

Sunday, September 11th

- 3:00 pm Check-in
- 6:00 pm Reception (*Lobby*)
- 7:00 pm Dinner
- 8:00 pm Refreshments available at Bob's Pub

Monday, September 12th

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

9:00 am Session 1: Early results I
Chair: Winfried Denk

9:00 am **Rainer W. Friedrich**, Friedrich Miescher Institute for Biomedical Research
Analysis of activity and connectivity patterns in the zebrafish olfactory system

9:25 am **Kevin L. Briggman**, National Institute of Neurological Disorders and Stroke
Wiring specificity in the direction-selectivity circuit of the retina

9:50 am **Albert Cardona**, University of Zurich and ETH Zurich
TrakEM2 and CATMAID software for neural circuit reconstruction from serial section EM

10:15 am **Shin-Ya Takemura**, Janelia Farm Research Campus/HHMI
Circuit reconstruction in the fly's medulla column

10:40 am Break

11:10 am Session 2: Early results II

11:10 am **Ian A. Meinertzhagen**, Dalhousie University
*The connectome of the larval central nervous system (CNS) of *Ciona intestinalis**

11:35 am **Scott W. Emmons**, Albert Einstein College of Medicine
Nematode connectomics

12:00 pm **Davi Bock**, Janelia Farm Research Campus/HHMI
Toward reconstruction of physiologically characterized neuronal circuits

12:25 pm Panel Discussion

1:00 pm Lunch

2:15 pm Session 3: Imaging technology and tissue preparation I
Chair: Stephen Smith

2:15 pm **Kenneth J. Hayworth**, Harvard University
Lossless thick sectioning of plastic-embedded brain tissue to enable parallelizing of SBFSEM and FIBSEM imaging

- 2:40 pm **Harald F. Hess**, Janelia Farm Research Campus/HHMI
FIB-SEM for high resolution 3D imaging
- 3:05 pm **Graham Knott**, Ecole Polytechnique Federale de Lausanne (EPFL)
How the brain ultrastructure is altered by conventional EM preparation techniques
- 3:30 pm Break
- 4:00 pm Session 4: Imaging technology and tissue preparation II**
- 4:00 pm **Arnd Roth**, University College London
Large-volume three-dimensional scanning electron microscopy of neural circuits using focused ion beam milling
- 4:25 pm **Mark H. Ellisman**, University of California, San Diego
Advancing methods for labeling, staining, imaging and reconstructing large brain tissue volumes at high resolution
- 4:50 pm **Pascal Anger**, Carl Zeiss SMT GmbH
High throughput, large area imaging by Multi-Beam Scanning Electron Microscopy
- 5:15 pm Panel Discussion
- 5:45 pm Poster Reception
- 7:00 pm Dinner
- 8:00 pm Science speed dating! (Lobby)**
- 9:15 pm Refreshments available at Bob's Pub

Tuesday, September 13th

- 7:30 am Breakfast (*service ends at 8:45 am*)
- 9:00 am Session 5: Progress in segmentation I**
Chair: Mark Ellisman
- 9:00 am **Fred A. Hamprecht**, University of Heidelberg
Interactive machine learning and segmentation for the neurosciences
- 9:25 am **Tolga Tasdizen**, University of Utah
Detection of neuron membranes in electron microscopy images using multi-scale context and radon-like features
- 9:50 am **Viren Jain**, Janelia Farm Research Campus/HHMI
Computationally guided proofreading for EM reconstruction
- 10:15 am Break
- 10:45 am Session 6: Progress in segmentation II and machine vision**
- 10:45 am **Tao Hu**, Janelia Farm Research Campus/HHMI
Reconstruction of brain circuits using computational super-resolution
- 11:10 am **Louis K. Scheffer**, Janelia Farm Research Campus/HHMI
Registration of tilt images for super resolution
- 11:35 am **Moritz Helmstaedter**, Max Planck Institute for Medical Research
Dense reconstruction of bipolar and ganglion cells in the IPL of mouse retina
- 12:00 pm **Jianbo Shi**, University of Pennsylvania
Attribute flow for discriminative image warping
- 12:25 pm Panel Discussion
- 1:00 pm Lunch
- 1:45 pm Tour (*optional – meet at reception*)
- 3:00 pm Session 7: What are connectomes good for?**
Chair: Kristen Harris
- 3:00 pm **Sebastian Seung**, HHMI/Massachusetts Institute of Technology
Multiscale convolutional networks

- 3:25 pm **Shaul Druckmann**, Janelia Farm Research Campus/HHMI
Structure-function relationships in theoretical investigations of neuronal circuits
- 3:50 pm **Jeff W. Lichtman**, Harvard University
Rapid methodologies for complete reconstruction of neural circuits
- 4:15 pm Panel Discussion
- 4:45 pm Poster Reception
- 6:30 pm Dinner
- 7:30 pm Session 8: And now for something completely different...**
Chair: Jeff Lichtman
- 7:30 pm **Tony Zador**, Cold Spring Harbor Laboratory
Sequencing the connectome
- 7:55 pm **Clay Reid**, Harvard Medical School
Introduction to the discussion topic
- 8:10 pm Discussion:** *How high throughput activity measurements might be used instead to understand the brain at the cellular level?*
- 9:10 pm Refreshments available at Bob's Pub

Wednesday, September 14th

- 7:30 am Breakfast (*service ends at 8:45 am*)
- 9:00 am Session 9: New technology for new science**
Chair: Mitya Chklovskii
- 9:00 am **Kristen Harris**, University of Texas, Austin
Improvement of serial EM methods to investigate structural synaptic scaling
- 9:25 am **David H. Hall**, Albert Einstein College of Medicine
*Approaching the L1 Connectome in *C. elegans**
- 9:50 am **Stephen J. Smith**, Stanford University School of Medicine
Function-guided dissection and precise cutter navigation for high-resolution circuit reconstruction projects
- 10:15 am Break
- 10:45 am Panel Discussion
- 11:15 am General Discussion and Closing Remarks
- 12:30 pm Lunch and Departure (To-go boxes available from server for those on first shuttle)
- 12:45 pm First shuttle to Dulles
1:30 pm Second shuttle to Dulles
2:15 pm Last shuttle to Dulles