

Program

September 29 – 30

Satellite Event at FIAS: Workshop

Tuesday, September 29, 14:00 – 18:00

Wednesday, September 30, 09:00 – 13:00

Title: “Getting the message across”
Katrin Weigmann

September 30

Bernstein Meeting and Registration

Wednesday, September 30, 10:00 – 13:30

- 10:00 Meeting of the members of Bernstein Computational Neuroscience e.V.
by invitation only
- 11:30 Bernstein Project Committee Meeting
by invitation only
- 11:30 Registration and Welcome Reception

Talk Session

Wednesday, September 30, 13:30 – 15:20

Session Chairs: Jochen Triesch, Constantin Rothkopf

- 13.30 Welcome, Werner Müller-Esterl (President of Goethe University)
- 13.35 Opening, Jochen Triesch (BCCN 2009 General Chair)
- 13.40 Issuing of Bernstein Award 2009, Thomas Rachel (Parliamentary State Secretary, BMBF)
- 14:00 **Keynote**
Bernstein Awardee
- 15:00 Neuronal phase response curves for maximal information transmission
Jan-Hendrik Schleimer, Martin Stemmler
- 15:20 Coffee break

Talk Session: Plasticity

Wednesday, September 30, 15:40 – 17:20

Session Chair: Christoph von der Malsburg

- 15:40 **Keynote:** Modeling synaptic plasticity
Wulfram Gerstner
- 16:40 Adaptive spike timing dependent plasticity realises palimpsest auto-associative memories
Klaus Pawelzik, Christian Albers
- 17:00 A gamma-phase model of receptive field formation
Dana H Ballard

Poster Session I

Wednesday, September 30, 17:20 – 21:20

Poster topics:

Dynamical systems and recurrent networks; Information processing in neurons and networks; Neural encoding and decoding; Neurotechnology and brain computer interfaces; Probabilistic models and unsupervised learning

Catering

October 1

Talk Session: Detailed models

Thursday, October 1, 09:00 – 11:00

Session Chair: Klaus Pawelzik

- 09:00 **Keynote:** Rules of cortical plasticity
Mriganka Sur
- 10:00 Efficient reconstruction of large-scale neuronal morphologies
Panos Drouvelis, Stefan Lang, Peter Bastian, Marcel Oberlaender, Thorben Kurz, Bert Sakmann
- 10:20 Adaptive accurate simulations of single neurons
Dan Popovic, Stefan Lang, Peter Bastian
- 10:40 Coffee break

Talk Session: Synchrony

Thursday, October 1, 11:00 – 13:00

Session Chair: Gordon Pipa

- 11:00 Synchronized inputs induce switching to criticality in a neural network
Anna Levina, J. Michael Herrmann, Theo Geisel
- 11:20 Role of neuronal synchrony in the generation of evoked EEG/MEG responses
Bartosz Telenczuk, Vadim Nikulin, Gabriel Curio
- 11:40 Spike time coordination maps to diffusion process
Lishma Anand, Birgit Kriener, Raoul-Martin Memmesheimer, Marc Timme
- 12:00 Lunch break

Talk Session: Network dynamics

Thursday, October 1, 13:00 – 15:00

Session Chair: Jörg Lücke

- 13:00 **Keynote:** Coding and connectivity in an olfactory circuit
Gilles Laurent
- 14:00 Neurometric function analysis of short-term population codes
Philipp Berens, Sebastian Gerwinn, Alexander Ecker, Matthias Bethge
- 14:20 A network architecture for maximal separation of neuronal representations - experiment and theory
Ron Jortner, Gilles Laurent

- 14:40 Dynamics of nonlinear suppression in V1 simple cells
Manuel Levy, Anthony Truchard, Gérard Sadoc, Izumi Ohzawa, Yves Fregnac, Ralph Freeman

Poster Session II and Demonstrations

Thursday, October 1, 15:00 – 19:00

Poster topics:

Computer vision; Decision, control and reward; Learning and plasticity; Sensory processing

- 19:00 Conference dinner

October 2

Talk Session: Representations /Decoding

Friday, October 2, 09:00 – 11:00

Session Chair: Máté Lengyel

- 09:00 **Keynote:** Modelling cortical representations
Klaus Obermayer
- 10:00 Inferred potential motor goal representation in the parietal reach region
Christian Klaes, Stephanie Westendorff, Alexander Gail
- 10:20 A P300-based brain-robot interface for shaping human-robot interaction
Andrea Finke, Yaochu Jin, Helge Ritter
- 10:40 Coffee break

Talk Session: Integration

Friday, October 2, 11:00 – 12:00

Session Chair: Peggy Seriès

- 11:00 On the interaction of feature- and object-based attention
Detlef Wegener, Friederike Ehn, Orlando Galashan, Andreas K Kreiter
- 11:20 Interactions between top-down and stimulus-driven processes in visual feature integration
Marc Schipper, Udo Ernst, Klaus Pawelzik, Manfred Fahle
- 11:40 Coding of interaural time differences in the DNLL of the mongolian gerbil
Hannes Lüling, Ida Siveke, Benedikt Grothe, Christian Leibold
- 12:00 Lunch break

Talk Session: Memory

Friday, October 2, 13:00 – 14:40

Session Chair: Constantin Rothkopf

- 13:00 **Keynote:** Probabilistic inference and learning: from behavior to neural representations
József Fiser
- 14:00 A multi-stage synaptic model of memory
Alex Roxin, Stefano Fusi
- 14:20 An integrated system for incremental learning of multiple visual categories
Stephan KIRSTEIN, Heiko Wersing, Horst-Michael Groß, Edgar Körner
- 14:40 Coffee break

Talk Session: Mesoscopic dynamics

Friday, October 2, 15:00 – 17:00

Session Chair: Dirk Jancke

- 15:00 A mesoscopic model of VSD dynamics observed in visual cortex induced by flashed and moving stimuli
Valentin Markounikau, Christian Igel, Dirk Jancke
- 15:20 **Keynote:** Dynamics of on going activity in anesthetized and awake primate
Amiram Grinvald, David Omer
- 16:20 Awards and Closing Speech

October 3

Satellite Event at FIAS: Student Symposium

Saturday, October 3, 09:30 – 17:00

Invited speakers:

Tim Gollisch: Neural coding in the retina

Máté Lengyel: Episodic memory: why and how - or the powers and perils of Bayesian inference in the brain

Peggy Seriès: Sensory adaptation and the readout of population codes