory of interacting electrons in one dimension (Luttinger liquids) are reviewed. The first part of the talk is devoted to transport in disordered Luttinger liquids. It is shown that the notion of weak localization is applicable to the interacting disordered 1D system. Temperature dependence of the weak localization correction and of the corresponding dephasing rate are studied for models of spinless and spinful Luttinger liquids.

In the second part, a one-dimensional system of interacting electrons out of equilibrium is studied in the framework of the Luttinger liquid model. Several setups are analyzed and a theory of tunneling into such systems is developed. A remarkable property of the problem is the absence of relaxation in energy distribution functions of left- and right-movers, yet the presence of the finite dephasing rate due to electron-electron scattering, which smears zero-bias-anomaly singularities in the tunneling density of states. Finally, prospects of "non-equilibrium bosonization" are discussed.