

UNL Department of Physics and Astronomy &  
Nebraska Center for Materials and Nanoscience present:

## DNA as a Sensor of Nanoparticles: Unzipping and Changing Persistence Length of DNA

PRESENTED BY

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**THURSDAY**  
**14 MARCH**  
**4:00 PM**  
**IN JH 136**

Refreshments will be  
served in the JH 1st  
Floor Vending Area at  
3:30

### ABSTRACT

Biomolecules can be used to provide control in organizing technologically important objects into functional nano-materials. The interaction between biomolecules and inorganic materials is fundamental to these applications. These studies are expected to play important role in the design of novel hybrid materials and sensors. Our results show unzipping of DNA and changes in its Persistence length upon interaction with nanostructures. These interactions indicate that DNA can act as a sensor of Mercury nanoparticles which get embedded within double helix and exclusively interact with the bases, having no influence on the phosphate backbone of DNA. Formation of DNA-base complexes and modified transport behavior indicate bio-sensing properties. Development of such complexes as well as changes in DNA flexibility have also been observed on oxide- nano-patterned surfaces with significance in bioimplants and cell packaging.