



Leopoldina  
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der Wissenschaften

# Leopoldina news

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## Annual Assembly of the Leopoldina

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# Editorial

Dear Members and Friends  
of the Leopoldina,



Artificial intelligence (AI) – this concept triggers certain associations: Positive associations with the potential of data proces-

sing in a world that only continues to grow in complexity, and negative associations, such as the prospect of intelligent machines developing a sort of independent existence. Or even impartial associations, for example efforts to advance research in this area. As a scientist, I prefer to view things impartially. At a conference in Paris organised by the French Académie des Sciences and the Leopoldina in mid-September, I met researchers who are discussing how the specialised fields of AI and robotics can become even more closely intertwined and the ways in which researchers in Europe can work together to realise this goal (page 10).

But I find it just as important to take concerns about AI seriously. Frustration in the face of new technology cannot simply be discounted by saying, “People will get used to it”. People must be involved in the decisions made about how new technologies will shape everyday life in the future. They must be informed and invited into expert discussions. This month, the Leopoldina has contributed a discussion on the topic of Work 4.0, opening up a dialogue about the future of our labour market (page 8). The statement “Privatheit in Zeiten der Digitalisierung” (“Privacy in the age of digitalisation”), due to appear in November, focuses on protecting personal data when using digital services. This topic will continue to be relevant in 2019 because the German Federal Ministry of Education and Research has included AI on its agenda for the Science Year.

I am excited to see what new opportunities to engage in a dialogue present themselves. I hope you will join in the conversation and that you enjoy reading this exciting issue.

*Jörg Hacker*

## Nature – Science – Society

Annual Assembly in the 10th year as National Academy



Minister President of Saxony-Anhalt Reiner Haseloff, Federal Minister of Education and Research Anja Karliczek and President of the Leopoldina Jörg Hacker (left to right) were delighted by the words of welcome and good wishes for the Academy at the opening of the Annual Assembly.

Photo: Leopoldina | David Ausserhofer

*The 2018 Annual Assembly of the Leopoldina took place from 21–22 September under the motto “Nature – Science – Society”. It marked the ten-year anniversary of the Leopoldina’s appointment as National Academy by looking back over the great diversity of its work to date and also casting a glance to the future.*

In his speech, the President of the Leopoldina, Prof. Dr. Jörg Hacker ML (Halle), emphasised that the traditional basic idea of every academy – that an interdisciplinary network of excellent researchers to sustainably promote science and the common good – is more relevant now in the 21st century than ever before. To illustrate the debates currently taking place, he mentioned the discussion about trust in science, social disputes surrounding the use of new technologies such as biomedicine or big data. He also addressed the growing demand from the public and political spher-

es for justification of the benefits of individual research projects, emphasising the open-endedness of results in basic research.

In her welcoming address, German Federal Minister of Education and Research Anja Karliczek made clear the pertinence of science-based policy advice; one of the core functions of the Leopoldina. In the run-up to a vote on euthanasia in the German parliament in 2015, she personally was not comfortable relying on intuition, emotional intelligence and individual case reports. “To make such a major decision, you need detailed knowledge of how people are cared for at the end of their life – and that knowledge has to be based on scientific analysis,” she explained. She was very grateful for the statement on palliative care published by the Leopoldina.

Minister President of the federal state of Saxony-Anhalt Dr. Reiner Haseloff shared a similar experience, praising nu-

### ANNUAL ASSEMBLY 2019

Next year, the Leopoldina is dedicating the Annual Assembly to the topic of “Time in Nature and Culture”. From 20–21 September, scientists will come together in Halle (Saale) to discuss technological developments and societal changes. The spotlight will be on our sense of time and how time is understood in mathematics, chemistry, music, and cosmology as well as in chronobiology and medicine. According to the American politician, Benjamin Franklin, “Time ... is the stuff life is made out of.”



The Annual Assembly always presents the opportunity for discourse: The relationships between nature, society and our understanding of nature took centre stage at the panel discussion, where individual aspects were called into question (left). The breaks between lectures offered an opportunity for conversation, here between Beate Schücking, Rector of the Leipzig University and Martin Lohse, Vice President of the Leopoldina.



