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Relaxation-induced charge transfer in a mesoscopic electron spectrometer

A novel electron spectrometer, devised in the Ensslin/Ihn research groups at the ETH Zürich, allows to analyze charge transfer processes that are caused by intermediate energy relaxation of electrons entering the device [1]. In the spectrometer, two quantum dots couple to a two-dimensional electron gas and reveal transfer processes with distinct energetic signatures. Non-equilibrium diagrammatic perturbation theory allows to assign a series of diagrams to these processes, thereby pinpointing their physical origin.

[1] T. Krähenmann, Dissertation (ETH Zürich, 2017).