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Leopoldina news

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Deutsche Akademie der Naturforscher Leopoldina –
German National Academy of Sciences

Halle (Saale), 5 April 2018

Patron visits the Leopoldina

INTERVIEW

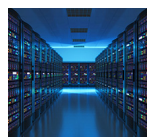
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Research Summit about
innovation culture
In conversation with
Andreas Barner

NEW MEMBERS

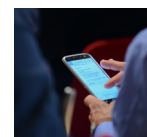
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China and Germany
celebrate cooperation
German-Chinese
Innovation Conference

Editorial

Dear members and friends
of the Leopoldina,



While industrial revolutions always bring the hope of a better life, they also create causes for concern. In today's world, many

people are once again afraid of being replaced by machines and losing their place in the world of work. Digitalisation is revolutionising the working world and forcing society to rethink the concept of work.

This year, the Science Year established by the German Federal Ministry for Education and Research and the initiative Wissenschaft im Dialog (Science in Dialogue, WiD) is focusing on the topic "Working Life of the Future". The Leopoldina is organising a dialogue forum on this issue

in mid-April, which will give attendees the chance to enter into discussions with scientists and map out their own personal "working life of the future". During a meeting of journalists also taking place in April, media representatives and a panel of experts will debate how artificial intelligence and robots are changing the economy.

Finally, the Research Summit being hosted on 17 April by the Stifterverband für die Deutsche Wissenschaft (Donors' Association for the Promotion of Humanities and Sciences in Germany), the Leopoldina and the Commission of Experts for Research and Innovation will examine the question of how research and innovation can be used to inspire businesses. In an interview on page 4, Prof. Andreas Barner, the President of Stifterverband, talks about future prospects in this area. Scientists need to think ahead to what the working lives of the future may look like and help create sustainable concepts. The current technological revolution is providing us with a chance to map out a future world of work which is creative, flexible and customisable.

With this in mind, I hope you enjoy reading this new edition.

Prof. Barner

Science between freedom and responsibility

Committees for Ethics in Security-Relevant Research established



Genome researchers also face the challenge of ethically evaluating the potential risks of their work and dealing with them responsibly.

Foto: vchalup - Fotolia

Around 70 Committees for Ethics in Security-Relevant Research (KEFs) are currently in place across Germany. In addition, 125 representatives responsible for the handling of security-relevant research have been appointed. This follows on from the recommendations on "Scientific Freedom and Scientific Responsibility" which were published by the German Research Foundation (DFG) and the Leopoldina in June 2014 and which the Joint Committee on the Handling of Security-Relevant Research (GA) has helped to implement.

The KEFs provide a means for science to deal more responsibly with the potential risks of research – without imposing excessive restrictions on the research freedom guaranteed by the German constitution. The GA has launched a survey to find out about the work being performed by the KEFs. It will use the results to describe and evaluate their impact.

In turn, political authorities will be able to use these findings to evaluate how responsibly science handles security-rele-

vant research and to assess whether additional legislation is required to further regulate such research projects or limit their funding.

The GA regularly shares information about the matter and the activities of the KEFs at events. In doing so, it aims to initiate the establishment of further KEFs and thus help ensure that research freedom is handled responsibly. The way in which the scientific community has been

willing to accept responsibility in this field from an early stage was clearly demonstrated by two workshops which the Joint Committee helped organise in October 2017. In Hannover, the risks of genome editing were discussed at a workshop entitled "Assessing the Security Implications of Genome Editing Technology". In

Darmstadt, mean-

while, the "Freedom and Responsibility in Computer Science" workshop examined how IT researchers can help prevent the misuse of their research findings, particularly in the fields of robotics, big data and IT security.

(yb, jf)

FIRST KEF-FORUM

The first KEF Forum is taking place in the Landesvertretung Sachsen-Anhalt, the representative office for the state of Saxony-Anhalt, in Berlin on 7 June 2018. The main aim of the workshop is for participants to openly share their experiences concerning the proper and responsible management of the risks associated with security-relevant research. The attendees will also use case studies to develop criteria for the evaluation of security-relevant research projects.

INFORMATION AND REGISTRATION



Pupils at the Hans-Dietrich-Genscher-Gymnasium grammar school in Halle gave German Federal President Frank-Walter Steinmeier, Elke Bündenbender and Minister-President Reiner Haseloff insights into their lives in the digital world.