Photos: Leopoldina | Markus Scholz and David Ausserhofer

merous committees and working groups at the Leopoldina for their independent policy advice, for example on the energy transition and stating, “It was important to de-ideologise these topics.”

Prof. Dr. Dieter Spath, President of acatech – National Academy of Science and Engineering, praised the cooperation between academies, saying they bring about unity across the diverse range of disciplines and methods and work together in the areas where cumulative competence is necessary. To exemplify this cooperation, he pointed to the construction of energy systems of the future, and the transformation due to digitalisation.

### Transparency and acceptance

Prof. Dr. Hanns Hatt ML, President of the Union of the German Academies of Sciences and Humanities, emphasised the need for greater transparency. He stressed that society is entitled to have a share in science. At the same time, science is obliged to relay information and reach out to the public. Prof. Dr. Reimund Neugebauer ML, the 2018 spokesperson for the Alliance of Science Organisations, called for increased transparency, acceptance, communication and benefits of research. He continued to say that if potential misunderstandings are likely to cause a division in society, we cannot depend entirely on politics; science also has to play an active role.



The Leopoldina publications attracted keen interest.

Photo: Leopoldina | Markus Scholz

The expert lectures held during the two-day Annual Assembly showcased the Leopoldina’s scientific talent, discussing topics including science-based consulting as a method for sharing research with society, the contribution of the sciences to sustainable development, and digitalisation.

In the panel discussion moderated by the Vice President of the Leopoldina, Prof. Dr. Gunnar Berg ML (Halle), it became clear how difficult it can be for science to gain acceptance in society, as illustrated by animal testing and the consequences of conventional agriculture. Prof. Dr. Gerald Haug ML (Mainz), Prof. Dr. Frank Rösler ML (Hamburg), and Prof. Dr. Ernst-Ludwig Winnacker ML (Munich) were on the panel alongside Prof. Dr. Bärbel Friedrich

ML (Berlin) and Prof. Dr. Brigitte Vollmar ML (Rostock).

The Lectures by Prof. Dr. Uta Frith (London, UK) and Prof. Dr. Wolfgang U. Eckart ML (Heidelberg) addressed the role of academies in the area of tension between the nation state and pluralism. In her lecture, Prof. Dr. Ursula M. Staudinger ML (New York) outlined the opportunities that the increase in life expectancy which have been recorded over the last 100 years could hold for society and individuals. Prof. Dr. Frank Rösler ML (Hamburg) spoke on the significance of socialisation in early childhood.

The conference emphasised the importance of research findings for society, particularly in the field of medicine. Prof. Dr. Katja Becker ML (Gießen) described the rapid spread of antimicrobial resistance and shone a light on the measures that need to be taken not only by politics and science, but also by society and industry in order to prevent the risk to humanity from growing.

### Research in the kaleidoscope

Taking refugees as an example, the stress researcher Prof. Dr. Christine Heim (Berlin) demonstrated that the traumatic experiences suffered as a result of war and forced displacement can increase the long-term risk of illness, particularly in the case of children, adolescents and pregnant women. Prof. Dr. Lukas Radbruch (Bonn)

provided an insight into the current status of palliative care and the research in this field. Against the backdrop of the United Nations' Sustainable Development Goals (SDG), Prof. Dr. Peter Fritz ML (Leipzig) stressed the need for greater cooperation with African partners in the area of water management. In her talk on food security and agriculture, Prof. Dr. Regina Birner (Stuttgart) made the case for more direct methods for sharing scientific information with the public, for example through talks and discussion events or via social media. Furthermore, she argued that more should be done to support empirical research on political processes in the agriculture and food system.

The great importance of sustainability was also made apparent in the field of energy supply. The lectures given by Prof. Dr. Bärbel Friedrich ML (Berlin), Dr. Tobias Erb (Marburg) and Prof. Dr. Matthias Beller ML (Rostock) highlighted the fact that a sustainable energy supply is possible, and that the widest range of technologies – for instance synthetic biology – can play a crucial role in this.

