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Born 9 August 1960 (Casablanca, Morocco), French national

A. EDUCATION

1989 Summer Course in Computational Neuroscience, Woods Hole, MA, USA
1985 Ph.D. in Neuroethology, Université Paul Sabatier, Toulouse, France
1985 Doctorate in Veterinary Medicine, National School of Veterinary Medicine, Toulouse, France
1978 Baccalaureat "C" (Math & Physics), “Mention Très-Bien”
1975-78 Lycée Pierre de Fermat, Toulouse, France

B. ACADEMIC POSITIONS

2008- Director, Max-Planck-Institute of Brain Research, Frankfurt, Germany
2002-11 *Lawrence A. Hanson* Professor of Biology and CNS, Caltech, USA
2000-02 Professor of Biology and CNS, Caltech
1996-00 Associate Professor of Biology and CNS, Caltech
1990-95 Assistant Professor of Biology and CNS, Caltech
1987-90 Royal Society Locke Research Fellow, University of Cambridge, UK
1985-87 Postdoctoral Research Assistant, University of Cambridge, UK

C. RESEARCH EXPERIENCE

2008 Visiting Scholar, Ecole Normale Supérieure, Paris, France.
2005 Visiting Scholar, Clark Center, Stanford University, CA.
1990- Professor, Caltech, Pasadena, CA.
1985-90 Postdoctoral Research, University of Cambridge, UK.
1983 Visitor, Technische Universität, München, Germany.
1983 Visitor, MPI für Verhaltensphysiologie, Seewiesen, Germany.
1982-85 Pre-doctoral Research, Université Paul Sabatier, Toulouse, France.
1982 Visitor, Laboratory for Energy-related Health Research, U.C. Davis, CA.

D. HONORS

2002 Fellow Associate, Neurosciences Institute, La Jolla, CA
2001 Fellow, American Association for the Advancement of Science
2000-03 McKnight Neuroscience Investigator Award
1993-98 National Science Foundation Presidential Faculty Fellow Award
1993 L.L. and A.W. Ferguson Award for excellence in Teaching
1992 L.L. and A.W. Ferguson Award for excellence in Teaching

1991-94 McKnight Neuroscience Young Investigator Award
1991-93 Alfred P. Sloan Research Fellow Award
1990-93 Searle Fellow Award
1987 International Society for Neuroethology Prize
1987-90 Royal Society Locke Research Fellow, UK
1987-90 Research Fellow, Downing College, Cambridge, UK
1985 Fyssen Foundation Fellowship, Paris (declined)
1985 S. & C. del Duca Foundation Fellowship, Paris (declined)
1985 1985 City of Toulouse Prize (Natural and Life Sciences)

E. NAMED LECTURES

Keynote Lecturer, FENS (European Neurosciences) meeting, Milan (2014)
Rush & Helen Record Neuroscience Award Lecturer, Baylor Coll. of Medicine (2014)
Ruth K. Broad and Shepard Broad Foundation International Lecturer on Neurobiology and Disease, Duke University (2013)
NIPS Keynote Lecturer, Granada, Spain (2011)
Max Birnstiel Lecture, Vienna, Austria (2011)
ANS Overseas Lecturer, Sydney, Australia (2010)
Swammerdam Lecturer, Amsterdam, Holland (2009)
Masakazu Konishi Lecturer, Woods Hole MA (2009)
Robert J. Terry Lecturer, Washington University School of Medicine (2009)
Teuber, Lecturer, MIT, Cambridge, MA (2008)
Special Lecture, Society for Neuroscience, San Diego CA (2007)
Ernst Florey Lecture, German Neuroscience Meeting, University of Göttingen (2007)
Monell/Penn Lecture (2006)
D-Biol Lecture, ETH Zürich (2006)
Heller Lecture, Hebrew University (2006)
Ernest C. Watson Lecture, Caltech (2005)
David Bodian Lecture, Johns Hopkins University (2005)
Hertie Lecture, European Neuroscience Association Meeting, Lisbon (2004)
Perkins Lecture, University of Cambridge (2002)
Dupont Lecture, Arizona Research Labs, University of Arizona (1997)

F. SERVICE

Journals
Reviewer: Cell, Current Biology, Eur. J. Neuroscience, Frontiers Journals, J. Comp. Neurol., J.Neuroscience, J.Neurophysiology, J. Comput. Neurosci., J. Exp. Biology, Nature, Nature Neuroscience, Neuron, Neural Computation, PLoS, Science
Editor: J Comput Neuro; J Physiol (Paris)
Guest Editor: Annual Rev. Neuroscience, Current Opinion Neurobiology

Grant reviewer (NIH, NSF, Wellcome, HSFP, DFG, Fondation *Schlumberger*, ATIPE, ANR, ERC, German-Israeli Foundation for Scientific Research)

US committees:
2005: Organizing Committee, Gordon Conference on Circuits and Synapses;
2006: Planning Committee, Computational/Systems Neuroscience, NIH;
2011- : Society for Neuroscience Girard Prize Committee.

