

Open PhD position : Computational Neurosciences - Complex Dynamical Systems

At the Institute for Theoretical Physics Goethe University Frankfurt

Applications are invited for a fully funded PhD position at the Institute for Theoretical Physics, Frankfurt University, Germany

Fields: computational neurosciences, complex systems theory
neural networks, simulated robotics, dynamical systems

Application deadline: May 27, 2017
Supervisor: Prof. Dr. Claudius Gros

We are developing new models and generative principles for the brain using a range of toolsets from dynamical systems theory and computational neurosciences. Examples are new objective functions and generating functionals for the sensori-motor loop, transient state dynamics and self-limiting Hebbian plasticity rules. Several subjects are available for the announced PhD thesis including the generation of attractor metadynamics through short-term synaptic plasticity and/or the generation of motor primitives through self-organized embodiment within the sensori-motor loop. The work will include analytical investigations and numerical simulations of neural networks and/or of simulated robots, using the toolset of dynamical systems theory.

The candidates should have a Diploma/Master in physics with an excellent academic track record and good computational skills. Experience or strong interest in the fields of complex systems, computational neurosciences, dynamical systems theory and/or artificial or biological cognitive systems is expected. The degree of scientific research experience is expected to be on the level of a German Diploma/Master.

The appointments will start early 2017, for three years. Interested applicants should submit a curriculum vitae and a list of publications, and arrange for letters of reference to be sent to the address below.

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Information about the relevant lecture course can be found at:

<http://itp.uni-frankfurt.de/~gros/Vorlesungen/CADS/>