In the field of digitalisation and modern technology, Prof. Dr. Christine Silberhorn ML (Paderborn) drew attention to the potential benefits which could emerge from the broad field of quantum technologies. Prof. Dr. Sami Haddadin



*Volker ter Meulen, who was President of the Leopoldina from 2003 till 2010 and Annette Schavan, German Federal Minister of Education and Research between 2005 and 2013, were among the guests.*

Photo: Leopoldina | Markus Scholz

(Munich) spoke on the rapid development of machine intelligence. He hopes that in 50 years, robotics will be considered to be at least as significant as the internet.

The presentation by Prof. Dr. Thomas Lengauer ML (Saarbrücken) on big data brought with it a contemplative atmosphere, discussing the limits of data analysis in determining causalities. He announced that the Leopoldina will publish a statement on the topics of big data, data protection and privacy in November. (bh)



*The Annual Assembly marked ten years since the Leopoldina was appointed National Academy.*

Photo: Leopoldina | Marcus Scholz

## ANTJE BOETIUS SPEAKS ON "ALIEN NATURE" IN THE EVENING LECTURE

"We have really lost touch with nature." This was the statement with which Prof. Dr. Antje Boetius ML opened her evening lecture. The "fantastic audience" in Halle was reason enough for her to stop off at the Leopoldina Annual Assembly on her journey from a conference in Finland to the United Nations in New York. And when it comes down to her very own field, oceans and cryospheres, she considers it just as important to speak to this audience as it is to offer policy advice. With her expert knowledge and clear communication style, she made the case for preserving and protecting these largely unknown expanses of water and ice.

Since finishing her Diplom thesis, the microbiologist has been on almost 50 expeditions. She recalled how the Polarstern ship had to break through around four metres of pack ice in 1993, and how the research ship can now pass through the arctic waters unhin-



*Marine researcher Antje Boetius spoke on oceans and the ways they are used by humans.*

Photo: Leopoldina | David Ausserhofer

dered. As the Director of the Alfred Wegener Institute at the Helmholtz Centre for Polar and Marine Research in Bremerhaven, she is set to depart on another expedition soon – and to once again face the tension between "eyewitness accounts and hard data". And to be confronted again with the question of whether we humans want to interpret the receding ice as an acquisition of resources or the loss of nature.

She aims to raise awareness, disseminate information, debate and offer advice on this question, which is just as much a personal mission as it is part of her research. This has earned her two awards in 2018: the Communicator Award and the German Environmental Prize. But at the end of the day, it all comes down to the relationship between humans and nature and raises the question: "How much are humans and nature worth to each other?" (dw)

## Early Career Award presented

Global urbanisation is one of the most important trends in global change. The research conducted by this year's winner of the Early Career Award granted by the German National Academy of Sciences Leopoldina demonstrates the sophisticated methods now available for investigating and analysing these changes. The Munich-based scientist Prof. Dr. Xiaoxiang Zhu was awarded the 30,000-euro prize sponsored by the Commerzbank Foundation as part of the Annual Assembly.

Xiaoxiang Zhu, born in 1984, has been Professor in the Department of Civil, Geo and Environmental Engineering at the Technical University of Munich (TUM) since 2015. The appointment is shared with the German Aerospace Centre (DLR), where she heads the Department for Data Science in the Earth Observation Centre. Her research uses satellite-based earth observations to map cities and the changes taking place there. For that purpose, Zhu has developed new radar pro-



*Xiaoxiang Zhu's family travelled to the Leopoldina in Halle for the event to see her receive the Early Career Award.*

Photo: Leopoldina | David Ausserhofer

cesses and data analysis algorithms which combine the satellite data with information derived from social networks. To be able to analyse the massive amounts of data collected from such diverse sources, Xiaoxiang Zhu uses machine learning with deep neural networks for recognising and assessing images. Through this work,

she has become a pioneer of deep learning for earth observation.

