

**ISTeC**



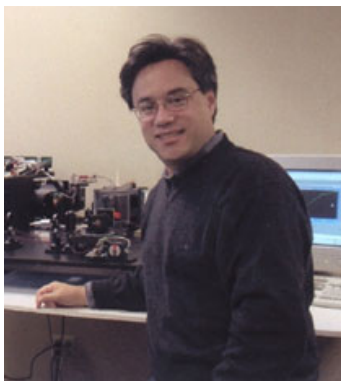
**Colorado  
State  
University**

*Knowledge to Go Places*

The Information Science & Technology Center ...at Colorado State University

Colorado State University's Information Science and Technology Center (ISTeC)  
in association with the Department of Chemistry

*Presents*



**Dr. Robert Corn**

University of California, Irvine, Department of Chemistry

**ISTeC Distinguished Lecture**

***“DNA Computing at Surfaces:  
Programmable DNA Assemblies”***

**Thursday, November 11, 2004**

**9:30 a.m. to 10:30 a.m., West Ballroom, Lory Student Center**

**Reception 10:30 a.m. – 11:00 a.m.**

and

**Department of Chemistry  
Physical, Analytical & Materials Seminar**

***“Enzymatic Methods for SPR Biosensors:  
A Combination of Langmuir and Michaelis-Menten Kinetics”***

**Thursday, November 11, 2004**

**4:10 p.m. - Room A101, Chemistry Bldg**

**Refreshments will be available at 3:45 p.m. in B101E, Chemistry Bldg**

# ABSTRACTS

## **“DNA Computing at Surfaces: Programmable DNA Assemblies”**

The use of biological molecules such as DNA for computational purposes represents a new way of thinking about computation and chemistry. Recent efforts to perform computations with DNA molecules have focused on surfaces, where novel DNA structures, devices, and amplification systems can be created. This talk will highlight the current convergence of DNA biotechnology, DNA information technology, and DNA nanotechnology into this new scientific arena.

## **“Enzymatic Methods for SPR Biosensors: A Combination of Langmuir and Michaelis-Menten Kinetics”**

The parallel enzymatic processing of biopolymer microarrays is rapidly becoming an integral component in the creation of many novel surface-based biotechnologies and bioaffinity sensor applications. For example, DNA enzymes can be used to enzymatically increase the sensitivity surface plasmon resonance (SPR) imaging measurements of nucleic acid microarrays by six orders of magnitude. This talk will describe some of these novel enzymatic methods, and explore in greater detail the coupling of adsorption and enzyme kinetics on surfaces, where we find that the surface reactions are governed by an interesting combination of classical Langmuir adsorption and Michaelis-Menten kinetics.

### **Robert M. Corn**

Robert M. Corn is a Professor of Chemistry at the University of California, Irvine. Prof. Corn received a B.A. in Chemistry summa cum laude in 1978 from the University of California, San Diego, and a Ph.D. in Chemistry in 1983 from the University of California, Berkeley. In 1985, Prof. Corn joined the Chemistry Department at the University of Wisconsin-Madison and was a Professor there until moving to UC Irvine in 2004. Dr. Corn is a leader in the development and application of surface-sensitive spectroscopic techniques such as surface plasmon resonance (SPR) imaging, optical Second Harmonic Generation (SHG), and polarization modulation Fourier transform infrared (PM-FTIR) spectroscopy. His primary research interests include the study of biopolymer (e.g., DNA, protein) adsorption onto surfaces and the chemical modification of surfaces for the creation of ultrathin films and adsorption-based biosensors. Prof. Corn also has ongoing research projects in the implementation of DNA computing algorithms at surfaces and the study of ion transfer processes at liquid/liquid interfaces. He is also a founder of GWC Technologies, Inc. (Madison, Wisconsin) and GenTel BioSurfaces, Inc. (Madison, Wisconsin).

### **Information Science and Technology Center (ISTeC)**

ISTeC (Information Science and Technology Center) is a university-wide organization for promoting, facilitating, and enhancing CSUs research, education, and outreach activities pertaining to the design and innovative application of computer, communication, and information systems. For more information please see [ISTeC.ColoState.edu](http://ISTeC.ColoState.edu).