

## August 2

Time	Event	Room
17:30	Registration	Front desk in the Auditorium
19:30 - 21:00	Welcome Reception*	Main courtyard Palacio Fonseca (across the street from Hotel ABBA Fonseca)

\* Programme:

- .) Welcome by the Local Organizing Committee
- .) Opening of the Congress by the ISN President
- .) Musical performance by the chorus “Álterum Cor” (see repertoire in the last pages of this Program)

## August 3 am

Time	Event	Room
08:30	Plenary Lecture 1 <b>Mark Willis</b> (Case Western Reserve University) <i>“The Neuroethology of odor-guided flight in moths: Interaction of environment, locomotion and sensor structure determines odor-tracking behavior.”</i>	Sala Mayor
09:30	Plenary Lecture 2 <b>John Simmers</b> (Centre Nationale Recherche Scientifique) <i>What the spinal cord tells the eyes: gaze-stabilizing eye movements driven by efference copy signals from the locomotory pattern generator in swimming Xenopus tadpoles.</i>	Sala Mayor

## August 3 am

Time	Event	Room
10:30	Coffe break	Basement
11:00	<p>Symposium 1</p> <p><b>"The role of chemosensation in sexual behaviors"</b>  Organizer: <b>Yehuda Ben-Shahar</b> (Washington Uni. in St. Louis)</p> <p><b>Heather Eisthen.</b>- <i>Tainted love: Detection of tetrodotoxin in rough-skinned newts</i></p> <p><b>Tali Kimchi.</b>- <i>Neuronal mechanisms underlying pheromone-mediated sexual behavior</i></p> <p><b>Yehuda Ben-Shahar.</b>- <i>Taste of love: a role for the gustatory sensory system in fly courtship.</i></p> <p><b>Neil Vickers.</b>- <i>Chemosensory contributions to moth pheromone-mediated behaviour.</i></p> <p>Symposium 2</p> <p><b>"Neural information processing in cephalopod cognition"</b>  Organizer: <b>Frank Grasso</b> (Brooklyn College, CUNY)</p> <p><b>Jennifer Basil</b> - <i>Evolution of brain complexity: Learning and memory in chambered Nautilus.</i></p> <p><b>Ludovic Dickel</b> - <i>Behavioural and neural evidence for separate visual memory systems in embryos and juveniles of cuttlefish (<i>Sepia officinalis</i>).</i></p> <p><b>Frank W. Grasso</b> - <i>Coordination of fine and forceful manipulation by suckers and arms in Octopus.</i></p> <p><b>Binyamin Hochner</b> - <i>What can cephalopods teach us about the organization of cognitive neural networks?</i></p> <p>Symposium 3</p> <p><b>"Novelty processing in neurons and large-scale neural populations to build auditory objects: evidence from animals and humans"</b></p> <p>Organizers: <b>Manuel S. Malmierca</b> (University of Salamanca) and <b>Carles Escera</b> (University of Barcelona)</p> <p><b>Ellen Covey and Jessica Koch,</b> <i>Stimulus-Specific adaptation in single neurons: Effect of stimulus type and degree of neuronal specialization.</i></p> <p><b>Manuel Malmierca.</b>- <i>Functional mechanisms that mediate Stimulus-Specific Adaptation subcortically.</i></p> <p><b>Donald Caspary.</b>- <i>Novelty detection and aging in the medial geniculate body: GABA<sub>A</sub> receptors and aging.</i></p> <p><b>Jan Schnupp.</b>- <i>On the laminar origin of stimulus specific adaptation in auditory cortex.</i></p> <p><b>Timo Ruusuvirta .-</b> <i>Primitive sensory intelligence in the rat brain as measured by mismatch negativity like local field potentials.</i></p>	<p>Sala Mayor</p> <p>Sala Menor</p> <p>Classroom</p>