The Early Career Award has been awarded every two years since 2010. It honours scientists who have made outstanding achievements in any of the fields represented at that year's Leopoldina Annual Assembly. (jk)

## How pigeons and humans think: Fireside chat with Onur Güntürkün

Running parallel to the the Annual Assembly, the Leopoldina and the Literaturhaus Halle presented the third "Science by the fireside" event. This year's guest was the neurobiologist Prof. Dr. Onur Güntürkün ML (Bochum). Facing the well-filled rows of people in the Literaturhaus' large auditorium, he chatted with Ralf Meyer about his life, his research and the major questions on animal and human thought.



*The neurobiologist Onur Güntürkün.*

Photo: Leopoldina | Markus Scholz

The dialogue between the guests on stage loosened up every now and again to explore, for example, evolutionary sense and the functional necessity of the two cerebral hemispheres, and Onur Güntürkün's personal interest in pigeons in scientific progress. While it

takes a great deal of patience and seeds to persuade a pigeon to cooperate, Güntürkün quickly won the audience over and piqued their interest in neurobiological research using words alone.

Using a wide range of examples, he highlighted the functional similarities in the cognitive abilities of pigeons and humans which emerge in nature in spite of entirely different structural solutions. To close, when asked about his view of

German-Turkish relations, Güntürkün spoke of the long tradition and significance of scientific exchange between the two countries, even in times of political difficulty.

(ew)

## Senate session on current activities

In the run-up to the Annual Assembly, the Leopoldina Senate convened according to schedule on 20 September for its annual meeting in Halle (Saale). The Chairing Committee of the Academy informed the senators and guests in detail about current developments in the Academy and important topics in the areas of political and social policy advice, international activities and press and public relations.

In addition to ratifying the Chairing Committee for the 2017 financial year, the Senate decided on the topic for the 2020 Annual Assembly. "Biodiversity in Central Europe – what does the future hold?" was chosen as the working title. The suggestion came from Prof. Dr. Ulf-Ingo Flüge ML (Cologne), Prof. Dr. Susanne Renner ML (Munich) and Prof. Dr. Miguel Vences ML (Braunschweig) from the Organismic and Evolutionary Biology Section. The programme commission will soon start on the concrete preparations and ground-work. (jb)

# The intestines as part of the immune system

Class III symposium presents the latest developments in clinical medicine

*With a surface the size of a tennis court, the intestines make up the largest organ in the human body. At the opening of the Leopoldina symposium on Class III medicine, held 11–12 July in Halle (Saale), Germany, Prof. Dr. Britta Siegmund ML gave a public evening lecture on how the intestines protect against diseases.*

The doctor from the Charité – University Medicine Berlin described how a myriad of organisms such as bacteria, viruses and fungi, make up the complex ecosystem known as the intestinal microbiota. How it is developed and what it is composed of is determined by factors such as nutrition, genetic composition, the environment in the womb, time of birth, the birth canal and antibiotics. The intestinal wall regulates which and how many of these organisms are sent to other areas of the body. The microbiota is also necessary for the functionality of the intestinal mucosal barrier.

In Germany, approximately 400,000 people suffer from a chronic inflammatory bowel disease (Crohn's disease or ulcerative colitis). This describes a disorder in the regulating barrier which allows harmful pathogens to diffuse more easily through the intestinal wall and cause diseases which are currently incurable. The research therefore concentrates on the regeneration of the particularly permeable layer of the intestinal wall with the goal of affording the typically young patients a way to better cope with the disorder.

Other new Class III members also pre-

## The new members of Class III



On 11 July, the new members of Class III received their membership certificates. From left: Prof. Dr. Britta Siegmund ML (Berlin), Prof. Dr. Dietmar Schmitz ML (Berlin), Leopoldina Secretary-General Prof. Dr. Jutta Schnitzer-Ungfug (Halle), Prof. Dr. Séverine Vermeire ML (Leuven/Belgium), Prof. Dr. Andreas von Deimling ML (Heidelberg), Prof. Dr. Stefanie Ritz-Timme ML (Düsseldorf), Prof. Dr. Bernd Pichler ML (Tübingen), Prof. Dr. Wolfgang Janni ML (Ulm), Prof. Dr. Andrej Kral ML (Hannover), Prof. Dr. Stefanie Dimmeler ML (Frankfurt/Main), Prof. Dr. Katharina Domschke ML (Freiburg), President of the Leopoldina Prof. Dr. Jörg Hacker ML (Halle) und Prof. Dr. Jochen Reiser ML (Chicago/USA). Photo: Leopoldina | Markus Scholz

