

CHEMICAL ENGINEERING

SEMINAR SERIES



AMISH PATEL

Monday, December 03, 2018

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Characterizing Protein Hydration to Inform its Interactions

ABSTRACT: The extent to which the inherent structure of water is perturbed by complex molecules, such as proteins, peptides, and surfactants, influences the thermodynamics and the kinetics of their assembly. However, accurately characterizing this perturbation is challenging, because the manner in which proteins disrupt the inherent structure of water depends not only on the chemistry of the underlying protein surface, but also on the precise topographical and chemical pattern displayed by the protein. Nevertheless, understanding the role of water in protein interactions is essential to understanding, predicting, and eventually controlling such interactions, which play a crucial role in the development of therapeutic strategies and in protein separations.

BIOGRAPHY: Amish received his Bachelors in Chemical Engineering from the Indian Institute of Technology ,Äi Bombay in 2001 and his doctorate in Chemical Engineering, from the University of California ,Äi Berkeley in 2007. His research strives to achieve a molecular-level understanding of solvation and transport in aqueous and polymeric systems, with applications ranging from predicting protein interactions to designing advanced materials for water purification and renewable energy. To study these biological, nanoscopic, and polymeric systems, the Patel group uses statistical mechanics and liquid state theory in conjunction with the development and use of novel molecular simulation techniques. For his research and teaching, Amish has received an OpenEye Outstanding Junior Faculty Award from the Computers in Chemistry division of the American Chemical Society, an NSF CAREER award, a Sloan Research Fellowship in Chemistry, and a Distinguished Teaching Award by Penn,Äs AIChE Student Chapter.

RECEPTION 3:30 • LECTURE 4:00 – 5:00
PHYSICS ASTRONOMY BLDG. PAA A 110



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