Photo: David Ausserhofer

German Federal President visits the Leopoldina

Patron of the Academy discusses digitalisation during inaugural visit to Saxony-Anhalt

Freedom and responsibility are inextricably linked in science. This was one of the key messages of the speech given by German Federal President Frank-Walter Steinmeier during his visit to the Leopoldina: “Researchers who enjoy academic freedom in our country must look beyond their own research interests and take social responsibility for their work”.

Steinmeier, who was accompanied by the state’s Minister-President Dr. Reiner Haseloff, visited the Leopoldina during his inaugural trip to Saxony-Anhalt. As

the patron of the Academy, the Federal President emphasised just how vital a contribution the Leopoldina’s policy advice makes to a culture of decision-making “in which informed opinions and superior arguments ultimately count for more than crude slogans or conspiracy theories and speculation”. During the panel discussion which followed, it became clear that digitalisation is having a profound effect on the formation of public opinion. In his introductory presentation, Prof. Dr. Thomas Lengauer ML (Saarbrücken/Ger-

many), a member of the Leopoldina Presidium, examined the question of how to improve society’s digital skills. As part of the subsequent discussion, two pupils of the Hans-Dietrich-Genscher-Gymnasium grammar school in Halle provided refreshing inspiration with an insight into digital skills in the education system.

Following the event, the Federal President took the opportunity to talk with pupils in attendance and find out the views of a generation who have grown up surrounded by digital media. (ak)

Frank-Walter Steinmeier

President of the Federal Republic of Germany and patron of the Leopoldina on 10 years National Academy:

“Reason and enlightenment are more important than ever in the search for answers to the great questions of the present and the future. We must turn to experts in the fields of science and research for this. For over ten years, the Leopoldina – the German National Academy of Sciences – has been providing the political and social realms with expert advice on numerous issues that are of great importance for the future. I would like to express my deepest gratitude to the Leopoldina members, as well as to all those who have supported the Leopoldina in this demanding work.”

■ FURTHER TESTIMONIALS

10 years as National Academy of Sciences

366 years after it was founded, the Leopoldina commences its tenth year as German National Academy of Sciences in 2018. To mark the anniversary, important figures from the worlds of science and politics with links to the Leopoldina have provided statements discussing their personal experiences of the National Academy of Sciences and what it means to have a National Academy in Germany.

The quotations will be published here in Leopoldina news and on the Academy’s website throughout 2018.

■ 10 YEARS NATIONAL ACADEMY

Dr. Reiner Haseloff

The Minister President of the Federal State of Saxony-Anhalt on 10 years National Academy:

“The vital significance of the German National Academy of Sciences extends far beyond our Federal State. The Leopoldina serves as an important bridge between science and the society at large. The inexorable scientification of both the world and our lives poses major new challenges for policymakers. They need smart, independent scientific advice that is unaffected by the capriciousness of legislative periods. I am immensely grateful to the Leopoldina for fulfilling this task.”

■ FURTHER TESTIMONIALS

“Funding high-risk projects is a good idea”

Interview with Prof. Dr. Dr. Andreas Barner about the Research Summit 2018 in Berlin on 17 April

The “Innovations in Germany and Europe – Opportunities and Limits of Policy-Making” Research Summit in Berlin on 17 April is being organised by the Stifterverband für die Deutsche Wissenschaft (Donors’ Association for the Promotion of Humanities and Sciences in Germany), the Leopoldina and the Commission of Experts for Research and Innovation. We spoke to Prof. Dr. Dr. Andreas Barner, President of Stifterverband, about the need for risky innovations, the hope pinned on Brussels and why the Research Summit has proven its worth.

The aim of the Research Summit 2018 is to find answers to some of the most pressing questions around research and innovation policy in Germany. What is going well and where is there room for improvement?

Andreas Barner: The German government has done a great deal for basic research, having introduced programmes such as the Excellence Initiative and the Higher Education Pacts. In fact, we’re still a world leader in this regard.

And how is everything going on the innovation front?

Barner: Large companies are investing huge amounts and, in many cases, are leaders in their field. On the other hand, investment in research and development by SMEs is falling somewhat. It is important to ensure that investing in research remains an attractive option for business owners.

One problem is that Germany focuses too heavily on low-risk, evolutionary innovations as opposed to radical new technology. What’s your opinion on this matter?

Barner: Germany needs to take a greater interest in these types of innovations, which are often referred to as disruptive. It’s all about developing products and technologies which break new ground. To achieve this, we need to pool our resources so that we can make greater leaps forward in the area of applied research. We still haven’t reached our potential here. We already have some initial ideas about how policies could be used to support this.

Can you give me some examples?

