

PROGRAM

INTERNATIONAL CONGRESS OF NEUROETHOLOGY 2016

MARCH 30

17:30 - 22:00 **OPENING CEREMONY**
Grand Ballroom (2nd Floor)

Welcome Speeches

Ana Silva, Local Organizing Committee, Chair
Martín Giurfa and José Luis Peña, Program Committee, Co-Chairs
Peter Narins, International Society for Neuroethology, President
Roberto Markarián, Universidad de la República, Chancellor
María Muñoz, Ministerio de Educación y Cultura, Minister

Neuroethology: Tales from South America

Chairs: Angel Caputi and Leonel Gómez
Documentary of the history of Neuroethology and its model systems in South America
Homage to mentors of South American Neuroethology

The Potential and Promise of Neuroethology for Latin America: A View from the North
John Hildebrand, University of Arizona, USA

Welcome to the Far South

Omar Macadar, Universidad de la República-Ministerio de Educación y Cultura, Uruguay

Welcome Party

Tango concert by Mario Penna & his band

MARCH 31

09:00 - 10:00 **JCPA PRESIDENTIAL SYMPOSIUM**
Grand Ballroom (2nd Floor)
Chair: Peter Narins, University of California Los Angeles, USA / President of the International Society for Neuroethology

09:00 **The shocking predatory strike of the electric eel**
Kenneth Catania, Vanderbilt University, USA

09:30 **Cycling in the brain: Molecular microcircuits for learned vocalization**
Stephanie White, University of California Los Angeles, USA

10:00 - 10:30 Coffee break

10:30 - 12:30 **JCPA PRESIDENTIAL SYMPOSIUM**
Grand Ballroom (2nd Floor)
Chair: Peter Narins, University of California, Los Angeles, USA

10:30 **Bat echolocation vs. moth hearing: evolution of tactics and countertactics**
Emanuel Mora, University of Havana, Cuba

11:00 **Biodiversity of fish-hunting cone snails: correlating genetics and pharmacology to behavior**
Baldomero Olivera, University of Utah, USA

11:30 **Detection of floral electrostatic fields by bumblebees**
Daniel Robert, Bristol University, UK

12:00 **The evolutionary origins of human cognitive development: insights from research on chimpanzees**
Tetsuro Matsuzawa, Kyoto University, Japan

12:30 - 14:00 Lunch / ISN EXEC-COUNCIL MEETING
Gauguin Room (4th Floor)
ISN Executive and Council Meeting

14:00 - 15:00 **PLENARY LECTURE 1**
Grand Ballroom (2nd Floor)
Presenter: Peter Narins, University of California Los Angeles, USA

Catharine Rankin, University of British Columbia, Canada
Response based analyses of behavior overlook other important behavioral changes: integrating habituation into ongoing behavior

15:00 - 19:00 **POSTER SESSION I**
Hallways (2nd, 3rd and 4th Floor)
See pages 30 to 41 for detailed Poster Session I Program

19:00 - 20:00 **FRANZ HUBER LECTURE**
Grand Ballroom (2nd Floor)
Presenter: Andrew Barron, Macquarie University, Australia

Gene Robinson, University of Illinois, USA
Understanding the relationship between genes and social behavior: lessons from the honey bee

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APRIL 01

09:00 - 10:00

PLENARY LECTURE 2

Grand Ballroom 1 (2nd Floor)

Presenter: Kenta Asahina, Salk Institute for Biological Studies, USA

Adam Kepecs, Cold Spring Harbor Laboratory, USA
Confidence in rats, humans, and mathematics

10:00 - 10:30 Coffee break

10:30 -12:30 CONCURRENT INVITED SYMPOSIA

I. BEHAVIORAL AND NEURAL GENOMICS OF SOCIALITY

Grand Ballroom 1 (2nd Floor)

Chair: Rui F. Oliveira, Gulbenkian Institute of Science, Portugal

10:35 **Deep homology in the neuromolecular mechanisms underlying vertebrate social behavior**
Hans Hofmann, University of Texas at Austin, USA

