



TECHNISCHE
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ANGEWANDTE PHYSIK
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IAP-SEMINAR

ANNOUNCEMENT

Date: **Tuesday, 14.7.2015**
Time: **16:00 p.m.**
Location: **Technische Universität Wien, Institut für Angewandte Physik, E134**
yellow tower „B“, 5th floor, Seminarraum 134A (room number DB05L03)
1040 Wien, Wiedner Hauptstraße 8-10

Lecturer: **Prof. Patricio Häberle**
Universidad Técnica Federico Santa Maria, Departamento de Física, Valparaíso/Chile

Subject: **Nanoscale graphitic materials, some applications and spectroscopy**

Abstract: In this talk I discuss 3 examples of the surface properties of different graphitic nanostructures:

- _It has been known for a while, that the superposition of two rotated graphitic layers, display a structure known as a moiré pattern. These patterns, which have been observed in STM, have a large unit cell compared to the structure of a single layer. In addition, the electronic structure at the edge of the top layer is such that the low bias STM images display an organized sequence of bright spots at the edges. We have performed calculations of the local density of states which explains the nature and location of these “beads” like states that compare well with our own STM measurements.
- _Understanding biological interaction with graphene and hexagonal-boron nitride (h-BN) membranes has become essential for the incorporation of these unique materials in contact with living organisms. Copper is well known for its antibacterial activity, even though the exact mechanism for this effect has not been fully described. Our results demonstrate that single-layer graphene and h-BN coatings substantially suppress the interaction between bacteria and the underlying Cu substrates, acting as an effective barrier to prevent physical contact. Our results seem to indicate that as-grown graphene and h-BN films could successfully protect metals, preventing their corrosion in biological and medical applications.
- _Electrons with energies in the range of a few eV are strongly affected by the interaction with the polarization charges they induce on a surface. I will discuss how this effect is relevant in the data analysis of inverse photoemission spectroscopy (IPS) from carbon nanotube (CNT) arrays. higher energy resonance (@ 12.5 eV).

*All interested colleagues are welcome to this seminar lecture
(45 minutes presentation followed by discussion).*

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

*H. Störi e.h.
(LVA-Leiter)*