SECOND FACULTY OF MEDICINE
CHARLES UNIVERSITY

EPI | REC EPILEPSY RESEARCH CENTRE PRAGUE

Motol BraDy meeting 2024-11-12

Key topics:

1. Modelling of mutated neurons in the *in silico* models (spiking or neural mass models)
2. Modelling of glial cells?
3. Modelling of non-cerebral data (e.g. ECG, breath rate) in epilepsy?
4. Modelling of long-term (days, weeks, months) variations in excitability and seizure risk
5. Experimental validation of mathematical models

Program (talk duration 15 min + 5 min discussion):

- **09:00 – 09:20 Morning coffee**
- 09:20 – 09:40 Přemysl Jiruška
  Introduction to focal cortical dysplasia (FCD)
- 09:40 – 10:00 Michaela Králíková
  Optogenetics and chemogenetics in investigation of the role of mutated neurons in FCD
- 10:00 – 10:20 Ondřej Novák
  In vivo imaging of neuronal activity in FCD
- 10:20 – 10:40 Jan Kudláček
  Long-term dynamics of seizures and other epileptic phenomena
- **10:40 – 11:20 Discussion + Coffee break**
- 11:20 – 11:40 Helena Pivoňková
  Neuroglial interactions
- 11:40 – 12:00 Karolína Liška
  Rat model of temporal lobe epilepsy and multimodal recordings
- 12:00 – 12:20 Radek Janča
  Findings from human iEEG
- 12:20 – 12:40 Daniel Novák
  Modelling deep brain stimulation
- **12:40 – 14:00 Lunch**
- 14:00 – 14:20 Jaroslav Hlinka, Isa Dallmer-Zerbe
  Neural mass models of epileptic brain (Wendling, etc.)
- 14:20 – 14:40 Helmut Schmidt, Guillaume Girier
  Epileptor 2 and its modification
- 14:40 – 15:00 Pavel Šanda
  Spiking neuron models (Hodgkin-Huxley type), acetylcholine, norepinephrine
- 15:00 – 15:20 Tibor Rózsa
  Modelling of visual cortex
- **15:20 – 17:30 Discussion + Networking**

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