



EUROPÄISCHE AKADEMIE

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

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

# RESEARCH REPORT

2005/2006

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**Director:** Professor Dr. Dr. h. c. Carl Friedrich Gethmann (V.i.S.d.P.)

**Editing:** Katharina Mader, M.A.  
Friederike Wütscher

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

Wilhelmstraße 56, 53474 Bad Neuenahr-Ahrweiler, Germany  
Telephone: +49 (0) 2641 973-300, Telefax -320  
e-mail: [europaeische.akademie@ea-aw.de](mailto:europaeische.akademie@ea-aw.de)  
[www.ea-aw.de](http://www.ea-aw.de)

## **FOREWORD**

This is the fifth research report issued by the Europäische Akademie covering the research period from 2005 to 2006. The main focus is drawn on the important period of change from the fourth to the fifth generation of projects the Europäische Akademie has been working on. Based on the experience gained during 24 interdisciplinary projects that have been carried out (including those which are currently running) the instrument of the interdisciplinary project group is still regarded as a successful mode of operation. The report documents the interdisciplinary and international orientation that is central to the research activities undertaken by the Europäische Akademie. Our scientific work is rendered fully transparent and accessible to the scientific communities and the public, above all by the yearly spring and autumn conferences, numerous expert meetings as well as the four institutionalised publications (book series “Wissenschaftsethik und Technikfolgenbeurteilung” with 30 volumes, the series “Graue Reihe” with 41 volumes, the scientific journal “POIESIS & PRAXIS”, the fourth volume of which was completed in 2006, and the Newsletter, latest issue No 70).

The results that are shown here could only be achieved because of the time and energy many scientists were prepared to give to the project and to the study groups. The Council of the Europäische Akademie meanwhile comprises 130 scientists. Together with permanent scientific staff, they form the “intellectual capital” of the academy.

The Sponsors’ Club (Förderer der Europäischen Akademie Bad Neuenahr-Ahrweiler e.V.) runs the Europäische Akademie’s regional activities as well as the working group on Medical Ethics and the art exhibitions. The “Ahrtalgespräche” which are jointly run by the Sponsors’ Club and the City of Bad Neuenahr-Ahrweiler are helping to further strengthen the academy’s firm position in the region. In cooperation with the FernUniversität in Hagen and the Johannes-Gutenberg-Universität Mainz the Europäische Akademie established the post-graduate study programme in medical ethics at the beginning of the summer term in 2005. The study programme integrates the results of interdisciplinary research of the Europäische Akademie. In 2006, the Europäische Akademie celebrated its 10th anniversary together with the founders of the academy and about 100 guests in Bad Neuenahr-Ahrweiler.

Our grateful thanks are due to our partners, the Federal State of Rhineland-Palatinate (Land Rheinland-Pfalz) and the German Aerospace Centre (Deutsches Zentrum für Luft- und Raumfahrt e.V.) for their continued support.

The “bound project financing” which was granted to the Europäische Akademie by the German Federal Ministry of Education and Research (BMBF) within the framework of a ten years lasting start-up financing ends with this period under review. The Europäische Akademie owes a debt of gratitude to the Federal Ministry for the successful cooperation during this period. Since the beginning of the year 2007 a further support is granted by the BMBF within the framework of competitive project financing. The projects initiated within this framework are already mentioned in this report. Furthermore, the academy is supported by a variety of funding bodies such as the “Stiftung Rheinland-Pfalz für Innovation” (Foundation for Innovation Rhineland-Palatinate).

This report once more demonstrates that the Europäische Akademie has fulfilled its task to perform interdisciplinary research on questions of current interest to society. There is no lack of themes: their number grows faster than it is possible to run projects. The incredible pace of progress in many areas of science means that issues that have been dealt with previously must be dealt with again. The dialogue between science and society is more important than ever and it is now virtually undisputed that scientists, among other actors, have a real job to do. The work of the Europäische Akademie enables the disciplines of science to fulfil their task to provide society with scientific advice.

Bad Neuenahr-Ahrweiler, March 2007

Carl Friedrich Gethmann

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## I SCIENTIFIC CONCEPT

## 1 Mission and Aims

The Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen Bad Neuenahr-Ahrweiler GmbH is devoted to the scientific investigation and assessment of consequences of scientific and technological developments for the individual and social life of human beings and their natural environment. The main focus is to examine foreseeable medium and long-term processes which are influenced especially by natural and engineering sciences and by the medical disciplines. The Europäische Akademie bases its work on the assumption that the sciences have the task, beyond providing specialised scientific information, of also making orientational knowledge available. Therefore, 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. The Europäische Akademie implements its tasks by taking up and developing further approaches to technology assessment, the 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. The work of the Europäische Akademie is mainly conducted by temporary interdisciplinary project teams. Members of the project groups are especially qualified scientists from universities and from non-university research institutions in Europe, and in special cases representatives of other social fields such as business. The project groups work together for two years in an independent manner. Transdisciplinary issues, involving several project groups, are dealt with in study groups by the staff of the Europäische Akademie and invited scientists.

## 2 Structure

The Europäische Akademie was constituted on 11th March 1996 as a ‘gemeinnützige Gesellschaft mit beschränkter Haftung’, i.e. a non-profit corporation with limited liability. Its partners are the Federal State of Rhineland-Palatinate (Bundesland Rheinland-Pfalz) and the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt e.V.). Managing director of the company as well as director of the academy is Professor Dr. phil. Dr. phil. h.c. Carl Friedrich Gethmann, who is a full professor of applied philosophy at the Universität Duisburg-Essen. Since its foundation the Europäische Akademie is substantially funded by its partners the Bundesland and the DLR. For the first decade the Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung) contributed to the budget. After this start-up financing expired in 2005 the Europäische Akademie started fundraising for its project work successfully. This competitive money comes from a variety of funding bodies such as the Stiftung Rheinland-Pfalz für Innovation, and several departments of the Federal Ministry of Education and Research. The Partners’ Assembly has formed a Managing Committee to which two representatives of the partners belong. It also nominated a Scientific Advisory Board which supports the Europäische Akademie in elaborating scientific goals and projects as well as in evaluating research results. The members of the different working groups form the Council of the academy which is a forum for scientific exchange on subjects concerning the activities of the Europäische Akademie. The number of staff members has been successively increased. In the period under report, two doctoral candidates were employed at the Europäische Akademie (cf. section IV, 6.2). At present, there are eleven scientific and eight non-scientific staff members working at the Europäische Akademie.

In the period under review, the following projects were completed and their results published: “European Social Policy”, “Nanomaterials, Nanodevices, Nanocomputing”, “Incentives for Organ Donation”, “Environmental Noise” and “Intervening in the Psyche” (cf. section II, 1). The Newsletter (Akademie-Brief), as the regular news organ of the Europäische Akademie, had been published in its 67th issue by the end of 2006; since issue number 16, the Newsletter has appeared mainly in English (cf. section IV, 3.3). In the meantime, from the publication “Graue Reihe” – intended for the documentation of materials on topical subjects from the scientific activities of the Europäische Akademie – the 37th

volume has now been published (cf. section III, 3.2). In the book series “Ethics of Science and Technology Assessment” (Wissenschaftsethik und Technikfolgenbeurteilung) – the publication organ for the project reports and other monographs or anthologies concerning the work of the Europäische Akademie – 25 volumes have been published so far (cf. section III, 3.1). The periodical, “POIESIS & PRAXIS”, as an international discussion forum for Ethics of Science and Technology Assessment (the third issue of which went into print at the end of the period under review) rounds off the spectrum of publication organs (cf. section III, 3.4). The internet homepage of the Europäische Akademie, where current information on projects, conferences as well as the current Newsletter can be found, is available at <http://www.ea-aw.de>.

### 3 Results and Scientific Integration

From the beginning, the Europäische Akademie aimed at working on projects dealing with social problems generated by the whole spectrum of the sciences and not just a subset – be this the medical sciences or the technical sciences. Based on this broader approach the Europäische Akademie has realised a number of projects that dealt with problems stemming from areas as diverse as climate change, robotics, organ donation, environmental noise and research in the modern life-sciences. In the coming years too, this attempt to develop a common method for the study of scientific and technological advance will be carried on. In addition, the work on the methodological foundations used in its work has been continued as it can be seen from the publication list of the in-house and external publications of the staff members of the Europäische Akademie.

Over the last few years, English has become the working language in the majority of projects run by the Europäische Akademie. This concession to the development of scientific co-operation on the European level improved the international integration of the Europäische Akademie considerably – as it is reflected in the composition of the scientific Council with members from several European countries. Furthermore, the Europäische Akademie became a member of several European networks and associations, so that its abilities for supranational cooperation have been improved further. This internationalisation of the Europäische Akademie is expected to continue in the years to come.

## 4 Scientific Strategy

In the coming years, it will be a matter of continuing to pursue the chosen path, to consolidate the competence attained in the work already accomplished by the project groups and to open up new fields of competence. The future core competence fields of the Europäische Akademie

### 1. in the methodology field will be:

- To establish more precisely the concept of Technology Assessment, both from the theoretical and the practical point of view, including the conceptional debate on other modes of approach, in particular that of participatory Technology Assessment.
- To conduct ethical reflections on the problems in the technical and medical spheres as well as the provision of the necessary methodological means. Analyses and reconstructions on the principles of interdisciplinary working methods.

### 2. in the subject field, the future (and in part already present) topic areas of the Europäische Akademie will be:

- Circumspective ways of working in the fields of environment, climate and technology;
- The social challenge of the modern biosciences;
- New developments in the field of medicine and their consequences for society;
- Rational organisation of the information society.



## **II RESEARCH RESULTS**

# 1 Project Groups

## 1.1 The Research Guiding Function of Metaphors from the Information Sciences and Their Relevance to the Transformation of the Philosophy of Man (Duration: 9/06–2/09)

### Background and Tasks

The project deals with the question which influence natural scientific research has on the philosophical conception of man. In a first step the work focuses on the relevance of informational metaphors in information sciences, in biology, and philosophical anthropology. Informational metaphors are central for scientific and research practices in knowledge-based societies, they dominate interdisciplinary controversies mediating the reception of results in natural science research by humanities and cultural sciences – evident, for example, in the debates about the human genome project. Thus, informational metaphors have to be reconstructed from different point of views: e.g. that of philosophy of science and philosophical anthropology. By making the research guiding function of informational metaphors manifest, one might learn also how these metaphors eventually transform the concept of man.

On that base the functionality of concepts of men in those sciences and research programmes using informational metaphors has to be shown as well as its possible diffusion in society. Finally, it should be examined how the results achieved can be compiled into an integrative conception of man being accepted both in humanities and natural sciences and which is to support a societal dialogue with the humanities, or, in other terms: in how far existing conceptions have to be modified from a critical point of view in order to achieve this aim. This could be the base for a further dialogue about appropriate division of work between humanities and natural sciences. Hence, the results of the project could help to draw a more precise picture of knowledge-based societies and the role of man as an actor within them.

### Work Programme

The project is carried out by three independent research groups and is coordinated by the Europäische Akademie GmbH.

**The three different parts of the project are:**

1. The influence of information techniques on the transformation of concepts of man
2. Semantic of the term “gene” as an informational metaphor
3. Anthropology of development and evolution

The Europäische Akademie GmbH is scientifically involved in this project by analysing the present state of research of philosophical anthropology and technology assessment.

The three research groups are working independently on the one hand and will integrate their intermediary results on the other hand together with the Europäische Akademie GmbH in regular meetings.

Project Members

**Chair:** Professor Dr. phil. Dr. rer. nat. Mathias Gutmann  
Fachbereich Philosophie, Philipps-Universität Marburg

Professor Dr. rer. nat. Wolfgang Hesse  
Dr.-Ing. Dirk Müller  
Aaron Ruß

Fachbereich 12 Mathematik und Informatik, Philipps-Universität Marburg

Professor Dr. rer. nat. Michael Bölker  
Fachbereich Biologie, Philipps-Universität Marburg

Dr. rer. nat. Tareq Syed  
Fachbereich Biologie, Universität Frankfurt

Benjamin Rathgeber, M.A.  
Fachbereich Philosophie, Philipps-Universität Marburg

**Project Coordination:** Dipl. Päd. Ulrike Henckel, Thomas Engel, M.A.  
ulrike.henckel@ea-aw.de, thomas.engel@ea-aw.de

Funding

Federal Ministry of Education and Research (BMBF): Humanities in the societal dialogue

## 1.2 Fuel Cells and Virtual Power Plants as Elements for a Sustainable Development. Innovation Barriers and Implementation Strategies (Duration: 7/06–12/08)

### Background and Tasks

One major aspect of sustainable development in society is an assured, efficient and sustainable energy supply. In this context, the fuel cell is treated as a promising energy conversion technology. The reason is its attractive technical principle of the reverse electrolysis of water which is characterised by a high efficiency in converting chemical energy directly into electricity and, if the fuel cell is driven with pure hydrogen, the exclusive environmental-friendly chemical reaction product water. A major application field for fuel cells is seen in stationary combined heat and power plants which can cover the demand of individual households up to whole residential areas including small companies. Installations of such facilities on a grand scale require technically elaborated decentralised energy systems which may include, beside fuel cells, further supplementing technologies for the generation and storage of heat and electricity. Decentralised facilities can be coupled to a so-called ‘virtual power plant’. Such a combination of plants ensures a better exploitation of available energy sources and a warranty of energy supply even in situations with high peak consumption which could not be served by individual small facilities. In spite of the long development time and the accessibility of some first devices which are already economically interesting for investors, the market penetration of stationary fuel cells has not gone beyond the installation of a small number of demonstration facilities. A similar situation can be observed for virtual power plants consisting of small facilities with a few kilowatt of produced power which so far have only been realised as small scale projects.

The aim of the study is to identify factors which interfere with the introduction and implementation of fuel cells and virtual power plants on the market and to develop strategies to change these with adequate effort and consequences. In order to reach this aim, the project team will first analyse the short-term, mid-term and long-term potentials of the technologies and their potential contributions to a sustainable development relatively to competing alternatives. Additionally, determinants and impacts of innovation processes required to realise the identified potentials will be examined. Furthermore, barriers for introducing and implementing the technology on the market, particularly on local and regional

level, will be investigated. Beside others, especially technical, economic, and legal aspects will be considered. In a next step measures will be found and combined to efficient strategies in order to eliminate the barriers before their potential side-effects will be explored. Finally, recommendations for decision makers and practitioners will be drawn from the findings achieved in the project. Overall, the study is to concretise the results worked out in the former project of the Europäische Akademie “Sustainable Development and Innovation in the Energy Sector” (Springer 2003, Translation of Volume 18 “Nachhaltige Entwicklung und Innovation im Energiebereich”, series “Ethics of Science and Technology Assessment”) in the area of fuel cells and virtual power plants.

Beside researchers and students from the respective scientific fields, the addressees of the study represent particularly actors concerned with the implementation of the analysed energy systems.

#### Work Plan

Pre-Phase, July 2006–December 2006

In the pre-phase of the project, the main focus of the study, the strategy for the project, the detailed work programme, responsibilities of the group members and the first draft structure of the final book have been elaborated. A Kick-off Meeting has been organised in order to discuss the work programme with external experts of the respective fields. Furthermore, first seeding papers to basic issues of the study have been produced.

First Main Phase, January 2007–October 2007

In the first main phase of the project further seeding papers will be produced and incorporated in a first draft of the final study which will prospectively include all elements, except for the chapter on strategies and the recommendations. This first draft will be discussed with external referees in the Mid-term Meeting.

Second Main Phase, November 2007–December 2008

Within the second main phase of the project, the highly integrated chapters on strategies and recommendations will be composed by the group. Furthermore, the whole study will be finalised and published as a book.

#### Results/Publications

After having received the approval by the Europäische Akademie’s Scientific Advisory Board, the final results will be published as volume of the Springer book

series “Ethics of Science and Technology Assessment”. The book will be presented at the end of the project to the respective interest groups and the public.

#### Project Members

Professor Dr. jur. Joh.-Christian Pielow

Institut für Berg- und Energierecht, Institut für Europäische Wirtschaft,  
Ruhr-Universität Bochum

Professor Dr.-Ing. Ingo Romey

Lehrstuhl für Technik der Energieversorgung und Energieanlagen,  
Universität Duisburg-Essen

Professor Dr. rer. pol. Thomas Ziesemer

United Nations University – Maastricht Economic and Social Research and  
Training Centre on Innovation and Technology (UN-MERIT)

Dipl.-Ing. Holger Berg (Junior Scientist)

Lehrstuhl für Technik der Energieversorgung und Energieanlagen,  
Universität Duisburg-Essen

Dr.-Ing. Bert Droste-Franke, Dipl.-Phys. (Head of the Junior Scientist Group)

Europäische Akademie Bad Neuenahr-Ahrweiler GmbH

Dipl.-Volksw. Annette Kötter (Junior Scientist)

Europäische Akademie Bad Neuenahr-Ahrweiler GmbH

Jörg Krüger, RA (Junior Scientist)

Ruhr-Universität Bochum

Dr. rer. pol. Karsten Mause, Dipl.-Pol. (Junior Scientist)

Europäische Akademie Bad Neuenahr-Ahrweiler GmbH

**Project Coordination:** Dr.-Ing. Bert Droste-Franke, Dipl.-Phys.

bert.droste-franke@ea-aw.de

#### Funding

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

### **1.3 Potentials and Risks of Psychopharmaceutical Enhancement (Duration: 7/06–12/08)**

#### Background and Tasks

The project resumes a topic which has already been dealt with in the concluded project “Intervening in the Psyche: Novel Possibilities as Social Challenges” (Springer 2007, Volume 29, series “Ethics of Science and Technology Assessment”). In this earlier project, various new methods of intervening in the brain were explored and, among other legal and ethical issues, questions related to the possibility of such interventions being used for non-therapeutic purposes were addressed. It turned out that particularly difficult normative issues are raised by the emerging social trend towards utilizing medical means for the enhancement of emotional well-being and cognitive performance beyond what is considered “normal” or “natural” in healthy individuals. At present, the clearest indication of this development is given by the well-established fact that a growing number of people, not suffering from cognitive impairment or emotional disturbance in any clinical sense, seem to be ready to consume psychoactive drugs to achieve mood or cognitive enhancement. Hence, it has been decided to run this follow-up project with a much narrower focus than the previous project and therefore promising to deliver more significant answers to the complex challenges posed by enhancement applications of psychopharmaceutical substances.

The current way of using the term “enhancement” to denote medical measures aimed neither at treating nor at preventing diseases originated in the 1980s when the new molecular biological DNA techniques, and their diagnostic use in reproductive medicine, led to the possibility of enhancing one’s offspring by selection. Looking back today, many expectations of genetic enhancement proved to be premature, if not even preposterous. Within a few decades, the same may turn out to be true for certain of today’s fantasies of transcending human limitations by neuro-bionic implants and other advanced technical devices. However, many pharmaceutical means to enhance various human features are readily available nowadays. Therefore the actual trend towards consuming psychopharmaceutical drugs for non-therapeutic purposes is the most useful reference point for an analysis of the normative problems associated with enhancement issues.

Two psychopharmaceutical drugs in particular assumed an almost emblematic role in the public debates on mood and cognitive enhancement respectively: During the 1990s the antidepressant Prozac® gained fame as a lifestyle drug promising everyone who consumes it to feel “better than well”. Patients treating their depression with Prozac® (or some other selective serotonin reuptake inhibitor) reported to feel “more authentic” or to feel “like themselves” for the first time in their lives, thereby inspiring many people not suffering from any mood disorder to give it a try. As regards cognitive enhancement, the psychostimulant Ritalin® is being frequently prescribed for children and adolescents with attention deficit hyperactivity disorder. Since, apparently, it also benefits healthy individuals by generally increasing attentive capacities, Ritalin® (and other drugs containing methylphenidate) has become more and more popular with people of all ages. For instance, according to several studies the illicit use of Ritalin is quite common among U.S. college students in order to gain a competitive edge in exams.

Psychopharmaceutical enhancement is certainly not an utterly new phenomenon. The general readiness to seek an improvement of mental features by consuming suitable substances, absent of any therapeutic need, seems to be an anthropological given. Examples range from the mild cognitive boost achievable by a cup of coffee to states of ecstatic euphoria induced by potent natural or “designer” drugs. Thus, an adequate assessment of the potentials and risks of psychopharmaceutical enhancement needs to be based on a clear understanding of what is genuinely new about this development. Furthermore, it is necessary to distinguish between risks for the individual human being making use of pharmaceutical means for enhancement purposes and risks for society arising from the widespread application of such means.

Concerns about the possible influence of psychopharmaceutical enhancement on the individual consumer are mostly expressed by using three key concepts: personal identity, autonomy and authenticity. Concerns regarding personal identity are caused by the intuition that the regular usage of potent psychopharmaceutical substances to enhance mood or cognition could change a person so thoroughly that he or she would no longer be “the same he/she used to be before”. Autonomy could be at stake either when an enhancement drug has a deleterious effect on its consumers’ will power or when forms of social pressure are exerted on the individual to take “smart drugs” in order to keep up in competitive settings.

Finally, the consumer statements quoted above concerning the experience of taking Prozac® portray it as a kind of “authenticity generating” drug. However, some critics of psychopharmaceutical enhancement decidedly deny that any change of personality caused by a pill could ever add to a person’s authenticity. They would rather argue that it holds the potential for alienating people from their “true” selves.

As regards the social level, a prominent concern is that the increasing usage of pharmaceutical means for enhancement purposes may undermine distributive justice. If such drugs were so costly that only wealthy people who anyway are in a privileged position could benefit from their mind-enhancing effects, then this might actually fuel social inequality. In stark contrast, those taking a permissive attitude towards enhancement drugs point out that these drugs might as well alleviate the hardships of the “genetic lottery” which endows people most unequally with cognitive assets. Further social concerns relate to cases in which an enhancement is not autonomously sought for, but rather heteronomously imposed on, as for instance by parents on their children or by the state on detainees awaiting parole.

Both kinds of concern, those pertaining to the individual and those pertaining to the social level, are being addressed in the project at hand. In order to set the stage for a balanced assessment of ethical and legal problems arising from the trend towards psychopharmaceutical enhancement two tasks must be completed beforehand: First, the current pharmacological options to achieve cognitive and mood enhancement as well as the associated adverse effects should be known. Second, the enhancement debate is burdened by a number of notoriously vague concepts like authenticity and autonomy. Unless their meaning is clarified they can become obstacles to consensus building on normative issues. In sum, an interwoven set of normative, empirical and conceptual questions has to be answered to obtain a comprehensive assessment of the emerging trend towards psychopharmaceutical enhancement.

#### Working Programme

The project is divided into four intimately linked subprojects represented by four cooperating institutions: The aim of the first project is to review the available evi-

dence on the possibilities and risks of psychopharmaceutical enhancement from the point of view of medical science. To this end, a survey of those substance classes will be provided whose enhancing properties are currently under discussion. Apart from giving an outline of the status quo of medical research, the first subproject will also point out foreseeable developments.

The second subproject is dedicated to conceptual and theoretical questions that are of fundamental importance to the ethical and legal debate on pharmacological approaches to mental enhancement. It will attempt to develop a terminological framework for the description of consequences possibly arising from enhancement measures on the individual and social level. Furthermore, methodical problems of confirming the efficacy of psychopharmaceutical enhancement will be addressed.

The focus of the third subproject is the ethical evaluation of the trend towards psychopharmaceutical enhancement. The validity of several objections to this trend is being put to test. For instance, some opponents consider heteronomous kinds of enhancement – as in the case of parents deciding on enhancements of their children – as morally unacceptable. Furthermore, the above mentioned arguments concerning the possible impact of enhancements on personal authenticity and on social justice will be discussed.

The fourth part of the joint project aims to clarify the legal and legal-ethical foundations of potential pharmaceutical enhancements of mental features. From a legal perspective, it is important to draw the distinction between enhancement problems arising within the realm of the social system of medicine, financed by distributive principles of solidarity, and normative problems concerning the actions of individuals. The normative principles upon which, under varying preconditions, the legitimacy of enhancement techniques depends will be clarified for both these spheres.

At the end of 2006, half a year after the project's kick-off, three meetings of all project members have taken place. They have offered a chance to reach an agreement on a number of issues of fundamental importance to further cooperation. For instance, conceptual ambiguities surrounding the term "enhancement" have been resolved. The remaining project duration is structured by work packages to be tackled in changing alliances of the project members. Results of the different

work packages will be disseminated by presentations on conferences and publications. At the end, general conclusions of the project will be summarised in a memorandum. This should enclose recommendations addressing legislators as well as scientists engaged in the respective research.

### Project Members

#### **Co-project supervisors:**

Dr. phil. Thorsten Galert, M.A.

(project coordination and contact: [thorsten.galert@ea-aw.de](mailto:thorsten.galert@ea-aw.de))

Europäische Akademie GmbH, Bad Neuenahr-Ahrweiler

Professor Dr. med. Isabella Heuser

Klinik und Hochschulambulanz für Psychiatrie und Psychotherapie,  
Charité Universitätsmedizin Berlin, Campus Benjamin Franklin

Professor Dr. jur. Reinhard Merkel

Seminar für Strafrecht und Kriminologie,  
Juristische Fakultät der Universität Hamburg

Professor Dr. med. Bettina Schöne-Seifert, Institut für Ethik,  
Geschichte und Theorie der Medizin, Universitätsklinikum Münster

#### **Project associates:**

Christoph Bublitz, LL.B.

Fakultät für Rechtswissenschaft, Universität Hamburg

Dimitris Repantis, M.D.

Klinik und Hochschulambulanz für Psychiatrie und Psychotherapie,  
Charité Universitätsmedizin Berlin, Campus Benjamin Franklin

Davinia Talbot, M.A.

