



**CENTER FOR NANOHYBRID
FUNCTIONAL MATERIALS and
UNL DEPARTMENT OF CHEMISTRY**

**WEDNESDAY
SEPT. 24, 2014
1:30 – 2:30 PM
548 HAMILTON HALL
UNL – CITY CAMPUS**



Dr. Petra Uhlmann

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Leibniz Institute of Polymer Research, Dresden, Germany

Intelligent Surfaces with Polymer Brushes

Polymer brushes allow a defined control of physico-chemical surface properties by variation of grafting density, thickness, polymer molecular weight, brush composition etc., and feature a collaborative response of the chains to environmental changes. On the one hand, this can be used to switch surface properties by inducing conformational changes of brush components, and on the other hand represents a basic principle to make multifunctional intelligent thin films.

We are not only focused on using polymer brushes as a toolbox for the development of novel functional, adaptive or switching thin films, but also on the fundamental understanding of individual switching dynamics and swelling characteristics. We are also interested in the transfer of the concept of switching and adaptive thin films to industrial coating processes, which includes the manufacturing of polymer brush layers with robust and reproducible techniques and at extended surfaces. Examples for the application of polymer brush films as switchable coatings for foils, dual-action textiles and anti-icing layers will be given.

Seminar hosted by Dr. Rebecca Lai, UNL Department of Chemistry



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