



Joseph H. Thywissen

(University of Toronto, Canada)

Spin transport in the unitary Fermi gas

Transport is the bread-and-butter measurement of condensed matter physics. In ultracold atom experiments, however, we lack a simple way to connect the sample to reservoirs, and instead learn about systems through images of their momentum or position distributions. In this talk I will discuss how a spin-echo measurement of depolarization dynamics is a type of transport measurement. In a trapped cloud, spin currents are natural to study because they can exist without net mass transport. The spin currents reveal essential qualities of a system that are not evident from equilibrium measurements. Spin diffusivity, like conductivity, is a measure of the scattering rate. Precession of spin current, like Hall resistance, reveals the effective gauge fields due to interactions. I will present the measured transport coefficients and their implications.

14. Oktober 2014, 16:00 Uhr

Universität Stuttgart, NWZII, Raum 3.123
Pfaffenwaldring 57, 70569 Stuttgart

