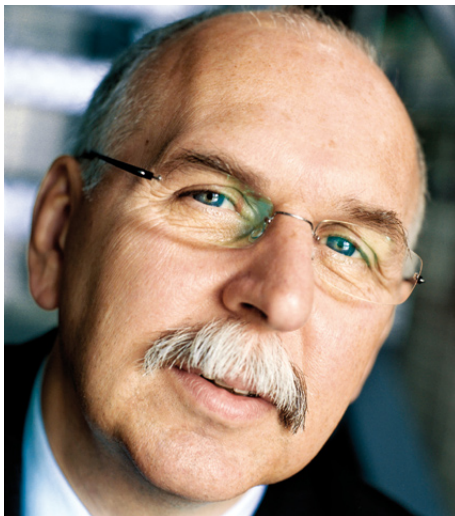


## Creative Duo: Businesses and Universities

**Professor Matthias Kleiner, President of the  
Deutsche Forschungsgemeinschaft (DFG)**



DFG-President Matthias Kleiner

Science, more than ever before, takes place in a global market in which universities and industry compete for the best brains. Increasing international competition has required universities to improve their own position – for example by collaborating with innovative companies. This may take place, for example, in the DFG's "transfer projects", which create links with innovative companies whilst at the same time maintaining links to basic university research.

Transfer projects invite scientists at every level of their career to take forward results of their DFG-funded research to the market readiness stage in an existing or newly established company. Scientists can thus assume personal responsibility for carrying out their projects, without neglecting the company's needs. They keep, however, their link to the researcher group at the university and can therefore, establish a connection between industry and academia naturally. Start-ups in particular benefit from this burden-sharing during the cost-inten-

sive technological development phase, which is welcomed by investors like the High-Tech Gründerfonds - a government-sponsored venture capital fund for technology start-ups.

Such transfers make the individual location both more international in nature and thereby, more attractive: resources are pooled, international partners are brought together and foreign direct investment is more likely to be attracted.

Knowledge transfer between universities and companies has become an important future-oriented theme for the DFG. It will nevertheless continue to follow its "bottom-up approach" of broad support for excellent basic research. On the European level, we appreciate exchange processes too, particularly bottom-up mechanisms. In Framework 7, companies as well as universities may, through the European Research Council, act as host institutions for researchers, as well as the Marie Curie Activities. Marie Curie also illustrates how respectable research networks can develop out of research training groups, which can successfully apply for third-party funding in the Cooperation programme.

Strategic systematic dialogue sets in with the European Technology Platforms: the companies, universities and research institutions that belong to them exert influence on future research agendas and by extension on national and European research strategies. Neither should knowledge transfer at the European level be a one-way street, but should instead open up the opportunity of feeding back new questions from industry into science. This is what the innovation expert Richard Lambert referred to in his report on collaboration between industry and science: "The most exciting collaborations arise as a result of like-minded people getting together – sometimes by chance – to address a problem. Encouraging academics and business people to spend more time together should be a high priority."

Dear reader,

Universities and companies around the world face the challenge of bringing together the best brains from science and industry. Since knowledge transfer flows in both directions, representatives from academia and industry, including Matthias Kleiner, President of the DFG, and Joachim Milberg, Chairman of the Supervisory Board of the BMW Group, get a chance to have their say in this newsletter. Furthermore, links for knowledge transfer between science and industry at the European level will be presented, particularly in Framework 7: we tell you about Industry-Academia Pathways and Partnerships in the Marie Curie programme and about the involvement of German universities in European Technology Platforms (ETPs), in which companies, research institutions and other stakeholders work together to define future research agendas. The European Commission's third status report on the ETPs, its recent communication on knowledge transfer and its newly disseminated green paper launching the consultation on the ERA, clearly attach great importance to this topic. So does KoWi dedicating its most important annual conference to the same issue: "FP7 – Synergies Between Science and Industry" is going to take place from 20 to 21 June at the University of Mainz.

Regarding this publication, we look forward to receiving your vital comments.

Enjoy reading,

Dr Annette Doll-Sellen  
Director of KoWi

## “We make it visible”

**Interview with Dr Michael Kaschke,  
Executive Board Member of Carl Zeiss**

© Manfred Stich - Carl Zeiss AG



Dr Michael Kaschke

### *What sort of relationship does Carl Zeiss have with universities?*

Carl Zeiss has a very varied palette of contacts with German universities. Firstly, there are collaborative projects with numerous universities in optical technology fields, with basic or applied projects in areas such as medicine, biology or nanotechnology. This collaboration is extended through our employees' lectureships at universities and the supervision of undergraduate and doctoral students. Collaboration also comprises programmes for visiting professors and endowed professorial chairs, as well as long-term cooperation agreements and involvement in university councils.

