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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 1

Research Field:	Earth and Environment
Specification / Helmholtz Programme:	Marine, Coastal, Polar Systems
Helmholtz Centre:	Alfred-Wegener-Institute for Polar and Marine Science (*www.awi-bremerhaven.de)*
Position:	2 Doctoral Fellows
Department:	Geosciences
Research Area:	Reconstruction of global climate cycles from polar archives The mechanisms of climate change on a variety of time-scales, inter-hemispheric connections, the role of the cryosphere in climate variations and physical and biological processes that regulate atmospheric CO_2 will be addressed. Information shall be collected and analysed from documentation in continental ice, permafrost or marine sediment cores, which represent unique archives of the phase and amplitude of climate change on seasonal to millenial time scales.
Specific Requirements:	The candidate should have a profound knowledge in Geosciences or related disciplines. Experience in paleoclimatic or paleoceanographical reconstructions is helpful. Excellent English knowledge is required
Work Place:	Bremerhaven; Germany
Earliest Start:	May 2006
German Language Course:	possible

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 2

Research Field:	Health
Specification / Helmholtz Programme:	Cancer Research
Helmholtz Centre:	German Cancer Research Center Heidelberg (DKFZ) (http://www.dkfz.de)
Position:	3 Doctoral Fellows
Research Areas:	Cell Biology and Tumor Biology, Structural and Functional Genomics Cancer Risk Factors and Prevention Tumor Immunology Innovative Cancer Diagnostics and Therapy Infection and Cancer
Specific Requirements:	The candidate should have a master degree related to the above mentioned research areas (biology, chemistry, pharmacy, physics, mathematics, informatics, medicine).
Work Place:	Heidelberg; Germany
Earliest Start:	March 2006
German Language Course:	possible
Further Information:	A list of available projects can be found at http://www.dkfz.de/phd/project.htm

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 3

Research Field: Earth and Environment

Specification / Helmholtz Programme: Biogeosystems: Dynamics, Adaptation and Adjustment

Helmholtz Centre: Forschungszentrum Juelich (*Verlinkung mit Zentrum-Homepage*)

Position: 1 Doctoral Fellow

Department: Institute for Chemistry and Dynamics of the Geosphere

Research Area:

Plant performance in a dynamic environment will be crucial for agriculture and for the development of natural biogeosystems in global change. The basis for this response is the molecular, biochemical and physiological machinery of the plant to respond to varying abiotic and biotic environments. Non invasive techniques like image sequence analysis, MRI, PET, hyperspectral or fluorescence imaging offer unique insights in the spatial and temporal response of plants to dynamics changes in their environment.
Research fields in which the Doctoral Fellow will work are

- plant growth dynamics: leaves, roots and canopies
- plant transport dynamics: carbon and water transport
- plant volatile emissions
- plant root responses to heterogeneous soil environments

Specific Requirements: The candidate should have a profound knowledge in plant sciences and high affinity to physic-based techniques to quantify plant performance.

Earliest Start: August 2006

Language: English. After start of the fellowship a German language course will be offered

Further Information: www.fz-juelich.de/gp/daad-scholarships

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 4

Research Field:	Energy
Specification / Helmholtz Programme:	Efficient Energy Conversion
Helmholtz Centre:	Forschungszentrum Juelich
Position:	1 Doctoral Fellow
Department:	Institute for Materials and Processes in Energy Systems
Research Area:	The candidate is implemented in a 40 people group working in the field of Polymer Electrolyte Fuel Cells (PEFC) and associated system technology. The task for the doctoral fellow will be development, implementation and testing of a control strategy for PEFC systems with respect to optimal stack operation. The control strategy is based on the characteristic map of the fuel cell system with regard to its application. Focus is the achievement and the conservation of high system efficiencies at maximum durability. The concept has to be transferred into a computer code which can be used by the micro controller of the PEFC system. Within for example mobile applications the integrated control system has to be tested and optimized.
Specific Requirements:	The candidate should have a university degree in either mechanical or electrical engineering. He or she should have a profound knowledge in control techniques. Additional knowledge in energy systems is favoured.
Earliest Start:	May 2006
Language:	English. After start of the fellowship a German language course will be offered
Further Information:	www.fz-juelich.de/gp/daad-scholarships

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 5

Research Field: Energy

Specification / Helmholtz Programme: Efficient Energy Conversion

Helmholtz Centre: Forschungszentrum Juelich

Position: 1 Doctoral Fellow

Department: Institute for Materials and Processes in Energy Systems

Research Area:
Solid Oxide Fuel Cell (SOFC)
- Nano structured SOFC Electrodes

Specific Requirements: The candidate should have knowledge in metallic or ceramic powder technology and should preferably dispose of fundamental background knowledge in handling of thin layer coating devices , eg. PVD,CVD, Spin coating, Sol gel technology

Earliest Start: June 2006

Language: English. After start of the fellowship a German language course will be offered

Further Information: www.fz-juelich.de/gp/daad-scholarships

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 6

Research Field: Energy

Specification / Helmholtz Programme: Nuclear Safety Research

Helmholtz Centre: Forschungszentrum Juelich (*Verlinkung mit Zentrum-Homepage*)

Position: 1 Doctoral Fellow

Department: Safety and Radiation Protection

Research Area: The research area is comprised of two main fields: radiobiology and protein biochemistry. The basic research of the lab concentrates on the identification of sensitive proteins showing radiation-induced alterations either in their expression profile and/or their post-translational modifications. We want to identify candidate proteins revealing reproducible changes after irradiation in comparison to the controls.
It is known that within a population about 10% of the individuals are more sensitive to ionizing radiation than the others. To find out whether the candidate proteins may serve as suitable biomarkers for individual radiosensitivity we analyse blood samples from voluntary healthy donors after in vitro irradiation. The lymphocytes are isolated from the blood and then lysed to gain the proteins. These proteins are further analysed by 2D gel electrophoresis, digital image analysis and mass spectrometry.

