TRR 80 Sonderseminar

Am Mittwoch, den 24. Juli um 10:45 Uhr

spricht

Prof. Dr. Aditi Mitra

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über das Thema

Transport properties of a transient superconductor

Recent advances in ultra-fast measurement in cold atoms, as well as pump-probe spectroscopy of K3C60 films, have opened the possibility of rapidly quenching systems of interacting fermions to, and across, a finite temperature superfluid transition. However determining that a transient state has approached a second-order critical point is difficult, as standard equilibrium techniques are inapplicable. We show that the approach to the superfluid critical point in a transient state may be detected via time-resolved transport measurements, such as the optical conductivity. We leverage the fact that quenching to the vicinity of the critical point produces a highly time dependent density of superfluid fluctuations, which affect the conductivity in two ways. Firstly by inelastic scattering between the fermions and the fluctuations, and secondly by direct conduction through the fluctuations. The competition between these two effects leads to non-monotonic behavior in the time-resolved optical conductivity. Results are obtained both for a clean system, as well as a strongly disordered system where for the latter connections with Azlamazov-Larkin and Maki-Thompson corrections can be made.

Gäste sind herzlich willkommen.
Der Vortrag findet im Seminarraum S-439, Institut für Physik, Universität Augsburg statt.

Gastgeber: PD Dr. Marcus Kollar
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