### *When do you begin supporting young scientists?*

Schoolchildren and students are our first target groups: We have run the regional competitions 'Jugend Forscht' (Youth Research) and 'Schüler experimentieren' (Pupils Experiment) competitions for years now. School and student groups are always welcome guests at company visits and meetings with our scientists.

### About Michael Kaschke

Born in 1947, Dr Michael Kaschke is a member of the executive board of Carl Zeiss. A physicist by training, he undertook research at the Max Born Institute in Berlin as well as at the IBM Research Center in the USA. In 1992, he joined Carl Zeiss as a member of their scientific staff. From 1995 to 2000, he led various business areas of the company before joining its executive board in 2000, in which he is responsible, among other areas, for the Medical and Life Science Technology Businesses of Carl Zeiss. Dr Michael Kaschke is member of a number of boards and also Chairman of the German Industry Association for Optical, Medical and Mechatronical Technologies (SPECTARIS).

### *Carl Zeiss AG also trains young scientists through the Marie Curie programme in Framework 6...*

We hosted seven scientists from five EU countries in our company's R&D programme in Framework 6, each for two years. Two of these scientists have now joined us as permanent employees. We hope that such a fruitful exchange will continue to be supported through EU programmes in the future.

### *What experiences have you gained for Framework 7?*

Through our involvement in the European Technology Platform 'Photonics 21', we have actively attempted to have some input into the relevant research areas in Framework 7. Optical technologies are important building blocks for Europe's growth and competitiveness and should therefore have a higher priority in Framework 7 than has previously been the case. In addition, we are focusing on Joint Technology Initiatives that cover optical lithography and semiconductor technologies.

## Marie Curie Industry-Academia

### Partnerships

The European Commission's Marie Curie 'Industry-Academia Partnerships and Pathways' (IA-PP) support collaboration between industry/private companies and universities/public research institutions on the basis of a long-term cooperation programme. Projects may last from three to four years.

### Funding covers:

- Exchange of staff between sectors
- Fixed-term recruitment of experienced scientists (postdocs)
- Networking activities between partners, for example organising workshops and conferences
- For small and medium-sized enterprises (SMEs): grants for the acquisition of small pieces of equipment for the project (no more than 10 per cent of the EU grant)

IA-PP applications must be submitted by two types of institutions – a company and a public research institution – which are located in different EU member states or associated countries. A number of very successful partnerships were supported during Framework 6 ('Transfer of Knowledge') and expectations in Framework 7 are correspondingly high.

The call currently open has a budget of 38.4 million euros. Consortia have until 31 May 2007 to submit their applications to the European Commission. The deadline for the next call will not be set until next year.

## In Favour of a "Change of Climate"

**Questions for Professor Joachim Milberg, Chairman of the Supervisory Board of the BMW Group and President of acatech**

© Andreas Heideggott



Professor Joachim Milberg

*You have moved between science and industry several times. What can both systems learn from each other?*

Both sides can learn a great deal from each other and benefit from cross-pollination of ideas. Science is characterised by a long-term-oriented way of thinking and working, as well as a number of other basic principles: scientists have more time and opportunity to think about many things.

There is also work with young researchers. It is fascinating to see what potential can emerge in young and dedicated people when they are well supervised.

Industry, on the other hand, is dominated by taking a product to market readiness. Short timescales (and adherence to schedules) are important here. Efficiency and quality are also crucial. Innovations in industry generally result from a large team. Today, however, research also has to work in networks, bring people together and create an innovative culture and atmosphere. That calls for good management, particularly when leading large teams.

*„acatech is about building bridges between science, industry and politics.“*

### About Joachim Milberg

Born in 1943, Professor Milberg earned his doctorate in production engineering at the Technical University of Berlin in 1971. After working in industry for ten years, Milberg became professor at the Technical University of Munich in 1981. He then moved back to the private sector in 1993. From 1999 until 2002, he acted as Chairman of the Board of Management of the BMW Group. He currently holds several chairs on supervisory boards, such as BMW Group (Chairman), Bertelsmann, Deere & Company, Moline/Illinois, and FESTO. Furthermore, he is a member of the Partner Committee, TÜV Süddeutschland, and of the Senate and Executive Committees in the Max Planck Gesellschaft. Since 2002, he has been President of acatech – Council for Technical Sciences of the Union of German Academies of Sciences and Humanities.

