



10th International Congress of Neuroethology, 2012

SYMPOSIUM SCHEDULE

MONDAY, August 6

AM 8:30-9:30

Plenary 1

Chair: John Lu (University of Miami)

Arthur N. Popper (University of Maryland)

From blind cave fish to the Tappan Zee bridge – A tale of “translational neuroethology.”

AM 10:00-12:00

Special Symposium: Roots, Progress, and Prospects

Chair: Peter M. Narins (University of California Los Angeles)

William B. Kristan (University of California San Diego): Neuro-Ethology: Evolution and ontogeny of motor control.

Darcy B. Kelley, Ursula Kwong-Brown, Martha L. Tobias and Damian O. Elias (Columbia University and University of California Berkeley): Musical qualities in the songs of African clawed frogs: phylogenetic signals and laryngeal mechanisms.

Ronald R. Hoy (Cornell University): The roots of neuroethology: Where have all the flowers gone?

Catherine E. Carr (University of Maryland): Evolutionary foundations of sensory neuroethology.

PM 14:00-15:00

Plenary 2

Chair: Hans-Joachim Pflüger, Freie Universität

Carsten Duch (Arizona State University and University of Mainz)

Probing motor neuron function with targeted genetic manipulation in *Drosophila*.

PM 18:00-19:00

Heiligenberg Lecture

Chair: Cynthia F. Moss (University of Maryland)

James A. Simmons (Brown University and Doshisha University)

Coherence for perception of target vs. clutter in bat sonar: The role of neuroethology as pathfinder for neuroscience.

TUESDAY, August 7

AM 8:30-9:30

Plenary 3

Chair: Lidia Szczupak (Universidad de Buenos Aires)

Ole Kiehn (Karolinska Institutet)

Probing neural circuits controlling walking: moving forward.

AM 10:00-12:00

Special Symposium: Young Investigators Symposium

Chair: Paul Katz (Georgia State University)

Antoine Wystrach (University of Sussex and Macquarie University): What ants do when they are lost? Multiple interactions between different navigational systems.

Basil El Jundi (Lund University): The neural substrate of the celestial compass.

Michael Yartsev (Weizmann Institute): Neural representation of two- and three-dimensional space in the hippocampal formation of behaving bats.

Lauren O'Connell (University of Texas): Evolutionary convergence of gene modules regulating social systems.

PM 14:00-15:00

Plenary 4

Chair: Roy Ritzmann (Case Western Reserve University)

Malcolm Burrows (University of Cambridge)

How do animals move quickly: Interactions between brain, muscle, and skeleton.

PM 15:30-17:30

Invited Symposium 1: Animal visual search.

Chairs: Hermann Wagner (RWTH Aachen University) and Ohad Ben-Shahar (Ben-Gurion University).

Karla K. Evans (Harvard University): Non-selective and selective processing in human visual search.

Julius Orlowski and Hermann Wagner (RWTH Aachen University): Visual search and orientation saliency in barn owls.

Alik Mokeichev, Ronen Segev and Ohad Ben-Shahar (Ben Gurion University): Orientation based saliency and visual search in the archer fish.

Vivek Nityananda, Muyun Wang, Thomas Ings, Michael Proulx, Peter Skorupski, Jonathan Patrick and Lars Chittka (Queen Mary University): Visual search and attention in bumblebees.

Invited Symposium 2: Correlated neural activity in tadpole and zebrafish studied by recent advanced technologies.

Chair: Kazuo Imaizumi (Louisiana State University).

Kazuo Imaizumi (Louisiana State University): Global and local synchronous spontaneous activity in the developing optic tectum.

Mihai Alevra, Stephan Junek, Tsai-Wen Chen and Detlev Schild (Georg-August University of Göttingen, Max Planck Institute, HHMI, and DFG Research Center): Activity correlation imaging: Visualizing function and structure of neuronal populations.

Akira Muto and Koichi Kawakami (National Institute of Genetics): Visualization of functional neural circuits in zebrafish.

