

Sunday, March 20

- 3:00 pm Check-in
- 5:30 pm Reception (*Lobby*)
- 6:00 pm Welcome and Introduction**
- 6:15 pm Speed talks for selected posters**
Andrea Adden
Alexander Cope
Martina Held
Esa-Ville Immonen
Chan Lin
Sha Liu
Jaison Omoto
Uta Pegel
Sasha Rayshubskiy
- 6:45 pm Dinner
- 8:15 pm Poster Session**
- 9:30 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 21

- 7:00 am Breakfast (*service ends at 8:15am*)
- 8:30 am Session 1: Navigation and Orientation**
Chairs: Keram Pfeiffer & Esa-Ville Immonen
- 8:30 am Introduction to the session
- 8:35 am **Michael J. Milford**, Queensland University of Technology
From rats to navigating robots and beyond
- 9:10 am **Adrienn G. Varga**, Case Western Reserve University
The encoding of head direction and landmark orientation by individual neurons in the central complex
- 9:25 am **Dan Turner-Evans**, Janelia Research Campus/HHMI
The relative effects of optic flow and visual landmarks on ellipsoid body heading representation
- 9:40 am **Wolfgang Rössler**, University of Wuerzburg
*Ontogeny of sky-compass based navigation in *Cataglyphis* desert ants*
- 9:55 am **Paul Graham**, University of Sussex
On the relationship between small population codes from 'ring-neuron like' cells and complex visually guided behaviours
- 10:10 am Break
- 10:30 am **Basil el Jundi**, Lund University
Neural coding underlying the hierarchy of celestial cues in the beetle's central complex
- 10:45 am **Stanley Heinze**, Lund University
Merging information about direction and distance - the bee central complex as the potential neural substrate for path integration
- Barbara Webb**, University of Edinburgh
The central complex as a path integration circuit
- 11:10 am **Kate J. Jeffery**, University College London
Encoding of 3D space in mammals: Properties and constraints
- 11:45 am Discussion: Navigation**
Moderator: Keram Pfeiffer
Panel: Michael Milford, Paul Graham, Basil el Jundi, Kate Jeffery, Stanley Heinze

Central Complex IV: A New Hope to Understand a Multifaceted Brain Region

- 12:15 pm Lunch (*service ends at 1pm*)
- 1:15 pm Session 2: Sensory Integration and Competition**
Chairs: Stanley Heinze & Adrienn Varga
- 1:15 pm Introduction to the session
- 1:20 pm **Shreesh P. Mysore**, Johns Hopkins University
Neural circuits and computations for stimulus selection
- 1:55 pm **Hiroshi M. Shiozaki**, RIKEN Brain Science Institute
Parallel pathways code spatial memory and self-motion in an upstream region of the Drosophila central complex
- 2:10 pm Break
- 2:25 pm **Uwe Homberg**, Philipps-Universität Marburg
Conserved distribution of GABA in the insect central complex
- 2:40 pm **Keram Pfeiffer**, Philipps-Universität Marburg
Sky-compass neurons in the central complex of bees
- 2:55 pm **Mark A. Willis**, Case Western Reserve University
Multi-sensory interactions in the central complex associated with odor-modulated flight maneuvering
- 3:10 pm **Nicholas D. Kathman**, Case Western Reserve University
Haltere and visual information processing in the central complex of the fly brain
- 3:25 pm Break
- 3:40 pm Session 3: Visuomotor Control**
Chairs: Barbara Webb & Josh Martin
- 3:40 pm Introduction to the session
- 3:45 pm **Kathleen Cullen**, McGill University
Key concepts in motor control and sensorimotor integration: Lessons learned from explorations of gaze control in vertebrates
- 4:20 pm **Roy E. Ritzmann**, Case Western Reserve University
Central complex influence on context dependent behavior
- 4:35 pm Break

Central Complex IV: A New Hope to Understand a Multifaceted Brain Region

- 4:50 pm **Tanya Wolff**, Janelia Research Campus/HHMI
Generating an atlas of Drosophila central complex neurons
- 5:05 pm **Vivek Jayaraman**, Janelia Research Campus/HHMI
Directional computations in the Drosophila central complex
- 5:20 pm **Gaby Maimon**, Rockefeller University
Dissociating spontaneous and visually evoked turns in flying Drosophila
- 5:35 pm **Benjamin L. de Bivort**, Harvard University
A model of the protocerebral bridge locomotor variability microcircuit
- 5:50 pm **Discussion: Sensorimotor integration**
Moderator: Barbara Webb
Panel: Kathleen Cullen, Ben de Bivort, Gaby Maimon, Vivek Jayaraman, Roy Ritzmann, Shreesh Mysore
- 6:30 pm Reception
- 7:00 pm Dinner
- 8:00 pm Poster Session**
- 9:30 pm Refreshments available at Bob's Pub

