

HL 40 Preisträgervortrag Belzig

Zeit: Montag 12:30–13:15

Raum: TU P270

HL 40.1 Mo 12:30 TU P270

Quantum noise in mesoscopic systems — •WOLFGANG BELZIG
— Department of Physics and Astronomy, University of Basel, Klingelbergstr. 82, 4056 Basel, Switzerland — Träger des Walter-Schottky-Preises

Full counting statistics aims at a complete characterization of the distribution of measurement outcomes. In my talk I will demonstrate how this concept allows to investigate quantum correlations in a variety of mesoscopic systems. Three examples will be discussed:

- a) In analogy to Schottky's work on the current fluctuations in a vacuum diode, shot noise in superconducting contacts allows to identify the nature of the elementary charge transfer events.
- b) The Coulomb interaction in complex quantum dots or molecules leads to a strongly correlated current statistics.
- c) The density fluctuation statistics in a fermionic quantum gas reflects the crossover from a superfluid state to a molecular Bose-Einstein condensate.