Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

**Real Time Single Molecule Imaging of Protein-Surface Interactions** SHANNON KIAN G. ZAREH, SHAWN H. DECENZO, Y.M. WANG, Washington University in St.Louis, USA 63130 — We study the dynamics of the adsorption of protein to surfaces using real time Total Internal Reflection Fluorescence microscopy (TIRF). We have observed two mechanisms responsible for protein adsorption on surfaces: Reversible and Irreversible binding. The irreversible binding occurs on the deposition step induced by the initial deposition flow, and the reversible binding is the equilibrium binding between the proteins and the surfaces. Our study has shown that the irreversible binding is the main contribution to the surface adsorption of proteins. We will discuss the energy for GFP and fused-silica surface interaction, and also a method to prevent protein adsorption onto surfaces.

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Date submitted: 26 Nov 2008 Electronic form version 1.4