FOXSI
Functional Oxide Surfaces and Interfaces

EINLADUNG

zum Vortrag
von

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Curved and helical polyaromatic molecules at surfaces: From 2D self-assembly to organic electronics

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Abstract:

Modification of surfaces with aromatic organic molecules is the key approach to new materials for organic photovoltaics (OPV), organic lightemitting devices (OLEDs), and molecular electronics such as organic field effect transistors (OFETs). The interfaces between active layers and electrodes influence the electronic and optical properties as well as the device performance. Furthermore, because the spatial extent of the molecular wavefunctions is rarely isotropic, the relative orientation of the molecules in the film, and thereby the degree of overlap of the frontier orbitals, will play an important role in determining film properties. Bowland helically shaped polynuclear hydrocarbons offer a special opportunity in this arena owing to their substantial dipole moment, large conjugated network and shape complementarity. I will present different aspects of the consequences of adsorption of bowlshaped fullerene-fragment derivatives and helical aromatic hydrocarbons on different single-crystalline metal surfaces. This includes reversible phase transitions, tiling with pentagons and pentagonal stars, giant interface dipoles, bowl-in-bowl stacking and chiral recognition.

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