O 43 Hauptvortrag Witte

Zeit: Dienstag 14:00–14:45 Raum: TU EB301

Hauptvortrag O 43.1 Di 14:00 TU EB301

Structure and growth of thin films of aromatic molecules on solid surfaces — •Gregor Witte — Physikalische Chemie I, Ruhr-Universität Bochum, 44801 Bochum

The increasing interest in molecular electronics has expressed a necessity of understanding the microstructure and growth properties of ordered organic films. Of particular interest for the fabrication of organic thin film transistors (OFETs) are polycyclic aromatic hydrocarbons (PAHs) which reveal a large variety of structures upon growth on inorganic substrates [1]. In this talk I will mainly focus on the structural properties of thin films of various poly-acenes (Pentacene, Perylene and Rubrene) grown by organic molecular beam deposition on different metal and insulator substrates. By combining various surface sensitive techniques we have been able to derive the molecular microstructure developing with increasing film thickness. In case of planar molecules a characteristic molecular reorientation from substrate controlled thin film phases towards bulk-like phases was identified and on particular surfaces even epitaxial film growth has been obtained [2]. Moreover, with increasing thickness and/or rising substrate temperature a characteristic dewetting of the organic films takes place leading to a formation of distinct nanoscale crystallites which can be further studied.

[1] G. Witte and Ch. Wöll, J. Mat. Res. 19, 1889 (2004).
[2] S. Söhnchen, S. Lukas and G. Witte, J. Chem. Phys. 121, 525 (2004).