



Leopoldina

news



Deutsche Akademie der Naturforscher Leopoldina –
German National Academy of Sciences

Halle, 11 June 2013

02 | 2013

G8 should put its weight behind research for new antibiotics

Fight against resistant pathogens is crucial / G-Science-Academies send recommendations to G8 summit in Lough Erne

The Leopoldina has drawn up a series of recommendations for the G8 summit in partnership with the national science academies of the G8 member states and five other science academies. The academies' statements will be handed to the participating governments before the G8 summit in Lough Erne, Northern Ireland, on 17 and 18 June.

The statement on "Drug Resistance in Infectious Agents – A Global Threat to Humanity" shows that one of the most important challenges facing the G8 with regard to the health of the global population is the fight against drug-resistant pathogens. People are increasingly being infected with resistant pathogens, and more and more often the drugs used to treat them, such as antibiotics, are not working. The number of multi-drug-resistant infections acquired in hospital settings is also on the rise.

"The development of drugs that can fight infectious diseases is one of the greatest achievements of modern medicine," says Leopoldina President Prof. Jörg Hacker ML. "But in order for future generations to profit from this achievement, we urgently need to address the problem of drug resistance. New drugs cannot be developed over night, yet we are already faced with a growing number of patients infected with drug-resistant agents for whom no treatment is available. This

presents all of society with a big challenge, and that is why this topic must be included on the political agenda."

The statement calls for a more considered approach to current and future drugs, with strategies defined in guidelines issued by each G8 member. It highlights the need for a more responsible approach to drug prescription for human use and to the use of antibiotics in animal husbandry. The academies recommend introducing incentives for pharmaceutical companies to develop new drugs to fight infectious disease, especially new antibiotics.

In the statement "Driving Sustainable Development: the Role of Science, Technology and Innovation", the academies explain how science and research can contribute to sustainable development. The statement asserts that many of the most pressing global challenges can only be met through strategic planning that incorporates scientific research and findings. (mik)



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► *The complete G-Science-Statements „Driving sustainable Development: the Role of Science, Technology and Innovation“ and „Drug Resistance in infectious Agents - A Global Threat to Humanity“ are available at <http://www.leopoldina.org/en/international-issues/international-statements/g8-statements/>*

Dear Members and Friends
of the Leopoldina,

14 July 2013 marks five years since the Leopoldina was appointed as the German National Academy of Sciences. This anniversary is a good



opportunity to look back at the Academy's activities and achievements since 2008. In the meantime, the Leopoldina has become an established partner on the major scientific issues facing our

society – as shown by the increased attention that scientists, politicians and the public are paying to the Leopoldina's scientifically grounded advice. With our statements on topics such as energy, preimplantation genetic diagnosis, and demographic change – to name but a few – we have prompted important discussions and have placed scientific arguments at the heart of public debate. The anniversary will be a central thread of the Leopoldina's activities throughout the year – such as the annual assembly, which we look ahead to on page 4. Our website presents a summary of all anniversary-related activities and includes a brief look back at the past five years and an overview of the planned activities. Thank you all for making our first half-decade as the German National Academy of Sciences a resounding success. I look forward to the next five years with great anticipation.

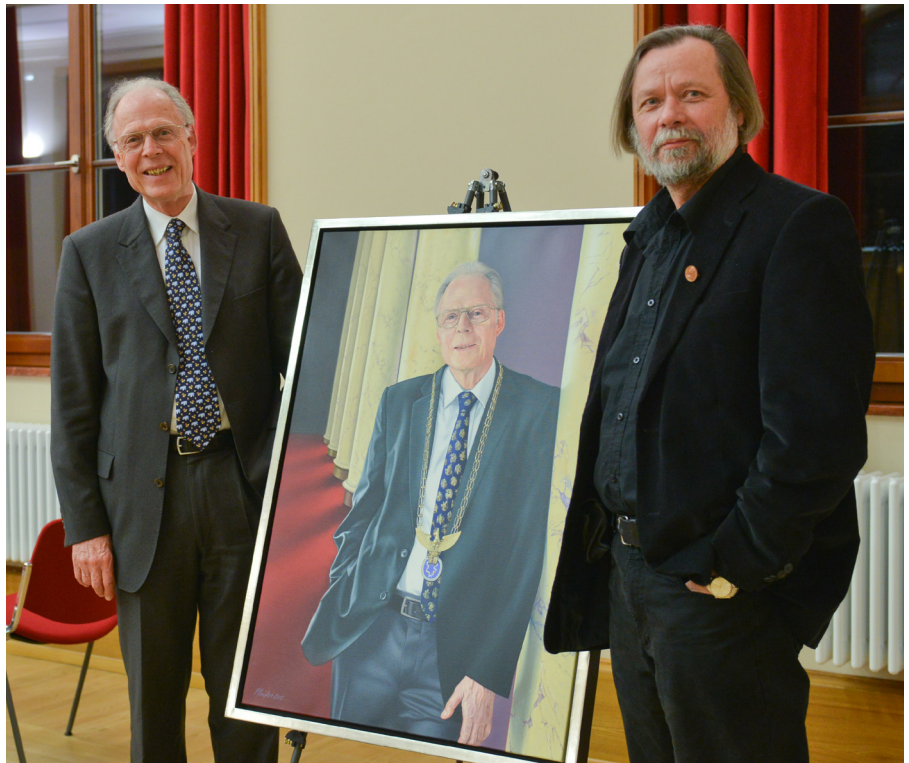
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Interview

