

Sunday April 25

3:00 pm Check-in

6:00 pm Reception (Lobby)

6:30 pm Dinner

7:30 pm **Session 1: Overview**
David Kleinfeld, University of California, San Diego
What we know, don't know, know but ain't so, and should know

8:40 pm Refreshments available at Bob's Pub

Monday April 26

7:30 am Breakfast

9:00 am Session 2: Behavior and whisker dynamics
Chair: Tony Prescott

9:00 am **Tony Prescott**, The University of Sheffield
Session Overview

9:20 am **Michael Brecht**, Humboldt-Universität zu Berlin
Rat social touch and its cortical representation

9:45 am **Tansu Celikel**, University of Southern California
What is in a whisker touch? Quantification of sensory information on whiskers (and its redundancy) in freely behaving mice

10:10 am Break and Group Photo

10:35 am **Session 2 (continued): Behavior and whisker dynamics**

10:35 am **David Golomb**, Ben Gurion University of the Negev
Control of firing patterns of vibrissa motoneurons and vibrissa movements

11:00 am **Daniel O'Connor**, Janelia Farm Research Campus/HHMI
Barrel cortex activity during vibrissa-based object localization

11:25 am Open Discussion

11:40 am Session 3: Organization and molecules of the sensory periphery
Chair: Frank Rice

11:40 am **Frank Rice**, Albany Medical College
Session Overview

11:55 am **Diana Bautista**, University of California, Berkeley
Molecular and cellular mechanisms of somatosensory mechanotransduction

12:20 pm Lunch

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

- 2:15 pm** **Session 3 (continued): Organization and molecules of the sensory periphery**
Chair: Frank Rice
- 2:15 pm **David Ginty**, HHMI/Johns Hopkins University
Molecular identification, characterization, and development of mammalian low-threshold mechanoreceptors
- 2:40 pm **Ellen A. Lumpkin**, Baylor College of Medicine
Mechanotransduction mechanisms in the Merkel cell-neurite complex, a conserved vertebrate touch receptor
- 3:05 pm **Fan Wang**, Duke University
Molecular genetic dissection of the barrelette circuit
- 3:30 pm Open Discussion
- 3:40 pm Break
- 4:10 pm** **Session 4: Trigeminal**
Chair: Harvey Karten
- 4:10 pm **Harvey J. Karten**, University of California, San Diego
Session overview / reevaluation
- 4:25 pm **Martin Deschênes**, Centre de Recherche Université Laval Robert-Giffard
A potential link between whisker motion (whisking) and respiration (sniffing)
- 4:50 pm **Mark F. Jacquin**, Washington University School of Medicine
Whisker-related circuitry in trigeminal nucleus principalis
- 5:15 pm Open Discussion
- 5:30 pm Poster Reception 1
- 7:00 pm Dinner
- 8:00 pm** **Session 5: Genetics-focused systems neurobiology in *Drosophila*: A model for rodent research?**
Chair: Karel Svoboda
- 8:00 pm **Karel Svoboda**, Janelia Farm Research Campus/HHMI
Session Overview
- 8:05 pm **Gerald Rubin**, Janelia Farm Research Campus/HHMI
*Developing genetic tools for studying the anatomy and function of the *Drosophila* nervous system*

The Neural Basis of Vibrissa-Based Tactile Sensation

- 8:35 pm **Michael Reiser**, Janelia Farm Research Campus/HHMI
The Janelia Fly Olympiad project: Mapping neural circuits in the fly brain
- 9:05 pm Open Discussion
- 9:30 pm Refreshments available at Bob's Pub

Tuesday April 27

7:30 am Breakfast

9:00 am Session 6: Signal transformation in thalamic nuclei
Chair: Martin Deschênes

9:00 am **Martin Deschênes**, Centre de Recherche Université Laval Robert-Giffard
Session Overview (outlining questions)

9:10 am **Ehud Ahissar**, Weizmann Institute of Science
Thalamocortical convergence on object location

9:35 am **Randy M. Bruno**, Columbia University
How wakefulness modulates synaptic inputs to sensory circuits

10:00 am **Miguel Maravall**, Instituto de Neurociencias de Alicante, CSIC-UMH
Stimulus-dependent modes of thalamocortical communication in the whisker system

