HL 60 Hauptvortrag Zahn

Zeit: Mittwoch 10:00–10:45 Raum: TU P270

Hauptvortrag HL 60.1 Mi 10:00 TU P270

Chemistry and Electronic Properties of Metal Interfaces to Organic Semiconductors — •Dietrich R.T. Zahn — Institut für Physik, TU Chemnitz, D-09107 Chemnitz

Metal contacts to organic semiconductors play a decisive role for the performance of organic based devices such as organic light emitting diodes, organic field effect transistors or organic solar cells. In particular when a metal is deposited onto an organic substrate, severe disruption of the interface may occur as a result of chemical reactions of the metal with organic molecules and/or diffusion of the metal into the organic layer. Here, the interaction of metals of different reactivity (Ag, In, Mg) with a variety of perylene derivatives as model molecules is probed employing in situ Raman spectroscopy. The results reveal that this technique allows an extreme interface sensitivity to be achieved via surface enhanced Raman scattering. The degree of reactivity and indiffusion can be derived from the analysis of the evolution in scattering by internal vibrational modes of the molecules and phonon-like external modes of the molecular crystal. The Raman investigations are complemented by synchrotron based photoemission and near-edge X-ray absorption fine structure measurements. These clarify that the reactivity of the molecules is highly depended on the molecular structure. In the case of the perylene derivatives the molecular endgroups, i.e. anhydride or different imides, control the interaction of the metals with the molecules.