Barner: One suggestion is to establish an



Andreas Barner has been President of the Stifterverband since 2013. Photo: David Ausserhofer

agency dedicated to selecting and funding projects focusing on challenging, complex and ambitious ideas or technologies. The objective would be to turn ideas into reality, as was the case, for example, with the driverless car project in the USA. Besides developing the necessary technology for these ideas, the aim would be to implement them in practice by building prototypes. I think that it would be a good idea to fund high-risk projects using an approach like this which does not primarily focus on basic research. This could also lead to a change in attitude and make people more willing to take risks, which is an area where Germany is still lagging somewhat behind the USA.

Prof. Dr. Dr. Andreas Barner

The President of Stifterverband on 10 years National Academy:

“In its first ten years as the German National Academy of Sciences the Leopoldina’s carefully thought-out, scientifically verifiable and clearly formulated position statements have been instrumental in forming the sound basis necessary for any discussions or debates about the difficult issues of our times and in doing so have substantially improved the political dialogue within the society at large. Congratulations for ten years of important work and many thanks in advance for the continuation of the same.”

■ FURTHER TESTIMONIALS

Germany is regarded as a world champion when it comes to exports. Is the need for risky research projects being overlooked?

Barner: German companies are very productive and remain competitive by constantly improving. However, they would be well advised to think about what they can do today to ensure they can continue to perform well in the future.

Besides looking at Germany, the Research Summit also explores EU research policy. What do you hope to see from Brussels?

Barner: EU programmes such as the European Research Council do a great deal to fund high-quality basic research. Having said that, Europe could still do more to promote basic research and its implementation in products and applications. The pooling of resources and skills in industry and research in EU countries should be stepped up, as this would present fantastic opportunities. Europe has more means of doing this than single nation-states.

Can you provide an example of this?

Barner: If all countries were to discuss and promote the topic of artificial intelligence together, this could also help Germany to make further headway in the field. While we have problems accepting and using new technology, we are highly capable in mechanical engineering and automation. This could generate valuable synergies.

The Research Summit was first held in 2015. Has it proven to be a success?

Barner: The summit enables participants from the worlds of politics, science and industry to get together and engage in in-depth discussions on current issues surrounding research and innovation. This is a unique and immensely valuable opportunity. The chance to explore different perspectives helps policymakers, academic institutions and industry to gain new insights. This has an important impact..

INTERVIEW BY BENJAMIN HAERDLE

■ RESEARCH SUMMIT 2018

“In the future, we’ll be sitting in a computer!”

Artificial Intelligence and Machine Learning – Class I symposium at the Leopoldina

These days, going for a drive in a luxury car means sitting alongside more than 130 computers, all of which are used to process information produced by the car itself or obtained from the environment by sensors. This trend is expected to explode in the years to come. “In the future, we’ll be sitting in a computer!” predicted Prof. Dr. Wolfgang Wahlster ML (Saarbrücken/Germany) in his introductory presentation at the “Artificial Intelligence and Machine Learning” symposium in the Leopoldina lecture hall on 22 March. According to Wahlster, artificial intelligence will shape the second wave of digitalisation by “generating knowledge from knowledge”. Wahlster went on to explain how today’s supercomputers are brilliant at overcoming specific challenges, such as beating a chess world champion, but still struggle with everyday problems and social intelligence.

Prof. Dr. Alexander Waibel ML (Karlsruhe/Germany) performed a practical test to demonstrate how reliable voice recognition and machine translation systems have already become. For more than 30 years, he has been using machine learning methods to research how speech can be detected by software. The “training” is partly based, for example, on phonetic knowledge. However, the software finds it difficult to cope with words that have more than one meaning. To help it pick up on context in any situation and recognise words correctly, the learning software uses statistical analysis in cases of ambiguity. The software developed by Alexander Waibel and his team was used during the symposium and also supports the work of interpreters at the European Parliament in Brussels.