Institut für Ethik, Geschichte und Theorie der Medizin,  
Universitätsklinikum Münster

### Funding

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

## 1.4 Pharming. Genetically Modified Plants and Animals as Future Production Site of Pharmaceuticals?

(Duration: 7/06–12/08)

### Background and Tasks

Pharming is a new branch of biotechnology that uses transgenic plants or animals as living “factories” to produce human or animal pharmaceuticals. The class of drugs that is manufactured with pharming technology is called biopharmaceuticals. These are pharmaceutical compounds – in most cases therapeutical proteins – that cannot be produced by conventional chemical synthesis. Instead, they can be isolated from biological material (i.e. blood plasma) or they can be produced in living systems. However, the current method to produce biopharmaceuticals by fermenter grown recombinant cell cultures is costly and inefficient. Also, an increasing demand for biopharmaceuticals has caused a shortage in production capacity and first cases of patient-waiting-lists. It is hoped that with pharming the enlargement of production capacities (e.g. growing more transgenic crops or breeding more transgenic animals) may be quicker, cheaper, and more flexible compared to current production processes. In addition, by overcoming technical or financial limitations, pharming may also enable the development of new therapeutic compounds.

The potential of pharming is widely judged to be high, both in terms of medical impact and in terms of economic profits. On the other hand, pharming is associated with a number of potential risks, e.g. with regard to contamination of the food/feed chain, gene flow and gene drift into the environment, harm to the production animals, safety of the medicines for the patients. The project will evaluate the potentials and risks of pharming, address the corresponding ethical, legal and social questions, emphasising the hitherto largely neglected comparison of phytopharming (in plants) with zoopharming (in animals). The aim of the project is to make recommendations with regard to legal regulation and policy action for the responsible further development of pharming.

### Work Programme

A project group has been constituted with representatives, so far, from plant biology, ecology, animal biotechnology, animal welfare, ethics, sociology and law. Four of the group members are external senior scientists, and three form the junior research group at the Europäische Akademie. In addition, an industrial partner and a Ph.D. student are affiliated with the project. Three phases for the project can be identified:

1. During the first phase the group is setting up the general strategy for the project, choosing the topics to be covered within the study, and devising a basic structure of the book to be published. The first meeting, during which the project was discussed on a general basis, was held in Ahrweiler on March 13th, 2006. The second meeting took place on May 8th and 9th 2006 and was hosted by Professor Angelika Schnieke, Chair of Livestock Biotechnology at the Technical University of Munich in Freising. Two experimental animal facilities were visited, and challenges in the development of new biopharmaceuticals with the means of pharming were highlighted during the talks by Professor Schnieke on zoopharming and by Dr. Fahrendorf of NOVAgreen (the group's industrial partner) on phytopharming. Challenges concerning the containment of genetically modified plants were discussed in the context of Naja Steen Andersen's report on her Ph.D. project on gene flow in oilseed rape fields. The third meeting was hosted by Professor Eckard Rehbinder in Frankfurt on July 27th to 28th 2006. The main topics were legal (Professor Rehbinder) and ethical (Dr. Thiele) aspects of pharming.

The project group's fourth meeting was organised as an expert meeting at the Berlin-Brandenburgische Akademie der Wissenschaften on September 14th–15th 2006, with five invited external speakers:

- Dr. Stefan Schillberg (Fraunhofer-Institut für Molekularbiologie und Angewandte Ökologie, Aachen), a member of the extensive EU-funded Pharma-Planta Consortium, spoke about advantages and challenges of phytopharming.
- Professor Dieter Birnbacher (Universität Düsseldorf) gave a talk on bioethical perspectives on pharming.
- Priv.-Doz. Dr. Ralf Müller-Terpitz (Universität Bonn) presented legal considerations from an animal welfare perspective.
- Professor Margaret Eaton (Stanford University) presented an analysis of business ethics in biotechnology.

- Dr. Joachim Schiemann (Biologische Bundesanstalt Braunschweig) spoke about the pharming-relevant work of the European Food Safety Authority.

The fifth meeting took place in Madrid on October 27th–28th 2006 hosted by Professor Rafael Pardo at the Fundación BBVA. The main topics were gene flow (presented by Dr. Rikke Bagger Jørgensen) and animal welfare (presented by Dr. Kristin Hagen). A sixth meeting took place in Freising, again hosted by Professor Schnieke, on December 5th–6th 2006. At this meeting, first seeding texts (for the technical chapters) were discussed. This marks the transition to the second main phase of the project.

2. During the next phase of the project, the seeding texts for all chapters will be developed and discussed. They will, in the middle of this phase, be sent to external experts who will discuss them with the group at an expert meeting (Mid-term Meeting) that is planned for autumn 2007.

3. During the final phase, the book will be presented to the Europäische Akademie Scientific Advisory Board for approval, corrections will be made accordingly, and the book is planned to be published by November 2008. Further presentation of the project's results will also take place during this phase.

#### Results/Publications

From the workshop that took place in September 2006, a “Graue Reihe” publication is forthcoming. Following the approval by the Scientific Advisory Board of the Akademie, the results of the project work will be published in 2008 as an academic book and presented to interested scientific and political institutions and members of the public. Further ways of disseminating the results may include publications and lectures by the group members.

#### Project Members

**Chair:** Professor Dr. jur. Eckard Rehbinder

Faculty of Law, Johann Wolfgang Goethe Universität Frankfurt/Main

Rikke Bagger Jørgensen, Ph.D.

Risø National Laboratory, Roskilde

Professor Rafael Pardo-Avellaneda, Ph.D.  
Fundación BBVA, Madrid

Professor Angelika Schnieke, Ph.D.  
WZW Weihenstephan, Technische Universität München

Dr. phil. Margret Engelhard, Dipl.-Biol. (Junior Scientist)  
Europäische Akademie Bad Neuenahr-Ahrweiler

Kristin Hagen, Ph.D. (Junior Scientist)  
Europäische Akademie Bad Neuenahr-Ahrweiler

Dr. med. Felix Thiele, M.Sc. (Head of the Junior Scientist Group)  
Europäische Akademie Bad Neuenahr-Ahrweiler

**Associated postgraduate junior researcher:**

Naja Steen Andersen  
Risø National Laboratory, Roskilde

**Associated industrial partner:**

Dr. rer. nat. Theodor Fahrendorf  
NOVAgreen, Langförden

**Project Coordination:** Dr. phil. Margret Engelhard, Dipl.-Biol.  
margret.engelhard@ea-aw.de

Funding

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

## **1.5 Responsibility for Future Generations. Implementation of Sustainability in Schooling (Duration: 1/06–6/08)**

### Background and Tasks

A successful implementation of the concept of sustainability in social planning and acting presupposes that it is supported by as many people as possible. Thus, the adolescent generation should be enabled to identify long-term problems as early as possible, to reflect on them rationally and to cope with them legitimately in view of their responsibility for future generations. The assumption of responsibility for future generations requires a broad development of competences in perceiving, reflecting and solving problems of a long-term dimension. Hitherto, the advancement of such competences has not yet been a systematic subject of schooling and thus, it appears in the curricula only occasionally. The project “Responsibility for Future Generations. Implementation of Sustainability in Schooling” will develop a systematic approach to satisfy these desiderata.

The project is established in the context of the action programme of the UN-Decade “Education for Sustainable Development 2005–2014”, that the United Nations, concerned about the consequences not-sustainable human styles of live and management will have for future generations, have initiated to sensitise the adolescent generation for long-term aspects of their actual and future behaviour. Similarly it supports the German federal government’s initiative to intensify the transfer from results out of the sustainability research into the public and in the practice of schooling especially.

Particularly the project “Responsibility for Future Generations” aims to justified recommendations on what exactly is to be promoted in school: What does it mean to assume responsibility for future generations adequately? How is ‘sustainability’ to be defined, if a sustainable development should measure up the responsibility for future generations? Which competences are to be developed and promoted to meet the challenges?

The interdisciplinary working group was established in early 2006, founded in the framework of the Programme “Research for climate protection and protection against climatic impact” of the German Federal Ministry of Education and

Research. Macro- and micro-economists, philosophers, educationalists, specialists in decision-theory and risk-analysis as well as teachers work together on these tasks until the end of 2007 and will, in collective authorship, present an integrated study with detailed recommendations in mid 2008.

### Working Process

Until December 2006 – after a constitutional and preliminary phase – in five meetings the group discussed the central topics and worked out a detailed disposition of and first contributions to the intended study.

First results of an explorative inventory of the status quo of the education for sustainability in Germany show that in the governmental guidelines for schooling the idea of sustainability is only of a marginal range and the daily practice in school is foremost dependent on the teachers' own initiative and conviction. In most cases it regularly submits a concept of preservation of natural resources instead of a concept of rational and accountable utilization as is implied in the idea of sustainability.

Hence in the very first place an offer is to be submitted for a plausible and comprehensible understanding of sustainability that meets as well the requirements both of the now living and of the future generations. A survey of the different concepts of sustainability and, since it is an essential part of it, of the different concepts of justice will be given and the pros and cons of each discussed. A so-called critical sustainability will be recommended that allows (a) controlled but principally unrestricted use of some classes of resources, as long as equivalent substitutions are hold available, (b) only restricted and controlled use of those resources that are not substitutable and (c) no use of unique resources that are destroyed by any utilisation. A “seed text” that performs these tasks was already submitted.

Only those people will act according to standards as these that are motivated to. One and certainly the most effective way to motivate actors to behave in a certain way is to give reasons so that it will be their own rational choice. And since any manipulation of pupils is interdicted (and on the long run not effective) it will be the only way. So it is a further task to examine how and in how far such reasons can be given. Some reasons are given by pure egoistic rationality, e.g. in

the area where there are convenient economic incentives. In other areas rational ethical arguments may demonstrate the appropriateness of behaving in accordance to sustainability principles. Besides these, aesthetical arguments will be proved. A “seed text” on these topics is expected for February 2007.

In addition to pure motivation, competences to behave in accordance to sustainability principles are needed, too. Therefore a further and a central result of the project will be the deduction of a canon of competences that is inevitable for any sustainable action planning. This canon will certainly comprise some comprehension of the complex consequences of consumption and resource usage. But this will again require a trained competence and effective strategies to cope with huge masses of not necessarily coherent information. Moreover, in most relevant cases information will be accessible only incompletely and deciders have to cope with probabilities and profound uncertainties. So, beside others these are certainly some of the essential shaping-competences (Gestaltungskompetenzen) that should be promoted by any education for sustainability. Others may be the capacity to take the consequences of one’s own behaviour into account even if, in relation to the overall amount, it may be insignificant (e.g. the reduction of one’s individual CO<sub>2</sub>-emission compared to the total emergence), or the capacity of effective and cooperative participation in collective decision making. These parts of the argument will be worked out in very close cooperation by several members of the project group. First parts of the text are already submitted, others are expected for February 2007.

On the basis of extended abstracts and already available texts an explicit analytical index was worked out and presented to a panel of external experts, consisting of:

- Professor Dr. Andreas Ernst  
Professor of environmental systems analysis at the Center for Environmental Systems Research of the University of Kassel and chairman of the environmental psychology division of the German Psychological Association
- Professor Dr. Andreas Fischer  
Professor of the didactics of economics at the University of Lüneburg and chairman of the German Gesellschaft für berufliche Umweltbildung e.V.

- Professor Dr. Ulrich Hampicke  
Professor of the economics of landscapes and resources at the Institut für Botanik und Landschaftsökologie at University of Greifswald
- Professor Dr. Monika Keller  
Research scientist at the Center for Adaptive Behavior and Cognition of the Max Planck Institute for Human Development (MPI für Bildungsforschung) in Berlin
- Professor Dr. Christoph Lumer  
Professor of Moral Philosophy, Siena

On a first feedback meeting on 15th of December at the University of Bremen they reviewed on the group's hitherto established work.

Some helpful suggestions will now be closer examined by the project group's members, e.g. that the study should not, as was originally planned, be restricted on the senior years of secondary school (Sekundarstufe II) alone, that an expansion of the chapters dealing with the concept of justice would be helpful, or that the agenda should be supplemented by an extensive examination of and reflexion on life-styles. But since in its essence the further agenda was approved by all commentators, the working group started to work out in detail its hitherto provisional plans.

The next step will be a tentative formulation of suitable recommendations addressed to politicians in the area of education, institutions of education und relevant professional guilds and organisations. Until the end of 2007 the recommendations and their foundations will be discussed and elaborated on six further meetings of the project group. On another feedback-meeting in summer 2007 further experts will review on the then established intermediate-results. The presentation of the study is planned for summer 2008.

### Project Members

Professor Dr. phil. Gerhard de Haan

Arbeitsbereich Erziehungswissenschaftliche Zukunftsforschung,  
Freie Universität Berlin

Professor Dr. phil. Anton Leist

Arbeits- und Forschungsstelle für Ethik, Universität Zurich

Professor Dr. rer. nat. Laura Martignon

Institute for Mathematics and Informatics,  
Pädagogische Hochschule Ludwigsburg

Professor Dr. rer. pol. Georg Müller-Christ

Department for Business Studies and Economics, Universität Bremen

Professor Dr. rer. pol. Hans G. Nutzinger

Institute of Economics, Universität Kassel

StD Winfried Sander

Erich-Klausener-Gymnasium Adenau

### **Associated research fellow:**

PD Dr. Achim Lerch

**Project Coordination:** Dr. phil. Georg Kamp, M.A.

georg.kamp@ea-aw

### Funding

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”

## 1.6 Societal Implications of Electrical Power Grids (Duration: 1/06–6/08)

### Background and Tasks

The continuous supply of heat and electric current is a central mission of energy supply systems of modern societies. In the electricity sector stable power systems for the provisioning and the distribution of electric power are the prerequisite to achieve this task. Nevertheless, the reliability of supply in Europe has recently shown several infirmities: the heavy blackouts in London, in South Sweden/Denmark and Italy in 2003, in North Rhine-Westphalia and Luxembourg respectively in September 2004 and not least the outages in vast parts of Western Europe at the end of 2006 document this ostensively. They were apparently caused by defects in crucial areas of the supply mains – likewise the breakdowns in the northern parts of the United States. In 2005 even worse power outages occurred in North Rhine-Westphalia, which were however only partly caused by technical aspects, but by extraordinary weather conditions. Other reasons for a failure of the provisioning are also supposable, for example natural catastrophes, overloading of the capacities or terrorist attacks.

The consequences of blackouts of this dimension are always marked by high economic detriments and disturbances and impairments of private and public life, which is severely hindered and endangered in the affected regions. One may well imagine that these incidences can recur – maybe in larger scale – if not for distinct changes of the status quo.

It is necessary to counter steer in time with appropriate measures to avoid an unbearable endangering of a continuous electricity supply in the future. This appears especially important as the functioning of the information society and the industry likewise become more and more dependent on electricity.

The observable and conceivable threats to the security of the power supply can be attributed to modified constraints for the European network. During the work of the research project the following aspects were identified as the most determining with respect to future conditions: (1) The present degradation of the capacitances of power stations leads to a decline of reserve capacities, possibly below a critical quantity, that could be essential during a disturbance. (2) The

increasing feed of energy with fluctuating power rating (wind energy or other regenerative energies) requires higher compensation capacities. The balancing potential of an efficient measurement and control technology should be analysed in this context. (3) The power supply systems suffer from a major lack of investments. This can mainly be traced back to the cost pressure developed from the deregulation of the European network and the distributed responsibilities of the operation and the upgrading of the power system. (4) A further extension of the European network can moreover lead to additional dynamic stability problems, which are only to be handled with sumptuous technical measures. Again, the difficulties of shared competencies may have negative implications. Germany is especially swayed with this problem as it is a main country for third party access due to its central site in Europe.

From the technical point of view it is to be analysed, whether existing or foreseeable disposable technologies can embrace future demands for electric networks. If necessary, accordant research targets have to be advised. Thereby the deliberation on the question of the correct timing of a potentially needful reconstruction surpasses a merely technical approach. The comparative judgement of the costs of power failures and of upgrading scenarios to avoid them in the future and the configuration of cost distribution depend on economic science expertise to attain to economically ideal resolutions. It will have to be presented in detail, which political influence capabilities can avail vicinity of power stations and consumers, allocate transmission costs and ensure an efficient extension of power lines with long-lasting resources. Economic competence is also essential for the assessment of methodical problems of European market structures and their accomplishment in the energy sector. The perspective of business economics aims in particular at companies, which have to cope with profound reorganisations and their commercial feasibility. Aspects of regulation and within the project not least presuppose juridical expert knowledge. The judicial appraisal of deregulation and re-regulation has to be carried out in consideration of the cross-national situation to assure that the recommendations are in line with the European legal framework.

The entitlement of the project work consists of an integration of the competencies of electrical engineering, economics and jurisprudence appropriately to give coherent guidelines for the affected fields of policy and the power industry. The interdisciplinary processing of the work presents an essential aspect and at the same time closes a gap in the scientific evaluation of power net-

works. The European perspective of the project corresponds to the development trend towards a further incorporation of the European power networks. The aspired recommendations for integration will have to combine the aspects of high efficiency and security of supply regarding the general set-up of an elevated contingent of renewable energies. The future power network ought to be able to fulfil its supply assignment even under complex preconditions. The superordinate intention thereby is the economically justifiable securing of a dependable supply of electricity.

#### Current State of the Project

The work within the project started at the beginning of the year 2006 and five meetings have already been held, including the important “feedback-conference” (Kick-off meeting) in the end of June 2006. External experts of a different professional background within the domain of energy research had been invited to gain knowledge of the newest research results from diverse angles. In addition to their lectures the experts were asked to comment on the structuring of the work plan of the emerging survey. Recapitulating it can be stated that there was a substantial agreement on the concept of the study. The identified problems and thus the main topics have been acknowledged to be based on the degradation of the capacities of power stations, the lack of investment in electrical grids due to deregulation, stability problems on account of the upgrading of the European network, and firmness problems because of the increasing amount of fluctuating renewable energies.

According to the proposals the basic structure and the schedule line in five main chapters has been determined:

- The complexity of the theme is described and the specific issues for the study are justified.
- The main aspects necessary for the sustainability of electrical grids are described and summarised.
- The effects of regulation on the business model of the electric economy are characterised.
- One of the chapters attends to the controversial questions of regulation for economic and legal purposes.

- Finally, conclusions are drawn and recommendations are given with regard to necessary changes and improvements addressed to policy and society.

Within the ongoing work texts referring to chapter two have been drawn up and discussed to obtain the ground work for the following investigations. The Mid-term Meeting with external experts in order to evaluate the raw texts and their composure is planned for the end of 2007.

#### Project Members

**Chair:** Professor Dr. rer. pol. Ulrich Steger  
Alcan Chair of Environmental Management, IMD, Lausanne

Professor Dr. jur. Ulrich Büdenbender  
Faculty of Law, Technical University of Dresden

Professor Dr. phil. Eberhard Feess  
Faculty of Economics, Rheinisch-Westfälische Technische Hochschule Aachen

Professor Dr.-Ing. Dieter Nelles  
Faculty of Electrotechnology and Information Technology,  
Technical University of Kaiserslautern

**Project Coordination:** Dr. rer. nat. Ruth Klüser, Dipl.-Chem.  
ruth.klueser@ea-aw.de

#### Funding

Foundation for innovation in Rhineland-Palatinate

## **1.7 Intervening in the Psyche. Novel Possibilities as Social Challenges** **(Duration: 7/03–12/05)** **(completed)**

### Background and Tasks

The wealth of insights into the brain's functioning gained by neurosciences over the last few decades has led to the development of new possibilities of intervening in the brain:

- Neurotransplantation refers to neurosurgical approaches aiming at the replacement of lost brain cells by neural cell grafts. These implants are presently obtained from the brains of aborted foetuses, but may foreseeably be prepared from cultured and differentiated embryonic stem cells isolated from human pre-implantation embryos or from somatic stem cells. Neurotransplantation and gene transfer (or a combination of the two) are used to apply proteinaceous compounds locally in the brain as a substitute for neural cell malfunction, or to stimulate regeneration or inhibit degeneration of CNS tissue.
- Central neural prostheses are electronic devices which connect to the nervous system in order to stimulate or record brain activity. The established technologies in this field aim at the restitution of lost or disturbed sensory or motor functions. For instance, some semblance of hearing can be provided to deaf people by cochlear implants or auditory brainstem implants. Presently, brain computer interfaces are being developed for the transduction of brain activity into control signals in order to enable paralysed people to, e.g., select letters on a screen for communication purposes or control an artificial arm.
- Electrical brain stimulation comprises different techniques for the modulation of diminished or erroneous neural activity. Deep brain stimulation, in which an electrical current is administered through electrodes implanted in the brain, is currently used mainly on patients with otherwise untreatable central motor disturbances (e.g. pharmacologically refractory Parkinson's disease), but is also increasingly being applied to patients with mental or psychiatric disorders such as obsessive compulsive disorder or depression. Transcranial magnetic stimulation is a non-invasive technique to interfere with the function of small cortical areas through currents induced by alternating magnetic fields emanating from a handheld application coil.

Although the primary aim of these innovative ways of acting on the brain is to open up new treatment options for neurological and psychiatric diseases, the public response to them has not been entirely positive. As regards therapy, there are concerns that these techniques may inflict severe mental harm on the patients they are applied to, possibly transforming them in radical ways. Further concerns relate to applications which may go “beyond therapy” by aiming at the enhancement of cognitive capacities and emotional well-being. Most of these concerns are quite well known from the long-standing debate on the use of pharmaceutical agents to influence the psyche. This is true not only of concerns about the influence of these new kinds of intervention on the individual psyche, but also for concerns regarding the possible impact of their widespread application on society in general. Therefore, next to advances in the research areas of neuroprosthetics, neurotransplantation and electrical brain stimulation this project also covered new trends in the field of psychopharmacology. The aim of this project was to review the state of the art with respect to each single mentioned kind of intervention, indicate future developments, and address the ethical and legal issues which are common to all of them.

### Project Progress

Phase 1, January 2004–April 2005: Exploration and Consolidation

The project started out with a core group of four members having been recruited among the participants of a workshop on “Intervening in Psychic Capacities” which had taken place in Bad Neuenahr-Ahrweiler in May 2003 (proceedings published in *Poiesis & Praxis* Vol. 2, No. 4, 2004). During the first few meetings, the gradually increasing project group explored the new possibilities for intervening in the psyche by inviting medical experts to report on their professional experience with certain of the above mentioned techniques of intervention. After their talks, most of these experts were asked whether they would like to join the project group. Concurrently, a working programme was developed and first drafts were prepared. On the occasion of a workshop in Brussels in April 2005 the members of the project group discussed their working programme and their first papers with several invited experts whose contributions were later on published in *Poiesis & Praxis* Vol. 4, No. 2, 2006. This Kick-off Meeting marked the end of the consolidation phase because in Brussels the complete team of authors of the project’s final report gathered for the first time.

### Phase 2, May 2005–March 2006: Working Out the Main Results

In this phase the project members worked intensively on their respective parts of the study. After each meeting the papers were modified and reworked so as to take into account the critical remarks of the other project members. In March 2006, when the project group had already agreed on most of the main conclusions, another workshop took place in Hamburg for which external experts had been invited to review the proceedings. The reviewers were:

- Dr. Benedetto Vitiello, M.D., National Institute of Mental Health, Bethesda, Maryland, USA
- Professor Dr. Karl Kiebertz, M.D., University of Rochester, NY, USA
- Professor Dr. Eduardo Fernández, Ph.D., Universidad Miguel Hernández, Elche, Spain
- Professor Dr. Alim Louis Benabid, Ph.D., Hospital Grenoble, Grenoble, France
- Professor Dr. phil. Dieter Birnbacher, Universität Düsseldorf, Düsseldorf, Germany
- Professor Dr. jur. Werner Heun, Universität Göttingen, Göttingen, Germany

### Phase 3, April 2006–December 2006: Finalising the Study

Having received the comments and suggestions of their peers in Hamburg, the authors thoroughly revised their drafts for the different chapters of the study once more. The two final meetings of the project group were largely dedicated to discussions on the recommendations for decision makers in politics and science. Unfortunately, at this late stage of the project Dr. Anne-Catherine Bachoud-Lévi (CHU Henri Mondor, Créteil, France) who attended most of the project meetings and who contributed considerably to the chapter on “Neurotransplantation and Gene Transfer” had to drop out of the project group due to her burden of commitments. The final project report is now due for presentation on May 2nd 2007 at the Berlin-Brandenburgische Akademie der Wissenschaften.

## Conclusions and Recommendations

Regarding concerns about the impact of new techniques for intervening in the brain on individual persons the project group came to the following conclusion:

- The public preoccupation with the possibility of patients being transformed in radical and obvious ways by interventions in the brain might detract attention from those side effects actually giving more reason for concern, namely subtle changes of the psyche in general, and of personality in particular, which may easily go unnoticed.

Related to this point, the team of authors put forward a number of suggestions on how to adjust existing research and treatment guidelines so as to take better account of subtle forms of mental side effect. While, in general, these suggestions pertain to all kinds of applications of interventions the brain, most of the other recommendations aimed specifically at neuro-enhancement applications, i.e. at interventions for the improvement of emotional wellbeing or cognitive performance beyond what is considered “normal” in “healthy” human beings.

Building on the assumption that the purpose of medicine as a social (and in some way publicly financed) system is to fight disease by means of therapy and prevention, the project group came to the conclusion that “mere” enhancements which cannot at least be characterised as prevention of disease should not be included in the social system of medicine:

- This implies that neither research exclusively geared towards the development of means for mental enhancement by intervening in the brain nor the application of such enhancing interventions should be subsidised by public funds devoted to the social system of healthcare.