Scientific Advisory Boards:
2009-2013: NeRF-VIB Leuven;
2009-2014: Ecole des Neurosciences de Paris, Fr.
2009-2013: Biozentrum Basel, CH.
2013 : Neuro-PSI Saclay, France
2014 : AERES UNIC Gif s/Yvette France
2014- : Graduate Program, Champalimaud Center for the Unknown, Portugal

Review Boards:
2013, 2014: Howard Hughes Medical Institute Investigators review.
2012-2013 : Hiring Committee, Pasteur Institute, Paris, France
2013 : Hiring Committee, ETH Zürich, CH

Courses
2012: Drosophila Neuroscience Course: MPI Chemical Ecology, Jena;
2011: Neuroscience course, University of Copenhagen;
2005, Computational Neuroscience Course, Arcachon, France;
1998, Cold Spring Harbor Labs NY, Neurobiology Course;
1996, US-German School of Neuroethology, Munich, Germany;
1996, Woods Hole MA, Scholar in Residence, Neural Systems and Behavior Course;
1996, Cold Spring Harbor NY, Neurobiology Course;
1995, Cold Spring Harbor NY, Drosophila Neurobiology Course).

Caltech Academic Affairs Committees:
1998-2001: CNS Option Representative.
1992-2009: Faculty searches (co-chair: Systems Biology; Computational Neuro-science; Cellular Neuroscience; Primate Neuroscience; Psychophysics)
2003-2009: Undergraduate Curriculum Committee.
2006-2007: Study-Abroad Committee.
2005-2006: Athletics Committee.
2001-2002: Patents Committee.
2001-2009: Biology Graduate Admissions Committee.
1990-1998: CNS Graduate Admissions Committee.
2005-2009: CNS Graduate Admissions Committee.

MPIBR and MPG academic affairs
2009-2013: Managing Director
2010- : IMPRS admissions committee
2009- : various search committees

G. TEACHING

Caltech:
Bi-150: Introduction to Neuroscience; Senior UG class; 1990-2005;
Bi-250b: Systems Neuroscience; Graduate class; 2003-2009;
Bi 162: co-taught with Erin Schuman; Electrophysiology Lab class; 2004-present:
Phys-1; CNS-100 and other classes: Guest lecturer.

MPIBR Frankfurt/IMPRS teaching:
2011- : IMPRS classes: Cellular, Synaptic, Systems Neuroscience, Ethics; 12hrs.
2011 : Graduate Seminar Class: Systems Neuroscience, co-taught with Prof Jochen Triesch, FIAS and Physics.

H. GRANTS (since at MPI Brain Research)

ERC Advanced Investigator Grant "Function and computation in three-layer cortex", project no. 322705, 01.02.2013 – 31.01.2018

LOEWE Neuronale Koordination Forschungsschwerpunkt Frankfurt (NeFF), "Dynamik und Koordination in einem dreischichtigen Kortex", project no. A6, 01.01.2011 – 31.12.2013

I. EXPERTISE

Systems and Computational Neuroscience
Neural Coding, Olfaction, Vision, Cortex Evolution

J. PUBLICATIONS:

1. Research papers

Shen K, Tootoonian S and Laurent G (2013) "Encoding of mixtures in a simple olfactory system." *Neuron* **80**: 1246-1262.

Rutishauser U, Kotowicz A and Laurent G (2013) "A method for closed-loop presentation of sensory stimuli conditional on the internal brain-state of awake animals." *Journal of Neuroscience Methods* **215**:139-155

Cassenaer S and Laurent G (2012) "Conditional modulation of spike-timing-dependent plasticity for olfactory learning." *Nature* **482**: 47-52.

Narayan A, Laurent G and Sternberg PW (2011) "Transfer characteristics of a thermosensory synapse in *Caenorhabditis elegans." Proc Natl Acad Sci USA* **108**: 9667-72.

Papadopoulou M, Cassenaer S, Nowotny T and Laurent G (2011) "Normalization for sparse encoding of odors by a wide-field interneuron." *Science* **332**: 721-5.

Tootoonian S and Laurent G (2010) "Electric times in olfaction." *Neuron* **67**: 903-5.

Geffen MN, Broome BM, Laurent G and Meister M (2009) "Neural encoding of rapidly fluctuating odors." *Neuron* **61**: 570–86.

Du J, Riedel-Kruse IH, Nawroth JC, Roukes ML, Laurent G and Masmanidis SC (2009) "High-resolution three-dimensional extracellular recording of neuronal activity with microfabricated electrode arrays." *J Neurophysiol* **101**: 1671–8.

Murthy M, Fiete IR and Laurent G (2008) "Testing odor response stereotypy in the *Drosophila* mushroom body." *Neuron* **59**: 1009-23.

Rabinovich M, Huerta R and Laurent G (2008) "Neuroscience. Transient dynamics for neural processing." *Science* **321**: 48-50.

Turner GC, Bazhenov M, and Laurent G (2008) "Olfactory representations by *Drosophila* mushroom body neurons." *J Neurophysiol* **99**: 734-46.

Moreaux L and Laurent G (2007) “Estimating firing rates from calcium signals in locust projection neurons in vivo.” *Front Neural Circuits* **1**:2: 1-13.

Jayaraman V and Laurent G (2007) “Evaluating a genetically encoded optical sensor of neural activity using electrophysiology in intact adult fruit flies.” *Front Neural Circuits* **1**:3: 1-9.

Cassenaer S and Laurent G (2007) “Hebbian STDP in mushroom bodies facilitates the synchronous flow of olfactory information in locusts.” *Nature* **448**: 709-13.

Assisi C, Stopfer M, Laurent G and Bazhenov M (2007) “Adaptive regulation of sparseness by feedforward inhibition.” *Nat Neurosci* **10**: 1176-84.

Jortner RA, Farivar SS and Laurent G (2007) “A simple connectivity scheme for sparse coding in an olfactory system.” *J Neurosci* **27**: 1659-69.

Broome BM, Jayaraman V and Laurent G (2006) “Encoding and decoding of overlapping odor sequences.” *Neuron* **51**: 467-82.