In his presentation, Prof. Dr. Bernhard Schölkopf ML (Tübingen/Germany) explained the process of statistical learning. Using the example of a simple ball game being played by a self-learning robot, he showed how software can teach a robotic arm to perform the correct set of movements needed to ensure the ball reaches its target. Schölkopf went on to describe how machine learning is best known for its use in pattern recognition. To date, he said, machine learning software has been used to discover 14 confirmed exoplanets

The new members of Class I



On 21 March, the new members of Class I received their membership certificates. From left to right: Leopoldina Secretary-General Prof. Dr. Jutta Schnitzer-Ungfug (Halle/Germany), Prof. Dr. Huajian Gao ML (Providence/USA), Prof. Dr. Ulrike Tillmann ML (Oxford/GB), Prof. Dr. Donald Bruce Dingwell ML (München/Germany), Prof. Dr. Ignacio Cirac ML (München/Germany), Dr. Cordelia Schmid ML (Grenoble/France), Prof. Dr. Matthias Scheffler ML (Berlin/Germany), Prof. Dr. Bernhard Schölkopf ML (Tübingen/Germany), Prof. Dr. Dirk Trauner ML (New York/USA), Prof. Dr. Claudia Felser ML (Dresden/Germany), Leopoldina President Prof. Dr. Jörg Hacker ML (Halle/Germany) and Prof. Dr. Alexander Waibel ML (Karlsruhe/Germany).

Photo: Markus Scholz

by sifting through image databases and independently detecting signs of new planets. According to Schölkopf, however, image recognition demands a great deal of robustness because the systems cannot be taught to deal with all eventualities. He ultimately believes that the digital revolution is all about converting information.

Karlsruhe-based physicist Prof. Dr. Michael Feindt outlined how widely prediction algorithms are used in areas ranging from particle physics to innovative decision-making in industry. He stated that many systems comprise both predictable and random components, before describing how probability statements and statistics can be used to predict the future. This involves identifying the predictable components based on multi-dimensional historical data, and applying the model to current data.

To this end, Feindt uses self-learning systems known as neural networks. He explained how these systems allow industry

players to make better-founded decisions, preventing food spoilage in the retail sector, for example. Feindt warned the attendees about how German companies often fail to recognise the potential of their own data.

In his research, Prof. Dr. Frederick Klauschen (Berlin/Germany) focuses on gaining a better understanding of disease mechanisms. Machine learning could also open up new opportunities in the medical field. The Charité university hospital in Berlin prepares 250,000 tissue slides a year. This means that it theoretically has a large dataset which could help scientists make systematic advances in the use of morphological pattern recognition to detect pathological changes in cells. The aim of Frederick Klauschen’s research is to use machine learning to integrate morphological and molecular data. He believes that this will ultimately lead to doctors making more accurate prognoses when detecting tumours. (ca)



The international Silbersalz Science Film Festival will show a wide selection of films and aims to encourage dialogue between science and filmmakers.

Photo: Redpixel - Fotolia

International Science Film Festival in Halle (Saale)

Science and film industry to come together at Silbersalz Festival from 28 June to 1 July

The international Silbersalz Science Film Festival, an initiative of the charitable foundation Robert Bosch Stiftung and the Munich-based association Documentary Campus e.V., is taking place in Halle from 28 June to 1 July. Besides the Leopoldina, the initiative Wissenschaft im Dialog (Science in Dialogue, WiD) and the association science2public, the event is supported by the Media Authority of Saxony-Anhalt, the City of Halle and the State of Saxony-Anhalt.

With its combined festival and conference programme, the Film Festival will enable the general public to become better acquainted with the latest scientific discoveries and research in a wide range of fields. The objective is to encourage the wider public to actively engage with scientific issues and to enable lively discussions between scientists and visitors.

The two-day conference held at the Leopoldina on 30 June and 1 July will provide a platform for these discussions and bring together scientists and media professionals. The Festival will focus on the topic “Cyborgs: Human & Machines”, and the conference will use examples of up-and-coming developments and technical innovations in this field to show how science can generate stories of interest to the media which appeal to a wide audience.

During panel discussions, the delegates will explore the challenges of col-

laboration between scientists and media professionals as well as the obstacles and respective requirements. The guest list includes the philosopher Prof. Dr. Susan Schneider from Yale University (Princeton, USA), the communication scientist Prof. Dr. Dietram A. Scheufele from the University of Wisconsin-Madison (Madison, USA) and Georg Dahm, Managing Director of Fail Better Media GmbH in Hamburg.

The highlight of the conference will be a pitch-off, during which 15 world-renowned scientists will briefly present their latest projects to a judging panel of film and TV directors, producers and media representatives. In subsequent workshops, under the guidance of international media experts, the scientists will have the chance to turn their project ideas into exciting narratives with the potential to be used by the media. The pitches and workshops are free of charge for conference attendees. Three scientists from the audience will also be given the chance to present their respective projects in surprise pitches.

The scientific coordinator and consultant for the Festival is marine biologist Prof. Dr. Antje Boetius ML (Bremerhaven/Germany), who is also the chair of WiD's steering committee. (nk)



Antje Boetius is the Festival's scientific advisor.

