

Sunday October 3rd

- 3:00 pm Check-in
- 5:30 pm Reception(Lobby)
- 6:30 pm **The Organizers:** Andrea, Gabe, Nick and Vivek
Introduction to conference format
- 6:45 pm **Keynote speech: Axel Borst**, Max Planck Institute of Neurobiology, Martinsried
Building receptive fields for optic flow based navigation: A simulation study of the fly lobula plate network
- 7:45 pm Outdoor dinner and trading card mixer (Sport Court/Pavilion)
- 9:00 pm Refreshments available at Bob's Pub

Note: Each session will feature a 5-minute introduction, given by one of the chairpersons, to the issues under consideration. This will be followed by a series of short talks: each speaker will give a 5-minute no-slides/whiteboard introduction and 10 minutes discussion of data/results using not more than 5 slides (5 slide-advances allowed!). Each talk will feature 5 minutes of discussion. After a break, there will be 30+ minutes for a panel discussion (audience participation) of the issues brought up by the speakers. All panel discussions will begin with 1-2 min recaps from speakers of what they presented.

Monday October 4th

7:30 am Breakfast

9:00 am Session 1: Rules and principles of sensory processing
Chairs: Vivek Jayaraman, Janelia Farm Research Campus/HHMI
John Tuthill, Janelia Farm Research Campus/HHMI

Rachel I. Wilson, Harvard Medical School
Insights into early sensory processing from a small brain

Michael Wehr, University of Oregon
Non-overlapping sets of synapses drive on-responses and off-responses in auditory cortex

Anthony Leonardo, Janelia Farm Research Campus/HHMI
Guidance laws underlying prey capture in the dragonfly

Ian C. Duguid, University of Edinburgh
Multiple modes of inhibition shape sensory responses in cerebellar granule cells

Matteo Carandini, University College London
Cooperation and competition in visual cortex

10:45 am Break

11:15 am Session 1 panel discussion

12:00 pm Lunch

1:15 pm Session 2: Relating neural connectivity and network motifs to circuit activity patterns and computation

Chairs: Andrea Hasenstaub, The Salk Institute
Davi Bock, Janelia Farm Research Campus/HHMI

Kevin L. Briggman, Max Planck Institute for Medical Research
Correlating retinal function and structure using two-photon laser scanning and serial block-face scanning electron microscopy

Ed Callaway, The Salk Institute
Linking cortical circuits to function at the levels of cell types and single neurons

Florian Engert, Harvard University
Adaptive motor learning in the zebrafish larva

Massimo Scanziani, HHMI/University of California, San Diego
Visualizing individual thalamic inputs onto cortical interneurons

Angus Silver, University College London

Desynchronization of an electrically coupled interneuron network with excitatory synaptic input

- 3:00 pm Break
- 3:15 pm Session 2 panel discussion**
- 4:00 pm Poster reception
- 6:00 pm Dinner
- 7:15 pm Speed dating! (Lobby, refreshments served)
- 9:00 pm Refreshments available at Bob's Pub

Tuesday October 5th

7:30 am Breakfast

9:00 am Session 3: Cellular and circuit mechanisms of motor pattern/sequence generation

Chairs: Nicholas Priebe, University of Texas at Austin

Adam Hantman, Janelia Farm Research Campus

Bence Ölveczky, Harvard University

Complex motor sequence learning in rodents

Hillel J. Chiel, Case Western Reserve University

Biomechanical analysis provides guidance for analysis of circuit dynamics

Fabrizio Gabbiani, Baylor College of Medicine

Neural mechanisms of collision avoidance behaviors

Timothy Warren, University of California, San Francisco

Dynamic contributions of a basal ganglia circuit to the expression of vocal learning in adult songbirds

Larry F. Abbott, Columbia University College of Physicians & Surgeons

Lessons from model pattern and sequence generators

10:45 am Break

11:15 am Session 3 panel discussion

12:00 pm Lunch

1:00 pm Tour (optional - meet at reception)

2:00 pm Session 4: Input/output relationships in the brain

Chairs: Gabe Murphy, Janelia Farm Research Campus/HHMI

Rachel Wilson, Harvard University

Joshua Dudman, Janelia Farm Research Campus/HHMI

TBD

Kevin J. Bender, Oregon Health & Science University

Dopaminergic modulation of spike bursting in auditory brainstem interneurons

Frances Chance, Janelia Farm Research Campus

Modeling gain modulation in cortex

Michael Higley, Yale School of Medicine

Neuromodulation of synaptic and circuit function

Idan Segev, Hebrew University
Design principles for inhibition in dendrites

- 3:45 pm Break
- 4:15 pm Session 4 panel discussion**
- 5:00 pm Poster reception
- 7:00 pm Dinner (assigned seating; last chance to cast votes for best posters)
- 8:00 pm Refreshments and discussion at Bob's Pub

Wednesday October 6th

7:00 am Breakfast

8:15 am Session 5: Timing and variability in the nervous system
Chairs: Anthony Leonardo, Janelia Farm Research Campus/HHMI
Josh Dudman, Janelia Farm Research Campus/HHMI

Dima Rinberg, Janelia Farm Research Campus/HHMI
Timing in olfaction

Jessica A. Cardin, Yale University School of Medicine
Inhibitory regulation of cortical activity patterns

Allison J. Doupe, University of California, San Francisco
Emergence and regulation of variability in cortical-basal ganglia circuits

Nace L. Golding, University of Texas at Austin
Interactions of potassium channels with feedforward inhibition in binaural processing in the medial superior olive

Michale S. Fee, Massachusetts Institute of Technology
A synfire chain model of vocal sequence generation; support from intracellular recording in the singing bird

10:00 am Session 5 panel discussion

10:30 am Break (last chance to cast votes for town hall panel)

11:00 am Poster awards/mini-talks; Town hall meeting (voter-elected panel)

12:30 pm Lunch and Departure (to-go boxes available in servery)

1:00 pm First shuttle to Dulles

1:45 pm Second shuttle to Dulles

2:30 pm Last shuttle to Dulles