

ONWAR PhD course

Experimental Neurophysiology

October 17-21, 2011

max. number of participants: 20

coordinators:

UvA: Hans van Hooft (j.a.vanhooft@uva.nl)

VU: Klaus Linkenkaer Hansen (k.linkenkaerhansen@vu.nl)

EUR: Gerard Borst (g.borst@erasmusmc.nl)

In this course, the participants will get familiar with a wide range of tools to analyse electrophysiological data, ranging from single-channels in individual neurons to human EEG. Emphasis will be on analysis, rather than acquisition, and it is assumed that the participants have at least some experience in electrophysiology. Demonstrations of acquisition will be available.

#### October 17: UvA (Amsterdam)

location:

Sciencepark 904, Amsterdam

room C4.174

12.00 – 14.00 Introduction in signal analysis, (bio)physical and statistical principles  
(Wytse Wadman)

14.15 – 15.00 A network of weakly coupled oscillators in the ventral tegmental area  
(Luuk van der Velden)

#### October 18: VU (Amsterdam)

Location:

De Boelelaan 1085, Amsterdam

Exact Sciences building, room WN-F630

9.30 - 10.15 *“Neuronal network oscillations in health and disease: stable or unstable?”*  
Klaus Linkenkaer-Hansen

10.30 - 11.15 *“Cellular and synaptic mechanisms underlying neuronal synchronization and oscillations in brain slices: acquisition and analysis”*  
Tim Heistek

11.30 - 12.15 *“The Neurophysiological Biomarker Toolbox (NBT): Towards an EEG-based diagnostic index of dementia”*  
Simon-Shlomo Poil

12.45 - 14.00: Group 1 (Practicals, room A-344).  
*“Brain-computer interface experiment: Spell with your brain waves”*  
Klaus Linkenkaer-Hansen and Simon-Shlomo Poil

Group 2 (Tour, room C421)  
"Tech-tour @ Department of Integrative Neurophysiology"  
Tim Heistek and Hans Lodder

14.00 - 15.15: Group 1 and 2 swap.

To prepare for the practical, see: <http://bit.ly/BCI2000Tutorial>

#### October 19: UvA (Amsterdam)

location:

Sciencepark 904, Amsterdam  
room B1.25 (Betalounge)

13.00 – 15.00 "Analyzing neural ensemble data"  
(Fransesco Battaglia)

15.15 – 16.00 "Navigation strategies, the NMDA receptor and spatial hippocampal representations"  
(Henrique Cabral)

#### October 20, 2011: Erasmus MC (Rotterdam)

location:

Ee1205 (12<sup>th</sup> floor Faculteitsgebouw, see <http://www.neuro.nl/about.php>), Rotterdam

09.30 – 10.45 Introduction to in vivo patch clamp and juxtacellular recordings (Gerard Borst)

11.00 – 11.45 Receptive fields (Rüdiger Geis)

LUNCH

13.00 – 17.00 The afternoon program consists of **4** demos/workshops. Students will be divided in groups of ~5 each, allowing for parallel sessions.

- Targeted in vivo patch clamp recordings (Rüdiger Geis)
- 'Blind' in vivo patch clamp recordings of cortex (Paolo Bazzigaluppi)
- 'Blind' in vivo patch clamp recordings of the brainstem (Milly Tedja)
- In vivo pharmacology of synaptic transmission (Tiantian Wang)

#### October 21, 2011: Erasmus MC (Rotterdam)

location:

Ee1205 (12<sup>th</sup> floor Faculteitsgebouw, see <http://www.neuro.nl/about.php>), Rotterdam

10.00 – 10.45 Temporal analysis of spike trains (Marcel van der Heijden)

11.00 – 11.45 Opto- and nanostimulation (Arthur Houweling)

LUNCH

13.00 – 15.30 The afternoon program consists of **4** demos/workshops. Students will be divided in groups of ~5 each, allowing for parallel sessions.

- Nano- and juxtacellular stimulation (Arthur Houweling)
- Temporal analysis of spike trains (Marcel van der Heijden)

16.00 – 17.00 Seminar **MASSIMO SCANZIANI (Coll. U)**

Addressing cortical processing by perturbing the activity of individual layers

(<http://www.neuro.nl/seminar.php?ID=44>)

17.00 Drinks (Ee 1205)