Photo: Alfred-Wegener-Institut/Kerstin Rolles

Prof. Dr. Antje Boetius ML

The Professor of Geomicrobiology on 10 years National Academy:

“The discussions at the German National Academy of Sciences Leopoldina about the role of science in society and the shaping of its future are broad in scope and conducted in an open and direct manner, with composure and sustainability, unafraid of potential conflicts. I'm particularly pleased that effective internal and external activities emanate from these discussions – whether political counselling, citizen dialogue, international networking or in-house trans-disciplinary symposiums. The Leopoldina is vibrant and active and engaged - an essential meeting place.”

■ FURTHER TESTIMONIALS

China and Germany celebrate cooperation

German-Chinese Innovation Conference discusses different perspectives on policy advice

At the end of February, a German government delegation travelled to Beijing for the German-Chinese Innovation Conference. Dr. Georg Schütte, State Secretary of the German Federal Ministry for Education and Research, and Prof. Dr. Jörg Hacker ML, the President of the Leopoldina, opened the event by commemorating the 40th anniversary of the signing of the agreement on scientific and technological cooperation between China and Germany.

Jörg Hacker and Prof. Dr. Katharina Kohse-Höinghaus ML (Bielefeld/Germany) then took part in a panel discussion to share their views on the cooperation. They spoke about how topics such as renewable energy, water management, e-mobility

and sustainable urban development have shaped the cooperation in recent years and will continue to do so in the future. They also believe that more attention needs to be paid to up-and-coming fields like artificial intelligence and quantum technology.

Jörg Hacker mentioned how both countries are facing some similar health policy challenges, such as ageing populations and the use of personalised medicine to treat cancer, which present opportunities for greater collaboration. Drawing on the example of global health, the President of the Leopoldina also emphasised the importance of coordinated joint activities. He said that the academies are experi-

encing particular demand for advice on political and social affairs. The Leopoldina is in close contact with various Chinese partner academies and eight of its current members are from China.

The academies provided support for a G20 summit for the first time in 2017 and, according to Jörg Hacker, this demonstrated how policymakers can successfully be advised on a scientific, multilateral basis. During the discussion, Katharina Kohse-Höinghaus stressed the need to support young scientists. She reported on her positive experiences with Chinese PhD students and called for yet closer collaboration between the two countries. (rn)

German Science Day in Iran paves the way for cooperation

Calls for deeper relations in the areas of science, technology and education

The first German Science Day in Iran took place in Tehran at the end of February. More than 60 participants from Germany and over 200 representatives from around 30 Iranian higher education and research establishments accepted the invitation to attend from the Iranian Ministry of Science, Research and Technology and the German Federal Ministry for Education and Research.

The aim of the event is to further strengthen German-Iranian cooperation following significant improvements in re-

lations between the two countries in the fields of science, technology and education since the conclusion of a nuclear deal between the Islamic Republic of Iran, the five permanent members of the United Nations Security Council and Germany.

German Ambassador Michael Klor-Berchtold and the Iranian Deputy Minister of Science for International Affairs, Hossein Salar Amoli, opened the Science Day, which was held on the campus of the Iran University of Science and Technology. The event provided a forum for parti-

cipants to discuss the scientific landscape and the state of research funding in the two countries, as well as examples of best practices in collaborative scientific work, and lay the foundations for future collaboration and research projects.

Besides the Leopoldina, delegates from the most important German universities and scientific and research funding organisations were in attendance. The bilateral exchange programme is set to continue with an Iran Science Day in Germany in 2019. (chw)

Educational mobility and university rankings

First Global Young Academy Lunchtime Talk held at the Leopoldina

At the first Global Young Academy (GYA) Lunchtime Talk held at the Leopoldina, GYA member Dr. Benjamin Hennig, a geographer at the University of Iceland, spoke about inequality in higher education. He used cartograms – maps presenting data on social structures which are distorted in order to convey the information being presented – to illustrate the impact of social inequality on education systems.

Drawing on examples from the UK

and Germany, he discussed the unequal distribution of educational resources and the effects of this on social educational mobility and access to higher education. Hennig was critical of current developments in higher education in both countries, such as the growing emphasis placed on university rankings. He believes that this leads to science becoming all about numbers and to the introduction of economic market mechanisms in education.