11:05 **Gene-function analyses of molecular networks relevant for learned behaviors in birds and fruit-flies**
Constance Scharff, Universitat Berlin, Germany

11:35 **Communication networks in zebrafish: neuromolecular mechanisms and cognitive abilities for social communication**
Rui F. Oliveira, Gulbenkian Institute of Science, Portugal

12:05 **Ancestral imprints on descendant nervous systems**
Brian Dias, Emory University, USA

II. COMPARATIVE VIEW OF THE OPTIC TECTUM: A GLIMPSE INTO THE EVOLUTION OF GOAL-ORIENTED BEHAVIORS AND ATTENTION IN VERTEBRATES

Grand Ballroom 2 (2nd Floor)

Chairs: Germán Sumbre, Ecole Normale Supérieure, France and Yoram Gutfreund, Technion - Israel Institute of Technology, Israel

10:35 **Function and development of the optic tectum circuitry in the zebrafish larva**
Germán Sumbre, Ecole Normale Supérieure, France

11:05 **Saliency map in the archer fish optic tectum**
Ronen Segev, Ben-Gurion University, Israel

11:35 **Circuits and computations underlying stimulus selection in the owl midbrain**
Shreesh Mysore, John-Hopkins University, USA

12:05

The central role of the primate superior colliculus in coding saliency, priority, and orienting
Douglas Munoz, Queens's University, Canada

III. SENSORIMOTOR INTEGRATION IN VOCAL PRODUCTION AND LEARNING IN SONGBIRDS

IN MEMORIAM: ALLISON DOUPE

Conference Room (4th Floor)

Chair: Ana Amador, University of Buenos Aires, Buenos Aires, Argentina

10:35 **Universal mechanisms of sound production and control in birds and mammals**
Coen P.H. Elemans, University of Southern Denmark, Denmark

11:05 **Variability in action: basal ganglia-forebrain circuits in vocal learning and plasticity**
Mimi H. Kao, Tufts University, USA

11:35 **Hormone-dependent vocal communication in songbirds**
Manfred Gahr, Max Planck Inst. for Ornithology, Seewiesen, Germany

12:05 **Biomechanical models to study the neural bases of birdsong production**
Ana Amador, University of Buenos Aires, Argentina

12:30 - 14:00 Lunch

14:00 - 15:00 PLENARY LECTURE 3

Grand Ballroom 1 (2nd Floor)

Chair: Silke Sachse, Max Planck Institute, Germany

Anupama Dahanukar, UC Riverside, USA
The hungry fly: Taste receptors, circuits and the control of feeding behavior

15:00 - 15:30 Coffee break

15:30 - 17:30 CONCURRENT PARTICIPANT SYMPOSIA

PARTICIPANT SYMPOSIUM - A

Grand Ballroom 1 (2nd Floor)

Chair: Catharine Rankin, University of British Columbia, Canada

15:30 **Honeybee interneurons responsive to the pulsed vibration produced by waggle dance**
Hiroyuki Ai, Fukuoka University, Japan

15:50 **Genetic and neural mechanisms governing the sexual dimorphism of agonistic behavior in *Drosophila melanogaster***
Kenta Asahina, Salk Institute for Biological Studies, USA

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- 16:10 **Do motor neurons regulate premotor vocal rhythms?**
Erik Zornik, Reed College, USA
- 16:30 **Neuronal activation in the preoptic area during agonistic behavior in the weakly electric fish, *Gymnotus omarorum***
Paula Pouso, Universidad de la República - Ministerio de Educación y Cultura, Uruguay
- 16:50 **Representation of conspecifics by bat hippocampal place cells**
David Omer, Weizmann Institute of Science, Israel
- 17:10 **Sensory adaptation to the social environment through spike-timing-dependent plasticity in mormyrid electric fish**
Bruce Carlson, Washington University St. Louis, USA

