



**CENTER FOR NANOHYBRID  
FUNCTIONAL MATERIALS**

**FRIDAY  
FEBRUARY 15, 2013  
1:00 – 3:00 PM  
UNL - 237 SEC  
SCOTT ENGINEERING CENTER**



**Dr. Ravi Saraf**

Professor, Chemical and Biomolecular Engineering, UNL

## **Nanoparticle Necklaces: A Broad Platform for Hybrid Systems**

Since the serendipitous discovery of nanoparticle necklaces in our group five years ago, we have been studying structural, electrical and optical properties of these systems. The conductance of nanoparticle necklace array is sensitive to local charging at single electron level. Single electron devices have been known for over five decades; however, cryogenic temperatures are required to observe the well-known Coulomb blockade effect where the local charging barricades the current below a certain bias. In these systems, the single electron behavior is observed at room temperature. Flexibility in fabrication has allowed us to make single electron magnetic, electroluminescence and electrochemical devices. In this talk, I will discuss the chemistry, physics and engineering of these systems. I will describe the properties and application of these systems, particularly the interfacing with biochemical processes in the cells to create live nano-bio hybrid systems.

Seminar hosted by Dr. Alex Sinitskii, UNL Chemistry Department



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