## August 3 pm

Time	Event	Room
13:00	Lunch	Basement
14:00	Posters <b>P1 – P195</b> and Coffee	
15:30	Free time	Sala Mayor
17:30	<p style="text-align: center;">Symposium 4</p> <p style="text-align: center;"><b>"Neuroeconomics and decision in small neuronal circuits"</b></p> <p>Organizer: <b>Rhanor Gillette</b> (University of Illinois at Urbana)</p> <p><b>Karli Watson</b>- <i>The Neuroethology of primate social decision making.</i></p> <p><b>William Kristan</b> - <i>Multiple mechanisms of behavioral choice in the leech.</i></p> <p><b>Jian Jing</b> - <i>Modulatory neurons and behavioral sequencing.</i></p> <p><b>Rhanor Gillette</b> - <i>Value, risk, reward and decision in a simple nervous system.</i></p>	
	<p style="text-align: center;">Symposium 5</p> <p style="text-align: center;"><b>"The Knowledge Base of Insect Navigation"</b></p> <p>Organizer: <b>Jochen Zeil</b>, Canberra, Australia</p> <p><b>Allen Cheung</b> and <b>Tobias Merkle</b> .- <i>Limits of animal navigation: a theoretical perspective.</i></p> <p><b>Antoine Wystrach</b>.- <i>View-based navigation in ants</i></p> <p><b>Hema Somanathan</b>.- <i>The role of colour vision in nocturnal homing</i></p> <p><b>Rodrigo J. De Marco</b>.- <i>The overlap region of navigation and dance communication in honeybees.</i></p>	
	<p style="text-align: center;">Symposium 6</p> <p style="text-align: center;"><b>"Neuroethology of Adaptive Locomotor Responses to the Environment – How simple can it be?"</b></p> <p>Organizers: <b>Matthias Gruhn</b> (Universitaet zu Koeln) &amp; <b>Roy E. Ritzmann</b> (Case Western Reserve University)</p> <p><b>Robert Olberg</b>.- <i>Towards wireless monitoring of neural activity during dragonfly prey interception flights.</i></p> <p><b>John Layne</b> .- <i>Path simplicity changes inefficient navigation to efficient.</i></p> <p><b>Mark Frye</b> .- <i>Cross-modal behavioral algorithms and neural circuits for odor tracking by fruit flies.</i></p> <p><b>Matthias Gruhn</b>.- <i>Visually guided turning of the stick insect on the slippery surface.</i></p>	Sala Menor
19:30	<p style="text-align: center;">Plenary Lecture 3</p> <p><b>Susana Martínez-Conde</b> (Barrow Neurological Institute)</p> <p><i>Illusions and illusionists: how to fool the brain with magic and other tricks.</i></p>	Sala Mayor

## August 4 am

Time	Event	Room
08:30	<p style="text-align: center;"><b>Young investigators talks</b></p> <p><b>María de la Paz Fernández.</b>- <i>Pheromonal and behavioral cues trigger male-to-female aggression in Drosophila.</i></p> <p><b>Barth Geurten.</b>- <i>Active gaze strategies in two fly species.</i></p> <p><b>Jeffrey A. Riffel.</b>- <i>The neural basis of a pollinator buffet: floral odor specialization and learning in the moth, Manduca sexta.</i></p> <p><b>Michael R. Markham.</b>- <i>Circadian and social cues regulate ion channel trafficking in electric fish.</i></p>	Sala Mayor
10:30	Coffee break	Basement
11:00	<p style="text-align: center;"><b>Participants Symp. I: Getting around in the world</b></p> <p><b>Marie Dacke et al.,</b> <i>First evidence of star orientation in insects.</i></p> <p><b>Thomas Nørgaard et al.,</b> <i>Visually based homing in a nocturnal spider.</i></p> <p><b>Kathrin Steck et al.,</b> <i>Memory goes crossmodal: Visual and olfactory navigation in ants.</i></p> <p><b>Vincenzo Pignatelli et al.,</b> <i>Behavioral relevance of polarization sensitivity as a target detection mechanism in cephalopods and fishes.</i></p> <p><b>Barry Trimmer et al.</b> <i>The environmental skeleton: Tension-based locomotion in a soft-bodied climbing insect.</i></p> <p><b>Emyo Fujioka et al.,</b> <i>Echolocation strategy of free-ranging FM bats, Pipistrellus abramus, during target search, revealed by a microphone-array system.</i></p>	Sala Mayor
	<p style="text-align: center;"><b>Participants Symp. II: Sensorimotor circuits</b></p> <p><b>Bart G. Borghuis et al.,</b> <i>Salamander tongue projection is based on target motion extrapolation.</i></p> <p><b>Joshua Martin et al.,</b> <i>A precise population code for attractive pheromone mixtures.</i></p> <p><b>Xin-Cheng Zhao et al.,</b> <i>A mechanical/sound sensitive centrifugal neuron in the central olfactory pathway of the heliothine moth.</i></p> <p><b>Akira Sakurai et al.,</b> <i>Homologous interneurons have distinct functions in the generation of similar rhythmic motor patterns.</i></p> <p><b>Einat Fuchs et al.,</b> <i>Pattern generation and coordination in cockroach locomotion.</i></p> <p><b>Joshua Gittelman et al.,</b> <i>It's about time: How input timing is used and not used to create emergent properties in the auditory system.</i></p>	Sala Menor