PARTICIPANT SYMPOSIUM - B

Grand Ballroom 2 (2nd Floor)

Chair: Paul Katz, Georgia State University, USA

- 15:30 **Homing in desert dung beetles - an accurate navigation system without landmarks**
Jochen Smolka, Lund University, Sweden
- 15:50 **A novel motion-sensitive pathway connecting the optic lobes and the central complex of a nocturnal bee**
Anna Honkanen, Lund University, Sweden
- 16:10 **The circuit basis ON directional selectivity in the *Drosophila* visual system**
Michael Reiser, Janelia Farm Research Campus, USA
- 16:30 **Distributed neural prediction in amphibian prey capture**
William Mowrey, Janelia Farm Research Campus, USA
- 16:50 **Multi-modal and multi-dimensional sensory perception in bats**
Alexandra Danilovich, Tel Aviv University, Israel
- 17:10 **Visual cortex responses of cats and agoutis: an electrophysiological comparison**
Dardo Ferreiro, Federal University of Rio Grande do Norte, Brazil

PARTICIPANT SYMPOSIUM - C

Picasso Room (4th Floor)

Chair: Alison Mercer, University of Otago, New Zealand

- 15:30 **Molecular basis of mechanosensation in tactile-foraging ducks**
Eve Schneider, Yale University, USA

- 15:50 **Using multiple source of information to visualize structure in behavioral data**
Roian Egnor, Janelia Farm Research Campus, USA
- 16:10 **Circuitry of sensory representation in mushroom body calyx of *Drosophila* larva**
Liria Masuda Nakagawa, University of Cambridge, UK
- 16:30 **Neurochemical underpinnings of morphine addiction in ants**
Mark Seid, University of Scranton, USA
- 16:50 **Persistent activation of nitric oxide synthase (NOS) is involved in a novel "molecular long-term memory switch" in the vertical lobe of the octopus**
Ana Turchetti-Maia, Hebrew University, Israel
- 17:10 **Towards the connectome of *Octopus vulgaris*: how an advanced invertebrate neural-circuit supports behavioral and biological plasticity**
Graziano Fiorito, Stazione Zoologica Anton Dohrn, Italy

ISN/NEURO-FRAMES SYMPOSIUM

Conference Room (4th Floor)

Chair: Angel Caputi, Ministerio de Educación y Cultura, Uruguay

- 15:45 **Arthropod's peripheral visual neurons shape behavioral responses to object motion stimuli**
Martin Berón de Astrada, Universidad de Buenos Aires, Argentina
- 16:05 **A radial map of selectivity to multi-whisker correlation in the rat barrel cortex**
Laurent Bourdieu, Ecole Normale Supérieure, Paris, France
- 16:25 **Pheromones as modulators of insect behavior**
Nina Deisig, Institut d'Ecologie et des Sciences de l'Environnement de Paris, France
- 16:45 **Early processing of electrosensory images in pulse gymnotiformes**
Angel Caputi, Instituto de Investigaciones Biológicas Clemente Estable, Uruguay
- 17:05 **Shape recognition based on artificial electric sense for underwater robotics**
Frederic Boyer, Ecole des Mines de Nantes, France

17:30 - 18:00 Coffee break

18:00 - 20:00 YOUNG INVESTIGATORS AWARD SYMPOSIUM

Grand Ballroom 1 (2nd Floor)

Chair: Ari Berkowitz, University of Oklahoma, USA

- 18:00 **Optimal coding by mixed-dimensionality neurons across behavioral modes: insights from head-direction cells in bats**
Arseny Finkelstein, Weizmann Institute of Science, Israel

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18:30 **Neuromodulators stabilize neural network function over a broad temperature range**
Carola Städele, Illinois State University, USA

19:00 **Representation of whisker self-motion in the early stages of the vibrissal system**
Avner Wallach, University of Ottawa, Canada

19:30 **Multimodal sensory integration underlying decision-making in flying *Drosophila***
Dr. Sara Wasserman, University of California, Los Angeles, USA