“We’ll be entrusted with major tasks in the future“

Former Leopoldina President Volker ter Meulen reflects on his time in office and talks about his new role

The portrait gallery of the former presidents of the Leopoldina is a testament to the Academy’s long-standing tradition. In late March, the gallery received a new addition when a painting of Prof. Volker ter Meulen ML was officially unveiled in the main building. Prof. ter Meulen attended the ceremony in person. Three years after his term as Leopoldina President ended, the doctor of medicine from Würzburg is still active internationally. His diary shows that he has several long-haul trips coming up, and the reason for this is the new post to which he was elected in Rio de Janeiro in February. As one of the two co-chairs of the Inter-Academy Panel (IAP), he will steer the fortunes of the global network of science academies, which represents over 100 science academies worldwide, over the next three years. Prof. ter Meulen spoke to Ines Godazgar about his new role and the high points of his time as Leopoldina President.



Traditions are very important to you, and one such tradition, producing portraits of the Leopoldina presidents, is now centuries old. Are you pleased with the result in your case?

ter Meulen: My children like it, and I’ve had a lot of positive comments. You’re right in saying that I am a great fan of history and tradition. I think that they show us on whose shoulders we are standing.

If we compare your portrait by Halle-based artist Uwe Pfeifer to the paintings of your predecessors, your pose is fairly casual. Was that intentional?

ter Meulen: No, and you shouldn’t read too much into it. It was simply important to me that the portrait featured the new building on the Jägerberg in Halle. Uwe Pfeifer and I therefore spent some time thinking about how we could best achieve that. We walked around the building looking for suitable rooms and in the end decided that I should lean against one

Volker ter Meulen (left) was President of the Leopoldina from 2003 to 2010. Uwe Pfeifer (right) painted him for the Academy’s portrait gallery.

Photo: Markus Scholz

of the pillars in the banquet room. Uwe liked the idea of painting me in a relaxed pose. He said it suited me and, if he wanted to portray me that way, I’m sure it says something about me.

You have been a member of the Leopoldina since 1984. What are your memories of that time?

ter Meulen: I am delighted to have had the opportunity to experience all of those

“NATIONAL ACADEMY OF SCIENCES - THAT WAS A FANTASTIC ACHIEVEMENT“

years. Since 1984, I have travelled regularly to Halle to attend the annual assembly and have thoroughly enjoyed all the extremely interesting events. I can well remember the speeches given by Carl

Friedrich von Weizsäcker, as they were always a high point - also for the University of Halle. I often sensed the pressure that my colleagues from East Germany were under and how hard the Stasi tried to exert its influence on them. I therefore can’t praise the Presidium and the Senate highly enough for succeeding in fending off those attempts at that time. The Leopoldina was quite simply the last remaining East-West German scientific institution in the GDR.

You still have a very close connection to the Leopoldina. You have been a member of the Presidium since 1993 and you were the Academy’s president from 2003 to 2010. At which events from your time in office do you look back on particularly fondly?

ter Meulen: The most important event was certainly the Leopoldina being appointed as the German National Academy of Sciences. That was a fantastic achievement. This step would hardly have been possible without the support of the Federal Government. Another development closely related to the Leopoldina being named the German national academy was its transformation into a proactive working academy. In other words, we are now a national academy and therefore play a greater role in advising policymakers and society on scientific issues.

“WE ARE ACHIEVING RECOGNITION NATIONALLY AND INTERNATIONALLY“

The Leopoldina is now also much more active internationally. I was also delighted about the Academy’s new home on the Jägerberg – the financing, acquisition, and refurbishment planning for this move all started during my time in office. In moving to its new premises, the Academy has taken the necessary steps to ensure that it can remain in Halle permanently. Visitors regularly sing the praises of the prestigious new building. The new Leopoldina headquarters at the Jägerberg also show that we’ll be entrusted with major tasks in the future, too. We are achieving recognition nationally and internationally, which is also enormously important for the city of Halle and the

state of Saxony-Anhalt.

You were already very active internationally during your time in office at the Leopoldina. In 2007 that led you to be elected the first German president of the European Academies Science Advisory Council (EASAC), the most important association of national academies from the EU member states. What exactly is the council and why is it so important?

ter Meulen: Around 80 percent of the decisions made by the European Commission and the European Parliament have a scientific basis. Scientific developments can therefore be highly relevant to the work of political decision-makers and need to be taken into account in the right way. One result of this has been the national academies of EU member states offering advice and decision-making support to their governments. Europe’s political development and the increasing significance of decisions made in Brussels and Strasbourg for EU members mean that EASAC’s scientific policy advice to EU institutions is particularly important. As EASAC’s statements and recommendations are supported by the national academies of all EU member states, every EU politician can be sure that the view of his or her own national academy has been taken into account in these texts.

