**Structure and dynamics, control and evolution**

Biological function emerges from interactions among many constituent parts. How can we identify the most microscopic components from their encoding in the genome? How does evolution shape these components and their interactions? Are there feedback mechanisms from macroscopic function back to the microscopic dynamics which guarantee functional outcomes? Are there notions of efficiency or optimality that select the parameters of these complex interaction networks? This symposium will explore theoretical approaches to these exciting questions across many scales, from individual RNA molecules to the spatial structure of populations, and from bacteria to brains.

**Thursday 1 February 2018**

**Skylight Room (9100)**

9:30 AM Coffee and bagels

10:00 AM **Efficient spike-based computations and expansive representations**
   Alireza Alemi, University of California at Davis

11:30 AM Coffee

12:00 PM **Adaptive division control in bacterial cells**
   Shiladitya Banerjee, University College London

1:30 PM Lunch

2:30 PM **Structural RNAs and how to find them**
   Elena Rivas, Harvard University

4:00 PM Coffee

4:30 PM **Evolution in spatially-structured populations**
   Daniel Weissman, Emory University

Sponsored by the Doctoral Program in Biology, the Initiative for the Theoretical Sciences, and the Center for the Physics of Biological Function.

The CUNY Graduate Center is located at 365 Fifth Avenue, between 34th and 35th Streets, in Manhattan.