Tuesday, March 22

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 4: ‘Higher Functions’ from Attention to Motivation**
Chairs: Basil el Jundi & Uta Pegel
- 9:00 am Introduction to the session
- 9:05 am **Joshua P. Martin**, Case Western University
Neural correlates of spatial attention in the central complex of the praying mantis (Tenodera sinensis)
- 9:20 am **Leonie C. Kirszenblat**, Queensland Brain Institute
A role for sleep and attention in the ring neurons of the ellipsoid body
- 9:35 am **Jeff Donlea**, University of Oxford
Sleep control by an excitability switch in Drosophila dorsal fan-shaped body neurons
- 9:50 am **Greg Suh**, New York University Langone Medical Center
Regulation of the sensation of hunger by cupcake-expressing R4 neurons of ellipsoid body in Drosophila
- 10:05 am Discussion: Context-dependence and higher functions**
Moderator: Basil el Jundi
Panel: Jeff Donlea, Leonie Kirszenblat, Greg Suh, Josh Martin, Barbara Webb, Andrew Barron
- 10:35 am Break
- 10:55 am Session 5: Development and Evolution**
Chairs: Uwe Homberg & Andrea Adden
- 10:55 am Introduction to the session
- 11:00 am **Luis Sullivan**, University of Oregon
Binary cell-fate determinants establish columnar organization of the adult Drosophila central complex
- 11:15 am **Xiaojun Xie**, Johns Hopkins School of Medicine
Cellular and molecular mechanisms underlying ring neuron connectivity in the Drosophila ellipsoid body
- 11:30 am **Nicholas J. Strausfeld**, University of Arizona
Functional implications of taxonomic distinctions of central complexes in Pancrustacea

Central Complex IV: A New Hope to Understand a Multifaceted Brain Region

- 11:50 am Group Photo
- 12:15 pm Lunch (*service ends at 1pm*)
- 1:15 pm Tour (*optional - meet at reception*)
- 3:00 pm Session 6: Deep Homology: The Basal Ganglia of the Insect Brain?
Chairs: Ben de Bivort & Martina Held**
- 3:00 pm Introduction and background (Nick Strausfeld and Frank Hirth)
- 3:15 pm **Frank Hirth**, King's College London
Evolutionary conserved mechanisms for the selection and maintenance of behavioural activity
- 3:30 pm **Joshua Dudman**, Janelia Research Campus/HHMI
- 3:55 pm Break
- 4:10 pm **Jesse Goldberg**, Cornell University
Dopaminergic error signals in birdsong suggest a general model of basal ganglia dependent reinforcement learning
- 4:35 pm **Peter Redgrave**, University of Sheffield
The basal ganglia: A vertebrate solution to the selection problem
- 5:00 pm Discussion: Evolution and homology
Moderator: Ben de Bivort
Panel: Nick Strausfeld, Frank Hirth, Josh Dudman, Peter Redgrave, Jesse Goldberg, Uwe Homberg**
- 6:00 pm Reception
- 7:00 pm Dinner
- 8:10 pm Poster Prize Talks**
- 8:30 pm *TBD*
- 9:15 pm Refreshments available at Bob's Pub

Wednesday, March 23

- 7:30 am Breakfast (*service ends at 9am*)
- 9:30 am Session 7: Techniques and Where to Go from Here**
Chairs: Vivek Jayaraman & Leonie Kirszenblat
- 9:30 am Introduction to the session
- 9:35 am **Sophie Aimon**, Kavli Institute for Brain and Mind
Probing large scale network dynamics at high speed in the brain of behaving flies
- 9:50 am **Aurel A. Lazar**, Columbia University
Generating an executable model of the drosophila central complex
- 10:05 am Break
- 10:35 am **Alice Robie**, Janelia Research Campus/HHMI
Behavioral screen of central complex neuron optogenetic activation
- 10:50 am **Akira Fushiki**, Janelia Research Campus/HHMI
A wiring diagram of central complex in Drosophila larva
- 11:05 am Discussion: What lies ahead?**
Moderators: Vivek Jayaraman & Stanley Heinze
Panel: Aurel Lazar, Michael Milford, Kate Jeffery, Jesse Goldberg, Barbara Webb, Alice Robie, Sophie Aimon
- 11:45 am Closing remarks
- 12:00 pm Lunch and Departure
- 12:30 pm First shuttle to Dulles
- 1:30 pm Second shuttle to Dulles
- 2:30 pm Last shuttle to Dulles