BARRELS XXI

November 13-14, 2008

Charles Commons, Johns Hopkins University

Sponsored by NINDS

Thursday, November 13

8:30 - 8:35	**Welcome**	Joshua C. Brumberg, Queens College, CUNY
	Introduction to local area	Mary Ann Wilson, Johns Hopkins University
8:35 – 11:00	**Coding in the Somatosensory System**	
8:35 - 8:45	Introduction/Overview	**Joshua C. Brumberg**, Queens College, CUNY
8:45 - 9:15	**Mathew Diamond**	SISSA, Trieste, Italy
	Transformation from whisker motion to object representation	
9:15 - 9:45	**Christiane Vahle-Hinz**	University Medical Center Hamburg, Germany
	Fast oscillations and sensory processing in the somatosensory cortex	
9:45 - 10:15	**Adrienne Fairhall**	University of Washington
	Adaptive coding in somatosensory cortex	
10:15 – 10:30	**Daniel Feldman**	UC Berkley
	Neural coding of slip-stick events during voluntary whisking on surfaces	
10:30 – 10:45	**Christopher Moore**	MIT
	The Vibrissa Natural Scene: An Initial Description of Micromotions Generated by Free: Behavioral Contact and the Role of Biomechanics in Shaping Transduction	
10:45-11:00	Discussion	
11:00 – 11:15	Coffee break	
11:15 –12:30	**SHORT PLATFORM TALKS 1**	
	Moderator: **László Acsády**, Institute of Experimental Medicine, Hungary	
11:15–11:30	*Ayan Ghoshal, Pierre Pouget, Maria Popescu and Ford Ebner	
	Vanderbilt University	
	Early Sensory Deprivation Blocks the Development of Neuronal Synchrony in Barrel Cortex	
11:30 –11:45	*Randy M. Bruno[1,2], Thomas T.G. Hahn[1], Damian J. Wallace[1], Christiaan P.J. de Kock[1], and Bert Sakmann[1,3]	
	[1] *Max Planck Institute for Medical Research, Heidelberg, Germany,* [2]*Columbia University,* [3]*Max Planck Institute of Neurobiology, Martinsried, Germany*	
	Sensory experience alters specific branches of individual corticocortical axons during development	
11:45 –12:00	Jiao Y[1], Zhang C[1], Sakata, K[2], Lu B[2], *Sun QQ[1].	
	[1]*University of Wyoming* [2]*National Institute of Child Health and Human Development*	
	Sensory activity regulates BDNF expression and maturation of cortical inhibitory and excitatory circuits in barrel cortex	
12:00 –12:15	Manisha Chugh, Ziauddin Darokhan, Rahul Chaudhary and *V. Rema	
	National Brain Research Centre, Haryana, India	
	Injury-induced plasticity in the barrel cortex of adult rats	
12:15-12:30	Discussion	

12:30 – 1:50 Lunch Break

1:50-2:15 **Remembrance of Wally Welker, Ph.D.**
H. Philip Zeigler, Hunter College, CUNY
Thomas A. Woolsey, Washington University, St. Louis

2:15 – 4:00 **SHORT PLATFORM TALKS 2**
Moderator: **Tony Prescott**, University of Sheffield

2:15 - 2:30 *D. N. Hill, J. C. Curtis and D. Kleinfeld,
UC San Diego
The cortical representation of muscle activation in the control of whisking

2:30 - 2:45 Simony E[1], Bagdasarian K[1], Herfst L[2], Brecht M[2], Ahissar E[1]. and *Golomb D[3]
Control of whisker movement by individual spikes: Temporal integration and spatial coupling.
[1]Department of Neurobiology, The Weizmann Institute of Science, [2]Bernstein Center for Computational Neuroscience, Humboldt University Berlin, [3]Department of Physiology and Zlotowski Center for Neuroscience, Ben-Gurion University of the Negev, Be'er-Sheva, Israel

2:45– 3:00 *Todor V. Gerdjikov, Caroline G. Bergner, Maik C. Stüttgen, Cornelius Schwarz
Hertie-Institute for Clinical Brain Research
Frequency Discrimination And Its Neuronal Basis In The Rat Whisker System

3:00 – 3:15 *Towal RB and Hartmann MJZ
Northwestern University
Measurement of whisker contacts during natural exploratory behaviors: Do neighboring whiskers explore overlapping spaces?

