Mean-field methods and multiscale analysis of neuronal populations

3-7 October 2011, CIRM, Marseille

Organizers: Nicolas Brunel and Olivier Faugeras

Schedule

Monday October 3

9.30-9.45	Nicolas Brunel (Paris) Welcome
9.45-10.30	Gianluigi Mongillo (Paris) Bi-Stability and Spatio-temporal Irregularity in Neuronal Networks with Non-linear Synaptic Transmission
10.30-11.00	Coffee break
11.00-11.45	Carl van Vreeswijk (Paris) Analysis of Network Activity in Spiking Networks with Synaptic Depression
11.45-12.30	Stefan Rotter (Freiburg) Spike Train Correlations Derived from Anatomical Microstructure
12.30-14.00	Lunch break
14.00-14.45	Olivier Faugeras (INRIA) Two or three things I know about mean-field methods for large assemblies of neurons
14.45-15.30	Kresimir Josic (Houston) Using linear response techniques to study the structure of network correlations
15.30-16.00	Coffee break
16.00-16.45	Erik Shea-Brown (Seattle) A mechanistic approach to multi-spike patterns in neural circuits

Tuesday, October 4

9.00-9.45	Srdjan Ostojic (New York) From Spiking Neuron Models to Linear-Nonlinear Models
9.45-10.30	Gilles Wainrib (Paris) Averaging principle for stochastic slow-fast systems in neuroscience
10.30-11.00	Coffee break
11.00-11.45	Carson Chow (NIH) Finite size effects in spiking neural networks
11.45-12.30	Jack Cowan (Chicago) Stochastic Wilson-Cowan equations for networks of excitatory and inhibitory neurons
12.30-14.00	Lunch break
14.00-14.45	Magnus Richardson (Warwick) Fast synapses and slow neuromodulators
14.45-15.30	José Carrillo (ICREA - Universitat Autònoma de Barcelona) Nonlinear Integrate&Fire Neuron Models: Analysis & Numerics
15.30-16.00	Coffee break
16.00-16.45	Poster Session

Wednesday, October 5

9.00-9.45	Jaime de la Rocha (Barcelona) Neuronal Variability, Co-variability and Choice Probability
9.45-10.30	Maurizio Mattia (Rome) Heterogeneous attractor modules for motor planning in macaque premotor cortex
10.30-11.00	Coffee break
11.00-11.45	Gérard Ben Arous (New York) A survey of mean field methods: the mathematician's viewpoint
11.45-12.30	Gasper Tkacik (IST Austria) Statistical mechanics for a network of real neurons
12.30-14.00	Lunch break
14.00-14.45	Aaditya Rangan (New York) Can classical population-dynamics methods capture the dynamics of the visual cortex?
14.45-15.30	David Hansel (Paris) Mechanism of orientation selectivity in primary visual cortex without orientation map
15.30-16.00	Coffee break

Thursday October 6

9.00-9.45	Michael Buice (NIH) Effective Langevin Equations for Heterogeneous Coupled Neural Networks
9.45-10.30	Richard Naud (Lausanne) A population approach to Coding and Decoding with Adapting Neurons
10.30-11.00	Coffee break
11.00-11.45	Cheng Ly (Pittsburgh) The balance between cellular and circuit regulation of low population variability enhances neural coding
11.45-12.30	Samuel Herrmann(Nancy) From stochastic resonance to stationary measures of McKean-Vlasov type equations
12.30-14.00	Lunch break
14.00-14.45	Duane Nykamp (Minnesota) The influence of network structure on neuronal network dynamics
14.45-15.30	Ashok Kumar (Pittsburgh) Slow dynamics in balanced networks with clustered connections
15.30-16.00	Coffee break

Friday, October 7

9.00-9.45	Alex Roxin (Barcelona) Oscillations in the bistable regime of neuronal networks
9.45-10.30	Michelle Thieullen (Paris) On spatially extended stochastic models of neurons
10.30-11.00	Coffee break
11.00-11.45	Bruno Cessac (Nice) Neural networks: some results about (i) Spike train statistics ; (ii) Linear response theory
11.45-12.30	Benjamin Lindner (Berlin) Mean-field theory for coupled hair bundles
12.30-14.00	Lunch break