Specific Requirements: The candidate should have basic knowledge in radiobiology and have preferably practical experience in protein biochemistry. He /she should preferably dispose of fundamental background knowledge in handling of 2D electrophoresis devices and in the application of mass spectrometry (ESI-MS).

Earliest Start: Summer 2006

Language: English. After start of the fellowship a German language course will be offered

Further Information: www.fz-juelich.de/gp/daad-scholarships

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 7

Research Field:	Energy
Specification / Helmholtz Programme:	Safety Nuclear Research
Helmholtz Centre:	Forschungszentrum Juelich (*Verlinkung mit Zentrum-Homepage*)
Position:	1 Doctoral Fellow
Department:	Safety and Radiation Protection
Research Area:	**Analysis of natural occurring radionuclides in environmental samples** Use of ICP-MS for the determination of radionuclides (U-238, U-235, U-234, Am-241, Th-232 and others) in environmental samples (soil, sediments, plants) collected in different areas. The aim of this work is to study the transport of nuclides in the environment and to assess the risk of natural radionuclides to the population living in areas contaminated. The Department is involved in international cooperation projects in e.g. Kazakhstan (Semipalatinsk Test Site, Aktau/Caspian Sea). As part of these projects environmental samples have to be taken, prepared for shipment and later analysed in the lab for radionuclides.
Specific Requirements:	The candidate should have a profound knowledge in the chemistry and behaviour of (radio)nuclides in the environment (water, soil, air, plants) and should preferably dispose of fundamental background knowledge in handling of environmental samples (sampling, sample preparation, separation techniques, data treatment) and of mass spectrometry (ICP-MS)
Earliest Start:	May 2006
Language:	English. After start of the fellowship a German language course will be offered. Knowledge of the Russian language is not required but would be preferable.
Further Information:	www.fz-juelich.de/gp/daad-scholarships

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 8

Research Field: Health

Specification / Helmholtz Programme: Function and Dysfunction of the Nervous System

Helmholtz Centre: Forschungszentrum Juelich (*Verlinkung mit Zentrum-Homepage*)

Position: 1 Doctoral Fellow

Department: Institute of Biological Information Processing

Research Area: **Structure and function of proteins in signalling pathways**
The goal of the project is to isolate and purify proteins from signalling pathways. These proteins are subjected to biophysical techniques available in our laboratory (protein crystallography, time-resolved spectroscopy in the infrared and visible regime, light scattering, circular dichroisme, single molecule fluorescence spectroscopy). The proteins of interest are membrane receptors, channels as well as water soluble proteins.

Specific Requirements: The candidate should be trained in physics, biophysics, chemistry, biochemistry or biology. He or she should be motivated to perform experiments in the area of biochemistry, molecular biology and biophysics.

Earliest Start: June 2006

Language: English. After start of the fellowship a German language course will be offered

Further Information: www.fz-juelich.de/gp/daad-scholarships

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 9

Research Field: Key Technologies

Specification / Helmholtz Programme: Scientific Computing

Helmholtz Centre: Forschungszentrum Juelich

Position: 1 Doctoral Fellow

Department: John von Neumann Institute for Computing

Research Area: Computational Biology and Biophysics

Over the last few decades, high-performance computing has extended the range of phenomena that can be investigated within the framework of physics. One example is biology where supercomputers have become a crucial tool in the deciphering of whole genomes, the characterization of their encoded proteins, and the study of function, mutual interaction and regulation of these proteins. Modeling biological system is one of the defining challenges in computational science requiring both new hardware and novel methods. Within the emerging field of computational biology and biophysics our research focuses on the physics of proteins. Tackling this protein-folding problem on a computer is a notoriously difficult problem and one aim of the research in our group. In particular we have developed and adapted novel algorithms such as multicanonical sampling and energy landscape paving. Current applications in our group include:

- Protein-Ligand interactions for aiding in rational drug design.
- Protein-Interaction networks to unravel cellular signalling.
- Protein-Nanotube interactions for applications in nanoscale electronics.

Specific Requirements: The candidate for a PhD in one of the above-mentioned areas should have a MSc in a relevant discipline. Further requirements are to be discussed with the supervisor

Earliest Start: May 2006
Language: English. After start of the fellowship a German language course will be offered.
Further Information: www.fz-juelich.de/gp/daad-scholarships

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 10

Research Field: Structure of Matter

Specification / Helmholtz Programme: Physics of Hadrons and Nuclei

Helmholtz Centre: Forschungszentrum Juelich (*www.fz-juelich.de*)

Position: 1 Doctoral Fellow

Department: Institute for Nuclear Physics

Research Area: The Institute of Nuclear Physics (IKP) is involved in basic research of the properties of systems bound by the strong force (hadrons). IKP operates the accelerator COSY which provides proton and deuteron beams up to 3.7 GeV/c. Together with the WASA detector this will allow fundamental physics symmetries to be investigated in the decays of eta and eta' mesons. Furthermore, IKP has taken the leading role to construct the High Energy Storage Ring for an intense, phase space cooled antiproton beam with momentum up to 15 GeV/c at the future FAIR facility. The PANDA detector which will be located on this storage ring has a broad program of hadron spectroscopy. IKP is taking the leading role in the inner detectors for tracking charged particles. Both experimental and theoretical topics are available for a Ph.D. thesis.

Specific Requirements: The candidate should have a masters degree in nuclear or particle physics. Further requirements depend upon the specific choice of the thesis topic.

