



**CENTER FOR NANOHYBRID
FUNCTIONAL MATERIALS
and
NEBRASKA CENTER FOR
MATERIALS AND NANOSCIENCE**

**MONDAY
NOVEMBER 5, 2012
3:00 – 5:00 PM
UNL – N237 SEC
SCOTT ENGINEERING CENTER**



Dr. Ralf Richter

CIC biomaGUNE, San Sebastian, Spain, The Max Planck Institute for Intelligent Systems, Stuttgart, Germany, and Joseph Fourier University, Grenoble, France

Combining QCM-D, ellipsometry and imaging techniques for the detailed interrogation of soft and hydrated surface-confined films

Over the last decades, surface-confined biomolecular films have become increasingly popular for fundamental research and for applications in biosensing and biomaterials. Continuous progress in methods for the immobilization of biomolecules, and in the patterning of surfaces at the nano, micro and macro scale, entails improved control on the confinement of biomolecules and enables the creation of films of increasing complexity and functionality. As the level of sophistication of the films advances, methods are required to characterize their formation and the physico-chemical properties in detail.

In this talk, I will present recent developments in my group towards a toolbox of complementary techniques for the analysis of soft and hydrated surface-confined films. These include the *in situ* combination of quartz crystal microbalance (QCM-D) and spectroscopic ellipsometry for the label-free detection of biomolecular clustering events, as well as the quantification of mechanical properties of surface-confined films, through QCM-D on the one hand and through an *in situ* combination of colloidal probe atomic force microscopy and microinterferometry on the other.

Seminar hosted by Dr. Mathias Schubert, UNL Electrical Engineering



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