Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

In Situ X-ray Reflectivity Studies of Protein Adsorption onto Functionalized Surfaces[1] ANDREW RICHTER, Valparaiso University — The adsorption of protein films onto solid surfaces, both artificial and naturally occurring, have been widely studied using a variety of techniques due to their importance in medicine, biomedical applications, and the general understanding of protein structure and function. What have yet to be performed are in situ, time-resolved, high-resolution structural studies of these systems. We have begun a project that uses the technique of in situ x-ray reflectivity to obtain highly resolved structural information with time resolution on the order of minutes. This talk will present our first findings of serum albumin and immunoglobulin G films on hydrophobic self-assembled monolayers. The protein films are readily observable, showing extensive denaturing after adsorption with a slow decay of density into the aqueous solution. Additionally, a thin low-density region that occurs between the hydrophobic film and the solution persists after protein deposition. Comparisons to films that are removed from solution, the influence of solution concentration, the effects of x-ray damage, and the time scales for protein film formation and evolution will also be discussed.

[1]This work is supported by an award from Research Corporation, CC6924

Andrew Richter
Valparaiso University

Date submitted: 20 Nov 2006 Electronic form version 1.4