Organic Semiconductor Interfaces with Insulators and Metals

By Kathrin Müller

Cuvillier Verlag Okt 2009, 2009. Taschenbuch. Book Condition: Neu. 211x147x15 mm. Neuware - The electronic interactions of self-assembled organic semiconductors with metals, metal-oxides and ultrathin insulator surfaces have been investigated by complementary analysis techniques comprising scanning tunnelling microscopy and spectroscopy, low energy electron diffraction, x-ray photoelectron spectroscopy and ultraviolet photoelectron spectroscopy. Two model systems have been chosen and investigated: The first model system comprises the electronic interactions and the self-assembly of pentacene molecules on the Cu(110) as well as on the oxidized Cu(110) surface. In a second model system the interface of octa-ethyl porphyrins with ultrathin insulator films and metals has been investigated. The adsorption of molecules on insulator surfaces is especially interesting due to the strong reduction of the electronic and chemical interactions between the molecules and the substrate. The investigation of pentacene on the Cu(110) surface revealed a multi-phase behaviour, which is characterized by molecular bending, molecular mobility, different relative orientation of the molecules and different packing densities. Furthermore, the influence of the adsorbate layer on the Shockley surface state of the Cu(110) has been investigated. A complex interplay of different phenomena, like Pauli repulsion, charge transfer, mixing and hybridization of electronic states as well as the polarization...

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