And what about now?

ter Meulen: EASAC is an established academy network and is accepted by the European Commission to the extent that EU institutions turn to it directly for advice. That shows that we are seen and needed as an independent voice. Our aim is to provide political decision-makers with all the information they need so they will not turn around later on, after a decision has been made in parliament, and say “If we had known that at the time, we would have decided differently.”

Since being elected co-chair of IAP, you have taken on a new challenge at the international level. What is IAP and what difference can it make?

ter Meulen: IAP is a global academy network that currently comprises 108 national academies of science. It therefore represents more than half the member

“I WOULD LIKE TO EXPAND THE EXISTING IAP-NETWORK“

nations of the UN. It encourages scientific cooperation between member academies and advises social actors on complex global issues. It is led by an executive committee co-chaired by a representative of a developing country and a representative of an industrialised country. A further aim is to support academies in developing countries and ensure that they develop networking activities like those that we have in Europe, for example.

So you were able to draw on your experiences from working at EASAC?

ter Meulen: In general, yes. After all, IAP has the same aims as EASAC, just at the international level. That allows us to provide our partners in developing countries with advice and support.

What aims have you set yourself for your time in office?

ter Meulen: I would like to expand and consolidate the existing network. That means increasing our contact with governments and organisations such as the United Nations, UNESCO and the World Bank. All that takes time to develop, and it certainly means that I will be travelling a lot in the coming months. At present, I have meetings lined up in Australia, the US, South America, Africa and China.

Thank you very much for this interview.

Volker ter Meulen

The virologist and doctor of medicine Prof. Volker ter Meulen ML served as President of the Leopoldina from 2003 to spring 2010. Under his leadership, the Leopoldina intensified its work with international bodies and became a “working academy”, publishing statements on key scientific issues facing politics and society. These activities significantly contributed to the Leopoldina being appointed the German National Academy of Sciences in 2008 by the Joint Science Conference. Volker ter Meulen still works for the Leopoldina Presidium in an advisory capacity and is active in promoting international cooperation, particularly within the European Academies Science Advisory Council (EASAC), which he chaired until 2010. He has been co-chair of the InterAcademy Panel (IAP) since February 2013.

Prof. ter Meulen is one of the world’s leading researchers on viral infections of the central nervous system, which include diseases such as subacute sclerosing panencephalitis and infections caused by coronaviruses and simian immunodeficiency viruses. In his research, Prof. ter Meulen was able to show that measles viruses disable the body’s immune responses by using glycoproteins to inhibit the formation of lymphocytes. This was a ground-breaking discovery because it revealed a new principle by which the immune system can be suppressed.



Volker ter Meulen

Photo: Jens Schlüter

(igo)

News

High-profile annual assembly on the mind, brain, genome and society in Halle

Scientific organisation by Onur Güntürkün / Federal President Gauck to attend

The preparations for the Leopoldina's annual assembly are well underway. This major scientific event will take place in Halle from 20 to 22 September and welcome Leopoldina members from all over the world. Federal President Joachim Gauck will also attend the high-profile event. The biopsychologist Prof. Onur Güntürkün ML from Bochum is responsible for the scientific organisation of this year's event and has chosen to focus on a topic that is ideal in terms of enhancing the current scientific and social debate.

"Mind, brain, genome and society" is the title of the event. When taken together, these four seemingly different terms form one of the key questions in life: How do we become the person we are? "Individual

GÜNTÜRKÜN: "A GREAT HONOUR AND A GREAT RESPONSIBILITY"

personalities are shaped by the interaction between these four elements," says Güntürkün. This interplay is decisive in shaping what defines a person.

Güntürkün is regarded in Germany as a pioneer and as the most important representative of biological psychology. He was awarded the Gottfried Wilhelm Leibniz Prize for his work earlier this year. He will give a keynote speech on "How the brain creates the mind and how the mind shapes the brain" on the first day of the assembly in the presence of Federal President Gauck.

"It is a great honour and a great responsibility to be entrusted with the scientific organisation of the annual assembly," says Güntürkün. After all, the topic, which he chose in collaboration with colleagues from his section, will play a prominent role at the event. The entire academy will discuss the topic, which is, on the one hand, a subject hotly discussed by specialist researchers and, on the other, relevant to researchers in all fields. "I am particularly



Jörg Hacker, President of the Leopoldina, at the annual assembly 2012 in Berlin. This year's annual assembly will be the first to take place in Leopoldina's new main building at the Jägerberg in Halle.

Photo: Markus Scholz

excited that the event will provide an opportunity for every member to look at this topic within the context of his or her own research background. This will be extremely valuable for the scientific debate on this subject."

Güntürkün is particularly pleased that Prof. Daniel Kahneman has agreed to attend and give a lecture. The Tel Aviv-born economist, who lectured at Princeton for many years, is particularly famous for his work on the heuristics of judgement and cognitive bias. For example, he proved that people deal differently with losses and gains, and that their decisions in this regard are largely subjective. Kahneman succeeded in finally deciphering this process, an achievement which earned him and his colleague Prof. Vernon L. Smith (Washing-

ton) the 2002 Nobel Memorial Prize in Economic Sciences. "Prof. Kahneman is an outstanding researcher," says Güntürkün, "and I was delighted that he accepted our invitation so quickly."

