

Sunday, October 21st

- 3:00 pm Check-in
- 6:00 pm Reception (*Lobby*)
- 7:00 pm Dinner
- 8:00 pm Opening Remarks - Gerry Rubin
- 8:05 pm Plenary Talks**
- 8:05 pm **Philipp J. Keller**, Janelia Farm Research Campus/HHMI
Reconstructing neural development
- 8:35 pm **Eric Betzig**, Janelia Farm Research Campus/HHMI
Improving the spatiotemporal resolution of optical microscopy
- 9:05 pm Refreshments 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 22nd

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 1: Correlated Light and EM Based Methods**
Chair: Winfried Denk
- 9:00 am **Chairperson's Introduction (10 min)**
- 9:10 am **Jeff W. Lichtman**, Harvard University
Axonal Projection Imaging
- 9:25 am **Kristina D. Micheva**, Stanford University
Conjugate immunofluorescence and scanning electron microscopy of mouse cortical synapses using array tomography
- 9:40 am **Albert Cardona**, Janelia Farm Research Campus/HHMI
Web-based concurrent cooperative distributed neural circuit reconstruction with CATMAID
- 9:55 am **Stephen J. Smith**, Stanford University School of Medicine
The \$1,000 connectome
- 10:10 am **Roger Y. Tsien**, HHMI/University of California, San Diego
Optogenetic excitation of deep neurons through the intact skull with red light and inhibition of synaptic release with blue light
- 10:25 am Break
- 11:10 am Session 2: Correlated Light and EM Methods (continued)**
- 11:10 am **Randy M. Bruno**, Columbia University
Light-based mapping of synapses across entire dendritic arbors with validation by high-throughput electron microscopy
- 11:25 am **Xiaowei Zhuang**, HHMI/Harvard University
Super-resolution fluorescence imaging of neurons and synapses in the brain
- 11:40 am **Stephan J. Sigrist**, Freie Universität Berlin
A rational approach to synaptic diversity
- 11:55 am **Vadim Pinskiy**, Cold Spring Harbor Laboratory
Development of a high-throughput pipeline for neurohistology

- 12:10 pm** **Discussion on Correlated Light and EM Methods**
Leader: Stephen Smith
- 12:45 pm Lunch
- 2:30 pm** **Session 3: Informatics and Atlases**
Chair: Giorgio Ascoli
- 2:30 pm **Chairperson's Introduction (10 min)**
- 2:40 pm **Charles F. Stevens**, Salk Institute for Biological Studies
Anti-maps in the brain
- 2:55 pm **Giorgio A. Ascoli**, George Mason University
Reconstructing the hippocampus from potential synapses to synaptic potentials
- 3:10 pm **Partha P. Mitra**, Cold Spring Harbor Laboratory
Neuronal tractography in whole mouse brains
- 3:25 pm **Eugene W. Myers**, Max Planck Institute of Molecular Cell Biology and Genetics
Extracting and modeling individual neurons
- 3:40 pm **Hanchuan Peng**, Janelia Farm Research Campus/HHMI
High-throughput 3D neuron reconstruction
- 3:55 pm Break
- 4:35 pm** **Session 4: Informatics and Atlases (continued)**
- 4:35 pm **Badri Roysam**, University of Houston
Quantitative arbor analytics
- 4:50 pm **Atsushi Miyawaki**, RIKEN Brain Science Institute
Three-dimensional reconstruction of neuronal structures in optically cleared mouse brains
- 5:05 pm **Hong-Wei Dong**, University of California, Los Angeles
The iConnectome: A high-throughput approach for characterizing mouse neuronal networks
- 5:20 pm **Hongkui Zeng**, Allen Institute for Brain Science
Creating the Allen Mouse Brain connectivity atlas
- 5:35 pm **Maryann E. Martone**, University of California, San Diego
There will always be more than one: Integration of distributed connectivity resources

