



## **Graduate School „Graduate School for Dynamics and Evolution in Living Systems (DEviLS)“**

### **Abstract of the Draft Proposal for the Excellence Initiative 2006**

#### **The Spatial and Temporal Dimensions of Biological Systems**

Research and advances in life sciences and biomedicine are very important for the mankind's quality of life and for the appropriate management of natural resources which are the basis of human life. In the same way, these scientific fields represent an important economic potential, particularly for the *Standort Deutschland*. The production of outstanding young scientists and scholars is essential for the internationally significant success in this field. The life sciences are an important focus of teaching and research at Humboldt-Universität, which is documented by the existence of three graduate schools, an international Max-Planck Research School, speaker roles in two special research programmes (*Sonderforschungsbereiche*), and a European training network, as well as numerous interdisciplinary institutes, among other things.

The interdisciplinary research at the "Graduate School for Dynamics and Evolution in Living Systems (DEviLS)" is concerned with structures and mechanisms which keep living systems in a condition of equilibrium, but also in a condition of constant change. Internationally recognised research teams in the fields of biology, physics, bioinformatics, chemistry and medicine investigate dynamic processes in cells, their molecular and super-molecular basis and the interaction between organisms and the evolution and development of organisms, all at various temporal and spatial scales. In this process, a close combination of theoretical and empirical approaches in research is essential to understanding these complex processes in living systems.

A tight network of scientists and working groups from leading scientific institutions in the Berlin-Brandenburg region (for example, Humboldt-Universität, including the Charité and the Museum of Natural History; Max-Planck Institutes; and the Max-Delbrück Centre for Molecular Medicine) offer a flexible programme of study oriented towards the needs of the next generation of highly-motivated young researchers. Doctoral candidates are integrated into new and existing international research projects, beginning in their interdisciplinary education. The integration of innovative biotech and biomedical enterprises in the programme enables students to be exposed to applications-oriented research and the implementation of such research in marketable products at an early stage. The ultimate ambition of the project is to expand the leading role of Humboldt-Universität in the field of the life sciences and to establish a leading international Life Sciences graduate school.

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**Fields of Study**

- Biology
- Theoretical Biology
- Biophysics
- Computer Science
- Virology
- Medicine
- Veterinary Medicine

**Existing Research Associations**

- Research Training Group 268: "Dynamics and Evolution of Cellular and Macromolecular Processes"
- Research Training Group 1121: "Genetic and Immunologic Determinants of Pathogen-Host-Interactions"
- International PhD Program "Molecular Cell Biology"
- International Max-Planck Research School for Infectious Diseases and Immunology
- EU Marie Curie - Research Training Network: Lipid flippases - Protein-mediated lipid translocation Regulation and physiological significance of transbilayer lipid distribution
- Collaborative Research Center 618 for Theoretical Biology: "Robustness, Modularity and Evolutionary Design of Living Systems"
- Collaborative Research Center 429: "Molecular Physiology, Energetics and Regulation of Primary Metabolisms in Plants"
- DFG Research Unit 526: "Blue Light Photoreceptors"
- Interdisciplinary Center for Infection Biology and Immunity (ZIBI)
- Centre for Biophysics and Bioinformatics (BPI)

**Further Information on this Project**

<http://www.exzellenz.hu-berlin.de/>