Güntürkün has been working on the scientific organisation of the annual assembly for two years, in addition to his other work. "I have received a lot of support from the Leopoldina," he says, adding that "it will definitely be worth all the effort, as the annual assembly has traditionally been an event that attracts a great deal of attention and has a long-lasting impact." (igo)

[You can find more information on the annual assembly at <http://www.leopoldina.org/en/events/event/event/2082/>](http://www.leopoldina.org/en/events/event/event/2082/)

International Relations

President Hacker visits Hungary

During a recent visit to Budapest, Leopoldina President Prof. Jörg Hacker ML stressed the importance of collaboration between academies and researchers. He had been invited to speak by the Hungarian Academy of Sciences (MTA) and the Hungarian Society for Microbiology.

In his lecture on “Pathogenicity Problems in Enterobacteria”, Hacker highlighted the importance of research into enterobacteria – “the microbes with many faces” – in the fight against infectious diseases. He also pointed out that microbiology is a good example of the potential of international collaboration, adding that „academies in Middle Europe need to have discussions on issues they have in common, such as gene technology questions, sustainable energy questions, and therefore it is important to come together and exchange ideas and opinions.“ Because our society is centred on science, „it is important to explain them to society, and also to inform policy makers on new developments in research and science.” (mik)

Dr. Marina Koch-Krumrei named Chevalier de l'Ordre national du Mérite

The Head of the Department of International Relations, Dr Marina Koch-Krumrei, has been awarded the insignia of the Chevalier de l'Ordre national du Mérite by French Ambassador Maurice Gourdault-Montagne in recognition of her services to German-French cooperation and mutual understanding in the scientific field. The French national order of merit has been awarded by the French president since 1963 for distinguished civil, military, public or private-sector achievements. The majority of those received into the order are French citizens, but in exceptional cases the honour is also awarded to foreign nationals. (rg)

The Leopoldina strengthens cooperation with France

Anniversary of the Elysée Treaty / Cooperation agreement signed with Académie des sciences / Proof of good Franco-German relations



Jörg Hacker, President of the Leopoldina (right) and Philippe Taquet, President of the Académie des sciences, sign the Memorandum of Understanding. Photo: B. Eymann, Académie des sciences

The Elysée Treaty was not just a milestone in Franco-German history; it also provided the impetus for the intensive collaboration between scientists from both countries that has developed over the last 50 years. It is for this reason that research and science have been given a central role in the Elysée Treaty anniversary celebrations taking place this year. The Franco-German science week formed part of the series of events. It was opened by Geneviève Fioraso, French Minister for Higher Education and Research, and Prof. Johanna Wanka, German Minister of Education and Research, with a ceremony at the Palais de l'Institut de France on 15 April.

A highlight of this opening ceremony was the signing of several cooperation agreements, the first of which was signed by Leopoldina President Prof. Jörg Hacker ML and the President of the Académie des sciences, Prof. Philippe Taquet. This agreement is a clear signal of the wish to maintain the good relations which have been established, and also refers back to a long-standing tradition: Dr

Charles Patin was the first French scientist to be accepted as a full member of the Leopoldina back in 1679. Today, the Leopoldina has almost 50 French members, including Prof. Elisabeth Giacobino ML, winner of the Gay-Lussac Humboldt Prize presented at the opening ceremony on 15 April. Her outstanding commitment to Franco-German cooperation was recognised by Prof. Gerd Leuchs ML in his laudatory speech.

Both academies have also recently worked together on successful projects. They are jointly involved in international policy advice, such as the joint statement on the biodiversity council IPBES (Intergovernmental Platform on Biodiversity and Ecosystem Services).

In his keynote speech at the event on 15 April, which was delivered together with Nobel Prize winner Prof. Claude Cohen-Tannoudji and provided the ideal conclusion to such a momentous occasion, Prof. Ernst-Ludwig Winnacker ML also emphasised the importance of these academies as an independent scientific voice. (rn)



Sharing ideas on sustainable development in the German-South African Year of Science

Leopoldina organises symposium and panel discussion on socio-ecological novelty

The German-South African Year of Science 2012/2013 came to an end in April. The aim of the initiative by the German Federal Ministry of Education and Research and the South African Department of Science and Technology was to increase and strengthen scientific exchange between the two countries.

The Leopoldina took part in the science year. In cooperation with the Academy of Science of South Africa (ASSAf), the South African Young Academy of Science (SAYAS), the Junge Akademie (JA) and the Global Young Academy (GYA), it organised a symposium called „Socio-Ecological Novelty – Frontiers in Sustainability Research“, which took place on 18 and 19 March in Berlin. The event was mainly aimed at members of German and South-African academies for young researchers and was financed by the Federal Ministry of Education and Research and the German Research Foundation (DFG).

