Departmental Colloquium

“Thirty Meter Telescope: The Next Generation of Ground Based Optical/Infra Red Observatory”
3:30 PM Thursday, March 19, 2015
435 Nicholson Hall

Warren Skidmore
Thirty Meter Telescope Observatory Corporation

HOST: Robert Hynes

- Refreshments served at 3:10 PM in 232 (Library) Nicholson Hall

I will discuss some of the observational capabilities that the Thirty Meter Telescope will provide and some of the areas of study that will benefit from the TMT's capabilities. I'll describe how the telescope design was developed to support a broad range of observing capabilities and how the observatory is being engineered. Finally I'll describe the avenues through which astronomers can actively participate in the project; in the planning for a potential TMT/NSF partnership, preparing for the development of 2nd generation instruments and directing the scientific aims for the observatory.

Special Seminar

Louisiana Consortium for Neutron Scattering

“Studies of Polyelectrolyte Multilayers with the SNS Liquids Reflectometer”

Monday, March 23, 2015, 3:00 – 4:00pm
1008B Digital Media Center, LSU

John Ankner
Oak Ridge National Laboratory

Saturday Science:

Saturday, March 21, 2015

Saturday Science at LSU
Nicholson 130
10 AM

Dr. Ying Wang, Mechanical Engineering
"Novel nanomaterials for advanced energy conversion and storage"

Publications:

Monday, March 23  
3:00-4:00pm  
1008B Digital Media Center  
Louisiana State University  

**Studies of Polyelectrolyte Multilayers with the SNS Liquids Reflectometer**  

Layer-by-Layer (LbL) assembly performed via alternating adsorption of water-soluble polymers at surfaces enables fabrication of films on almost any substrate, with nano-scale control over film composition, structure, and properties. Neutron reflectivity offers a window into the internal structure of Layer-by-Layer grown films. The dependence of neutron refractive index on nuclear rather than electronic scattering allows one to substitute deuterons (2H) for protons (1H) to highlight features of interest within a film. Deuterated precursors are available for a wide range of polyelectrolytes and the polymers themselves for commonly used species, such as poly(styrene sulfonate) and poly(methacrylic acid). By imposing rigorous mass balance and employing simplified block models, one can reduce the number of model parameters and extract meaningful structural information from reflectivity data. We will describe how to construct and constrain multilayer models and present application of these methods to various LbL structural problems, such as environmental response, the dependence of film quality on deposition parameters, adsorption of protein layers, asymmetric and salt-mediated diffusion, and the formation, structure, and pH-response of hydrogels.