



Graduate School „AdlershofCampus+ - Graduate School of Science“

Abstract of the Draft Proposal for the Excellence Initiative 2006

"Only interdisciplinary expert teams from natural sciences can pursue cutting-edge research on the building blocks and composites systems to understand matter and life."

Excellence in the Natural Sciences in Unique Surroundings

The mission of AdlershofCampus+ is to attract the brightest students worldwide and to offer them ideal conditions to pursue PhD studies within an interdisciplinary scientific environment after their BSc or MSc degrees. The scientific guideline is to understand matter and life not only as being composed of basic building blocks, but also as a composite system governed by certain rules. Therefore, interdisciplinary expert teams from physics, chemistry, biology, mathematics, environmental science and others have to tackle both "simple" microscopic and "complex" systems. Urgent questions posed by science and society are answered in a joint interdisciplinary research effort in a stimulating environment as a key prerequisite for success.

The school's research expertise and curriculum, *plus* the outstanding environment (Campus+) enable students to pursue cutting-edge research on the building blocks and composites that form matter and life, including innovative changes and advances in science. As a guideline they will follow a strategy which can be abbreviated by the scientific maxim: **make, measure, model, and manage**. Three prerequisites are combined to achieve this goal: First, scientific excellence present in the science departments of Humboldt-Universität and in the non-university research institutions that provides concepts, methods, and techniques of interdisciplinary research; second, a unique urban and technological setting, the Science and Technology Park Adlershof which concentrates research institutions and high-tech companies in an exceptional environment; and third, an educational concept that combines intense supervision with curriculum flexibility in a solid organizational structure. The ultimate goal is to establish one of the world's top graduate schools of science that prepares graduates for leading positions in academia and industry.

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Fields of Study

- Biology
- Chemistry
- Informatics
- Geography
- Mathematics
- Physics
- Charité Universitätsmedizin Berlin

Existing Research Associations

- International Humboldt Graduate School on "Structure, Function and Application of New Materials"
- Research Training Group 268: "Dynamics and Evolution of Cellular and Macromolecular Processes"
- Research Training Group 780: "Perspectives on Urban Ecology - the Example of the European Metropolis of Berlin"
- Research Training Group 1025: "Fundamentals and Functionality of Size and Interface Controlled Materials: Spin- and Optoelectronics"
- Research Training Group 1128: "Analysis, Numerics and Optimization of Multiphase Problems"
- Research Training Group 1121: "Genetic and Immunologic Determinants of Pathogen-Host-Interactions"
- Collaborative Research Center 448: "Mesoscopically Organised Composites"
- Collaborative Research Center 546: "Struktur, Dynamik und Reaktivität von Übergangsmetalloxid-Aggregaten"
- Collaborative Research Center 555: "Complex Nonlinear Processes"
- Collaborative Research Center 647: "Raum, Zeit und Materie"
- Collaborative Research Center 296: "Growth correlated properties of lowdimensional semiconductor structures"
- Collaborative Research Center 450: "Analysis and Control of Ultrafast Photoinduced Reactions"
- Collaborative Research Center 658: "Elementary Processes in Molecular Switches at Surfaces"
- DFG Research Center 86: "Matheon. Mathematics for key technologies: Modelling, Simulation, und Optimisation of real-life Processes"

- International Max Planck Research School on Biomimetic Systems
- International PhD Program Molecular Cell Biology
- Competence Centre for the Application of Nanostructures in Optoelectronics (NanOp)
- Optical Technologies Berlin Brandenburg (OptecBB)

Further Information on this Project

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