



EUROPÄISCHE AKADEMIE

zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen
Bad Neuenahr-Ahrweiler GmbH

Direktor: Professor Dr. Dr.h.c. Carl Friedrich Gethmann

RESEARCHPROGRAMME

OCTOBER 2011



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RESEARCHPROGRAMME

OCTOBER 2011

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MISSION

The Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen gGmbH is concerned with the scientific study of the consequences of scientific and technological advances for individuals and society, as well as for the natural environment. The main focus is on the examination of foreseeable mid- and long-term processes that are especially influenced by the natural and engineering sciences and the medical disciplines. As an independent scientific institution, the Europäische Akademie pursues a dialogue with the world of politics and society at large. The work of the Europäische Akademie is based on the assumption that the sciences, in addition to providing specialized scientific information, also are responsible for furnishing *orientational knowledge*. To achieve this, an *interdisciplinary* approach is required, bringing together the results from natural sciences, engineering sciences and medical disciplines with thematically relevant studies in philosophy, jurisprudence, economics and social sciences. In addition, the foreseeable results of research and development are to be related *transdisciplinarily* to the expected societal needs and positions. In the course of its work, the Europäische Akademie takes up and develops approaches towards technology assessment, ethics of technology and medical ethics.

The Europäische Akademie seeks to assist in finding a rational way for society to deal with the consequences of scientific and technological developments. This aim is mainly achieved by developing and recommending options upon which to act, with respect to long-term societal acceptance. The rational resolution of conflicts in the area of science and technology is an important prerequisite for long-term, reliable science and technology policy. In the course of its scientific work the Europäische Akademie ensures that the responsibility of the scientific community towards the whole of society is duly fulfilled.

TARGET GROUPS

The results of the Europäische Akademie's scientific work address the relevant scientific disciplines, and also political authorities in the fields of science and technology in Europe. Beyond that, with its work it addresses the public potentially affected by the consequences of science and technology. The Europäische Akademie expects its scientific work to have repercussions on the conception of science itself. Through rational reflection about the consequences of science and technology, the responsibility of the scientist as a key factor in the self-regulation of the scientific system can be strengthened.

WORKING METHOD

The work of the Europäische Akademie is mainly conducted by temporary interdisciplinary project groups. Members of these project groups are recognized scientists from universities and non-university research organisations across Europe and abroad. In specific cases, representatives from other areas of society, e.g. from industry, can also be nominated. From their group, the members elect a chairperson. The project groups' members make up the academy's council.

Transdisciplinary issues, relevant for several or all project groups, are dealt with in the *Study Groups* of the Europäische Akademie. Through participation of European scientists, European cooperation with corresponding advisory bodies, through participation in relevant networks and through specific regard to European aspects within the projects, consideration of the European perspective is ensured.

The results of the project groups, study groups and conferences are made available as a basis for advice and decision-making in the form of subject-related studies and conferences.

The *Doctorate Programme* of the Europäische Akademie supports young scientists in different scientific fields to complete their dissertation at the academy in Ahrweiler.

Furthermore, with the *Research Fellowship Programme* the Europäische Akademie invites qualified foreign scholars to carry out research projects in the field of the study of the consequences of scientific and technological advances.

The Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen gGmbH (European academy for the study of the consequences of scientific and technological advance) was constituted in 1996 as a 'gemeinnützige Gesellschaft mit beschränkter Haftung', i.e. a non-profit corporation with limited liability. Since its foundation the academy is substantially funded by its partners, the Federal German state of Rhineland-Palatinate (Bundesland Rheinland-Pfalz) and the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt e.V., DLR). In addition, the academy successfully fundraises for its project work. Third party money comes from a variety of private and public funding bodies.

The managing director of the company is Professor Dr. phil. Dr. phil.h.c. Carl Friedrich Gethmann, a full professor of Applied Philosophy at the Universität Duisburg-Essen.

The *Partners' Assembly* (Gesellschafterversammlung, p. 45) has formed a *Managing Committee* (Geschäftsführender Ausschuss, p. 45) to which two representatives of the partners belong. It also nominated a *Scientific Advisory Board* (Wissenschaftlicher Beirat, p. 45) which supports the Europäische Akademie in elaborating its scientific goals and projects as well as in evaluating research results.

The members of the different working groups form the *Council* (Kollegium, p. 46–48) of the academy which is a forum for scientific exchange on subjects concerning the activities of the Europäische Akademie.

PROJECTS

The subject areas for the projects of the Europäische Akademie are, among others, technology, health, energy, the environment and methodology. Core concepts in investigating and assessing the consequences of scientific and technical developments such as 'risk', 'innovation', 'prognosis' or 'responsibility' and the related conceptual and procedural questions are dealt with interdisciplinarily; they are then incorporated in sets of instruments for 'Rational Technology Assessment'. The projects listed below are currently in operation (p. 11–17) or already completed (p. 18–33).

Furthermore, the research programme reports about the activities of the Europäische Akademie such as the Master Programme on ethics of medicine (p. 34), Studies (p. 35–36), Study Groups (p. 37–40), the Research Fellowship Programme (p. 41), the Doctoral Programme (p. 42–44) and Publications (p. 51–60).

SYNTHETIC BIOLOGY (CURRENT)

Synthetic biology is a young and very dynamic branch of modern biology that focuses on the conceptual design of living systems. Its goals reach from attempts to create artificial life in the test tube to the search for new effective medicines, cheap biofuels and new methods to produce petrochemicals. Synthetic biology is characterized by an interdisciplinary cooperation of biologists, engineers and computer scientists.

Currently, the perspectives of the engineers and the computer scientists are changing the way of working practices in synthetic biology significantly: Scientists are developing minimal cells that are stripped down to a few basic features onto which standardized genomic sequences can be mounted expressing the desired function. With its systemic approach and its attempts to generate biological systems that might not have any counterparts in existing living systems, synthetic biology goes far beyond mere genetic engineering. However, the research on the social implications of this new development is just in its fledgling stages.

Aims of this project are to explore the possibilities of synthetic biology and to name potential risks. The project group also wants to precise central terms and definitions and, thus, make a contribution to an efficient and reliable communication on the challenges of synthetic biology. Hereupon new ethical and methodical standards for research and potential applications of synthetic biology shall be developed. The resulting recommendations shall address science, industry, politics and general public interested in the chances and risks of this upcoming field of biotechnology.

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Ph.D. Student: Arne Willée, M.A.

Duration: 1/11–6/13

Funding: Klaus Tschira Stiftung

PROJECT GROUP

LONG-TERM PLANNING

THE RELEVANCE OF SOCIAL AND COGNITIVE RESOURCES FOR SUSTAINABLE ECONOMIC ACTIVITIES

(CURRENT)

Sustainable acting requires the actor's competence to make long-term plans that balance the proximate (now-for-now) preferences with those targeted at a more distant future (now-for-then). To meet their now-for-then preferences actors have to sustain and ensure the future availability of the resources necessary to keep their options to act open for adequately long planning periods.

A one-sided focus on the so-called "natural resources" would be inadequate, as sustainable acting also has to assure the long-term provision of cognitive and social resources. This includes planning competences as well as the competence to cope with uncertainty and risk rationally, to retain the ability of efficient decision making even under complex conditions, to use creative problem-solving heuristics etc. Furthermore, there is a need for competences in solving social dilemmas and conflicts as well as competences which allow the forming and sustaining of fruitful and stable conditions for cooperation and competition. In this respect, the stabilising function of governmental and non-governmental institutions and the organized reconciliation of interests between interacting partners play a crucial role.

