Dienstag, den 30.04.2013, 17:00 Uhr

Prof. Dr. Andrew Mackenzie
Max Planck Institute for Chemical Physics of Solids, Dresden
and
School of Physics and Astronomy, University of St. Andrews

What controls the scattering rate in correlated electron systems?

I will discuss the general and still open problem of scattering in correlated electron metals. After a recap of the physics that gives the scattering rate a quadratic temperature dependence in the well understood case of a Fermi liquid, I will highlight the growing set of examples in which it instead varies linearly with temperature. If an analysis is restricted to situations in which the $T$-linear resistivity is seen in materials with known quasiparticle parameters, a rate of approximately $k_B/\hbar$ per kelvin is observed in a surprisingly wide range of circumstances. The implications of this will be discussed in the context of electrons in metals, and compared empirically with observations on other quantum fluids as diverse as the quark-gluon plasma and ultra-cold atomic lithium.

Ort: Hörsaal für Theoretische Physik, Linnéstraße 5
Alle Teilnehmer sind ab 16.30 Uhr zu Kaffee und Gebäck vor dem Hörsaal eingeladen.