Research on the field of socio-ecological novelty investigates new types of ecosystems that result from changes in the environment, as well as social developments. For example, SAYAS member Prof. Mathieu Rouget spoke about how foreign species are making their way into African ecosystems. Other speakers discussed sustainab-



The participants of the symposium and workshop.

Photo: Leopoldina/Michael Hötzel

le developments in medicine, architecture, agriculture, and energy production, while drawing links with the topic of socio-ecological novelty.

The final event and high point of the symposium was a panel discussion called „Bridging two Hemispheres – Policy Advice and Sustainability Research in Germany and South Africa“, which was held in the Französische Friedrichstadtkirche in Berlin. Members of the young researchers' academies discussed with Dr Günther Bachmann, general secretary of the German Council for Sustainable Develop-

ment, how topics in sustainability research might be incorporated into scientific policy advice in Germany and South Africa.

On 20 March, JA, SAYAS and GYA members had a chance to share ideas about the sustainable institutionalisation of their academies for young researchers. Workshop participants discussed how to increase dialogue between society and the scientific community, as well as opportunities for bilateral cooperation. The presidents of the Leopoldina and the ASSAf, Prof. Jörg Hacker ML and Prof. Daya Reddy, also took part in the discussions. (jn)

How environmentally friendly are biofuels?

EASAC report “The current status of biofuels in the European Union” is launched in Brussels

On 24 April representatives of the European Commission and the European Parliament presented the latest joint report by the national science academies of the EU member states, “The current status of biofuels in the European Union, their environmental impacts and future prospects”, which focuses on the sustainability of biofuels in Europe.

The key findings of the analysis and the recommendations based on these findings were presented by EASAC President Sir Brian Heap. His presentation was followed by a panel discussion between European

Parliament member Bas Eickhout, Dr Vladimír Sucha from the Joint Research Centre, Raffaello Garofalo from the European Biodiesel Board and Dr Douglas Parr from Greenpeace, before the floor was opened for questions from the audience.

The academies' recommendations are extremely topical: in autumn 2012 the European Commission presented a proposal to amend EU legislation on biofuels, which was debated in March this year by the EU environmental ministers and in the European Parliament a few days after the presentation of the EASAC report.

The report is the result of 18-months' work carried out by a group of experts from all over Europe. The starting point was an analysis of separate statements previously made by the Leopoldina, the Royal Academies for Science and the Arts of Belgium and the Royal Society on the topic of bioenergy. (csd)

► *The full report is available at our website:*
<http://www.leopoldina.org/en/international-issues/international-statements/easac-statements/>

Conference Reports

From Higgs boson to Hollywood

Class I symposium / Leopoldina lecture: Gerald Haug warns of grave consequences of climate change

“Artists want to change the laws of physics!” declared Prof. Markus Gross ML (ETH Zurich) in his opening lecture at the Class I symposium, which took place on 28 March. This, he explained, was one of the main challenges of his work. As one of the leading international authorities on visual computing, Gross explores computer animations, geometric modeling and physics-based simulations. His work provides the physics needed to portray complex scenes such as floods and smoke in a realistic way. One particular challenge in designing these elements for use in feature films, for example, is combining artistic concepts with visual quality and plausibility. Knowledge of IT, numerical analysis, physics and engineering is needed, said Gross. But, as he explained, his research has not only been of use to the entertainment industry. Physics-based simulations and animations are also used in medicine.

Why do we feel hungry? How does pain work? What happens when we get an infection? Therapeutic peptides could play an important role in providing the answers to these questions. Prof. Annette Beck-Sickinger ML of Universität Leipzig described how these molecules work and what therapy options are currently being explored. She explained that although peptides are very expensive, their targeted use in fighting tumours, for example, is extremely promising.

Prof. Rolf-Dieter Heuer ML, Director-General of CERN in Geneva, talked about the latest findings from nuclear research and explained the background to the monumental confirmation of the probable existence of the Higgs boson. CERN currently employs 2,300 people, as well as an additional 1,000 visiting researchers. Heuer pointed out that the collaboration at CERN between scientists from more than 35 countries is a remarkable example of understanding between nations.

Prof. Horst Hahn ML (Darmstadt) reported on new milestones in the nanosci-

The new members of Class I



Prof. Jörg Hacker ML welcomed the new members of Class I. Left to right: Prof. Dr. Sara van de Geer ML (Zürich), Prof. Dr. Martin Suhm ML (Göttingen), Prof. Dr. Wendelin Werner ML (Paris), Prof. Dr. Gerald Haug ML (Zürich), Prof. Dr. Annette Beck-Sickinger ML (Leipzig), Prof. Dr. Jörg Hacker ML, Prof. Dr. Klaus-Robert Müller ML (Berlin), Prof. Dr. Kurt Kremer ML (Mainz), Prof. Dr. Markus Gross ML (Zürich) und Prof. Dr. Matthias Drieß ML (Berlin).

Photo: Markus Scholz

ences, focusing on methods for controlling the tuning properties of nanocrystalline structures. The printed electronics method used here is based on the manufacture of electronic components via a standard printing process such as inkjet printing. The

MILESTONES IN NANOSCIENCE AND RESEARCH ON PROBABILITY THEORY

advantages of inorganic printed electronics are the high theoretical charge carrier mobility and the stability of the materials.

