



**CLARK UNIVERSITY  
DEPARTMENT OF PHYSICS  
COLLOQUIUM**

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“From single-cell variability and correlations  
across lineages to the population growth”

**ABSTRACT:** Genetically identical microbial cells often display diverse phenotypes. Stochasticity at the single-cell level contributes significantly to this phenotypic variability, and cells utilize a variety of mechanisms to regulate noise. In turn, these control mechanisms lead to correlations in various cellular traits across the lineage tree. I will present recent models we developed for understanding cellular homeostasis, with special focus on protein levels and cell size. These models allow us to characterize single-cell variability, including the emerging correlations and distributions. I will discuss the implications of stochasticity on the population growth. In contrast to the dogma, we find that variability may be detrimental to the population growth, suggesting that evolution would tend to suppress it.

Wednesday, September 26, 2018

1:00 pm - Room S-122

Sackler Sciences Center