## August 4 pm

Time	Event	Room
13:00	Lunch	Basement
14:00	Posters <b>P 1 – P 195</b> and Coffee	
15:30	Free time	
17:30	<p>Symposium 7</p> <p><b>"Sensory Neuroecology: The Sensory-Neural Bases of Natural Behavior Viewed from an Environmental Perspective"</b></p> <p>Organizers: <b>John Hildebrand</b> and <b>Jeff Riffell</b> (University of Arizona).</p> <p><b>Charles Derby.</b>- <i>Escape by inking: the neuroecology of predator avoidance by inking molluscs.</i></p> <p><b>Victoria Arch.</b>- <i>Getting over background noise: Mechanisms underlying acoustic communication in adverse environments.</i></p> <p><b>Molly Cummings.</b>- <i>Predicting diversity in visual sensitivities, signals and behavior: an environmental approach with kelp forest fishes.</i></p> <p><b>Jan Hemmi.</b>- <i>Sensory constraints and behavioural options in fiddler crabs.</i></p>	Sala Mayor
	<p>Symposium 8</p> <p><b>"Habituation – an Evolutionary Conserved Mechanism of Sensory Information Processing?"</b></p> <p>Organizer: <b>Susanne Schmid</b> (University of Western Ontario)</p> <p><b>Catherine Rankin.</b><i>High throughput behavioral characterization of habituation in wild-type C. elegans and a mutant library of nervous-system-biased strains.</i></p> <p><b>David Glanzman.</b>- <i>New insights into the cellular mechanisms of habituation in Aplysia.</i></p> <p><b>Daniel Tomsic.</b>- <i>Long-term habituation. Is it really a non associative process?</i></p> <p><b>Susanne Schmid.</b> <i>Mechanisms mediating habituation in rodents.</i></p>	Sala Menor
	<p>Symposium 9</p> <p><b>"Spatial orientation and object identification with sensory arrays: from neurons to robots"</b></p> <p>Organizers: <b>Joachim Mogdans &amp; Horst Bleckmann</b>, (University of Bonn)</p> <p><b>Friedrich Barth</b> - <i>Air flow guiding a spider to prey passing by in flight.</i></p> <p><b>Sheryl Coombs</b>- <i>Active flow-sensing for spatial exploration and navigation.</i></p> <p><b>Jacob Engelmann</b> - <i>Deciphering ambiguous electro-sensory images with arrayed structure.</i></p> <p><b>Mitra Hartmann</b> - <i>Patterns of input across the rat vibrissal array during object exploration.</i></p>	Classroom
19:30	<p><b>Heiligenberg Lecture. Ed Kravitz</b> (Harvard University)</p> <p><i>How does behavior happen? A work in progress.</i></p>	Sala Mayor