Using the results of action-, decision-, risk- and game-theory as well as insights from empirical economics, the project will develop a consistent methodological basis for the requirements of long-term planning allowing improved sustainability of individual and collective action.

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Duration: 9/10–3/13

Funding: German Federal Ministry of Education and Research (BMBF): "Economic Studies for Sustainability"

DEVELOPMENT OF NOVEL NANOTECHNOLOGY BASED DIAGNOSTIC SYSTEMS FOR RHEUMATOID ARTHRITIS AND OSTEOARTHRITIS (NANODIARA)

(CURRENT)

Rheumatoid arthritis and osteoarthritis are widely spread diseases causing severe morbidity and mortality. However, up to now there are no sufficient diagnostic methods to detect the disease at an early stage. In order to promote research in this field, the European Commission supports the interdisciplinary consortium "Development of Novel Nanotechnology Based Diagnosed Systems for Rheumatoid Arthritis and Osteoarthritis (NanoDiaRA)". The main objective of this project is to develop novel diagnostic methods for the early detection of rheumatoid arthritis and osteoarthritis. To achieve this aim, modified super paramagnetic nanoparticles are to be applied.

The project consortium consists of 15 European partners from university and non-university institutions. For the duration of four years a budget of nine million Euros will be provided by the European Commission.

NanoDiaRA project Co-ordinator is the Europäische Akademie – supported by MatSearch Consulting Hofmann (Switzerland). Furthermore, the Europäische Akademie is leading a work package on ethical aspects of nanotechnology application in medicine ("Nanoparticles for medical purposes. Technical, medical and ethical aspects", s. the following page).

Website of the project: www.nanadiara.eu

Members: AnaMar AB (Sweden) • Arrayon Biotechnology (Switzerland) • Centre Suisse d'Electronique et de Microtechnique SA, Microfluidics & Microhandling (Switzerland) • Charité Universitätsmedizin Berlin, Rheumatology Clinic (Germany) • Ecole Polytechnique Fédérale de Lausanne, Institute of Materials (Switzerland) • MatSearch Consulting Hofmann (Switzerland) • Merck Chimie – Estapor Microspheres Division (France) • Merck Serono, Strategic Innovation & Research & Portfolio Management (Switzerland) • Paracelsus Medizinische Privatuniversität Salzburg, Institute of Anatomy & Musculoskeletal Research (Austria) • University of Fribourg, Department of Chemistry (Switzerland) • University of Geneva, Cell Physiology and Metabolism (Switzerland) • University of Lund, Department Experimental Medical Science (Sweden) • University of Nimwegen, Rheumatology (Netherlands) • University of Tartu, Internal Medicine Faculty of Medicine (Estonia)

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Scientific Co-ordination: Dr.-Ing. Margarethe Hofmann-Antenbrink (MatSearch Consulting)

Duration: 2/10–1/14

Funding: Seventh Framework Programme (FP7) of the European Commission: "Nanosciences, Nanotechnologies, Materials and New Production Technologies"

PROJECT GROUP

NANOPARTICLES FOR MEDICAL PURPOSES TECHNICAL, MEDICAL, AND ETHICAL ASPECTS (CURRENT)

Nanotechnology surely is endowed with enormous potential for medical innovation and economic revenue. However, this technology also bears potential risks that may cause considerable social, ethical and legal problems. Questions to be dealt with are, for example: What are the moral boundaries for using human materials and animal models for this research? What will determine social acceptance of nanotechnological applications in medicine? Are there any moral boundaries of introducing nanotechnology into our life-world? How should a balanced legal regulation of research and application of nanotechnology look like? Though public concern about these issues cannot be ignored, the scientific study of these risks is still in its infancy. Nanoparticles, an especially promising application of nanotechnology in medicine and the main focus of this project, show, due to their smallness, novel physical properties affecting their toxicological behaviour. These physical properties are only partially known so far, thus, a risk evaluation – balancing medical benefits versus adverse effects – is methodologically demanding since it has to be performed under partial ignorance. Further points of interest are adverse health effects on third parties like medical personnel and pollution of the environment. The project aims at several articles and an interdisciplinary memorandum on the social, ethical and legal implications of applying nanotechnology for medical purposes. The project group comprises scholars of different fields of nanotechnology with hands-on experience in the application of nanotechnology in medicine, complemented by experts on ethical and legal issues of research.

The project is part of the EU-funded NanoDiaRA consortium and the Europäische Akademie Bad Neuenahr-Ahrweiler GmbH is its administrative co-ordinator (see page 13 and www.nanadiara.eu).

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Project Co-ordination: N.N.

Duration: 5/10–9/12

Funding: Seventh Framework Programme (FP7) of the European Commission: “Nanosciences, Nanotechnologies, Materials and New Production Technologies”

CLINICAL RESEARCH ON VULNERABLE POPULATIONS (CURRENT)

The therapeutic situation of vulnerable populations – such as minors, elderly, and the mentally ill – is unsatisfactory. For example, a large number of pharmaceuticals which are given to minors is used “off label” or “off licence”, resulting in disproportionately numerous adverse side effects. What seems even worse, for many conditions there is no validated therapy available leaving for example demented patients behind as “therapeutic orphans”. It is, therefore, an urgent task to foster clinical research in vulnerable populations and to discuss the medical ethical, legal and economic problems involved. To begin with, it is debated to what extent and on which ethical and legal foundation risky research on vulnerable populations is acceptable at all. In addition, the realisation of clinical studies in smaller groups of patients (i.e. infants, minors, adolescents) is complex, time-consuming, and therefore very costly. Thus, the question arises whether effective incentives to perform research are in place and whether the established ways of drug development are appropriate for fulfilling societal needs. Also a main concern of researchers both from universities and industry remains to find sufficient numbers of vulnerable populations as test persons. Here the discussion on appropriate incentives arises once again.

Finally, the obvious globalisation of clinical research raises concerns often expressed in the fear that due to a “research colonialism” benefits and risks of research might be unjustly distributed between the western and the developing world. The project aims at developing recommendations for the improvement of clinical research and consequently an improvement of the therapeutic situation of vulnerable populations. The project is a collaboration between the Europäische Akademie and the Berlin-Brandenburgische Akademie der Wissenschaften (BBAW).

Documentation: F. Thiele, J. M. Fegert, G. Stock (eds): *Clinical research in minors and the mentally ill* (Graue Reihe 46, 11/2008)

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Funding: Berlin-Brandenburgische Akademie der Wissenschaften, Stiftung Rheinland-Pfalz für Innovation, Europäische Akademie GmbH

PROJECT GROUP

DEEP BRAIN STIMULATION IN PSYCHIATRY GUIDANCE FOR RESPONSIBLE RESEARCH AND APPLICATION (CURRENT)

In recent years, Deep Brain Stimulation (DBS) has been studied in the treatment of different kinds of psychiatric disorders. Efficacy data are still uncertain, but initial results are promising. However, attempts to use DBS in psychiatry are subject to a high degree of scrutiny because they are seen by critics as an unwelcome resurgence of psychosurgery. Although some of these fears may clearly be dispelled since they pertain to obsolete neurosurgical methods, there are other concerns related to the use of DBS in psychiatry deserving of careful consideration.