The final lecture was given by mathematician Prof. Wendelin Werner ML (Ecole normale supérieure), whose research focuses on probability theory. His work includes research on issues that lie at the interface between mathematics and physics. With the help of various geometric approaches, Werner demonstrated that

numerous long-held conjectures can be proved for two-dimensional models.

On the evening before the symposium, Prof. Gerald Haug ML (Zurich) left a lasting impression on an audience of over 200 people with his Leopoldina lecture on climate change from an earth sciences perspective. Haug stated that global greenhouse gas emissions are having an unprecedented impact on the planet's carbon cycle. Currently, he said, the seas are absorbing a large amount of these emissions. However, this will lead to ocean acidification, with far-ranging consequences for marine ecosystems. Haug combined his warnings about further global warming with criticism of the Intergovernmental Panel on Climate Change (IPCC). He believes that IPCC scenarios do not (yet) adequately consider key threshold values for ocean-atmosphere systems. (ca)

Fascinating insights into cell regulation

Class II symposium “Signals in Cell Regulation” / Lecture on the importance of sensory organs

Cell regulation mechanisms were the focus of the Class II: Life Sciences symposium on 23 May. The range of issues covered under “Signals in Cell Regulation”, the name of the event, included parallels between the blood vessel and nerve cell networks, the physical mechanisms that lead to chronic heart failure, the perception of taste, and the principles of optogenetics.

Prof. Amparo Acker-Palmer ML (Frankfurt) opened the series of scientific lectures. Her work addresses the question of how nerve cell growth is regulated so that nerves find the right “partners” to link to. Acker-Palmer showed that – just as in the directional growth of blood vessels – the key components of this process are the ephrin-B receptors on the cell surface and the extracellular protein reelin.

Prof. Lutz Hein ML (Freiburg) provided an insight into the traces left at the molecular level by disease in heart muscle cells. Epigenetic factors – those that are not coded in genetic material and are not hereditary – play a key part in the development of heart disease. These influences include diabetes, high blood pressure and stress. The discovery of the traces that epigenetic influences leave at the molecular level in heart muscle cells will allow researchers to work on cures at this level in the future.

Work on the cytomegalovirus, a widespread virus from the family of herpes viruses, was the subject of the lecture by Prof. Stipan Jonjic ML of the University of Rijeka, Croatia. He is trying to alter the murine cytomegalovirus in mice in such a way that their immune system responds more effectively to the infection. These studies have highlighted the crucial role of various receptors in the immune response that function independently of one another, which means that an appropriate immune response can still be elicited from the T-cells even if one receptor is knocked out.

Prof. Thomas Langer ML (Cologne) described the cellular mechanisms that determine the quality of mitochondria. His research has identified the proteins responsible for the fragmentation or fusion of individual mitochondria. He has thus provided an important foundation for re-

The new members of Class II



The new members of Class II were welcomed by President Prof. Jörg Hacker ML (Fifth from the right) and General Secretary Prof. Jutta Schnitzer-Ungfug (left). The new members from left to right: Prof. Dr. Raghavendra Gadagkar ML (Bangalore, India), Prof. Dr. Huanming Yang ML (Shenzhen, China), Prof. Dr. Gopinath Balakrish Nair ML (Kolkata, India), Prof. Dr. Lutz Hein ML (Freiburg), Prof. Dr. Thomas Langer ML (Cologne), Prof. Dr. Stipan Jonjić ML (Rijeka, Croatia), Prof. Dr. Wolfgang Meyerhof ML (Nuthetal), Prof. Dr. Gabriele Stangl ML (Halle), Prof. Dr. Amparo Acker-Palmer ML (Frankfurt), Prof. Dr. Peter Hegemann ML (Berlin), Prof. Dr. Hanns Hatt ML (Bochum), Prof. Dr. Ueli Grossniklaus ML (Zürich, Switzerland), Prof. Dr. Frits Richard Rosendaal ML (Leiden, Netherlands), Prof. Dr. Jiayang Li ML (Beijing, China), Prof. Dr. Gerald Rimbach ML (Kiel).

Photo: Markus Scholz

search into the pathogenesis of neurodegenerative diseases such as Parkinson’s and Alzheimer’s.

Prof. Wolfgang Meyerhof ML (Potsdam) also works at the molecular level, conducting research on the mechanisms of taste. The recognition of bitter tastes is particularly important in evolutionary terms, since it serves to identify poisons. Meyerhof showed that the human sense of taste has many different signal pathways for identifying bitter substances. With so many pathways, bitter substances can still be identified even if some pathways are knocked out.

Prof. Peter Hegemann ML (Berlin) gave the final lecture at the symposium with an account of research on light-sensitive proton channels in the cell membrane. These channelrhodopsins are the means by which individual cells respond to light. The mechanism enables single-cell algae, such as the green alga *Chlamydomonas*, in which channelrhodopsins occur naturally, to respond to light. Hegemann showed how channelrhodopsins can be introduced into other cells, for example in order to investigate the function of nerve cells.

