

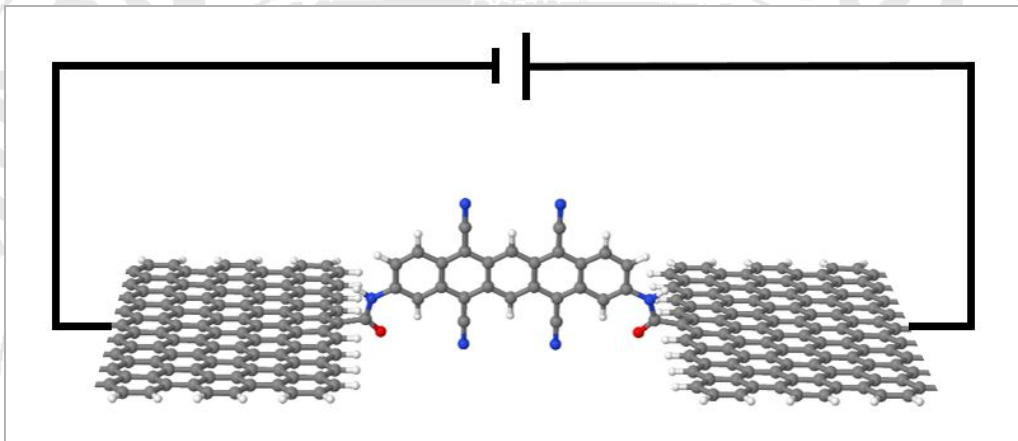


PHYSIKALISCHES KOLLOQUIUM

ANTRITTSVORLESUNG

AM 11. JUNI 2018 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



QUANTUM TRANSPORT IN NANOSTRUCTURES

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Modern techniques allow the fabrication of structures at the nanometer scale, such as quantum dots, carbon nanotubes, atomic wires or molecular junctions. Charge and energy transport properties of these nanostructures differ fundamentally from those of macroscopic systems. Quantum tunneling and interference effects influence the transport properties and phenomena such as conductance quantization, large current fluctuations as well as Coulomb or phonon blockade are observed.

In this talk, I will discuss mechanisms and phenomena of quantum transport in nanostructures, with a focus on electron transport in molecular junctions. Consisting of a single molecule bound to electrodes, molecular junctions are among the smallest electrical circuits. They provide a versatile architecture to study fundamental aspects of non-equilibrium quantum physics at the nanoscale and are of interest for applications in the field of molecular electronics.