

# 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: January 13, 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.

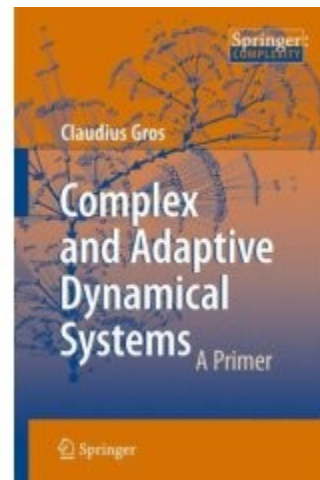
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<http://www.itp.uni-frankfurt.de/~gros>

Information about a lecture course relevant for the PhD studies can be found at:

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

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**General information** on the University of Frankfurt and its employment policy. With its around 46000 students and 4600 employees, the Goethe University in Frankfurt is the largest university in the state of Hessen and an internationally renowned, important regional employer. Numerous quality and performance oriented internal reforms have been initiated in the recent years. The reorganized campuses for natural sciences and humanities offer an ideal environment for research and education. Since 2008, the Goethe University is a foundation under public law and enjoys full administrative autonomy.

The fixed-term employment of the academic staff is subject to the provisions of the Temporary Science Employment Law (Wissenschaftszeitvertragsgesetz) and the Hessian Higher Education Act (Hessisches Hochschulgesetz). The University advocates gender equality and therefore strongly encourages women to apply. People with disabilities are given preference if equally qualified.