3:15 - 3:30 *Steven Hsiao, Lauren Berryman
Johns Hopkins University
Representation of object size in the primate somatosensory system

3:30 – 3:45 Discussion

3:45 – 4:00 Break

4:00 – 4:30 **Cerebellar Loops with the Cerebral Cortex: Circuits for Movement, Cognition, and Perception**
Peter Strick, University of Pittsburgh, USA

4:30 – 4:40 Discussion

4:40 – 4:45 Break

4:45 – 5:30 **SHORT PLATFORM TALKS 3**
Moderator: **Daniel Simons**, University of Pittsburgh

4:45 – 5:00 *Chia-Chien Chen[1], Svetlana Abrams[2], Alex Pinhas[2], and Joshua C. Brumberg[1,2]
[1]The Graduate Center, City University of New York, [2]Queens College, City University of New York
Morphological Heterogeneity of the Layer VI Neurons in Mouse Barrel Cortex

5:00 – 5:15 *Moritz Helmstaedter, Kevin L Briggman, Winfried Denk
Max-Planck Insitute for Medical Research, Heidelberg, Germany

	Reconstruction of Neuronal Processes from Serial Blockface Scanning Electron Microscopy Data using Machine Learning
5:15 – 5:30	Discussion
5:30	**Poster Session**
6:30	Dinner

Friday November 14

8:35 – 10:35	**The Function of the Posterior Medial (POm) Thalamic Nucleus**
8:35 – 8:45	Introduction/Overview **Ford Ebner**, Vanderbilt University
8:45 – 9:15	**Martin Deschenes** Laval University, Canada Parallel pathways of vibrissal information processing: a view from the thalamus.
9:15 – 9:45	**Asaf Keller** University of Maryland Medical School The Posterior Thalamic Nucleus: Parallel Processing of Pain and Tactile Inputs
9:45 -10:15	**Ehud Ahissar** Weizmann Institute, Israel A system view on POm functions
10:15 – 10:35	Discussion
10:35 – 10:50	Coffee Break
10:50 – 12:00	**SHORT PLATFORM TALKS 4** Moderator: **Rony Azouz,** Ben Gurion University
10:50-11:05	Quist BW[1] and Hartmann MJZ[1,2] *[1]Department of Biomedical Engineering, [2]Department of Mechanical Engineering, Northwestern University* Vibrissal mechanics: relations between intrinsic whisker curvature, axial force, and tip contact detection
11:05 - 11:20	*****Acsády L., Giber K., Köll M., Bokor H. and Nusser Z. *Institute of Experimental Medicine, Budapest, Hungary* Input-specific localization of A-type potassium channels in the somatosensory thalamus.
11:20 - 11:35	*Michael J. Pesavento, David J Pinto *University of Rochester School of Medicine* Barrel response sensitivity depends on both network interactions and the response properties of individual barrel neurons.
11:35 - 11:50	Yunyong Ma, Hang Hu and *Ariel Agmon *West Virginia University* Sub-Millisecond Synchrony of Firing Between Pairs of Layer 4 Interneurons During Network Activity In Vitro
11:50-12:00	Discussion
12:00 – 1:15	Lunch Annual Business meeting (Joshua C. Brumberg, Queens College, CUNY)
1:15 – 2:30	**SHORT PLATFORM TALKS 5** Moderator: **Mary Ann Wilson**, Johns Hopkins University

1:15 - 1:30	Rony Azouz & Eran Lottem *Ben-Gurion University, Israel.* Transmission of Tactile Information Through Passive Whisker Movements
1:30 - 1:45	G. Foffani(1,2), M. L. Morales-Botello(1), J. Aguilar(1) *[1]Hospital Nacional de Parapléjicos, SESCAM, Toledo, Spain; [2]Drexel University* Spike-timing information in the rat thalamic ventrobasal complex
1:45 - 2:00	V. Khatri[1], R. Bermejo[2], H. P. Zeigler[2] *[1]Vanderbilt University, [2] Hunter College* Encoding the kinematics of self-generated whisker movements: a comparison of ventral posterior medial thalamic neurons to their trigeminal ganglion inputs
2:00 – 2:30	Discussion
2:30 – 2:45	Coffee Break
2:45 – 4:55	**<u>Development of Projections To and From Barrel Cortex</u>**
2:45 --2:55	Introduction/Overview **Jochen Staiger**, Albert-Ludwigs-Universität
2:55 – 3:25	**Pat Gaspar** INSERM, France Role of the rim1 and rim2 genes in the development of barrel cortex
3:25 – 3:55	**Denis Jabaudon** Harvard Transcriptional control of cortical input and output circuitry
3:55 - 4:25	**Zoltan Molnar** Oxford, UK Integration of subplate neurons into the developing mouse barrel cortex
4:25 - 4:55	Discussion
5:00	Adjourn