



Thursday, Feb. 16, 2017 - 14:00 h
CFEL Seminar room O1.060

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"Ballistic transport through magnetic atoms and molecules studied with conductance and shot noise spectroscopy"

The scanning tunneling microscope allows to build and study nanostructures at a single atom level. It can be further used to explore the ballistic electron transport regime by bringing the tip into contact with single atoms and molecules in a well-defined way. The measurement of quantum shot noise in nanoscopic contacts provides additional information on the underlying conduction processes and reveals a spin polarization of the current by single Fe and Co atoms between two gold electrodes. The impact of spin-orbit coupling on electron transport is demonstrated using single Ir atoms on a ferromagnetic substrate, where large changes of the anisotropic magnetoresistance are observed between the tunneling and the contact regime. In ballistic transport through a Mn-porphyrin molecule we demonstrate, that the voltage drop over the molecular junction moves from the tip-molecule gap to the molecule-substrate bond for higher conductances. This strongly modifies the shape of the measured Kondo resonance.

Host: Sebastian Loth

