

Neuronal Circuits

Session 1 CIRCUITS AND BEHAVIOR

WEDNESDAY 3/10/2010, 7:30 PM

L. Luo

<u>#</u>	<u>Iname</u>	<u>Title</u>	<u>Talk Length</u>
1	Moser	Neural codes for spatial representation in entorhinal cortex and hippocampus	25
2	Chalasanani	Dissecting a neural circuit regulating food-seeking behavior in <i>C.elegans</i>	25
3	Root	Presynaptic facilitation by neuropeptide signaling mediates starvation-dependent olfactory behavior	12
4	Niell	Cell-type specific modulation of visual responses by behavioral state in mouse cortex	12
5	Lin	Differentiate reproduction and aggression pathways in rodents	12
6	Okamoto	The habenulo-interpeduncular pathway as a possible switch for the choice of fear responses in zebrafish	12

Session 2 CONNECTOMICS / VISION

THURSDAY 3/11/2010, 9:00 AM

D. Chklovskii

<u>#</u>	<u>Iname</u>	<u>Title</u>	<u>Talk Length</u>
	Seung	Title only: The computational challenges of connectomics	25
7	Helmstaedter	Dense reconstruction of bipolar and ganglion cells in the IPL of mouse retina using serial blockface scanning electron microscopy (SBFSEM) and semi-automated neurite reconstruction	12
8	Lee	What can connectomics tell us about cortical receptive fields?	12
9	Peng	A 3D compartment-level neuronal wiring atlas of the adult fruit fly brain and its informatics pipeline	12
10	Meinertzhagen	The synaptic circuits of the fly's medulla column	25
11	Borst	Building receptive fields for optic flow based navigation—A simulation study of the fly lobula plate network	25
	Feller	No Abstract	25
	Meister	No Abstract	25

Session 3 POSTER SESSION I

THURSDAY 3/11/2010, 2:00 PM

<u>#</u>	<u>Iname</u>	<u>Title</u>	<u>Talk Length</u>
12	Agetsuma	The habenula regulates experience-dependent choice of fear responses in zebrafish	
13	Ahmed	Disruption of patterned spinal activity following acute contusive spinal cord injury	
14	Aizenman	Modality specific homeostatic synaptic plasticity in the developing optic tectum	
15	Alwin	Replay of image sequences in alert monkey V4	
16	Amo	Identification of the zebrafish ventral habenula as a homologue of the mammalian lateral habenula	
17	Arrenberg	Optogenetic probing of the oculomotor system in zebrafish	

18	Avermann	Optogenetic analysis of neocortical microcircuits in layer 2/3 of mouse primary somatosensory barrel cortex <i>in vitro</i>
19	Behnia	Building a functional map of the <i>Drosophila</i> color vision system
20	Bernstein	Hardware for optical perturbation of 3-D neural circuits—Towards high-throughput screening of neural circuit targets
21	Blankenship	Do gap junctions play a role in propagation of retinal waves?
22	Briggman	Correlating function and structure using two-photon laser scanning and serial block-face scanning electron microscopy
23	Briggs	Characterizing the morphology of corticogeniculate neurons in the monkey visual system
24	Butler	Dopaminergic modulation of locomotory behavior
25	Cembrowski	The intrinsic properties of the AII amacrine interneuron may differentially shape transmission of rod signals to ON and OFF cone bipolar cells in the mammalian retina
26	Chedotal	Genetic dissection of the function of hindbrain commissures—Rewiring the brain with Robo3
27	Daie	Structure/function analysis of a neural integrator
28	Dilger	The absence of synaptically evoked plateau potentials in LGN cells leads to a failure in retinogeniculate refinement
29	Druckmann	Towards an observer independent analysis of the electrical variability of cortical neurons
30	Duarte	Neuronal and network mechanisms of ictogenesis
31	Enjin	Contribution of serotonin receptor 1D in proprioceptive circuits to motor coordination
32	Evers	Anterograde Jelly belly and neuro-transmitter signalling affect different features of dendritic growth in the motor system of <i>Drosophila</i>
33	Fu	Presynaptic GABA _B receptor signaling regulates activity-dependent development of inhibitory axon terminals
34	Gallarda	Detecting changes in spinal circuitry via computational analysis of locomotor output
35	Gershow	How worms navigate temperature gradients in extended environments
36	Goncalves	Single neuron features versus network connectivity—A robust neural circuit model of the oculomotor integrator
37	Han	Enhancer-driven fluorescent membrane markers for studying neuroanatomy in <i>Drosophila</i>
38	He	Cell type-based analysis of microRNA profiles in mouse neocortex
39	Horsager	Circuit-specific expression of channelrhodopsin restores visual function in blind <i>rd1</i> , <i>rd16</i> , and <i>rho</i> ^{-/-} mice
40	Hromadka	Balance of excitation and inhibition in-vivo in auditory cortex of mouse models of autism
41	Ito	Analysis of neural network based on the lineage-dependent neural circuits in <i>Drosophila</i>
42	Jarsky	One channel, one vesicle; two channels, two vesicles—Synaptic transmission at an analog synapse in the rod bipolar cell pathway of the mammalian retina

