# BrainModes

Oscillations & large-scale networks

*Atlanta*
*December 2015*

# BrainModes 2015

BrainModes 2015 is an annual meeting that brings together international experts from various disciplines and seeks to explore innovative means of understanding complex brain activity and multimodal neuroscience data sets. This year's workshop will feature keynote addressed by leading academics in the field of brain oscillatory processes and large-scale networks in functions and dysfunctions.

A pre-workshop is intended to provide participants with the foundations of neuroimaging and computational/cognitive neuroscience necessary for a systematic study of the brain. This pre-workshop course is limited to the first 50 registrants.

Pre-workshop course on December 8 is taught by: I. Belykh, G. Cymbalyuk, M. Dhamala, A. Shilnikov (Georgia State University), S. Keilholz (Georgia Institute of Technology/Emory University), T. Liu (University of Georgia); and demonstration on December 9 by Brain Products, TheVirtualBrain, MagVenture.

## Workshop Program (December 10 & 11)

### Thursday December 10, 2015

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| 8:15 – 9:00 a.m. | Registration and Continental Breakfast |
| 9:00 – 9:15 a.m. | Welcoming remarks |
| 9:15 – 10:00 a.m. | Nancy Kopell, Boston University, USA<br>*Brain Rhythms and Routing* |
| 10:00 – 10:40 a.m. | Anton Arkhipov, Allen Institute, USA<br>*High-Throughput Experimental and Computational Exploration of the Cortex* |
| 10:40 – 11.00 a.m. | Coffee Break |
| 11:00 – 11:40 a.m. | Randy McIntosh, University of Toronto, Canada<br>*Balance of local and global dynamics in healthy and dysfunctional brain networks* |
| 11:40 am – 12:20 p.m. | Larry Snyder, Washington University, St. Louise, USA<br>*Oxygen and Electricity: Neurophysiological underpinnings of correlated oxygen fluctuations* |
| 12:20 – 1:30 p.m. | Lunch Break |
| 1:30pm – 2:10 p.m. | Maxim Bazhenov, UC Riverside, USA<br>*Synaptic Mechanisms of Memory Consolidation during Sleep Slow Oscillations* |
| 2:10pm – 2:50 p.m. | Zonghua Liu, East China Normal University, China<br>*A simplified memory network model based on pattern formations* |
| 2:50pm – 3:30 p.m. | Wilson Truccolo, Brown University, USA<br>*From Neuronal Ensemble Point Process Observations to Brain Modes* |
| 3:30pm – 3:50 p.m. | Coffee Break |
| 3:50pm – 4:30 p.m. | Mingzhou Ding, University of Florida, USA<br>*Imaging Human Brain Function with Simultaneous EEG-fMRI* |
| 4:30 – 5:10 p.m. | Srikantan Nagarajan, UC San Francisco, USA<br>*Functional imaging of neural oscillatory networks during rest and during speaking* |
| 5:10 – 5:50 p.m. | Dipanjan Roy, University of Hyderabad, India<br>*Differential hemispheric dominance and synchrony based on EEG functional connectivity at rest and auditory task* |
| 6:30 - 7:30 p.m. | Poster Session/Reception |
| 7:30pm | Conference Dinner |

### Friday December 11, 2015

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| 8:30 – 9:00 a.m. | Continental Breakfast |
| 9:00 – 9:40 a.m. | Steven Bressler, Florida Atlantic University, USA<br>*Top-Down Processing in Neurocognitive Networks* |
| 9:40 – 10:20 a.m. | Sabine Kastner, Princeton University, USA<br>*Neural Network Dynamics for Attentional Selection in the Primate Brain* |
| 10:20 – 10:40 a.m. | Coffee Break |
| 10:40 – 11:20 a.m. | Gijs Plomp, University of Fribourg, Switzerland<br>*Local and large-scale interactions between cortical layers in sensory processes* |
| 11:20 – 12:00 p.m. | Daniele Marinazzo, Ghent University, Belgium<br>*Conserved Ising Model on the Human Connectome* |
| 12:00 – 1:10 p.m. | Lunch Break |
| 1:10 – 1:50 p.m. | Petra Ritter, Charite, Germany<br>*Personalized whole-brain simulations – Linking connectomis and dynamics in the human brain* |
| 1:50 – 2:30 p.m. | Andrew James, University of Arkansas, USA<br>*Functional brain organization at rest broadly encodes normative variance in cognition* |
| 2:30 – 2:50 p.m. | Coffee Break |
| 2:50 – 3:30 p.m. | Viktor Jirsa, Aix-Marseille, France<br>*Network mechanisms underlying seizure propagation* |
| 3:30 – 4:10 p.m. | Sridevi Sarma, Johns Hopkins University, USA<br>*Network dynamics of the brain and influence of the epileptic seizure onset zone* |
| 4:10 – 4:50 p.m. | Lukas Volz, UC Santa Barbara, USA<br>*Reorganization after stroke: a network perspective* |
| 4:50 p.m. | Closing |

**To register for the BrainModes workshop, visit http://brainmodes.gsu.edu (Deadline is November 9, 2105).** Discounted hotel rooms available at the Westin Peachtree Plaza and the Hampton Inn and Suites **(Deadline for discount is November 9, 2015)**

Pre-Workshop Course
December 8-9, 2015
Kell Hall, Room 131, Georgia State University, Atlanta, GA, USA

BrainModes Workshop
December 10-11, 2015
25 Park Place, Room 12, Georgia State University, Atlanta, GA, USA

## Organizers:

Mukesh Dhamala, Department of Physics, College of Arts and Sciences and Andrew Butler, Byrdine F. Lewis School of Nursing and Health Professions, Georgia State University