20:00 -21:00 **PHOTO EXHIBIT**
Piedras Street, across from the Plaza of the "Museo del Carnaval"

The Photo exhibition "Stories of mind mysteries" will be held in the outdoor gallery: "A cielo abierto" ("Under the open sky"). This open gallery belongs to the Centro de Fotografía de Montevideo and is located in a charming corner of Ciudad Vieja

21:00 -24:00 **STUDENT / POST-DOC MIXER**
Complejo Cultural Plateria Sur
Address: Bartolomé Mitre 1472

APRIL 02

8:30 - 9:30 **PLENARY LECTURE 4**
Grand Ballroom 1 (2nd Floor)
Presenter: Laura Quintana, Ministerio de Educación y Cultura, Uruguay

Daniel Tomsic, University of Buenos Aires, Argentina
Neurobiology of visually guided prey and predator behaviors in crabs

9:30 - 10:00 Coffee break

10:00 - 12:00 **CONCURRENT INVITED SYMPOSIA**

IV. FAR FROM A 'FEATHER BRAIN': HIGHER COGNITIVE FUNCTIONS AND THEIR NEURAL SUBSTRATES IN FISH
Grand Ballroom 1 (2nd Floor)
Chair: Leonard Maler, University of Ottawa, Canada

10:05 **Not the ABC, but the IEGs of fish learning - indication for an involvement of the telencephalon in selected cognitive tasks**
Theodora Fuss, University of Bonn, Germany

10:35 **Organization of the telencephalon of weakly electric gymnotiform fish: the neural bases of spatial learning**
Leonard Maler, University of Ottawa, Canada

11:05 **Combination of cognitive skills in archerfish**
Stefan Schuster, University of Bayreuth, Germany

11:35 **Conserved function of the corticobasal ganglia circuits in the zebrafish decision-making**
Merlin Lange, RIKEN, Japan

V. NEUROETHOLOGY OF PARALLEL OLFACTORY PROCESSING IN INSECTS AND VERTEBRATES

Grand Ballroom 2 (2nd Floor)

Chairs: Jean-Christophe Sandoz, National Centre for Scientific Research, France and Wolfgang Rössler, University of Würzburg, Germany

10:05 **Neural circuits underlying odor valence and intensity perception in *Drosophila***
Silke Sachse, Max Planck Institute, Germany

10:35 **Plasticity in the mouse olfactory bulb following motherhood**
Adi Mizrahi, Hebrew University, Israel

11:05 **Parallel processing of odor information in honeybees**
Martin F. Brill, CSHL, USA

11:35 **Parallel processing of sulfated steroid odorants in the dual olfactory system of an anuran amphibian**
Ivan Manzini, University of Göttingen, Germany

VI. MIRROR NEURONS IN PRIMATES

Conference Room (4th Floor)

Chair: Pier Francesco Ferrari, University of Parma, Italy

10:15 **Mirror neurons in macaque monkeys. From basic mechanism to the extended network**
Pier Francesco Ferrari, University of Parma, Italy

10:50 **Action execution and observation in the chimpanzee brain**
Erin Hecht, Emory University, USA

11:25 **Single-cell level, mirror neurons in marmosets frontal cortex and neuroanatomy**
Noritaka Ichinohe, National Institute of Neuroscience Tokyo, Japan

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12:00 - 14:00 Lunch / CAREER-DEVELOPMENT SESSIONS

Picasso Room (4th Floor)

Finding the right postdoctoral position

Mentors: Susan Fahrbach, Wake Forest University, USA; Manfred Gahr, Max Planck Institute for Ornithology, Germany; Paul Katz, Georgia State University, USA; Justin Marshall, University of Queensland, Australia; Eric Warrant, Lund University, Sweden

Writing grant and fellowship applications

Mentors: Karen Mesce, University of Minnesota, USA; Cindy Moss, Johns Hopkins University, USA; José Luis Peña, Albert Einstein College of Medicine, USA; Catharine Rankin, University of British Columbia, Canada; Harold Zakon, University of Texas, USA

14:00 - 15:00 PLENARY LECTURE 5

Grand Ballroom 1 (2nd Floor)

Presenter: Daphne Soares, University of Maryland, USA

Suzana Herculano-Houzel, Universidade Federal do Rio de Janeiro, Brazil

Brain diversity in evolution: what changes, what doesn't - and what does it matter?