He said that this can also be seen in Germany, where funding tends to be given to the privileged few instead of being shared across a broad range of universities. He explained that German policymakers can learn from the British move to deregulate and partially privatise universities, and should concentrate on more long-term education policy as opposed to short-term gains. (amg)

EASAC calls for steadfast efforts to meet Paris climate target

The European Academies' Science Advisory Council (EASAC) presented its report "Negative Emission Technologies: What Role in Meeting Paris Agreement Targets?" in Brussels at the start of March. Around 80 participants attended the discussion in the Library of the European Parliament, where they were presented with the most important insights into negative emission technologies (NETs) gained by the national science academies of the European Union member states as well as Norway and Switzerland.

According to EASAC's report, many climate models are overestimating the capacity of NETs to help achieve the key goal of the Paris agreement: to keep the global temperature rise, measured against pre-industrial levels, to below 2 degrees. This does not, however, mean that conducting research on NETs (new technologies for removing carbon dioxide from the atmosphere) is no longer considered worthwhile. But the findings have prompted



In Brussels, the European academies encouraged policymakers to demonstrate persistence in working towards climate targets.

Photo: Molly Hurley-Depret, EASAC

the EU's national academies, including the Leopoldina, to call for European policymakers to estimate the benefits of NETs more realistically. The academies are also urging political players to persevere in efforts to reduce CO₂ emissions.

Representatives of the European Commission, the European Parliament,

non-governmental organisations and industrial associations participated in the panel discussion about the report.

The event took place in cooperation with the European Parliamentary Research Service. (csd)

■ EASAC STATEMENT

Make European pesticide authorisation system more effective

In March, the EU-funded project Science Advice for Policy by European Academies (SAPEA) finalised the report "Improving authorisation processes of plant protection products: a scientific perspective focussing on human health". The SAPEA project consortium, which comprises the Academia Europaea, ALLEA, EASAC, Euro-CASE and FEAM academy networks, is an integral part of the European Commission's Scientific Advice Mechanism (SAM).

The SAPEA project brings together the scientific expertise of the members of more than 100 academies, Junge Akademien (young academies) and learned societies in over 40 countries across Europe and gives policymakers at the

European Commission access to interdisciplinary scientific knowledge. The most recent report was commissioned by the EU Commissioners for Health and Food Safety and Research, Science and Innovation and demonstrates how the latest scientific findings could be used to make the existing EU pesticide authorisation system more effective, efficient and transparent.

The scientists involved in the project concentrated on the protection of human health and identified 26 options for improving pesticide regulations in Europe. The SAPEA report forms the scientific basis for the Scientific Opinion developed by the SAM High Level Group of Scientific Advisors.

(csd)

Global statement on food and nutrition security

In mid-February, around 20 selected experts from four regional working groups representing the science academies of Europe, Africa, the Americas and the Asia/Pacific region met as part of the project Food and Nutrition Security and Agriculture (FNSEA), which is being conducted by the Inter-Academy Partnership (IAP) – the global network of science academies – and funded by the German Federal Ministry for Education and Research (BMBWF). The objective of the meeting at the Leopoldina in Halle was to prepare a global statement on food security and sustainable agriculture.

The meeting was chaired by the President of the InterAcademy Partnership and former Leopoldina President Prof. Dr.

Volker ter Meulen ML (Würzburg) together with Prof. Dr. Joachim von Braun ML (Bonn). At the top of the agenda was the need to agree on a series of key declarations and recommendations for the statement. The participants also discussed theoretical matters, such as the concept of global common goods.

The global statement will include a summary of the four regional reports prepared by the working groups. It will also explore the similarities and differences between the four global regions, highlight important universal aspects of the topic and provide global recommendations for action. The IAP is due to publish the global report in autumn 2018.

(csd)

People

Lorraine J. Daston ML, Lorraine J. Daston ML, Director and Scientific Member of the Max Planck Institute for the History of Science, has been awarded the Dan David Prize. Named after the Israeli businessman Dan David, the prize is awarded annually to people who have excelled in technological, scientific, social or cultural fields. Lorraine J. Daston is a science historian who conducts research on the ideals and practices of rationality. Her work focuses on the history of humanities and science in Europe in the early modern period.

The physicist and materials scientist **Herbert Gleiter ML**, Scientific Member of the Institute of Nanotechnology at the Karlsruhe Institute of Technology (KIT), has been made a Senior Fellow of the Institute for Advanced Study (IAS) at the City University of Hong Kong. Gleiter's research focuses on nanocrystalline materials, a field which he helped found. Four other members of the Leopoldina – Nobel Prize winners Klaus von Klitzing ML and Jean-Marie Lehn ML, as well as materials scientists Ke Lu ML and Tobin J. Marks ML – are also Senior Fellows of the Institute for Advanced Study (IAS) at the City University of Hong Kong.