sented their work at the symposium: Prof. Dr. Claus Cursiefen ML (Cologne) spoke about keratoplasties in cases of severe keratitis, which permanently impairs vision. Prof. Dr. Stefanie Dimmeler ML (Frankfurt am Main) presented microRNAs and non-coding RNAs as new approaches to the treatment of cardiovascular diseases. Prof. Dr. Jochen Reiser ML (Chica-

go) talked about the suPAR molecule, a promising predictor in chronic kidney disease. Prof. Dr. Andrej Kral ML (Hannover) posed the question of whether children born deaf can learn to hear after birth. Finally, Prof. Dr. Stefanie Ritz-Timme ML (Düsseldorf) spoke on different “molecular clocks” used to estimate age. (kh)

## Leopoldina fellows at the 18th GAIN conference in Boston

Taking place in a new host city each year, the conference organised by the German Academic International Network (GAIN) returned to the East Coast of the USA and was held in Boston. Over 600 participants gathered there from 7–9 September, including seven Leopoldina fellows who are currently conducting research in the USA.

The GAIN initiative was founded 18 years ago and is now “grown up”, as President of the German Research Foundation Prof. Dr. Peter Strohschneider ML put it.

Back then, feedback from the GAIN conferences helped achieve the aim of combatting the increasing brain drain, thus establishing the conference as a platform for the next generation in science since its founding event.

The target group is primarily German postdocs in the USA and Canada. Due to their distance from Germany, it is difficult for them to gain an extensive and up-to-date insight into potential career paths and opportunities for when they return

home. Even in light of globally available data and information, direct contact remains an important element of information exchange and cannot always be replaced by virtual encounters.

Workshops dedicated to the future careers of young scientists as well as the Talent Fair – which included a Leopoldina Fellowship Programme information stand – served as points of contact for animated discussions about research and life in North America. (ac)

## Strengthening relations with Southeast Europe

A Leopoldina delegation led by its president visited the Republic of Serbia from 17–19 July. The visit came about as part of the Leopoldina's involvement in the Berlin Process/Western Balkans Process and the many discussions with scientists and politicians took place in a constructive and friendly atmosphere.

At the meeting with the Presidium of the Serbian Academy of Sciences and Arts, the focus was on the strengthening of bilateral relations and the Berlin Process, the application for membership in the European Union. Prof. Dr. Jörg Hacker ML held the ceremonial address on current formats of international policy advice and science diplomacy.

The delegation also visited Novi Sad, the capital of the Serbian Province of Vojvodina, where they met with the university's administration



*At the University of Novi Sad, Rector Prof. Dr. Dušan Nikolić tells President of the Leopoldina Jörg Hacker about the campus's architectural development.*

Photo: University Novi Sad

and researchers from the ERC-funded BIRTH project – the first ERC project in Serbia – led by Dr. Sofija Stefanović, as well as other researchers from the BioSense Institute, the largest project in Southeast Europe funded by Horizon 2020. When the delegation visited the Science Technology Park Belgrade and the Institute “Mihajlo Pupin” – one of the largest facilities for applied research in the region – Serbia's dynamic innovation and digital branch took centre stage.

At the end of the tour, the delegation met the Serbian president Aleksandar Vučić. Mladen Šarčević, Minister of Education, Science and Technological Development, and other senior government officials also took part. The German embassy in Belgrade supported the organisation of the visit.

(lb)

## African Cities conference: Local solutions and partnerships

Around 1,000 people from 14 countries met in Accra, Ghana, from 3–6 July to discuss the framing of African cities. Hosted by the Ghana Academy of Arts and Sciences (GAAS), the conference explored topics such as housing construction, urban ecosystems, spatial planning, food security, health, disaster precautions and climate change.

