

BiophysTO Lunchtime Seminar Series **Date** Friday, October 6, 2017 11:00 - 12:00

Location

CCBR Red Room University of Toronto

Ken Dill

Laufer Center for Physical & Quantitative Biology, Stony Brook University

The Amazing Protein Molecule: 20,000 different biological machines, all in one piece of string.



Billions of years ago, nature invented one of the most important gizmos on earth: the protein molecule. At the miniature scale, a protein is stringy like a necklace, and it contains information by virtue of the order in which the necklace pearls (amino acids) are strung together. Different protein molecules `fold' into different compact 'ball-of -string' shapes. And, each different shape performs different biological functions -- breaking down food, converting it to energy, driving the motions in our muscles, converting light to electrical signals in our eyes, etc. Our understanding of the code of protein information -> shape -> function began nearly 60 years ago with the advent of structural biology and the protein folding problem. I will give some history of our understanding of these amazing gizmos, and describe how we use it in today's computer-based drug discovery.

Host: Dr. Hue Sun Chan



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