

Workshop

**Spatio-temporal dynamics of massively parallel neuronal data in the cerebral cortex: Theory, analysis and experiments**

organized by

Sonja Grün, Martin Nawrot, Alexa Riehle

Local organization:

Thomas Rost (mobile: 0163/ 436 3004)

28. - 30. Sept 2011

Freie Universität, Königin-Luise Str 1-3, Berlin

WLAN: conference, Password: 9cn73hgg

## Participants:

<b>Institute of Neuroscience and Medicine (INM-6), Research Center Jülich, Germany:</b> Prof. Sonja Grün Dr. Michael Denker Dr. Junji Ito Lyuba Zehl Emiliano Torre	<b>Institut de Neurosciences Cognitives de la Méditerranée, CNRS, Marseille, France:</b> Dr. Alexa Riehle Dr. Frederic Chavane Dr. Thomas Brochier
<b>Theoretical Neuroscience /Neuroinformatics, Freie Universität, Berlin, Germany:</b> Prof. Martin Nawrot Thomas Rost Chris Häusler Dr. Farzad Fakrhoodi	<b>Niels Bohr Institute, Copenhagen, Denmark &amp; NORDITA, Stockholm, Sweden:</b> Prof. John Hertz
<b>Institute of Biomedical Sciences, Faculty of Medicine, Universidad de Chile:</b> Prof. Pedro Maldonado	

## Program

28.Sept 2011

afternoon	<i>Arrival in Berlin</i>
17:00 – 18:00	<i>Mapping the spatio-temporal structure of motor cortical LFP and spiking activity during reaching and grasping</i> <b>Alexa Riehle</b> Bernstein Center for Computational Neuroscience, Humboldt-Universität zu Berlin Philippstr. 13, Haus 6 10115 Berlin (Mitte)
18:00 - 19:30	Sightseeing
19:30h	Dinner at Clärchens Ballhaus, Auguststr. 24 (Mitte)

## 29. Sept 2011

9:00 - 9:30h	<i>Introduction - Why this workshop?</i> Martin Nawrot and Sonja Grün
<b>Synchrony in Motor Cortex</b>	
9:45 - 10:15h	<i>Behavior- related activity in the motor cortex</i> <b>Alexa Riehle + Sonja Grün</b>
10:15 - 10:30h	Discussion
10:30 - 10:45h	Coffee Break
10:45 - 11:15h	<i>The local field potential reflects surplus spike synchrony</i> <b>Michael Denker</b>
11:15 - 11:30h	Discussion
<b>Utah – Array Recordings from Motor Cortex: Data and Analyses</b>	
11:30 - 12:00h	<i>Description of the current experiment, behavioral results and spiking activity</i> <b>Thomas Brochier</b>
12:00 - 12:15h	Discussion
12:15 - 13:30h	Lunch Break
13:30 - 14:00h	<i>SUA Variability dynamics indicate task-related processing</i> <b>Thomas Rost</b>
14:00 - 14:15h	Discussion
14:15 - 14:45h	<i>Spatio-temporal LFP and spiking activities across the Utah array: coherency and traveling waves</i> <b>Michael Denker</b>
14:45 - 15:00h	Discussion
15:00 - 15:30h	Coffee Break + Cake
<b>Analysis of Massive Parallel Recordings</b>	
15:30 – 16:00	<i>Assembly detection in massively parallel spike data</i> <b>Sonja Grün</b>
16:00 – 16:15	Discussion
16:15 – 16:45h	<i>Analysis of high-dimensional Ca-imaging analysis from mouse visual cortex</i> <b>Chris Häusler</b>
16:45 – 17:00	Discussion
17:00 – 17:15	Coffee Break
17:15 - 17:45h	<i>Connectivity from Correlation</i> <b>John Hertz</b>
17:45 - 18:00h	Discussion
~ 18:30 – open	Dinner, Piazza Michelangelo, Breitenbachplatz

30. Sept 2011

<b>Collaborative Work</b>	
9:15 - 9:45	<i>Workflow issues of the analysis of complex electrophysiological, multi-channel data</i> <b>Michael Denker</b>
9:45 -10:00	Discussion
10:00 – 11:00	<i>Workshop Topic I: Extending Collaborations, Workflow, Exchange</i>
11:00 – 11:15	Coffee Break
<b>Visual cortex</b>	
11:15 – 11:45	<i>Synchronization across sensory cortical areas by electrical microstimulation is sufficient for behavioral discrimination</i> <b>Pedro Maldonado</b>
11:45 – 12:00	Discussion
12:00 – 14:00	Lunch Break
14:00 – 14:30	<i>Saccade-related modulations of neuronal excitability support synchrony of visually elicited spikes</i> <b>Junji Ito</b>
14:30 - 14:45	Discussion
14:45 – 15:15	<i>VSDI signal: multi-composite signals of the visual cortex</i> <b>Frederic Chavane</b>
15:15 - 15:30	Discussion
15:30 – 15:45	Coffee Break
<b>Vision for Action</b>	
15:45 – 18:00	<i>Workshop Topic II: Ideas on the newly planned experiments on 'Vision for Action: dynamic coordination of visual and motor areas during visually-guided behavior'</i> introduced by Sonja Grün
18:00	End