In a joint communiqué, representatives from the scientific and political sectors as well as from organisations such as UNESCO, UN-Habitat and the Deutsche

Gesellschaft für Internationale Zusammenarbeit (German Corporation for International Cooperation, GIZ) concluded that the colonial understanding of a city must be reassessed and modified with respect to both land tenure and planning activities. Additionally, they recommended an institutionalised exchange between science, economy, and local and national policy. Likewise, representatives from African cities such as mayors and other political and technical actors would have to engage with each other in discussion,

for instance by means of partnerships between cities or cross-branch partnerships. It is ultimately inevitable that a city government is oriented to criteria such as transparency, accountability and the participation of relevant groups.

The conference was hosted by the GAAS in conjunction with the Leopoldina, the Network of African Science Academies and the Academy of Science of South Africa. Funding was provided by the German Federal Ministry of Education and Research.

(ag)

## Academies of science for the G20 summit in Argentina

On 25 July at the Science20 Dialogue Forum in Rosario, Argentina, the academies of science of the G20 states presented the Argentine Minister of Science, Technology and Innovative Production, Lino Barañao, with their recommendations for the summit in Buenos Aires. The Leopoldina was represented by Vice President Prof. Dr. Ulla Bonas ML.

The statement with recommendations for worldwide food security and sustainable land management was compiled by the

Leopoldina and the other G20 academies under the leadership of the Argentine National Academy of Sciences. It indicates strategies and instruments for the sustainable use of soil. In addition to discussing effective soil conservation to prevent damage due to erosion or contamination, for example, the statement also explores a systematic broadening of the knowledge base for sustainable soil management. Furthermore, the G20 academies describe central elements of a future research agen-

da and recommend expanding international scientific coordination.

The governmental leaders of the 20 most important industrialised and newly-industrialised countries will convene at the summit in Buenos Aires from 30 November to 1 December. The Science20 dialogue process was established in 2017 to better integrate science into the G20 process.

(chw)

## In-depth discussion about artificial intelligence and robotics

Académie des Sciences and Leopoldina symposium



Experts from France and Germany came together at the symposium "Robotics AI: Data Science versus Motion Intelligence", held at the Académie des Sciences in Paris. Photo: Académie des Sciences

In Germany, the topic of artificial intelligence (AI) is currently being intensively discussed scientifically, politically and socially. The Federal Government aims to present a national AI strategy towards the end of 2018. In France, an analogous paper was already submitted in March. The governments of both countries are promoting increased collaboration.

A data-driven understanding of AI is often at the fore, which provides a basis for picture and speech recognition, for example. However, the area of robotics, an area in which both countries are well positioned, was only mentioned as a side note.

Against this backdrop, the Académie

des Sciences and the Leopoldina met in Paris at the beginning of September for the symposium "Robotics AI: Data Science versus Motion Intelligence", which was opened by both presidents and brought together high-calibre speakers including Prof. Dr. Tamim Asfour and Prof. Dr. Alexander Waibel ML (both from Karlsruhe) as well as Prof. Dr. Jean-Paul Laumond (Académie des Sciences, Toulouse).

Prof. Dr. Sigmar Wittig ML (Karlsruhe) contributed significantly to the follow-up discussion with government representatives. It became clear from this exchange that AI and robotics will continue to be a major area of the collaboration between the academies in the future. (rn)

## SAPEA submits a report on the authorisation of pesticides in the European Union

In June, the project consortium Science Advice for Policy by European Academies (SAPEA) published their third evidence review report, entitled "Improving authorisation processes for plant protection products in Europe: a scientific perspective on the assessment of potential risks to human health".

The report expounds how the scientific footing for the authorisation process for pesticides could be modernised at EU level. This particularly concerns the improvement of data as well as the methods and organisation of risk assessment. As a

consequence, the report includes a list of 26 suggestions of possible actions to be taken for a more effective, efficient and transparent authorisation system, with the primary focus on the protection of human health.