On the evening before the symposium, Prof. Friedrich G. Barth ML (Vienna) gave the Leopoldina Lecture, in which he explained his research into sensory perception. His work focuses in particular on the spider species *Cupiennius salei*. Barth highlighted the extraordinary sensitivity of the sensory hairs possessed by this species. This sensitivity makes the spider extremely effective at catching its prey. (hst)



Friedrich G. Barth gave a lecture on sensory perception. Photo: Markus Scholz

Events

May

30 May to 11 July

LEOPOLDINA PHOTO EXHIBITION

“Neue Bilder vom Alter(n)”

Kreishaus Lüchow-Dannenberg, Königsberger Straße 10, 29439 Lüchow/Germany

June

10 June, 9.00 a.m.

SYMPOSIUM: “Modern vaccination strategies”. Symposium on the occasion of the 50th anniversary of the Franco-German Elysée Treaty

Kaiserin Friedrich-Haus, Robert-Koch-Platz 7, 10115 Berlin

July

2 July, 6 p.m.

SEMINAR ON THE HISTORY OF SCIENCE:

Michael Eckert, Munich: “Arnold Sommerfeld und die Anfänge der modernen Atom- und Quantenphysik”

Leopoldina, Auditorium, Jägerberg 1, 06108 Halle/Germany

5 July, 5 p.m.

Leopoldina Night on the occasion of the 12th Long Night of Sciences

- 5 p.m.: Opening by Jörg Hacker ML
- 5 - 11 p.m.: Interactive exhibition by the German Research Foundation

(DFG): “Von der Idee zur Erkenntnis”. The exhibition displays the diversity of current research topics across ten project stations.

- 7 - 8.30 p.m.: Leopoldina science slam
- 9 - 10.30 p.m.: Leopoldina fishbowl discussion “Mehr Zeit, mehr Geld, mehr Betreuung. Wie gelingt Deutschland eine Zukunft mit Kindern?” The audience at the fishbowl discussion will have a chance to debate current developments in family policies with experts from research and society.
- 11 - 11.45 p.m.: Lecture by Jutta Schnitzer-Ungefug “Die Leopoldina – 5 Jahre Nationale Akademie der Wissenschaften”

Leopoldina, Jägerberg 1, 06108 Halle/Germany

5 July to 2 August

INTERACTIVE EXHIBITION: “Von der Idee zur Erkenntnis”. Designed by the German Research Foundation (DFG).

Open Monday to Wednesday and Friday 9 a.m. – 2 p.m.; Thursday 9 a.m. – 6 p.m.; group reservations: <http://www.leopoldina.org/de/idee-erkenntnis/>

Leopoldina, Cafeteria, Jägerberg 1, 06108 Halle/Germany

21 to 25 July

3RD GERMAN-RUSSIAN YOUNG RESEARCHERS

COOPERATION FORUM: Organised jointly by the Junge Akademie, the Russian Academy of Sciences, the Russian Academy of Sciences’ Council of Young Scientists and the Leopoldina

Haus Humboldtstein Conference Centre, Am Humboldtstein, 53424 Remagen/Bonn/Germany

August

18 August to 20 October

LEOPOLDINA PHOTO EXHIBITION:

“Neue Bilder vom Alter(n)”

DASA - Arbeitswelt Ausstellung, Friedrich-Henkel-Weg 1-25, 44149 Dortmund/Germany

September

20 to 22 September

LEOPOLDINA ANNUAL ASSEMBLY:

“Geist - Gehirn - Genom - Gesellschaft. Wie wurde ich zu der Person, die ich bin?” Includes an evening lecture by Daniel Kahneman, winner of the 2002 Nobel Memorial Prize in Economic Sciences, Princeton/USA

Leopoldina, Jägerberg 1, 06108 Halle/Germany

► Scientific organisation:
Onur Güntürkün ML (Bochum)

People

Deceased members

Christian de Duve ML

2.10.1917 - 4.5.2013 Grez-Doiceau/Belgium

Section Genetics/Molecular Biology and Cell Biology

De Duve was among the most important pioneers in cell biology and achieved innovative insights into the composition and development of cellular structures. He discovered lysosomes and other cell components, thus succeeding, together with Albert Claude and George E. Palade

ML, in producing the first diagram of the functional organisation of a cell. In 1974, the three researchers were awarded the Nobel Prize in Physiology or Medicine. The Leopoldina elected de Duve as a member in 1973.

Louis François Hollender ML

15.2.1922 - 13.5.2011 Strasbourg/France
Section Surgery, Orthopaedics, Anaesthesiology

The Leopoldina elected Hollender as a member in 1974. As a leading French surgeon, he sought to further the development of his field and brought about technical progress on the national level. His scientific work focused on surgery of the gastrointestinal tract and research on acute and chronic pancreatitis. In addition, he developed ways to improve vagotomy and enterostomy procedures.

J. Heinrich Holzner ML

3.12.1924 - 26.2.2013 Vienna/Austria
Section Pathology and Forensic Medicine
Holzner's work focused on the field of histochemistry, that is, the investigation of tissue and cell structures in organisms. In addition to hepatic pathology, he specialised in the area of gynaecopathology. His findings on gynaecological histology and cytology brought him international recognition and led to his membership, as of 1984, in the Leopoldina.

