Molecular interactions at single crystal metals surfaces

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The interaction of molecules at surfaces play an important role in many fields such as molecular electronics, heterogeneous catalysis, organic solar cells and sensor applications. Understanding the interaction between molecules and surfaces as well as the inter-molecular interactions on the surface is therefore crucial. For many purposes it is of advantage to assemble molecules in periodic networks covering the whole surface. This can be achieved by using organic molecules that are allowed to self-assemble on the surface. A delicate balance between molecule-surface bonding, inter-molecular interactions and kinetic parameters will decide on the shape of the formed network. Also the electronic structure and charge transfer between molecules and substrate is influenced by the interaction parameters. A range of Scanning Tunneling Microscopy studies under UHV conditions of different molecular systems on single crystal metal surfaces will be presented.