Earliest Start: May 2006

Language: English. After start of the fellowship a German language course will be offered

Further Information: www.fz-juelich.de/gp/daad-scholarships

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 11

Research Field:	Earth and Environment
Specification / Helmholtz Programme:	Sustainable Development and Technology
Helmholtz Centre:	FZK – Forschungszentrum Karlsruhe GmbH (http://www.fzk.de)
Position:	1 Doctoral Fellow
Department:	Institute for Technical Chemistry – Chemical-Physical Processing
Research Area:	Sustainable Synthesis and Catalysis. Oxidation processes for olefin refinement processes: Heterogeneous catalysis, on-line and off-line spectroscopy for process parameter evaluation, catalyst development by chemical synthesis and physical-chemical measurements for catalyst characterization.
Specific Requirements:	The candidate must have basic skills in technical and physical chemistry and/or inorganic chemistry. Ideally, she/he has expertise in heterogeneous catalysis and the required laboratory-scale technology. The candidate is familiar with routine analytics, e. g. GC, GC-MS and IR spectroscopy.
Work Place:	Karlsruhe (Eggenstein-Leopoldshafen); Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	http://www.fzk.de/fzk/idcplg?IdcService=FZK&node=0739&document=ID_007888

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 12

Research Field:	Earth and Environment
Specification / Helmholtz Programme:	Sustainable Development and Technology
Helmholtz Centre:	FZK – Forschungszentrum Karlsruhe GmbH (http://www.fzk.de)
Position:	1 Post Doctoral Fellow
Department:	Institute for Technical Chemistry – Chemical-Physical Processing
Research Area:	Sustainable Synthesis and Catalysis. Investigations and applications on the utilization of supercritical carbon dioxide for olefin refinement processes: High-pressure technology, on-line and off-line spectroscopy for process parameter evaluation, physical-chemical studies on phase phenomena relevant for multi-phase catalysis approaches.
Specific Requirements:	The candidate should be experimentally and theoretically experienced in both, transition metal catalysis and technical chemistry. Fundamental knowledge in performing catalytic reactions under pressure with respect to safe handling of the appropriate equipment is required. The candidate is familiar with routine analytics, e. g. GC, GC-MS and IR spectroscopy. Skills and know-how with supercritical fluids is preferred.
Work Place:	Karlsruhe (Eggenstein-Leopoldshafen); Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	http://www.fzk.de/fzk/idcplg?IdcService=FZK&node=0739&document=ID_007888

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 13

Research Field: Structure of Matter

Specification / Helmholtz Programme: Astroparticle Physics

Helmholtz Centre: FZK – Forschungszentrum Karlsruhe GmbH (http://www.fzk.de)

Position: 1 Doctoral Fellow

Department: Institute for Nuclear Physics

Research Area: Cosmic Ray Physics: Development and tests of the detection of ultra-high-energy cosmic ray air showers by radio antenna. Based on ongoing prototype research with the LOPES antenna array at the KASCADE Grande air shower detector the studies will be extended to higher energies at the Pierre Auger experiment in Argentina. Of crucial importance is the dependence of the radio signals on the energy, the zenith and azimuth angle of the air shower as well as on the mass of the primary particle and on the detailed properties of the local atmosphere.

Specific Requirements: The candidate should have a profound knowledge in Experimental Particle Physics, Astro-Particle Physics and Comic Ray Physics. Good knowledge of C++ programming is required. A background knowledge in the Particle Physics data analysis and experience in complex Monte Carlo simulations is of advantage.

Work Place: Karlsruhe (Eggenstein-Leopoldshafen); Germany with occasional stays in Argentina

Earliest Start: April 2006

German Language Course: possible

Further Information: http://www.fzk.de/fzk/idcplg?IdcService=FZK&node=0037&lang=en

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 14

Research Field: Structure of Matter

Specification / Helmholtz Programme: Condensed Matter

Helmholtz Centre: FZK – Forschungszentrum Karlsruhe GmbH (http://www.fzk.de)

Position: 1 Post Doctoral Fellow

Department: Institute for Solid State Physics

Research Area: Advanced experiments to investigate the physics of strongly correlated electrons systems, such as the interplay of superconductivity and magnetism in transition-metal oxides (cuprates) and rare-earth intermetallics (heavy-fermion systems), notably in the vicinity of quantum phase transitions. Experiments include state-of-the-art high-precision thermodynamic and transport measurements in the temperature range down to 50 mK and magnetic fields up to 20 T, as well as masurements under hydrostatic and uniaxial pressures. Experiments at the new in-house Karlsruhe Synchrotron Light Source ANKA to investigate the electronic properties of these materials with soft x-ray absorption and photoemission spectroscopies are also possible.

Specific Requirements: The candidate should hold a doctorate degree in condensed-matter physics and have profound experience either in experimental low-temperature physics or x-ray absorption and photoemission spectroscopies with synchrotron radiation.

Work Place: Karlsruhe (Eggenstein-Leopoldshafen); Germany

Earliest Start: May 2006

German Language Course: possible

Further Information: http://www.fzk.de/fzk/idcplg?IdcService=FZK&node=0035&lang=en

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 15

Research Field: Structure of Matter

Specification / Helmholtz Programme: Astroparticle Physics

Helmholtz Centre: FZK – Forschungszentrum Karlsruhe GmbH (http://www.fzk.de)

Position: 1 Doctoral Fellow and 1 Post Doctoral Fellow

Department: Institute for Nuclear Physics

Research Area: Neutrino Physics: High position spectroscopy of electrons at the 18.6 kV end point energy of Tritium Beta Decay allows a model independent measurement of the Neutrino Mass. The KATRIN experiment will use an ultra-luminous source and a high resolution electrostatic spectrometer with 10m diameter and 24m length. Of crucial importance is a thorough investigation of the electromagnetic properties in the central analysing plane, in particular of the magnetic field inhomogeneity and the uniformity of the retarding potential. In addition, interference from stray fields of superconducting solenoids as well as magnetic influences from structural materials and the earth magnetic fields have to be compensated precisely to maximise the Neutrino Mass sensitivity.

Specific Requirements: The candidate should have a profound knowledge in Experimental Particle Physics, in particular of Astroparticle and Neutrino Physics. A profound knowledge in tracking of particles in electric and magnetic fields as well as experience in complex Monte Carlo simulations is required. A background knowledge in vacuum techniques as well as in the analysis of Particle Physics data is of advantage.