Of course, banning enhancements from the social system of healthcare does not render these interventions illegitimate. Indeed, the project group does not endorse a principled ethical rejection, let alone an outright legal prohibition, of interventions in the human brain aimed at mental enhancements solely on grounds of their physical or mental risks for the affected individual. Any further assessment requires the distinction between three different settings in which enhancements may take place: Cases of self-enhancement comprise, firstly, all cases of competent persons administering enhancing means to themselves and, secondly, cases of competent persons authorising someone else (e.g. a doctor) to

apply enhancement interventions on them. The third category of cases is characterised by a person deciding on an enhancement to be performed on someone else as, for instance, when parents ask for an enhancement of their minor children.

Regarding the first category of cases it is crucial to see that the law in liberal, democratic societies is not to be used as a tool for paternalistic control of individual preferences or of the actions of autonomous citizens towards their own person. Hence:

- Whatever enhancing measures people of (otherwise) sound mind administer exclusively to themselves is, in principle, a matter of their own protected privacy, regardless of what other people might think about these self-inflicted interventions.

Even though subject to certain limitations, this liberal stance towards self-enhancements also pertains to “two-party cases” in which someone administers a method of enhancement to another person after having obtained this person’s informed consent. However, a rather strict principle of caution is in order when it comes to the third category of enhancements. For instance, with respect to the enhancement of children the project group argues that due to the many possible, but unexplored, long-term consequences of surgical interventions in the brain, they must not be applied to children solely for enhancement purposes.

Final report:

Merkel R, Boer G, Fegert J, Galert T, Hartmann D, Nuttin B, Rosahl S: *Intervening in the Brain. Changing Psyche and Society* (Vol. 29 of the series *Ethics of Science and Technology Assessment*) Springer, Berlin 2007, ISBN 978-3-540-46476-1

Project Members

**Chair:** Professor Dr. jur. Reinhard Merkel

Seminar für Strafrecht und Kriminologie, Universität Hamburg

Gerard Boer, Ph.D.

Department of Neuroregeneration, Netherlands Institute for Neuroscience,  
Amsterdam

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Professor Dr. med. Jörg Fegert  
Abteilung für Kinder- und Jugendpsychiatrie/Psychotherapie,  
Universitätsklinikum Ulm

Professor Dr. phil. Dirk Hartmann  
Institut für Philosophie, Universität Duisburg-Essen, Campus Essen

Professor Bart Nuttin, MD, Ph.D.  
Department of Neurosurgery, U.Z. Gasthuisberg, Catholic University of Leuven

Professor Dr. med. Steffen Rosahl  
Abteilung für Neurochirurgie, Helios Klinikum Erfurt

**Project Coordination:** Dr. phil. Thorsten Galert, M.A.  
thorsten.galert@ea-aw.de

## **1.8 Environmental Noise. Risk Assessment and Regulations in the Traffic Sector**

**(Duration: 7/03–12/05)**  
**(completed)**

### Background and Tasks

According to the EU-Directive 2002/49/EC, environmental noise may be defined as unwanted and/or harmful outdoor sound, which is emitted by transportation and traffic on road, rail, and in the air as well as by other human activities. Therefore, noise is potentially dangerous to human beings: For besides its subjective valuation, it objectively affects human health. Sleep disturbances and cardiovascular problems are some of the adverse effects brought into connection with noise. Furthermore, noise may also constitute an obstacle to social life, e.g. obstructing communication or mental skills. Consequently, these adverse impacts have raised wide public awareness and diverse national and international policies have put this topic on their agendas. As a result, a considerable number of legally binding instruments has been enacted in order to reduce noise emissions and to prevent exposure to it for the purpose of health protection. Nevertheless and in spite of these measures, the public unease concerning noise pollution has not decreased. Special attention should be paid to the case of aircraft noise, since it may work as a paradigm for this apparently unsolved and somewhat paradox conflict: Air-travel is currently to be seen as a core element of increasingly accepted mobility and it is therefore endowed with a high economic potential to the fortune of the respective actors. Otherwise it is a growing noise source and the people affected seem to be becoming increasingly intolerant to noise exposure.

The pending societal conflict on adequate noise treatment gave reason for its scientific evaluation in favour of subsequent reasonable recommendations on this issue. For the working group, the a.m. noise problem seemed to be especially urgent with respect to the growing demands for mobility on the part of modern society. It was therefore prudent to focus scientific reflection on the traffic sector and on the specific noise burdens that it creates for the general public. The research also had to take into consideration the obvious economic advantages provided by improved – albeit noisy – means of transport. The “topography” of the relevant questions proved to be highly diverse in disciplinary terms. There-

fore, an interdisciplinary approach was needed in order to perform the task of evaluation. Corresponding work thus had to reflect and integrate contemporary knowledge from philosophy, medicine, psychology, engineering, urban planning, economy and jurisprudence (both from theory and practise).

The interdisciplinary integration of these questions concerning the problem of traffic noise was directed towards proposals and recommendations for the relevant actors on the national and European level.

### Work Programme

The a.m. topic and some of its questions were discussed on the occasion of an international workshop on “Environmental Noise” in December 2002, which was organised and published by the Europäische Akademie. Its results contributed to the constitution of an interdisciplinary core group and to the formulation of a work programme, which was approved by the Scientific Advisory Board of the Europäische Akademie in autumn 2003. In its main phase, the project group finalised the critical stocktaking from the relevant disciplines. The project group gained additional insights from Professor Dr.-Ing. Markus Hecht (TU Berlin), Dr. Henk Miedema (TNO Delft) and Heinz Steven (TÜV Essen) on railway noise, on noise perception and on motorway noise, respectively.

The spring symposium of the Europäische Akademie on 28–30 April 2005 was dedicated to the noise issue with the topic “Living with Noise” (“Leben mit Lärm?”), thus giving the chance to discuss preliminary results as well as further questions on the noise issue with a broader audience of the interested public and with selected experts. Comments were given by Professor Dr. Jürgen Hellbrück (Katholische Universität Eichstätt-Ingolstadt), Professor Dr.-Ing. Markus Hecht (TU Berlin), Dr. Karlheinz Haag (Deutsche Lufthansa AG, Frankfurt a.M.), Dr. Matthias Mather (Deutsche Bahn AG, Berlin), Professor Dr.-Ing. Klaus J. Beckmann (RWTH Aachen), Staatssekretärin Christiane Friedrich (Ministerium für Umwelt und Naturschutz, NRW), Professor Dr. Ludwig Krämer (formerly European Commission), Professor Dr. Reinhart Kühne (DLR, Berlin), Dr. Manfred Kalivoda (psiA-Consult, Wien) and Professor Dr.-Ing. Hanns Jürgen Lichtfuss (formerly TSB Berlin). After implementing the newly gained insights from this event the working group elaborated its final conclusions and recommendations

and prepared a coherent draft manuscript for approval by the Academy's Scientific Advisory Board on 16 February 2006. After final editing, the final report was published in the Springer series "Wissenschaftsethik und Technikfolgenbeurteilung". A presentation of the book to the public took place on 28 June 2006 in Berlin. The results were also disseminated by audio broadcasting and newspapers.

## Results

### General Conclusions

The annoyance of citizens from traffic noise is a serious and widely distributed problem in Germany and Europe. Nevertheless, ambient noise has been underestimated among all environmental loads and its existing regulations. Exposition to environmental noise may also lead to severe performance deficits of the annoyed due to the disturbance of communication and concentration in schools and workplaces as well as due to adverse effects on necessary recreation at night (sleep), thus giving sound reason for immediate regulation. Moreover, the omnipresence of noise in certain dwellings might injure the principle of individual privacy. Consequently, a general right for calmness should be introduced into corresponding legislation. Therefore, everybody should be enabled to retreat from harmful noise. This must be achieved by measures on different time-scales. In the short-term, appropriate traffic control and guidance should mitigate noise hot-spots. Mobility and noise creation have to be decoupled at the same time, considering all traffic branches, similarly, while reviewing the current railway bonus. Long-term gains from noise mitigation might be finally expected by noise-optimized urban planning.

### Specific Recommendations

Strategies and measures should give adequate incentives to the actors and noise emitters. Among them, noise dependent road and/or railway pricing as well as corresponding landing fees are proposed by the working group. These instruments as well as dynamic and staged standards for noise emissions are expected to accelerate technical innovations towards significant noise mitigation, especially for those long-lived vehicles, which would otherwise not enter corresponding

markets in-time. Measures for road traffic should concentrate on noise mitigation from road/wheel contacts, which dominate most overall noise situations. Construction and use of “quiet” roadways and respective tires are feasible and should become mandatory. Additionally, licensing and operation of cars should foresee the implementation of noise thresholds by the regular control routine on car safety and pollution. The allocation of noise contingents and resulting limitations of traffic might be introduced for those areas, which are still unacceptable noisy (hot spots) and which cannot be mitigated in-time by the above mentioned instruments.

The proposed measures have to be tightened, if indications of pathological long-term effects from traffic noise (e.g., heart diseases) would prove to be right. Therefore, corresponding empirical research should be intensified.

Final report:

Kloepfer M, Griefahn B, Kaniowski AM, Klepper G, Lingner S, Steinebach G, Weyer HB, Wysk P: *Leben mit Lärm? Risikobeurteilung und Regulation des Umgebungslärms im Verkehrsbereich* (Vol. 28 of the series *Wissenschaftsethik und Technikfolgenbeurteilung*, ed. C. F. Gethmann) Springer, Berlin 2006, ISBN-10 3-540-345 09-4

Project Members

**Chair:** Professor Dr. Michael Kloepfer

Institut für Öffentliches Recht und Völkerrecht, Humboldt-Universität zu Berlin

Professor Dr. Barbara Griefahn

Institut für Arbeitsphysiologie, Universität Dortmund

Professor Dr. Andrzej M. Kaniowski

Katedra Etyki, Uniwersytet Łódzki

Professor Klepper, Ph.D.

Institut für Weltwirtschaft, Kiel

Professor Dr.-Ing. Gerhard Steinebach

Lehrstuhl Stadtplanung, Technische Universität Kaiserslautern

Professor Dr. Heinrich B. Weyer  
Deutsches Zentrum für Luft- und Raumfahrt, Köln

Dr. Peter Wysk  
Oberverwaltungsgericht für das Land Nordrhein-Westfalen, Münster

**Project Coordination:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

**External advisory:**

Dr. Peter Gussone, HU Berlin  
Professor Dr.-Ing. Markus Hecht, TU Berlin  
Dr.-Ing. Michael Rumberg, TU Kaiserslautern  
Dipl.-Ing. Heinz Steven, TÜV Essen

## 1.9 Incentives for Organ Donation

(Duration: 7/03–6/06)

(completed)

### Background and Tasks

Today transplantation medicine has matured from the experimental status and is well established. In many cases it represents the only life saving therapy existing and it has shown to improve patients' quality of life in many other cases. In most European countries transplantation medicine has been set in legal frames within the last ten years, which brought about more legal certainty and reflected a general public acceptance for this form of therapy. However the hope that a legal implementation would raise organ donation rates did not become true. Quite the contrary is the case. Organ donation rates mostly remained unchanged and would even have fallen, if a rising number of livingdonor transplants had not compensated falling cadaveric organ donation rates. Furthermore it is prognosticated that the gap between the number of patients on the waiting lists and the number of available organs is even going to increase. Consequently, the number of patients that will die while waiting for a transplant is likely to rise as well. The reason for this orsening situation is a falling number of brain deaths, due to improved traffic safety, e.g. the development of airbags. At the ame time, the number of patients that are going to be in need of an organ is expected to rise, due to, for example, an increased number of diabetes II patients resulting from a rising number elderly or overweight people. Thus, strategies to improve organ donation rates need to be discussed again. Recent reports documented first cases of illegal organ donations even within Europe, reflecting the severeness and topical reality of this issue. One factor that influences cadaveric organ donation rates is the existence of different procedures to determine the will of potential donors. In the opting-out system the consent of organ donors is presumed. Citizens have to opt out actively if they do not want to donate organs. In the opting-in system, citizens need actively to give their consent for organ donation. Since countries with the opting-out system generally have higher organ donation rates than countries without it, a correlation is discussed. However, the overall severe shortage of transplants remains unchanged in all European countries. Strategies and incentives to increase organ availability and thereby to improve this situation are increasingly discussed. In the course of this discussion, voices have recently been raised, propagating a limited legalisation of trading organs.

The study focused on the discrepancy between a generally positive attitude towards organ donation and the substantially lower actual organ donation rate. Special emphasis was placed on a moral analysis of a “market for organs”, similar to markets for and the resulting competition for pharmaceuticals or health insurance policies. Furthermore, novel proposals towards providing incentives for organ donation and the moral problems involved – i.e. ownership of organs, assurance of voluntariness of organ donation or organ import from Third World countries – were discussed.

### Work Programme

To analyse the current situation and possible approaches to tackle the problem, a project team has been constituted with representatives from the following disciplines: transplantation medicine, organisation of transplantation medicine, economy, law, sociology and philosophy. On the basis of interdisciplinary discussions within the project team and regular contact with relevant scientific communities, an analysis report will be finalised into a common text according to the principle of consensus. That includes specific recommendations, targeting policy-making institutes. The finalised text was then presented to the Scientific Advisory Board of the Europäische Akademie for approval before publication. The project work was divided into three main phases: Phase 1, June 2003–December 2004: Setting the work plan. During the first phase of the project the project group was constituted and a working plan developed on the basis of interdisciplinary discussions within the project group and the following inputs from the scientific communities: In August 2003 Professor Dr. N. Neuhaus, Berlin, hosted the project group during surgery in his transplantation centre. Professor Dr. P. Schootmans, Leuven, gave a talk on the ethical implications of organ transplantations. During a workshop in December 2004, with 22 participants the following topics were discussed: the duty of organ trading versus reciprocity, possibilities to expand live organ donation, “altruism” in organ transplantation, special aspects of kidney donation, ethical aspects on incentives in organ donation, and insurances for live organ donors. External Speakers were: S. Wille, Mannheim; Professor Dr. C. Blankhard, Berlin, Professor Dr. H.L. Schreiber, Göttingen, Professor Dr. L. Paul, Mainz; Professor Dr. G. Thiel, Basel, Professor Dr. Dr.h.c. C.F. Gethmann, Bad Neuenahr; Professor Dr. W. Lübke, Berlin, RA U. Riedel, Berlin; Professor Dr. G. Gaertner, Mainz.

Phase 2, July 2004–August 2005: Preparing the ‘seeding texts’

During this phase, the project group put the work plan into effect by distributing thematic responsibilities amongst the members. Following that, the members produced ‘seeding texts’ which formed the basis of interdisciplinary discussions towards a working text.

Phase 3, August 2005–Mai 2006: Mid-term Meeting and the final report

The working text was discussed at a scientific workshop with outside experts acting as reviewers. In August 2005 the results were presented to a review panel of experienced colleagues for a critical review. It was followed by a meeting “Organ shortage – is death on the waiting list inevitable?” at the premises of the academy in Bad Neuenahr-Ahrweiler on 30th of September and 1st of October 2005. The meeting allowed discussion of the results of the project group with a broader interdisciplinary expert panel. Oral reviews were given by Professor Dr. Ulrich Schroth (Universität München), Professor Dr. Dr. Nikolaus Knoepffler (Universität Jena), Dr. Dr. Tade Spranger, Bonn, Professor Dr. Dr. Xavier Rogiers (Universität Hamburg) and Professor Dr. Dr. Marlies Ahlert (Universität Halle). In addition written statements of Dr. Wolfgang Ellerbeck (Evangelisches Krankenhaus Oldenburg) and Professor Dr. Gilbert Thiel (University of Basel) were discussed. Several aspects of the fruitful discussion were thereafter included in the study, for example the recommendation for an improved protection in insurance law for live organ donors. Several papers of the external speaker of the kick-off Meeting and the Mid-term Meeting were published in the publication series of the Europäische Akademie “Graue Reihe” ( No. 39 “Anreize zur Organspende”, eds.: F. Breyer und M. Engelhard) in December 2006. After the Mid-term Meeting the final version of the book was discussed and written by the project group.

## Results

Following the approval by the Scientific Advisory Board of the Akademie, the results of the project work were published as an academic book and presented to interested political institutions and members of the specialist public at the 12th of May 2006 in Berlin.

**Short summary of the results:**

Options to Alleviate Organ Scarcity – within the framework of existing laws:

1. Removal of financial obstacles for reporting hospitals.
2. Establishment of a nationwide organ donors register in compliance with § 2 (3) of the German Transplantation Act (TPG).
3. Enhancement of security for living donors.

– entailing amendment to the Human Tissue Transplant Act:

4. Reorganisation of the coordination process.
5. Introduction of the opting-out system.
6. Extension of living donor donation.
7. Inclusion of willingness to donate as a criterion of organ allocation.
8. Financial reward for donations.

Final report:

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

In addition papers of the external speaker of the Kick-off Meeting and the Mid-term Meeting were published in:

Breyer F, Engelhard M (eds) (2006) Anreize zur Organspende, Graue Reihe No 39, Europäische Akademie, Bad Neuenahr-Ahrweiler

Project Members

**Chair:** Professor Dr. rer. pol. Friedrich Breyer

Chair of Economic and Social Policy, Department of Economics,  
Universität Konstanz

Professor Dr. jur. Wolfgang van den Daele

Director of the research unit “Standard-setting and Environment”,  
Wissenschaftszentrum Berlin für Sozialforschung; Professor for Sociology  
at the Freie Universität Berlin

Professor Dr. med. Gundolf Gubernatis  
Hospital board, patients medical care, Reinhard-Nieter hospital,  
Wilhelmshaven

Professor Dr. Hartmut Kliemt  
Faculty of Philosophy, Universität Duisburg-Essen

Professor Dr. jur. Dr. med. Christian Kopetzki  
Faculty of Law, Institute for Public Law/Law of Medicine, Universität Wien;  
additional: Institute for Ethics and Law in Medicine

Professor Dr. jur. Jochen Taupitz  
Chair for Civil Law, Civil Procedural Law, International Private Law, and  
Comparative Law at the Universität Mannheim

Professor Dr. med. Hans Jürgen Schlitt  
Director of the Clinic and Polyclinic for Surgery, Universität Regensburg

**Project Coordination:** Dr. phil. Margret Engelhard, Dipl.-Biol.  
margret.engelhard@ea-aw.de

### **1.10 Nanomaterials, Nanodevices, Nanocomputing. Determination of Present Position and Perspectives** **(Duration: 7/03–12/05)** **(completed)**

#### Background and Tasks

The above mentioned project dealt with topics that are summarised as “Nanotechnology” in public discussion. The latter is frequently referred to as a key technology of the 21st century. Hopes on innovative materials, integrated signal processing, efficient energy handling and novel medical therapies exist. The project examines which areas of nanotechnology will assume societal relevance in the near future and how a scientific shaping of this technology can be realised. Up to now, the term “Nano” has a positive connotation in the media, and funds for it are readily available. This has caused its increased – sometimes unjustified – use while describing research activities. On account of this, one of the project groups’ aims was to assign scientific activities unambiguously, by use of a new definition of Nanotechnology devised by the Europäische Akademie’s study group “Miniaturization and Material Properties”. According to this definition, Nanotechnology is not characterised by dimensions of structures in the name-giving nanometer regime (these being typical of classical chemistry and biology, as well), but by the emergence and utilisation of novel properties that cannot be determined from the macroscopical world and which have to be described by quantum mechanical means. Following this notion, purely geometric miniaturisation without accounting for novel properties shall not be understood as Nanotechnology.

The project exemplarily treated various research areas of Nanotechnology which were divided into three major blocks: Materials, information storage and biomedical applications. Purely medical applications were not considered due to the fact that respective studies had been already carried out before. Concerns about potential hazards from Nanotechnology, e.g. caused by ultra-fine dusts, had been met through integration of toxicological expertise into the project group.

In accordance with the Europäische Akademie’s interdisciplinary approach, the views of the group’s non-technological experts, such as representatives from ethics, theory of science and economy contributed to the study as well. It aimed

at the formulation of recommendations for decision-makers in politics, research and industry.

### Work Programme

The study work was arranged along three major project phases:

Pre-Phase, July 2003–December 2003: Setting the agenda

In this phase, the group set up the general strategy for the project, chose the topics to be covered within the study, assigned responsibilities for them amongst the members and devised a basic structure of the book to be published.

Main Phase 1, January 2004–October 2004:

Seeding texts and Mid-term Meeting

During this phase, the group members created raw texts as a basis for subsequent discussions and integrated them into a study draft. The latter was presented at the Mid-term Meeting to the following external referees:

Dr. Gerd Bachmann, VDI Technologiezentrum Düsseldorf

Professor Dr. Peter Bäuerle, Universität Ulm

Professor Dr. Paul Borm, Hogeschool Zuyd, Herleen, Netherlands

Professor Dr. Harald Fuchs, Universität Münster

Professor Dr. Uwe Hartmann, Universität des Saarlandes, Saarbrücken

Professor Dr. Christoph Hubig, Universität Stuttgart

Professor Dr. Martin Möhrle, Universität Bremen

Professor Dr. Reinhard Nesper, ETH Zürich, Switzerland

Professor Dr. Andreas Offenhäusser, Forschungszentrum Jülich GmbH

Dr. Markus Pridöhl, Degussa AG, Hanau

Dr. Eberhard Seitz, Forschungszentrum Jülich GmbH

Main Phase 2, November 2004–December 2005: Editing and publishing of final book texts

In this final phase, the group incorporated the referees' suggestions into the study, enhanced the integration of the different sections and formulated recommendations for the actors and decision makers, based on the principle of consensus. The final draft was approved by the Academy's Scientific Advisory Board on February 16th, 2006. After final editing, the book presentation of the final report took place at the premises of DLR in Cologne on March 24th, 2006.

### Results

1. The project group defines Nanotechnology based on effects and functions independently of any longitudinal measure. Size is relevant only derivatively and thus is expelled as a definiens. It is recommended that this definition as Nanotechnology in the narrower sense be used to specify the field. This narrowing of the scope is not supposed to preclude priority settings in research funding.
2. Currently, funding is focussed on applied research and technologies. However, progress in nanoscience and nanotechnology originates mainly from fundamental disciplines such as Physics, Chemistry, and Biology. Therefore, funding priority should rather be given to basic research on a broad level, which is and will be an indispensable tool for any substantial innovation beyond the bare technological development. Applied research depends on a sufficient pool of basic research.
3. Funding in nanotechnology in Europe is mainly restricted to top-down target oriented programs. However, diversity of research approaches is a crucial requirement for knowledge creation and innovation. Therefore, priority should rather be given to program-independent funding.
4. Diversified basic research needs to be monitored in order to be aware of opportunities for applied research and innovations as early as possible and to continually reassess funding. The project group recommends the tables Materials, Information Storage as well as Biomedical Opportunities and Applications as monitoring tools for decision makers in politics and enterprises. This type of tool could easily be developed for other potential fields of application.

5. There is a tendency to reduce research activities at the universities. This is problematic for two reasons: Firstly, excellence in teaching is tightly coupled with excellence in research. Secondly, diversity in basic research originates mainly from universities. Consequently, politics must provide sustainable strengthening of research capabilities at the universities.
6. The European patent system is not favorable to inventors, start-up firms and small and medium-sized firms, because a common European patent does not exist and the costs of obtaining a European patent are too high. Policy makers must therefore establish a more attractive European Intellectual Property regime in order to foster the commercialization of nanotechnology inventions and to improve the competitive position of European inventors and firms.
7. Many universities, research institutions and small and medium-sized firms do not possess a professional patent management organization. This leads to an ineffective patent management, a weak patent position and consequently to an inferior competitive position. Policy makers must therefore encourage and support a professional Intellectual Property Management at universities, research institutions and in small and medium-sized firms.
8. Europe faces the problem of transferring research results consequently and effectively into development and subsequently into commercial applications. European research institutions must therefore increase their willingness and their possibilities to move research results into the subsequent development of new products. This requires a change in culture, management, incentives, organizational structures and processes at universities and research institutions and new forms of collaboration between scientific institutions and industry.
9. The many and engaged debates about societal and moral aspects of nanotechnology show a high degree of uneasiness among the population. In order to prevent this uneasiness from developing into opposition, leading research institutions should initiate and support an informed, open and transparent public debate.
10. Appropriate funding of ELSI (Ethical, Legal and Social Implications) activities should be specifically dedicated to recognisable ethical concern in specific areas of nanotechnological advance (chance/risk considerations, enhancement of human performance).

11. Knowledge on the behavior of nanomaterials in living organisms and in the environment is largely missing. Research into risks has particularly to be funded.
12. Possibly adverse effects of nanotechnological products are presently discussed in the public mostly on the basis of speculations. Therefore it is recommended to identify risks in studies performed in related institutions. Regulations have to be reconsidered according to the outcome of this research.
13. Education in nanoscience and nanotechnology needs a good first education in one of the established domains like physics, chemistry, biology or engineering. Only in a second stage, the truly multidisciplinary education in nanotechnology can be given, for example at the master level or in graduate schools.