43	Kane	How <i>Drosophila</i> larvae stay in the dark
44	Kim	The proportion of regular-spiking and bursting efferents from subiculum varies according to the target region
45	Klar	Deciphering neuronal circuits in the embryonic chick spinal cord utilizing intersection between newly identified enhancer elements
46	Kohl	Cell type specific optical stimulation reveals left-right asymmetry of hippocampal plasticity.
47	Kolkman	Cerebellar-projecting neurons serve as linear filters of information entering the cerebellum
48	Koyama	The escape network maps onto the transmitter/transcription factor stripe patterning in the hindbrain of zebrafish
49	Krishnan	Alterations in cortical GABA inhibitory circuits in mouse model of Rett Syndrome
50	Kunwar	Genetic dissection of amygdala neuronal circuitry for fear and anxiety in mice
51	Kurian	Modeling self-sustained firing in motoneuron after spinal cord injury
52	Kvitsiani	Identification and electrophysiological recordings of medial prefrontal cortical interneuron subtypes in behaving mice
53	Lazarus	Differential impact of GAD67 deficiency on inhibitory synaptic transmission in primary visual vs. medial prefrontal cortex in mice.
54	Lee	The contribution of active dendritic properties to memory dynamics in a network
55	Leifer	Spatiotemporal control of neural activity in freely behaving <i>C. elegans</i>
56	Lewin	GABA _A -mediated excitation in CA1 pyramidal neurons—A computational study
57	Lu	Postnatal maturation of Parvalbumin interneuron-mediated inhibition in primary visual cortex
58	Luo	A gut peptide receptor is selectively expressed on midbrain dopamine neurons and mediates behavior via novel physiological mechanisms
59	Ma	Axon branching in the development of spinal sensory circuits
60	Marshel	Targeting single neuronal networks for functional analysis <i>in vivo</i>
61	Mastwal	Novel experience in adolescent mice promotes the innervation of the prefrontal cortex by ventral tegmentum axons
62	Masuyama	Visualizing neural circuits with activity-dependent nuclear import of a transcription factor
63	Mateo	Optogenetic probing of cortical synaptic circuits measured through <i>in vivo</i> whole-cell recordings in the mouse barrel cortex
64	McCabe	Motor circuit dysfunction in a <i>Drosophila</i> model of spinal muscular atrophy
65	McGuire	Integration of visual and proprioceptive information for reaching in multiple parietal areas
66	McKellar	Mapping shared and unique components of neural circuits underlying different behaviors in <i>Drosophila</i>
67	Miri	Distributed persistence decay times in a model neural integrator
68	Neriec	Grasping the fly's color vision circuit

69	Olivas	Contribution of glutamate and GABA receptors to spatiotemporal dynamics of neuronal population activity in the mouse visual cortex
70	Ostojic	How connectivity, background activity, and synaptic properties shape the cross-correlation between spike trains
71	Otazu	Physiological evidence for auditory cortex as a recursive parameter estimator
72	Oviedo	The functional asymmetry of auditory cortex is reflected in the organization of local cortical circuits
73	Rabinowitch	Preemptive control of behavior by a mechanosensory circuit in <i>C. elegans</i>
74	Rihel	Zebrafish behavioral profiling links drugs to biological targets and rest/wake regulation
75	Sahay	Increasing adult hippocampal neurogenesis is sufficient to enhance dentate gyrus-dependent functions in cognition but not mood
76	Shinkai	Molecular analyses of the integration of two sensory signals in <i>C. elegans</i>
77	Shinomiya	A map of <i>Drosophila</i> brain regions and fiber bundles
78	Siegle	Optical manipulation of fast-spiking interneurons in mouse barrel cortex during free behavior using channelrhodopsin-2
79	Sorensen	Genetic dissection of cell types and neural circuits in the mouse brain
80	Stowers	Somatosensory neural circuit mapping in larval <i>Drosophila</i>
81	Sturgill	Activity-dependent regulation of synaptic transmission by the metabolic sensor, AMPK
82	Suh	Acid sensing by the <i>Drosophila</i> olfactory system
83	Sylvester	Measuring coding properties throughout olivo-cerebellar pathways with calcium imaging
84	Tanaka	Olfactory neuronal circuit in <i>Drosophila</i>
85	Taniguchi	Genetic dissection of GABAergic circuitry in neocortex
86	Vaughan	The structure of the afferent auditory pathway in <i>D. melanogaster</i>
87	Vogelstein	A neurocognitive graph theoretical approach to understanding the relationship between minds and brains
88	Wen	How does a worm move?
89	Westmeyer	Molecular neuroimaging of dopamine with a novel MRI contrast agent
90	Wolman	Genetic analysis of behavioral plasticity and learning in zebrafish
91	Wu	Visualizing the activation and plasticity of GABAergic neurons through activity-regulated transcription of the Gad67 gene
92	Yaksi	Describing the different classes of local interneurons and their role in olfactory information processing in <i>Drosophila</i> antennal lobe
93	Yoshihara	A large scale screening of GAL4 lines to search for command neurons in the <i>Drosophila</i> brain
94	Yuan	Endocannabinoid-dependent LTD requires TRPV activation
95	Zhang	A mouse retinal ganglion cell that detects object motion