Work Place: Karlsruhe (Eggenstein-Leopoldshafen); Germany

Earliest Start: April 2006

German Language Course: possible

Further Information: http://www.fzk.de/fzk/idcplg?IdcService=FZK&node=0037&lang=en

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 16

Research Field:	Health
Specification / Helmholtz Programme:	Regenerative Medicine
Helmholtz Centre:	GKSS Forschungszentrum Geesthacht GmbH (www.gkss.de)
Position:	1 Doctoral Fellow
Department:	Chemistry / Development of Biomaterials
Research Area:	Development of polymer based biomaterials (as well as synthetic, biodegradable materials, stimuli-sensitive polymer materials and biomimetic material modifications) for applications in regenerative medicine, and their upsacling up to the production of limited-lot productions for specific approaches that have to posses a broad range of functionalities, i.e. which are multifunctional. Biofunctionality, like tissue- and hemocompatibility and biodegradability belong to these functionalities.
Specific Requirements:	The candidate should have experience in various fields of polymer science and technology preferable in synthesis and processing of biopolymers. Applicants should have extensive experience in biological or chemical discipline or in medical technology and/or regenerative medicine.
Work Place:	Teltow; Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	Web-Adresse: www.gkss.de; http://www.gkss.de/pages.php?page=f_chemie.html&language=e&version=g

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 17

Research Field:	Health
Specification / Helmholtz Programme:	Regenerative Medicine
Helmholtz Centre:	GKSS Forschungszentrum Geesthacht GmbH (www.gkss.de)
Position:	1 Post Doctoral Fellow
Department:	Chemistry / Development of Biomaterials
Research Area:	Development of polymer based biomaterials (as well as synthetic, biodegradable materials, stimuli-sensitive polymer materials and biomimetic material modifications) for applications in regenerative medicine, and their upsacling up to the production of limited-lot productions for specific approaches that have to posses a broad range of functionalities, i.e. which are multifunctional. Biofunctionality, like tissue- and hemocompatibility and biodegradability belong to these functionalities.
Specific Requirements:	The candidate should have a profound knowledge in chemistry, modification and processing of biopolymers. Applicants should hold an advanced degree in a biological or chemical discipline. The ideal applicant should be knowledgeable in the field of synthetic polymers and have extensive experience in medical technology and/or regenerative medicine.
Work Place:	Teltow; Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	Web-Adresses: www.gkss.de; http://www.gkss.de/pages.php?page=f_chemie.html&language=e&version=g

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 18

Research Field:	Key Technologies
Specification / Helmholtz Programme:	Advanced Engineering Materials
Helmholtz Centre:	GKSS Forschungszentrum Geesthacht GmbH (www.gkss.de)
Position:	1 Doctoral Fellow
Department:	Polymer Technology 2
Research Area:	Development of nanostructured membranes for fuel cells and hydrogen technology. The membranes are based on organic polymers or copolymers and may contain a finally distributed inorganic phase.
Specific Requirements:	The candidate should have a profound knowledge in Chemistry and should preferably dispose of fundamental background knowledge in polymer science and inorganic chemistry.
Work Place:	Geesthacht; Germany
Earliest Start:	April 2006
German Language Course:	possible
Further Information:	http://www.gkss.de/pages.php?page=c_abt_ct1.html&version=g&language=e

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 19

Research Field:	Key Technologies
Specification / Helmholtz Programme:	Advanced Engineering Materials
Helmholtz Centre:	GKSS Forschungszentrum Geesthacht GmbH (www.gkss.de)
Position:	1 Doctoral Fellow
Department:	Institute of Polymer Research/Polymer Technology 2
Research Area:	Polymeric devices for controlled release. (Development and modification of methods for the preparation of hollow fibres, nanofibres and nanoparticles suitable for controlled release. Application of different spinning techniques, e.g. dry-wet spinning and electrospinning. Characterisation of release behaviour.)
Specific Requirements:	The candidate should have a profound knowledge in Polymer Chemistry and Polymer Physics and should preferably have fundamental and practical background in polymer characterization and analytical techniques (GPC, HPLC, spectroscopy, photometry,...).
Work Place:	Geesthacht; Germany
Earliest Start:	April 2006
German Language Course:	possible
Further Information:	http://www.gkss.de/pages.php?page=c_abt_ct2.html&version=g&language=e

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship – No. 20

Research Field:	Key Technologies
Specification / Helmholtz Programme:	Advanced Engineering Materials
Helmholtz Centre:	GKSS Forschungszentrum Geesthacht GmbH (www.gkss.de)
Position:	1 Doctoral Fellow
Department:	Institute of Polymer Research – Instrumental Characterization Methods
Research Area:	Investigations of Molecular Dynamics in Di- or Triblock copolymers (Analysis of molecular mobility / interfacial structure of block copolymers with various chain topologies by static and dynamic methods. Correlation of polymer structure and morphology with mechanical properties and segmental dynamic data. The main characterization techniques will be solid state NMR, dynamic mechanical analysis (DMA), electron microsccopy, AFM, X-ray scattering)
Specific Requirements:	The candidate should have a profound knowledge in analytical chemistry and should preferably have a fundamental knowledge in nuclear magnetic resonance and/or scattering methods, handling of polymer samples, and basic knowledge in thermal analysis (DSC, DMA)
Work Place:	Geesthacht; Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	http://www.gkss.de/pages.php?page=c_abt_ci2.html&version=g&language=e

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 21

Research Field: Key Technologies

Specification / Helmholtz Programme: Advanced Engineering Materials

Helmholtz Centre: GKSS Forschungszentrum Geesthacht GmbH (www.gkss.de)

Position: 1 Doctoral fellow

Department: Institute of Polymer Research

Research Area: Development of membranes and membrane materials for separation of gases and liquids; focus will be on the synthesis of multiphase membrane materials. This includes polymers with finely dispersed novel inorganic adsorbents (mixed matrix membranes) and polymers with functionalized organic nanoparticles.

Specific Requirements: The candidate should have knowledge in polymer chemistry and/or in the field of synthesis of inorganic adsorbents (zeolithes, metal-organic frameworks).