The aim of this project was to examine in which way recognized standards of research and practice in psychiatry need to be modified in order to account for the special requirements of DBS. Issues of particular interest included the selection of research subjects and patients, the requirements to be met by investigational protocols, the process of obtaining informed consent in clinical research and practice, the safeguarding of patients' autonomy, and the assessment of long-term side-effects.

The project group is composed of leading international experts from the relevant clinical disciplines neurosurgery, psychiatry, neurology and neuropsychology as well as experts in medical law and ethics. Their goal is to reach a consensus on the required ethical and methodological standards and, thus, to give guidance for responsible research and application of DBS in psychiatry.

Publications: J. J. Fins, H. S. Mayberg, B. Nuttin, C. S. Kubu, T. Galert, V. Sturm, K. Stoppenbrink, R. Merkel, T. E. Schläpfer: Misuse Of The FDA's Humanitarian Device Exemption In Deep Brain Stimulation For Obsessive-Compulsive Disorder, *Health Affairs*, February 2011, 30(2): 302–311

J. J. Fins, T. E. Schläpfer, B. Nuttin, C. S. Kubu, T. Galert, V. Sturm, R. Merkel, H. S. Mayberg: Ethical guidance for the management of conflicts of interest for researchers, engineers and clinicians engaged in the development of therapeutic deep brain stimulation, *Journal of Neural Engineering*, May 2011, 8(3): 033001

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Duration: 10/08–12/11

Funding: VolkswagenStiftung

ENERGY STORAGES AND VIRTUAL POWER PLANTS
FOR THE INTEGRATION OF RENEWABLE ENERGIES
INTO THE POWER SUPPLY
POTENTIALS, INNOVATION BARRIERS AND IMPLEMENTATION
STRATEGIES
(CURRENT)

Considering ambitious targets for the extension of renewable energies, challenges arise for their future-oriented integration into the energy system without jeopardizing the security of electricity supply, particularly in case their power supply is fluctuating. Smart coordination of demand and supply of electrical energy, which can be interpreted as operating a virtual power plant, and the integration of energy storages represent promising approaches for solving this problem without retaining backup capacities operated with fossil fuels.

The aim of this project is, first, to investigate the demand for balancing out electrical energy in a system with a high share of renewable energy. Based on the results, technological options like network expansion, centralised and de-centralised energy storages, smart grids, and the integration of electric vehicles will be analysed with respect to their technical and economical potentials as well as their future viability. Starting with examining the legal, economical and political framework conditions, strategies for balancing out supply and demand in electricity networks and for their gradual implementation are developed. Finally, scientifically founded recommendations should be given concerning supporting measures and the extension of technologies for balancing out fluctuating electricity supply due to the increasing application of renewable energies.

Publication: B. Droste-Franke, B. P. Paal, C. Rehtanz, D. U. Sauer, J.-P. Schneider, M. Schreurs, T. Ziesemer: *Balancing Renewable Electricity. Energy Storage, Demand Side Management and Network Extension from an Interdisciplinary Perspective*, Springer-Verlag, Berlin 2012 (series: Ethics of Science and Technology Assessment, Vol. 39) (in print)

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Duration: 1/09–12/11

Funding: Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)

PROJECT GROUP

RADIOACTIVE WASTE

TECHNICAL AND NORMATIVE ASPECTS OF ITS DISPOSAL

(COMPLETED)

In the public and political debate on nuclear power it is constantly being mentioned that the question of final repository has not yet been solved and that the usage of nuclear power therefore could not be justified. The project reconstructed and assessed critically the applied standards and criteria for radiation protection and the physical-technical bases of the designs for the final storage of high-level radioactive waste and spent fuel assemblies that are stipulated for a long-term security.

Furthermore, the members worked out a survey over the strategies, concepts and rules that are established in the most important countries that operate nuclear power plants. On the basis of this exploration the project group developed rationally justified criteria for the evaluation of these approaches concerning technical requirements as well as those requirements that derive from the necessity of protecting man and nature. These reflections comprise juridical, ethical, and sociological reflections: An adequate evaluation of the different options presupposes a juridical examination of the national and transnational regulations, the question of long-term responsibility needs to be answered from an ethical point of view and, within these limits, options for implementation are to be worked out that enjoy widespread public support. The recommendations of the group are presented in the study "Radioactive Waste". On the basis of this normative examination and the considerations from the physical and engineering sciences' point of view the group provides recommendations justified by transdisciplinary acceptable arguments.

Publication: C. Streffer, C. F. Gethmann, G. Kamp, W. Kröger, E. Rehbinder, O. Renn, K. J. Röhlig: *Radioactive Waste. Technical and Normative Aspects of its Disposal*. Springer-Verlag, Berlin 2011, ISBN 978-3-642-22924-4 (series: Ethics of Science and Technology Assessment, Vol. 38)

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Duration: 10/08–9/10

Funding: VGB Powertech

POTENTIALS AND RISKS OF PSYCHOPHARMACEUTICAL ENHANCEMENT

(COMPLETED)

Pharmaceutical neuroenhancement refers to the use of psychopharmaceutical drugs for the improvement of cognitive performance or emotional wellbeing absent of therapeutic or preventive goals. The emerging trend towards pharmaceutical neuroenhancement has been explored in four intimately linked subprojects represented by four cooperating institutions. A medical subproject prepared systematic reviews on the effectiveness and safety of those prescription drugs rumoured to be able to enhance mood and cognition in healthy people. The other three subprojects were dedicated to ethical, legal and conceptual issues related to pharmaceutical neuroenhancement.

The effects of psychostimulants, antidepressants or antimentia drugs on healthy people have not been studied thoroughly enough to claim that any psychopharmaceutical drug currently on the market would facilitate safe and effective neuroenhancement. This lack of evidence should be sufficient reason to abstain from using drugs for neuroenhancement purposes today. If, however, potent and suitably safe neuroenhancement drugs became available, their general rejection would not seem justified because the occurrence of many feared negative consequences seems uncertain, whereas the many benefits of enhanced well-being and cognitive performance are undeniable. Hence, instead of imposing a premature prohibition of neuroenhancement drugs, the evolving ways of their usage should be closely monitored by authorities so that they are able to react with adequate regulatory measures if undesirable social consequences were to emerge. An extended public debate on the possibilities of pharmaceutical neuroenhancement is desirable because the evident readiness of many people to obtain controlled drugs of questionable efficacy in dubious ways and their acceptance of adverse effects when using these pills sheds a problematic light on our society's performance orientation.

Publication: T. Galert, C. Bublitz, I. Heuser, R. Merkel, D. Repantis, B. Schöne-Seifert, D. Talbot: Das optimierte Gehirn. Ein Memorandum zu Chancen und Risiken des Neuroenhancements, *Gehirn&Geist*, 11/2009, Spektrum der Wissenschaft, 40–48

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Duration: 7/06–10/09

Funding: German Federal Ministry of Education and Research (BMBF): "Research on ethical, legal and social aspects in biomedicine"

PROJECT GROUP

THE RESEARCH GUIDING FUNCTION OF METAPHORS FROM THE INFORMATION SCIENCES AND THEIR RELEVANCE TO THE TRANSFORMATION OF THE PHILOSOPHY OF MAN

(COMPLETED)

This project looked into the significance of research-guiding metaphors for the constitution of new concepts of man as well as alterations to pre-existing ones. The pre-suppositions introduced to natural sciences through metaphors were reflected upon (in terms of linguistic criticism); furthermore, the reductionistic philosophy of man generated by life-science research was critically examined. In doing so, the validity conditions for an adequate philosophy of man was analysed in order to evaluate it with respect to the aims of science. Furthermore, a general philosophy of man were sought through reconstructing metaphors in the way they are used in computer science and genetics (e.g. the term "information").