*With acatech you are also establishing systematic dialogues between science, industry and politics. What is your aim?*

It's already in the name acatech - the link between academia and technology. We are now on the way to acquiring the institutional status of the "German Academy of Technological Sciences" and representing the interests of the technological sciences within Germany and abroad.

Our goal is to bring about a change of climate towards an innovation-friendly society, as only innovation will bring Germany more growth and jobs. Innovation includes the introduction, adoption, and successful use of a reform in science and society. On the one hand this is about building bridges between science and industry, and on the other it's about independent advice to society and politics. Going it alone and from the ivory tower doesn't work; only a network of all those being actively involved from science, industry and politics does. This is why close dialogue between each other is so important to us. As an

Apart from the Gottfried Wilhelm Leibniz Prize by the Deutsche Forschungsgemeinschaft, Professor Milberg has been awarded with honorary doctorates and holds several patents.

academy, we have ten topical networks, in which representatives from all project groups collaborate.

*Are there already partnerships between universities and companies that were stimulated by acatech's work?*

The topical networks, such as mobility, medical engineering, energy and the environment, are platforms for cooperation and partnerships between science and industry. In the projects initiated by acatech, scientists from both spheres work together. The membership structure reflects this, representing various areas of science, industry and society on our board. The senate deals more with higher-level questions.

*How is acatech linked to European partners?*

acatech represents Germany in the European Council of Applied Sciences, Technologies and Engineering (Euro-CASE), and in the global association CAETS (International Council of Academies of Engineering and Technological Sciences). Both organisations want to advise policy-makers, society and international organisations on technology policy questions and support the official exchange of information. CAETS can be seen as a contact point for the UN, UNESCO, the World Bank and other organisations that are active in this field around the world. acatech is involved in international projects run by both organisations, and our members are well-represented at international conferences. Working in these organisations and being closely connected with other academies, acatech also wants to represent German technological sciences abroad, in order to foster the exchange of people and ideas.

Further information about acatech is available at

<http://www.acatech.de>

## Fruitful work between industry and research

**Questions for Dr Peter Dahlmann,  
Head of Corporate Technology  
at ThyssenKrupp Ltd**

© Dirk A. Friedrich



Dr Peter Dahlmann

### About Peter Dahlmann

Born in 1955, Dr Peter Dahlmann joined the Krupp Research Institute in Essen in 1985, after a degree in metallurgy and scientific work at RWTH Aachen. In 1997, he moved to the Corporate Technology department at Fried Krupp AG Hoesch-Krupp in Essen, where he was responsible for innovation management. He remained in this post after the Thyssen and Krupp companies merged to form ThyssenKrupp in 1999 before becoming head of Corporate Technology at ThyssenKrupp AG, which is responsible for technology and innovation management for the whole Group. Since 2004, Dahlmann has been a member of the executive committee of the ZENIT Association - the Centre for Innovation and Technology in North Rhine Westphalia.

*What aims does ThyssenKrupp pursue with the establishment of such institutes or endowed professorships?*

Such commitments are for us without doubt part of our innovation strategy. Since ThyssenKrupp, as previously stated, does not do any basic research, it is very important to have appropriate innovation networks at our disposal. As well as successful collaboration with universities, and contact with customers and suppliers, very fruitful contact with the Fraunhofer and Max Planck research institutions as well as the Helmholtz and the Leibniz Associations must be mentioned. In areas in which, in our opinion, we are not able to find suitable collaboration partners, we make use of financial measures in the form of endowed professorial chairs or the establishment of institutes in order to fill the gaps in our innovation network. This also helps us meet a responsibility to society. As a global company headquartered in Germany, we know that we will only be able to maintain Europe's competitiveness when we raise R&D spending to 3% of GDP in line with the Lisbon strategy.

*What requirements must be met in order to further support links between universities and industrial companies?*

Despite ThyssenKrupp's entirely positive experience of links with scientists, universities and research institutions, the aim must be to increase innovation through better communication, cooperation and more knowledge transfer between research and industry. The following points can help:

- More consistent orientation of research institutions' innovation-oriented work to the demands and requirements of the market as well as the economic application of R&D results
- Review of intellectual property regulations
- Periodic exchange of personnel between scientific institutions and industrial companies
- The creation of incentives to retain outstanding research in Europe

*How does the ThyssenKrupp Group organize links with the scientific community?*

ThyssenKrupp's research and development work is primarily product and market-oriented. Stand-alone basic research is practically non-existent at ThyssenKrupp. The Group does, however, work to build up close contacts with universities or other scientific institutions, and in doing so has entered into close collaboration with selected universities. This collaboration is based on cross-cutting themes such as strengthening the sharing of scientific results, advanced training, international cooperation and supporting skilled students during their degree. Joint activities are tailored to the individual university and its specialisms, and thereby open up extensive opportunities for linking theory and practice.

