"Bernstein Network –- SimLab Neuroscience" HPC Workshop

Date: June 4-5, 2014

Programme

Day 1

12:00	**Lunch buffet / Registration (Rotunde@JSC)**
13:00	Welcome (Abigail Morrison/Boris Orth)
13:15	*General Introduction to JSC and Supercomputing* (Sven Strohmer)
14:00	Round of introduction
14:15	**Coffee break**
14:45	**Session: Presentations by the External Participants** (15 min. each) • Petra Ritter: *The Virtual Brain – Multimodal Reverse Engineering of the Human Brain* • Joachim Hass: *Constructing a Detailed, Data-Driven Network Model of the Prefrontal Cortex* • Martin Pyka: *Parametric Anatomical Modeling – A Method to Translate Anatomical Data into Large-Scale Neural Networks* • Dinu Patirniche: *The Dendritic Spine - An in-silico Approach for Understanding Synaptic Transmission* • Gillian Queisser: *Numerical Methods for Solving Neurobiological Problem in Three-dimensional Space and Time – Using Scalable Algorithms for High-Performance Computing* • Fred Wolf: *Self-Organization of Large-Scale Neuronal Circuits* • Guillaume Lajoie, Rainer Engelken: *Computational Ergodic Theory and Neural Encoding*
16:30	**Coffee break**
17:00	*Introduction to the SimLab Neuroscience* (Abigail Morrison)
17:45	**Session: HPC Neuroscience Projects at FZJ** (15 min. each) • Sacha van Albada: *NEST for Large-Scale Simulations of Physiology-Based Spiking Networks* • Michael Denker: *Using High-Performance Computing for the Analysis of Electrophysiological Data*
18:15	Closing discussion
18:30	**Transport to workshop dinner**
19:00	**Workshop dinner (Jülich)**

Day 2

08:30	*Introduction to the Supercomputing Facilities at JSC* (Wolfram Schenck)
08:50	*Large-Scale Data Management* (Bastian Tweddell)
09:10	*How to Apply for Computing Time at JSC* (Walter Nadler)
09:40	*Workflow, Tools, and Services* (Alex Peyser)
10:00	**Coffee break**
10:30	**Session: HPC Neuroscience Projects at FZJ (cont.)** (15 min. each) • Markus Axer: *Towards a 3D Fiber Model of the Human Brain with Polarized Light Imaging* • Markus Butz-Ostendorf: *Homeostatic Structural Plasticity During Brain Repair - from Microscopic to Macroscopic Changes in Topology*
11:00	**Session: Presentations by the External Participants (cont.)** (15 min. each) • Robert Gütig: *Sensory Processing of Continuous Sensory Streams* • Sarah Schwöbel: *A Model Network with Spiking Neurons for Invariance Learning* • Elias Reichart: *Simulation of Dynamic Neural Networks Applicable to Vision – in Particular Face Recognition* • Rober Meyer: *PyPET – The Python Parameter Exploration Toolkit*
12:00	Final discussion
12:30	**Lunch (Seecasino)**