The Europäische Akademie pursued the particular viewpoint that such metaphors can generally be perceived as a technique: they are reconstructible through an analysis of technology and philosophical statements about the effects of technology on humans. Therefore, there is reason for technology-guided transformations of the concepts of man, whose consequences were evaluated. This project was carried out by three independent research groups and was co-ordinated by the Europäische Akademie GmbH.

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Duration: 9/06–12/09

Funding: German Federal Ministry of Education and Research (BMBF):
"Humanities in the Societal Dialogue"

PHARMING

GENETICALLY MODIFIED PLANTS AND ANIMALS AS FUTURE PRODUCTION SITE OF PHARMACEUTICALS?

(COMPLETED)

A recently established technique termed *pharming* uses genetically modified plants and animals for the production of biopharmaceuticals. The present interdisciplinary study comprises an extended overview of the state of the art of pharming as well as an analysis of the connected ecological, social, moral and legal problems. It concludes that pharming is a potentially competitive means of producing an important subset of biopharmaceuticals. In some cases, pharming may be the only way of producing a particular protein. However, plant pharming comes along with ecological risks and animal pharming exhibits animal welfare risks. The study therefore proposes a case to case and risk-benefit approach in the assessment of pharming. The moral evaluation of pharming should consider the potential suffering inflicted on pharming animals. For handling high levels of uncertainty and the fact that all types of genetic or physical plant isolation systems may be leaky at some point, the study proposes in addition some general measures and the application of the precaution principle. Also specifications of the regulatory framework are proposed. Finally, the study demands a climate of open dialogue with the society at large, and a higher level of independence, transparency, and accountability of regulatory agencies.

Publications: E. Reh binder, M. Engelhard, K. Hagen, R. B. Jørgensen, R. Pardo Avellaneda, A. Schnieke, F. Thiele: *Pharming. Promises and risks of biopharmaceuticals derived from genetically modified plants and animals*. Springer-Verlag, Berlin 2009, ISBN 978-3-540-85792-1

M. Engelhard, K. Hagen, M. Boysen (eds.): *Genetic Engineering in Livestock. New Applications and Interdisciplinary Perspectives*. Springer-Verlag, Berlin 2009, ISBN 978-3-540-85842-3

Documentation: M. Engelhard, K. Hagen, F. Thiele (Eds) *Pharming. A New Branch of Biotechnology* (Graue Reihe 43, 11/2007)

Project Group: Professor Dr. jur. Eckard Reh binder, Frankfurt (Chair) • Rikke Bagger Jørgensen, Ph.D., Roskilde • Professor Rafael Pardo Avellaneda, Ph.D., Madrid • Professor Angelika Schnieke, Ph.D., Weihenstephan

Dr. phil. Margret Engelhard, Dipl.-Biol., Bad Neuenahr-Ahrweiler (Junior Scientist) • Kristin Hagen, Ph.D., Europäische Akademie, Bad Neuenahr-Ahrweiler (Junior Scientist) • Priv.-Doz. Dr. med. Felix Thiele, M.Sc., Europäische Akademie, Bad Neuenahr-Ahrweiler (Head of the Junior Scientist Group)

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Duration: 7/06–12/08

Funding: German Federal Ministry of Education and Research (BMBF): "Competition for interdisciplinary junior scientist groups within the framework of innovation and technology analysis"

PROJECT GROUP

FUEL CELLS AND VIRTUAL POWER PLANTS AS ELEMENTS FOR A SUSTAINABLE DEVELOPMENT INNOVATION BARRIERS AND IMPLEMENTATION STRATEGIES (COMPLETED)

The future sustainability of our society is greatly dependent upon a safe, efficient and sustainable energy supply. Fuel cell systems are effective, high-tech energy conversion systems. They perform well in terms of energy efficiency, energy consumption, and greenhouse gas emissions, and can therefore contribute to a sustainable development. In order to ensure a better exploitation and an energy supply guarantee even in situations of peak consumption which could not be covered by a single facility, individual fuel cell facilities can be coupled to virtual power plants. There are, however, barriers which will make the introduction of this technology to the market difficult, and which will hamper its concrete realisation, particularly on local and regional levels.

The aim of the project was to identify factors which interfere with the market introduction and implementation of this technology and to develop strategies of maintainable effort and acceptable consequences by which to change them. In order to reach this aim, the project team first analysed the innovation potentials of fuel cell and virtual power plants and their potential contribution to a sustainable development relatively to competing alternatives, before the general conditions concerning their impact as innovation barriers were investigated. Based on these analyses, strategies for removing the identified barriers were elaborated.

Publication: B. Droste-Franke, H. Berg, A. Kötter, J. Krüger, K. Mause, J.-C. Pielow, I. Romey, T. Ziesemer: *Brennstoffzellen und Virtuelle Kraftwerke. Energie-, umwelt- und technologiepolitische Aspekte einer effizienten Hausenergieversorgung*. Springer-Verlag, Berlin 2009, ISBN 978-3-540-85796-9 (series: Ethics of Science and Technology Assessment, Vol. 36)

Project Group: Professor Dr. rer. pol. Thomas Ziesemer, Maastricht (Chair) • Professor Dr. jur. Joh.-Christian Pielow, Bochum • Professor Dr.-Ing. Ingo Romey, Essen

Dipl.-Ing. Holger Berg, Essen (Junior Scientist) • Jan A. Bollinger, Dipl.-Betriebswirt (FH), Bad Neuenahr-Ahrweiler (Junior Scientist) (4/08–8/10) • Dr.-Ing. Bert Droste-Franke, Dipl.-Phys., Bad Neuenahr-Ahrweiler (Head of the Junior Scientist Group) • Annette Kötter, Dipl.-Volksw., Bad Neuenahr-Ahrweiler (Junior Scientist) (1/07–3/08) • Jörg Krüger, RA, Bochum (Junior Scientist) • Dr. rer. pol. Karsten Mause, Dipl.-Pol., Bad Neuenahr-Ahrweiler (Junior Scientist) (11/06–4/08)

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Duration: 7/06–12/08

Funding: German Federal Ministry of Education and Research (BMBF):
“Competition for interdisciplinary junior scientist groups in the context of innovation and technology analysis”

RESPONSIBILITY FOR FUTURE GENERATIONS
 IMPLEMENTATION OF SUSTAINABILITY IN SCHOOLING
 (COMPLETED)

A successful implementation of the concept of sustainability into social planning and acting presupposes that it is being supported by as many people as possible. Thus, the assumption of responsibility for future generations requires a broad development of competences in perceiving, reflecting upon and solving problems of long-term dimension. Up until the present, the advancement of such competences has not been a systematic subject of schooling and thus, only, occasionally appears in the curricula. Therefore, the implementation of such topics into schooling has become an aim of some programmes and initiatives of the German Federal Ministry of Education and Research (BMBF). This project will develop the foundation for this integration process and serve as accompanying measures to the programme "Research for Climate Protection and Protection from Climate Impacts".

