

# Physics/T<sub>C</sub>SUH Joint Special Seminar

Texas Center for Superconductivity at the University of Houston



## Dr. Bert Nickel

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## An X-ray Vision of Structure-Function Relationships in Organic Electronics and Biointerfaces

**Thursday, May 8, 2008**

Room 102, University of Houston Science Center  
4:00 p.m. – 5:00 p.m.

### Abstract

Organic molecules exhibit remarkable self-assembly properties which allow them to form highly organized thin film structures. A prominent example for such ultrathin films are lipid bilayers, which represent the structural backbone of cell membranes. Lipid bilayers can be deposited on various substrates ranging from optical resonators to semiconducting layers, permitting the addition of bioselectivity to such devices. I discuss how synchrotron x-ray based techniques can be used to access the structure of such hybrid systems. Another example to be discussed is molecular thin films for organic electronics. Here, I discuss how to determine details of the molecular arrangement, as well as the nature of structural defects, and how they relate to electronic device characteristics such as trap densities.

### Bio

Bert Nickel joined the physics department of the Ludwigs-Maximilians-University in Munich in July 2003. Bert's junior research group focuses on organic-inorganic interfaces using x-ray and neutron diffraction as a main experimental tool. Systems which are studied are organic thin films for application in electronics and biological interfaces. Bert graduated in Wuppertal. During his PhD with Prof. H. Dosch at the Max-Planck-Institut for Metal Research in Stuttgart, he spent 2 1/2 years at the european synchrotron and neutron sources in Genoble (ESRF and ILL), working on phase transitions in confinement and on the influence of roughness on magnetic interfaces. Afterwards, he spent his postdoc at Princeton University with Prof. G. Scoles, working on self-assembled monolayers and organic thin films.

**Coffee and Tea will be provided at 3:30 p.m. Houston Science Center Lobby**

*Persons with disabilities who require special accommodations in attending this lecture should call (713) 743-8210 as soon as possible.*



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