The report lays the foundation for a statement by the Group of Chief Scientific Advisors from the European Commission's "Scientific Advice Mechanism" on "EU authorisation processes of Plant Protection Products". (nh)

■ REPORT PLANT PROTECTION PRODUCTS

## President of the Indian Academy holds a lecture in Berlin

On 18 September, Prof. Dr. Ajay Kumar Sood, President of the Indian National Science Academy (INSA), held a lecture at the Indian embassy in Berlin under the title "Nature inspired physics: Why do we flock together?" The event was opened by the Indian embassy's Deputy Chief of Mission, Paramita Tripathi, and President of the Leopoldina, Prof. Dr. Jörg Hacker ML. Nearly one hundred guests attended the public evening lecture dedicated to basic research.

The Indian physicist and researcher spoke concretely about how he investigates the phenomena of flocking and flocking behaviour from a theoretical-physical stance in order to understand the underlying principles. At the reception



Indian physicist Ajay Kumar Sood holding the Leopoldina-INSA lecture in September. Photo: Svea Pietschmann

following the lecture, many guests took advantage of the opportunity to speak to Ajay Kumar Sood in person and discuss the topic with him in greater depth.

The presentation is a part of the Leopoldina-INSA Lectures series started in 2016, in which renowned members from both academies present their subject area to a curious audience in each other's countries. (rn)



## Young Academy's gala event lit up by "flashes of genius"

Looking for candidates to be co-opted in 2019



*The new members of the Young Academy (from left to right): Lukas Haffert, Astrid Eichhorn, Michael Saliba, Erik Schilling and Martin-Immanuel Bittner (back row); and Timo Rademacher, Valerie Domcke, Jan Haaker, Fruzsina Molnár-Gábor and Isabelle Staude (front row). Foto: Die Junge Akademie/Peter Himself*

Ten outstanding young scientists began their five-year membership in the Young Academy on 1 July. As part of the gala event the day before, the current members prepared a celebratory welcome for them, while ten existing members transitioned to the status of alumnae and alumni. The newly elected members specialise in physics, law, medicine, literature and political science.

Following the gala's theme of "flashes of genius", the leaving members recorded short audio clips looking back on their time in the Young Academy, while the new members introduced themselves and their scientific backgrounds in varying formats.

The associative, creative and enlightening contributions found ways to make the most of the allotted time of two minu-

tes. Short musical narratives from artist Masha Qrella alternated between showing stories of the past and projections of future projects conducted by the Young Academy.

Psychologist and neuroscientist Philipp Kanske, ancient historian Christoph Lundgreen, philosopher Kristina Muhlolt, mathematician Jonas Peters and atmospheric physicist Bernadett Weinzierl make up the new Presidium, which also took up office on 1 July. Christoph Lundgreen was elected spokesperson. In his words, the annual transition as ten new members are co-opted and ten former members depart

follows the maxim from the Italian author Tomasi di Lampedusa's novel "The Leopard": "If we want things to stay as they are, things will have to change." (ar)

### APPLICATION FOR CO-OPTION

In the coming year, the Young Academy will elect ten new members. Excellent and dedicated young scientists and artists interested in interdisciplinary work at the interface between science, art, society and politics are welcome to apply before 30 November. Applicants must be able to produce an outstanding doctorate or piece of art for qualification and should have a sound basis in the German language. New members are selected for a period of five years.

■ JUNGE AKADEMIE ELECTION 2019

## Healthy aging in focus at the Global Young Academy

In the recently published statement "Creating a world friendly to all ages", members of the Global Young Academy (GYA) address the topic of healthy aging. The document was drafted in May at the GYA's 8th Annual General Meeting and International Conference, which took place in Thailand. GYA members collaborated with regional and international scientists to grapple with the prospects and challenges of aging in the context of economic and population trends around the world.

At its heart, the GYA stresses the need to redefine the multifaceted social challenges associated with aging as well as to recognise and promote connections between global and local developments. The statement lists four concrete recommendations which apply to an international and interdisciplinary perspective. The first recommendation aims to view aging populations as a growing global resource with the goal of striving for communities in which elders are respected and their knowledge, skills, resources and contributions are sought after and valued. The second recommendation points to a strong local-global link.

Global insights can be gained from traditional local values, practices, technologies and interventions. Third, they stress that knowledge should be gained both within the individual disciplines, theories and methods, and also in an interdisciplinary setting and in dialogue between industry and the arts. And fourth, the statement indicates that a truly global perspective requires expanding the space for discussion, particularly between the Global North and the Global South.