Work Place: Geesthacht, Germany

Earliest Start: May 2006

German Language Course: possible

Further Information: http://www.gkss.de/pages.php?page=c_abt_senior.html&version=g&language=e

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 22

Research Field: Key Technologies

Specification / Helmholtz Programme: Advanced engineering materials

Helmholtz Centre: GKSS Forschungszentrum Geesthacht GmbH (www.gkss.de)

Position: 1 Doctoral fellow

Department: Institute of Polymer Research

Research Area: Polymer chemistry: A very few polymers are known to exceed gas permeability by an order of magnitude over common polymers. Such polymers may be applied for membrane based gas separation, electronics, etc. Based on structure/properties relationship new polymers will be designed, synthesized and characterized in order to get improved polymers for these applications.

Specific Requirements: Experience in Polymer Chemistry or in Organic Chemistry is helpful. Skills for preparative chemistry as well as the standard analytical methods are required.

Work Place: Geesthacht; Germany

Earliest Start: April 2006

German Language Course: possible

Further Information: http://www.gkss.de/pages.php?page=f_chemie.html&language=e&version=g

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 23

Research Field:	Structure of Matter
Specification / Helmholtz Programme:	Large-scale facilities (photons, neutrons and ions)
Helmholtz Centre:	GKSS Forschungszentrum Geesthacht GmbH (www.gkss.de)
Position:	1 Doctoral Fellow
Department:	Macromolecular Structure Research
Research Area:	Structural characterization of the interaction of peptide antibiotics with model membranes. This work is performed in close collaboration with the Tel-Aviv University, Israel. Experts from TAU will predict peptide sequences. The candidate will be responsible for testing these peptides to determine anti-bacterial, haemolytical and cytotoxic activity. Parallel a thoroughly study of biophysical interaction of these peptides by X-ray and neutron scattering (among others) will be performed.
Specific Requirements:	The candidate should have a profound knowledge in biology or biochemistry/chemistry. Experiences with scattering methods and other biophysical techniques (for example DSC, SPR) and/or cell biology are highly recommended.
Work Place:	Geesthacht; Germany
Earliest Start:	March 2006
German Language Course:	possible
Further Information:	http://www.gkss.de/pages.php?page=w_abt_wfs_general.html&language=d&version=g PD Dr. R. Willumeit regine.willumeit@gkss.de

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 24

Research Field:	Health
Specification / Helmholtz Programme:	Comparative Genome Research for Human Health
Helmholtz Centre:	GSF - Forschungszentrum für Umwelt und Gesundheit GmbH (http://www0.gsf.de/neu/Jobs/daad/index.php)
Position:	1 Doctoral Fellow
Institute:	Institute of Human Genetics
Research Area:	Examination of phenotype-genotype correlations in a large scale study of a representative population of 500 people. The phenotypes will be detemined by cell biological and biochemical means. The phenotype-genotype correlations will be calculated using bioinformatical approaches.
Specific Requirements:	The candidate should have a sound knowledge of genetic and experience in handling with human cell culture. Bioinformatic background would be an asset.
Work Place:	Neuherberg near Munich; Germany
Earliest Start:	March 2006
German Language Course:	possible
Further Information:	http://www0.gsf.de/neu/Forschung/Institute/ihg_intro_en.php

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 25

Research Field: Health

Specification /
Helmholtz Programme: Environmental Health

Helmholtz Centre: GSF - Forschungszentrum für Umwelt und Gesundheit GmbH (http://www0.gsf.de/neu/Jobs/daad/index.php)

Position: 1 Doctoral Fellow

Department: Institute of Toxicology

Research Area: The focus of the proposed doctoral thesis is the analysis of specific effects of tetrachlordibenzo-*p*-dioxin (TCDD) on signal transduction and gene expression in liver cells. The ultimate goal is to provide a contribution for a better understanding of the molecular mechanisms underlying the hepatocarcinogenicity of TCDD. At the GSF-Institute of Toxicology, an ongoing proteomic project deals with a systematic characterization of the alterations of signal transduction and gene expression induced by TCCD in hepatoma cell lines. Changes in the abundances of individual proteins in TCDD-treated and control cells are analyzed using two-dimensional polyacrylamide gel electrophoresis (2-DE) with fluorescence staining and identification of regulated proteins by mass spectrometry (MS and MS/MS). Moreover, to overcome limitations of the classical 2DE-approach, new methods (SILAC, ICPL) have been established which involve labelling of proteins with stable isotopes and their separation by multidimensional chromatography followed by quantification and identification by mass spectrometry (LC-MS/MS). The results obtained so far show a significant up- or down-regulation of numerous protein species in 5L cells within 8 hours of treatment with 1 nM TCDD. They indicate that the spectrum of effects exerted by TCDD on hepatic cells is even broader than previously thought. In the frame of the proposed project, the most interesting of the novel findings obtained will be selected and pursued in detail using biochemical and genetic methods in order to clarify the underlying mechanisms and the relevance for the toxicity and the carcinogenicity of TCCD in liver.

Specific Requirements:	For this task we need a committed person with a good education in the field of biochemistry and/or molecular biology.
Work Place:	Neuherberg near Munich; Germany
Earliest Start:	March 2006
German Language Course:	possible
Further Information:	http://www0.gsf.de/neu/Forschung/Institute/toxi_intro_en.php

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 26

Research Field: Health

Specification / Helmholtz Programme: Comparative Genome Research for Human Health

Helmholtz Centre: GSF - Forschungszentrum für Umwelt und Gesundheit GmbH (http://www0.gsf.de/neu/Jobs/daad/index.php)

Position: 1 Doctoral Fellow

Department: Institute of Bioinformatics

Research Area: Systematic genome analysis. The number of available genomes is increasing rapidly. To support the scientific community, we maintain several databases based on the exhaustive analysis of sequence information. The comprise the database of all-against-all protein sequence similarities, SIMAP (1), the functional classification of proteins (2) and their automatic annotation using PEDANT (3). To organize the yet individual information, clustering methods have to be developed to classify all extant proteins into orthologous groups according to their evolutionary inheritance (see (4)). Orthologs are supposed to have conserved fold and function. Such clusters would provide the biologist with reliable information required for the prediction any sequence/function relationship and allow for the classification of organisms at the genome scale. The project aims to establish a comprehensive, up-to-date data resource to be linked to SIMAP and PEDANT.

