Physics
AT QUEENS COLLEGE

Colloquium Notice

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Solvent dynamics: Governing structure in biological systems

Biological systems consist of a complex, heterogeneous mixture of proteins, lipids, carbohydrates, water, and a myriad of other small molecules. Structural biologists have long focused on the relationship between protein structure and function in investigating biological processes. Few recognize the essential role the solvent plays in dictating structural transitions and self-assembly. In this talk we discuss two experiments that exploit solvent interactions and organization in order to manipulate protein structure and self-assembly at the molecular level. In the first part of the talk we will discuss fluorination of proteins as a tool to enhance protein stability through alterations in hydration dynamics. In the second part of the talk we will discuss the tools being developed at Wesleyan to investigate lipid phase transitions. Lipid phase stability and clustering are essential to the recognition, insertion, and self-assembly of proteins within the lipid membrane. Using our technique we can resolve these highly dynamic processes to unambiguously identify orientation and dynamic freedom within our membrane model with the highest available temporal resolution, and without the restriction imposed by a supporting substrate.

Monday
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Starts at 12:15 PM
Physics Conference Room, SB B326