

June 8

Morning

	Chair : Olivier Faugeras
9:00 – 9.15	Introductory remarks : Olivier Faugeras
9.15-10:00	The visual brain : computing through multiscale complexity Yves Fregnac, (CNRS, UNIC, France) Keynote Lecture
10.00-10:30	Genetic networks specifying the functional architecture of orientation domains in V1 Fred Wolf (MPI-DS, Germany)
10.30-11:00	Break
11.00-11:30	Understanding order and disorder in visual cortical circuits through self-organization Jaun Daniel Flórez Weidinger, (MPI-DS, Germany)
11.30-12:00	On the effects of the pinwheel network symmetries on cortical response Pascal Chossat (Inria, France) Invited Lecture
12.00-12:30	Statistical dynamics of balanced cortical circuits Robert Rosenbaum (University of Notre Dame, USA)

Lunch 12.30 – 14.00

Afternoon	Sessions I Cortical models Chair : Yves Frégnac	Session II Connectivity/Coding Chair : André Longtin
14.00-14.30	A gauge theory for coupling cortical layers Alessandro Sarti (CAMS, France) Invited Lecture	Binary recurrent neural networks with random coding Claude Berrou (CNRS Lab-STICC, France)
14.30-15.00	Differential effects of attention and input strength in auditory bistability James Rankin (CNS, New York, USA)	Topological analysis detects intrinsic geometric structure in neural correlations Vladimir Itskov (The Pennsylvania State University, USA)
15.00-15.30	Pinwheel-dipole structures in V1 : exhaustivity, parsimony and balanced detection Alberto Romagnoni (ENS, France)	Local independence graphs to understand the functional connectivity in the brain Christine Tuleau-Malot (CNRS-LJAD, France)
15.30-16.00	Break	
16.00-16.30	Noise-driven <i>up-down</i> transitions in a simple model for general anesthesia Pedro García-Rodríguez (Inria, France)	Global control of attractor switches in large-scale brain dynamics Emmanuel Daucé (Ecole Centrale Marseille, Inserm, France)
17.00-19.00	Poster Session I and welcome cocktail	

Evening

20.00	Program committee and Organizing Committee Dinner
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# June 9

## Morning

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|             | Chair : Paul Bressloff                                                                                                                                                 |
| 9.15-10:00  | Space: the final frontier spatiotemporal dynamics in neural fields<br>Bard Ermentrout <b>Keynote Lecture</b>                                                           |
| 10.00-10:30 | Stochastic synchronization of neural activity waves<br>Zachary P. Kilpatrick (University of Houston, USA)                                                              |
| 10.30-11:00 | Break                                                                                                                                                                  |
| 11.00-11:30 | Paradoxical oscillations from feedforward networks<br>Andre Longtin (University of Ottawa, Canada) <b>Invited Lecture</b>                                              |
| 11.30-12:00 | A master equation for neural population dynamics – Bridging microscopic spiking neural networks and mesoscopic population models<br>Tilo Schwalger (EPFL, Switzerland) |
| 12.00-12:30 | How somatic spikes are influenced by nonlinear active dendrites<br>Romain Veltz (Inria, France)                                                                        |

## Lunch 12.30 – 14.00

| Afternoon   | Sessions I<br>Stochastic models<br>Chair : Wilhelm Stannat                                                                              | Session II<br>Rhythms / Spiking<br>Chair : Martin Wechselberger                                                                                                 |
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| 14.00-14.30 | Neurons in mean-field interaction<br>Sylvain Rubenthaler (UNSA, LJAD, France)                                                           | Plausible and phenomenological models of multifunctional central pattern generators<br>Andrey Shilnikov (Neuroscience Institute, Georgia State University, USA) |
| 14.30-15.00 | Asymptotic analysis of stochastic travelling waves in stochastic neural field equations<br>James Maclaurin (Inria, France)              | A simple model of theta-gamma coupling<br>Lorenzo Fontolan (University of Geneva, Switzerland)                                                                  |
| 15.00-15.30 | Analysis and approximation of stochastic Nerve Axon Equations<br>Martin Sauer (TU Berlin, Germany)                                      | Rigorous results on robust traveling waves in periodically-forced chains of simple type-I oscillators<br>Stanislas M. Mintchev (The Cooper Union, USA)          |
| 15.30-16.00 | Break                                                                                                                                   |                                                                                                                                                                 |
| 16.00-16.30 | A numerical method for stochastic travelling waves in neural tissue<br>G. J. Lord (Maxwell Institute, MACS, Heriot Watt University, UK) | The role of canards in transition to bursting and spike adding<br>Maciej Krupa (Inria, France) <b>Invited Lecture</b>                                           |

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| 17.00-19.00 | Poster Session II |
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## Evening

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| 20:00 | Conference banquet |
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June 10

Morning

	Chair : Stephen Coombes
9.15-10:00	Simple or realistic models? Suzanne Ditlevsen Keynote Lecture
10.00-10:30	A stochastic Hodgkin-Huxley model with periodic input Michèle Thieullen (Université Pierre et Marie Curie, France) Invited Lecture
10.30-11:00	Break
11.00-11:30	Stochastic neural field equations Wilhelm Stannat (Technische Universität Berlin, Germany) Invited Lecture
11.30-12:00	New directions in bifurcation theory emerging from modeling neurosciences Jean-Pierre Francoise (Université Pierre et Marie Curie, France) Invited Lecture
12.00-12:30	The role of cell volume changes in normal and pathological dynamics of the brain Martin Wechselberger (University of Sidney, Australia) Invited Lecture

Lunch 12.30 – 14.00

Afternoon	Sessions I Development / Plasticity Chair : Romain Veltz	Session II Neural fields Chair : Zachary Kilpatrick
14.00-14.30	Competitive reaction diffusion systems with spatial cues: homeoprotein and the stability of compartments in developing nervous system Cristobal Quininao, (Collège de France and LJLL, France)	Using sun-star calculus for normal form calculations in neural field equations Stephan van-Gils (University of Twente, the Netherlands) Invited Lecture
14.30-15.00	Context-dependent representation in recurrent neural networks Gilles Wainrib (ENS, France)	Traveling pulses in some nonlocal FitzHugh-Nagumo equations Gregory Faye (CAMS France)
15.00-15.30	How did the evolution of color vision impact V1 functional architecture Manel Schottdorf (MPI-DS, Germany)	Standing and travelling waves in a spherical brain model: the Nunez model revisited Sid Visser (University of Nottingham, UK)
15.30-16.00	Break	
16.00-16.30	Interaction of synaptic plasticity rules lead to structure formation in balanced random networks Felix Effenberger (MPI-MS Germany)	Complex multiple timescale dynamics in a periodically forced Wendling-Chauvel neural mass model Mathieu Desroches (Inria, France)
16.45-17.15	Poster awards and closing ceremony	

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