

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: Aug. 11th, 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 transient state dynamics through short-term synaptic plasticity, the study of the stationarity principle for statistical learning and/or the generation of motor primitives through self-organized embodiment within the sensori-motor loop. The work will include analytic investigations and numerical simulations of neural networks and/or of simulated robots, using the toolset of dynamical systems theory.

The candidates must have a Diploma/Master in physics, 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 needs to be on the level of a German Diploma/Master.

The appointment will start summer/fall 2017, for up to three years. Interested applicants must submit a curriculum vitae, a list of publications and copies of the academic record. Name, affiliation and email-address of one or more potential references are to be given. Applications should be sent to the below mentioned email-address.

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Information about the relevant lecture course can be found at:

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