Christian Haass ML, Chair of Metabolic Biochemistry at the Ludwig Maximilian University of Munich and Spokesperson for the Munich Site of the German Center for Neurodegenerative Diseases (DZNE), has been awarded The Brain Prize 2018 together with three other neuroscientists, Michel Goedert, John Hardy and Bart De Strooper. The world-renowned prize for brain research pays tribute to their work on the genetic and molecular basis of Alzheimer's disease. Haass began to research the topic back in 1990, when very little was known about the molecular mechanisms of dementia. According to his findings, genetic mutations in the brain alter the function of special immune cells called microglia. This can cause Alzheimer's disease to develop. Modulating the activity of the microglia could present a new treatment approach.

The gynaecologist **Marion Kiechle ML**, the former Director of the Department of Gynaecology and Obstetrics at the rechts der Isar University Hospital of the Technical University of Munich, has been named Minister of Science and Art of the Free State of Bavaria.

Thomas Lengauer ML, Director at the Max Planck Institute for Informatics in Saarbrücken and Member of the Leopoldina Presidium, has been made President of the International Society for Computational Biology (ISCB). The ISCB studies the function of living organisms on a molecular level, contributing among other things to a better understanding of the molecular basis of diseases. Besides analysing resistance to viral infections such as HIV, Lengauer advocates collaboration between pharmaceutical research, health research and biotechnology to help researchers gain a more precise understanding of the complex interactions of the various biomolecules found in organisms.

Frauke Melchior ML, Professor for molecular Biology at the University of Heidelberg/Germany was awarded with the „FEBS | EMBO Women in Science Award 2018“. The prize, jointly initiated by the Federation of European Biochemical Societies (FEBS) and the European Molecular Biology Organization (EMBO) honors outstanding achievements of researchers in Lifesciences. Frauke Melchior received the award for her groundbreaking work in the field of protein research and her involvement in fostering junior researcher.

New members of Class I

Claudia Felser ML, Claudia Felser ML, Director and Scientific Member of the Max Planck Institute for Chemical Physics of Solids in Dresden/Germany (Chemistry Section)

New members of Class II

Joachim von Braun ML, Bonn/Germany, Center for Development Research at the University of Bonn (Agricultural

and Nutritional Sciences Section)

Heyo Kroemer ML, Göttingen/Germany, Faculty of Medicine at the Georg August University of Göttingen (Physiology and Pharmacology/Toxicology Section)

Peter Piot ML, London/Great Britain, London School of Hygiene and Tropical Medicine (Microbiology and Immunology Section)

Helga Rübsamen-Schaeff ML, Wuppertal/Germany, Chair of the Scientific Advisory Board of the AiCuris Antiinfective Cures GmbH (Microbiology and Immunology Section)

New members of Class IV

Ottmar Edenhofer ML, Potsdam/Germany, Institute for Climate Impact Research (Economics and Empirical Social Sciences Section)

Ortwin Renn ML, Potsdam/Germany, Institute for Advanced Sustainability Studies e.V. (Economics and Empirical Social Sciences Section)

Deceased members

■ **Sir Alan R. Battersby ML**

4 March 1925 – 10 February 2018 | Cambridge, Great Britain
Chemistry

Sir Alan R. Battersby had been a Professor of Organic Chemistry at the University of Cambridge, Great Britain, since 1969 and was known for his research on the biosynthesis of haem, chlorophyll and vitamin B12. He was elected a Fellow of the Royal Society in 1966 for his pioneering contributions to research and was knighted in 1992. Over the course of his career, his work was recognised by numerous national and international awards, including the Royal Medal (1984) and the Copley Medal (2000), both of which were presented by the Royal Society. Sir Alan R. Battersby became a member of the Leopoldina in 1967.

■ Günther Blobel ML

**21 May 1936 – 18 February 2018 |
New York, USA**

Genetics/Molecular Biology and Cell Biology

Günter Blobel, Professor of Biochemistry at The Rockefeller University in New York (USA), achieved worldwide recognition for his research contributions, which played a significant role in the establishment of molecular, biochemical cell biology. He gained international acclaim for his work in 1999 when he was awarded the Nobel Prize for his groundbreaking discovery that protein molecules have intrinsic signals which direct them to the correct location within the cell. Investigating these complex mechanisms of protein transport in cells could help scientists to localise and correct errors, including those which cause serious diseases such as cystic fibrosis. Blobel's childhood memory of witnessing the bombing of Dresden during the Second World War stayed with him throughout his life, so much so that he decided to donate his Nobel prize money to the rebuilding of the Frauenkirche (Church of Our Lady) and the construction of a new synagogue in the city. Blobel was elected a member of the Leopoldina in 1983.