Reference List
1. Rattei,T., Arnold,R., Tischler,P., Lindner,D., Stuempflen,V. and Mewes,H.W. SIMAP: The similarity matrix of proteins. Bioinformatics epub ahead of print. 2005.
2. Ruepp,A., Zollner,A., Maier,D., Albermann,K., Hani,J., Mokrejs,M., Tetko,I., Guldener,U., Mannhaupt,G., Munsterkotter,M. *et al.* (2004) The FunCat, a functional annotation scheme for systematic classification of proteins from whole genomes. *Nucleic Acids Res.*, **32**, 5539-5545.
3. Riley,M.L., Schmidt,T., Wagner,C., Mewes,H.W. and Frishman,D. (2005) The PEDANT genome database in 2005. *Nucleic Acids Res.*, **33 Database Issue**, D308-D310.

4. Tatusov,R.L., Galperin,M.Y., Natale,D.A. and Koonin,E.V. (2000) The COG database: a tool for genome-scale analysis of protein functions and evolution. *Nucleic Acids Res.*, **28**, 33-36.

Specific Requirements: Applicants should have a sound education in bioinformatics (e.g. Masters Diploma) and excellent IT skills. The Ph.D. student will participate in the GSF Ph.D. programme.

Work Place: Neuherberg near Munich; Germany

Earliest Start: May 2006

German Language Course: possible

Further Information: http://www0.gsf.de/neu/Forschung/Institute/ibi_intro_en.php

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 27

Research Field: Health

Specification / Helmholtz Programme: Comparative Genome Research for Human Health

Helmholtz Centre: GSF - Forschungszentrum für Umwelt und Gesundheit GmbH (http://www0.gsf.de/neu/Jobs/daad/index.php)

Position: 1 Post Doctoral Fellow

Department: Institute of Developmental Genetics

Research Area: Neurobiology of psychiatric disorders, specifically the contribution and function of adult neurogenesis in the etiology of depression and anxiety related disorders

Specific Requirements: The candidate should have a profound knowledge in neurogiology and should preferably have experience with the analysis of animal models, i.e. mice. Preferably he or she should have experience in one of the following specific areas: mouse genetics, mouse behaviour and/or mouse pathology.

Work Place: Neuherberg near Munich; Germany

Earliest Start: June 2006

German Language Course: possible

Further Information: http://www.gsf.de/idg/

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 28

Research Field:	Structure of Matter
Specification / Helmholtz Programme:	Physics of Hadrons and Nuclei
Helmholtz Centre:	GSI - Gesellschaft für Schwerionenforschung (www.gsi.de)
Position:	1 Doctoral Fellow
Department:	Kernphysik I
Research Area:	Study of hot, compressed, and highly excited nuclear matter via nuclear reaction experiments at relativistic energies (at the SIS18 synchrotron at GSI and at CERN-LHC)
Specific Requirements:	MD or comparable degree in experimental nuclear or particle physics; (good) knowledge of particle detectors, electronics and data acquisition systems
Work Place:	Darmstadt; Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	http://www.gsi.de/forschung/kp/kp1/index_e.html

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 29

Research Field:	Structure of Matter
Specification / Helmholtz Programme:	Physics of Hadrons and Nuclei
Helmholtz Centre:	GSI - Gesellschaft für Schwerionenforschung (www.gsi.de)
Position:	1 Doctoral Fellow
Department:	Kernphysik II
Research Area:	Nuclear structure and nuclear astrophysics experiments with rare isotope beams from the GSI fragment separator; ground-state properties of and reactions with nuclei far off stability
Specific Requirements:	MD or comparable degree in experimental nuclear or particle physics; (good) knowledge of particle detectors, electronics and data acquisition systems
Work Place:	Darmstadt; Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	http://www.gsi.de/forschung/kp/kp2/index_e.html

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 30

Research Field:	Energy (www.helmholtz.de/en/Research_Fields/Energy.html)
Specification / Helmholtz Programme:	Renewable Energy
Helmholtz Centre:	Hahn-Meitner-Institut Berlin GmbH (www.hmi.de)
Position:	1 Postdoctoral Fellow
Department:	SE6 - Electronic structure of semiconductor interfaces
Research Area:	Photovoltaics; Electronic and morphological structure of energy converting interfaces. Preparation and analysis of technologically relevant semiconductor surfaces and interfaces yields information on the basic parameters determining the electrical properties of the energy converting junction. The applied analytical techniques comprise XPS, UPS, LEED, STM. In addition, a dedicated XPEEM system at the Berlin Synchrotron BESSY is available. Current materials under study are $CuInS_2$, ZnO, Si, GaAs.
Specific Requirements:	The candidate should have a profound knowledge in solid state physics and a fundamental background in surface physics and preparation of semiconductor interfaces. Dedicated experimental skills are mandatory. A good knowledge in semiconductor thin film preparation and UHV technology is needed.
Place:	Berlin
Earliest Start:	April 2006
German Language Course:	possible
Further Information:	**www.hmi.de/bereiche/SE/SE6/index.html** (German)