Gabbiani F, Cohen I and Laurent G (2005) “Time-dependent activation of feed-forward inhibition in a looming-sensitive neuron.” *J Neurophysiol* **94**: 2150-61.

Mazor O and Laurent G (2005) “Transient dynamics versus fixed points in odor representations by locust antennal lobe projection neurons.” *Neuron* **48**: 661-73.

Wilson RI and Laurent G (2005) “Role of GABAergic inhibition in shaping odor-evoked spatiotemporal patterns in the Drosophila antennal lobe.” *J Neurosci* **25**: 9069-79.

Bazhenov M, Stopfer M, Sejnowski TJ and Laurent G (2005) “Fast odor learning improves reliability of odor responses in the locust antennal lobe.” *Neuron* **46**: 483-92.

Wilson RI, Turner GC and Laurent G (2004) “Transformation of olfactory representations in the Drosophila antennal lobe.” *Science* **303**: 366-70.

Friedrich RW, Habermann CJ and Laurent G (2004) “Multiplexing using synchrony in the zebrafish olfactory bulb.” *Nat Neurosci* **7**: 862-71.

Gabbiani F, Krapp HG, Hatsopoulos N, Mo CH, Koch C and Laurent G (2004) “Multiplication and stimulus invariance in a looming-sensitive neuron.” *J Physiol Paris* **98**: 19-34.

Perez-Orive J, Bazhenov M and Laurent G (2004) “Intrinsic and circuit properties favor coincidence detection for decoding oscillatory input.” *J Neurosci* **24**: 6037-47.

Friedrich RW and Laurent G (2004) “Dynamics of olfactory bulb input and output activity during odor stimulation in zebrafish.” *J Neurophysiol* **91**: 2658-69.

Stopfer M, Jayaraman V and Laurent G (2003) “Intensity versus identity coding in an olfactory system.” *Neuron* **39**: 991-1004.

Tracey WD, Wilson RI, Laurent G, and Benzer S (2003) “*painless*, a *Drosophila* gene essential for nociception.” *Cell* **113**: 261-73.

Gabbiani F, Krapp HG, Koch C and Laurent G (2002) “Multiplicative computation in a

visual neuron sensitive to looming." *Nature* **420**: 320-4.

Pouzat C, Mazor O and Laurent G (2002) "Using noise signatures to optimize spike-sorting and to assess neuronal classification quality." *J Neurosci Methods* **122**: 43-57.

Perez-Orive J, Mazor O, Turner GC, Cassenaer S, Wilson RI and Laurent G (2002) "Oscillations and sparsening of odor representations in the mushroom body." *Science* **297**: 359-65.

Nusser Z, Kay LM, Laurent G, Homanics GE and Mody I (2001) "Disruption of GABA(A) receptors on GABAergic interneurons leads to increased oscillatory power in the olfactory bulb network." *J Neurophysiol* **86**: 2823-33.

Friedrich RW and Laurent G (2001) "Dynamic optimization of odor representations by slow temporal patterning of mitral cell activity." *Science* **291**: 889-94.

Rabinovich M, Volkovskii A, Lecanda P, Huerta R, Abarbanel HD and Laurent G (2001) "Dynamical encoding by networks of competing neuron groups: winnerless competition." *Phys Rev Lett* **87**: 068102.

Bazhenov M, Stopfer M, Rabinovich M, Huerta R, Abarbanel HD, Sejnowski TJ and Laurent G (2001) "Model of transient oscillatory synchronization in the locust antennal lobe." *Neuron* **30**: 553-67.

Bazhenov M, Stopfer M, Rabinovich M, Abarbanel HD, Sejnowski TJ and Laurent G (2001) "Model of cellular and network mechanisms for odor-evoked temporal patterning in the locust antennal lobe." *Neuron* **30**: 569-81.

Gabbiani F, Mo C and Laurent G (2001) "Invariance of angular threshold computation in a wide-field looming-sensitive neuron." *J Neurosci* **21**: 314-29.

Rabinovich MI, Huerta R, Volkovskii A, Abarbanel HD, Stopfer M and Laurent G (2000) "Dynamical coding of sensory information with competitive networks." *J Physiol Paris* **94**: 465-71.

Stopfer M and Laurent G (1999) "Short-term memory in olfactory network dynamics." *Nature* **402**: 664-8.

Kay LM and Laurent G (1999) "Odor- and context-dependent modulation of mitral cell activity in behaving rats." *Nat Neurosci* **2**: 1003-9.

Gabbiani F, Krapp HG and Laurent G (1999) "Computation of object approach by a wide-field, motion-sensitive neuron." *J Neurosci* **19**: 1122-41.

Wehr M and Laurent G (1999) "Relationship between afferent and central temporal patterns in the locust olfactory system." *J Neurosci* **19**: 381-90.

MacLeod K, Bäcker A and Laurent G (1998) "Who reads temporal information contained across synchronized and oscillatory spike trains?" *Nature* **395**: 693-8.

Stopfer M, Bhagavan S, Smith BH and Laurent G (1997) "Impaired odour discrimination on desynchronization of odour-encoding neural assemblies." *Nature* **390**: 70-4.

Wehr M and Laurent G (1996) "Odour encoding by temporal sequences of firing in

oscillating neural assemblies." *Nature* **384**: 162-6.

MacLeod K and Laurent G (1996) "Distinct mechanisms for synchronization and temporal patterning of odor-encoding neural assemblies." *Science* **274**: 976-9.