■ Hans-Walter Georgii ML

**3 November 1924 – 23 January
2018 | Oberursel, Germany**

Earth Sciences

Hans-Walter Georgii was a Professor of Atmospheric Physics at the Department of Meteorology and Geophysics at the University of Frankfurt from 1965 to 1993. His father was a meteorologist and a pioneering researcher in the field of gliders.

Hans-Walter Georgii's areas of research focus included atmospheric sulphur balance and the constitution of the particles involved in cloud formation. He also conducted applied research in the field of air purification and, in 1966, set up the first German air monitoring station in the grounds of the university department. The station was later handed over to the German Federal Environment Agency. Hans-Walter Georgii was elected a member of the Academy in 1985.

■ Karl Wilhelm Oelßner ML

**3 March 1920 – 2 February 2018 |
Leipzig, Germany**

Radiology

Wilhelm Oelßner was a German doctor and radiologist. After studying human medicine, he was appointed Chair of Radiology and Radiotherapy at Leipzig University in 1959, one of the first three positions of its kind in Germany. He was also the director of the university's Radiology Clinic from 1958. He held both posts until his retirement in 1984. Despite the difficult economic and political conditions at the time, Oelßner turned the clinic into a modern, highly successful department. He also conducted research in the fields of radiotherapy and diagnostics, receiving many awards and honours for his work. Wilhelm Oelßner became a member of the Leopoldina in 1978.

■ Christoph Johannes Rüchardt ML

**10 August 1929 – 22 February 2018
| Stegen, Germany**

Chemistry

After research stays in the USA and Münster, Christoph Rüchardt was made a full professor of organic chemistry at

the Albert Ludwig University of Freiburg in 1971. He will be remembered for his research of chemical reaction processes, and his extensive experiments on thermodynamics contributed to our fundamental understanding of the thermodynamics of numerous reaction processes. Besides his research and teaching activities, he was involved in academic administration and was rector of the University of Freiburg from 1987 to 1991. As rector, he placed particular value on planning for the university's future and on the social responsibility of science. He was awarded the 1st Class Order of Merit of the Federal Republic of Germany for his services. Christoph Rüchardt was elected a member of the Leopoldina in 1991.

Leopoldina employees

The Presidential Office has welcomed **Dr. Anita Krätzner-Ebert** to the Leopoldina, where she has assumed the position of Scientific Officer in the Office of the Joint Committee on the Handling of Security-Relevant Research established by the Leopoldina and the German Research Foundation (DFG).

Dr. Sarah Wilewski has been appointed Academic Coordinator at the Junge Akademie, while Nemanja Djokovic has taken on responsibility for coordinating events and administrative matters.

In March, **Lena Diekmann** began working as an assistant in the Science-Policy-Society Department.

Torsten Roeder took on the role of Scientific Officer in the Centre for Science Studies in April.



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Jägerberg 1
D-06108 Halle (Saale)
Phone: +49-345/4 72 39 – 800
Fax: +49-345/4 72 39 – 809
Email: presse@leopoldina.org

Editing:

Caroline Wichmann (cw)
Daniela Weber (dw)
Axel Kunz (ak)
Justus Kröger (jkr)
Sophie Lindner (sl)

Other editors:

Prof. Dr. Jutta Schnitzer-Ungefug (jsu) (responsible)
Prof. Dr. Dr. Gunnar Berg ML (gb)

Other authors of this issue:

Dr. Christian Anton, Senior Officer Department Science - Policy - Society (ca)
Yvonne Borchert, Project Coordination Office of the Joint Committee for the Handling of Security-Relevant Research (yb)
Dr. Christiane Diehl, Deputy Head International Relations Department (csd)
Dr. Johannes Fritsch, Head of Office of the Joint Committee for the Handling of Security-Relevant Research (jf)
Godel, Head of Department Centre for Science

Anna-Maria Gramatté, Project Officer Global Young Academy (amg)
Benjamin Haerdle, freelance Journalist, Leipzig (bh)
Nina Kock, Silbersalz Festival (nk)
Axel Kunz, Editor Press and Public Relations Department (ak)
Dr. Ruth Narmann, Deputy Head International Relations Department (rn)
Christian Weidlich, Senior Officer, Department International Relations (chw)

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Abbreviations: ML = Member of the Leopoldina