*ThyssenKrupp established an interdisciplinary research institute at the Ruhr University Bochum. Who does this institute cooperate with?*

As well as ThyssenKrupp, Bayer Material Science, Robert Bosch and Salzgitter Mannesmann Research have been involved in

the establishment of the Interdisciplinary Centre for Advanced Materials Simulation (ICAMS) as a public-private partnership at the Ruhr University Bochum; likewise, the state of North Rhine Westphalia is providing financial support to the institution. The aim is for ICAMS to bring together existing scientific expertise at the Institute for Ferrous Metallurgy at the University of Aachen and the Max Planck Institute for Iron Research in Düsseldorf. The institute will carry out simulations from the atomistic scale through to finished components in order to predict technological characteristics of materials based on microscopic structures. This is expected to dramatically shorten the length of time still required for the development and introduction of new materials.

Three professorial chairs will bring together experts in physics, chemistry, mathematics and engineering who, as university teaching staff, will oversee the education of a new type of materials engineer with mastery of both the fundamentals of physics and the development of new types of steel.

Interview

## “First-hand information is invaluable!”

**Questions for Professor Harald Fuchs, Director at CeNTech, University of Münster**

*How interested is industry in the European Research Council (ERC)?*

As well as the increased resources available in the Framework Programme, the push given to basic research through the establishment of the ERC is particularly welcome. This step represents a paradigm change for European research funding, which until now has seen basic research funding as the job of the member states.

The ERC will therefore help to even out supposed differences, as well as strengthening basic research as a component of the value chain and successfully integrating it into the innovation process. With its help, and annual funding of around 1 billion euros, the idea of excellence in the European research landscape will be reinforced and greater freedom and research opportunities in Europe offered to young scientists from all over the world. The success of this institution should be examined after a certain period of time by independent experts, evaluating aspects such as scientific autonomy, transparency and accountability.

„Joint activities are tailored to the individual university linking theory and practice.“

We in industry also want to be kept informed of emerging areas in basic research in good time, so that – without compromising scientists’ freedom – we can, through cross-fertilization of research and industry, take the lead in turning new ideas into marketable applications and products faster.

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Professor Harald Fuchs

*What are your objectives within the European Technology Platform NanoMedicine and what is your current role in this platform?*

As general representative of the University of Münster and a voting member of the nanodiagnostics working group in the ETP, I work in conjunction with colleagues from industry and academic institutions on the identification of strategic project fields, which could form the basis for future calls.

*How does the university of Münster benefit through participating in the ETP?*

There are a number of reasons to be involved in an ETP as a university partner: 1. Direct contact with industrial research and development, and contact with decision-makers from industry at the board level (the NanoMedicine ETP is coordinated with board members of the firms Philips and Siemens). 2. Insight into the entire research sector, including diagnostics, treatment and regenerative medicine, which extend far beyond the research areas of a university. This also includes joint input into

### About Harald Fuchs

Born in 1951, Professor Harald Fuchs is a specialist in scanning probe microscopy, self-organisation techniques and the use of these techniques in nanobiotechnology. A PhD from the University of Saarland and a postdoc at IBM in Zürich were followed by an industrial post at BASF. In 1993, Fuchs became director of the Institute for Physics at the University of Münster; he also heads the university’s Centre for Nanotechnology (CeNTech). In 1994, Fuchs was awarded the Philip Morris Research Prize, and is a member of the German Academy of Sciences Leopoldina. In addition to publishing more than 300 scientific papers, 10 textbooks, more than 500 conference articles and filing more than 30 patent applications, Fuchs has also been involved in the establishment of two nanotechnology start-up companies.

the formation of international regulations. 3. The joint development of new research and development fields with industry makes assessing their evaluation criteria with regard to new technologies possible from the outset. 4. The presence of both industry and university representatives means we have a loud voice in consultations on the European Framework Programme, but also in national funding programmes. The Strategic Research Agenda is a strong argument in discussions of research priorities. Representatives of national funding agencies link the ETP directly to activities in their respective member states. 5. The ETPs ultimately also lead to the formation of networks with the European Commission through events in which representatives from various directorates and directorates general participate. This also increases the visibility of the research areas that the ETPs are working on.