Berkowitz A and Laurent G (1996) "Central generation of grooming motor patterns and interlimb coordination in locusts." *J Neurosci* **16**: 8079-91.

Berkowitz A and Laurent G (1996) "Local control of leg movements and motor patterns during grooming in locusts." *J Neurosci* **16**: 8067-78.

Laurent G, Wehr M and Davidowitz H (1996) "Temporal representations of odors in an olfactory network." *J Neurosci* **16**: 3837-47.

Leitch B and Laurent G (1996) "GABAergic synapses in the antennal lobe and mushroom body of the locust olfactory system." *J Comp Neurol* **372**: 487-514.

Hatsopoulos N, Gabbiani F and Laurent G (1995) "Elementary computation of object approach by a wide-field visual neuron." *Science* **270**: 1000-3.

Sivaramakrishnan S and Laurent G (1995) "Pharmacological characterization of presynaptic calcium currents underlying glutamatergic transmission in the avian auditory brainstem." *J Neurosci* **15**: 6576-85.

Leitch B, Shepherd D and Laurent G (1995) "Morphogenesis of the branching pattern of a group of spiking local interneurons in relation to the organization of embryonic sensory neuropils in locust." *Philos T Roy Soc B* **349**: 433-47.

Hatsopoulos NG, Burrows M and Laurent G (1995) "Hysteresis reduction in proprioception using presynaptic shunting inhibition." *J Neurophysiol* **73**: 1031-42.

Ryckebusch S, Wehr M and Laurent G (1994) "Distinct rhythmic locomotor patterns can be generated by a simple adaptive neural circuit: biology, simulation and VLSI implementation." *J Comput Neurosci* **1**: 339-58.

Ryckebusch S and Laurent G (1994) "Interactions between segmental leg central pattern generators during fictive rhythms in the locust." *J Neurophysiol* **72**: 2771-85.

Laurent G and Davidowitz H (1994) "Encoding of olfactory information with oscillating neural assemblies." *Science* **265**: 1872-5.

Laurent G and Naraghi M (1994) "Odorant-induced oscillations in the mushroom bodies of the locust." *J Neurosci* **14**: 2993-3004.

Wolf H and Laurent G (1994) "Rhythmic modulation of the responsiveness of locust sensory local interneurons by walking pattern generating networks." *J Neurophysiol* **71**: 111-8.

Laurent G (1993) "A dendritic gain control mechanism in axonless neurons of the locust, *Schistocerca americana*." *J Physiol* **470**: 45-54.

Leitch B and Laurent G (1993) "Distribution of GABAergic synaptic terminals on the dendrites of locust spiking local interneurones." *J Comp Neurol* **337**: 461-70.

Ryckebusch S and Laurent G (1993) "Rhythmic patterns evoked in locust leg motor

neurons by the muscarinic agonist pilocarpine." *J Neurophysiol* **69**: 1583-95.

Laurent G, Seymour-Laurent KJ and Johnson K (1993) "Dendritic excitability and a voltage-gated calcium current in locust nonspiking local interneurons." *J Neurophysiol* **69**: 1484-98.

Burrows M and Laurent G (1993) "Synaptic potentials in the central terminals of locust proprioceptive afferents generated by other afferents from the same sense organ." *J Neurosci* **13**: 808-19.

Leitch B, Laurent G and Shepherd D (1992) "Embryonic development of synapses on spiking local interneurones in locust." *J Comp Neurol* **324**: 213-36.

Shepherd D and Laurent G (1992) "Embryonic development of a population of spiking local interneurones in the locust (Schistocerca gregaria)." *J Comp Neurol* **319**: 438-53.

Laurent G and Sivaramakrishnan A (1992) "Single local interneurons in the locust make central synapses with different properties of transmitter release on distinct postsynaptic neurons." *J Neurosci* **12**: 2370-80.

Laurent G (1991) "Evidence for voltage-activated outward currents in the neuropilar membrane of locust nonspiking local interneurons." *J Neurosci* **11**: 1713-26.

Watson AH and Laurent G (1990) "GABA-like immunoreactivity in a population of locust intersegmental interneurones and their inputs." *J Comp Neurol* **302**: 761-7.

Laurent G (1990) "Voltage-dependent nonlinearities in the membrane of locust nonspiking local interneurons, and their significance for synaptic integration." *J Neurosci* **10**: 2268-80.

Laurent G and Burrows M (1989). "Intersegmental interneurons can control the gain of reflexes in adjacent segments of the locust by their action on nonspiking local interneurons." *J Neurosci* **9**: 3030-9.

Laurent G and Burrows M (1989) "Distribution of intersegmental inputs to nonspiking local interneurons and motor neurons in the locust." *J Neurosci* **9**: 3019-29.

Laurent G and Hustert R (1988) "Motor neuronal receptive fields delimit patterns of motor activity during locomotion of the locust." *J Neurosci* **8**: 4349-66.

Laurent G and Burrows M (1988) "A population of ascending intersegmental interneurones in the locust with mechanosensory inputs from a hind leg." *J Comp Neurol* **275**: 1-12.

Burrows M, Laurent GJ and Field LH (1988) "Proprioceptive inputs to nonspiking local interneurons contribute to local reflexes of a locust hindleg." *J Neurosci* **8**: 3085-93.

Laurent G and Burrows M (1988) "Direct excitation of nonspiking local interneurones by exteroceptors underlies tactile reflexes in the locust." *J Comp Physiol A* **162**: 563-72.

Laurent G (1988) "Local circuits underlying excitation and inhibition of intersegmental interneurones in the locust." *J Comp Physiol A* **162**: 145-57.

