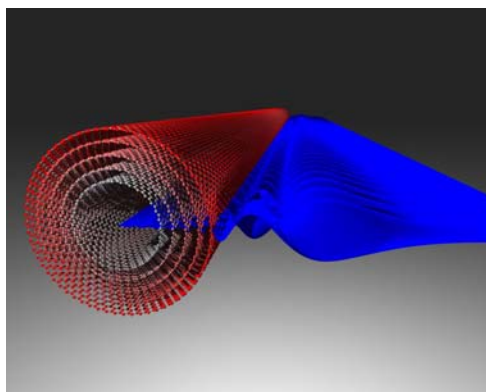


NANO HOUR

Wednesday, March 7, 2007
3:00 PM
Beckman Institute - Room 3269

Formation of Tubular Electronic States Around Carbon Nanotubes

Mikhail Zamkov – Post Doctoral Researcher, Chemistry Department



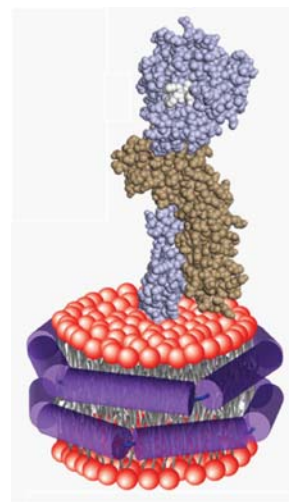
Using two-color photoelectron emission we can populate and subsequently observe the special group of electronic states with wave functions enclosing a carbon nanotube. These cylindrical “electronic rings” constitute a new class of “image” states due to their quantized angular motion. The electron rotation about the axis of the nanotube gives rise to a centrifugal force that virtually detaches the electron charge-cloud from the tube's body. By experiencing the lattice structure parallel to the nanotube's axis these rings can act as powerful scanning probes of nanotube electronic properties.

AND

Understanding Protein-Lipid Interactions through Stabilized Nanoscale Lipid Bilayers

Andy Shaw – Graduate Student, Chemistry Department

Membrane proteins, which make up over 30% of the human proteome, are vital to numerous biochemical processes and human health with the majority of pharmaceuticals targeting this important class of proteins. However, these proteins are difficult to study in vitro due to their poor solubility in aqueous solutions and reduced function when removed from the lipid bilayer environment of the cellular membrane. To overcome these difficulties, a membrane-like disc containing a soluble, stable lipid bilayer has been developed. This system, referred to as “Nanodiscs,” has been used to stabilize a variety of membrane proteins and shown great potential in studying their functions. This presentation will focus on characterizations of Nanodiscs of varying size and composition. Recent experiments which have utilized Nanodiscs of defined lipid composition to yield new insight into the interactions of blood coagulation factors with the cellular membrane will be presented.



Coffee and cookies will be served.
<http://nanohour.beckman.uiuc.edu>