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 31

Research Field:	Structure of Matter www.helmholtz.de/en/Research_Fields/Structure_of_Matter.html
Specification / Helmholtz Programme:	Large-scale facilities for research with photons, neutrons and ions
Helmholtz Centre:	Hahn-Meitner-Institut Berlin GmbH (www.hmi.de)
Position:	1 Post Doctoral Fellow
Department:	SF2 – Magnetism
Research Area:	Magnetism of thin films and nanostructures; Synchrotron and neutron scattering methods. The successful candidate is expected to build up his own research profile, e.g. by preparing samples using molecular beam epitaxy (MBE) methods and characterising them by laboratory methods such as the magneto-optical Kerr-effect (MOKE) as well as by synchrotron and neutron scattering techniques. In particular, she/he will be engaged in experiments at one of the world leading soft X-ray beam lines, the HMI undulator beam line at the Berlin Synchrotron BESSY.
Specific Requirements:	A Post-doc working in this area should have experience in the use of synchrotron radiation and preferably also neutron radiation and a broad knowledge in solid state physics, especially in the field of magnetism.
Place:	Berlin
Earliest Start:	April 2006
German Language Course:	possible
Further Information:	http://www.hmi.de/bereiche/SF/SF2/index.html (German)

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 32

Research Field:	Structure of Matter (www.helmholtz.de/en/Research_Fields/Structure_of_Matter.html)
Specification / Helmholtz Programme:	Large-scale facilities for research with photons, neutrons and ions
Helmholtz Centre:	Hahn-Meitner-Institut Berlin GmbH (www.hmi.de)
Position:	1 Post Doctoral Fellow or Doctoral Fellow
Department:	SF3 – Engineering Materials
Research Area:	Development and characterising of aluminium-based lightweight-materials, amorphous and nano-crystalline alloys and metallic foams; Amorphous and nano-crystalline Al-based alloys are manufactured by rapid quenching or mechanical milling. The resulting alloys are characterised according to their thermal stability and crystallisation behaviour and to their mechanical properties. The precipitation sequence is investigated and the interrelationship between vacancy density and atomic diffusion is studied.
Specific Requirements:	The successful candidate is expected to have knowledge in application of some of the following methods: transmission electron microscopy, 3D atom probe, X-ray and/or neutron scattering, DSC, positron annihilation. Preferably, he should be skilled in materials science.
Place:	Berlin
Earliest Start:	April 2006
German Language Course:	possible
Further Information:	http://www.hmi.de/bereiche/SF/SF3/index_en.html

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Fellowship - No. 33

Research Field: Earth and Environment

Specification / Helmholtz Programme: Sustainable Use of Landscape

Helmholtz Centre: UFZ- Umweltforschungszentrum Halle-Leipzig (www.ufz.de)

Position: 1 Postdoctoral Fellow

Department: Hydrogeology

Research Area: The Department research objectives are to gain a better understanding of water management assessment in urban and polluted landscapes under semi-arid and arid conditions. To combine different analytical and experimental methods with new computational and mathematical methods, we develop and use various hydrological, hydrogeological and GIS model systems at different temporal and spatial scales.

Research activities in arid landscapes currently focus on the prediction of water, its quality, the water budget and availability, and management of water resources including surface and groundwater in the Middle East region.

Specific Requirements: Within this research area, we are seeking a highly motivated young scientist, who is interested in contributing to an interdisciplinary research environment.
The successful candidate should hold a PhD in at least one of the following areas: Geology, Hydrogeology, Hydrology, Geo-Chemistry, Physics, Environmental Engineering or related disciplines with the ability in exploring new experimental or computational methods, in using geophysical or geochemical data acquisition techniques, and their application in fieldwork onsite.

The detailed research project is open within these fields and will be developed dependent on the strength and interests of the candidate. Applicants should add to their CV a maximum of a 1-page description briefly outlining their possible research interests.

Work Place:	Halle/Saale; Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	http://www.hdg.ufz.de/index.php

Helmholtz Association of National Research Centres

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 34

Research Field: Earth and Environment

Specification / Helmholtz Programme: Sustainable Use of Landscape

Helmholtz Centre: UFZ- Umweltforschungszentrum Halle-Leipzig (www.ufz.de)

Position: 1 Doctoral Fellow

Department: Applied Landscape Ecology

Research Area: The Division research objectives are to gain a better understanding of Environmental Systems by synthesizing the development of new computational and mathematical methods in integrated terrestrial environmental modelling with the acquisition and assimilation of high-tech real time spatial data from remote sensing and geophysical monitoring. Research activities currently focus on the prediction of water, energy and solute fluxes in the groundwater-soil-plant-atmosphere continuum at different temporal and spatial scales as well as in their relations to biological and anthropogenic processes and activities.

Specific Requirements: Within this research area, we are seeking a highly motivated student, who is interested in contributing to an interdisciplinary research environment and who will focus on the quantification of spatial structures and patterns of land surface and subsurface characteristics (such as soil moisture, surface temperature, plant physiology) derived from remote sensing and geophysical monitoring. The temporal dynamics of these patterns will be investigated and related to large scale hydrological processes.
The successful candidate should hold a first class Diploma or Master degree in related disciplines with the ability to combine strong computational skills with an interest in exploring new experimental remote sensing and geophysical data acquisition techniques.

The concrete research project will be developed dependent on the strength and interests of the candidate and will also contribute to the current cooperation between the UFZ and the newly founded Interdisciplinary Centre of Pattern Dynamics and Remote Sensing of the

University of Potsdam. Applicants should add to their CV a maximum of a 1- page description briefly outlining their possible research interests.

Work Place:	Leipzig; Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	http://www.ufz.de/index.php?en=1441

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 35

Research Field: Earth and Environment

Specification / Helmholtz Programme: Sustainable Use of Landscape

Helmholtz Centre: UFZ- Umweltforschungszentrum Halle-Leipzig (www.ufz.de)

Position: 1 Doctoral Fellow

Department: Analytical Chemistry

Research Area: The Department of Analytical Chemistry cooperates in the field of "chemo dynamics" and invites applications for a Doctoral Fellow in the field of Miniaturized Techniques in Environmental Analytical Chemistry. Analysis and assessment of anthropogenic impact to environmental relevant compartments are performed by the application of different techniques of analytical chemistry. The introduction of microsampling methods allows the distribution and local analysis of trace elements, metalloids and their species in samples of environmental interest.