## August 5 am

Time	Event	Room
08:30	<p>Plenary Lecture 4</p> <p><b>Cynthia Moss</b> (University of Maryland): <i>Active listening in a complex environment.</i></p>	Sala Mayor
09:30	<p>Plenary Lecture 5</p> <p><b>Astrid Prinz</b> (Emory University): <i>Mechanisms of neuron and network robustness.</i></p>	Sala Mayor
10:30	<p>Coffee break</p> <p>Symposium 10</p>	Basement
11:00	<p><b>“Environmental Cues Guiding Behavior: Influence of ethanol on behavior”</b></p> <p>Organizer: <b>Henrike Scholz</b> (University of Köln)</p> <p><b>James Fry.</b>- <i>Variation in ethanol resistance among natural populations of Drosophila melanogaster: genetic basis and adaptive significance.</i></p> <p><b>Henrike Scholz.</b>- <i>Neuronal bases of ethanol preference in Drosophila melanogaster.</i></p> <p><b>Julie Mustard.</b>- <i>Ethanol ingestion impairs appetitive olfactory learning and odor discrimination in the honey bee.</i></p> <p><b>Jill Bettinger.</b>- <i>Dissecting acute ethanol tolerance in C. elegans.</i></p> <p>Symposium 11</p> <p><b>“Living in a Flying Crowd”</b></p> <p>Organizer: <b>Peter Simmons</b> (Newcastle University)</p> <p><b>Stephen Rogers</b> <i>Mechanisms and consequences of behavioural gregarization in desert Locusts.</i></p> <p><b>Claire Rind</b> <i>Predator avoidance by locusts in a swarm.</i></p> <p><b>Andrea Cavagna</b> <i>Scale-free correlations in starling flocks: a tool to enhance anti-predatory response?</i></p> <p><b>Mary Bates</b> <i>Recognition versus suppression for discriminating against interfering echoes in bat biosonar.</i></p> <p>Symposium 12</p> <p><b>“Visual-auditory integration: converging evidence from animal physiology and behavior.”</b></p> <p>Organizer: <b>Yoram Gutfreund</b> (The Technion, Haifa)</p> <p><b>Barry Stein.</b>- <i>A cortical-midbrain dialogue during early life defines how the brain will integrate information from different senses.</i></p> <p><b>Asif Ghazanfar</b> .- <i>Primate vocal communication through coupled oscillations.</i></p> <p><b>Yoram Gutfreund</b> .- <i>Mechanisms of visual-auditory integration in the barn owl's brain.</i></p> <p><b>Peter Narins</b> .- <i>Charley McCarthy wasn't human, but he was close enough: Cross-modal integration in a New World frog.</i></p>	Sala Mayor
		Sala Menor
		Classroom

## August 5 pm

Time	Event	Room
13:00	Lunch	Basement
14:00	Posters <b>P 196 – P 399</b> and Coffee	
15:30	Free time	
17:30	Plenary Lecture 6 <b>Eric Warrant</b> (Lund University) <i>The ecology of vision in darkness: Vision and visual orientation in nocturnal insects.</i>	Sala Mayor
18:30	Business Meeting	Sala Mayor

## August 6 am

Time	Event	Room
08:30	<p style="text-align: center;"><b>Plenary Lecture 7</b></p> <p><b>Allison Mercer</b> (University of Otago, New Zealand) <i>It ain't easy being Queen: tales from the (honey bee) colonies</i></p>	Sala Mayor
09:30	<p style="text-align: center;"><b>Plenary Lecture 8</b></p> <p><b>Hans Hofmann</b> (University of Texas, USA) <i>Genes, hormones and behavior: An integrative approach towards social decision making and its evolution.</i></p>	Sala Mayor
10:30	Coffee break	Basement
11:00	<p style="text-align: center;"><b>Participants Symposium IIIa: <i>Escape or capture</i></b></p> <p><b>Robert Olberg et al.</b>, <i>The responses of target-selective descending neurons in the dragonfly to 3-dimensional object movements outdoors under blue sky.</i></p> <p><b>Gwyneth Card.</b> <i>Making an escape: Coordinating behavioral modules for flight initiation in Drosophila.</i></p> <p><b>Mark Alkema et al.</b>, <i>The nematode touch response facilitates escape from predacious fungi.</i></p> <p><b>Jens Herberholz et al.</b>, <i>Crayfish select escape strategies based on external conditions and internal states.</i></p> <p style="text-align: center;"><b>Participants Symposium IIIb: <i>Learning</i></b></p> <p><b>Mario Pahl et al.</b>, <i>Number-based visual generalisation in the honeybee.</i></p> <p><b>Tyler Ofstad et al.</b>, <i>Visual place learning in Drosophila.</i></p> <p style="text-align: center;"><b>Participants Symposium IVa: <i>Social Behavior</i></b></p> <p><b>Lauren Munchrath et al.</b>, <i>Evolution of neural networks regulating social behavior.</i></p> <p><b>Yukiko Ogura et al.</b>, <i>Neuro-economics in chicks: competitive foraging socially increases work investment and chronically enhances impulsive choices in domestic chicks.</i></p> <p><b>Nancy Kohn et al.</b>, <i>Social environment influences performance in a cognitive task in natural variants of the foraging gene.</i></p> <p><b>Andreas S. Brandstaetter et al.</b>, <i>Neuronal correlates of colony recognition cues in ants.</i></p> <p style="text-align: center;"><b>Participants Symposium IVb: <i>Hormones &amp; Transmitters</i></b></p> <p><b>Elodie Urlacher et al.</b>, <i>Modulation of learning by an alarm signal in an insect brain: evidence for an opioid-like pathway.</i></p> <p><b>Rossana Perrone et al.</b>, <i>Behavioral and cellular bases of vasotocin modulation of agonistic behavior in two species of weakly electric fish.</i></p>	Sala Mayor
		Sala Menor