Light-Based Approaches to Neural Circuit Reconstruction

5:50 pm **Discussion on Informatics and Atlases**
Leader: Gene Myers

6:25 pm Reception

7:15 pm Dinner

8:15 pm Refreshments available at Bob's Pub

Tuesday, October 23rd

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 5: Correlated Light and Function Based Methods**
Chair: Tim Holy
- 9:00 am **Chairperson's Introduction**
- 9:10 am **Loren Looger**, Janelia Farm Research Campus/HHMI
Advances in fluorescence imaging reagents for neural circuit ANALYSIS
- 9:25 am **Timothy E. Holy**, Washington University School of Medicine
Large-scale recording and physiological tagging
- 9:40 am **Pavel Osten**, Cold Spring Harbor Laboratory
Mapping behavior-activated mouse brain circuits by STP tomography
- 9:55 am **Masateru Hiramoto**, The Scripps Research Institute
Distance map: A versatile method to quantify spatiotemporal neurite dynamics
- 10:10 am Break
- 10:55 am Session 6: Correlated Light and Function Based Methods (continued)**
- 10:55 am **Mac Hooks**, Janelia Farm Research Campus/HHMI
Optical mapping of long-range circuits in the mouse sensorimotor system
- 11:10 am **Jason N. D. Kerr**, Max Planck Institute for Biological Cybernetics
Imaging active neuronal circuits in the freely moving animal: Tracking what they see from the eye to the cortex
- 11:25 am Discussion on Correlated Light and Function Based Methods**
Leader: Loren Looger
- 12:15 pm Lunch
- 1:00 pm Tour (*optional – meet at reception*)

- 2:00 pm** **Session 7: Genetics I**
Chair: Barry Dickson
- 2:00 pm **Chairperson's Introduction (10 min)**
- 2:10 pm **Gerald M. Rubin**, Janelia Farm Research Campus/HHMI
Building a library of GAL4 drivers for individual cell types in the Drosophila brain
- 2:25 pm **Barry Dickson**, Research Institute of Molecular Pathology, Vienna
Cellular resolution analysis of neural circuits in the Drosophila brain
- 2:40 pm **Larry Zipursky**, HHMI/University of California, Los Angeles
A genetic approach to single-cell resolution of synapses at the light microscope level in the fly CNS
- 2:55 pm **Casey J. Guenther**, Stanford University
Genetic access to neural populations defined by immediate early gene expression
- 3:10 pm **James W. Truman**, Janelia Farm Research Campus/HHMI
The use of lineages to define behavioral circuits in Drosophila.
- 3:25 pm **Tzumin Lee**, Janelia Farm Research Campus/HHMI
Reconstructing Drosophila central brain by cell lineage analysis
- 3:40 pm Break
- 4:20 pm** **Session 8: Genetics I (continued)**
- 4:20 pm **Jean Livet**, Institut de la Vision
Approaches for circuit labeling and tracing with Brainbow
- 4:35 pm **Aljoscha Nern**, Janelia Farm Research Campus/HHMI
Genetic strategies for large-scale single cell labeling and their application to the cellular neuroanatomy of the fly optic lobes
- 4:50 pm **Rachel O. Wong**, University of Washington
Circuit assembly in the vertebrate retina
- 5:05 pm **Joshua Sanes**, Harvard University
Mapping retinal circuits
- 5:20 pm** **Discussion on Genetics**
Leader: Rachel Wong

Light-Based Approaches to Neural Circuit Reconstruction

- 6:00 pm Reception
- 7:00 pm Dinner
- 8:00 pm Refreshments available at Bob's Pub

Wednesday, October 24th

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 9: Genetics II**
Chair: Hollis Cline
- 9:00 am **Chairperson's Introduction (10 min)**
- 9:10 am **Josh Huang**, Cold Spring Harbor Laboratory
Genetic dissection of GABAergic circuits in the cerebral cortex
- 9:25 am **Hollis Cline**, The Scripps Research Institute
*Distinct experience-dependent structural plasticity in GABAergic and glutamatergic neurons in the tectum of *Xenopus laevis* tadpoles*
- 9:40 am **David C. Lyon**, University of California, Irvine
Selectively labeling the inputs to inhibitory or excitatory cortical cell-types using viral vectors
- 9:55 am **Ed Callaway**, Salk Institute for Biological Studies
Technical considerations in using glycoprotein-deleted rabies viruses for neural circuit tracing
- 10:10 am Break
- 10:45 am Closing Discussion**
Chair: Gerry Rubin
- 11:30 am Lunch and Departure (*To-go boxes available from server for those on first shuttle*)
- 12:00 pm First shuttle to Dulles
1:00 pm Second shuttle to Dulles
2:00 pm Last shuttle to Dulles