

Centre de recherches mathématiques  
Université de Montréal

Atelier : Les neurosciences mathématiques  
Du 16 au 19 septembre 2007

*Workshop: Mathematical Neuroscience*  
*September 16-19, 2007*

## **HORAIRE / PROGRAM**

Conférences : salle 6214  
Pausés-Café : salle 6245

Commanditaires :  
MITACS  
Centre de Dynamique Neuronales, Université d'Ottawa

*Lectures: Room 6214*  
*Coffee Breaks: Room 6245*

*Sponsors:*  
*MITACS*  
*Center for Neural Dynamics, University of Ottawa*

## Le dimanche 16 septembre 2007 / *Sunday, September 16, 2007*

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- 08:30** Inscription (5345) / *Registration (5345)*
- 08:30** Café croissants (6245) / *Coffee & Croissants (6245)*
- 09:00 - 09:40** **G. Bard Ermentrout** (University of Pittsburgh)  
*"A coupla ducks: slow currents, canards, and weak coupling"*
- 09:40 - 10:20** **Amitabha Bose** (NJIT)  
*"Determining firing phases in CPG networks"*
- 10:20 - 10:50** Pause-café / *Coffee break*  
 (Salle / Room 6245)
- 10:50 - 11:30** **Martin Wechselberger** (University of Sydney)  
*"Canard induced mixed-mode oscillations in stellate cells of the entorhinal cortex"*
- 11:30 - 12:10** **Georgi Medvedev** (Drexel University)  
*"Noise-induced bursting oscillations"*
- 12:10 - 14:00** *Lunch break*
- 14:00 - 14:40** **William C. Troy** (University of Pittsburgh)  
*"Waves and synchrony in the Pinto-Ermentrout system"*
- 14:40 - 15:20** **Stephen Coombes** (University of Nottingham)  
*"Brain wave equations: The incorporation of axonal delays, patchy connections, and threshold accommodation"*
- 15:20 - 15:50** Pause-café / *Coffee break*  
 (Salle / Room 6245)
- 15:50 - 16:30** **Axel Hutt** (Humboldt University at Berlin)  
*"Effects of additive noise in neural populations"*
- 16:30 - 17:10** **Eric Shea-Brown** (Courant Institute, New York University)  
*"Tuned correlation transfer and consequences for coding"*
- 17:15** Cocktail de bienvenue et Session d'affiches (6245) / *Welcoming reception and Poster Session (6245)*

**Le lundi 17 septembre 2007 / Monday, September 17, 2007**

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| <b>08:30 - 09:10</b>  | <b>David Hansel</b> (CNRS-UMR8119)<br><i>“Competition between feedback loops underlies normal and pathological dynamics in basal ganglia”</i> |
| <b>09:10 - 09:50</b>  | <b>David Terman</b> (The Ohio State University)<br><i>“Synchronous and irregular firing patterns in a model for the STN/GPe network”</i>      |
| <b>09:50 - 10:10</b>  | Pause-café / <i>Coffee break</i><br>(Salle / Room 6245)   |
| <b>10:10 - 10:50</b>  | <b>Warren Grill</b> (Duke University)<br><i>“Effective Deep Brain Stimulation Regularizes Neuronal Activity”</i>                              |
| <b>10:50 - 11:30</b>  | <b>Cameron McIntyre</b> (Cleveland Clinic)<br><i>“Quantifying the Neural Response to Deep Brain Stimulation”</i>                              |
| <b>11:30 - 11:50</b>  | Pause-café / <i>Coffee break</i><br>(Salle / Room 6245)   |
| <b>11:50 - 12:30</b>  | <b>Peter Tass</b> (Institute of Medicine)<br><i>“Long-lasting therapeutic effects of desynchronizing brain stimulation”</i>                   |
| <b>12:30 - 14:00</b>  | <i>Lunch break</i>  |
| <b>14:00 - 14:40</b>  | <b>Michael Rosenblum</b> (Potsdam University)<br><i>“Controlling collective neural synchrony by feedback”</i>                                 |
| <b>14:40 - 15:20</b>  | <b>Yuri Maistrenko</b> (Research Center Juelich)<br><i>“Multistability in the Kuramoto model with synaptic plasticity”</i>                    |
| <b>15:20 - 16:00</b>  | <b>Frances Skinner</b> (University Health Network (UHN))<br><i>“Control of synchrony by distal dendritic gap junctions”</i>                   |
| <b>16:00 - 16:30</b>  | Pause-café / <i>Coffee break</i><br>(Salle / Room 6245)   |
| <b>Session - Chaire André-Aisenstadt 2007 / André-Aisenstadt Chair 2007</b> |   |
| <b>16:30 - 17:30</b>  | <b>John Rinzel</b> (New York University )<br><i>“Dynamics of Visual Bistable Perception: e.g., the Necker Cube”</i>                           |
| <b>17:30</b>  | Cocktail (6245) / <i>Reception (6245)</i>   |



