

Abstract Submitted
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Potentiometric Sensing of the Organic Molecules¹ YANTIAN WANG, State University of New York at Stony Brook, VIJAY JAIN, Herricks High School, HARRIMAN LEE, The Wheatley School, KALLE LEVON, Polytechnic University, MIRIAM RAFAILOVICH, JONATHAN SOKOLOV, State University of New York at Stony Brook — A prototype detector was constructed for the detection of complex biomolecules, such as viruses and complete chromosomes. The technology is based on ref. [1], where the technique was demonstrated for small molecules. A monolayer of 11-mercapto-1-undecanol (thiol) is co-absorbed with the organic molecules on a gold plated electrode. The thiolated molecules self assemble into a highly organized crystalline film chemically anchored to the surface. The bio-molecules which are not attached and can then be removed by washing in water, leaving behind templated regions, or cavities in the monolayer with specific size and shape. The electrochemical response between the modified electrode and the Ag/AgCl reference electrode was measured by the potentiometer. When the electrode was exposed to the solution containing the template molecules, in a concentration as low as $10^{-6}M$, a sharp potential response was observed, while very slight response was observed when exposed to other kind of molecules. This was attributed to the selective absorption of the molecules onto the electrode. Reference: [1]. Zhou Y., Yu B., Shiu E., Levon K., *Anal. Chem.* 2004, 76, 2689.

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Yantian Wang
State University of New York at Stony Brook

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