Final report:

Schmid G, Brune H, Ernst H, Grunwald A, Grünwald W, Hofmann H, Krug H, Janich P, Mayor M, Rathgeber W, Simon U, Vogel V, Wyrwa D: Nanotechnology. Assessment and Perspectives (Vol. 27 of the series Wissenschaftsethik und Technikfolgenbeurteilung, ed. C. F. Gethmann) Springer, Berlin 2006, ISBN-103-540-32819-X

Project Members

**Chair:** Professor Dr. Günter Schmid

Institut für Anorganische Chemie, Universität Duisburg-Essen

Professor Dr. Holger Ernst

Lehrstuhl für Betriebswirtschaftslehre, WHU Koblenz

Professor Dr. Armin Grunwald

Institut für Technikfolgenabschätzung und Systemanalyse,  
Forschungszentrum Karlsruhe GmbH

Dr. Werner Grünwald

formerly Robert Bosch GmbH, Gerlingen

Professor Dr. Hans-Joachim Güntherodt

Institut für Physik. Universität Basel, Switzerland

---

Professor Dr. Heinrich Hofmann  
DMX Ecublens, EPF Lausanne, Switzerland

Dr. Harald Krug  
Institut für Toxikologie und Genetik, Forschungszentrum Karlsruhe GmbH

Professor Dr. Peter Janich  
Lehrstuhl 1 für Philosophie, Philipps-Universität Marburg

Dr. Marcel Mayor  
Institut für Nanotechnologie, Forschungszentrum Karlsruhe GmbH

Professor Dr. Ulrich Simon  
Institut für Anorganische Chemie, RWTH Aachen

Professor Dr. Viola Vogel  
Institute for Biologically Oriented Materials, ETH Zürich, Switzerland

**Project Coordination:** Dr.-Ing. Wolfgang Rathgeber

**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

### **1.11 European Social Policy** **(Duration: 1/03–6/05)** **(completed)**

#### Background and Task

Due to the enlargement of the European Union through the inclusion of new member states, the needs of coordination and eventually harmonization of the institutions and measures of social policy between the member states and between these and the legal and political actions at Union level will not only increase but become more complex, too. The main reason for this is the widening of economic gaps and structural differences in the political and legal institutions of the social systems.

The project “European Social Policy (ESP)” focused on the analysis of the needs of political measures in terms of available options of action and of feasible objectives, that have to be put through in order to implement a sufficient level of international coordination and integration. The different branches of the social system – welfare aid, social insurance, unemployment insurance, pension scheme, health insurance, etc. – have to be considered from the perspective of needs and the opportunities for political action. National economic systems differ in regard to their level of economic development and their capacity of financing social or welfare standards but even more in regard to the institutional organization of the social systems, with different distributions of competencies between the main actors: state, market, society and individuals, and different priorities in the basic goal settings as well. Since these heterogeneous systems coexist in the context of the European Union, where international individual migration and workforce mobility within the common market is guaranteed by law, questions on contribution duties and participation rights in competing social systems arise as well as discussions on how, by which community and to what degree equality of treatment has to be guaranteed. As far as legal aspects are concerned, not only international differences in institutions and regulations but also eventually conflicting competencies of the Union and the single member states are of interest.

Connected to this topic are questions on the enlargement of the competencies of the Union, originally founded as a mere economic and commercial Union, and

the democratic legitimacy of this widening of competencies and of the political decisions following from it.

#### Work Programme

The time frame of the project was divided into two project phases, preceded by a preparatory-phase. During the preparatory phase, which started in 2002 with a core group and consisted of five meetings, the complete project group was constituted and a first paper elaborated for the Kick-off Meeting. By then the group members were: Thomas Abel, Jos Berghman, Weyma Lübbe, Bernd Baron von Maydell, Pirkko-Liisa Rauhala, Maciej Żukowski.

With the Kick-off Meeting, held on 10–11 March 2003, the first main phase of the project was started. It served the purpose of discussing the basic structure and core questions of the project with external reviewers. The main topics of the meeting were the conceptual definition of a European Social Policy, the survey of the present welfare models and the tendencies in their developments, the relationship between national and supranational policies, and the ethical aspects of social policies in Europe.

The reviewers were:

Professor Dr. Klaus-Dirk Henke  
Institut für Volkswirtschaftslehre und Wirtschaftsrecht,  
Technische Universität, Berlin

Professor Dr. Stephan Leibfried  
Zentrum für Sozialpolitik, Universität Bremen

Professor Dr. Franz Marhold  
Institut für Arbeitsrecht und Sozialrecht, Karl-Franzens-Universität Graz

Professor Dr. Ruud Muffels  
Faculty of Social and Behavioural Sciences, Tilburg University

Professor Dr. Kieke Okma  
School of Public Policy Studies, Queen's University, Kingston

During the first main phase, comprising another six meetings, the initial structure of the contents of the book was defined and the main topics assigned to the group members for elaboration. Thereupon, seeding texts were prepared and presented at the meetings for further discussion and co-ordination within the framework of the structure of contents. Due to changes in the composition of the group, some basic reorientations and a few minor shifts in the priorities of the contents had to be made. During the first main phase Jos Berghman, Weyma Lübbe and Thomas Abel left the group, while Ruud Muffels, Gert Verschraegen, Klaus-Dirk Henke and Michael Quante joined in. Through the work on the papers and the ongoing discussions towards the end of the first phase, two issues turned out to be critical: on the one hand, the goals of social welfare systems in regard to their historical development and their connection with economic goals as well as in respect to their orientation towards the paradigm of the enabling welfare state in conjunction with the capabilities approach and the life course perspective, on the other hand, the problem of the convergence or divergence of the different social models in the EU and the possible influence the Union can or should exert on these processes. Hence, the group decided to put these two issues on the agenda of the Mid-term Meeting for an in-depth analysis with external reviewers.

With the Mid-term Meeting on 7–8 June 2004, the second main phase of the project was started. The reviewers were:

Professor Dr. Beatrix Karl  
Institut für Arbeits- und Sozialrecht, Universität Graz

Professor Dr. Stephan Leibfried  
Zentrum für Sozialpolitik, Universität Bremen

Professor Lutz Leisering, Ph.D.  
Fakultät für Soziologie, Universität Bielefeld

Professor Dr. Paul Schoukens  
Afdeling arbeids- en sociale zekerheidsrecht, Kath. Universiteit Leuven

Professor Dr. Ulrich Steinvorth  
Philosophisches Seminar, Universität Hamburg

Dr. Werner Tegtmeier, Staatssekretär a.D.  
Sankt Augustin

After the Mid-term Meeting, further meetings took place, in which, based on the results of the second review process, the contributions of the group members have been revised and further integrated and the final recommendations for political actions especially in respect to the most appropriate instruments for a social policy at Union level have been formulated.

### Results

From the ‘enabling perspective’ and the underlying normative principles developed in the project, the following five features of social policy should serve a starting point for detailed recommendations:

- Firstly, there should be a shift from compensating income or health risks to prevention, since it is better to act in time than to wait until the risk occurred, because the damage caused might then be larger and more difficult to repair. This is a central element of our notion of personal autonomy and the capabilities approach.
- Secondly, the capabilities approach implies a pro-active stance of social policies aimed at increasing the opportunities for people to act in an autonomous and responsible way.
- Thirdly, the life-course approach gives rise to a new understanding of justice and redistribution, not only viewing the distribution between current generations at one point in time but also between current and future generations over the entire life course because of which intergenerational justice comes into sight more easily.
- Fourthly, personal autonomy specified along the lines of the life-course perspective and the capabilities approach show that increased mobility and flexibility are not only unavoidable effects of economic developments in Europe but also articulations of the larger need for autonomy. Although often viewed upon as a source of uncertainty, we would like to emphasise that mobility and flexibility might also increase employment and income security and might strengthen

social inclusion in the long run, provided that the process is accompanied and supported by appropriate policies aimed at smoothening and facilitating transitions on the labour market.

- Fifthly, the shift of social policy to endow people with the skills and capacities to prevent exclusion or to remain integrated by endorsing public and private investments in human capital is a direct consequence of our approach, which is backed normatively by the capabilities approach and the principle of personal autonomy.

Final report:

Maydell vB, Borchardt K, Henke K-D, Leitner R, Muffels R, Quante M, Rauhala P-L, Verschraegen G, Żukowski M: Enabling Social Europe (Vol. 26 of the series Wissenschaftsethik und Technikfolgenbeurteilung) Springer, Berlin 2006, ISBN 3-540-29771-5

Project Members

**Chair:** Professor Dr. jur. Bernd Baron von Maydell, Sankt Augustin

Professor Dr. rer. pol. Klaus-Dirk Henke, Berlin

Professor Dr. Ruud Muffels, Tilburg

Professor Dr. phil. Michael Quante, Essen

Professor Dr. Pirkko-Liisa Rauhala, Ph.D., Helsinki

Dr. Gert Verschraegen, Leuven

Professor Dr. Maciej Żukowski, Poznan

**Project Coordination:** Dott. Rupert Leitner

**Contact:** Dr. med. Felix Thiele, M.Sc.

felix.thiele@ea-aw.de

## 2 Master Programme

### 2.1 Post Graduate Master Study Programme in Medical Ethics

In cooperation with the FernUniversität in Hagen and the Johannes-Gutenberg-Universität Mainz the Europäische Akademie established the post-graduate study programme in medical ethics at the beginning of the summer term in 2005. This programme takes the fact into consideration that during the past few years the importance of medical ethics has considerably increased as regards clinical practice, medical research and health policy. Due to medical progress as well as societal and economic changes the capability for ethical reflections has turned out to be a required secondary competence for doctors and other people working in medical sectors in their professional workaday routine. The concept of the study programme is a four-terms training, and the subjects of the study programme (eight modules with six to eight courses each) are sent by mail and are acquired in distant learning. Parallel to the professional career the form of distant learning, which has been successfully tested at the FernUniversität in Hagen for many years, enables students to acquire and furnish proof of their medical ethical competence by an academic degree (M.A. in Medical Ethics).

The study programme, integrating the results of interdisciplinary research of the Europäische Akademie, includes the following subjects:

#### First year

- I Basics of ethics and philosophical anthropology
- II. Basics of medical ethics/anthropology
- III. Ethics of institutions
- IV. Acting of physicians within the health care system

#### Second year

- I. Medical ethics and law
- II. Clinical ethics and consultation
- III. Transplantations
- IV Genetic diagnostics and reproduction

## 3 Studies

### 3.1 Spatial Planning and the Virtualisation of Life-Worlds

Duration: 7/06–6/07

#### Background and Task

The study idea is based upon the fact that modern information and communication technology (ICT) became an inevitable factor of human life. Now, an upcoming challenge arises for the public from the emergence of ICT into communal life and the development of urban and rural regions. For example, the growing markets for e-shopping or e-working will change respective demands for mobility and housing, significantly. This will have to be considered in the course of rational spatial planning together with other probably interfering mega-trends, like the consequences of demographic change in Europe. This interference might influence the above mentioned demands for spatial planning, substantially. Moreover, spatial planning, IT and social politics will have to deal with the growing virtualisation of daily life. The ambiguity of citizens' expectations towards privacy and societal participation seems to be central, here. The critical reflecting of this ambiguity might offer normative knowledge, which could enable decision makers and planners not to push possibly undesirable developments.

#### Working Progress

Since July 2006 a one-years study is prepared by the academy in cooperation with the "Technische Universität Kaiserslautern" (Professor Dr. Gerhard Steinebach, Chair of Urban Planning). This study is part of the university's umbrella project on Spatial Impacts of Virtualisation and its Technological and Societal Preconditions. The project is supported by the programme "Wissenschaft schafft Zukunft" of the Federal State Rheinland-Pfalz.

Recently, the project partners held an expert workshop on 16th October on the "Societal Framework for the Virtualisation of Urban Life".

**Responsible:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

### 3.2 The Restoration and Enhancement of Human Capacities by Neuronal Implants (Duration: 4/2006–3/2009)

#### Background and Aims of the Study

The nervous system is one of the most important physiological systems of the human body and nearly every organ is under neural influence. Disturbances of the nervous system can therefore have far-reaching consequences. In the 1960s it was still almost inconceivable to intervene in this complex system with the aim of restoring failing functions. Since then, enormous scientific and technological progress has led to the development of electronic devices which can be surgically implanted in sensory organs or even in the brain. For instance, as of today, approximately 100,000 people worldwide have received cochlear implants. These can help deaf people (re)gain comprehension of spoken language by directly stimulating auditory nerves inside the cochlea with electrical impulses. Ongoing research in neuroprosthetics is aiming at the development of retinal implants. Apart from sensory implants, the possibilities of motor prosthetics are currently being investigated.

Based on this success story it is now being discussed whether such techniques can also be used not only for restoring impaired capabilities but also for enhancing the capacities of healthy humans. The background study currently being undertaken as part of a doctoral thesis will be based on a state of the art report on the spectrum of neuroprosthetic devices and applications and examine the ethical, legal and social implications of these developments – inter alia addressing questions on the moral evaluation of enhancement techniques; the assessment of the potential for abuse, safety and liability issues; and problems of distributive justice such as access to and fair allocation of these novel techniques.

The study forms one of the working packages of the integrative umbrella project “Nanotechnology and Health. Technological options, risk evaluation and precautionary strategies (NanoHealth)” under the auspices of the Helmholtz Association (Helmholtz-Gemeinschaft Deutscher Forschungszentren/HGF). Within this project, neural implants have been singled out as one of the risk discourses relevant to the question of how the public perceives the benefits and risks relat-

ed to the so-called converging technologies (CT) and their expected impacts. At present, public opinion on neuroprosthetic progress varies between critical or even alarmist concerns about the future of humanity on the one hand and science fictional visions or transhumanist expectations on the other hand. The background study will therefore put special emphasis on an in-depth analysis of the ethical, societal und legal questions arising from presently available and foreseeable future neural implants.

#### Working Progress

In April 2006 the cooperation partners held their initial meeting of the NanoHealth project. Since, the partners of the working packages related to neural implants have worked towards a state of the art-report on current neuroprosthetic devices. A first outline of the background study is scheduled for mid-2007.

#### Cooperation Partners

Forschungszentrum Karlsruhe (FZK) and its subdivisions Institute for Technology Assessment and Systems Analysis (ITAS), Institute of Toxicology and Genetics (ITG), and Institute for Applied Computer Science (IAI), as well as EMPA Technology and Society Lab Sankt Gallen.

**Responsible:** Katja Stoppenbrink, LL.M., M.A.  
katja.stoppenbrink@ea-aw.de

## 4 Study Group

### 4.1 Practical Philosophy

The Europäische Akademie is concerned with the scientific study of consequences of mid- and long-term processes that are especially influenced by natural- and engineering sciences and the medical disciplines. Its aim is to assist in preparing political decisions with contributions from the scientific point of view. The project groups set up for this purpose argumentatively identify and recommend those options that would be chosen rational acting individuals and collectives. Argumentations like this depend on some normative premises: e.g. the supposed standards of rationality, the adequacy criteria for the reconstructive shaping of decisions scenarios and, last but not least, general principles for action, that would be chosen (according to one or another set of standards) by rational actors.

Such standards, criteria and principles have always been a subject to philosophy, especially in such disciplines as the theory of argumentation (logic), the philosophy of science and ethics. The study group “Practical Philosophy” will critically discuss these traditions as well as relevant contemporary philosophical debates and incorporate its results into the work of the Europäische Akademie.

**Contact:** Dr. phil. Georg Kamp, M.A.  
georg.kamp@ea-aw.de

### **III SCIENTIFIC COMMUNICATION AND COOPERATION**

# 1 Academy Conferences

## 1.1 Spring Conference 2005: Living with Noise?

28.4.–30.4.2005, Bad Neuenahr-Ahrweiler

In Germany and in Europe, noise is perceived as a considerable detriment to the quality of the human environment. That this shall not be the inevitable price that has to be paid for technological advance is not least one of the aims of the EU Directive on the assessment and management of environmental noise, which has been implemented within the various legal systems at national levels. Against this background, and in view of the current amendment of the German Air Traffic Noise Act, the Europäische Akademie had invited numerous experts from the fields of science, economics, politics and relevant associations to conduct an in-depth discussion on the subject, “Living with Noise? An Assessment of the Problems Caused by Traffic Noise”. The scope of the topic covered a wide spectrum, ranging from the current results of noise effects and noise abatement research to questions of weighing the priorities in regard to regulations concerning noise protection.

“Do we have a right to tranquillity?” Professor Dr. Michael Kloepper (Humboldt-Universität zu Berlin) asked in his opening talk on the occasion of the spring conference of the Europäische Akademie from 28th to 30th April 2005 at the Steigenberger Hotel in Bad Neuenahr-Ahrweiler. Regarding the problems involved in respect of considerations to be taken, Kloepper held the position that the duties of the state to prevent noise as well as to enable mobility involving noise emission could be justified. Professor Dr. Ludwig Krämer (European Commission, Brussels) countered that it was possible to postulate a preferential “right to silence” when it came to “incursions upon the physical integrity of the human being” caused by noise. In respect of traffic noise, however, there appears to be hardly any evidence that this is the case. Moreover, according to Professor Dr. Barbara Griefahn (Universität Dortmund), disturbing effects and adverse consequences on performance, as the accompanying consequences of traffic noise, are the predominant factors. Thus, in particular, subjective assessments are coupled with individual perceptions of disturbance caused by noise, which make it difficult to make an “objective assessment” in regulating the problems involved in

traffic noise. In the interests of enabling a balanced judgement, in the view of Professor Dr. Andrzej Kaniowski (University of Lodz) it is necessary to consider, at the relevant levels at which decisions are made, both those causing noise and those suffering the effects of noise (which may well vary at different times) in relation to the aims and benefits of the activities producing noise, and even, if necessary, to call such activities into question. In the opinion of Professor Dr. Heinrich Weyer (Deutsches Zentrum für Luft- und Raumfahrt e.V., DLR, Köln) und Professor Dr. Gerhard Steinebach (Universität Kaiserslautern) there still remains a considerable need to find solutions to the problems on hand, in spite of the gains made by means of technical noise reduction measures as well as spatial planning provisions and precautions, because these gains, according to the speakers, had so far been cancelled out by the constant increase in mobility. To conclude the conference, a podium discussion was held on the subject of how to achieve low-noise mobility, at which occasion the State Secretary, Christiane Friedrich (Ministry of the Environment and Conservation, Agriculture and Consumer Protection of the State of North Rhine-Westphalia), recommended that noise protection should be considered in conjunction with plans to maintain clean air, in order to avoid the threat of conflicting aims in the field of emission control and to exploit possible synergies. The results of the conference have been incorporated in the final report “Leben mit Lärm?“, published in 2006 at Springer Verlag.

**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

## **1.2 Autumn Conference 2005: Business Ethics of Innovation**

11.–13.9.2005, Schloss Engers, Neuwied-Engers

“What is the role of business enterprises when it comes to developing and offering new problem solutions?” This was the question at the centre of the conference “Business Ethics of Innovation”, held by the Europäische Akademie from 11th to 13th September 2005 at Schloss Engers near Koblenz. “Business enterprises should contribute to the common good by actively resolving conflicts resulting from their profit-oriented strategies.” This was the demand put forward

by Professor Dr. Horst Steinmann, Nuremberg, in his opening address. Enterprises should also participate in designing the framework within which they operate. This demand was taken up by Professor Dr. Dirk Matten, London. According to Matten, there was noticeable evidence that today already, in certain contexts, enterprises were taking over tasks that were traditionally understood as political. Business ethics, he continued, had the responsibility to provide theoretical support in accomplishing these new tasks. To this end, the governance discussion should be taken up, in which the significance of the informal proportion of political decision-making processes should be dealt with. Dr. Andreas Seiter, from the World Bank in Washington, reported on the many efforts made by enterprises to resolve the conflict between the principle of profit and ensuring availability in developing countries. It was of particular importance, he stressed, to make medicines available to patients by creating an appropriate and adequate infrastructure. He went on to explain that very often neither adequate storage facilities nor distribution networks were available. The point was made that before these problems could be solved, it was necessary to have the medicines needed, which, so far, had not even been developed. Professor Dr. Michael Selgelid, Sydney, pointed out that medicines for many diseases were not developed at all because those for whom they would be intended did not have the financial means to constitute an interesting market for the companies involved. The ethical questions arising in the development of new medicines were illustrated by Professor Dr. Margaret Eaton, Stanford. Companies must put their new medicines on the market as early as possible but, she stressed, they could, of course, only begin clinical trials when all steps in the preliminary test phase had been completed. Further speakers at the conference were Professor Dr. Rainer Kuhlen, Constance, and Professor Dr. Markus Nuettgens, Hamburg. The results of the conference have been published in the book series “Ethics of Science and Technology Assessment” by the Springer Verlag.

**Coordination:** Dr. phil. Gerd Hanekamp, Dipl.-Chem.

**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

### 1.3 Conference 2006: The Future of Space Travel. Use and Value

22.–23.6.2006, SETA Hotel, Bad Neuenahr-Ahrweiler

Doubtless space travel is of great value for human beings – consider satellite-based navigation and weather forecasts as only two examples. Decisions on space travel politics are increasingly being made from the point of view of such direct use-related decisions. In recent years this has led to a reinforcement mainly of the unmanned space travel. Thus, it involves that the legitimation of space travel in general and the human spaceflight in particular – the latter offering no promising value at first sight – has increasingly been questioned.

Bearing this fact in mind the Europäische Akademie GmbH and the German Aerospace Centre (DLR) invited experts of science and research to Bad Neuenahr-Ahrweiler to discuss about “Die Zukunft der Raumfahrt. Ihr Nutzen und ihr Wert” (“The future of space travel. Use and value”). The conference took place from 22th to 23rd June 2006 and was to intensify the value of space travel both from its technical and economical point of view and in respect of its contribution to the general cultural development of humanity. The conference was divided into two sections, “Space travel and future questions for technology and society” and “Exploration and reconnaissance of space”. The first section was opened by a talk given by Dr. rer. nat. Wolfgang Seboldt (DLR, Cologne) on possibilities and limitations of space travel in science, its application and relation to economy. As an example he focussed on ‘exploration’ and on the ‘protection of our energy supply’ saying that international alliances were necessary for any further success. Volker Damann, M.D., (European Space Agency, ESA, Cologne) explained the work on a space station from a medical point of view, mainly the complex challenges of manned space travel. Dr. rer. nat. Gerhard Thiele (ESA, Cologne) spoke about the “Shuttle Radar Topography Mission SRTM” he participated in 2000. In his opinion space travel has the obligation to become more and more interesting while getting more realistic and cautious at the same time.

In his public evening lecture Professor Dr. rer. nat. Ernst W. Messerschmid (Universität Stuttgart) spoke about his experience in space while concentrating on future contributions of Europe for further exploration in space. He wants Europe to stay influential in space politics and, thus, he asked for more money for research and exploration in order to keep up with NASA.

The second section of the conference, dealing with exploration and reconnaissance of space, was introduced by a lecture of Dr. phil. Torsten Wilholt (Universität Bielefeld) on scientific autonomy and planned research. While scientific autonomy does have particular advantages, however, their force ultimately remains limited in the case of space science. As a conclusion he suggested that a sustained space science agenda might best be ensured by increasing the transparency of science policy decisions and involving the democratic public. The philosopher and theorist of science, Professor Dr. phil. Eberhard Knobloch (Technische Universität Berlin) focussed on Alexander von Humboldts travel through South America in the early 19th century. Humboldt combined exploration with research and fondness for travelling with striving for findings. Knobloch illustrated that exploration of a lesser known environment can indeed make a contribution to the development of scientific disciplines. Professor Dr. phil. Dr. phil. h.c. Carl Friedrich Gethmann (Europäische Akademie GmbH) continued with a talk on “Manned space travel as a cultural mission”. He distinguished between utilitarian and trans-utilitarian ends, from which human spaceflight can emerge as a cultural option. Thus, he wanted it to be pursued as far as it can be afforded. As a conclusion, Dr. rer. nat. Nicola Rohner and Dr. rer. soc. Kai-Uwe Schrogl (both German Aerospace Centre) draw a line between the two sections by arguing that the two sections of the conference mean no strict border but an option for diverse spaceflight activities, being of great value both for science and society.

The contributions made at the conference have been published in the series “Graue Reihe” (No 40) of the Europäische Akademie GmbH.

**Contact:** Dr. med. Felix Thiele, M.Sc.  
felix.thiele@ea-aw.de

## 2 Expert Meetings

The Europäische Akademie organises – partly in co-operation with other institutes – expert meetings which serve to explore further research topics or to deepen the discussion on overlapping interdisciplinary topic fields. These meetings, held by small circles of experts, complement the conferences run by the academy, covering three main areas, namely ethics of medicine, environment, and engineering technology and address scientists, political authorities as well as the public, potentially affected by the consequences of science and technology.

**Contact:** Dr. med. Felix Thiele, M.Sc.  
felix.thiele@ea-aw.de

Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

### 2.1 Experimental Animal Models in Musculo-Skeletal Research

2nd–3rd February 2006

In February 2006 the Europäische Akademie co-organised with the AO-Foundation a workshop on Experimental Animal Models in Musculo-Skeletal Research in Davos. The participants of the meeting shared the view that using animals as experimental models in biomedical research is both in principle morally acceptable and accepted by the general public in gross. However, supporting the use of animal models for musculo-skeletal research does not amount to an excuse for neglecting welfare needs of the animals utilised. Though animal welfare issues are becoming (slowly) a customary part of designing, licensing, funding, performing, and publishing animal research, it turned out that more could be done in terms of specifying the guidelines for animal research by empirical data. An important area for further research is, for example, anaesthesia and pain-management. In addition, increasing animal welfare is likely a prime means for improving research results. Another main topic of the meeting has been the fact that there is a currently insurmountable plurality of administrative guidelines for animal research that constitute varying animal protection-levels. Many participants shared the opinion that this plurality does not justify researchers to practice “regulation-hopping”, i.e. to adjust their research efforts on the lowest standard

within their reach. Instead, it was claimed that it should be part of any researcher's ethos that one endeavours to actively find solutions for those moral problems that have been generated or intensified through a field of research.

Lectures were held on: I. Criteria for Choosing the Suitable Animal Model: Selecting Animal Models for Biomedical Research: Practical Issues (Steven Arnoczky), In vivo Models in the Study of Mechano-Regulation of Bone Repair (Allen Goodship), Animal Models used at the AO Research Institute for evaluation of Osteosynthesis Problems (Simon Pearce), Application of the "3R"-Approach in Research Involving Animals (Brigitte von Rechenberg); II. Linking the Research Interests of Human and Veterinary Medicine: Animal Models for Fracture-Studies (Lutz Claes), The Use of Animal Patients in the Validation of Research Results: "Pre-human Clinical Studies" (Joerg A. Auer), Pain Control in Experimental Animals (Jill Price); III. The Moral Problem of Multiple Ethical Guidelines: Possibilities and Limits to the Harmonisation of National Research Guidelines (Berthold Rittberger), Moral Boundaries – on the Sense and the Nonsense of an Ethical Competition (Klaus Peter Rippe), Legal Harmonisation of National Research Guidelines – Limits and Desirability (Ralf Müller-Terpitz).