German Sumbre (Institut de Biologie de l'École Normale Supérieure): Ongoing spontaneous activity dynamics in zebrafish larvae.

Invited Symposium 3: Fixed and flexible traits in mating signals: Evolution, genetics, and physiological background.

Chairs: Varvara Vedenina (Russian Academy of Sciences) and Michael D. Greenfield (Université François Rabelais de Tours).

John A. Endler (Deakin University): Using colour vision principles to understand criteria for mate choice.

Michael D. Greenfield (Université François Rabelais de Tours): Phenotypic plasticity, genotype x environment interaction, and the sexual selection process.

Andrew Mason, Damian Elias and Paul De Luca (University of Toronto, University of California Berkeley, College of the Bahamas): Complex signals: what do spiders have to say?

Varvara Vedenina and Gerald Pollack (Russian Academy of Sciences and McGill University): Variable courtship song traits in the field cricket *Gryllus assimilis* fit the features of the female sensory system.

PM 18:00-19:00

Huber Lecture

Chair: Hans Hofmann (University of Texas)

Edward A. Kravitz (Harvard University)

Genetic manipulations in the fruit fly fight club: Role of amine neurons studied at a single neuron level.

WEDNESDAY August 8

AM 8:30-9:30

Plenary 5

Chair: Melissa Coleman (Claremont McKenna College)

Constance Scharff (Freie Universität)

Is FoxP2 a candidate for 'deep homology'?

AM 10:00-12:00

Invited Symposium 4: Variability in intrinsic properties of neurons and their synaptic connections: Consequences for the functional output of neuronal networks.

Chair: Ronald Calabrese (Emory University).

Jean-Marc Goaillard (INSERM Marseille): Variability and co-variation of ion channel properties in mammalian pacemaker neurons.

Akira Sakurai (Georgia State University): Individual variability in synaptic properties has functional consequences for susceptibility to and recovery from lesion of a central pattern generator.

Brian J. Norris, Angela Wenning and Ronald L. Calabrese (California State University and Emory University): Animal-to-animal variability in temporal pattern and synaptic strength: implications for functional coordination of motor neurons by the heartbeat CPG of leeches.

Eve Marder (Brandeis University): Temperature perturbations reveal variability in cellular and circuit properties in a rhythmic motor system.

Invited Symposium 5: Multiple cues for orientation: Integration, hierarchy, and representation of cues.

Chair: Rachel Muheim (Lund University).

Robert I. Holbrook and Theresa Burt de Perera (Oxford University): Spatial cognition: the representation of three-dimensional space.

Arseny Finkelstein, Dori Derdikman, Jakob Foerster, Liora Las and Nachum Ulanovsky (Weizman Institute and Technion): 3-D head-direction cells in the bat presubiculum.

Rachel Muheim (Lund University): Magnetic compass orientation and polarized light sensitivity in birds - behavioural and physiological mechanisms of cue integration.

Mandyam Srinivasan (University of Queensland): Multimodal sensing for flight control and navigation in honeybees.

Invited Symposium 6. No oxygen, no problem! The neuroethology of hypoxia tolerant mammals.

Chair: Thomas Park (University of Illinois, Chicago).

Kelly L. Drew and Jeanette T. Moore (University of Alaska): Resistance to cerebral ischemia/reperfusion injury in the Arctic Ground Squirrel (*Urocitellus parryii*) does not depend on the hibernation season.

Sarah Milton, Howard Prentice and Shailaja Kesaraju (Florida Atlantic University): Adaptations for long term anoxia tolerance reduce oxidative stress in the freshwater turtle *Trachemys scripta*.

Lars P. Folkow (University of Tromsø): When the brain goes diving: Adaptations for cerebral hypoxia tolerance in diving mammals.

John Larson, Bethany L. Peterson, Madeline Romano and Thomas J. Park (University of Illinois, Chicago): Buried alive! Arrested development and hypoxia tolerance in the naked mole-rat.