15:00 - 19:00 POSTER SESSION II

Hallways (2nd, 3rd and 4th Floor)

See pages 42 to 53 for detailed Poster Session II Program

19:00 - 20:00 THE WALTER HEILIGENBERG LECTURE

Grand Ballroom 1 (2nd Floor)

Presenter: José Luis Pena, Albert Einstein College of Medicine, USA

Dora Angelaki, Baylor College of Medicine, USA

Merging of our senses: Building blocks and canonical computations

APRIL 03

09:00 - 10:00 PLENARY LECTURE 6

Grand Ballroom 1 (2nd Floor)

Presenter: Jean Christophe Sandoz, French National Centre for Scientific Research, France

Richard Benton, University of Lausanne, Switzerland

Evolution of olfactory circuits

10:00 - 10:30 Coffee break

10:30 - 12:30 CONCURRENT INVITED SYMPOSIA

VII. NEURONAL MECHANISMS UNDERLYING TARGET DETECTION FISH

Grand Ballroom 1 (2nd Floor)

Chairs: Paloma Gonzalez-Bellido, Cambridge University, UK and Karin Nordström, Uppsala University, Sweden

10:35 **Stereo vision and prey detection in the praying mantis**

Vivek Nityananda, University of Wisconsin, USA

11:05 **ITD maps and temporal precision**

Catherine Carr, University of Maryland, USA

11:35 **Are feature detection and optic flow analysis segregated in crabs?**

Julieta Sztarker, Universidad de Buenos Aires, Argentina

12:05 **Neural circuits for prey capture in zebrafish larvae**

Julie Semmelhack, Max Planck Institute, Germany

VIII. THE COGNITIVE APPROACH TO BEHAVIOR AND ITS LESSONS FOR NEUROSCIENCE

Grand Ballroom 2 (2nd Floor)

Chair: Juan Valle Lisboa, Universidad de la República, Uruguay

10:35 **Evolutionary economics: Decision-making under uncertainty in chimpanzees, bonobos, and humans**

Alexandra Rosati, Harvard University, USA

11:05 **What insects can tell us about the origins of consciousness**

Andrew Barron, Department of Biological Sciences at Macquarie University, Australia

11:35 **Temporal memory in individual neurones in the cerebellum**

Germund Hesslow, Lund University, Sweden

12:05 **Information theory and stochastic model selection in associative learning and memory**

Charles Randy Gallistel, Rutgers University, USA

IX. NEWS ON THE SENSORY WORLD OF BIRDS

Conference Room (4th Floor)

Chair: Christine Köppl, Carl von Ossietzky University, Germany

10:35 **New Zealand kiwi and its auditory, visual and olfactory specializations for a nocturnal life**