Three special challenges have to be met: Disciplines such as practical philosophy, theory of decision making and risk analysis, which up to now have been marginal in schooling, become central for the work in these areas; a special and relatively young field of research – partly, and controversially discussed within the scientific community – must be didactically prepared in a suitable way; the interdisciplinary character of these topics may demand a readjustment of methodology. In order to deal with these tasks adequately, an interdisciplinary research group is necessary, the results of which should be tested in a classroom setting. The project group's proposals and recommendations regarding a more intensive integration of sustainability topics into the education arena are aimed at educational policy, training institutions, and relevant occupational groups and organisations.

Publication: G. de Haan, G. Kamp, A. Lerch, L. Martignon, G. Müller-Christ, H. G. Nutzinger: *Nachhaltigkeit und Gerechtigkeit. Grundlagen und schulpraktische Konsequenzen*. Springer-Verlag, Berlin 2008, ISBN 978-3-540-85491-3 (series: Ethics of Science and Technology Assessment, Vol. 33)

Project Group: Professor Dr. phil. Gerhard de Haan, Berlin • Professor Dr. phil. Anton Leist, Zürich • Professor Dr. rer. nat. Laura Martignon, Ludwigsburg • Professor Dr. rer. pol. Georg Müller-Christ, Bremen • Professor Dr. rer. pol. Hans G. Nutzinger, Kassel • StD Winfried Sander, Adenau

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Duration: 1/06–9/08

Funding: German Federal Ministry of Education and Research (BMBF): "Research for Climate Protection and Protection from Climate Impacts" – A contribution to the BMBF-framework programme "Research for Sustainability"

PROJECT GROUPS (COMPLETED)

SOCIETAL IMPLICATIONS OF ELECTRICAL POWER GRIDS

Publication: U. Steger, U. Büdenbender, E. Feess, D. Nelles: *Die Regulierung elektrischer Netze. Offene Fragen und Lösungsansätze*. Springer-Verlag, Berlin 2008, ISBN 978-3-540-68417-6 (series: Ethics of Science and Technology Assessment, Vol. 32)

Project Co-ordination: Dr. rer. nat. Ruth Klüser, Dipl.-Chem.
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Duration: 1/06–6/08

Funding: Stiftung Rheinland-Pfalz für Innovation

INTERVENING IN THE PSYCHE NOVEL POSSIBILITIES AS SOCIAL CHALLENGES

Publication: R. Merkel, G. Boer, J. Fegert, T. Galert, D. Hartmann, B. Nuttin, S. Rosahl: *Intervening in the Brain. Changing Psyche and Society*. Springer-Verlag, Berlin 2007, ISBN 3-540-46476-X (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 29)

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Duration: 1/04–6/06

Funding: German Federal Ministry of Education and Research (BMBF)

ENVIRONMENTAL NOISE

RISK ASSESSMENT AND REGULATION FOR THE CASE OF TRAFFIC NOISE

Publication: M. Kloepper, B. Griefahn, A. M. Kaniowski, G. Klepper, S. Lingner, G. Steinebach, H. B. Weyer, P. Wysk: *Leben mit Lärm? Risiko- beurteilung und Regulation des Umgebungslärms im Verkehrsbereich*. Springer-Verlag, Berlin 2006, ISBN-10 3-540-345 09-4 (series: Wissen- schaftsethik und Technikfolgenbeurteilung, Vol. 28)

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Duration: 7/03–6/06

Funding: German Federal Ministry of Education and Research (BMBF)

INCENTIVES FOR ORGAN DONATION

Publication: F. Breyer, W. van den Daele, M. Engelhard, G. Gubernatis, H. Kliemt, C. Kopetzki, H. J. Schlitt, J. Taupitz: *Organmangel. Ist der Tod auf der Warteliste unvermeidbar?* Springer-Verlag, Berlin 2006, ISBN 3-540-33054-2

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Duration: 7/03–6/06

Funding: German Federal Ministry of Education and Research (BMBF)

PROJECT GROUPS (COMPLETED)

NANOMATERIALS, NANODEVICES, NANOCOMPUTING DETERMINATION OF PRESENT POSITION AND PERSPECTIVES

Publication: G. Schmid, H. Brune, H. Ernst, W. Grünwald, A. Grünwald, H. Hofmann, P. Janich, H. Krug, M. Mayor, W. Rathgeber, U. Simon, V. Vogel, D. Wyrwa: *Nanotechnology. Assessment and Perspectives*. Springer-Verlag, Berlin 2006, ISBN 3-54032819-X (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 27)

Project Co-ordination: Dr.-Ing. Wolfgang Rathgeber

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Duration: 7/03–6/06

Funding: German Federal Ministry of Education and Research (BMBF)

EUROPEAN SOCIAL POLICY

Publication: B. v. Maydell, K. Borchardt, K.-D. Heuke, R. Leitner, R. Muffels, M. Quante, P.-L. Rauhala, G. Verschraegen, M. Żukowski: *Enabling Social Europe*. Springer-Verlag, Berlin 2006, ISBN 3-540-29771-5 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 26)

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Duration: 1/03–6/05

FUNCTIONAL FOODS

Publication: R. Chadwick, S. Henson, G. Koenen, M. Liakopoulos, C. Midden, B. Moseley, A. Palou, G. Rechkemmer, D. Schröder, A. von Wright: *Functional Foods*. Springer-Verlag, Berlin 2004, ISBN 3-540-20120-3 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 20)

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Duration: 1/01–5/04

Funding: Stiftung Rheinland-Pfalz für Innovation

EMBRYO EXPERIMENTATION IN EUROPE
BIO-MEDICAL, LEGAL AND PHILOSOPHICAL ASPECTS

Publication: D. Solter, D. Beyleveld, M. B. Friele, J. Hołówka, H. Lilie, R. Lovell-Badge, C. Mandla, U. Martin, R. Pardo Avellaneda: *Embryo Research in Pluralistic Europe*. Springer-Verlag, Berlin 2003, ISBN 3-540-20379-6 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 21)

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Duration: 1/01–12/03

Funding: German Federal Ministry of Education and Research (BMBF)

PROJECT GROUPS (COMPLETED)

TAMI

TECHNOLOGY ASSESSMENT (TA) IN EUROPE – BETWEEN METHOD AND IMPACT

Publication: M. Decker, M. Ladikas (eds.): *Bridges between Science, Society and Policy. Technology Assessment – Methods and Impacts*. Springer-Verlag, Berlin 2004, ISBN 3-540-21283-3 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 22)

Members: Europäische Akademie GmbH (EA), Germany • Parliamentary Office of Science and Technology (POST), England • Institut für Technologiefolgenabschätzung und Systemanalyse (ITAS), Germany • Büro für Technikfolgen-Abschätzung beim Deutschen Bundestag (TAB), Germany • Akademie für Technikfolgenabschätzung in Baden-Württemberg (CTA), Germany • Danish Board of Technology (DBT), Denmark • Centre for Science and Technology Studies (TA-SWISS), Switzerland • Centre of Science, Technology and Society Studies at the Institute of Philosophy of the Academy of Sciences (STS Centre), Czech Republic • Warsaw School of Economics – Institute of Modern Civilisation (SHG), Poland • Consejo Superior de Investigaciones Científicas (CSIC), Spain

Additional Membership: Rathenau Institute, The Netherlands • Flemish Institute for Science and Technology Assessment (viWTA), Belgium • Committee on Industry, External Trade, Research and Energy, European Parliament (EP), Belgium

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Duration: 1/02–12/03

Funding: 5th Framework Programme (FP5) of the European Commission

ENVIRONMENTAL STANDARDS

LOW DOSE EFFECT RELATIONS AND THEIR RISK EVALUATION

Publication: C. Streffer, H. Bolt, D. Føllesdal, P. Hall, J. G. Hengstler, P. Jakob, D. Oughton, K. Prieß, E. Rehbinder, E. Swaton: *Low Dose Exposures in the Environment. Dose-Effect Relations and Risk Evaluation*. Springer-Verlag, Berlin 2004, ISBN 3-540-21083-0 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 23)

Project Co-ordination: Dr. rer. nat. Kathrin Prieß, M.ès.Sc.