## August 6 pm

Time	Event	Room
13:00	Lunch	Basement
14:00	Posters <b>P 196 – P 399</b> and Coffee	
15:30	Free time	
17:30	<p style="text-align: center;">Symposium 13</p> <p style="text-align: center;"><b><i>"An Integrative Theoretical View: the Neuroethological approach to Computational Neuroscience"</i></b></p> <p>Organizer: <b>Jose L Peña</b> (Albert Einstein College of Medicine)</p> <p><b>Leonard Maler.</b>- <i>Correlations and predictions in the electrosensory system.</i></p> <p><b>Frederic Theunissen.</b>- <i>What can songbirds teach us about how and why we perceive pitch, timbre and rhythm?</i></p> <p><b>Emilio Salinas.</b>- <i>The statistics of motor performance during sonar-guided approach determine echo-delay tuning curves in echolocating bats.</i></p> <p><b>Jose L Peña.</b>- <i>An auditory computational map.</i></p> <p style="text-align: center;">Symposium 14</p> <p style="text-align: center;"><b><i>"Trichromacy and beyond: colour vision from molecules to perception"</i></b></p> <p>Organizers: <b>Almut Kelber</b> (Lund University) &amp; <b>Natalie Hempel de Ibarra</b> (University of Exeter)</p> <p><b>Angelique Paulk.</b>- <i>Colour vision from the periphery to the central bumblebee brain: what about timing?</i></p> <p><b>Michiyo Kinoshita.</b>- <i>Perception of color, lightness and polarization in foraging Papilio butterflies.</i></p> <p><b>Daniel Osorio.</b>- <i>High and low-level mechanisms in avian colour vision.</i></p> <p><b>Maureen Neitz.</b>- <i>Curing colour blindness in an adult primate using gene therapy.</i></p> <p style="text-align: center;">Symposium 15</p> <p style="text-align: center;"><b><i>"Networks for communication: Between human, ape, Monkey and bird brains"</i></b></p> <p>Organizer: <b>Chris Petkov</b> – (Newcastle University)</p> <p><b>Erich Jarvis.</b>- <i>Learned birdsong and the neurobiology of human language.</i></p> <p><b>Jonas Obleser.</b>- <i>Rethinking "Wernicke's Area": Pathways and hierarchies of speech comprehension in the human brain.</i></p> <p><b>Chris Petkov.</b>- <i>Do monkeys have anything like the speech and voice regions in the human brain?</i></p> <p><b>Jared Tagliatela.</b>- <i>Communicative signalling and the chimpanzee brain.</i></p>	<p style="text-align: center;">Sala Mayor</p> <p style="text-align: center;">Sala Menor</p> <p style="text-align: center;">Classroom</p>
19:30	Franz Huber Founders Lecture. <b>Sten Grillner</b> (Karolinska Institute, Sweden) <i>"The lamprey motor system - from selection of behaviour to mechanisms of pattern generation."</i>	Sala Mayor

