TECHNISCHE UNIVERSITÄT WIEN
Vienna University of Technology

INSTITUT FÜR ANGEWANDTE PHYSIK
Institute of Applied Physics
vormals/formerly
Institut für Allgemeine Physik

Wiedner Hauptstraße 8-10/E134, 1040 Wien/Vienna, Austria – Tel: +43 1 58801 13401 / Fax: +43 1 58801 13499 – E-mail: office@iap.tuwien.ac.at / http://www.iap.tuwien.ac.at

# IAP-SEMINAR

## EINLADUNG

Termin: **Dienstag, 12.4.2011 um 16:00 Uhr**
Ort: **Technische Universität Wien,**
**Institut für Angewandte Physik,**
Seminarraum 134A, Turm B (gelbe Leitfarbe), 5. OG
1040 Wien, Wiedner Hauptstraße 8-10

Vortragender: **Ao.Univ.Prof. Dr. Christian Teichert**
Institut für Physik, Montanuniversität Leoben

Thema: **Molecular diffusion processes in organic thin film growth**

### Kurzfassung

Crystalline films of conjugated organic semiconductors offer attractive potential for optoelectronic and electronic applications on flexible substrates. Due to the complexity and anisotropy of the molecular building blocks, novel growth mechanisms and rich self-organization phenomena can occur as is demonstrated for the growth of the rod-like oligophenylene molecule parasexiphenyl (6P). On clean mica(001), the self-organization of 6P crystallites into one-dimensional chains is observed by atomic-force microscopy (AFM) where the 6P molecules lie almost flat on the surface[1]. On an ion bombarded, amorphous mica surface, the formation of terraced mounds composed by almost upright standing molecules is observed. Quantitative analysis of the mound morphology together with transition state theory calculations reveals the existence of molecule bending during step edge crossing and level dependent Ehrlich Schwoebel barriers [2]. For the same system, the size of the critical nucleus has been determined from island size and capture zone distribution [3]. When growing 6P on Ir(111) supported graphene sheets, layer by layer growth up to at least four layers could be achieved, as has been recorded with low-energy electron microscopy [4].

[1] C. Teichert, et al., Appl. Phys. A **82** (2006) 665.
[2] G. Hlawacek, et al., Science **321** (2008) 108.
[3] T. Potocar, et al., Phys. Rev. B **83** (2011) 075423.
[4] G. Hlawacek, Nano Lett. **11** (2011) 333.

---

*Alle interessierten Kolleginnen und Kollegen sind zu diesem Seminar*
*(45 min mit anschließender gemeinsamer Diskussion) herzlich eingeladen.*

*U. Diebold e.h.*
*(Seminar-Chairperson)*

*H. Störi e.h.*
*(LVA-Leiter)*