

Centre de recherches mathématiques  
Université de Montréal

Atelier «Décompositions atomiques en imagerie cérébrale : nouvelles  
avenues en traitement du signal»  
Du 14 au 19 septembre 2009

*Workshop “Dictionary of Atoms: New Trends in Advanced Signal  
Processing in Functional Brain Imaging”  
September 14-19, 2009*

## **HORAIRE / PROGRAM**

Conférences : salle 6214  
Pauses-café et lunches : salle 6245

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

## Le lundi 14 septembre 2009 / *Monday, September 14, 2009*

08:30 - 09:00 Café croissants (6245) / *Coffee & Croissants (6245)*

08:30 - 09:00 Inscription (5345) / *Registration (5345)*

09:00 - 10:00 **Dimitri Van De Ville** (École Polytechnique Fédérale de Lausanne)  
*“fMRI statistical analysis - I: GLM, Gaussian smoothing, hypothesis testing”*

10:00 - 10:30 Pause-café / *Coffee break*  
(Salle / *Room* 6245)

10:30 - 11:30 **Rémi Gribonval** (IRISA)  
*“Source Separation and Sparsity”*

11:30 - 13:30 Déjeuner (6245) / *Lunch (6245)*

13:30 - 14:30 **Ronald A. DeVore** (University of South Carolina)  
*“Measuring the performance of Compressed Sensing Systems”*

14:45 - 15:45 **Richard G. Baraniuk** (Rice University)  
*“Model-based sparsity”*

15:45 - 16:30 Pause-café / *Coffee break*  
(Salle / *Room* 6245)

### - *Chaire Aisenstadt Chair 2009*

16:30 - 18:00 **Stéphane Mallat** (École Polytechnique)  
*“Sparsity for Signal and Image Inverse Problems - I: Sparse representations in signal and image processing”*

Le mardi 15 septembre 2009 / *Tuesday, September 15, 2009*

08:30 - 09:00 Café croissants (6245) / *Coffee & Croissants (6245)*

09:00 - 10:00 **Dimitri Van De Ville** (École Polytechnique Fédérale de Lausanne)  
*“fMRI statistical analysis - II: wavelet-based SPM”*

10:00 - 10:30 Pause-café / *Coffee break*  
(Salle / *Room* 6245)

10:30 - 11:30 **Richard G. Baraniuk** (Rice University)  
*“Sparsity for solving detection and classification problems”*

11:30 - 13:30 Pause-déjeuner / *Lunch break*

13:30 - 14:30 **Rémi Gribonval** (IRISA)  
*“Sparse Recovery with  $L_p$  minimization”*

14:45 - 15:45 **Arnaud Delorme** (CNRS - Université Paul Sabatier Toulouse 3)  
*“Residual mutual information between independent EEG components predicts component map dipolarity”*

15:45 - 16:30 Pause-café / *Coffee break*  
(Salle / *Room* 6245)

- *Chaire Aisenstadt Chair 2009*

16:30 - 18:00 **Stéphane Mallat** (École Polytechnique)  
*“Sparsity for Signal and Image Inverse Problems - II: Redundant dictionaries, geometry and pursuit algorithms”*

**Le mercredi 16 septembre 2009 / *Wednesday, September 16,*  
2009**

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**08:30 - 09:00** Café croissants (6245) / *Coffee & Croissants (6245)*

**09:00 - 10:00** **Stéphane Jaffard** (Université Paris XII)  
*“Detection of chirps in signals”*

**10:00 - 10:30** Pause-café / *Coffee break*  
(Salle / *Room* 6245)

**10:30 - 11:30** **Maureen Clerc** (ODYSSEE, INRIA Sophia Antipolis)  
*“Consensus Matching Pursuit: exploring the variability of multitrial data”*

**11:30 - 13:30** Déjeuner (6245) / *Lunch (6245)*

**13:30 - 14:30** **Rémi Gribonval** (IRISA)  
*“Multichannel sparse models and algorithms”*

**14:45 - 15:45** Session de travail et de discussion / *Work and Discussion Session*

**15:45 - 16:30** Pause-café / *Coffee break*  
(Salle / *Room* 6245)

**- *Chaire Aisenstadt Chair 2009***

**16:30 - 18:00** **Stéphane Mallat** (École Polytechnique)  
*“Sparsity for Signal and Image Inverse Problems - III: Super-resolution with sparsity”*

**18:15** Réception vin et fromages (6245) / *Wine-and-cheese reception (6245)*

## Le jeudi 17 septembre 2009 / *Thursday, September 17, 2009*

08:30 - 09:00 Café croissants (6245) / *Coffee & Croissants (6245)*

09:00 - 09:45 **Michael Lustig** (Stanford University)  
*"Sparse MRI - I"*

10:00 - 10:45 **Michael Lustig** (Stanford University)  
*"Sparse MRI - II"*

10:45 - 11:00 Pause-café / *Coffee break*  
(Salle / Room 6245)

11:00 - 11:30 **Farras Abdelnour** (University of Pittsburgh)  
*"Topographic localization of brain activation in diffuse optical imaging using spherical wavelets"*

11:30 - 13:30 Déjeuner (6245) / *Lunch (6245)*

13:30 - 14:30 **Andrew Bolstad** (MIT Lincoln Laboratory S2-229)  
*"Dictionary of Molecules - Group sparse approaches to Brain Network Estimation"*

14:45 - 16:00 **Fabrice Wendling** (INSERM U642 - Université de Rennes 1)  
*"Models of depth-EEG signals and model-based interpretation of brain connectivity measures: applications in epileptology"*

16:00 - 16:30 Pause-café / *Coffee break*  
(Salle / Room 6245)

### - *Chaire Aisenstadt Chair 2009*

16:30 - 18:00 **Stéphane Mallat** (École Polytechnique)  
*"Sparsity for Signal and Image Inverse Problems - IV: Compressed Sensing"*

Le vendredi 18 septembre 2009 / *Friday, September 18, 2009*

09:45 - 10:30 Café croissants (6245) / *Coffee & Croissants (6245)*

- *Chaire Aisenstadt Chair 2009*

10:30 - 12:00 **Stéphane Mallat** (École Polytechnique)

*“Sparsity for Signal and Image Inverse Problems - V: Dictionary Learning and Source Separation”*

12:00 - 15:30 Pause-déjeuner / *Lunch break*

15:30 - 16:00 Café, thé, biscuits (6245) / *Coffee, tea, cookies (6245)*

- *Chaire Aisenstadt Chair 2009*

16:00 - 17:00 **Stéphane Mallat** (École Polytechnique)

*“Grouping to Perceive an Incompressible World”*

17:15 Réception vin et fromages (6245) / *Wine-and-cheese reception (6245)*