



BENESCO Lecture Series on sleep, epilepsy, consciousness and cognition

September 2017 - June 2018

Friday, 12h30 – 13h30, Course Room Neurology, **Intensivbehandlungs-,
Notfall- und Operationszentrum (INO), Floor B, Room 118**

Description: The BENESCO lecture series consists of a teaching classes on signal analysis by MATLAB and lectures covering sleep, epilepsy and consciousness research from bench to bedside. Expert speakers present state of the art research and newest findings in their field of expertise. Moreover, they provide you with one paper to read as an introduction to the topic that will be the basis for the multiple choice exam. During the teaching classes on *signal analysis by MATLAB* you will be introduced to current tools and methods used to acquire brain signals. Each lecturer will provide you with programming code and exercises that you solve individually.

Credits: 2 ECTS points. For credits you have to attend 70 % of the teaching classes and lectures and to pass a multiple choice exam by the end of the two semesters. Multiple choice questions are based on the literature provided for each lecture and teaching class and on the contents taught during lectures and classes.

Registration: by e-mail to simone.duss@insel.ch, please indicate full name, PHD-program and supervisor

Organizers: Antoine Adamantidis, Claudio Bassetti, Simone Duss, Kaspar Schindler, Maya Ringli, Carolina Gutierrez, Thom Gent

PROGRAM fall term

Date	Type	Topic	Speakers
15.09.2017	<i>intro</i> 12:15	Welcome and organization	Prof. Schindler & Prof. Adamantidis, Neurology Department, Inselspital Bern
	<i>lecture</i> 12:30	“Effects of sleep and wake on glial cells” <i>Chair:</i> Adamantidis Antoine	Michele Bellesi, MD PhD, Assistant Professor of Physiology, Department of Experimental and Clinical Medicine, Ancona
22.09.2017	<i>class</i>	“Introduction to MATLAB: Importing data, down sampling, filtering, plotting signals”	Dr. Armand Mensen, Center for Experimental Neurology, Inselspital, Bern
29.09.2017	<i>class</i>	“Matrix calculus - an introduction using Matlab”	Dr. rer. nat. Christian Rummel, University institute for Diagnostic and Interventional Neuroradiology, Inselspital, Bern
06.10.2017	<i>class</i>	“Time-frequency analysis of nonstationary signals”	Dr. Mojtaba Bandarabadi, Center for Experimental Neurology, Inselspital, Bern University Hospital
13.10.2017	<i>lecture</i>	“Corticothalamic feedback and network state” <i>Chair:</i> Carolina Gutierrez Herrera	Prof. Dr. Péter Barthó, Institute of Cognitive Neuroscience and Psychology, Hungary
20.10.2017	<i>lecture</i>	“The Influence of Sleep on Motor Memory Consolidation in Humans assessed with fMRI” <i>Chair:</i> Carolina Gutierrez Herrera	Prof. Genevieve Albouy, Movement Control and Neuroplasticity Research Group, Kinesiology Department, KU Leuven, Belgium

25.- 27.10.17	<i>symposium</i>	Berner Schlaf-Wach-Tage und ZEN-Symposium - Auditorium Ettore Rossi/Langhans Hörsaal, Inselspital	Coordination: Prof. J. Mathis, Prof. M. Guggler, Prof. A. Adamantidis, Prof. C. L. Bassetti, MD M. Schmidt
03.11.2017	<i>lecture</i>	“Rapid, state dependent modulation of spontaneous and sensory evoked activity in the thalamocortical system” Chair: Mary Gazea	Dr. Magor L. Lorincz, University of Szeged, Department of Physiology, Anatomy and Neuroscience, Hungary
10.11.2017	<i>research presentation</i>	“Using brain signals to optimise the delivery of DBS in Parkinson's disease” Chair: Adamantidis Antoine	Dr. med. Gerd Tinkhauser, MRC Brain Network Dynamics Unit, University of Oxford; Department of Neurology, Inselspital Bern
17.11.2017	<i>lecture</i>	“Preparing to sleep: linking sleep, sedation and control of body temperature” Chair: Thom Gent	Prof. William Wisden MA PhD FRSB FMedSci, Dept of Life Sciences, Imperial College London
24.11.2017	<i>class</i>	Simple differential equations - an introduction using Matlab	Dr. rer. nat. Christian Rummel, University institute for Diagnostic and Interventional Neuroradiology, Inselspital, Bern
01.12.2017	<i>class</i>	“High Frequency Oscillations (HFOs) in interictal intracerebral EEG”	Dr. Dr. med. Frédéric Zubler, Sleep-Wake-Epilepsy-Center, Neurology Department, Inselspital Bern
15.12.2017	<i>class</i>	“EEG-derived functional networks and graph theory with Matlab”	Dr. Dr. med. Frédéric Zubler, Sleep-Wake-Epilepsy-Center, Neurology Department, Inselspital Bern

PROGRAM spring term

23.02.2018	<i>lecture</i>	“Brain plasticity” Chair: Adamantidis Antoine	Dr. Karim Benchenane, Brain Plasticity Unit, ESPCI, Paris
01. - 04.03.2018 “Sleep Science Winter School 2018”			
16.03.2018	<i>class</i>	“Correlation analysis of multivariate time series”	Dr. rer. nat. Christian Rummel, University institute for Diagnostic and Interventional Neuroradiology, Inselspital, Bern
23.03.2018	<i>class</i>	“Phase-amplitude coupling and synchronization: two mechanisms for neuronal computation and communication”	Dr. Mojtaba Bandarabadi, Center for Experimental Neurology, Inselspital, Bern University Hospital
30.03.2018		Karfreitag / Good Friday	
13.04.2018	<i>class</i>	“An introduction to fundamentals of nonlinear signal analysis”	Prof. Dr. Ralph Gregor Andrzejak, Dept. of Information & Communication Technologies, University Pompeu Fabra, Barcelona
20.04.2018	<i>class</i>	“Probing brain oscillations with optogenetics”	Prof. Antoine Adamantidis, Center for Experimental Neurology, Inselspital Bern University Hospital
27.04.2018	<i>lecture</i>	Consciousness Chair: Simone Duss	Prof. Dr. Katharina Henke, University of Bern, Department of Psychology
04.05.2018	<i>lecture</i>	“Sleep, cognition and neuroplasticity” Chair: Adamantidis Antoine	Prof. Dr. Sophie Schwartz, Neuroscience, Faculty of Medicine, University of Geneva
11.05.2018		Auffahrt	
18.05.2018	<i>class</i>	“Spatial factor analyses in EEG”	Prof. Dr. Thomas König, Department of Psychiatric Neurophysiology, Bern University Hospital of Psychiatry
01.06.2018	<i>exam</i>		

12.09.2017/sd