PHYSICS AND ASTRONOMY
COLLOQUIUM

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"Probing nature's nano-machines with "next generation" single-molecule techniques"

Abstract

Scientists have come to view the living cell as a kind of "factory", where specialized machinery carries out essential tasks at specific places and times. These molecular nano-machines perform tasks as diverse as maintaining the cell's genome, transporting cargo around the cell, and moving the cells themselves. Using tools at the interface between physics and biology, researchers are now able to study these machines one at a time. These single-molecule tools have revolutionized our understanding of molecular biology, providing new insights on the structural, mechanical, and dynamic properties of biomolecules. Despite these advances, the information extracted from single-molecule measurements is often limited. In this talk, I will focus on our work developing the next generation of single-molecule techniques to overcome these limitations, providing unprecedented access into the relationship between protein structure and function. I will discuss how these new approaches are helping us understand the cellular machinery that maintains and repairs the genome.

Wednesday, October 10, 2018

3:30 p.m.

Bob Wright Centre Building

Room A104