## August 7 am

Time	Event	Room
08:30	<p>Plenary Lecture 9</p> <p><b>Heiner Römer</b> (University of Graz, Austria)  <i>"Neuroethology of acoustic mate preferences in field crickets: ecological and evolutionary perspectives".</i></p>	Sala Mayor
09:30	<p>Plenary Lecture 10</p> <p><b>Dan Margoliash</b> (University of Chicago, USA)  <i>"Sleep processes in learning and memory."</i></p>	Sala Mayor
10:30	Coffee break and Poster removal	Basement
11:00	<p>Symposium 16</p> <p><i>"The neuroethology of context-dependent locomotion"</i>  Organizer: <b>Karen Mesce</b> (University of Minnesota, MN, USA)  <b>Réjean Dubuc</b> <i>The neural substrate for the transformation of olfactory inputs into locomotor output.</i>  <b>Keith Sillar</b> <i>Postembryonic development of locomotor control circuitry in the vertebrate spinal cord.</i>  <b>David McLean</b> <i>Development and the functional specialization of spinal locomotor networks.</i>  <b>Karen Mesce</b> <i>Dopamine and the selection of locomotor form in a simpler neural system.</i></p>	Sala Mayor
	<p>Symposium 17</p> <p><i>"Computational Mechanisms in Temporal Processing"</i>  Organizer.- <b>Bruce Carlson</b> (Washington University, St. Louis)  <b>Bernhard Ronacher</b>.- <i>The grasshoppers' solution to computational problems in temporal processing.</i>  <b>Bruce Carlson</b>.- <i>Temporal pattern recognition through short-term synaptic plasticity.</i>  <b>Gary Rose</b>.- <i>Mechanisms for generating filters of temporal information in acoustic signals.</i>  <b>James Poulet</b>.- <i>Cortical processing during behaviour.</i></p>	Sala Menor
	<p>Symposium 18</p> <p><i>"Coupled Robot-animal systems"</i>  Organizer: <b>Malcolm A. MacIver</b> (Northwestern University)  <b>Hanspeter A. Mallot, Philipp Schwedhelm</b> and <b>Johannes Thiele</b>.- <i>Towards analysis of rodent behaviour in large and complex environments.</i>  <b>José Halloy</b>.- <i>How to talk to the mind of the hive? Collective self-organized behavior in mixed groups of robots and animals.</i>  <b>Paul Marasco</b>.- <i>Physiologically relevant sensory feedback for prosthetic limbs: Investigations of the neural mechanisms of functionality, cortical reorganization, and perception of limb ownership.</i>  <b>Michael Dickinson</b>.- <i>Using robotics to close the loop.</i></p>	Classroom
	DEPARTURE	



Coro de Cámara "Alterum Cor" (Valladolid)

Come again.....**John Dowland** (1562 - 1626)  
Fair Phyllis .....**John Farmer** (ca. 1560 - 1605)  
De profundis .....**Vic Nees** (1936)  
Le chant des oiseaux .....**Clément Janequin** (ca. 1485 - 1558)  
Canción de espadar lino..... **Miguel Manzano** (1934)  
Tres canciones de amor .....*Poemas:* **Federico García Lorca** (1898 - 1936)  
*Música:* **Manuel Oltra** (1922)

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## PROGRAM FOR REGISTERED ACCOMPANYING PERSONS

**August 2.-** (8 pm) Cocktail in the main court yard of the Palacio Fonseca.

**August 3.-** (10 am) English guided city walk tour starting at the Plaza Mayor and visiting the inside of Old and New Cathedrals and the Old University. Estimated duration: 3 h.

**August 5.-** (10,30 am) English guided bus trip to Ciudad Rodrigo and guided walk tour to the city. Lunch at the Hotel *Ciudad Rodrigo* and return to Salamanca. Bus will depart from the Palacio de Congresos (calle de La Palma, by the green zone) and will stop at main hotels in the return trip. Estimated return at 4 pm.

For hotel info: [www.hotelesciudadrodrigo.com/conde2.htm](http://www.hotelesciudadrodrigo.com/conde2.htm)

Note.- Please, carry your Congress ID badge during these activities.

## SOCIAL PROGRAM FOR ALL REGISTERED ATTENDANTS

**August 3, 4, 5 and 6.-** (9 pm) English guided train tour of the city. Departure and arrival point: Plaza de Anaya. Maximum capacity: 50 persons. **Pre-booking (free) is required at the Registration desk of the Congress.** Meeting point: Main door of the Auditorium. A green T/shirt person will conduct the 50 persons group to the Plaza de Anaya each evening.

**August 6.-** (9,30 pm) Gala dinner at the Casino de Salamanca (calle de Zamora 9, behind the City Hall of Plaza Mayor). **Tickets (50 eur.)** will be on sale on August 2 at the registration desk. Musical performance by the jazz group “*Evony*”.