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Duration: 1/01–5/04

Funding: German Federal Ministry of Education and Research (BMBF)

SUSTAINABLE DEVELOPMENT AND INNOVATION IN THE ENERGY SECTOR

Publication: U. Steger, W. Achterberg, K. Blok, W. Frenz, C. Gather, G. Hanekamp, D. Imboden, M. Jahnke, M. Kast, R. Kurz, H. G. Nutzinger, Th. Ziesemer: *Nachhaltige Entwicklung und Innovation im Energiebereich*. Springer-Verlag, Berlin 2002, ISBN 3-540-44295-2 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 18)

Project Co-ordination: Dr. phil. Gerd Hanekamp, Dipl.-Chem.

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Duration: 9/00–12/03

Funding: German Federal Ministry of Education and Research (BMBF)

PROJECT GROUPS (COMPLETED)

CLIMATE PREDICTION AND CLIMATE PRECAUTIONS

Publication: M. Schröder, M. Claussen, A. Grunwald, A. Hense, G. Klepper, S. Lingner, K. Ott, D. Schmitt, D. Sprinz: *Klimavorhersage und Klimavorsorge*. Springer-Verlag, Berlin 2002, ISBN 3-540-43239-6 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 16)

Project Co-ordination: Dr. rer. nat. Stephan Lingner, Dipl.-Geol.
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Duration: 12/98–12/01

Funding: German Federal Ministry of Education and Research (BMBF)

ELECTRONIC SIGNATURES

CULTURAL RULES AND MORAL RESPONSIBILITY

Publication: C. J. Langenbach, O. Ulrich (eds.): *Elektronische Signaturen. Kulturelle Rahmenbedingungen einer technischen Entwicklung*. Springer-Verlag, Berlin 2002, ISBN 3-540-42659-0 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 12)

Project Co-ordination: Dr.-Ing. Christian J. Langenbach

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Duration: 9/99–12/01

Funding: German Federal Ministry of Education and Research (BMBF)

ROBOTICS

OPTIONS FOR THE SUBSTITUTABILITY OF HUMANS

Publication: T. Christaller, M. Decker, J.-M. Gilsbach, G. Hirzinger, K. Lauterbach, E. Schweighofer, G. Schweitzer, D. Sturma: *Robotik. Perspektiven für menschliches Handeln in der zukünftigen Gesellschaft*. Springer-Verlag, Berlin 2001, ISBN 3-540-42779-1 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 14)

Project Co-ordination: Dr. rer. nat. Michael Decker, Dipl.-Phys.

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Duration: 2/99–12/01

Funding: German Federal Ministry of Education and Research (BMBF)

ETHICAL QUESTIONS AND SOCIETAL CONSEQUENCES OF HUMAN GENETICS

Publication: C. R. Bartram, J. P. Beckmann, F. Breyer, G. Fey, C. Fonatsch, B. Irrgang, J. Taupitz, K.-M. Seel, F. Thiele: *Humangenetische Diagnostik. Wissenschaftliche Grundlagen und gesellschaftliche Konsequenzen*. Springer-Verlag, Berlin 2000, ISBN 3-540-67945-6 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 7)

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Duration: 4/98–3/00

Funding: Stiftung Rheinland-Pfalz für Innovation; German Federal Ministry of Education and Research (BMBF)

PROJECT GROUPS (COMPLETED)

XENOTRANSPLANTATION OF CELLS, TISSUES OR ORGANS

SCIENTIFIC DEVELOPMENTS, ETHICAL IMPLICATIONS AND SOCIAL RELEVANCE

Publication: J. P. Beckmann, G. Brem, F. W. Eigler, W. Günzburg, C. Hammer, W. Müller-Ruchholz, E. M. Neumann-Held, H.-L. Schreiber: *Xenotransplantation von Zellen, Geweben oder Organen. Wissenschaftliche Entwicklungen und ethisch-rechtliche Implikationen*. Springer-Verlag, Berlin 2000, ISBN 3-540-41376-6 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 8)

Project Co-ordination: Dr. rer. nat. Eva M. Neumann-Held

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Duration: 4/98–3/00

Funding: German Federal Ministry of Education and Research (BMBF)

BIODIVERSITY

SCIENTIFIC FOUNDATIONS AND SOCIAL RELEVANCE

The destruction of biodiversity is a controversially discussed problem which is closely connected with the development of modern societies. Usually, it is presupposed that the scientific description and quantification of biodiversity is unambiguously clarified. In contrast to this expectation, however, neither biology nor other disciplines dealing with corresponding parameterisations, e.g. economics, have presented uniform concepts which can serve as a basis for measurability and comparability of biodiversity. This project focused on the question of which scientific methods and results are necessary to deal with 'biodiversity' in a well-founded and scientifically justified way.

Publication: P. Janich, M. Gutmann, K. Prieß (eds.): *Biodiversität. Wissenschaftliche Grundlagen und gesellschaftliche Relevanz*. Springer-Verlag, Berlin 2001, ISBN 3-540-42658-2 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 10)

Project Co-ordination: Dr. phil. Dr. phil. nat. Mathias Gutmann (until 10/99); Dr. rer. nat. Kathrin Prieß, M.ès.Sc.

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Duration: 10/97–10/99

Funding: German Federal Ministry of Education and Research (BMBF)

ENVIRONMENTAL STANDARDS COMBINED EXPOSURES AND THEIR EFFECT ON HUMAN BEINGS AND THEIR ENVIRONMENT

Publication: C. Streffer, D. Cansier, C. F. Gethmann, R. Guderian, D. Henschler, G. Pösch, E. Rehbinder, O. Renn: *Umweltstandards. Kombinierte Expositionen und ihre Auswirkungen auf den Menschen und seine Umwelt*. Springer-Verlag, Berlin 2000, ISBN 3-540-66807-1 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 5)

Project Co-ordination: Dr. phil. Gerd Hanekamp, Dipl.-Chem.

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Duration: 1/97–1/00

Funding: German Federal Ministry of Education and Research (BMBF)

TECHNOLOGY ASSESSMENT OF THE RESEARCH AND DEVELOPMENT OF NEW MATERIALS

Publication: H. Harig, C. J. Langenbach (eds.): *Neue Materialien für innovative Produkte: Entwicklungstrends und gesellschaftliche Relevanz*. Springer-Verlag, Berlin 1999, ISBN 3-540-66063-1 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 3)

Project Co-ordination: Dr.-Ing. Christian J. Langenbach

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Duration: 1/97–12/99

Funding: German Federal Ministry of Education and Research (BMBF)

MASTER PROGRAMME

ADVANCED MASTER'S DEGREE COURSE IN MEDICAL ETHICS

The Europäische Akademie GmbH and the Johannes-Gutenberg Universität in Mainz offer an advanced Master's correspondence course in Medical Ethics. This course is unique in Germany. It can be completed on an extra occupational basis and single modules from the course are accepted as further training courses required for doctors. The Master's degree has been accredited since the spring semester of 2006.

