UIC COLLOQUIUM
Department of Physics

Wednesday, December 5, 2018

"Understanding Membrane Protein Folding Using Single-Molecule Force Techniques"

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In this seminar, I will discuss a new single-molecule method that I developed to study membrane protein folding, one application of the technique to an extremely complex membrane protein, and delicate lipid effects on the folding[1-3]. Membrane proteins carry out many vital tasks across the cell membrane and they are the largest class of drug targets. One of great challenges in membrane protein biophysics is to learn how they fold into their structures (the membrane protein folding problem). Protein misfolding is the cause of many genetic diseases, so fundamental folding studies will have broad medical impact. However, most of the effort to understand the folding has bypassed membrane proteins because of demanding technical challenges. By developing and using single-molecule force techniques, I have been seeking to understand how membrane proteins fold and their potential biophysical/biological implications. Single-molecule methods are particularly useful in membrane protein folding studies because they can obviate the problem of membrane protein aggregation. Understanding (mis)folding is a key to designing therapeutic strategies to combat membrane protein folding diseases, so I will climb this high mountain, ultimately contributing to medicine as well as the fundamental folding physics.

The Department of Physics Colloquium will be held at 3pm in 238 SES.

**Refreshments will be served from 2:45 pm to 3pm outside of room 238 SES*