Laurent, G (1987) “The role of spiking local interneurons in shaping the receptive fields of intersegmental interneurons in the locust.” *J Neurosci* **7**: 2977-89.

Laurent G (1987) “Parallel effects of joint receptors on motor neurones and intersegmental interneurones in the locust.” *J Comp Physiol A* **160**: 341-53.

Laurent G (1987) “The morphology of a population of thoracic intersegmental interneurones in the locust.” *J Comp Neurol* **256**: 412-29.

Laurent G (1986) “Thoracic intersegmental interneurones in the locust with mechanoreceptive inputs from a leg.” *J Comp Physiol A* **159**: 171-86.

Laurent G and Richard D (1986). “The organization and role during locomotion of the proximal musculature of the cricket foreleg. II Electromyographic activity during stepping patterns.” *J Exp Biol* **123**: 285-306.

Laurent G and Richard D (1986) “The organization and role during locomotion of the proximal musculature of the cricket foreleg. I Anatomy and innervation.” *J Exp Biol* **123**: 255-83.

2. Reviews

Moreaux L and Laurent G (2009) “A simple method to reconstruct firing rates from dentritic calcium signals” *Front Neurosci* **2**: 176-185.

Laurent G (2002) “Olfactory network dynamics and the coding of multidimensional signals.” *Nat Rev Neurosci* **3**: 884-95.

Laurent G, Stopfer M, Friedrich RW, Rabinovich MI, Volkovskii A and Abarbanel HD (2001) “Odor encoding as an active, dynamical process: Experiments, computation and theory.” *Annu Rev Neurosci* **24**: 263-97.

Laurent G (1999) “A systems perspective on early olfactory coding.” *Science* **286**: 723-8.

Koch C and Laurent G (1999) “Complexity and the nervous system.” *Science* **284**: 96-8.

Laurent G and Gabbiani F (1998) “Collision-avoidance: Nature's many solutions.” *Nat Neurosci* **1**: 261-3.

Laurent G, MacLeod K, Stopfer M and Wehr M (1998) “Spatiotemporal structure of olfactory inputs to the mushroom bodies.” *Learn Mem* **5**: 124-32.

Laurent G (1997) “Olfactory processing: maps, time and codes.” *Curr Opin Neurobiol* **7**: 547-53.

Laurent G (1996) “Dynamical representation of odors by oscillating and evolving neural assemblies.” *Trends Neurosci* **19**: 489-96.

Laurent G, Wehr M, MacLeod K, Stopfer M, Leitch B and Davidowitz H (1996) “Dynamic encoding of odors with oscillating neuronal assemblies in the locust brain.” *Biol Bull* **191**: 70-5.

Laurent G (1996) “Odor images and tunes.” *Neuron* **16**: 473-6.

Laurent G (1991) “Sensory control of locomotion in insects.” *Curr Opin Neurobiol* **1**: 601-4.

3. Book Chapters

Laurent G, Borst A (2008) “Dendritic short stories from invertebrates: linking biophysics and computation.” In: Dendrites (Eds. Stuart G, Spruston N, Hauesser M) 2nd Edition, Oxford University Press.

Laurent G (2006) “Olfactory microcircuits: dynamics and computation beyond the receptor neurons”. In: Microcircuits (Eds. Grillner S and Graybiel A) MIT Press: pp. 191-215.

Laurent G (2005) “Shall we even understand the fly’s brain?” In: 23 Problems in Systems Neuroscience. (Eds. Van Hemmen JL and Sejnowski TJ) Oxford University Press.

Laurent G, MacLeod K, Stopfer M, Wehr M (1999) “Dynamic representation of odors by oscillating neural assemblies.” In: Advances in synaptic plasticity (Eds. Baudry M, Davis JL and Thompson RF) Cambridge, MIT Press: pp. 221-38.

Laurent G (1999) “Dendritic processing in invertebrates: A link to function.” In: Dendrites (Eds. Stuart G, Spruston N and Hausser M) Oxford, Oxford University Press: pp. 290-309.

Stopfer M, Wehr M, MacLeod K and Laurent G (1999) “Neural dynamics, oscillatory synchronization, and odour codes.” In: Insect Olfaction (Ed.Hansson B S) Springer, Berlin: pp. 163-180.

Burrows M, Matheson T and Laurent G (1995) “Presynaptic gain control in a locust proprioceptor.” In: Neural control of movement (Eds. Ferrell WR and Proske U) New York, Plenum Press: pp. 253-60.

Laurent G (1993) “Integration by spiking and nonspiking local interneurons in locust central nervous system.” In: Biological Neural Networks in Invertebrate Neuroethology and Robots (Eds. Beer RD, Ritzmann RE et al.) Academic Press: pp. 69-85.

Laurent G (1991) “Intersegmental interneurones and interactions between centres of local integration in the locust central nervous system.” In: Mechanisms of Arthropod and Vertebrate Locomotion (Eds. Armstrong D and Bush BMH) Manchester University Press: pp. 11-24.

Burrows M and Laurent G (1989) “Reflex circuits and the control of leg movement.” In: The Computing Neuron (Eds. Durbin R, Miall C) Addison Wesley: pp. 244-61.

Honegger HW, Garcia-Scheible I and Laurent G (1985). “Vibration blocks habituation of an optically released antennal response in crickets.” In: Acoustic and vibrational communication in insects. (Eds. Kalmring G and Elsner N) Paul Darcy.

