



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

**WEDNESDAY
APRIL 13, 2016
1:30 – 2:30 PM
548 HAMILTON HALL
UNL – CITY CAMPUS**



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Ultrathin polymer brush films as responsive biointerfaces

Controlling the reversibility, quantity and extent of biomolecule interaction at interfaces has a significant relevance for biomedical and biotechnological applications. Polymer brushes, composed of end-tethered linear polymers are very promising to control and alter interactions with biological systems due to their unique structure and distinct collaborative response to environmental changes as temperature or pH. Additionally brushes can be used to modulate the presence of signaling molecules at a biointerface. We investigated homo brushes, brushes made of two or more specific polymers/ polyelectrolytes, and brushes functionalized with biomolecules which allow for specific interactions on flat and nanostructured substrates. For the identification of the leverages to alter the biointerfacial activity of the brush films it is essential to study the swelling of complex brush systems as well as the mechanism and kinetics of protein adsorption in detail. This means to investigate protein adsorption and activity, and also the involvement of buffer components during dynamic adsorption processes. Based on this knowledge polymer brush systems were chosen to study their interaction with cells, with the aim to show the capability of polymer brushes to control and modulate cell adhesion, differentiation and morphology.

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



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