THURSDAY August 9

AM 8:30-9:30

Plenary 6

Chair: Justin Marshall (University of Queensland)

Elke K. Buschbeck (University of Cincinnati)

The making of an eye: Structural and functional diversity of stemmata

AM 10:00-12:00

Invited Symposium 7: Activity generated modulation of motion vision responses.

Chair: Karin Nordstrom (Uppsala University).

Gaby Maimon (Rockefeller University): Modulation of visual processing by flight behavior in *Drosophila*.

Marie P. Suver, Akira Mamiya and Michael H. Dickinson (University of Washington): Endogenous release of octopamine mediates flight-induced modulation of visual interneurons in *Drosophila melanogaster*.

Kit Longden and Holger G. Krapp (Imperial College London): State-dependent motion vision in walking blowflies.

Vivek Jayaraman (HHMI): Linking vision and action in *Drosophila*.

Invited Symposium 8. Automated social behavior analysis.

Chair: Tali Kimchi (Weizmann Institute)

Mayank Kabra, Alice Robie, Marta Rivera-Alba, Jonathan Hirokawa, Steven Branson and Kristin Branson (HHMI and University of California San Diego): Machine vision tools for quantitatively measuring animal behavior in large scale experiments.

Gonzalo de Polavieja (Cajal Institute): Completely automatic tracking of individuals in groups from video, with a focus on fish.

S. E. Roian Egnor, Shay Ohayon, Pietro Perona and Adam Taylor (HHMI): Quantifying mouse social behavior.

Genadiy Vasserman, Aharon Weissbrod and Tali Kimchi (Weizmann Institute): Automated behavioral phenotyping platform for multiple mice.

Invited Symposium 9. Invertebrate models for locomotion research.

Chair: Amir Ayali (Tel Aviv University)

Gaspar Jekely (Max Planck Institute): Origin of the first neurons as sensory-motor and sensory-neurosecretory cells.

Netta Cohen (University of Leeds): The worm turns: neural control of nematode locomotion.

Binyamin Hochner (Hebrew University): The neurophysiological basis of motor function in the octopus --- an animal with an unusual 'embodiment.'

Einat Fuchs, Amir Ayali, Philip Holmes, Tim Kiemel and Izhak David (Princeton University, Tel Aviv University and University of Maryland): Adaptive control of six-legged locomotion.

FRIDAY August 10

AM 8:30-9:30

Plenary 7

Chair: Andrea Simmons (Brown University)

Toshiya Matsushima (Hokkaido University)

Chick neuro-economics: Profitability, risk, and competition.

AM 10:00-12:00

Invited Symposium 10: Nociceptors in the real world.

Chairs: Zen Faulkes (University of Texas-Pan American), Ashlee H. Rowe (University of Texas) and Ewan Smith (Max-Delbrueck Center).

W. Daniel Tracey (Duke University): Larval nociception behavior in *Drosophila*.

Robyn J. Crook, Roger T. Hanlon and Edgar T. Walters (University of Texas Health Science Center and Marine Biological Laboratory): Does nociceptive sensitization confer fitness benefits on injured squid, *Loligo pealeii*?

Ewan St. John Smith, Damir Omerbasic, Stefan G. Lechner, Gireesh Anirudhan, Liudmila Lapatsina and Gary R. Lewin (Max-Delbrueck Center and New York University): The molecular basis of behavioural acid insensitivity in the African naked mole-rat.

Victoria Braithwaite (Pennsylvania State University): Nociception and pain in teleost fish.

Invited Symposium 11. Polarization vision: New discoveries of natural behaviors.

Chairs: Nicholas Roberts and Shelby Temple (University of Bristol).

Sönke Johnsen (Duke University): Through the looking glass: Polarization vision versus transparency and mirror-based camouflage in the open sea.

Molly E. Cummings, Gina Calabrese and Parrish Brady (University of Texas): Polarized communication and camouflage in fishes.

Justin Marshall, Martin How, Tsyrr-Huei Chiou, Nicholas Roberts, Shelby Temple and Thomas Cronin (University of Queensland, University of Bristol, University of Maryland Baltimore County): Polarisation vision, an unexplored channel for communication?