Richard D, Preteur V, Laurent G and Campan R (1984) “Support neurophysiologique

de l'orientation a point de depart visuel chez le grillon." In: Vision chez les invertebrés. (Eds. Clement P and Ramousse R) CNRS Editions: pp. 209-215.

K. INVITED TALKS (1): *MEETINGS, WORKSHOPS AND SYMPOSIA*

2014 FENS meeting, Milan IT (forthcoming)
2014 AREADNE meeting on systems neuroscience, Santorini GR (forthcoming)
2013 Ascona Circuits Meeting, Ascona, CH
2013 Kavli ceremony, Berlin, Germany
2013 Cognitive Neuromorphic Engineering Workshop, Capo Caccia, Italy
2012 FLiACT Workshop on Electrophysiology, Jena, Germany
2012 Sensory Coding and Natural Environment 2012 Meeting, IST Austria, Klosterneuburg, Austria
2012 Sensory Coding Meeting, University of Göttingen, Germany
2012 Students Conference, University of Würzburg, Graduate School of Life Sciences, Würzburg, Germany
2012 University of Tokyo, Neural Circuits Symposium, Tokyo, Japan
2012 International Neuroscience Winter Conference, Sölden, Austria.
2012 Computational Neuroscience Meeting, Leysin, CH
2012 Biophysical Chemistry, Mol. Biology and Cybernetics of Cell Function, Klosters, CH
2011 Neural circuit function and development, Ascona, CH.
2011 CEA-LETI, Grenoble, France
2011 NIPS, Keynote lecture, Granada, Spain
2011 Computational Neuroscience, Barcelona, Spain
2011 Annual meeting Max Planck Society, Berlin, Germany
2010 FACETS/College de France, Paris, France
2010 Meeting at Hungary Academy of Science, Pecs, Hungary,
2010 First Francis Crick Symposium, CSH Asia, Suhhou, China
2010 Meeting at Neuroscience Institute, La Jolla, CA, USA
2010 Seminar at Bernstein Center, LMU, Munich, Germany
2010 AREADNE Meeting, Santorini, Greece
2010 Francis Crick Cold Spring Harbor Symposium, Shuzhou, China
2010 Neuroscience Institute Meeting, La Jolla, CA, USA
2010 ANS Meeting, Sydney, Australia
2009 Biozentrum Symposium, Basel Switzerland
2009 Strüngmann Forum, FIAS, Frankfurt Germany
2009 Bernstein Centers Meeting, Frankfurt Germany
2008 Hippocampus meeting, Svalbard, Spitsbergen, Norway
2008 AREADNE meeting, Santorini, Greece
2008 Genes and Brain Meeting, Paris, France
2008 European Systems Consortium, Gif sur Yvette, France
2007 Ladislav Tauc Conference in Neurobiology, Gif sur Yvette, France
2007 Integrative Approaches to Brain Complexity, Wellcome Trust, Hinxton, UK
2007 Special Lecture, 2007 Soc. For Neuroscience Meeting, San Diego, CA
2007 Circuits and Plasticity Gordon Conference, Newport, RI
2007 Learning and Memory Meeting, UCLA, Los Angeles CA
2007 Santa Fe/Los Alamos Ctr for Computational Neuroscience, Santa Fe, NM
2007 NRP meeting, Neuroscience Institute, La Jolla, CA
2007 NSF-NIH Neuroscience Meeting, U. Maryland, MD
2007 Florey Lecture, Goettingen Neurobiology Meeting, Germany
2006 Monell/ARO Meeting, Monell Institute, Philadelphia, Penn.
2006 AREADNE meeting, Santorini, Greece.
2005 Neurons and Sensory Systems, *Neuron Symposium*, Washington, DC.
2005 The Assembly and Function of Neuronal Circuits, Ascona, CH.

2005 Synaptic Communication in Neuronal Networks (Monod Conf.), Roscoff, F.
2005 UCLA, Computational Neuroscience meeting, Los Angeles, CA
2005 UCLA, Learning & Memory meeting, Los Angeles, CA
2005 CoSyNe meeting, Utah
2005 Seventy-second stated meeting of NRP Associates, The Neurosciences Institute
2004 McGovern Institute, MIT, Cambridge MA
2004 Aspen Physics Institute, Aspen CO
2004 Hertie Lecturer, European Neuroscience Meeting, Lisbon, Portugal
2004 Dahlem Conference, Berlin, Germany
2004 CoSyNe meeting, Cold Spring Harbor Labs, CSH, NY
2003 National Academies, *Keck Futures Initiative*, NAS, Irvine, CA
2003 "Monte Veritas" Neuroscience meeting, Ascona, Switzerland
2003 Computational Neuroscience Workshop, Santa Fe, NM
2003 NRP meeting, Neuroscience Institute, La Jolla, CA
2002 European Neuroscience Meeting, Paris, France
2002 NEC Lectures in Biophysics, NEC & Princeton University, Princeton, NJ
2002 Bioforum, "Deciphering the Brain," Public Lecture, Caltech, Pasadena, CA
2002 Learning and Memory Meeting, UCLA, Los Angeles CA
2002 Institut Henri Poincaré, Paris, France
2001 Independent Component Analysis Meeting, Del Mar, CA
2001 Soc. For Neuroscience 2001 Meeting, San Diego, CA
2001 Gordon Conference (Chemical Senses), Newport RI
2001 Keystone Symposium (Synapses), Taos, NM
2001 Winter Brain Research Conferences, Antigua
2000 Stimulus Statistics Meeting, Cold Spring Harbor Labs, NY
2000 Gordon Conference (Synaptic Function), NH
2000 McKnight Foundation meeting, Aspen CO
2000 Keck Foundation Symposium, Caltech
2000 Biophysics Society Meeting Symposium, New Orleans, LA
1999 Ascona (Monte Verita) meeting on Neurons and Circuits (Switzerland)
1999 IBRO, Jerusalem (sent postdoctoral fellow Dr. Mark Stopfer)
1999 Sloan Centers for Theoretical Neuroscience mtg., La Jolla CA
1999 Salk Institute-Caltech joint meeting, La Jolla, CA
1999 Learning and Memory Gordon Conference, Newport RI
1999 French Neuroscience Society Meeting, Marseille, France
1999 Temporal Coding Workshop, Bremen, Germany
1998 European Olfaction Meeting, Siena, Italy
1998 Jacques Monod Conference, Roscoff, France
1998 Olfaction and Ecology Meeting, Oxford, UK
1998 Olfaction Meeting, CNRS, Paris, France
1998 AChems Meeting, Sarasota, FL
1998 Role of Time in Neural Processing, Titesee, Germany
1997 Neurobiology Meeting, CNRS, Arcachon France
1997 ESITO meeting, Sardinia, Italy
1997 Learning and Memory Meeting, Angers France
1997 Time in Neuroethology Meeting, Charlottesville, VA
1997 Santa Fe Institute, Sloan Ctrs. for Theoretical Neuro. workshop, NM
1997 Snowbird Computational Neuroscience Workshop, UT
1996 Development and evolution of brain centers for learning meeting, IL
1996 Olfaction meeting, Max Planck Society, Frankfurt, Germany
1996 Gordon Conference, Chemical Senses, Newport, RI
1995 Vincent Dethier Memorial Symposium, Amherst, MA
1995 Neuroethology Congress, Olfaction Symposium, Cambridge, UK
1995 Olfaction Meeting, Lund, Sweden

