Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

**Surface imprinting of proteins: from mechanism to application** YANTIAN WANG, STEFFEN MUELLER, JONATHAN SOKOLOV, Stony Brook University, KALLE LEVON, Polytechnic University, BASIL RIGAS, MIRIAM RAFAILOVICH, Stony Brook University — Protein adsorption properties on different surfaces have been of great interest due to their importance in biomedical applications. In this study, adsorption of proteins on gold, thiol self-assembled monolayer (SAM), and molecularly imprinted thiol SAM was studied. Alkaline phosphatase (AP), an enzyme that can catalyze p-nitrophenyl phosphate and produce a yellow end product which has light absorbance at 405nm, was co-adsorbed with 11-mercapto-1-undecanol to fabricate the imprinted surface. Different washing methods were used to remove AP and create re-adsorption sites. The adsorption amount of AP before and after washing was measured by spectrophotometer after enzyme reaction. Re-adsorption of AP onto the three surfaces was compared and showed that the imprinted surface re-bound the protein molecules at the template site. Potentiometric response of the three substrates to AP was measured at different pH, the charge effect on the potential response was studied. The selective binding of the template proteins made it a useful technique as a protein sensor.

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Date submitted: 25 Nov 2008 Electronic form version 1.4