

Open Position for CsF candidates 2015

Department/Institute: Institute of Physics

Subject Area: Theoretical Physics

Name of Supervisor: **PD. Dr. Axel Pelster**

Number of Positions: 1

Type of Positions **PhD/Postdoc**

Project Title: Theoretical research within the field of delayed complex systems

Project Description: Nonlinear dynamical systems with time delay occur in all scientific fields where memory effects due to a finite propagation time of information must be considered. They encompass mechanical, electro- and acousto-optical as well as optically bistable systems, lasers, neuroscience as well as economy, sociology, and ecology. Furthermore, time delays have become an important tool for controlling nonlinear dynamical systems, as exemplified by new approaches towards controlling deterministic chaos or noise-induced oscillations and patterns. Complementary to these applications, recently also novel theoretical concepts and demanding numerical analyses of these systems have been achieved. In particular new insights in the mathematical properties of deterministic and stochastic delay differential equations, including spatially inhomogeneous systems, have been gained.

We offer one PhD thesis which focuses on the theoretical investigation of time-delayed effects upon the self-organized generation of retinotopic projections between different cell arrays on the basis of cooperative and competitive interactions of individual synaptic contacts. To this end we apply several methods from the realm of synergetics and nonlinear dynamical systems.

Academic Requirements: Research experience in one of the following areas: nonlinear dynamics, synergetics

Language Requirements: English (fluent; excellent writing skills)

Further Information: http://www.theo-phys.uni-essen.de/tp/ags/pelster_dir/

Further Information on Ciência sem Fronteiras at FU Berlin [http://www.fu-berlin.de/en/sites/brazil/Ciencia sem Fronteiras/index.html](http://www.fu-berlin.de/en/sites/brazil/Ciencia_sem_Fronteiras/index.html)

Application

<http://www.csf-alemanha.de/pt/>

While applying online via this website, please make sure to also upload or send a copy of the following documents to saopaulo@fu-berlin.de:

- letter of application;
- academic CV (including former study programs, internships, publications);
- one or two letters of recommendation of distinguished professors of your university.

Some of the above documents are also required by Capes, but FU Berlin needs an **English or German version of each of the listed documents**. The documents are required by the individual institution responsible for the acceptance process. They may enhance your chances to get accepted. A decision cannot be made unless they have fully been transmitted. For further questions, please contact saopaulo@fu-berlin.de.