

Physics Colloquium

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Survival of the diverse: Linking cellular heterogeneity to stress resistance

Friday, April 21, 2017

2:30 pm—3:30 pm

210 Robeson Hall

Cell populations adapt to environmental changes, causing the emergence of drug resistance and the evolution of cell populations in cancer. These processes often start at the level of molecules, but then alter the diversity of cells across cell populations. How can molecules set the properties of cells and cell populations to affect their survival and evolution? Answering this question is central to understanding multi-scale evolutionary processes. We rely on computational modeling and experiments to address this problem, partly by designing synthetic gene circuits that control nongenetic heterogeneity across eukaryotic cell populations. I will discuss two different scenarios of how synthetically imposed or natural cellular heterogeneity might affect survival and possibly facilitate the evolution of cell populations.