SFB/TRR 21 - Seminar
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Domain walls in microwave-induced zero-resistance states

In a high-mobility two-dimensional electron gas in a magnetic field at low temperatures immersed in a radiation field, it was observed that the electrical resistance oscillates strongly as a function of the magnetic field and drops to zero for some values. These experiments can be explained by an emergence of current domains. In this talk we focus on the patterns of currents and charges due to the formation of these domains.
A macroscopic, phenomenological approach to the problem in terms of a local Ohm's law is discussed. The spatial pattern of currents and electric fields for a rectangular Hall sample is presented. This pattern is extended, tentatively, to the case of the system being split in current domains. Secondly, we discuss a kinetic equation for the two-dimensional electron gas including disorder under microwave radiation, pertaining to the experimental situation.

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