Jeremy Corfield, University of Alberta, Canada

11:05 **The quantum robin: light-dependent magnetoreception in migratory birds**

Henrik Mouritsen, Carl von Ossietzky University, Germany

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- 11:35 **New developments in the chemical ecology in a seabird model: the Leach's storm-petrel (*Oceanodroma leucorhoa*)**
Gabrielle Nevitt, UC Davis, USA
- 12:05 **Bigger than it looks? Sound localization cues generated by birds' heads**
Christine Köppl, Carl von Ossietzky University, Germany
- 12:30 - 14:00 **Lunch / CAREER-DEVELOPMENT SESSIONS**
Picasso Room (4th Floor)
- How to obtain a permanent position and tenure**
Mentors: Andrew Barron, Macquarie University, Australia; Ari Berkowitz, University of Oklahoma, USA; Elke Buschbeck, University of Cincinnati, USA, Jean-Marc Devaud, University Paul Sabatier, France; Shreesh Mysore, Johns Hopkins University, USA
- Publishing at early stages : how to pick the right journal and enhance your chances of publication success**
Mentors: John Hildebrand (PNAS), Patrizia d'Ettoire (Sci Reports, Frontiers), Hans Hofmann (Behavioral Ecology), Catherine Carr (J. Neurophys); Charlotte Rutledge (Company of Biologists JEB)
- Women in science**
Mentors: Darcy Kelley, Columbia University, USA; Alison Mercer, University of Otago, New Zealand; Aurore Avargues-Weber, University of Toulouse, France; Daphne Soares, University of Maryland, USA; Lidia Szczupak, University of Buenos Aires, Argentina
- 14:00 - 15:00 **PLENARY LECTURE 7**
Grand Ballroom 1 (2nd Floor)
Presenter: Martin Giurfa, CNRS - University of Toulouse, France
- Andreas Nieder, University of Tübingen, Germany
Of hairy and feathered primates - neuroethology of numerical competence in monkeys and crows
- 15:00 - 15:30 Coffee break
- 15:30 -17:30 **CONCURRENT INVITED SYMPOSIA**
- X. NEURAL MECHANISMS OF SPATIAL PERCEPTION AND NAVIGATION**
Grand Ballroom 1 (2nd Floor)
Chair: Khaleel Razak, University of California, USA
- 15:45 **Neural constructs of magnetic space lead to homing behavior in pigeons**
David Dickman, Baylor College of Medicine, USA
- 16:20 **The role of the midbrain SC in natural orienting behaviors of the echolocating bat**
Melville Wohlgenuth, Johns Hopkins University, USA
- 16:55 **Cortical mechanisms of sound localization in the pallid bat**
Khaleel Razak, UC Riverside, USA

XI. EVOLUTIONARY MECHANISMS OF SENSORY LOSS AND REGAIN

Grand Ballroom 2 (2nd Floor)

Chairs: Jakob Christensen-Dalsgaard, University of Southern Denmark, Denmark and Kim Hoke, Colorado State University, USA

- 15:35 **The development and evolution of vertebrate lateral line electroreceptors**
Clare Baker, Cambridge University, UK
- 16:05 **Loss of sweet taste in birds and re-evolution of sweet taste in hummingbirds**
Maude Baldwin, Harvard University, USA
- 16:35 **Evolutionary reduction and regression of tympanal hearing organs in insects**
Johannes Strauss, University of Giessen, Germany
- 17:05 **To ear or not to ear? Convergent loss of late-forming ears in toads**
Molly Womack, Colorado State University, USA

XII. A BRAIN WITHIN THE BRAIN: SENSORY INTEGRATION AND NETWORK LOGIC OF THE *DROSOPHILA* CIRCADIAN CLOCK

Conference Room (4th Floor)

Chairs: Fernanda Ceriani, Institute Leloir, Argentina and Joerg Albert, University College London, UK

- 15:35 **Circadian timing of *Drosophila* Emergence**
John Ewer, University of Valparaiso, Chile
- 16:05 **Sensory conflict and multimodal entrainment of the *Drosophila* circadian clock**
Ross Harper, UCL, UK
- 16:35 **The effect of diurnal rhythm on the sensitivity limit of mouse vision**
Sanna Koskela, University of Helsinki, Finland
- 17:05 **Daily rewiring of adult networks in *Drosophila***
Fernanda Ceriani, Leloir Institute, Argentina

17:30 - 18:00 Coffee break

18:00 - 20:00 **ISN BUSINESS MEETING**

Grand Ballroom 1 (2nd Floor)

20:00 Walk to banquet

20:00 - 24:00 **BANQUET**

Club Uruguay

Address: Peatonal Sarandí 584