Megan L. Porter, Nicholas W. Roberts, Roy L. Caldwell, Justin Marshall and Thomas W. Cronin (University of Maryland Baltimore County, University of Bristol, University of California Berkeley, University of Queensland): The evolution of polarization vision in stomatopods: Molecules, signaling, and behavior.

Participant Symposium 1: Motor and sensorimotor processing

Chair: Alan Roberts (University of Bristol)

Stefan R. Pulver, Timothy G. Bayley, Adam L. Taylor, Jimena Berni, Michael Bate and Berthold Hedwig (HHMI Janelia Farm and University of Cambridge): The core of crawling: analysis of fictive motor patterns in the isolated *Drosophila* larval ventral nerve cord.

Violeta Medan, Heike Neumeister and Thomas Preuss (Hunter College and Universidad de Buenos Aires): Dendritic membrane properties influence multimodal integration for fast behavioral decision.

Edgar Buhl, Stephen R. Soffe, Michael Hull and Alan Roberts (University of Bristol and University of Edinburgh): Making tadpole escape unpredictable: from behaviour to neurons.

Melanie Haehnel and James C. Liao (University of Florida): Motor responses to mechanical deflections of individual neuromasts of the lateral line system in larval zebrafish (*Danio rerio*).

PM 14:00-16:00

Participant Symposium 2: Attention, Localization, and Alarm

Chair: Ana Silva (Universidad de la República)

Hilary S. Bierman and Catherine E. Carr (University of Maryland): The role of pressure-difference receiver ears in alligator sound localization.

Ysabel M. Giraldo, Adina Rusakov, Adrianna Kordek and James F. Traniello (Boston University): Aging brains and social behavior in an invertebrate model: Neuromodulation and neuroanatomy of task attendance across the worker lifespan of the ant *Pheidole dentate*.

Ajay S. Mathuru and Suresh Jesuthasan (National University of Singapore): Towards elucidating the phenomenon of alarm response in fish.

Markus Knaden, Antonia Strutz, Jawaid Ahsan, Silke Sachse, Kathrin Steck and Bill S. Hansson (Max Planck Society): Spatial representation of odorant valence in an insect brain.

Participant Symposium 3: Audition and mechanosensation

Chair: Annemarie Surlykke (University of Southern Denmark)

Kathleen M. Lucas and Daniel Robert (University of Bristol): A comparison of active hearing in male and female *Aedes (Stegomyia) aegypti*, the dengue-fever mosquito.

Meike Linnenschmidt, Magnus Wahlberg and Janni Damsgaard-Hansen (University of Southern Denmark): Auditory brainstem response evoked by clicks of an echolocating harbour porpoise approaching a target.

Margot A. Schwalbe and Jacqueline F. Webb (University of Rhode Island): Same prey, different strategies: How sensory morphology and behavior differ between two species of Lake Malawi cichlids.

Ashlee H. Rowe, Yucheng Xiao, Matthew Rowe, Theodore Cummins and Harold Zakon (University of Texas): No pain, big gain: Coevolution between bark scorpion pain-inducing toxins and grasshopper mouse nociceptors.

Participant Symposium 4: Visual processing

Chair: Thomas Cronin (University of Maryland Baltimore County)

James R. Dunbier, Steven D. Wiederman and David C. O'Carroll (University of Adelaide): Predictive response facilitation to moving targets in an insect neuron.

Jessica L. Fox, Ross G. Kelley, Jacob W. Aptekar, Camilla Larsen and Mark A. Frye (University of California Los Angeles): Two distinct visual microcircuits required for figure-ground discrimination in flies.

Trevor J. Wardill, Paloma T. Gonzalez Bellido, Robyn Crook and Roger T. Hanlon (Marine Biological Laboratory): Neural control of dynamic structural coloration in squid iridophores.

Chan Lin (University of Arizona): Visual learning and spatial orientation in the whirligig beetle *Dineutus sublineatus*.