1995 Santa Fe Institute, Sloan Ctrs. for Theoretical Neuro. workshop, NM
1995 Neural Coding Meeting, Prague, Czekoslovakia
1995 N.A.S.-Humboldt Fdtn. "Frontiers in Science" Meeting, Dresden, Germany
1994 Computational Neuroscience Workshop, Woods Hole, MA
1994 Hebb Symposium on Neurons and Biological Dynamics, Toronto, Canada
1993 Computations and Neural Systems '93 Meeting, Washington DC
1993 Santa Fe Institute Workshop on Dynamical Systems, Santa Fe, NM
1993 ONR Single Neuron Computation Meeting, Baltimore, MD
1993 Single Neuron Computation Meeting, Tübingen, Germany
1992 Integrative Neuroscience Meeting, MPI Biol. Cybernetics, Tübingen, DE
1992 Neurobiology Meeting, Göttingen, Germany
1991 ONR Neuroethology and Robotics Meeting, Woods Hole, MA
1989 UK Association of Physiologists Meeting, Bristol, UK
1989 CNRS Meeting on Sensory-motor integration, Arcachon, France
1989 Snowbird Meeting on Neural Networks, Snowbird, UT
1988 Neuroethology Congress, Satellite meeting, Tützing, Germany

L. INVITED TALKS (2): *SEMINARS and LECTURES*

2014 University of Rotterdam, Holland (forthcoming)
2014 University of Zürich, CH (forthcoming)
2014 Centre for Brain and Behavior, Oxford UK (forthcoming)
2014 New York University, Dept. Neuroscience, NY, NY USA (forthcoming)
2014 Baylor College of Medicine, Houston TX, USA (forthcoming)
2014 Hanse Lecture, Bremen, Germany (forthcoming)
2013 Duke University, Neuroscience, Durham NC, USA
2012 MPI Chemical Ecology, Jena, Germany
2012 École Polytechnique, Paris, France
2012 RIKEN Brain Science Institute Summer School, Tokyo, Japan
2012 Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany
2012 University of Edinburgh, Dept. Neuroscience, Scotland, UK
2012 Newcastle University, Dept. Neuroscience, Newcastle, UK
2012 Weizmann Institute of Science, Rehovot, Israel
2012 Harvard University, Cambridge MA, USA
2012 Janelia Farms, HHMI, VA, USA
2011 University of Copenhagen, Denmark
2011 Champalimaud Institute for the Unknown, Lisbon, Portugal
2011 University of Heidelberg, Germany
2011 University of Tübingen, Germany
2011 Max Birnstiel Lecture, Vienna, Austria
2010 J.W. Goethe University, Biology Department, Frankfurt
2010 J.W. Goethe University, Mathematics Department, Frankfurt
2010 FMI, Basel, Switzerland
2010 Munich University, Bernstein Computational Center
2009 Woods Hole, Konishi Lecturer MA
2009 Swammerdam Lecture, Amsterdam, Holland
2009 UCSF, San Francisco CA
2008 MIT, Biology Department, Teuber Lecture, Cambridge MA
2008 CNRS, Neurobiology, Marseille, France
2008 CNRS/Université Paris V, Neuroscience, rue des Saints-Pères, Paris, France
2008 CRG, Barcelona, Spain
2008 University of Cambridge, Zoology and Physiology Departments
2008 Max-Planck-Institute of Neurobiology, Martinsried, Germany
2008 Max-Planck-Institute of Biophysics, Frankfurt, Germany

