

Sunday, March 30th

- 3:00 pm Check-in
- 6:00 pm Reception (*Lobby*)
- 7:00 pm Dinner
- 8:00 pm Keynote Lecture**
Karel Svoboda, Janelia Farm Research Campus/HHMI
Imaging neurons to understand the brain
- 9:00 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, March 31st

All talks are 20 minutes,
plus 10 minutes for Q&A

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 1: Changes in network structure and function after experience-dependent plasticity and learning - Part 1**
Chair: Carlos Portera-Cailliau
- 9:00 am **Yi Zuo**, University of California, Santa Cruz
Synapse reorganization in formation of motor memory
- 9:30 am **Takaki Komiyama**, University of California, San Diego
Imaging neural ensembles during learning
- 10:00 am **Patrick Kanold**, University of Maryland, College Park
Micro-organization and plasticity of the primary auditory cortex
- 10:30 am Break
- 11:00 am Session 2: Changes in network structure and function after experience-dependent plasticity and learning - Part 2**
Chair: Wenbiao Gan
- 11:00 am **Aaron W. McGee**, Children's Hospital Los Angeles, University of Southern California School of Medicine
Regulation of anatomical and functional cortical plasticity by Nogo Receptor 1 (NgR1)
- 11:30 am **Anthony Holtmaat**, University of Geneva
Sensory-evoked LTP in the mouse barrel cortex
- 12:00 pm Lunch (*service ends at 1pm*)
- 1:30 pm Session 3: Synaptic plasticity in interneurons**
Chair: Ania Majewska
- 1:30 pm **Tara Keck**, King's College London
Local implementation of homeostatic plasticity in excitatory neurons
- 2:00 pm **Elly Nedivi**, Massachusetts Institute of Technology
In vivo imaging of coordinated excitatory and inhibitory synaptic dynamics on pyramidal cell dendrites

Imaging Synapse Structure and Function in the Vertebrate Brain

2:30 pm **Christiaan N. Levelt**, Netherlands Institute for Neuroscience
Plasticity of specific inhibitory inputs in the visual cortex

3:00 pm Break

3:30 pm **Breakout Sessions**

A. Linking structural plasticity to functional changes in circuits (*Electron Room*)
Chairs: Carlos Portera-Cailliau and Anthony Holtmaat

B. Imaging more, faster and deeper in vivo (*Axon Room*)
Chairs: Loren Looger and Na Ji

C. Exploring the causal relationship of synaptic plasticity and behavior (*Dendrite Room*)
Chairs: Yi Zuo and David Linden

5:00 pm **Poster Blitz!** (*reconvene in Seminar Room*)

each talk is 5 mins / 3 slides max -- Q&A reserved for poster reception

Alessio Attardo, Stanford University

Claire Cheetham, National Institute of Neurological Disorders and Stroke, NIH

Robert Cudmore, Johns Hopkins School of Medicine

Fred Hamprecht, University of Heidelberg

Yunju Jin, Johns Hopkins University

Lingjie Kong, Janelia Farm Research Campus/HHMI

Kasper Podgorski, University of British Columbia

Kelly Tennant, University of Victoria

5:45 pm Poster Reception

7:15 pm Dinner

8:15 pm Refreshments available at Bob's Pub

Tuesday, April 1st

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 4: Synaptic signaling during plasticity - Part 1**
Chair: Yi Zuo
- 9:00 am **Arthur Konnerth**, Technical University Munich
Calcium spikes in hippocampal neurons in vivo
- 9:30 am **Mark T. Harnett**, Janelia Farm Research Campus/HHMI
Electrical operations of dendritic spines
- 10:00 am **Dinu Florin Albeanu**, Cold Spring Harbor Laboratory
Understanding the roles of cortico-bulbar feedback in encoding odor identity
- 10:30 am Break
- 11:00 am Session 5: Synaptic signaling during plasticity - Part 2**
Chair: Arthur Konnerth
- 11:00 am **Michael Hausser**, University College London
Dendritic computation in vivo
- 11:30 am **Ryohei Yasuda**, Max Planck Florida Institute
Imaging signal transduction in single spines undergoing structural plasticity
- 12:00 pm Lunch (*services ends at 1pm*)
- 1:00 pm Tour (*optional – meet at reception*)
- 2:00 pm Session 6: Non-neuronal signaling during plasticity and learning**
Chair: Elly Nedivi
- 2:00 pm **Ania Majewska**, University of Rochester Medical Center
Microglial contributions to synaptic remodeling during plasticity
- 2:30 pm **Wenbiao Gan**, New York University Langone Medical Center
Microglia promote learning-dependent synapse formation through BDNF
- 3:00 pm **Anna Dunaevsky**, University of Nebraska Medical Center
Structural and functional plasticity of neurons and astrocytes with learning

Imaging Synapse Structure and Function in the Vertebrate Brain

- 3:30 pm Break
- 4:00 pm Session 7: Changes in synaptic structure with diseases**
Chair: Mark Hübener
- 4:00 pm **Carlos Portera-Cailliau**, University of California, Los Angeles
Changes in synapse dynamics during normal brain aging
- 4:30 pm **Shigeo Okabe**, University of Tokyo
Imaging dynamics of postsynaptic molecules and its application in the analysis of neurodevelopmental disorders
- 5:00 pm **Vincenzo De Paola**, Imperial College London
A window on the diseased brain: in vivo imaging of regeneration and neurodegeneration at synaptic resolution
- 5:30 pm Poster Reception
- 7:00 pm Dinner
- 8:00 pm Session 8: Other approaches for circuit dissection**
Chair: Anthony Holtmaat
- 8:00 pm **Mark Hübener**, Max Planck Institute of Neurobiology
Chronic two-photon imaging of transplanted embryonic neurons in the visual cortex
- 8:30 pm **Tim Murphy**, University of British Columbia
Canonical long range circuits in mouse cortex revealed by wide field imaging
- 9:00 pm **Kurt Haas**, University of British Columbia
Simultaneous imaging of structural and functional plasticity in the awake developing brain
- 9:30 pm Refreshments available at Bob's Pub

Wednesday, April 2nd

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 9: Technological innovations for imaging synaptic structure and function - Part 1**
Chair: Tim Murphy
- 9:00 am **Loren Looger**, Janelia Farm Research Campus/HHMI
New tools for imaging and manipulating brain function
- 9:30 am **Na Ji**, Janelia Farm Research Campus/HHMI
Adaptive optics allows diffraction-limited imaging of structure and function deep in the brain in vivo
- 10:00 am **Misha Ahrens**, Janelia Farm Research Campus/HHMI
Neuron-resolution interrogation of whole-brain function in zebrafish
- 10:30 am Break
- 11:00 am Session 10: Technological innovations for imaging synaptic structure and function - Part 2**
Chair: Loren Looger
- 11:00 am **Haruo Kasai**, The University of Tokyo
Labeling and erasure of dendritic spines and motor learning with novel synaptic optogenetic probes in vivo
- 11:30 pm **Forrest C. Collman**, Stanford University School of Medicine
Mapping synapses by conjugate light-electron array tomography
- 12:00 pm Closing Discussion (led by Loren Looger)
- 12:30 pm Lunch and Departure
- 1:00 pm First shuttle to Dulles
2:00 pm Second shuttle to Dulles
3:00 pm Last shuttle to Dulles