*What should a university academic bring along when participating in an ETP?*

The academic members of the ETPs must have international recognition in the area covered by the relevant ETP. The member-

ship of the ETP NanoMedicine is generally decided by the participating institutions, i.e. in my case the University of Münster, which is then represented by a general representative. He has the job of pooling local expertise.

*The University of Münster has also sent a national expert from your institute into the European Commission, a procedure that represents a high level of university engagement. What have your experiences of this type of cooperation with the institutions in Brussels been like?*

There are a number of aspects to this cooperation: It is first of all a special demonstration of trust from both sides; during the delegation period employees must be available to the Commission in an impartial and politically neutral capacity. With all this impartiality, we also hope that an employee with a university background will on the one hand work to ensure there is a healthy balance between basic research and applied research. The Framework Programmes have become of greater interest for well-equipped university institutes, and not just because of their increased budgets. On the other hand, our employee gains essential insights into the management of project-oriented EU-research funding, which he is then able to transfer into our university. It is important to get this first-hand experience, i.e. to better understand how research themes are agreed and at what stages the university's expertise can helpfully contribute: how peer reviews are carried out, how companies and research groups are particularly active in the European context, and what is ultimately needed for a successful, effective project? It is also vital for a better understanding of how research results are obtained and translated, who is responsible for developing the conditions for project funding, administration, and in fact research policy - and how on the other hand this influences retrospective regional and national research themes. It's all about showing that Brussels is more than just red tape – it's something worth applying to and creates good vibes amongst our researchers.

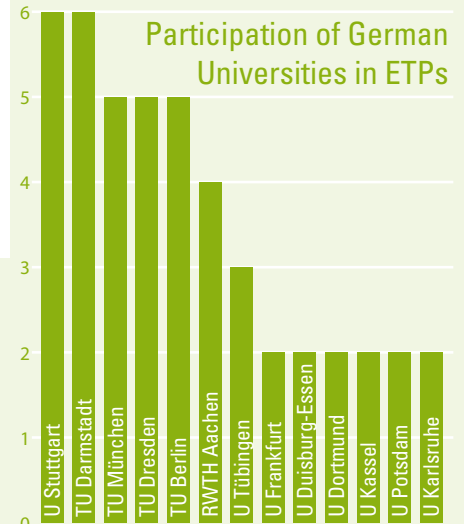
The delegation of the respective employee is usually for a limited period of time, and it is intended that he or she will return to

Münster in the medium term. To conclude, it should be said that the delegation of a university employee is invaluable for effective knowledge transfer!

## On the Way to a Common Vision

European Technology Platforms bring together industry, SMEs, research institutions and other relevant actors (for example users and consumers) from an area of industry or technology like nanoelectronics or industry. The common aim is to develop a long-term vision at the European level - and a strategic research agenda for the implementation of this vision at a European, national and regional level – through private as well as public funding.

The ETP steering committees or high level groups can, through their Strategic Research Agendas, exert a high level of influence on the annually determined themes in the relevant work programmes in the Specific Programme Cooperation. Participation in an ETP involves administrative costs, such as travel expenses for the steering committee, or perhaps secretarial and printing costs. Furthermore, the experts in the ETP's steering committee should and usually do change over every two years. Unlike industry representatives, it is less easy for university scientists to secure continued funding.



KoWi has found that 301 universities from 34 countries are involved in 25 ETPs, with 35 German universities involved in 19 ETPs. Within each specific country, a distinct university proportion - in relation to other stakeholders - participates in ETPs. Among Italian ETP participants, universities have a share of more than 15 per cent, followed by British universities (13%) and German universities (11%). One of the lowest universities' participation within their respective countries could be identified in Greece and Sweden.

Detailed information are available on request.

A general overview about the 31 thematic ETPs is available at

[http://cordis.europa.eu/technology-platforms/individual\\_en.html](http://cordis.europa.eu/technology-platforms/individual_en.html)

### Diary

#### IGLO Workshop on ERA-NETs – Networking of National Research Programmes

23 May 2007, KoWi (Brussels)

#### KoWi Bundestagung on „FP7 – Synergies between Science and Industry“

20 - 21 June 2007, University of Mainz

Please register at [www.kowi.de/en/events/bundestagung](http://www.kowi.de/en/events/bundestagung)

#### DESCA „The Simplified FP7 Model Consortium Agreement“

22 June 2007, ECOSOC Building (Brussels)

Further information available at [www.DESCA-FP7.eu](http://www.DESCA-FP7.eu)