#### **Scientific Organisation:**

- Professor Dr. Joerg Auer, Equine Hospital, Universität Zürich
- Dr. Felix Thiele, Europäische Akademie
- Professor Dr. Erich Schneider, AO Research Institute, Davos

## **2.2 Ethics in Medicine and Law**

16th–17th February 2006

In February 2006 experts from jurisprudence, medicine, and philosophy participated at an expert talk which took place at the Europäische Akademie GmbH in Bad Neuenahr- Ahrweiler. The colloquium was introduced by a lecture of Professor Dr. Huster (Ruhr Universität Bochum) about allocation of health care resources in old age. In his opinion it is not excluded that 'chronological age' might be used as a transparent and just standard for allocation of health care. The evening lecture – a joint event with the working group Medical Ethics ("Arbeitskreis

Medizinethik”) of the Europäische Akademie – was given by Professor Dr. Dr. Hilgendorf (Universität Würzburg). He focused on a critique of what he diagnosed as inconsistencies in the current legislation and jurisdiction on abortion and euthanasia: “Abortion and euthanasia. Legal problems at the edge of life.” The next day, Dr. med. Thiele (Europäische Akademie GmbH) talked about the impact of the ever increasing juridification of medicine on the physician-patient relationship. He proposed a reconstruction of this relationship in terms of a (moral) contract, that allows to protect the peculiar features of the special relationship between doctor and patient while meeting the apparent need for regulation. Finally, Beck (Universität Würzburg) considered the possibilities of using penalty law as means for regulating biomedical research and practice. She proposed that civil and public law may be better instruments for shaping the biomedical area than penalty law.

12th December 2006

In December 2006 the Europäische Akademie in cooperation with the FernUniversität in Hagen and the Ruhr-Universität Bochum held an expert talk focusing the topic of medically assisted suicide from ethical, social, and legal points of view. As far as ethics of medicine is concerned, the discussion on the subject of euthanasia and different legislation in Europe in this context is widely controversial. Dr. med. Thiele (Europäische Akademie GmbH) spoke on the possibility of medically assisted suicide in the context of psychic illness, especially concerning chronic depression. Professor Dr. phil. Birnbacher (Philosophy, Universität Düsseldorf), talked about ethical problems in relation to professional medical ethos. Later on Professor Dr. phil. Dr. jur. Eric Hilgendorf (Universität Würzburg) explained the legal situation in Germany which is somewhat contradictory as the legal practice is often influenced by morally individual valuations. Finally Professor Dr. med. Christian Rittner (Universität Mainz) presented two case studies concerning euthanasia. While reviewing the problem as scientific issue, results of the discussion are thought of being integrated simultaneously in the professional university studies of a recently created Post Graduate Master Study Programme of Medical Ethics, hosted by the FernUniversität in Hagen, and destined to provide further education for professionals engaged in the public health system ([www.medizinethik.eu](http://www.medizinethik.eu)).

### 2.3 The Societal Framework for the Virtualisation of Urban Life

The Europäische Akademie organised in cooperation with the TU Kaiserslautern the above mentioned expert workshop on 16th October in Bad Neuenahr-Ahrweiler. The workshop was introduced by a short description of the background and aims of the TU's und Academy's joint project on "Virtualisation – spatial consequences and its societal and technological boundary conditions" (Dipl.-Ing. S. Allin, TU Kaiserslautern). Dr.-Ing. E. Dallhammer (Universität für Bodenkultur, Wien) followed with a brief overview on current trends from the European Space Observation Network (ESPO), focussing on economic development, traffic and telecommunication. Lifestyles and their dynamics in urban spaces were described by Professor Dr. A. Spellerberg (TU Kaiserslautern). Professor Dr. H. Mäding (Deutsches Institut für Urbanistik, Berlin) gave a lecture on the mega-trend "demography" and on its interaction with other trends of urban life. His colleague, Dipl.-Geogr. H. Floeting, continued by in-depth reflection of the relevant possible consequences from the trend "security" in urban areas. Professor Dr. D. Hassenpflug (Weimar University) concluded in his talk with the thesis of the "Re-coding of urban spaces by the internet". The final discussion ended with the overall result that the observable trends will be a challenge for ongoing spatial planning but that it may be questioned, if spatial planning would have met its goal in-time. In this context, virtualisation of urban life and its consequences may become tip-in-the-scales with respect to the planning task.

The results of the workshop discussion will contribute to the above mentioned project and are planned to be published in the Academy's "Graue Reihe" in early 2007.

**Participants:** Dipl.-Ing. Simone Allin (Kaiserslautern), Dr.-Ing. Erich Dallhammer (Wien), Dr.-Ing. Bert Droste-Franke (Bad Neuenahr-Ahrweiler), Dipl.-Geogr. Holger Floeting (Berlin), Professor Dr. Dieter Hassenpflug (Weimar), Cand.-Ing. Hedda Leprich (Kaiserslautern), Dr. Stephan Lingner (Bad Neuenahr-Ahrweiler), Professor Dr. Heinrich Mäding (Berlin), Dipl.-Ing. Thomas Müller (Kaiserslautern), Dipl.-Ing. Anja Schlochtermeyer, M.A. (Bad Neuenahr-Ahrweiler), Cand.-Ing. Arne Sieglar (Kaiserslautern), Juniorprofessorin Dr. Annette Spellerberg (Kaiserslautern).

### 3 Publications

#### 3.1 Book Series “Ethics of Science and Technology Assessment” (Wissenschaftsethik und Technikfolgenbeurteilung), issued by Carl Friedrich Gethmann

**Volume 24:** R. Ashcroft, F. Thiele (eds) *Bioethics in a Small World*. Berlin 2005

**Volume 25:** H.-R. Duncker, K. Prieß (eds) *On the Uniqueness of Humankind*. Berlin 2005

**Volume 26:** B. von Maydell, K. Borchardt, K.-D. Henke, R., Leitner, R. Muffels, M. Quante, P.-L. Rauhala, G. Verschraegen, M. Żukowski, *Enabling Social Europe*. Berlin 2006

**Volume 27:** U. Schmid, H. Brune, H. Ernst, A. Grunwald, W. Grünwald, H. Hofmann, H. Krug, P. Janich, M. Mayor, W. Rathgeber, U. Simon, V. Vogel, *Nanotechnology – Assessment and Perspectives*. Berlin 2006

**Volume 28:** M. Kloepfer, B. Griefahn, A. M. Kaniowski, G. Klepper, S. Lingner, G. Steinebach, H. B. Weyer, P. Wysk, *Leben mit Lärm? Risikobeurteilung und Regulation des Umgebungslärms im Verkehrsbereich*. Berlin 2006

**Also the following study was published by Springer:**

F. Breyer, W. von den Daele, M. Engelhard, G. Gubernatis, H. Kliemt, C. Kopetzki, H. J. Schlitt, J. Taupitz, *Organmangel – Ist der Tod auf der Warteliste unvermeidbar?* Berlin 2006

#### 3.2 “Graue Reihe”

The “Graue Reihe” is produced and published by the Europäische Akademie GmbH and is a platform for shorter texts and anthologies by members of project groups, staff members or external scientists.

It includes text material on current topics in Technology Assessment and Ethics of Science scientists at the Europäische Akademie GmbH and from outside continuously work on. Unlike the book series “Ethics of Science and Technology Assessment” (Springer Verlag) the Graue Reihe publishes texts on ideas and reflections which sometimes are smaller products of the long-term research projects of the academy.

No 38: A. Gethmann-Siefert, St. Huster (eds) *Recht und Ethik in der Präimplantationsdiagnostik*. 7/2005

No 39: F. Breyer, M. Engelhard (eds) *Anreize zur Organspende*. 11/2006

### 3.3 Newsletter

The Newsletter (“Akademie-Brief”) appears regularly six to ten times per year and informs about current activities of the Europäische Akademie.

No 52: “Getting Wired. Electronic Implants Connecting to the Human Central Nervous System”, Steffen Rosahl

No 53: “The Spatial Effects of the Virtualisation of ‘Lebenswelten’”, Gerhard Steinebach

No 54: “Zur Kritik einiger Visionen vom Altern”, Carl Friedrich Gethmann

No 55: “On the Use of Willingness-to-pay Studies in Health”, Peter Zweifel

No 56: “The Indispensability of Quality of Life”, Michael Quante

No 57: “Innovation-driven Science”, Gerd Hanekamp

No 58: “Noise Protection: A Task of Fair and Balanced Legal Consideration”, Michael Kloepfer

No 59: “A New Perspective on European Social Policy”, Bernd v. Maydell

No 60: “Probleme wissenschaftlicher Politikberatung in Deutschland”, Carl Friedrich Gethmann

No 61: “Nanotechnology – Why?”, Günter Schmid

No 62: “What to Do about Organ Scarcity”, Friedrich Breyer

No 63: “Leben und töten lassen”, Julian Nida-Rümelin

No 64: “Assessment of Environmental Noise. The Validity of the Railway Bonus for Day- and Nighttime”, Barbara Griefahn et al.

No 65: “Deep Brain Stimulation. Neuromodulation Therapies for Psychiatric Disorder and their Ethical Implications”, Thomas E. Schlöpfer

No 66: “Pharming – the next step in the debate on gene technology?”, Margret Engelhard

No 67: “Natural Fibres and their Possible Applications in Novel Materials. A Consideration with a View to Sustainability”, Jörg Müssig

### 3.4 Journal POIESIS & PRAXIS

#### International Journal of Ethics of Science and Technology Assessment

Awareness of the ambivalence of scientific and technological developments has grown considerably over the last few decades. This is due to the increasing speed of technological advancements and the complexity of technology, advance in biomedicine and the new options for action which have resulted from these. Additionally, we are becoming conscious of the limits of growth and are discovering long-term global risks related to technological progress. Problems associated with scientific and technological advance and their consequences are accordingly – and to an increasing extent – the subject of political and public debate.

Poiesis & Praxis is conceived as an inter-disciplinary forum for reflection and deliberation on the scientific and technological future of our civilisation. In detail, the contributions collected within the journal will be devoted to:

- Research into the consequences of scientific, technological and bio-medical advancements and their relevance to society;
- Reflections on this type of study of consequences in the sense of ethics of science and technology assessment. This will include investigations from the point of view of philosophy of science, law, as well as sociology and economics;

- Discussion of the methods, ideas and processes of ethics of science and technology assessment;
- The determination of the relationship between technology assessment and ethics of science on the one hand and politics and society on the other.

Poiesis & Praxis is a scientific peer-reviewed journal primarily aimed at interested parties from universities and non-university research establishments in the fields of philosophy, natural and engineering sciences, social and legal sciences, as well as in the medical disciplines. In addition, it addresses decision-makers in political institutions and in business and industry.

#### Editorial Board

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- Detlev Ganten, Max-Delbrück-Center für Molekulare Medizin Berlin, Germany  
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- Gudela Grote, Eidgenössische Technische Hochschule Zürich, Switzerland  
Work- and Organisation Psychology
- Armin Grunwald, Forschungszentrum Karlsruhe, Germany  
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Information Technology and Technology Assessment
- Klaus Kornwachs, Brandenburgische Technische Universität Cottbus, Germany  
Ethics of Science and Technology Assessment
- Helga Kuhse, Monash University Clayton (Victoria), Australia  
Bioethics and Medical Ethics
- Bernd Lutterbeck, Technische Universität Berlin, Germany  
Information Technology and Society
- Peter Marburger, Universität Trier, Germany  
Environmental and Technical Law
- Jürgen Mittelstraß, Universität Konstanz, Germany  
Philosophy and History of Science, Ethics
- Edgar Morscher, Universität Salzburg, Austria  
Ethics and Applied Philosophy

- Herbert Paschen, Office of Technology Assessment at the German Parliament  
Berlin, Germany  
Technology Assessment
- Alain Poupidou, Cochin Port Royal Paris, France  
Life Sciences and Bioethics
- Jens G. Reich, Max-Delbrück-Center für Molekulare Medizin Berlin,  
Germany  
Life Sciences and Bioethics
- Josef Reiter, Johannes Gutenberg-Universität Mainz, Germany  
Ethics
- Erich Schweighofer, Universität Wien, Austria  
Information Technology and International Law
- Kristin Shrader-Frechette, University of Notre Dame (Indiana), USA  
Environmental Ethics, Probabilistic Risk Assessment and Science Policy
- Hans-Ludwig Schreiber, Universität Göttingen, Germany  
BioLaw and Medical Law
- Ruud Smits, Centre for Science and Innovationmanagement Utrecht,  
The Netherlands  
Science Policy and Innovation Management
- Gunther Tichy, Austrian Academy of Sciences Wien, Austria  
Economics and Technology Assessment

**The following volumes of *Poiesis & Praxis* were published in 2005–2006:**

- July 2005: Vol. 3, No. 3 (Focus: Human Nature and the Sciences)
- December 2005: Vol. 3, No. 4 (Focus: Infectious Disease)
- March 2006: Vol. 4, No. 1 (Focus IT and Society)
- June 2006: Vol. 4, No. 2 (Focus: Innovations in Neuroscience)
- September 2006: Vol. 4, No. 3
- December 2006: Vol. 4, No. 4

**Managing editor:** Dr. Stephan Lingner

**Editorial assistance:** Friederike Wütscher

Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer  
Entwicklungen Bad Neuenahr-Ahrweiler GmbH  
stephan.lingner@ea-aw.de, friederike.wuetscher@ea-aw.de

### 3.5 External Publications

Margret Engelhard

Together with Friedrich Breyer: “Organspende – Krankenhäuser brauchen Unterstützung, keine Bestrafung”, in: Verband der Leitenden Krankenhausärzte Deutschlands e.V. (eds) *Arzt und Krankenhaus. Fachzeitschrift für die Krankenhausärzte und das Krankenhaus* 79 (8), Lübeck, 2006, 235–238

Thorsten Galert

*Vom Schmerz der Tiere. Grundlagenprobleme der Erforschung tierischen Bewusstseins*, Paderborn: Mentis, 2005

“Eine wahrnehmungstheoretische Schmerzdefinition”, in: H. Fritsch, J. Hacker, H. Hopf, K. Peter, M. Schwoerer, W. Donner (eds) *Materie in Raum und Zeit. Verhandlungen der Gesellschaft Deutscher Naturforscher und Ärzte*, 123. Versammlung, 18.–21. September 2004, Passau. S. Hirzel: Stuttgart, 2005, 404–412

“Inwiefern können Eingriffe in das Gehirn die personale Identität bedrohen?“, in: A. Bora, M. Decker, A. Grunwald, O. Renn (eds), *Technik in einer fragilen Welt. Die Rolle der Technikfolgenabschätzung*. Edition Sigma, Berlin, 2005, 91–99

Together with Reinhard Merkel: “Innovations in Neuroscience: Prospects and Perils”, in: C. F. Gethmann (ed), *Poiesis & Praxis* 4 (2), Berlin Heidelberg, 2006, 77–80

Carl Friedrich Gethmann

“Ist das Wahre das Ganze? Methodologische Probleme integrierter Forschung”, in: G. Wolters / A. Carrier (Hgg.), *Homo Sapiens und Homo Faber. Festschrift für Jürgen Mittelstraß*, Berlin 2005, 391–404

“Partizipation als Modus sozialer Selbstorganisation. Einige kritische Fragen”, in *GAIA* 14 (2005) Heft 1, 30–31

“Visionen vom Altern. Phasenhaftigkeit und Identität menschlicher Existenz”, in: *Die Politische Meinung* 50 (2005) 33–41

“Zur Amphibolie des Krankheitsbegriffs”, in: Gethmann-Siefert, Annemarie/Gahl, Klaus/Henckel, Ulrike: *Wissen und Verantwortung, Studien zur medizinischen Ethik*, Bd II, Freiburg i. Br. 2005, 105–114

Together with Ch. Streffer, K. Heinloth, K. Rumpff, A. Witt, *Ethische Probleme einer langfristigen Energieversorgung, Studien zu Wissenschaft und Ethik*, Bd. 2, de Gruyter, Berlin, 2005

“Heidegger und die Wende zur Sprache”, in: G. Keil, U. Tietz (eds) *Phänomenologie und Sprachanalyse*, mentis. Paderborn, 2005, 73–191

“Ist die Anwendung utilitärer Kriterien bei der Lebendorganspende ethisch zulässig?“, in: Ch. Rittner, N. W. Paul (eds) *Ethik der Lebendorganspende, Medizinische Forschung*, Bd. 14, Schwabe, Basel, 2005, 147–161

“Wissen und Macht. Wissenschaftsethische Überlegungen”, in: M. Sutrop, U. Sutrop (eds) *Wissenschaft und Wissensbasierte Gesellschaft*, Universität Tartú, Tartú, 2005, 31–46

“Porträt ‘Klaus Pinkau’“, in: G. Bersch, *ForscherLeben. Akademiemitglieder – 15 Porträts*, Berlin-Brandenburgische Akademie der Wissenschaften (ed), Berlin, 2005, 82f.

“Ethik, angewandte“, in: J. Mittelstraß (ed) *Enzyklopädie Philosophie und Wissenschaftstheorie* (Band 2), Stuttgart, 2005<sup>2</sup>, 411–413

“Ethik, ökologische“, in: J. Mittelstraß (ed) *Enzyklopädie Philosophie und Wissenschaftstheorie* (Band 2), Stuttgart, 2005<sup>2</sup>, 421–423

Colloquium “Der ‘neue’ Mensch. Ethische Probleme der Genforschung und Biotechnologie”, in G. Abel (ed.) *Kreativität. Kolloquiums-Vorträge des XX. Deutschen Kongresses für Philosophie*, TU Berlin, September 2005, Hamburg 2006

“Das abendländische Vernunftprojekt und die Pluralität der Kulturen”, in: J. M. Krois, N. Meuter (eds), *Kulturelle Existenz und Symbolische Form. Philosophische Essays zu Kultur und Medien. Festschrift für Oswald Schwemmer*. Berlin 2006, 17–39

Together with W. Gerok, H. Helmchen, K.-D. Henke, J. Mittelstraß, E. Schmidt-Aßmann, G. Stock, J. Taupitz, F. Thiele: *Manifest Gesundheitssystem*, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin, 2006

Together with Felix Thiele: “Bioethik”, in: J. Mittelstraß (ed) *Enzyklopädie Philosophie und Wissenschaftstheorie* (Band 1), Stuttgart, 2005<sup>2</sup>, 470–474

Gerd Hanekamp

“Governance und Partizipation. Ein Diskussionsbeitrag zur Legitimation politikberatender TA”, in: A. Bora, M. Decker, A. Grunwald, O. Renn (eds) *Technik in einer fragilen Welt. Die Rolle der Technikfolgenabschätzung*. Edition Sigma, Berlin, 2005, 215–220

“Business Ethics of Innovation”, in: *Poiesis & Praxis* 3:310–314, DOI 10.1007/s10202-005-0001-4, 2005

Kulturalistische Unternehmensethik. Ein Stufenschema für Entscheidungen und Konfliktlösungen. In: Th. Beschorner, M. Schmitt. *Unternehmerische Verantwortung in Zeiten kulturellen Wandels*. Hampp, 2006

Ulrike Henckel

Together with Gethmann-Siefert A, Gahl K: *Wissen und Verantwortung, Studien zur medizinischen Ethik*, Bd II, Freiburg im Breisgau 2005

Stephan Lingner

“Klimarisiken – Anpassung oder Vermeidung?”, in: Bora A, Decker M, Grunwald A, Renn O (eds), *Technik in einer fragilen Welt. Die Rolle der Technikfolgenabschätzung*. Edition Sigma, Berlin, 2005, 245–254

“TA und (Klima)-Politik. Ein Werkstattbericht”, in: *ITA-News 6/2005 (Sonderheft)*, 13–14

“‘Master’ für das Treibhaus. Reaktion auf H.-J. Luhmann: Wie Desaster ihren Master finden (2005)”, in: *GAIA 15/1*, 2006, 14–15

Book Review: Pablo Benitez-Ponce “Essays on the economics of forestry-based carbon mitigation”, in: *Poiesis & Praxis 4(1)*, 2006, 74–76

Felix Thiele

“Autonomie und Einwilligung”, in: A. Pieper, C.F. Gethmann, B. Irrgang und F. Thiele, *Autonomie und Selbstbestimmung. Grundlegende Begriffe der Medizinethik und der ärztlichen Praxis*, Studienbrief der FernUniversität Hagen für den Weiterbildenden Masterstudiengang Medizinethik, 2005, 95–119

F. Thiele (ed) *Aktive und passive Sterbehilfe. Medizinische, rechtswissenschaftliche und philosophische Aspekte*, Fink-Verlag, Paderborn 2005

“Predictive medicine and the role of the physician’s power of judgment”, in: A. de Bouvet, P. Boitte, G. Aiguier (eds.), *Questions éthiques en médecine predictive*, Paris, 2006, 19–27

“Ethik, medizinische”, in: J. Mittelstraß (ed) *Enzyklopädie Philosophie und Wissenschaftstheorie (Band 2)*, Stuttgart, 2005<sup>2</sup>, 417–421

“Deep ecology”, in: J. Mittelstraß (ed) *Enzyklopädie Philosophie und Wissenschaftstheorie (Band 2)*, Stuttgart, 2005<sup>2</sup>, 133

Together with C. F. Gethmann, W. Gerok, H. Helmchen, K.-D. Henke, J. Mittelstraß, E. Schmidt-Aßmann, G. Stock, J. Taupitz: *Manifest Gesundheitssystem*, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin, 2006

Together with C. F. Gethmann: “Bioethik”, in: J. Mittelstraß (ed) *Enzyklopädie Philosophie und Wissenschaftstheorie (Band 1)*, Stuttgart, 2005<sup>2</sup>, 470–474

## 4 Lectures

Margret Engelhard

**27.8.05**

“Pharming: Genetically engineered plants and animals as low-cost drug factories of the future?”

Annual conference EACME/ESPMH, Institut Borja de Bioètica, Barcelona

**10.11.05**

“Ethische Fragen der Gentechnik”

Deutscher Frauenring, Ortsring Essen

Thorsten Galert

**25.11.04**

“Inwiefern können Eingriffe in das Gehirn die personale Identität bedrohen?”

Conference “Technik in einer fragilen Welt”, 24.–26. November, Berlin

**25.8.05**

“The possible impact of medical technologies on personal identity”

Annual conference EACME/ESPMH, Institut Borja de Bioètica, Barcelona

**22.9.05**

“Consequences of Neuro-Enhancement for Personal Self-Concepts”

Klausurwoche “Ethische, rechtliche und soziale Aspekte des Neuro-Enhancements” im Hanse-Wissenschaftskolleg, Delmenhorst

**2.10.06**

“What It Means to Ascribe Pain to Animals”

Conference “Theology Meets Biology”, 2.–4. Oktober 2006, Katholische Akademie Schwerte

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Carl Friedrich Gethmann

**4.12.04**

“Ethische Aspekte des legalisierten Handels mit Organen”

Expert Talk/Project Group “Anreize zur Organspende”, Berlin

**13.12.04**

“Ethische Grundlagen eines dauerhaften Gesundheitssystems”

Medizinerarbeitskreis des Vereins der Förderer der Europäischen Akademie,  
Bad Neuenahr-Ahrweiler

**3.2.05**

“Existenz und Defizienz. Oskar Beckers Beitrag zu einer heterodoxen ‘Theorie der Geschlechterdifferenz’ avant la lettre”

Colloquium “Zur Philosophie Oskar Beckers”, FernUniversität Hagen

**18.2.05**

“Wissen und Realität”

Zentrum für Konstruktive Erziehungswissenschaft, Institut für Pädagogik, Christian-Albrechts-Universität Kiel

**19.2.05**

“Interdisziplinäre Forschung. Skizze eines Praxisberichts”

Zentrum für Konstruktive Erziehungswissenschaft, Institut für Pädagogik, Christian-Albrechts-Universität Kiel

**2.5.05**

“Willensfreiheit versus Handlungsurheberschaft”

Colloquium “Philosophie heute”, Universität Marburg

**9.6.05**

“Zufall und Schicksal. Aspekte menschlicher Kontingenzbewältigung”

Europäische Akademie Bad Neuenahr-Ahrweiler, Kultursommer Rheinland-Pfalz

**16.6.05**

“Der moralische Status des Embryo”

Residenzvorlesung, Universität Würzburg

**7.7.05**

“Was ist so moralisch verwerflich am reproduktiven Klonen?”

