

Educational course: Neuroimaging – 14.11.2017 – 16.11.2017, CEITEC MU, Brno

Detailed program

Tuesday 14th November

Time	Description	Place (building / room)
8:30 – 9:30	Registration of participants	A35 /
9:30 – 10:00	Introduction, overview of methods used in brain mapping (<i>Michal Mikl</i>)	A35 / 211
10:00 – 10:45	Principles of MRI – part I (<i>Zenon Starčuk</i>)	A35 / 211
10:45 – 11:00	Coffee break	A35 /
11:00 – 12:00	Principles of MRI – part II (<i>Zenon Starčuk</i>)	A35 / 211
12:00 – 13:00	Lunch	Campea restaurant / 1st floor
13:00 – 14:30	fMRI basics <ul style="list-style-type: none">- Principles of fMRI (<i>Michal Mikl</i>)- Data preprocessing (<i>Marie Nováková</i>)- Statistical analysis (<i>Martin Gajdoš</i>)	A35 / 211
14:30 – 14:45	Coffee break	
14:45 – 16:00	fMRI advanced – part I <ul style="list-style-type: none">- Introduction to connectivity, specifics of resting-state fMRI (<i>Martin Gajdoš</i>)- Seed analysis and PPI (<i>Marek Bartoň</i>)- Independent component analysis (<i>Tomáš Slaviček</i>)	A35 / 211
16:00 – 16:15	Coffee break	
16:15 – 17:00	Principles of DWI and fibre tracking (<i>Pavel Hok</i>)	A35 / 211
17:00 – 17:30	General remarks to human neuroimaging studies (<i>Michal Mikl</i>)	A35 / 211

Wednesday 15th November

Time	Description	Place (building / room)
9:00 – 10:15	fMRI connectivity – part II <ul style="list-style-type: none"> - DCM and Granger causality (<i>Martin Gajdoš</i>) - Graph Theory (<i>Jan Fousek</i>) - Dynamic connectivity (<i>Eva Výtvarová</i>) 	A35 / 211
10:15 – 10:30	Coffee break	A35 /
10:30 – 12:00	fMRI advanced II (noise and artifacts, acquisition specifics) <ul style="list-style-type: none"> - Introduction to fMRI artifacts, data quality check and metrics of data quality (<i>Marek Bartoň</i>) - Physiological artifacts (<i>Marek Bartoň</i>) - Movement artifacts (<i>Marie Nováková</i>) - fMRI acquisition protocol - optimization, fast imaging, multi-echo fMRI (<i>Michal Mikl</i>) - Real-time fMRI neurofeedback (<i>Pavla Linhartová</i>) 	A35 / 211
12:00 – 13:00	Lunch	Campea restaurant / 1st floor
13:00 – 14:30	Animal MRI <ul style="list-style-type: none"> - Animal MRI and fMRI in ultra-high field (<i>Jelena Zinnati</i>) - Differences between human and animal MRI and between rat vs. mouse MRI (<i>Peter Oppriessnig</i>) 	A35 / 211
14:30 – 14:45	Coffee break	
14:45 – 15:30	Non invasive Brain Stimulation <ul style="list-style-type: none"> - TMS basics- principles and research application (<i>Luboš Brabenec</i>) - Noninvasive transcranial direct current stimulation: Basics and application in a research (<i>Monika Pupíková</i>) - Noninvasive brain stimulation and its combination with other methods: multimodal approach (<i>Ľubomíra Anderková</i>) 	A35 / 211
15:30 – 16:15	Morphometry with MRI <ul style="list-style-type: none"> - The basics of computational morphometry in neuroimaging (<i>Radek Mareček</i>) - Surface based morphometry and another advanced topics (<i>Pavel Říha</i>) 	A35 / 211
16:15 – 16:30	Coffee break	
16:15 – 17:45	fMRI - practical aspects and specifics of interpretation <ul style="list-style-type: none"> - Several case-studies and examples of caveats, wrong interpretation and possible limitations will be presented (<i>Martin Gajdoš, Michal Mikl, ...</i>) 	A35 / 211

Thursday 16th November

Time	Description	Place (building / room)
9:00 – 10:30	Practical session in MRI labs	A35 / 2 nd underground floor – CF MAFIL labs
10:30 – 10:45	Coffee break	
10:45 – 12:30	fMRI data processing - practical session	A35 / 211
12:30 – 13:30	Lunch	Campea restaurant / 1st floor
13:30 – 15:00	Electrophysiological methods in brain mapping <ul style="list-style-type: none">- EEG basics (<i>Robert Roman</i>)- Data preprocessing (<i>Martin Lamoš</i>)- ERPs in SignalPlant (<i>Robert Roman</i>)- ERPs in Cartool (<i>Martin Lamoš</i>)- TFA and connectivity (<i>Petr Klimeš</i>)- Microstates and ESI (<i>Martin Lamoš</i>)	A35 / 211
15:00 – 15:15	Coffee break	
15:15 – 16:00	Simultaneous EEG-fMRI <ul style="list-style-type: none">- Simultaneous fMRI/EEG basics (<i>Radek Mareček</i>)- Cleaning simultaneous data (<i>Martin Lamoš</i>)- Applications (<i>Radek Mareček</i>)	A35 / 211