The research tasks include the following topics:

- Development and construction of sampling devices prior to analysis
- Development of methods for coupling of laser ablation with high sensitive detection devices (e.g. ICP-MS techniques)
- Development of methods for the lateral, local and distribution analysis in solid samples (sediment cores, biota, gels)

These tasks will include the construction and preparation of different devices, the optimisation of their parameters and the application to the analysis of microsamples of environmental importance.

Specific Requirements: The candidate should have a profound knowledge in Analytical Chemistry

The successful candidate will have a M.Sc. or Diploma degree in Analytical Chemistry. Experience with methods of trace elemental analysis and interdisciplinary research are mandatory. Experience with atomic spectrometry or mass spectrometry methods (ICP-MS, ICP-AES,

AAS) will be an advantage. The project includes lab and field work and pursue of interdisciplinary collaborations.

Work Place:	Leipzig; Germany
Earliest Start:	May 2006
German Language Course:	possible
Further Information:	http://www.ufz.de/index.php?en=1442

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 36

Research Field: Earth and Environment

Specification / Helmholtz Programme: Sustainable Use of Landscape

Helmholtz Centre: UFZ- Umweltforschungszentrum Halle-Leipzig (www.ufz.de)

Position: 1 Post Doctoral Fellow

Department: Analytical Chemistry

Research Area: The department invites applications for a Postdoctoral Fellow in the field of Analysis of Solid Samples in Environmental Analytical Chemistry Analysis and assessment of anthropogenic impact to environmental relevant compartments are performed by the application of different techniques of inorganic analytical chemistry. The employment of different analytical techniques allows the determination of trace elements (isotopes), metalloids and their species in solid samples of environmental interest.
The research tasks include the following topics:

- Methodological investigations for the distribution analysis in different matrices (including micro samples)
- Development of methods for the determination of the binding of elements in natural samples.

These tasks will include the preparation of samples for the analysis, the optimisation of the analytical parameters and the application of the methods to the analysis of samples of environmental importance, e.g. geological and biological samples.

Specific Requirements: The candidate should have a profound knowledge in Analytical Chemistry

and should preferably dispose of fundamental background knowledge

- Laser ablation
- mass spectrometry (ICP-MS)
- X-ray techniques, e.g. XANES.

For the positions a background in environmental science proven by international publications with emphasis on Analytical Chemistry, Material Science would be advantageous. We expect the ability to work in interdisciplinary teams.

Work Place: Leipzig; Germany

Earliest Start: May 2006

German Language Course: possible

Further Information: http://www.ufz.de/index.php?en=1442

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 37

Research Field: Health

Specification / Helmholtz Programme: Environmental Health

Helmholtz Centre: GSF - Forschungszentrum für Umwelt und Gesundheit GmbH (http://www0.gsf.de/neu/Jobs/daad/index.php)

Position: 1 Doctoral Fellow

Department: Institute of Toxicology

Research Area: Chromatin modifications by histone acetylation and deacetylation as well as methylation of histones and DNA play key roles in the development of cancer. Our laboratory is interested in the role of histone deacetylases (HDACs) in the development of intestinal cancer. We have shown that one of the HDAC isoenzymes (HDAC2) is up-regulated in colonic cancer by a mechanism that depends on the loss of the APC tumor suppressor and increased expression of the c-Myc oncogene. A combination of biochemical, molecular and cellular biological approaches, as well as mouse genetics is employed to understand the consequences of upregulated HDAC2 in the process of intestinal cancer development. In a broader context we are interested in discovering specific features of individual members in the HDAC family of enzymes and aim at identification of those enzymes that are particularly relevant to the development or prevention of cancer. At present a first mouse with a mutation in the HDAC2 locus is analyzed. The future approaches including the proposed thesis project in this summary will involve generation and analysis of more refined mouse models such as conditional mutagenesis in mice and definition of HDAC2 mutants that allow dissection of specific HDAC2 functions in vivo.

Specific Requirements: The candidate should have a profound knowledge in biology and molecular approaches to investigate the development of diseases. A background in cancer biology and particularly the use of mouse models

	in order to understand pathogenesis, design preventive measures, or develop of treatment protocols would be appreciated.
Work Place:	Neuherberg / Munich; Germany
Earliest Start:	March 2006
German Language Course:	possible
Further Information:	http://www0.gsf.de/neu/Forschung/Institute/toxi_intro_en.php

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Helmholtz – DAAD – Fellowships 2005/2006

Fellowship - No. 38

Research Field: Health

Specification / Helmholtz Programme: Environmental Health

Helmholtz Centre: GSF - Forschungszentrum für Umwelt und Gesundheit GmbH (http://www0.gsf.de/neu/Jobs/daad/index.php)

Position: 1 Post Doctoral Fellow

Institute: According to final project in one of the institutes dedicated to the research on the health effects of radiation, chemicals or particulate air contaminants (http://www0.gsf.de/neu/Jobs/daad/environmental_health.php).

Research Area: The program Environmental Health is dedicated to identifying critical components in our daily environment and life style that affect our health. The approach is based on mechanistic research aiming at understanding pathomechanisms of the development of environment related diseases and defining environmental risk factors and genetic predisposition by large population surveys. Analysis and quantitative description of environmental exposures to radiation, chemical components and particulate matter are key approaches aiming ultimately at identification of hazards and quantification of risks to human health. Applications for a PhD fellowship are invited from candidates who want to join an interdisciplinary approach to prevention and therapy of environment related diseases. Contributions of skills from basic training and experience from PhD work are expected.

Specific Requirements: The candidate should have a profound knowledge in biology and/or medicine with a strong focus on molecular approaches to investigate the development of diseases as well as environmental influences in this process. A background in cancer biology, pulmonary, or cardiovascular research would be appreciated.

Work Place: Neuherberg / Munich; Germany

Earliest Start:	March 2006
German Language Course:	possible
Further Information:	http://www0.gsf.de/neu/Forschung/Institute/toxi_intro_en.php