Expert Talk “Rechtliche und ethische Probleme der Reproduktionsmedizin”, FernUniversität Hagen

**3.9.05**

“Welche Hauptschule sollte der Vorschule folgen? Zur Architektonik der konstruktiven Vernunft in der Erlanger Schule”

Symposium “Der Konstruktivismus im Ausgang von Wilhelm Kamlah und Paul Lorenzen”, Zentrum Philosophie und Wissenschaftstheorie, Universität Konstanz

**24.9.05**

“Rational Man. Reason and Cultures”

The XVIIth Annual Conference of the Academia Europaea, Potsdam

**28.9.05**

Introduction into Colloquium “Der ‘neue’ Mensch”. Ethische Probleme der Genforschung und Biotechnologie

XXth Deutscher Kongress für Philosophie “Kreativität”, Technische Universität Berlin

**29.9.05**

“Medizinischer Fortschritt und Endlichkeit des Menschen”

Wissenschaftlicher Kongress der Akademie für Ethik in der Medizin, Private Universität Witten-Herdecke

**11.10.05**

“Vertrautheit und umsichtiger Naturumgang”

Workshop der Interdisziplinären Arbeitsgruppe “Zukunftsorientierte Nutzung ländlicher Räume”, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin

**10.11.05**

“Das abendländische Vernunftprojekt und die Pluralität der Kulturen”

Universität Paderborn

**16.11.05**

“Die Rolle der Logik in der BioEthik – am Beispiel der Diskussion um den moralischen Status des Embryo”

Philosophisches Institut, Universität Bielefeld

**18.1.06**

“Rationalität – mit Blick auf die Ökonomie”

Institut für Angewandte Informatik und Wirtschaftsinformatik, Universität Duisburg-Essen

**7.2.06**

“Energie und Ethik”

Book Presentation, Ch. Streffer, C. F. Gethmann, K. Heinloth, K. Rumpff, A. Witt (2005) Ethische Probleme einer langfristigen Energieversorgung, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin

**25.4.06**

“‘Dadurch-dass’ oder ‘Indem’? Handlungstheoretische Überlegungen zur Diskussion um die Wissensfreiheit”

Colloquium, Zentrale Einrichtung für Wissenschaftstheorie und Wissenschaftsethik, Universität Hannover

**26.4.06**

“Philosophische Bemerkungen über Geisteswissenschaften”

Discussion “Wie (un-)verzichtbar sind die Geisteswissenschaften?”, WissenschaftsForumSaar, Saarbrücken

**8.5.06**

“Mensch sein – Mensch bleiben. Zur Semantik askriptiver Redehandlungen”

Kulturwissenschaftliches Institut, Essen

**15.5.06**

“Ethische Probleme der gentechnischen Veränderung von Pflanzen”

Conference “Agro-Gentechnik im ländlichen Raum – Potentiale, Konflikte und Perspektiven”, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin

**23.6.06**

“Bemannte Raumfahrt als Kulturaufgabe”

Conference of the Europäische Akademie GmbH “Die Zukunft der Raumfahrt”, Bad Neuenahr-Ahrweiler

**30.6.06**

“Was sind und wozu brauchen wir Geisteswissenschaften?”

Conference Fachverband Medizingeschichte “Geschichte, Theorie und Ethik der Medizin”, Universität Mainz

**5.7.06**

“Ethos des Heilens vs. Effizienz des Gesundheitssystems”

Institut für Medizinische Ethik und Geschichte der Medizin, Ruhr-Universität Bochum

**14.7.06**

“Die Krise des Wissenschaftsethos”

Festvortrag, Eröffnung des Zentralinstituts für Angewandte Ethik und Wissenschaftskommunikation der Friedrich Alexander-Universität Erlangen-Nürnberg

**15.9.06**

“‘Dadurch-dass’ oder ‘Indem’? Handlungstheoretische Überlegungen zur sogenannten Willensfreiheit”

Interdisciplinary working group “Humanprojekt”, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin

**19.9.06**

“Gerechtigkeit im Gesundheitswesen”

Presentation “Manifest Gesundheitswesen”, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin

Gerd Hanekamp

**25.11.04**

“TA und Governance in einer robusten Welt”

Conference “Technik in einer fragilen Welt”, 24.–26. November, Berlin

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Stephan Lingner

**25.11.04**

“Umgang mit Klimarisiken. Handlungsstrategien und ihre Implikationen”  
Conference “Technik in einer fragilen Welt”, 24.–26. November, Berlin

**15.3.05**

“Zukunftsforschung und Technikfolgenabschätzungen”  
Expert Talk “Räumliche Auswirkungen der Virtualisierung”, ARL, Frankfurt  
am Main

**30.5.05**

“TA und (Klima-)Politik”  
ITA Conference “TA ‘05”, Österreichische Akademie der Wissenschaften, Wien

**1./2.2.06**

“Technikfolgenbeurteilung. Zur kulturellen und gesellschaftlichen Funktion  
bemannter Raumfahrt”  
Authors’ Conference (DLR) “Luft- und Raumfahrt in Deutschland”, Deutsches  
Museum, München

**7.–9.6.06**

Introduction and Conclusions from working group “Spatial Planning”  
Conference “Visionen der Informationsgesellschaft 2016”, Katowice

Felix Thiele

**21.1.05**

“Schuld und Verantwortung im Licht neuer Ergebnisse der Neurowis-  
senschaften”  
Conference “Natürlich? Zur Deutungsmacht der Biowissenschaften”, Daimler-  
Benz Stiftung and Junge Akademie, 21.–22. Januar, Ladenburg

**26.1.05**

“Fortschritte der Genetik. Moralische Probleme und gesellschaftlicher  
Regelungsbedarf”  
Lecture “Biologie und Menschenbild”, Verein für Philosophie Bielefeld/Zentrum  
für interdisziplinäre Forschung, Bielefeld

**22.6.05**

“Probleme der Bioethik: Gentherapie und Präimplantationsdiagnostik”

Franz-Haniel Gymnasium, Duisburg

**1.7.05**

“Is Ethics Culture-Dependent?”

8th World Congress of Biological Psychiatry, 28.6–3.7.05, Wien

**5.10.05**

“Ethische Überlegungen zur Reform des Gesundheitswesens”

Klinik am Hellweg, Bad Sassendorf

**17.2.06**

“Die Verrechtlichung der Medizin als Problem? Zur Auseinandersetzung mit Wolfgang Wieland”

Expert talk “Ethics in medicine and law” (Europäische Akademie and FernUniversität Hagen), 16.–17.2.06, Bad Neuenahr-Ahrweiler

**27.9.06**

“Wozu Umfragen? Zum Verhältnis von empirischer Sozialforschung, Wissenschaftsethik und Wissenschaftspolitik”

Conference “Moralischer Relativismus”, Junge Akademie, 25.–27. September 2006, München

**30.11.2006**

“Autonomie, Selbsttötung und psychische Krankheiten”

Expert Talk “Assisted Suicide”, Ahrweiler

**19.12.2006**

“Die Einwilligung eines Patienten in eine ärztliche Maßnahme – Funktion, Struktur, Gültigkeit”

Mainzer Kolloquium zur Geschichte, Theorie und Ethik der Medizin, Institut für Geschichte, Theorie und Ethik der Medizin der Universität Mainz

## 5 Teaching Activities

Carl Friedrich Gethmann

**Universität Duisburg-Essen**

**WS 2004/05**

- V Einführung in die Angewandte Philosophie  
(Studienkurs “Praktische Philosophie”)
- OS Egalitarismus (mit B. Gräfrath und Th. Sander)

**SS 2005**

- V Semantische Propädeutik
- OS Naturalismus (mit B. Gräfrath und Th. Sander)

**WS 2005/06**

- V Semantische Propädeutik
- OS Liberalismus (mit B. Gräfrath und Th. Sander)

**SS 2006**

- V Einführung in die Hermeneutik
- OS Wollen (mit B. Gräfrath und Th. Sander)

**WS 2006/07**

- V Einführung in die Angewandte Ethik
- OS Solidarität (mit B. Gräfrath und Th. Sander)

**Post Graduate Master Study Programme in Medical Ethics, FernUniversität Hagen**

**17./18.6.2005**

ARCADEON – Hagen  
Einführung in die Ethik  
Grundfragen der Angewandten Ethik I  
Grundfragen der Angewandten Ethik II

**26./27.8.2005**

ARCADEON – Hagen  
Grundfragen der Angewandten Ethik I  
Grundfragen der Angewandten Ethik II

**25./26.11.2005**

SETA Hotel – Bad Neuenahr-Ahrweiler

Einführung in die Ethik

- I. Ethik und Ethos; Paradigmen der Ethik
- II. Diskurstheorie
- III. Handlungstheorie
- IV. Subjekttheorie

**27./28.1.2006**

SETA Hotel – Bad Neuenahr-Ahrweiler

Einführung in die Angewandte Ethik

Problemereiche der Angewandten Ethik

Langzeitverantwortung

**17./18.2.2006**

SETA Hotel – Bad Neuenahr-Ahrweiler

Gesundheit und Krankheit als anthropologisches und ethisches Problem

Sozialer Anspruch und Sozialsystem

Wunscherfüllende Medizin?

**22./23.9.2006**

SETA Hotel – Bad Neuenahr-Ahrweiler

Gesundheit und Krankheit als anthropologisches und ethisches Problem

Sozialer Anspruch und Sozialsystem

Wunscherfüllende Medizin?

**24./25.11.2006**

SETA Hotel – Bad Neuenahr-Ahrweiler

Einführung in die Ethik

- I. Ethik und Ethos; Paradigmen der Ethik
- II. Diskurstheorie
- III. Handlungstheorie
- IV. Subjekttheorie

Stephan Lingner

**University of Applied Sciences Koblenz/Remagen**

Winter term 2004/2005 – winter term 2006/2007

Lecture/Seminar on “Ecology”

Felix Thiele

**Post Graduate Master Study Programme in Medical Ethics, FernUniversität Hagen**  
(Membership Scientific Advisory Board and Steering Committee)

**17.6.2005**

Wissenschaftstheorie der Medizin und Autonomie und Selbstbestimmung  
Hagen

**27.8.2005**

Einführung in die Medizinische Ethik  
Hagen

**28.1.2006**

Einführung in die Medizinische Ethik  
Bad Neuenahr-Ahrweiler

**17.2.2006**

Reformoptionen für das deutsche Gesundheitswesen  
Bad Neuenahr-Ahrweiler

**18.2.2006**

Moralische Argumente gegen die Sterbehilfe  
Bad Neuenahr-Ahrweiler

**8.7.2006**

Reformoptionen für das deutsche Gesundheitswesen  
Bad Neuenahr-Ahrweiler

**8.7.2006**

Autonomie, Suizid & Psychiatrische Erkrankungen  
Bad Neuenahr-Ahrweiler

**25.11.2006**

Wissenschaftstheorie der Medizin und Autonomie und Selbstbestimmung  
Bad Neuenahr-Ahrweiler

**2.12.2006**

Ethik und wissenschaftliche Politikberatung  
Bad Neuenahr-Ahrweiler

## 6 Qualification Plan

### 6.1 Habilitation

Gerd Hanekamp

#### **An Action-based Approach to Business Ethics**

To integrate empirical, functional and ethical considerations is a key task of business ethics. Any bias towards one of these aspects diminishes the expediency of the corresponding results for business and policy decisions. The project outlined here is intended to find a way to achieve this integration starting from an action-based perspective. To act in a business or policy context means to act within a framework of explicit and implicit rules, norms and agreements. These thus have to be determined in order to discuss particular actions. Here basic issues of the philosophy of the social sciences as well as of social and political philosophy have to be treated in detail. This more theoretical effort is followed by the more practical part of the project. Here the reflection of one's actions as well as of the corresponding rules, norms and agreements in business and policy contexts is discussed. A key factor is the consideration of individual availabilities ('Disponibilitäten').

#### **Publications**

Business Ethics of Innovation. *Poiesis & Praxis* 3:310–314, DOI 10.1007/s10202-005-0001-4, 2005

Kulturalistische Unternehmensethik. Ein Stufenschema für Entscheidungen und Konfliktlösungen. In: Th. Beschorner, M. Schmitt. *Unternehmerische Verantwortung in Zeiten kulturellen Wandels*. Hampp, 2006

Felix Thiele

Dr. med. Felix Thiele, M. Sc., is preparing a study in the area of medical ethics.

#### **Publications**

“Autonomie und Einwilligung”, in: A. Pieper, C.F. Gethmann, B. Irrgang und F. Thiele, *Autonomie und Selbstbestimmung. Grundlegende Begriffe der Medi-*

zinethik und der ärztlichen Praxis, Studienbrief der FernUniversität Hagen für den Weiterbildenden Masterstudiengang Medizinethik, 2005, 95–119

“Predictive medicine and the role of the physician’s power of judgment”, in: A. de Bouvet, P. Boitte, G. Aiguier (eds.), *Questions éthiques en médecine predictive*, Paris, 2006, 19–27

## 6.2 Doctoral Projects

Ulrike Henckel

### **Anthropological Basics of Medical Ethics**

The modern demand for basing medical ethics on an anthropological foundation to govern the actions of the physician is based on understanding the human being as an actor. This anthropology aims at an integrale definition of human beings and has to be the basis also for medicine as a natural, human science. The aims of medical actions have to be discussed and the pertinent medical techniques have to be subordinated to them. The example will be the relationship between the physician and the patient, particularly the relationship between the physician and the patient who is not able to decide for himself. This requires a concept of tutorial action.

The dissertation “Anthropological Basics of Medical Ethics in Philosophy” by Ulrike Henckel will be prepared at the Institut für Philosophie at the FernUniversität Hagen and supervised by Professor Dr. phil. Annemarie Gethmann-Siefert.

Wolfgang Rathgeber

### **Superresolution by Application of Spectral Estimation Techniques in SAR Processing**

Synthetic Aperture Radar (SAR) is a well known imaging method for purposes like environmental monitoring, civil protection and earth observation. Resolution, both geometric and radiometric, is an important parameter of quality for the acquired images. Processing is carried out in different domains and at some stage requires the estimation of frequency content. Conventional Radar systems

use the Fourier transform to model the appearing signals. This treatment ensures robust, i.e. noise insensitive, performance but suffers from a fundamental resolution limit. The thesis demonstrates the use of new mathematical signal models incorporating a-priori-information and overcoming the resolution limit mentioned above, leading to so called superresolution. Fully two dimensional versions of these new mathematical signal models are computationally intensive. Therefore, the thesis also develops a scheme for replacing two dimensional processing by sequential one dimensional processing. This results in highly resolved images with moderate computational overhead. The dissertation of Wolfgang Rathgeber was supervised by Professor Dr. Werner Wiesbeck from the Institut für Höchstfrequenztechnik und Elektronik at the Universität Karlsruhe (TH) and Professor Dr. Alberto Moreira from the Institut für Hochfrequenztechnik und Radarsysteme at the German Aerospace Centre (DLR).

## 7 Research Fellowship Programme

The integration of European perspectives into its research is a goal that the Europäische Akademie is pursuing by several means. The academy has approached this goal mainly by inviting European and international scientists to participate in project groups and in interdisciplinary conferences. Since the beginning of the year 2000 the Europäische Akademie has added a further tool for improving the implementation of the European perspective in its work by offering a Research Fellowship Programme. This new programme allows appropriately qualified foreign scholars to carry out research projects in the field of the study of consequences of scientific and technological advance at the Europäische Akademie in Bad Neuenahr-Ahrweiler. Research fellowships for a stay between three and six months are offered on a competitive basis to Europe-based scholars. Main selection criteria are the applicant's qualifications and the relatedness of the proposed projects to the scientific work of the Europäische Akademie. Successful applicants will be awarded a honoraria/scholarship depending on experience and qualifications.

**Contact:** Dr. phil. Margret Engelhard, Dipl.-Biol.  
margret.engelhard@ea-aw.de

## 8 Colloquiums of the Academy

20.1.2005

Professor Dr. Dr. h.c. Carl Friedrich Gethmann (Europäische Akademie):  
Free Will

4.5.2006

Professor Dr. Dr. h.c. Carl Friedrich Gethmann (Europäische Akademie):  
Tasks of the Europäische Akademie GmbH

18.5.2006

Professor Dr. Dr. h.c. Carl Friedrich Gethmann (Europäische Akademie):  
Working procedure of the project groups

20.7.2006

Petra Hermann, Anja Schlochtermeyer (Europäische Akademie):  
Project management of the projects granted from January 2006 on

17.8.2006

Friederike Wütscher, Katharina Mader (Europäische Akademie):  
Publication procedure of the book series at Springer

24.8.2006

Professor Dr. Dr. h.c. Carl Friedrich Gethmann (Europäische Akademie):  
Introduction into ethics (1)

31.8.2006

Professor Dr. Dr. h.c. Carl Friedrich Gethmann (Europäische Akademie):  
Introduction into ethics (2)

## 9 Scientific Cooperation

The cooperation between the Europäische Akademie and other scientific institutions is implemented especially within the interdisciplinary working groups. As a result of these cooperations, several conferences have been organised together with other scientific institutions. Further cooperations are described in the following.

### 9.1 Institutional Collaboration

#### **Berlin-Brandenburgische Akademie der Wissenschaften (BBAW)**

Project “Gesundheitsstandards” (Health Standards): The BBAW established a working group on the topic “Gesundheitsstandards” (Speaker of the working group was Professor Dr. Carl Friedrich Gethmann)

#### **University Slaski, Katowice (Poland)**

Higher School of Management and Social Sciences, Tichy (Poland)

Cooperations for scientific collaboration and exchange

#### **Junge Akademie**

Dr. med. Felix Thiele is member of the Junge Akademie (Berlin) and its project group “Deutungsmacht der Biowissenschaften”

#### **Collaborative Program on the Ethical Dimensions of Climate Change (Penn State University/USA)**

Dr. rer. nat. Stephan Lingner contributed to responsibility and uncertainty issues of an initial strategic paper for the above mentioned programme.

#### **Intergovernmental Panel on Climate Change (IPCC)**

Dr. rer. nat. Stephan Lingner served as expert reviewer for the 4th IPCC Assessment Report to be published in 2007. He reviewed selected chapters of volumes I (Scientific Basis of Climate Change), II (Impacts, Adaptation and Vulnerability) and III (Mitigation of Climate Change).

#### **Ethics of Medicine**

The further studies in ‘ethics of medicine’ are offered in cooperation between the Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen Bad Neuenahr-Ahrweiler GmbH, the FernUniversität Hagen, the

Institut für Geschichte, Theorie und Ethik der Medizin der Johannes Gutenberg-Universität Mainz and the Max-Delbrück-Centrum Berlin.

The aim of the two-year studies (beginning was 2005) is to enable the students to analyse the moral and ethical aspects of various situations. The students will be physicians, who have finished their studies in medicine. The study of ‘ethics in medicine’, in which the research results of the Europäische Akademie will be integrated, include the following subjects:

#### First year

- I. Basics of ethics and philosophical anthropology
- II. Basics of applied ethics/anthropology
- III. Justice
- IV. Acting of physicians in health care system

#### Second year

- I. Transplantations
- II. Genetical diagnosis
- III. Reproduction medicine
- IV. Ethics of medicine and law

## 9.2 Memberships in Networks

- American Association for the Advancement of Science (AAAS)
- Deutsches Netzwerk Wirtschaftsethik (dnwe)/European Business Ethics Network (EBEN)
- European Association of the Study of Science and Technology (EASST)
- European Ethics Network
- European Society for Philosophy of Medicine and Health Care (ESPMH)
- International Association of Bioethics (IAB)
- Netzwerk TA (NTA); the Europäische Akademie is also represented in NTA's Coordination Team by Dr. rer. nat. Stephan Lingner

## 10 Regional Activities

### 10.1 Sponsors' Club

The sponsors' club (Verein der Förderer) was founded on 15th November 2001 by companies and citizens of the county Ahrweiler in order to support the Europäische Akademie in scientific and regional activities. To this end, the 34 members of the association support science in the field of ethics and technology assessment and maintain close contact with the regional economy and organisations. Other regional activities are the permanent art exhibitions which are shown within the rooms of the Europäische Akademie and the workshops of the working group "Medical Ethics" ("Arbeitskreis Medizinethik"). In summary, the tasks of the sponsors' club are concentrated on three main fields: Science, Economy, Art.

### 10.2 Working Group "Medical Ethics"

Since 1998 the Europäische Akademie has organised a working group on Medical Ethics, "Arbeitskreis Medizinethik", for the medical doctors and other health professionals from the greater Bonn and Ahrtal area. Evening meetings of the working group are offered through the year and a platform for information and discussion about current issues in medical ethics and health law. To realise its goal of advancing the interdisciplinary discourse between the professions, the working group invites leading experts in health related sciences and policy to give a lecture followed by discussion with the invited participants and members of the academy's scientific staff. Relevance for actual medical practice in hospital and outpatient care is an important feature of the issues that are being dealt with in an interdisciplinary approach.

28.2.2005

Medizinethik. Überlegungen zur gesellschaftlichen und praktischen Relevanz eines Weiterbildungsprojekts

Professor Dr. phil. Annemarie Gethmann-Siefert

**6.6.2005**

Umgang mit Totgeburten. Rechtliche Voraussetzung und praktische Umsetzung am Beispiel des Krankenhaus Bethesda zu Duisburg

Dr. med. Petra Jasker

**16.2.2006**

Schwangerschaftsabbruch und Sterbehilfe

Professor Dr. phil. Dr. jur. Eric Hilgendorf

**30.11.2006**

Ethische Probleme des ärztlich assistierten Suizids

Professor Dr. phil. Dieter Birnbacher

### **10.3 Art Exhibitions**

**2004/2005**

September 2004–May 2005

Margarete Gebauer (Paintings)

May 2005–October 2005

Marliese Wagner (Paintings)

**2006**

February 2006–December 2006

Barbara Kroke (Paintings)

### **10.4 Lecture Events in Cooperation with the Kreissparkasse Ahrweiler**

**21.4.2005**

“Functional Foods” (Professor Dr. rer. nat. Gerhard Reckemmer)

SETA Hotel Bad Neuenahr-Ahrweiler

**23.10.2006**

“Nachhaltigkeit der sozialen Sicherung: Sind wir Zechpreller zu Lasten unserer Kinder?” (Professor Dr. sc. pol. Bernd Raffelhüschen)

Mercure Parkhotel Bad Neuenahr-Ahrweiler

## **10.5 “Ahrtalgespräche”: Expert discussions in cooperation with the City of Bad Neuenahr**

8.11.2005

“Aufbruch des Glaubens oder Religionsspektakel?” (Professor Dr. Klaus-M. Kodalle, Philosophisches Institut, Friedrich-Schiller-Universität Jena and Professor Dr. Thomas M. Schmidt, Lehrstuhl für Religionsphilosophie, Johann Wolfgang Goethe-Universität Frankfurt a.M.)

Rathaussaal, Bad Neuenahr-Ahrweiler

## **10.6 Press Conference**

28.2.2005

“Research Report 2003–2004 of the Europäische Akademie” and presentation of the master study programme on medical ethics

Several regional press meetings, interviews and talks as well as press conferences to present the results of the study groups (see also completed project groups at section II, 1) have been carried out in 2005 and 2006.

## **11 Tenth Anniversary of the Europäische Akademie GmbH**

In September 2006 the Europäische Akademie GmbH celebrated its 10th anniversary. Among other guests, Professor Dr. Dr. h.c. Gethmann also welcomed Professor Dr. Zöllner, Professor Dr. Kröll and Dr. Ziller, all four being members of the founding of the academy in spring 1996.

