



## Analytical Chemistry Seminar

**Tuesday, October 29, 2019 3:30 PM WTHR 320**

*“Understanding Glass Transition Through Interfacial Properties”*



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### **Abstract:**

Glass transition, the process of falling out of equilibrium for a super-cooled liquid, has long been a topic of intense theoretical work. Few experiments can be performed to probe properties of glasses in the dynamical range relevant to distinguish these theories. It has been shown that interfaces, in particular the free surface of a glass strongly perturb the dynamics of glasses, such that the relaxation time at the free surface can be 8-10 decades faster, affecting properties over ~30 nm into the material. The origin of this phenomenon and the extent to which it affects the properties of a glass can provide a window of opportunity to evaluate predictions provided by well-established glass theories. In this presentation I will discuss the results of experiments on various polymeric and small molecule organic thin films and provide a framework to understand the experimental observation and compare them with theoretical predictions. Furthermore, I will demonstrate how by taking advantage of these modified dynamical properties, we can engineer nano-scaled glass materials with unique properties, such as higher density and resistance to thermal degradation.