

# Colloquium Notice

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## *Scanning probe microscopy in biomedical research*

Scanning Probe Microscopy is a big and growing family of many nanoscale characterization methods which are widely used in many areas including physics, chemistry, biology, biomedical and nano-technology. One of them, Atomic force microscopy (AFM) is a well-known scanning probe microscopy technique which allows imaging and nanomanipulation on a single molecule and nm scale. In this talk I will give introduction to several scanning probe microscopy methods, and focus on Atomic Force Microscopy (AFM), and Kelvin Probe Force Microscopy (KPFM), which we use in my laboratory to investigate complex structure and function of lipid films and lipid-protein interactions. Molecular arrangement of lipids and proteins in monolayer or membrane gives rise to complex film morphology as well as an electrical surface potential or non-uniform charge distribution, which rule many biological processes and diseases. I will give a review of current research projects in my laboratory, such as a) study of structure and function of lung surfactant and how these are affected by cholesterol; b) investigation of amyloid fibril formation which is associated with more than 20 neurodegenerative diseases for which no cure is currently available, for example Alzheimer's and Parkinson's to name a few. We focus on elucidating the role of lipid membrane surfaces in amyloid fibril formation.

Thursday

**October 22, 2009**

Starts at **4:00 pm**

Physics Conference Room, SB B326