Photographs of the festivity can be found on the homepage of the academy. While the photographs provide an insight into the celebration of the anniversary, a film on the homepage informs about projects, aims and mission of the academy: [www.ea-aw.de](http://www.ea-aw.de)

## **IV APPENDIX**

## 1 Partners' Assembly

Federal State of Rhineland-Palatinate (Bundesland Rheinland-Pfalz), represented by the Ministry of Finance Rhineland-Palatinate

German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt e.V.), represented by the Chairman of the Executive Board

## 2 Managing Committee

Professor Dr.-Ing. Dr.-Ing. E.h. Dr. h.c.mult. Sigmar Wittig, German Aerospace Centre, Köln-Porz (Chair)

Staatssekretär Roland Härtel (Deputy Chair) – until 5/2006

Staatssekretärin Dorothee Dzwonnek, Ministry of Education, Science, Youth and Culture Rhineland-Palatinate (Deputy Chair) – since 6/2006

Regierungsrat Reinhold Bott, Ministry of Finance Rhineland-Palatinate

Dr. rer. soc. Kai-Uwe Schrogl, German Aerospace Centre, Köln-Porz

## 3 Scientific Advisory Board

Professor Dr. jur. Peter Marburger, Trier (Chair)

Professor Dr. phil. Peter Fricker, Bern

Professor Dr. med. Detlev Ganten, Berlin

Professor Dr. ir. W. J. Geysen, Leuven

Professor Dr. rer. nat. Ursula-Friederike Habenicht, Berlin

Dr.-Ing. Margarete Hofmann-Antenbrink, Pully

Professor Dr. med. Jörg Michaelis, Mainz

Professor Dr. phil. Jürgen Mittelstraß, Konstanz

Professor Dr. rer. pol. Herbert Paschen, Berlin

Professor Dr.-Ing. Norbert Wehn, Kaiserslautern

## 4 Council

Professor Dr. Wouter Achterberg †, Amsterdam  
Professor Dr. rer. nat. Rudolf Amann, Bremen  
Dr. phil. nat. Klaus Ammann, Bern  
Professor Dr. sc. phil. Gerhard Banse, Karlsruhe  
Professor Dr. med. Claus R. Bartram, Heidelberg  
Dr. jur. Helmut Bäuml, Kiel  
Professor Dr. phil. Jan P. Beckmann, Hagen  
Professor Dr. Jos Berghman, Leuven  
Professor Dr. Deryck Beylveeld, Sheffield  
Professor Dr. Kornelis Blok, Utrecht  
Gerard Boer, Ph.D., Amsterdam  
Professor Dr. med. Dr. rer. nat. Hermann M. Bolt, Dortmund  
Professor Dr. med. vet. Dr. med. vet. habil. Dr. h.c. Gottfried Brem, Wien  
Professor Dr. rer. pol. Friedrich Breyer, Konstanz  
Professor Dr. jur. Ulrich Büdenbender, Dresden  
Professor Dr. rer. pol. Dieter Cansier, Tübingen  
Professor Dr. Ruth Chadwick, Lancaster  
Professor Dr. rer. nat. Thomas Christaller, Sankt Augustin  
Professor Dr. rer. nat. Martin Claussen, Potsdam  
Professor Dr. jur. Jos Dumortier, Leuven  
Professor Dr. med. Friedrich W. Eigler, Essen  
Professor Dr. rer. pol. Holger Ernst, Koblenz  
Professor Dr. phil. Eberhard Feess, Aachen  
Professor Dr. med. Jörg Fegert, Ulm  
Professor Dr. rer. nat. Georg Fey, Erlangen  
Professor Dagfinn Føllesdal, Ph.D., Oslo/Standford  
Professor Dr. phil. Christa Fonatsch, Wien  
Professor Dr. jur. Walter Frenz, Aachen  
Professor Dr. rer. nat. Harald Fuchs, Münster  
Professor Dr. K. William M. Fulford, Warwick  
Dr. jur. Riccardo Genghini, Mailand  
Professor Dr. med. Joachim Gilsbach, Aachen  
Professor Dr. med. Barbara Griefahn, Dortmund  
Dr. rer. nat. Werner Grünwald, Stuttgart

Professor Dr. rer. nat. Armin Grunwald, Karlsruhe  
Professor Dr. sc. nat. Hans-Joachim Güntherodt, Basel  
Professor Dr. med. Gundolf Gubernatis, Hannover  
Professor Dr. agr. Robert Guderian, Essen  
Professor Dr. med. Dr. rer. nat. habil. Walter H. Günzburg, Wien  
Professor Dr. phil. Dr. rer. nat. Mathias Gutmann, Marburg  
Per Hall, M.D., Ph.D., Stockholm  
Professor Dr. med. Dr. med. vet. Claus Hammer, München  
Professor Dr.-Ing. Helmut Harig, Bremen  
Professor Dr. phil. Dirk Hartmann, Essen  
Professor Dr. Axel Haverich, Hannover  
Priv.-Doz. Dr. Jan-Georg Hengstler, Mainz  
Professor Dr. Klaus-Dirk Henke, Berlin  
Professor Dr. med. Dietrich Henschler, Würzburg  
Professor Dr. rer. nat. Andreas Hense, Bonn  
Dr. Spencer Henson, Guelph  
Professor Dr. rer. nat. Wolfgang Hesse, Marburg  
Professor Dr. med. Isabella Heuser, Berlin  
Professor Dr.-Ing. Gerd Hirzinger, Oberpfaffenhofen  
Professor Dr.-Ing. Heinrich Hofmann, Lausanne  
Professor Dr. Jacek Hołowka, Warschau  
Professor Dr. sc. nat. Dieter Imboden, Zürich  
Professor Dr. phil. Dr. theol. Bernhard Irrgang, Dresden  
Dr. rer. nat. Peter Jacob, Neuherberg  
Professor Dr. phil. Peter Janich, Marburg  
Professor nadzw. Dr. hab. Andrzej M. Kaniowski, Lodz  
Professor Dr. rer. nat. Wolfgang Kaysser, Köln  
Professor Dr. phil. habil. Andrzej Kiepas, Katowice  
Professor Gernot Klepper, Ph.D., Kiel  
Professor Dr. phil. Hartmut Kliemt, Duisburg  
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Dr. Gerrit Koenen, Den Haag  
Professor Dr. jur. Dr. med. Christian Kopetzki, Wien  
Dr. rer. nat. Harald Krug, Karlsruhe  
Professor Dr. rer. pol. Rudi Kurz, Pforzheim  
Professor Dr. med. Dr. sc. Karl Lauterbach, Köln

Professor Dr. phil. Anton Leist, Zürich  
Professor Dr. Hans Lilie, Halle  
Professor Dr. Robin Lovell-Badge, London  
Professor Dr. jur. Bernd Lutterbeck, Berlin  
Professor Dr. phil. Weyma Lübbe, Leipzig  
Professor Dr. sc. techn. ETH Werner K. Lutz, Würzburg  
Dr. phil. Petr Machleidt, Prag  
Professor Dr. rer. nat. Laura Martignon, Ludwigsburg  
Priv.-Doz. Dr. Ulrich Martin, Hannover  
Professor Dr. Bernd Baron von Maydell, München  
Dr. phil. nat. Marcel Mayor, Karlsruhe  
Professor Dr. jur. Reinhard Merkel, Hamburg  
Professor Dr. Cees Midden, Eindhoven  
Professor Dr. Beran Moseley, Reading  
Professor Dr. rer. pol. Georg Müller-Christ, Bremen  
Professor Dr. med. Dr. med. dent. Dr. h.c. Wolfgang Müller-Ruchholtz, Kiel  
Professor Dr. Ruud Muffels, Tilburg  
Professor Dr.-Ing. Dieter Nelles, Kronberg  
Professor Bart Nuttin, M.D., Ph.D., Leuven  
Professor Dr. rer. pol. Hans G. Nutzinger, Kassel  
Professor Dr. phil. Konrad Ott, Greifswald  
Professor Dr. Deborah Oughton, Ph.D., Aas/Oslo  
Professor Andreu Palou, Ph.D., Mallorca  
Professor Rafael Pardo Avellaneda, Ph.D., Madrid  
Professor Dr. Günther Patzig, Göttingen  
Professor Dr. rer. nat. Andreas Pfitzmann, Dresden  
Professor Dr. jur. Johann-Christian Pielow, Bochum  
Professor Dr. med. Gerald Pöch, Graz  
Professor Dr. Michael Quante, Essen  
Professor Pirrko-Liisa Rauhala, Ph.D., Helsinki  
Professor Dr. rer. nat. Dr. rer. nat. habil. Gerhard Rechkemmer, München  
Professor Dr. jur. Eckard Rehbinder, Frankfurt a. M.  
Professor Dr. rer. pol. Ortwin Renn, Stuttgart  
Professor Dr.-Ing. Rainer Renz, Kaiserslautern  
Professor Dr.-Ing. Ingo Romey, Essen  
Priv.-Doz. Dr. med Steffen K. Rosahl, Freiburg

Professor Dr. phil. Georg Rudinger, Bonn  
Professor Dr. rer. nat. Heinz Saedler, Köln  
StD Winfried Sander, Adenau  
Professor Dr. med. Hans Jürgen Schlitt, Regensburg  
Professor Dr. rer. nat. Günter Schmid, Essen  
Professor Dr. rer. pol. Dieter Schmitt, Essen  
Professor Dr. Angelika Schnieke, Ph.D., München  
Professor Dr. med. Bettina Schöne-Seifert, Münster  
Professor Dr. jur. Dr. h.c. Hans Ludwig Schreiber, Göttingen  
Doris Schröder, M.A., Ph.D., Preston  
Professor Dr. jur. Meinhard Schröder, Trier  
Professor Dr. jur. Dr. soc. oec. Erich Schweighofer, Wien  
Professor Dr.-Ing. Gerhard Schweitzer, Zürich  
Professor Dr. rer. nat. Ulrich Simon, Aachen  
Professor Davor Solter, M.D., Ph.D., Freiburg  
Detlef Sprinz, Ph.D., Potsdam  
Professor Dr. rer. pol. Ulrich Steger, Lausanne  
Professor Dr.-Ing. Gerhard Steinebach, Kaiserslautern  
Professor Dr. phil. Fritz F. Steininger, Frankfurt a. M.  
Professor Dr. rer. nat. Dr. med. h.c. Christian Streffer, Essen  
Professor Dr. phil. Dieter Sturma, Essen  
Dr. phil. Elisabeth Swaton, Wien  
Professor Dr. jur. Jochen Taupitz, Mannheim  
Dr. rer. nat. Michael Türkay, Frankfurt a. M.  
Dr. rer. pol. Otto Ulrich, Bonn  
Professor Dr. jur. Wolfgang van den Daele, Berlin  
Dr. Gert Verschraegen, Leuven  
Professor Dr. phil. nat. Viola Vogel, Zürich  
Professor Dr. sc. pol. Reinhard Voßbein, Wuppertal  
Professor Dr.-Ing. Heinrich B. Weyer, Köln  
Professor Dr. jur. Dr. h.c. Rüdiger Wolfrum, Heidelberg  
Professor Dr. Atte von Wright, Kuopio  
Dr. jur. Peter Wysk, Münster  
Professor Dr. rer. pol. Thomas Ziesemer, Maastricht  
Professor Dr. Maciej Żukowski, Poznan

## 5 Staff

### Management

Professor Dr. phil. Dr. phil. h.c. Carl Friedrich Gethmann  
(Director)

Studies of philosophy at the universities of Bonn, Innsbruck and Bochum; 1968 lic.phil. at the Institutum Philosophicum Oenipontanum; 1971 was conferred the Doctor of Philosophy degree at the Ruhr-Universität Bochum; 1978 habilitation for philosophy at the Universität Konstanz. 1968 assistant professor; 1972 lecturer in philosophy at the Universität Duisburg-Essen; 1978 private lecturer at the Universität Konstanz; 1979 professor of philosophy at the Universität Duisburg-Essen; other professorships at the universities of Düsseldorf and Göttingen; was offered full professorships at the Universität Oldenburg (1990; refused), at the Akademie für Technikfolgenabschätzung in Stuttgart (1991; refused) as well as at the universities of Duisburg-Essen (1991; accepted), Konstanz (1993; refused) and Bonn (1995; refused); director of the Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen in Bad Neuenahr-Ahrweiler (since 1996); member of the Academia Europaea (London); ordinary member of the Berlin-Brandenburgische Akademie der Wissenschaften; elected member of the “Deutsche Akademie der Naturforscher Leopoldina” (Halle) (section: Philosophy of Science).

Dr. med. Felix Thiele, M.Sc.  
(Deputy director)

Vice Director since 1999. He brings combined expertise in medicine and philosophy to this position. He studied medicine in Hamburg and Heidelberg and received an M.D. from the University of Heidelberg for an experimental work in the field of high blood pressure research. He furthermore received a Master of Science in Philosophy and History of Science from the London School of Economics. Before joining the Academy he worked in the field of Science Management at the Max-Delbrück-Center for Molecular Medicine Berlin-Buch. At the Academy he was manager of the project “Human Genetics. Ethical Problems and Societal Consequences” and is member of the study group “Practical Philosophy”. Since 2002 he is member of the Junge Akademie an der Berlin-Brandenburgischen Akademie der Wissenschaften und der Deutschen Akademie der Naturforscher Leopoldina.

Moreover he is member of the scientific advisory board and the steering committee of the Master studycourse Medical Ethics that the Europäische Akademie is running together with the Universität Mainz and the Fernuniversität Hagen. Since 2006 he is head of a junior-research-group on “Pharming. Genetically Modified Plants and Animals as Future Production Site of Pharmaceuticals?” funded by the German Federal Ministry of Education and Research.

Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
(Deputy director)

Studies in geology with focus on geochemistry at the Universität Würzburg and the Universität Tübingen; 1984 Diploma. 1990: doctorate at the Universität Münster, Chemistry Department. Professional activities: 1985–1990 planetary research at the Universität Münster. 1990–1995: systems analysis at German Aerospace Center (DLR), Cologne. Since 1996 technology assessment at Europäische Akademie Neuenahr-Ahrweiler GmbH. Coordinator of the projects “Climate prediction and climate precautions” and “Environmental noise; Risk assessment and regulations in the traffic sector” as well as of several study groups. Since year 2000: lecturer in “Ecology” at the Koblenz University of Applied Sciences. Since October 2005 vice-director of the Europäische Akademie.

Dipl.-Kff. Margret Heyen  
(Chief financial executive and assistant of the director)

1994–1995 High School Year in Houston, Texas, at Spring Woods High School. After the A-level exam 1997, job training at Thomas Cook Travel Agency for 2.5 years. From 2000 on studies at Rheinische Friedrich-Wilhelms-Universität Bonn and Universität Bielefeld in economics and business with emphasis on German taxes, economic computer science and political economics. She graduated in June 2006 as Diplomkauffrau. Since July 2006 personal assistant of the director of the Europäische Akademie, responsible for administrative issues. Heyen also is responsible for the work of the sponsors’ club: She organises the meetings of the working group “Medical Ethics”, the “Ahrtalgespräche” and the art exhibitions in the Europäische Akademie GmbH.

## Scientific Staff

Thomas Engel, M.A.

Studies of philosophy, history and sociology at the Universities of Hagen und Bochum; graduation as M.A. with a thesis on normative implications of philosophical anthropology; studies of psychology at the University of Bochum; diploma envisaged 2007; since 2004 member of the scientific staff of the department of philosophy at the University of Hagen, section Medical Ethics; since 2006 member of the scientific staff of the Europäische Akademie GmbH and project coordinator of the project: “The Research Guiding Function of Metaphors from the Information Sciences and their Relevance to the Transformation of the Philosophy of Man”.

Dr.-Ing. Bert Droste-Franke, Dipl.-Phys.

studied physics with the second subject of economics and an emphasis on environmental issues in Göttingen and Heidelberg. From 1995 to 1996 he worked at the Atmospheric Physics Division of the Max-Planck-Institute for Nuclear Physics, Heidelberg, for his diploma thesis. From 1996 to July 2006 he worked as researcher at the institute of energy economics and the rational use of energy of Universität Stuttgart. During this time he contributed significantly to a large number of national and international projects in the area of assessing impacts and damage costs from environmental pollution. Beside EU-projects like e.g. GARP, GREENSENSE, NEEDS and INTARESE, these include projects for the German contribution to the Convention of Long-Range Transboundary Air Pollution funded by the German environment agency and several consulting projects, e.g. for the World Bank Group. Additionally, he was responsible for the further development and distribution of the widely applied integrated assessment model EcoSense. In 2004 he received his doctoral degree with a thesis about the quantification of environmental damages as contribution to environmental accounting. Since July 2006 he is member of the scientific staff at Europäische Akademie and coordinator of the project “Fuel Cells and Virtual Power Plants as Elements for a Sustainable Development. Innovation Barriers and Implementation Strategies“.

Dr. phil. Margret Engelhard, Dipl.-Biol.

1990–1997 study of biology with microbiology as a main subject at the Philipps-Universität Marburg, Germany, at the University of Edinburgh, Scotland and with an external diploma thesis at the Max-Planck-Institute for Terrestrial Microbiology, Marburg. 8/1995–9/1995 research expedition to Nepal to collect microbial samples for the diploma thesis, 1997 Dipl.-Biol., 8/1997–6/2004 Ph.D. course at the Botanical Institute of the University of Basle, Switzerland with micro- and molecular biology and botany as main fields of research. 11/1997–1/1998 research stay at the Laboratoire de Biologie Moléculaire des Plantes Supérieures, University of Geneva, Switzerland, 2004 Dr. phil. with the dissertation “The role of trehalose in nitrogen fixing nodule symbiosis: studies of rhizobia deficient in the trehalose-6-phosphate synthase gene *otsA*”. Since January 2004, member of the scientific staff at the Europäische Akademie and project coordinator of “Incentives for Organ Donation” (completed) and “Pharming. Genetically modified plants and animals as future production site of pharmaceuticals?”.

Dr. phil. Thorsten Galert, M.A.

M.A. in philosophy (second subject: chemistry) at the University of Marburg in 1997, Ph.D. in philosophy in 2004 at the same university on a thesis about animal pain that explored fundamental problems of research in animal consciousness. Since 2004 member of the scientific staff of the Europäische Akademie GmbH and coordinator of the project that resulted in the study at hand. Since July 2006 coordinator of a project on “Potentials and Risks of Psychopharmaceutical Enhancement”. Since 2006 member of the European Platform for Life Sciences, Mind Sciences, and the Humanities, a network of 60 young academics doing research at the interface between neuroscience, philosophy and psychology, funded by Volkswagen-Foundation. Research areas: applied ethics in general and neuroethics in particular; philosophy of mind; philosophy of science in general and philosophy of psychology in particular; animal consciousness in general and animal pain in particular. Address: Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen Bad Neuenahr-Ahrweiler GmbH, Wilhelmstraße 56, Bad Neuenahr-Ahrweiler, Germany.

Jorge Guerra González (exited in 2005)

Letrado Asesor de Empresas (E-1) und Licenciatura en Derecho 1988–1993: Master's Degree in Law and Legal Adviser for Enterprises (E-1) at the University Pontificia Comillas, ICADE, Madrid. 1994–1999: Master's Degree in Economics and Sociology at the University of Lüneburg. 2002–2005 member of scientific staff at the Europäische Akademie.

Kristin Hagen, Ph.D.

Studied biology, philosophy and agricultural science at the University of Tromsø (Norway), where she graduated in 1997 (interfaculty cand.mag.). Postgraduate studies with the Animal Welfare and Human-Animal Interactions Group, Department of Clinical Veterinary Medicine, University of Cambridge, as a member of St John's College. Ph.D. awarded in 2001 with the thesis entitled "The expression of learning and emotions in cattle". 2001–2002: postdoctoral scientist at the Institute of Animal Welfare and Animal Husbandry, University of Veterinary Medicine Vienna, investigating the effects of robotic milking on dairy cow health and welfare. 2002–2004: research on heart rate variability and vocalisations in cattle, affiliated with the University of Veterinary Medicine Vienna, the Free University Berlin, and the Research Institute for the Biology of Farm Animals, Dummerstorf. 2005: teacher at a primary school in Bergsfjord, a tiny fishing community in the far North of Norway. Since February 2006 member of scientific staff at the Europäische Akademie for the project group "Pharming".

Dipl. Päd. Ulrike Henckel

1979 first state examination for teaching profession at Cologne. 1986 diploma in pedagogics, psychology and sociology at the Universität zu Köln. 1994 studies in philosophy at the FernUniversität Hagen. Since 2000 employment at the Institut für Philosophie at the FernUniversität in Hagen. Beginning of dissertation on 'Anthropological Basics of Medical Ethics'. Since 2002 member of scientific staff at the Europäische Akademie and working for post graduate master study programme in Medical Ethics.

Dr. phil. Georg Kamp, M.A.

After commercial training and two years working as a retail manager studies of philosophy and German language and literature at the universities of Essen,

Duisburg and Bochum. Magister Artium 1993, thereafter until 1999 staff member of the Institute of Philosophy at the University of Essen, in 1999 completion of a philosophical dissertation about the possibilities and design of argumentation in regulative contexts. From April 1999 up to March 2002 staff member of the Europäische Akademie, then manager of the study group “Practical Philosophy” and sub-editor of the journal “Poiesis & Praxis” and responsible for the library. During a parental leave he worked as freelance consultant, docent und editor and absolved further education as Mediator at the FernUniversität Hagen. After managing a project on discontinuity in working-biographies at the Niederrhein University of Applied Science for a year he returned to the Europäische Akademie where he is now coordinator of the project group “Responsibility for Future Generations. Implementing Sustainability in Schooling” and again of the study group “Practical Philosophy”.

Dr. rer. nat. Ruth Klüser, Dipl.-Chem.

1991–1998 study of chemistry at the Rheinische Friedrich-Wilhelms-University in Bonn. Student assistant at the University of Bonn from 10/1997–2/1998 and diploma with a thesis on syntheses of heterocyclic components at the department of Organic Chemistry in 3/1998. 1998–2003 Ph.D.-studies on Combinatorial Chemistry, mainly as a modern concept of determination of active agents. At the same time graduate assistant at the University of Bonn and Co-operation in the BMBF-Project ‘Validated Lead/Target Systems’ within the scope of the part-project ‘Model-experiments for the combinatorial Synthesis of biologically active heterocyclic systems (new pharmaceutical leads) with the building kit principle’. Junior scientist at the German Aerospace Centre in the department of Solar Research from 2004–2006. Since March 2006 Member of scientific staff at the Europäische Akademie and coordinator of the project group ‘Societal Implications of Electrical Power Grids’.

Dott. Rupert Leitner (exited in 2006)

Studied Business Administration and Economics at the Università Commerciale “L. Bocconi” in Milan, with a thesis on the recycling problem of complex mass products, Dott. Leitner joined the Fachhochschule Merseburg as a lecturer. At the same time, he studied philosophy, sociology and psychology at the FernUniversität Hagen. Before 2002, he had been working for a major international con-

sulting firm in Hamburg, 2002 until 2006 member of scientific staff of the Europäische Akademie; beginning of his dissertation on the problem of the ignorance of possible consequences in the evaluation process of technology innovation options.

Dr. rer. pol. Karsten Mause, Dipl.-Pol.

1996–2001 studies in Political Science and Economics at University of Marburg, degree: “Diplom-Politologe” (05/2001). 2001–2006 doctoral studies in Economics and Research Assistant at the Department of Economics, University of Marburg, degree: Dr. rer. pol. (10/2006). Since November 2006 member of scientific staff at the Europäische Akademie for the project “Fuel Cells and Virtual Power Plants for a Sustainable Development”. Research interests: Public Choice Theory as well as the economics of higher education, innovation & consumer protection.

Dr.-Ing. Wolfgang Rathgeber (exited in 2005)

1991–1998 student of Electrical Engineering at the universities of Erlangen, Campinas (Brazil) and Valencia (Spain). From 1999–2003 Ph.D. student at the Institut für Hochfrequenztechnik und Radarsysteme, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR) Oberpfaffenhofen (Institute of Radio Frequency Engineering and Radar Systems, German Aerospace Center, Oberpfaffenhofen). From 2003 until 2005 member of scientific staff at the Europäische Akademie, manager of the project group “Nanomaterials, Nanodevices, Nanocomputing. Determination of Present Position and Perspectives” and coordinator of the IT sector. Since 2005 Research Fellow at the European Space Policy Institute, Vienna.

Dipl.-Kfm. (FH) Susanne Stephan (exited in 2005)

Apprenticeship in Kreissparkasse in Siegburg as bank clerk until 1998, Studies of business management at the Technische Universität Köln, Dipl.-Kfm. (FH) 2002, Internships in the communication agency atw:kommunikation in Siegburg and BIA Europe (Business Incubator Association) in Malta, scientific staff in the management consultancy msc Multimedia Support Center GmbH in Bonn for two years, 2002–2005 administrative projectmanager of TAMI (Technology Assessment in Europe: between Method and Impact) at the Europäische Akademie.

## Organisation and Administration

Maria Icking

(Accounting)

1995 termination of the study of business economics with the main emphasis on data processing; 1988–1997 managerial tasks in an orthopaedic practice followed by an employment with the director of the Department of Clinical Pharmacology at the University of Bonn as well as with a private clinic in Bonn (the GOC Verwaltung mbH); since October 1999 member of staff at the Europäische Akademie, responsible for wages and financial accounting, payments and costing.

Dipl.-Päd. Sevim Kiliç (exited in 2005)

(Editing, Public Relations)

1992–1994 studies for the State Examination as Foreign Language Correspondent (English and French) in business and administration at the Kaufmännische Lehranstalten Bremerhaven, afterwards staff member (as commercial correspondent) of Rogge Marine Consulting GmbH for one year. 1995–2001 studies of education (adult education and extracurricular youth education), psychology, sociology and philosophy at the Johannes Gutenberg-Universität Mainz. Final Examination: Diplom-Pädagogin. 1996–1997 assistant at the Max Planck Institut für Chemie (Otto Hahn Institut) Mainz with the work areas planning, organization, execution and evaluation of scientific congresses (with stays in Heidelberg and Strasbourg ). 1998–2002 freelance staff member in the newsroom (“Rheinland Pfalz aktuell”) and personnel development department of the Südwestrundfunk Mainz (SWR). 2002–2005 member of the staff at the Europäische Akademie and responsible for editing and public relations.

Katharina Mader, M.A.

(Editing, Public Relations)

1999–2005 studies of English, Communication Research/Speech Science/Phonetics and Psychology at the universities of Jena, Nottingham (UK) and Bonn (M.A. degree in 2005). Voluntarily working experience as a welfare worker both in Germany and the USA. During the studies scientific assistances at universities and editorial assistances at radio stations (Deutschlandfunk, Westdeutscher Rundfunk); journalist co-worker at several radio stations inland and abroad;

teaching and supervising experiences (English and German language courses both in Germany and the UK). Since December 2005 member of the staff at the Europäische Akademie GmbH; responsible for editing and public relations.

Margret Pauels, Diplom-Übersetzerin  
(Reception, Guest Relations)

1965–1969 studies of English and French at the Auslands- und Dolmetscher-Institut Germersheim der Universität Mainz (Institute for Interpreters and Translators in Germersheim, section of the University of Mainz). 1967 studies at Salford University, Lancashire, United Kingdom. 1969–1977: translator at the British Embassy in Bonn. 1978–1980 translator at the Embassy of Sudan in Bonn. 1990–1999 lecturer of English courses organized by the Chamber of Industry and Commerce Koblenz in Bad Neuenahr-Ahrweiler for foreign correspondence clerks. 1993–2000 social secretary to the Minister and Ambassador at the British Embassy in Bonn and Berlin. Since January 2001, receptionist at the Europäische Akademie, responsible for the preparation and organisation of international conferences and meetings of the project groups.

Arno Schatz  
(IT-Administration)

1989 final examination in foreign trade and as wholesaler at the training college Bohlscheid in Cologne, Germany. Specialized in IT. 1991 computer specialist at the German Aerospace Center (DLR): Construction, development and maintenance of the IT-data network as well as user-assistance and planning of soft- and hardware equipment, linkage of branches with the PT-network. Training of users in different programmes. Since 2001, IT specialist at the Europäische Akademie.

Dipl.-Ing Anja Schlochtermeyer, M.A.

(Acquisition and administrative support of externally funded, in particular EU-funded, research projects)

studied geography, political sciences as well as town planning and regional planning at the University of Oldenburg. Main focuses of her studies were European policy as well as cross-border- and interregional structural development. After her university studies she worked at the European Commission in Brussels in the Directorate General “Regio” as a “Stagièrè” where she was responsible for the mid-term evaluation of INTERREG II-A-projects carried out in German border

regions (cross-border-cooperation). Since 2000 she worked at the EU-Bureau of the Georg-August-University of Goettingen as EU-research adviser which she finally headed since 2001. Ensuring the participation of researchers at the University Göttingen in the Research Framework Programme of the EU was her main responsibility. In addition, she co-ordinated a European educational project with 12 partners from four countries. After the birth of her daughter, Anja Schlochtermeier joined the European Academy Bad Neuenahr-Ahrweiler where she is responsible for national and European research funding.

