Sunday, October 23rd

3:00 pm Check-in

6:00 pm Reception *(Lobby)*

7:00 pm Dinner

8:00 pm **Keynote Talk: Lucy Shapiro**, Stanford University
Dynamic 3-D regulatory circuitry controls bacterial cell cycle progression

9:00 pm Refreshements available at Bob's Pub

NOTE:
Meals are in the **Dining Room**
Talks are in the **Seminar Room**
Posters are in the **Lobby**

Monday, October 24th

7:30 am Breakfast *(service ends at 8:45 am)*

9:00 am **Session 2: Next Generation Sequencing**
Chair: Sunney Xie

9:00 am **Sunney Xie**, Harvard University
Life at the single molecule level: Imaging and sequencing single molecules in individual cells

9:30 am **Jonathan Weissman**, HHMI/University of California, San Francisco
Monitoring protein synthesis one codon at a time through ribosome profiling

10:00 am **Stephen Quake**, HHMI/Stanford University
Single molecule, single cell genome sequencing

10:30 am Break

11:00 am **Session 3: Signaling Dynamics**
Chair: Yann Chemla

11:00 am **Yann Chemla**, University of Illinois at Urbana-Champaign
Chemotactic adaptation kinetics of individual E. coli cells

11:30 am **Erin O'Shea**, HHMI/Harvard University
Encoding and decoding signaling information in transcription factor translocation dynamics

12:00 pm **Jay T. Groves**, HHMI/University of California, Berkeley
Molecule-by-molecule mapping of the T cell receptor signaling input-response function

12:30 pm Lunch

2:00 pm **Session 4: Transcriptional dynamics**
Chair: Daniel Larson

2:00 pm **Ido Golding**, Baylor College of Medicine
Universal properties of the transcriptional time-series

2:30 pm	**Daniel R. Larson**, National Cancer Institute *Measurement and modulation of nuclear receptor-mediated transcription in single cells using light*
3:00 pm	**Philippe Cluzel**, Harvard University *From stochastic to deterministic behavior: How bacteria respond to multiple-drug exposure*
3:30pm	Break
4:00 pm	**General Discussion on Challenges**
5:30 pm	Poster Reception
7:00 pm	Dinner
8:00 pm	**Keynote Talk: Howard C. Berg**, Harvard University *Marvels of the flagellar rotary motor*
9:00 pm	Refreshments available at Bob's Pub

Tuesday, October 25th

7:30 am Breakfast *(service ends at 8:45 am)*

9:00 am **Session 5: Regulatory Networks**
Chair: Aaron Dinner

9:00 am **Harley McAdams**, Stanford School of Medicine
A small highly interconnected and highly conserved regulatory circuit orchestrates multiple bacterial species

9:30 am **Hong Qian**, University of Washington
Cellular biology in terms of fluctuating biochemical dynamics: Emergent properties, isogenetic variations and chemical system inheritability

10:00 am **Aaron Dinner**, University of Chicago
How driving systems out of equilibrium can reveal features of molecular and cellular systems

10:30 am Break

11:00 am **Session 6: Single Molecule Study**
Chair: Taekjip Ha

11:00 am **Taekjip Ha**, HHMI/University of Illinois at Urbana-Champaign
Probing cellular protein complexes via single molecule pull-down

11:30 am **Carlos Bustamante**, HHMI/University of California, Berkeley
Grabbing the cat by the tail: Discrete steps by a DNA packaging motor and the inter-subunit coordination in a ring-ATPase

12:00 pm **Jeff Gelles**, Brandeis University
Elucidating mechanisms of transcription regulation with multi-wavelength single-molecule fluorescence

12:30 pm Lunch

1:00 pm Tour *(optional – meet at reception)*

2:15 pm	**Session 7: Single molecules in development and disease** **Chair: Sua Myong**
2:15 pm	**Alexander van Oudenaarden**, Massachusetts Institute of Technology *Controlling expression fluctuations during development*
2:45 pm	**Sua Myong**, University of Illinois at Urbana-Champaign *Single molecule views of antiviral signaling*
3:15 pm	**Thomas Gregor**, Princeton University *Noise and precision of transcriptional regulation in early fly development*
3:30 pm	Break
4:00 pm	**General Discussion on Opportunities**
5:30 pm	Poster Reception
7:00 pm	Dinner
8:00 pm	Refreshments available at Bob's Pub

Wednesday, October 26th

7:30 am Breakfast *(service ends at 8:45 am)*

9:00 am **Session 8: Transcriptional Regulation**
Chair: Arjun Raj

9:00 am **Arjun Raj**, University of Pennsylvania
A nuclear map of transcriptional activity

9:30 am **Jie Xiao**, Johns Hopkins University
Stochastic properties of transcription factor expression revealed by single-molecule noise analysis

10:00 am **Johan Elf**, Uppsala University
Measuring transcription factor sliding distances in living cells

10:30 am Break

11:00 am **Session 9: Super-Resolution Imaging**
Chair: Long Cai

11:00 am **W.E. Moerner**, Stanford University
Single fluorescent molecules as nano-illuminators for biological structure and function in cells

11:30 am **Xiaowei Zhuang**, HHMI/Harvard University
Technological advances and applications of super-resolution STORM imaging

12:00 pm **Long Cai**, California Institute of Technology
Multiplex mRNA detection in single cells by super-resolution barcoding

12:30 pm Closing Remarks

12:35 pm Lunch and Departure *(To-go boxes available in servery for those on first shuttle)*

1:00 pm First shuttle to Dulles
1:45 pm Second shuttle to Dulles
2:30 pm Last shuttle to Dulles