10:25 am Open Discussion

10:35 am Break

11:00 am Session 7: Barrel cortex: Mainly functional anatomy
Chair: Tianyi Mao

11:00 am **Tianyi Mao**, Janelia Farm Research Campus/HHMI
Session Overview (outlining questions)

11:10 am **Moritz Helmstaedter**, Max Planck Institute for Medical Research
A mechanistic understanding of the convergence of excitation and inhibition onto L2/3 pyramidal neurons in a cortical column

11:35 am **Bert Sakmann**, Max Planck Institute of Neurobiology
The synaptic organization of a cortical column: Agreements and disagreements

12:35 pm Open Discussion

12:45 pm Lunch

2:00 pm Session 8: Barrel cortex: Mainly responses and circuitry
Chair: Christopher Moore

2:00 pm **Christopher Moore**, Massachusetts Institute of Technology
Session Overview

- 2:20 pm **Christiaan P.J. de Kock**, VU University Amsterdam
Encoding sensory information in barrel cortex: Linking physiology and morphology
- 2:45 pm **Daniel Feldman**, University of California, Berkeley
Neural coding of surface properties in S1 cortex
- 3:10 pm **Karen Moxon**, Drexel University
The effect of state dependent changes on information processing in the rat trigeminal system
- 3:35 pm Open Discussion
- 3:45 pm Poster Session 2
- 5:15 pm Session 9: Open discussion and brief presentations on vibrissa-based behavior: Head-fixed versus body fixed versus freely moving**
Chair: Mitra Hartmann
- 5:15 pm **Mitra Hartmann**, Northwestern University
Session overview (outlining questions)
- 5:25 pm Open Discussion / short presentations
- 6:00 pm Reception
- 6:30 pm Dinner
- 7:30 pm Session 10: Anatomy projects**
Chair: Karel Svoboda
- 7:30 pm **Karel Svoboda**, Janelia Farm Research Campus/HHMI
Session Overview
- 7:35 pm **Hongkui Zeng**, Allen Institute for Brain Science
Generation and characterization of a cell-type specific mouse genetic toolkit system for probing neural circuits
- 7:55 pm **Partha Mitra**, Cold Spring Harbor Laboratory
Mouse brain architecture project
- 8:15 pm **Frank Midgley**, Janelia Farm Research Campus/HHMI
Neuroptikon: A customizable tool for dynamic, multi-scale visualization of complex neural circuits
- 8:35 pm **Marcel Oberlaender**, Max Planck Florida Institute
From 3D single dendrite and axon tracing towards anatomically realistic neuronal networks

The Neural Basis of Vibrissa-Based Tactile Sensation

- 8:50 pm **Nicholas Weiler**, Stanford University
Quantifying synaptic densities in somatosensory cortical columns of the thyl-yfp mouse using array tomography
- 9:05 pm Open Discussion
- 9:35 pm Refreshments available at Bob's Pub

Wednesday April 28

7:30 am Breakfast

9:00 am Session 11: Coding and motor control of vibrissa somatosensation
Chair: Mitra Hartmann

9:00 am **Mitra Hartmann**, Northwestern University
Session Overview (outlining questions)

9:10 am **Mathew E. Diamond**, International School for Advanced Studies (SISSA)
Neuronal activity accompanying two kinds of vibrissa-based tactile sensation

9:35 am **Adrienne Fairhall**, University of Washington
Envelope coding in the vibrissa system

10:00 am **Carl Petersen**, Ecole Polytechnique Fédérale de Lausanne (EPFL)
Synaptic mechanisms of tactile sensory perception

10:25 am Open Discussion

10:35 am Break

11:00 am Session 12: Open discussion and brief presentations on coding
Chair: Maria Neimark Geffen

11:00 am Open Discussion / short presentations

11:40 am Session 13: Wrap-up

11:40 am David Kleinfeld (for the organizers)
Summary and next steps

12:00 pm Lunch (To-go boxes available from servery for those on first shuttle) and Departure

12:30 pm First shuttle to Dulles

1:15 pm Second shuttle to Dulles

2:00 pm Last shuttle to Dulles