Friederike Wütscher

(Editing, Public Relations)

studied German and English at the University of Cologne (1991 to 1997). During this time she had a six month scholarship which she spent at the University of North London. At Cologne University she worked as student assistant at the linguistic institute of the English department. In her University years she gained work experience in different fields of journalistic working fields., e.g. public relations agency, tv-station, and newspapers. After her examination she worked for the publishing company RAABE Fachverlag für Wissenschaftsinformation which is specialised in scientific publications. Her main working focus was in editing, marketing and developing concepts for new publications. In 1998 she began to work for the Deutsche Krankenhausgesellschaft (German hospital federation) as press officer. Here she was responsible for public relations and events and edited different publications. In March 2001 she started to work for the Europäische Akademie in editing scientific texts and public relations. She works in all fields of the academy which concern publications and events.

Heidmarie Zimmermann

(General Administration)

Office clerk training. 1981–1999 employment as office clerk and secretary with the Dr. Ernst Clinic, the Federal Armed Forces and the Volksbank – all located in Bad Neuenahr-Ahrweiler. 1995–1999 maternity leave. Since November 2000, member of staff at the Europäische Akademie responsible for the central administration, including personnel, the organisation of meetings of the project groups as well as the accounts of travel expenses.

### Temporarily absent from office

Dr. phil. Gerd Hanekamp, Dipl.-Chem.

Studied chemistry at Heidelberg and Marburg and at the *École Nationale de Chimie* in Lille; 1996: Doctorate in philosophy at the University of Marburg; from 1996–2003 junior/senior scientist, from 2003–2005 deputy director, *Europäische Akademie Bad Neuenahr-Ahrweiler GmbH*, presently on leave for a position at the Office of the Science Council; fields of research: applied ethics, philosophy of science, theory of the social sciences, technology assessment.  
e-mail: hanekamp@wissenschaftsrat.de

Dipl.-Kfm. Petra Hermann

Studied economics at the *Rheinische Friedrich-Wilhelms-Universität Bonn* and business administration at the *Friedrich-Alexander-Universität Erlangen-Nürnberg*, with emphasis on accountancy and banking management, public law with main stress on European law and strategic business planning and business policy. She graduated as *Diplomkaufmann* in 1993. Following her graduation, Hermann joined the statistics department at *Sparkasse Leverkusen*, the savings bank, where she worked in product cost accounting. 1994: Assistant to the director in charge of fundamental business policies and finance at *Leipziger Wohnungs- und Baugesellschaft mbH*, the housing and construction corporation, with main responsibilities in controlling. Since the foundation of the *Europäische Akademie* in 1996, she had been responsible for all matters of administration and finance. She was the contact person for all business and legal matters concerning the corporation, especially for the shareholders and sponsors of the company. Hermann's contribution was crucial to the foundation of the academy's association "*Verein der Förderer der Europäischen Akademie*". Furthermore she organised the meetings of the working group "*Medical Ethics*" and the art exhibitions shown in the *Europäische Akademie*.

## 6 Archive

### Functional Foods

(Duration: 1/01–5/04)

Project Members

**Chair:** Professor Dr. Ruth Chadwick, Lancaster

Professor Spencer Henson, Ph.D., B.Sc., Guelph

Mr. Gerrit Koenen, Den Haag

Professor Dr. Cees Midden, Eindhoven

Professor Dr. Bevan Moseley, Reading

Professor Andreu Palou, Mallorca

Professor Dr. rer. nat. Dr. rer. nat. habil. Gerhard Rechkemmer, München

Dr. Doris Schröder, Preston

Professor Dr. Atte von Wright, Kuopio

**Project Coordination:** Miltos Ladikas, Ph.D.

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

**Contact:** Dr. med. Felix Thiele, M.Sc.

felix.thiele@ea-aw.de

### TAMI Technology Assessment in Europe: between Method and Impact

(Duration: 1/02–12/03)

Members

TAMI was co-ordinated by the Europäische Akademie. The following institutions have participated in the TAMI project:

- The Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen Bad Neuenahr-Ahrweiler GmbH, Germany
- The Parliamentary Office of Science and Technology (POST), UK

- The Forschungszentrum Karlsruhe GmbH (FZK), Institute for Technology Assessment and System Analysis (ITAS), Germany
- The Academy for Technology Assessment in Baden Württemberg (CTA), Germany
- The Danish Board of Technology (DBT)
- The Centre for Science and Technology Studies (TA-SWISS), Switzerland
- The Centre of Science, Technology and Society Studies at the Institute of Philosophy of the Academy of Sciences (STSS Centre), Czech Republic
- The Warsaw School of Economics (SGH), Institute of Modern Civilisation (IPWC), Poland
- The Consejo Superior de Investigaciones Científicas (CSIC), SPRITTE (Spanish Policy Research on Innovation & Technology, Training and Education), Spain

Additionally, the following institutes have also participated in the project albeit not as full members. They have been invited to TAMI meetings and also been asked to contribute to the scientific outcome as external experts:

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

**Project Coordination:** Dr. Miltos Ladikas, Dr. Michael Decker

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

**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

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## **Embryo Experimentation in Europe. Bio-medical, Legal and Philosophical Aspects**

**(Duration: 1/01–12/03)**

Project Members

**Chair:** Professor Dr. Davor Solter, M.D., Ph.D.Freiburg

Professor Dr. jur. Deryck Beyleveld, Sheffield

Professor Dr. med. Axel Haverich, Hannover

Professor Dr. Jacek Hołowka, Warsaw

Professor Dr. jur. Hans Lilie, Halle

Professor Dr. Robin Lovell-Badge, London

Priv.-Doz. Dr. rer. nat. Ulrich Martin, Hannover

**Project Coordination:** Minou Bernadette Friele, M.A.

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

**Contact:** Dr. med. Felix Thiele, M.Sc.

felix.thiele@ea-aw.de

## **Environmental Standards. Low Dose Effect Relations and their Risk Evaluation**

**(Duration: 1/01–5/04)**

Project Members

**Chair:** Professor Dr. Dr. Christian Streffer

IWE Institut für Wissenschaft und Ethik, Essen/Bonn

Professor Dr. Dr. Hermann Bolt

Institute of Occupational Physiology, Universität Dortmund

Professor Dagfinn Føllesdal, Ph.D.

Institute of Philosophy, Stanford University

Dr. Per Hall MD, Ph.D.

Department for Medical Epidemiology, Karolinska Institute, Stockholm

Priv-Doz. Dr. Jan-Georg Hengstler

Institute of Toxicology, Johannes Gutenberg-Universität Mainz

Dr. Peter Jacob

Institute of Radiation Protection, GSF National Research Center, Neuherberg

Professor Dr. Deborah Oughton

Department of Chemistry and Biotechnology, Agricultural University of Norway, Aas, Faculty of mathematics and natural sciences, University of Oslo

Professor Dr. Eckard Rehbinder

Faculty of Law, Johann Wolfgang Goethe Universität Frankfurt/Main

Dr. Elisabeth Swaton

Safety Assessment Section, International Atomic Energy Agency, Vienna

**Project Coordination:** Dr. rer. nat. Kathrin Prieß, M.ès.Sc.

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

**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.

stephan.lingner@ea-aw.de

## **Sustainable Development and Innovation in the Energy Sector (Duration: 9/00–12/03)**

Project Members

**Chair:** Professor Dr. rer. pol. Ulrich Steger, IMD Lausanne

Professor Dr. Wouter Achterberg †, Applied Philosophy Group, Wageningen Agricultural University and University of Amsterdam

Professor Dr. Kornelis Blok, Department of Science, Technology and Society,  
Utrecht University

Professor Dr. jur. Walter Frenz, Lehr- und Forschungsgebiet Berg- und  
Umweltrecht, RWTH Aachen

Professor Dr. sc.nat. Dieter Imboden, Umweltphysik, Institut für Gewässer-  
schutz und Wassertechnologie, ETH Zürich

Professor Dr. rer. pol. Rudi Kurz, Institut für Volkswirtschaftslehre der  
Fachhochschule Pforzheim

Professor Dr. rer. pol. Hans G. Nutzinger, Fachbereich  
Wirtschaftswissenschaften der Universität GH Kassel

Professor Dr. rer. pol. Thomas Ziesemer, Maastricht Economic Research  
Institute on Innovation and Technology (MERIT), Universität Maastricht

**Project Coordination:** Dr. phil. Gerd Hanekamp, Dipl.-Chem.

**Final report:** U. Steger, W. Achterberg, K. Blok, H. Bode, W. Frenz, C. Gather, G.  
Hanekamp, D. Imboden, M. Jahnke, M. Kost, R. Kurz, H.G. Nutzinger, Th.  
Ziesemer: Nachhaltige Entwicklung und Innovation im Energiebereich. (book  
series “Wissenschaftsethik und Technikfolgenbeurteilung” vol. 18) Springer,  
Berlin 2002

**Publications:** Hanekamp G, Steger U (ed) (2001) Nachhaltige Entwicklung und  
Innovation im Energiebereich. Graue Reihe No. 28, Europäische Akademie  
GmbH, Bad Neuenahr-Ahrweiler

**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

## **Climate Prediction and Climate Precautions (Duration: 12/98–12/01)**

### Project Members

**Chair:** Professor Dr. jur. Meinhard Schröder, Lehrstuhl für in- und ausländisches öffentliches Recht, Völker- und Europarecht und Institut für Umwelt- und Technikrecht, Universität Trier

Professor Dr. rer. nat. Martin Claussen, Potsdam Institut für Klimafolgenforschung & Institut für Meteorologie der Freien Universität Berlin

Professor Dr. rer. nat. Armin Grunwald, Institut für Technikfolgenabschätzung und Systemanalyse, Forschungszentrum Karlsruhe

Professor Dr. rer. nat. Andreas Hense, Meteorologisches Institut, Universität Bonn

Professor Gernot Klepper, Ph.D., Institut für Weltwirtschaft, Universität Kiel

Professor Dr. phil. Konrad Ott, Professorship “Umweltethik”, Universität Greifswald

Professor Dr. rer. pol. Dieter Schmitt, Lehrstuhl Energiewirtschaft, Universität Essen

Detlef Sprinz, Ph.D., Potsdam Institut für Klimafolgenforschung (Dept. Global Change & Social Systems)

**Project Coordination:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.

**Final report:** M. Schröder, M. Claussen, A. Grunwald, A. Hense, G. Klepper, S. Lingner, K. Ott, D. Schmitt, D. Sprinz: Klimavorhersage und Klimavorsorge. (book series “Wissenschaftsethik und Technikfolgenbeurteilung” vol. 16) Springer, Berlin/Heidelberg/New York 2002

**Publications:** Lingner, S. Gethmann, C.F. (1997): Klimavorhersage und -vorsorge. Graue Reihe No. 6, Europäische Akademie GmbH, Bad Neuenahr-Ahrweiler

Lingner, S. (1999): Klimavorhersage und -vorsorge. Aufgaben und Ziele eines interdisziplinären Forschungsprojekts. In: TA-Datenbank-Nachrichten 8 (2): 26–28, ITAS Karlsruhe

Schröder, M. Lingner, S. (eds) (1999): *Modelling Climate Change and Its Economic Consequences. A Review*. Graue Reihe No. 15, Europäische Akademie GmbH, Bad Neuenahr-Ahrweiler

M. Schröder, M. Claussen, A. Grunwald, A. Hense, G. Klepper, S. Lingner, K. Ott, D. Schmitt, D. Sprinz (2002) *Climate Prediction and Precautions (Summary)*. Graue Reihe No. 23, Europäische Akademie GmbH, Bad Neuenahr-Ahrweiler

**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

### **Electronic Signatures. Cultural Controllability and Moral Justifiability (Duration: 9/99–12/01)**

Project Members

**Chair:** Dr. rer. pol. Otto Ulrich, Referat Technikfolgen-Abschätzung, Bundesamt für Sicherheit in der Informationstechnik (BSI), Bonn

Professor Dr. sc. phil. Gerhard Banse, Institut für Technikfolgenabschätzung und Systemanalyse (ITAS), Forschungszentrum Karlsruhe – Technik und Umwelt

Dr. jur. Helmut Bäuml, Landesbeauftragter für den Datenschutz Schleswig-Holstein, Kiel

Professor Dr. jur. Jos Dumortier, Interdisciplinary Centre for Law and Information Technology (IRCI), K.U. Leuven

Dr. jur. Riccardo Genghini, Studio Notarile Genghini, Mailand

Professor Dr. phil. habil. Andrzej Kiepas, Institut für Philosophie, Schlesische Universität Katowice

Professor Dr. jur. Bernd Lutterbeck, Institut für Angewandte Informatik, Technische Universität Berlin

Dr. phil. Petr Machleidt, Center for Science, Technology, Society Studies (CSTSS) at the Institute of Philosophy, Academy of Science Prague

Professor Dr. rer. nat. Andreas Pfitzmann, Institut für Theoretische Informatik,  
Technische Universität Dresden

Professor Dr. phil. Georg Rudinger, Psychologisches Institut,  
Abt. Methodenlehre, Diagnostik & EDV, Universität Bonn

Professor Dr. sc. pol. Reinhard Voßbein, Unternehmens- und Informations-  
Management Consultants Dr. Voßbein Unternehmensberatung (UIMC),  
Wuppertal

**Project Coordination:** Dr.-Ing. Christian J. Langenbach

**Final report:** C. J. Langenbach, O. Ulrich (eds): Elektronische Signaturen. Kul-  
turelle Rahmenbedingungen einer technischen Entwicklung, (book series “Wis-  
senschaftsethik und Technikfolgenbeurteilung vol. 12) Springer, Berlin 2002

**Publications:** C. J. Langenbach (1999): “Didaktik im Spannungsfeld zwischen  
NetUse und IT-Sicherheit”, In: BSI (Hrsg.): Zur Didaktik der IT-Sicherheit. Inter-  
disziplinärer Diskurs zu querschnittlichen Fragen der IT-Sicherheit. SecuMedia  
Verlag Ingelheim

C. J. Langenbach (1999): “Elektronische Unterschrift. Verliert der Bürger seine  
Identität?”, in: Akademie-Brief Nr. 15, Europäische Akademie GmbH, Bad  
Neuenahr-Ahrweiler

O. Ulrich (1999): “Protection Profile – ein industriepolitischer Ansatz zur  
Förderung des ‘neuen Datenschutzes’”, Graue Reihe Nr. 17, Europäische  
Akademie GmbH, Bad Neuenahr-Ahrweiler

G. Banse, C.J. Langenbach, O. Ulrich (1999): “Digitale Signaturen im Weit-  
blick”, KES 99/5, SecuMedia Verlag Ingelheim, S. 85–87

**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

## **Robotics: Options for Human Replaceability** **(Duration: 2/99–12/01)**

### Project Members

**Chair:** Professor Dr. rer. nat. Thomas Christaller, Institute for Autonomous Intelligent Systems, FhG Sankt Augustin

Professor Dr. med. Joachim Gilsbach, Neuro-surgical Clinic,  
University Clinic of the RWTH Aachen

Professor Dr.-Ing. Gerd Hirzinger, Institute for Robotics and Mechatronics,  
DLR – German Aerospace Center (Deutsches Zentrum für Luft- und Raum-  
fahrt )

Professor Dr. med. Dr. sc. Karl Lauterbach, Institute for Health Economics and  
Clinical Epidemiology, Cologne University

Professor Dr. jur. Dr. rer. soc. oec. Erich Schweighofer, Institute for  
International Law (Working Group on Law Informatics), University of Vienna

Professor Dr.-Ing. Gerhard Schweitzer, Institute für Robotics, ETH Zürich

Professor Dr. phil. Dieter Sturma, Faculty 1 Philosophy, University of Essen

**Project Coordination:** Dr. rer. nat. Michael Decker

**Final report:** T. Christaller, M. Decker, J.-M. Gilsbach, G. Hirzinger, K. Lauter-  
bach, E. Schweighofer, G. Schweitzer, D. Sturma: Robotik. Perspektiven für men-  
schliches Handeln in der zukünftigen Gesellschaft. (book series “Wissenschaft-  
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York 2001

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Decker, M. (2002): “Robotics: Perspectives for Human Action in Future Society”,  
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**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

## **Ethical Questions and Societal Consequences of Human Genetics (Duration: 4/98–3/00)**

Project Members

**Chair:** Professor Dr. med. Claus R. Bartram, Institut für Humangenetik,  
Universität Heidelberg

Professor Dr. phil. Jan P. Beckmann, Institut für Philosophie,  
FernUniversität Hagen

Professor Dr. rer. pol. Friedrich Breyer, Fakultät für Wirtschaftswissenschaften,  
Universität Konstanz

Professor Dr. rer. nat. Georg Fey, Lehrstuhl für Genetik, Universität Erlangen

Professor Dr. phil. Christa Fonatsch, Institut für medizinische Biologie,  
Universität Wien

Professor Dr. phil. Dr. theol. Bernhard Irrgang, Zentrum für Interdisziplinäre  
Technikforschung, Universität Dresden

Professor Dr. jur. Jochen Taupitz, Lehrstuhl für Bürgerliches Recht, Zivilprozeßrecht, Internationales Privatrecht und Rechtsvergleichung, Universität Mannheim

**Project Coordination:** Dr. med. Felix Thiele, M.Sc.

**Final report:** 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. (book series “Wissenschaftsethik und Technikfolgenbeurteilung” vol. 7) Springer-Verlag, Berlin 2000

**Publications:** Thiele F. (1999): Ethische Fragen und gesellschaftliche Folgen der Humangenetik. In: TA-Datenbank-Nachrichten, Nr. 1, 8.Jg., 3/99

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**Contact:** Dr. med. Felix Thiele, M.Sc.  
felix.thiele@ea-aw.de

## **Xenotransplantation of Cells, Tissues or Organs. Scientific Developments, Ethical Implications and Social Relevance (Duration: 4/98–3/00)**

Members

**Chair:** Professor Dr. phil. Jan P. Beckmann, Institut für Philosophie, FernUniversität Hagen

Professor Dr. med. vet. Dr. med. vet. habil. Dr. h.c. Gottfried Brem, Institut für Tierzucht und Genetik, Veterinärmedizinische Universität Wien

Professor em. Dr. med. Friedrich W. Eigler, Abteilung für allgemeine Chirurgie, Universitätsklinik Essen

Professor Dr. rer. nat. Dr. habil. Walter H. Günzburg, Institut für Virologie, Veterinärmedizinische Universität Wien

Professor Dr. med. Dr. med. vet. Claus Hammer,  
Institut für Chirurgische Forschung, Klinikum Großhadern

Professor Dr. med. Dr. med. dent. Dr. h. c. Wolfgang Müller-Ruchholtz,  
Institut für Immunologie, Klinikum der Universität Kiel

Professor Dr. jur. Dr. h.c. Hans Ludwig Schreiber,  
Juristisches Seminar der Universität Göttingen

**Project Coordination:** Dr. rer. nat. Eva M. Neumann-Held

**Final report:** 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. (book series "Wissenschaftsethik und Technikfolgenbeurteilung" vol. 8) Springer-Verlag, Berlin 2000

**Publications:** Beckmann Jan P (1997) Xenotransplantation. Ethische Fragen und Probleme. Graue Reihe Nr. 7. Europäische Akademie GmbH, Bad-Neuenahr-Ahrweiler

Neumann-Held Eva M. (1998) Xenotransplantation von Zellen, Geweben oder Organen. Wissenschaftliche Entwicklungen, ethische Implikationen und gesellschaftliche Relevanz. in: TA-Datenbank-Nachrichten 11/98

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**Contact:** Dr. med. Felix Thiele, M.Sc.  
felix.thiele@ea-aw.de

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**Biodiversity. Scientific Foundations and Social Relevance**  
**(Duration: 10/97–10/99)**

Project Members

**Chair:** Professor Dr. phil. Peter Janich, Institut für Philosophie,  
Philipps-Universität Marburg

Priv.-Doz. Dr. rer. nat. Rudolf Amann,  
Max-Planck-Institut für marine Mikrobiologie Bremen

Dr. phil. nat. Klaus Ammann, Botanischer Garten, Bern

Professor Dr. rer. nat. Heinz Saedler,  
Max-Planck-Institut für Züchtungsforschung Köln

Professor Dr. rer. nat. Fritz F. Steininger,  
Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt a. M.

Dr. rer. nat. Michael Türkay,  
Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt a. M.

Professor Dr. jur. Rüdiger Wolfrum,  
Max-Planck-Institut für ausländisches und öffentliches Recht, Heidelberg

**Project Coordination:** Dr. phil. Dr. phil. nat. Mathias Gutmann (until 10/99), Dr.  
rer. nat. Kathrin Prieß (from 11/99)

**Final report:** P. Janich, M. Gutmann, K. Prieß (eds) Biodiversität. Wissenschaftliche  
Grundlagen und gesellschaftliche Relevanz. (book series “Wissenschaftsethik und  
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**Publications:** Amann R., Rossello-Mora R., (2000): The Species Concept in  
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Barthlott, Wilhelm u. Gutmann, Mathias (eds) (1998): Biodiversitätsforschung in  
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Literaturreview und Bibliographie zum Thema "Artbegriff in der Paläontologie". Durchgeführt vom 1.7.1998 bis 31.12.1998 von Herrn M. Gudo bei Professor Dr. Fritz F. Steininger.

Priv.-Doz. Dr. Rudolf Amann: Der Artbegriff in der Mikrobiologie. Vergangenheit, Gegenwart, Zukunft.

Dr. Michael Türkyay: Studie über Qualifizierungsmöglichkeiten der Biodiversität an einem gegebenen Ort bei Anwendung taxonomischer und systematischer Methoden im Rahmen des Projekts "Biodiversität" der Europäischen Akademie.

**Contact:** Dr. med. Felix Thiele, M.Sc.  
felix.thiele@ea-aw.de

### **Environmental Standards. Combined Exposures and Their Effect on Human Beings and Their Environment (Duration: 1/97–1/00)**

Project Members

**Chair:** Professor Dr. rer. nat. Dr. med. h. c. Christian Streffer, Universität Essen

Professor Dr. rer. pol. Dieter Cansier, Universität Tübingen

Professor Dr. phil. Carl Friedrich Gethmann,  
Europäische Akademie Bad Neuenahr-Ahrweiler GmbH

Professor Dr. rer. nat. Robert Guderian, Universität Essen

Professor Dr. med. Dietrich Henschler, Universität Würzburg

Professor Dr. med. Gerald Pösch, Universität Graz

Professor Dr. jur. Eckard Rehbinder, Universität Frankfurt a. M.

Professor Dr. rer. pol. Ortwin Renn,  
Akademie für Technikfolgenabschätzung in Baden-Württemberg

**Project Coordination:** Dr. rer. nat. Stephan Saupe (until 9/98),  
Dr. phil. Gerd Hanekamp, Dipl.-Chem. (from 10/98)

**Final report:** C. Streffer, J. Bücker, A. Cansier, D. Cansier, C. F. Gethmann, R. Guderian, G. Hanekamp, D. Henschler, G. Pöch, E. Rehbinder, O. Renn, M. Slesina, K. Wuttke: Umweltstandards. Kombinierte Expositionen und ihre Auswirkungen auf den Menschen und seine Umwelt. (book series “Wissenschaftsethik und Technikfolgenbeurteilung” vol. 5) Springer. Berlin, Heidelberg 2000

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**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de

## **Technology Assessment of the Research and Development of New Materials**

**(Duration: 1/97–12/99)**

Members

**Chair:** Professor Dr.-Ing. Helmuth Harig, Faserinstitut Bremen e.V. und  
Fachbereich Produktionstechnik -Werkstofftechnik- der Universität Bremen

Priv.-Doz. Dr. rer. nat. Armin Grunwald,  
Europäische Akademie Bad Neuenahr-Ahrweiler GmbH

Professor Dr.-Ing. Heinrich Hofmann, Pulvertechnologisches Labor der  
Eidgenössische Technische Hochschule Lausanne (EPFL)

Professor Dr. rer. nat. Wolfgang A. Kaysser, Institut für Werkstoff-Forschung des Deutschen Zentrums für Luft- und Raumfahrt e.V. (DLR) Köln und RWTH Aachen

Professor Dr.-Ing. Rainer Renz, Lehrstuhl für Recyclinggerechte Produktgestaltung/Entfertigung der Universität Kaiserslautern

Professor Dr. rer. nat. Günther Schmid,  
Institut für Anorganische Chemie der Universität-Gesamthochschule Essen

**Project Coordination:** Dr.-Ing. Christian J. Langenbach

**Final report:** H. Harig, C.J. Langenbach (eds) (2000) “Neue Materialien für innovative Produkte: Entwicklungstrends und gesellschaftliche Relevanz”, (book series “Wissenschaftsethik und Technikfolgenbeurteilung” vol. 3) Springer, Berlin Heidelberg

**Publications:** H. Harig et al. (1997): “Technikfolgenbeurteilung der Erforschung und Entwicklung neuer Materialien. Perspektiven in der Verkehrstechnik”, Endbericht zum Vorprojekt, Graue Reihe Nr. 4, Europäische Akademie GmbH, Bad Neuenahr-Ahrweiler

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**Contact:** Dr. rer. nat. Stephan Lingner, Dipl.-Geol.  
stephan.lingner@ea-aw.de







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

**Address:**

Wilhelmstr. 56  
53474 Bad Neuenahr-Ahrweiler  
Germany

**Phone:**

+49 (0) 2641 973-300

**Fax:**

+49 (0) 2641 973-320

**E-Mail:**

[europaeische.akademie@ea-aw.de](mailto:europaeische.akademie@ea-aw.de)

**Homepage:**

[www.ea-aw.de](http://www.ea-aw.de)

**Managing Director:**

Professor Dr. phil. Dr. phil.h.c. Carl Friedrich Gethmann