About the course:

The Advanced Master's Degree Course in Medical Ethics accounts for the fact that medical ethics has taken on greater significance in medical care, medical research and health care policy in recent years. Medical advances lead to morally problematic options which require ethical reflection. Doctors and other medical staff are required to be capable of ethical reflection as a secondary skill in their professional life. The course consists of four semesters, and its contents (eight modules made up of six to eight classes) are sent out in written form and must be completed in self-study. The concept of distance learning allows medical staff to acquire extra occupational competence in the field of medical ethics and an accredited degree (M.A. "Medizinethik").

For questions about the degree contact:

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THE RESTORATION AND ENHANCEMENT OF
HUMAN CAPACITIES BY NEURONAL IMPLANTS

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Duration: 4/06–9/09

Funding: Helmholtz Association of German Research Centres

SPATIAL PLANNING AND THE VIRTUALISATION
OF LIFE WORLDS

Documentation: S. Lingner, S. Allin, G. Steinebach (Hrsg.): *Gesellschaftliche Randbedingungen der Virtualisierung urbaner Lebenswelten* (Graue Reihe 42, 5/2007)

Co-ordination: Dr. rer. nat. Stephan Lingner, Dipl.-Geol.

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Duration: 7/06–6/07

Funding: Technische Universität Kaiserslautern

MINIATURIZATION AND NEW MATERIALS

Documentation: G. Schmid, M. Decker, H. Ernst, H. Fuchs, W. Grünwald, A. Grunwald, H. Hofmann, M. Mayor, W. Rathgeber, U. Simon, D. Wyrwa: *Small Dimensions and Material Properties. A Definition of Nanotechnology*, (Graue Reihe 35, 11/2003)

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Funding: German Federal Ministry of Education and Research (BMBF)

STUDIES (COMPLETED)

REASONING GOALS OF CLIMATE PROTECTION SPECIFICATION OF ART. 2 UN FCCC

Documentation: K. Ott, G. Klepper, S. Lingner, A. Schäfer, J. Scheffran, D. Sprinz: *Konkretisierungsstrategien für Art. 2 der UN Klimarahmenkonvention* (Graue Reihe 37, 4/2004)

Co-ordination: Dr. rer. nat. Stephan Lingner, Dipl.-Geol.
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Duration: 5/02–4/03

Funding: Federal Environment Agency (Umweltbundesamt)

TECHNOLOGY ASSESSMENT IN CENTRAL EUROPEAN AND EASTERN EUROPEAN COUNTRIES

Documentation: G. Banse (ed.): *Technikfolgenbeurteilung in Ländern Mittel- und Osteuropas* (Graue Reihe No. 10 part I and II, 6/1998)

Publication: G. Banse, C. J. Langenbach, P. Machleidt (eds.): *Towards the Information Society. The Case of Central and Eastern European Countries*. Springer-Verlag, Berlin 2000, ISBN 3-540-41643-9 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 9)

Co-ordination: Professor Dr. Gerhard Banse, Universität Cottbus

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Duration: 3/97–2/99

SCIENCE AND THE MEDIA

(CURRENT)

The aim of the study group is to analyze both the relationship between science and the media and the possibilities of how to transfer scientific work into the public. In doing so, especially the target groups – science, politics and the public – are to be taken into consideration. Furthermore, it is planned to work out how target group-specific measures can be improved by considering any challenges a minor press agency may have.

By analysing the requirements of a modern world of media it is to be revised in how far the academy's present instruments of publication (book series "Ethics of Science and Technology Assessment"), periodicals (e.g., Newsletter), homepage, recruiting and implementation of various events) address the requested target groups.

The study group is to state possible new targets and instruments for the communication work as well as to develop the exchange with external experts of other research institutions, scientists and representatives of the press and, thus, to draw conclusions for the work of the academy's press agency.

Members: Dr. phil. Margret Engelhard, Dipl.-Biol. • Katharina Mader, M.A. • Priv.-Doz. Dr. med. Felix Thiele, M.Sc.

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STUDY GROUP

INTERDISCIPLINARY RESEARCH AND TRANSDISCIPLINARY VALIDITY CLAIMS (CURRENT)

Recent societal challenges are often in need of rational scientific decision support relying on appropriate interdisciplinary efforts. At first, these efforts should reflect the state-of-the-art of the empirical and methodological knowledge from all relevant disciplines. Secondly, their outcome should be also transdisciplinarily acceptable – beyond any disciplinary perspective.

The above-mentioned working group aims at reflecting the specific needs for scientific advice as well as at deliberating the potential of the scientific system to satisfy these demands. In this context, pre-conditions which might influence the quality and efficiency of scientific advice will be analyzed. To be more concrete, the concept of organizing appropriate thematic and time-limited interdisciplinary projects is to be critically reviewed, especially with regard to its theoretical foundations and its practical utility. This review should be accompanied by comparative analysis of other, namely value-oriented or participatory concepts of technology assessment.

After several years of experience, this task will also enable the Europäische Akademie to investigate if and how far its methodological concept of “rational technology assessment” fulfilled the expectations of the founders, members and addressees of the academy.

Members: Professor Dr. phil. Martin Carrier, Bielefeld • Professor Dr. phil. Dr. phil. h.c. Carl Friedrich Gethmann, Essen/Bad Neuenahr-Ahrweiler • Dr. phil. Gerd Hanekamp, Bonn • Professor Dr. phil. Matthias Kaiser, M.A., Oslo • Dr. phil. Georg Kamp, Bad Neuenahr-Ahrweiler • Professor Dr. phil. Michael Quante, Münster • Priv.-Doz. Dr. med. Felix Thiele, Bad Neuenahr-Ahrweiler

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Duration: 3/2010–9/2012

PRACTICAL PHILOSOPHY (CURRENT)

Each process of Technology Assessment that helps to prepare political decisions with contributions from the scientific point of view depends on some normative premises: the supposed standards of rationality, the criteria of adequacy for the reconstructive shaping of decision scenarios and, last but not least, general principles of action that would be chosen by rational actors according to one set of standards or the other. Such standards, criteria and principles have always been a subject of philosophy, especially in disciplines such as the theory of argumentation (logic), the philosophy of science, and ethics. The study group "Practical Philosophy" critically discusses these traditions as relevant contemporary philosophical debates and incorporates its results in the work of the Europäische Akademie and its project groups.

Members: Dr.-Ing. Bert Droste-Franke, Dipl.-Phys. • Dr. phil. Margret Engelhard, Dipl.-Biol. • Dr. phil. Thorsten Galert, M.A. • Kristin Hagen, Ph.D. • Dipl.-Päd. Ulrike Henckel • Dr. rer. nat. Stephan Lingner, Dipl.-Geol. • Priv.-Doz. Dr. med. Felix Thiele, M.Sc. • Arne Willée, M.A.

