THE UNIVERSITY OF HONG KONG
COLLOQUIUM SERIES IN PHYSICS DEPARTMENT

Investigating Biomembrane Systems with a Computational Microscope

Prof. Yi Wang

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Time: Monday, October 21, 2013, 4:30 p.m.
Venue: Lecture Theatre T6, Meng Wah Complex, HKU

Abstract:
Molecular dynamics (MD) is a type of numerical simulation based on the rules of classical and statistical mechanics. Through the integration of Newtonian equations of motion, we aim to understand the dynamics and function of biomolecules, such as proteins, DNAs and lipids. Compared with experimental techniques, MD provides an extremely high spatial resolution and, hence, has been referred to as the 'computational microscope'. In this talk, I will give a brief introduction of the application of MD on biomolecular simulations and then focus on our recent work on two biomembrane systems --- the first system consists of nanodiamonds that spontaneously penetrate the endosomal membrane, and the second involves antimicrobial peptides that induce pore formation in bacterial membranes. The challenge in modeling both systems and our recent progress will be discussed.

About the Speaker:

Prof. Wang graduated from Zhejiang University in 2003 and received her PhD in biophysics from the University of Illinois at Urbana-Champaign in 2008. She then worked as a postdoctoral researcher in the lab of Prof. J Andrew McCammon at University of California, San Diego. Prof. Wang joined the Physics Department of Chinese University of Hong Kong in 2012. Her research is focused on developing and applying computational methods to study biological systems.

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Physics colloquium series is organized to introduce cutting edge researches and new development in physics, designed to be *suitable to graduate and undergraduate students, and also to scientists working on different fields*. Each colloquium will generally start with an extensive introduction of the background of the field, followed by forefront research topics and results. The colloquium will serve as an education forum for students and laymen alike, and also serve as a platform for exchange and update their knowledge of various branches of physics among academic staff members.

Coffee and tea will be served 20 minutes prior to the colloquium

Anyone interested is welcome to attend

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