Anders Kjær ML

10.8.1919 - 4.6.2012 Hørsholm/Denmark
Section Chemistry

Kjær's most important areas of work involved the chemistry of natural substances and plants. Within these fields, he concentrated on the structure and occurrence of organic sulphur compounds. Using the example of glucosinolates, he investigated the origin, composition and stereochemistry of these glucosides. As a result, he was able to analyse glucose in various forms. In 1974, the Leopoldina elected him as a member for his work on glucosinolates.

Hans Kummer ML

4.11.1930 - 9.3.2013 Mettmenstetten/Switzerland

Section Organismic and Evolutionary Biology

In 1982, the Leopoldina elected Kummer, an ethologist, as a member for his ground-breaking work on the social behaviour of primates, especially baboons. In his research, he addressed the social structures of species communities with a focus on internal status hierarchies, mating and competition situations. He provided evidence for the natural desire to maintain a social structure and to incorporate new members

of the community into that structure.

Christian Müller ML

11.8.1921 - 29.3.2013 Bern/Switzerland

Section Neurosciences

Müller was considered a pioneer of Swiss psychiatry due to his work on innovative treatment options and his promotion of clinical research centres. For example, he developed new treatment approaches in family therapy and played a pivotal role in introducing geriatric psychiatry as a specialisation. The fields of chronic schizophrenia, as well as of psychosomatic aspects of jaundice, diabetes and primary glaucoma were among his research specialisations, for which the Leopoldina named him a member in 1968.

Hans Günter Schlegel ML

24.10.1924 - 22.3.2013 Bovenden/Germany

Section Microbiology and Immunology

Schlegel, a microbiologist, concentrated on the analysis of bacteria in his research, with a specialisation in the observation of synthesis pathways, storage processes and phosphate metabolism. An important focus of his work was the investigation of regulation processes such as the inductive enzyme formation of ureases. Schlegel, a student of former Leopoldina president Kurt Mothes, was elected as a member of the Leopoldina in 1966.

Manfred Schulz ML

116.3.1930 - 10.2.2013 Potsdam/Germany

Section Chemistry

Schulz was active in several sub-disciplines of organic chemistry, such as photochemistry, peroxide chemistry, auto-oxidation chemistry, radical chemistry and sugar chemistry. He achieved important findings on synthesis processes and reaction mechanisms in fatty acid oxidation, sugar digestion and organic peroxide groups. He also investigated factors that inhibit and promote radical reactions in compounds containing nitrogen. The Leopoldina elected Schulz as a member in 1988.

László Szekeres ML

4.7.1921 - 9.1.2012 Szeged/Hungary

Section Physiology and Pharmacology/Toxicology

Szekeres, a pharmacologist, conducted research on metabolic heart disorders and medication-induced changes in such

disorders. The most important focus of his work was the investigation of arrhythmias and their various causes. Those causes include slowed stimulus conduction and asynchronous propagation of excitation waves, which he treated with antiarrhythmic drugs. In 1979, the Leopoldina named him a member for this work.

Newly elected members, November and December 2012

Christian Dustmann, London/UK, Professor of Economics at the Department of Economics, University College London (Section: Economics and Empirical Social Sciences)

Martin Eimer, London/UK, Professor of Psychology at the Department of Psychological Sciences, Birkbeck University of London (Section: Psychology and Cognitive Sciences)

Michael Forsting, Essen/Germany, Professor of Radiology and Director of the Institute of Radiology and Neuroradiology at the Institute of Diagnostic and Interventional Radiology and Neuroradiology, Essen University Hospital (Section: Radiology)

Markus Gangl, Frankfurt am Main/Germany, Professor of Sociology, with a focus on Social Structure and Social Policy at the Faculty of Social Sciences, Goethe University Frankfurt am Main (Section: Economics and Empirical Social Sciences)

Bernhard Hommel, Leiden/Netherlands, Professor of General Psychology at the Department of Psychology, Leiden University (Section: Psychology and Cognitive Sciences)

Wolfgang Lutz, Laxenburg/Austria, Professor of Social and Economic Statistics at the Vienna University of Economics and Business and leader of the World Population Program at the IIASA (International Institute for Applied Systems Analysis), Laxenburg (Section: Economics and Empirical Social Sciences)

Jürgen Osterhammel, Constance/Germany, Professor of Modern and Recent History at the Department of History and Sociology, University of Konstanz (Section: Cultural Sciences)

Reinhard Selten, Bonn/Germany, Prof. emer. of Economics at BonnEconLab (Laboratory for Experimental Economics at Bonn University), University of Bonn (Section: Economics and Empirical Social Sciences)

Barbara Stollberg-Rilinger, Münster, Professor of Modern and Recent History at the Historical Seminar, University of Münster (Section: Cultural Sciences)



Leopoldina
Nationale Akademie
der Wissenschaften

**Deutsche Akademie der Naturforscher
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Abbreviations:

ML = Member of the Leopoldina