



BENESCO Lecture Series on sleep, epilepsy, consciousness and cognition

September 2018 - June 2019

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
21.09.2018	<i>intro</i> 12:15	Welcome and organization	Prof. Adamantidis, Neurology Department, Inselspital Bern
	<i>lecture</i> 12:30	"Machine Learning for Large-Scale Sleep Pattern Recognition from EEG" <i>Chair:</i> Adamantidis Antoine	Djordje Miladinovic and Dr. St. Bauer, Department of Computer Science, ETH Zürich
28.09.2018	<i>Class</i>	Matrix calculus – an introduction using Matlab	Christian Rummel, Support Center for Advanced Neuroimaging, Inselspital Bern
Tuesday 02.10.2018	<i>Lecture</i>	"REM sleep in health and disease2" <i>Chair:</i> Antoine Adamantidis Raum 118 von 12:00 – 13:30 res.	John Peever PhD, Laboratory for Sleep Research, Department of Cell & Systems Biology, University of Toronto, Toronto, ON
17.- 19.10.18	<i>symposium</i>	Berner Schlaf-Wach-Tage und ZEN-Symposium - Auditorium Ettore Rossi/Langhans Hörsaal, <i>Inselspital</i>	Coordination: Prof. J. Mathis, Prof. M. Gugger, Prof. A. Adamantidis, Prof. C. L. Bassetti, MD M. Schmidt
26.10.2018	<i>Lecture</i>	"Auditory salience in the normal, sleeping and pathological (epileptic) brain" <i>Chair:</i> Maxime Baud	Luc H. Arnal, PhD, Département des Neurosciences Fondamentales Campus Biotech, Genève

02.11.2018	Lecture	"Sleep characteristics and cognition in the general population: results from the HypnoLaus study". <i>Chair: Maxime Baud</i>	Dr. José Haba Rubio, PD-Mer, Médecin associé, Centre d'investigation et de recherche sur le sommeil (CIRS), CHUV Lausanne
09.11.2018	Class	"Pre-processing of EEG signals in MATLAB: Importing time domain data, Filter design in the frequency domain, EEG bandpass filtering" <i>Chair: Mattia Aime</i>	Sebastien Dupertuis, Senior Application Engineer, The MathWorks GmbH, Bern
16.11.2018	Lecture	"Sleep Hyermotor Epilepsy (SHE) and Disorders of Arousal" <i>Chair: Frédéric Zubler</i>	Paola Proserpio, Department of Neuroscience, Niguarda Hospital, Milan, Italy
23.11.2018	Class	"Simple differential equations - introduction using Matlab"	Christian Rummel, Support Center for Advanced Neuroimaging, Inselspital Bern
30.11.2018	Class	"High Frequency Oscillations (HFOs) in interictal intracerebral EEG"	Dr. Dr. med. Frédéric Zubler, Sleep-Wake-Epilepsy-Center, Neurology Department, Inselspital Bern
07.12.2018	Class	"EEG-derived functional networks and graph theory with Matlab"	Dr. Dr. med. Frédéric Zubler, Sleep-Wake-Epilepsy-Center, Neurology Department, Inselspital Bern
14.12.2018	Lecture	"The EEG correlates of dream consciousness" <i>Chair: Christoph Nissen</i>	Dr. Francesca Siclari, PD-MER, Médecin associé, Centre d'investigation et de recherche sur le sommeil, CHUV, Lausanne

PROGRAM spring term

22.02.2019	Lecture	"EEG on the intensive care Unit" <i>Chair: Frédéric Zubler</i>	Prof. Andrea Rossetti, Centre de recherche en neurosciences, CHUV, Lausanne
01.03.2019	Lecture	"Is cataplexy a dissociated state of REM sleep into wakefulness?" <i>Chair: Antoine Adamantidis</i>	Christelle Peyron, PhD, Centre de Recherche en Neurosciences de LYON, Equipe Sleep Faculté de Médecine Laënnec, Lyon, France

03. - 06.03.2019 "Sleep Science Winter School 2019"

15.03.2019	Lecture	"Cross correlation between brain neurons: Cross correlation, Correlation coefficients, Multi-dimensional graphical representation" <i>Chair: Mattia Aime</i>	Sebastien Dupertuis, Senior Application Engineer, The MathWorks GmbH, Bern
22.03.2019	Class	"Correlation Analysis of Multivariate Time Series2"	Christian Rummel, PhD, Support Center for Advanced Neuroimaging, Inselspital Bern
29.03.2019	Class	"Time-frequency representation of brain oscillations2"	Mojtaba Bandarabadi, PhD, Department of Physiologie, CHUV, Lausanne
05.04.2019	Lecture	"Sleep, cognition and neuroplasticity" <i>Chair: Christoph Nissen</i>	Prof. Dr. Sophie Schwartz, Neuroscience, Faculty of Medicine, University of Geneva
12.04.2019	IRC Lecture	"An Introduction to Computational Models for Temporal Data" <i>Chair: Romina Theiler</i>	Prof. Dr. Paolo Favaro, Institute of Computer Science, University of Bern
19.04.2019		Karfreitag / Good Friday	
26.04.2019	Lecture	"Circuits basis of oxytocin-induced modulation of emotions" <i>Chair: Antoine Adamantidis</i>	Alexandre Charlet, PhD, Equipe "Molecular Determinants of Pain" Institut des Neurosciences Cellulaires et Intégratives, Strasbourg

03.05.2019	<i>Lecture</i>	“Circadian Rhythm Sleep-Wake Disorders”	Dr. med. Jens. G. Acker, MBA, Neurology, Psychiatry FMH, Schlaf-specialist SGSSC, ESRS, Bad Zurzach, Airport Zürich
10.05.2019	<i>Class</i>	“Phase-amplitude coupling and phase synchronization: two mechanisms for neuronal computation and communication”	Mojtaba Bandarabadi, PhD, Department of Physiologie, CHUV, Lausanne
30.05.2019		Auffahrt	
07.06.2019	<i>exam</i>		