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STUDY GROUPS (COMPLETED)

ETHICAL EVALUATION – SKRIBT

JOINT RESEARCH PROJECT "PROTECTION OF CRUCIAL BRIDGES AND TUNNELS OF ROAD TRAFFIC"

Documentation: Internal Report to the customer of the study by S. Lingner on the ethical evaluation of *Work Package 1 (Threats), 2 (Measures) and 3 (Critical Infrastructures)*, May 2011

Co-ordination: Dr. rer. nat. Stephan Lingner, Dipl.-Geol.
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Duration: 11/08–7/11

Funding: Federal Highway Research Institute (Bundesanstalt für Straßenwesen, BAST)

ETHICS IN SPACE

Publication: A. Pompidou: "The Ethics of Space Policy", Proceeding, UNESCO-COMTEST and ESA, 4/00, C. F. Gethmann: "Humans in Space" and "Manned Space Travel as a Cultural Mission", Papers, Seminar of Paris on The Ethics of Outer Space, UNESCO-ESA, 9/99

Co-ordination: Dr.-Ing. Christian J. Langenbach

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Duration: 9/99–4/00

PREVENTIVE SOIL PROTECTION

MONITORING CONCEPTS AND ETHICAL ASPECTS

Documentation: S. Lingner, E. Borg: *Präventiver Bodenschutz. Problemdimensionen und normative Grundlagen* (Graue Reihe 23, 9/2000)

Co-ordination: Dr. rer. nat. Stephan Lingner, Dipl.-Geol.
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Duration: 9/97–9/00

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- Statement of financial arrangements and whether funding is applied for
- Curriculum Vitae including list of publications and Ph.D. certificate
- Proof or reference regarding language abilities

Please send your application to:

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Kristin Hagen, Ph.D.
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53474 Bad Neuenahr-Ahrweiler
Germany

Contact: Kristin Hagen, Ph.D.

Tel./e-mail: +49 (0) 2641 973-300 • kristin.hagen@ea-aw.de

DOCTORAL PROGRAMME

ANTHROPOLOGICAL BASICS OF MEDICAL ETHICS

(DIPL.-PÄD. ULRIKE HENCKEL)

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EPISTEMIC ASPECTS OF RATIONAL TECHNOLOGY ASSESSMENT

(ARNE WILLÉE, M.A.)

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TRANSFORMATIONAL LEADERSHIP AND INTERIM MANAGEMENT

(JAN BOLLINGER, DIPL.-BETRIEBSWIRT (FH))

This dissertation project was conducted at the Universität Kassel under the supervision of Professor Dr. rer. pol. habil. Hans G. Nutting in co-operation with Professor Dr.-Ing. Jacques J. A. M. Reijnders of the Nyenrode Business University.

UNINTENTIONAL ACTIONS? FOUNDATIONS OF NEGLIGENCE IN ACTION THEORY AND PHILOSOPHY OF LAW

(KATJA STOPPENBRINK, LL.M., M.A.)

This dissertation project is conducted at the University of Luxembourg and the Universität Münster under the supervision of Professor Dr. phil. Dietmar Heidemann and Professor Dr. phil. Michael Quante.

Information on the Doctoral Programme:

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ON THE LEGITIMACY OF SUPRANATIONAL LAW IN EUROPE

(DR. PHIL. MINOU BERNADETTE FRIELE, M.A.; THESIS 2007)

The dissertation was supervised by Professor Dr. Dieter Birnbacher at the Institute for Philosophy at the Universität Düsseldorf.

Publication: M. B. Friele: *Rechtsethik der Embryonenforschung: Zur Rechtsharmonisierung in moralisch umstrittenen Bereichen*. Mentis Verlag, Paderborn 2008, ISBN-10: 3897856204

EXPLANATORY PATTERNS AND THEORETICAL STRUCTURES IN GENETICS

THE PERSPECTIVE OF PHILOSOPHY OF SCIENCE

(DR. RER. NAT. KLAUS-M. SEEL, DIPL.-PHYS.; THESIS 2003)

The interdisciplinary dissertation by Dipl.-Phys. Klaus-M. Seel was supervised by Professor Dr. Georg H. Fey (Department of Genetics), Professor Dr. Christian Thiel (Department of Philosophy) and Akad. Dir. Dr. Rudolf Kötter (Interdisciplinary Department for Philosophy and History of Science) at the Friedrich-Alexander-Universität Erlangen-Nürnberg.

Publication: K. M. Seel: *Forschungsprogramme der Genetik: Wissenschaftstheorie, theoretische Strukturen, erklärende Schemata und gesellschaftliche Implikationen*. Lang, Frankfurt a. M. 2007, ISBN 3-631-56224-1

POTENTIAL OF THE INTEGRATED NATURE PROTECTION IN A DENSELY POPULATED AREA

A CASE STUDY IN THE REGION KOBLENZ-NEUWIED, GERMANY

(DR. RER. NAT. ULRICH REHBERG, DIPL.-BIOL.; THESIS 2002)

The dissertation was supervised by Professor Dr. H. Karrasch at the Geographical Institute, Universität Heidelberg.

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DOCTORAL PROGRAMME

LIFE CYCLE ASSESSMENT OF NATURAL GAS VEHICLES DEVELOPMENT AND APPLICATION OF SITE-DEPENDENT IMPACT INDICATORS

(DR.-ING. KARL-MICHAEL NIGGE, DIPL.-PHYS.; THESIS 2000)

The dissertation was supervised by Professor Dr.-Ing. Michael F. Jischa (Universität Clausthal); it was completed in spring 2000.

Publication: M. Nigge: *Life Cycle Assessment of Natural Gas Vehicles. Development and Application of Site Dependent Impact Indicators*. Springer-Verlag, Berlin 2000, ISBN 3-540-67273-7 (series: Wissenschaftsethik und Technikfolgenbeurteilung, Vol. 6)

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The "Ethics of Science and Technology Assessment" series, edited by the Europäische Akademie's director, puts out the final reports of the various interdisciplinary project groups as well as further studies from the academy's work, e.g. conference issues. The book series is published by the Springer-Verlag.

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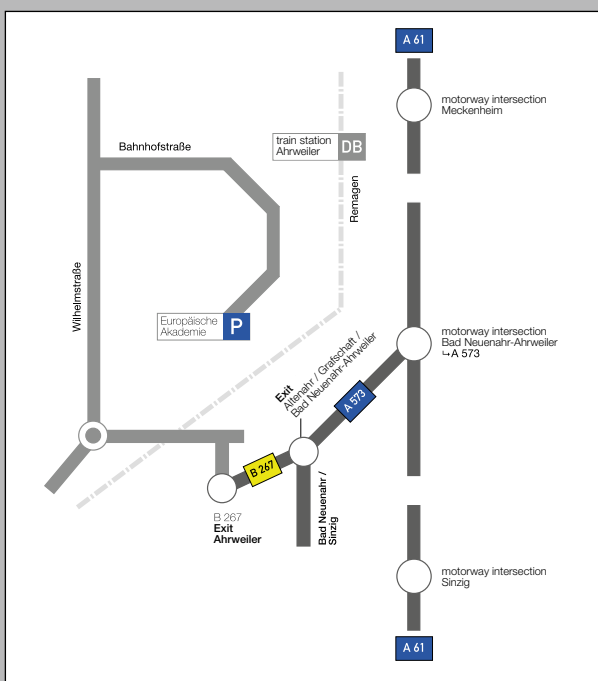
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