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UNIVERSITÄT LEIPZIG

Fakultät für Physik und Geowissenschaften

Institute für Physik

Physik-Kolloquium

Dienstag, den 11.05.2010, 17:00 Uhr

Prof. Dr. Klaus Ensslin

EZH Zürich, Laboratorium für Festkörperphysik

Electrons in quantum dots - one by one

The manipulation of single electrons in semiconductor nanostructures has become possible. Usually this is done on small confined islands, so-called quantum dots, connected to source and drain contacts by tunnel barriers. By using another capacitively coupled tunnel barrier the charge occupancy of the quantum dot can be monitored without measuring directly the current through the dot. This setup can be investigated in a regime where charge transport can be detected in a time-resolved fashion on the level of individual electrons. This enables the measurement of ultra-small currents, quantum shot noise and higher correlations in electronic transport. Such basic charge counting experiments can be used to measure self-interference of individual electrons, one of the basic concepts of quantum mechanics.

Ort: Hörsaal für Theoretische Physik, Linnéstraße 5

Alle Teilnehmer sind ab 16:30 Uhr zu Kaffee und Kuchen in die Aula eingeladen.