- 96 Zhao Expression of beta amyloid induced age-dependent presynaptic and axonal changes in *Drosophila*
- 97 Znamenskiy Retrograde and trans-synaptic tagging of neurons with pseudorabies virus amplicons

Session 4 CORTEX AND OTHER CIRCUITS

THURSDAY 3/11/2010, 7:30 PM

E.M. Callaway

<u>#</u>	<u>Iname</u>	<u>Title</u>	<u>Talk Length</u>
98	Gilbert	Dynamic brain states	25
99	Hestrin	Synaptic selectivity of neocortical circuits	25
100	Xu	High precision and fast functional mapping of cortical circuitry through a novel combination of voltage sensitive dye imaging and laser scanning photostimulation	12
101	Isaac	Coordinated regulation of inhibitory and excitatory local circuits by experience during development of layer 4 barrel cortex	12
102	Wang	Molecular genetic dissection of the whisker barrelette circuit	12
103	Otte	Neuronal biophysics modulate the ability of gamma oscillations to control response timing.	12
104	Yang	Differential sensitivity of different sensory cortical areas to behaviorally relevant millisecond-scale differences in neural activity	12
105	Abbott	Critical features of network connectivity	25

Session 5 METHODS / CHEMOSENSATION

FRIDAY 3/12/2010, 9:00 AM

S. Lockery

<u>#</u>	<u>Iname</u>	<u>Title</u>	<u>Talk Length</u>
	Deisseroth	Optogenetics—Development and application	25
106	Chow	Novel classes of optical neural control tools revealed via screening of phylogenetic diversity	12
107	Huang	Towards a genetic dissection of neocortical circuits—Targeting GABAergic interneurons	12
108	Gauthier	Simultaneous multi-electrode recording and anatomical identification of retinal ganglion cells	12
109	Osten	Automated high-throughput microscopy for fluorescent mouse brain	12
110	Albrecht	Spatiotemporal odor presentation in microfluidic arenas to interrogate <i>C. elegans</i> neural circuitry	12
111	Axel	Representations of odor in the piriform cortex	25
112	Luo	Organization of olfactory bulb projection to the cortex revealed by retrograde mono-transsynaptic labeling	25
113	Albeanu	Light addressable glomeruli reveal non-redundant odor coding of sister mitral cells in the mouse	12

Session 6 CHEMOSENSATION / MOTOR

FRIDAY 3/12/2010, 2:00 PM

C. Bargmann

<u>#</u>	<u>Iname</u>	<u>Title</u>	<u>Talk Length</u>
114	Wilson	Cross-talk between olfactory processing channels	25
115	Miyazaki	Comprehensive map of the <i>Drosophila</i> primary gustatory center revealed with two enhancer trap systems	12
116	Fetcho	A ground plan underlying the organization of motor networks in hindbrain and spinal cord	25
117	Alaynick	Genetic specification of swimming or walking behavior by motor neurons	12
118	Nusbaum	Integrating parallel actions onto a small motor circuit	25
119	Po	Innexins coordinate neuronal communication of the <i>C. elegans</i> motor circuit	12
120	Fang-Yen	The worms crawl in, the worms crawl out—Behavioral and optogenetic analysis of the <i>C. elegans</i> locomotory circuit	12
121	Lockery	A stochastic model of command neuron function in <i>C. elegans</i>	25

Session 7 NEURAL COMPUTATIONS

SATURDAY 3/13/2010, 9:00 AM

M.-B. Moser

<u>#</u>	<u>Iname</u>	<u>Title</u>	<u>Talk Length</u>
122	Harvey	Crosstalk in plasticity and signaling between nearby synapses on hippocampal dendrites	25
123	Magee	Network mechanisms of theta-related neuronal activity in hippocampal CA1 pyramidal neurons	25
124	Tsien	Neuronal population-level memory traces in the mouse hippocampus	12
125	Higley	Cholinergic interneurons mediate fast glutamatergic transmission in the striatum	12
126	Koos	Optogenetic investigation of the synaptic circuitry of neostriatal cholinergic interneurons	12
	Tank	No Abstract	25