2008 Ecole Normale Supérieure, Physics Department (parts i-iii), Paris, France
2007 JFRC seminar, JFRC/HHMI, VA, USA
2007 Neuroscience Program, Harvard Medical School, Boston, MA
2007 Neuroscience Department, Yale University, New Haven, CT
2007 Neuroscience Lecture, UT South Western Medical Center, UTSWU, Dallas/TX
2007 Center for Studies in Physics and Biology Seminar, Rockefeller U., NYC
2007 Biology Department, Caltech, Pasadena, CA
2006 Neuroscience Graduate Seminars Series, UC San Diego, La Jolla, CA
2006 Department of Neurobiology, University of Chicago, Chicago, IL
2006 Pasteur Institute, Paris, France
2006 Department of Neuroscience, NYU, NY, NY
2006 Penn/Monell Joint Lecture, Monell Institute, U. Penn., Philadelphia, Penn.
2006 Heller Lecture, Hebrew University, Jerusalem, Israel
2006 Janelia Farms Research Center, HHMI, VA
2006 D-Biol Special Lecture, ETH Biology Department, Zu□rich, Switz.
2006 CNBC Retreat Speaker, Carnegie Mellon University, Pittsburgh, Penn.
2006 Harvard Bauer Center, Cambridge, MA
2005 Clark Center and Dept of Biology, Stanford University, Palo Alto CA
2005 Department of Neuroscience, UCLA, CA
2005 HWNI Student Seminar Series, UC Berkeley, CA
2005 Computational Neuroscience, Arcachon, France
2005 Ernest C. Watson Lecture, Caltech, CA
2005 The David Bodian Seminar in Neuroscience, Johns Hopkins University, MD
2005 University of Maryland, Baltimore MD
2005 Neuroscience Colloquium Series, Rutgers University, NJ
2004 MIT McGovern Institute Retreat, MA
2004 UC Davis, CA
2004 UC Riverside, CA
2003 Volum Institute, Portland, OR
2003 Caltech Physics Colloquium, Pasadena CA
2002 Harvard University, Bio Labs, Cambridge, MA
2002 Ecole Supérieure de Physique et Chimie (ESPCI), Paris, France
2002 Perkins Lecturer, Cambridge University
2002 UCSF, Department of Anatomy, San Francisco, CA
2002 Washington University, St Louis, Missouri
2002 UC Irvine, Neurobiology Department, Irvine CA
2001 UCSD, Department of Biology, La Jolla, CA
2001 Duke University Med. School, Durham, NC
2001 Brandeis University, Waltham, MA
2000 USC, Neuroscience Department, Los Angeles, CA
2000 Naples Zoological Station, Naples, Italy
2000 Stanford University, Neuroscience Department, Palo Alto, CA
2000 City of Hope Medical Center, Duarte, CA
1999 National Institutes of Health, Bethesda, MD.
1999 University of California at San Diego, La Jolla, CA
1999 University of California at Berkeley, Berkeley CA
1999 Mount Sinaï Medical Center, New York NY
1999 U. Penn., Dept. of Neuroscience, Philadelphia, PA
1999 Rutgers University, Newark NJ
1999 Southwestern University Medical Ctr., Mol. Cell Biol. Dept., Dallas TX
1998 University of California, Physiol Dept., Los Angeles, CA
1998 University of California, Mol. Cell Biol. Dept., Berkeley, CA
1998 University of Iowa, Dept. of Biology, Iowa City
1998 Institute for Nonlinear Science, Physics Dept., UCSD, La Jolla, CA

1998 Max Planck Institutes for Biol. Cybernetics and Devel. Biology, Tu□bingen, Germany
1998 Max Planck Institute for Brain Research, Frankfurt, Germany
1998 Caltech, Theory Seminar Series
1997 Harvard Medical School, Boston, MA
1997 UC Davis, CA
1997 Helmoltz Club, Irvine CA
1997 Dupont Lecturer, ARL, Tucson AZ
1997 Columbia University Medical School, NY NY
1997 UC Irvine, Department of Psychobiology, Irvine CA
1996 Yale University, Dept. Cell and Molecular Physiology, New Haven, CT
1996 UCSF, Sloan Ctr. for Theoretical Neuroscience, San Francisco, CA
1995 Cornell University, Neuroscience Department, Ithaca, NY
1995 UCSD, Institute for Computational Neuroscience, San Diego, CA
1995 University of Washington, Pharmacology Dept., Seattle, WA
1995 Brandeis University, Biology Dept., Waltham, MA
1994 University of Wu□rzburg, Genetics Department, Wu□rzburg, Germany
1994 Free University, Neurobiology Department, Berlin, Germany
1994 California Institute of Technology, CNS Program, Pasadena, CA
1994 Helmholtz Club, Irvine, CA
1994 UCB, Dept. Cell and Mol. Biology, Berkeley, CA
1993 California Institute of Technology, CNS seminar, Pasadena, CA
1992 ARL, University of Arizona, Neurobiology Division, Tucson, AZ
1992 University of Southern California, Neuroscience Dept., Los Angeles, CA
1992 Univ. of Oregon, Neurosci. Dept., Eugene, OR
1991 UCR, Entomolgy Dept., Riverside, CA
1990 UCSD, Biology Department, San Diego, CA
1990 Brandeis University, Biology Dpt., Waltham, MA
1990 University of Massachussetts, Neuro. and Behavior Dept., Amherst, MA
1989 University of Konstanz, Biology Dept., Germany
1989 Max-Planck Institüt for Behavioral Physiology, Seewiesen, Germany
1989 University of Tübingen, Dept. of Biocybernetics, Germany
1989 CNRS, Neuroscience Division, Marseille, France
1989 University of Cambridge, Zoology Dept., UK
1988 University of Newcastle, Neurobiology Dept., UK