Le mardi 18 septembre 2007 / *Tuesday, September 18, 2007*

- 08:30 - 09:10 Ian Bruce** (McMaster University)  
*“Stochastic ion channel gating in the auditory nerve: models and implications”*
- 09:10 - 09:50 John Rinzel** (New York University )  
*“Timing computations in the auditory brain stem”*
- 09:50 - 10:10** Pause-café / *Coffee break*  
(Salle / Room 6245)
- 10:10 - 10:50 Gal Chechik** (Stanford University)  
*“Redundancy reduction in the ascending auditory system”*
- 10:50 - 11:30 Mounya Elhilali** (Neural Systems Laboratory, University of Maryland)  
*“A cortical view on auditory scene analysis: a physiological & computational approach”*
- 11:30 - 11:50** Pause-café / *Coffee break*  
(Salle / Room 6245)
- 11:50 - 12:30 J. Leo van Hemmen** (TU München)  
*“Supervised spike-timing dependent plasticity: A convergence proof”*
- 12:30 - 14:00** *Lunch break*
- 14:00 - 14:40 Benjamin Lindner** (Max-Planck-Institut für Physik komplexer Systeme)  
*“Exact mean and variance of neuronal subthreshold voltage fluctuations driven by shot noise”*
- 14:40 - 15:20 Paul Miller** (Brandeis University)  
*“Stochastic transitions in neuronal systems: taste, decisions and timing”*
- 15:20 - 15:50** Pause-café / *Coffee break*  
(Salle / Room 6245)
- 15:50 - 16:30 Magnus Richardson** (University of Warwick)  
*“Measuring and modelling the neuronal response function of cortical neurons”*
- 16:30 - 17:10 Néstor Parga** (Universidad Autónoma de Madrid)  
*“Synchronous transitions between up and down states in a network model of spontaneous activity”*

Le mercredi 19 septembre 2007 / *Wednesday, September 19,*  
*2007*

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- 08:30 - 09:10** **Mingzhou Ding** (University of Florida)  
*“Laminar organization and function of cortical oscillations”*
- 09:10 - 09:50** **Philip Holmes** (Princeton University)  
*“Oscillatory circuits underlying the retinal detection of temporal patterns”*
- 09:50 - 10:10** Pause-café / *Coffee break*  
(Salle / Room 6245)
- 10:10 - 10:50** **Yulia Timofeeva** (University of Warwick)  
*“Resonant dendrites with active spines: sub-threshold dynamics in the spike-diffuse-spike model”*
- 10:50 - 11:30** **Steven Cox** (Rice University)  
*“Inverse problems in neuronal calcium signaling”*
- 11:30 - 11:50** Pause-café / *Coffee break*  
(Salle / Room 6245)
- 11:50 - 12:30** **Paul C. Bressloff** (University of Utah)  
*“Diffusion of protein receptors on a cylindrical dendritic membrane with partially absorbing traps”*