

How to model neurons and neural systems?



Integrating biophysics, morphology, and connectivity

Second Polish-Norwegian Neuroinformatics Workshop Warsaw, Poland, January 14-15, 2010

Thursday

- 9:00 Registration / coffee
- 9:30 **Opening**
- 10:00 Rodney Douglas: Can we build a brain?
- 11:00 Coffee break / refreshments
- 11:30 Andreas Herz: Simplicity in a complex world: Subthreshold membrane-potential resonances that shape spike-train statistics
- 12:10 **Daniel Durstewitz:** Bottom-up (biophysical) and top-down (statistical) perspectives on neural modeling
- 12:50 Lunch
- 14:30 Daniel Wójcik: Point process models in neuroscience: from spike trains to behavior
- 15:10 Shaul Druckmann: From manual parameter tuning to automated parameter constraining of biophysical models
- 15:50 Coffee break / refreshments
- 16:20 Jan Karbowski: From genes to neurons to behavior: Modeling locomotion of C. elegans worms

- 17:00 **Wulfram Gerstner:** The power (and limits) of simple neuron models
- 17:40 **Discussion**
- 20:00 Workshop dinner

Friday

- 9:00 Anders Lansner: Modularization dramatically increases stability of oscillating attractor networks
- 9:40 Giorgio Ascoli: Neuronal types, statistical connectivity, and network computation
- 10:20 **Jaap van Pelt:** Stochasticity and constraints in modeling neuronal morphological development
- 11:00 Coffee break / refreshments
- 11:30 **Rembrandt Bakker:** The New CoCoMac: A brief history of tracer studies in macague brains and the use of graphical interactions with connectivity databases
- 12:10 Ingo Bojak: Building blocks for realistic mean field modeling
- 12:50 Lunch
- 14:30 **Stephen Coombes:** Neural field models
- 15:10 **Gaute Einevoll:** Multilevel and multimodal modeling of barrel cortex
- 15:50 Coffee break / refreshments
- 16:20 **Discussion**



Supported by a grant from Norway through the Norwegian Financial Mechanism QCARLS And the Polish-Norwegian Research Fund

