



Weekly Seminar

Reaction of organic molecules on Si(001) towards the functionalization of semiconductor surfaces

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Time: 4:00 pm, Oct.7, 2013 (Monday)

时间: 2013年10月7日 (周一) 下午 4:00

Venue: Conference Room A (607), No. 5 Science Building

地点: 理科五号楼607会议室

Abstract

A promising approach for further miniaturization of semiconductor devices is the functionalization of inorganic semiconductor surfaces using organic molecules. Thus the adsorption properties of a large number of organic molecules on semiconductor surfaces, especially on Si(001), has been reported in literature. However, growth of ordered multilayers is difficult due to the overall high reactivity of functional groups on Si(001). We thus investigate the adsorption dynamics of such systems in more detail using scanning tunneling microscopy, photoelectron spectroscopy, and molecular beam techniques. In our experiments, we focus on the site selective reactivity on Si(001) and the possibility to control the reactivity on the surface. Using three very different molecules, ethylene, tetrahydrofuran, and cyclooctyne, the importance of a precursor state for the reactions dynamics and a route towards multilayer attachment are demonstrated.

About the Speaker

92 - 97 Study of Physics, Stuttgart Univ. and TU Munich, Germany

97 - 00 PhD Student, Max-Planck-Institute for Quantum Optics, Prof. Höfer, Garching, Germany

part of that in 99: Visiting scholar at Columbia Univ., Prof. Heinz, New York, NY, USA

00 - 02 Post-Doc, Marburg Univ., Prof. Höfer, Germany (main topic until 02: H₂ on silicon)

02 - 06 Scientist/Senior Scientist at Materials Science Laboratory, Sony, Stuttgart, Germany (Dye sensitized solar cells)

06 - 13 Professor for Surface Science and Nanochemistry, Univ. of Applied Sciences Esslingen, Germany (Organic molecules on silicon, cluster induced desorption/ionization of biomolecules)

Since 13 Professor of Physics, Institute of Applied Physics, Justus Liebig University Giessen, Germany (Organic molecules on silicon, cluster induced desorption/ionization of biomolecules)