



BioSystems Science and Engineering

SEMINAR

4:00 pm, October 27, 2017
MRDG Seminar Hall

Nature's Nano-Machines: Molecular Motors and Their Recognition

Prof. Steven Gross
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Cells are surprisingly like cities, with a road network of polymers (microtubules) used to transport cargoes (vesicles) from one location to another. This makes possible exquisite utilization of the different chemical environments within different membrane-bound subcompartments, allowing a variety of controlled synthesis and degradation pathways, including energy production, destruction of cellular invaders, delivery of critical components to specific locations for modification of cellular functions, etc. In this talk I will start with an overview of these processes, and then discuss the challenges involved in understanding the motors function from a physics point of view, that is, what we know from single-molecule studies, and the interesting challenge associated with moving beyond single molecules. While much of my discussion of specifics will focus on the motor dynein, the concepts are quite general, and relate to kinesin-family motors as well.

About the Speaker

Prof. Steven Gross is a physicist by training, having completed his Bachelors in Physics from University of Chicago in 1987, followed by a Ph.D. in Physics from the University of Texas, Austin in 1995. As a postdoctoral fellow in Princeton, Prof. Gross moved to the realm of Biophysics, and has been doing cross-disciplinary research ever since. He is currently a Professor at the Department of Developmental and Cell Biology, University of California Irvine.