On the topic of health, the GYA working group "Global Health" will be representing its continued efforts at the World Health Summit in Berlin from 14–16 October. (kg)

■ STATEMENT ON HEALTHY AGING

## People

The Swiss Academy of Medical Sciences (SAMS) has selected nine people to become honorary and individual members in recognition of their scientific achievements. **Max Gassmann ML** is the Director of the Institute of Veterinary Physiology at the University of Zurich's Vetsuisse-Faculty and was made one of the individual members. **Beat Steinhilber ML**, Professor at the University of Zurich, was appointed as an honorary member.

Three members of the Leopoldina have been awarded the 2018 Balzan Prize for their scholarly direction. **Eva Kondorosy ML**, Research professor at the Institute of Biochemistry of the Hungarian Academy of Sciences in Budapest and Research Director at the Plant Science Institute of CNRS in Paris, received the Balzan Prize for Chemical Ecology for her molecular biological research on the symbiosis between legume plants and nitrogen-fixing bacteria. **Detlef Lohse ML** of the University of Twente in the Netherlands was awarded the Balzan Prize for Fluid Dynamics for his investigation of turbulent flow, sonoluminescence and the properties of microscopic bubbles and drops. **Jürgen Osterhammel ML**, Professor at the University of Konstanz, was presented the Balzan Prize for Global History for his contributions to the definition of global history as its own discipline as well as for his methods which combine empirical and comparative research approaches.

**Antje Boetius ML**, marine and microbiologist and Director of the Alfred Wegener Institute in Bremerhaven received the 2018 German Environmental Prize from the German Federal Environmental Foundation for her work in deep sea and ecosystem research, a crucial contribution to understanding the importance of the world's oceans. The prize is being shared equally between Boetius and an interdisciplinary team of experts from the Helmholtz Centre for Environmental Research in Leipzig, which is campaigning for the protection of water resources in Jordan.

**Stanislav N. Gorb ML**, Professor of Functional Morphology and Biomechanics at the Zoological Institute of the Christian-Albrechts-Universität in Kiel, is being distinguished with the 2018 Karl Ritter von Frisch medal. In awarding him the medal, the Deutsche Zoologische Gesellschaft (the German Zoological Society, DZG) honours his equally original and interdisciplinary methods which bring together the research fields of morphology, biomechanics and bionics.

**Andreas Graner ML**, Director of the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), has been selected to become a member of the Indian National Academy of Agricultural Sciences. He is being honoured for his scholarly direction and his particular dedication to promoting agricultural and biological sciences in India.

**Tasuku Honjo ML** was awarded with this year's Nobel Prize in Physiology or Medicine together with James P. Allison. The scientists are honored for their work on an immune therapy against cancer, called "Immune Checkpoint Therapy". Tasuku Honjo is physician and immunologist at Kyoto University (Japan).

**Hans-Dieter Klenk ML**, former Director of the Medizinisches Zentrum für Hygiene und Medizinische Mikrobiologie (Medical Centre for Hygiene and Medical Microbiology) at the Universität Marburg clinic, received the 1st Class Order of Merit of the Federal Republic of Germany. The virologist is being honoured for his research on the pathogenesis of viral infections

**Klaus Krickeberg ML**, Professor Emeritus at the Paris Descartes University, has been offered the Vietnamese Friendship Order for his significant contributions to the development of the public healthcare system in this Southeast Asian country.

**Svante Pääbo ML**, molecular biologist, paleogeneticist and Director of the Max Planck Institute for Evolutionary Anthro-

pology in Leipzig is being honoured with the Körber European Science Prize for his pioneering achievement in paleogenetics. He has developed novel methods for determining genetic makeup sequences from "ancient DNA".

**Svante Pääbo ML**, molecular biologist, paleogeneticist and Director of the Max Planck Institute for Evolutionary Anthropology in Leipzig is being honoured with the Körber European Science Prize for his pioneering achievement in paleogenetics. He has developed novel methods for determining genetic makeup sequences from "ancient DNA".

**Helmut Schwarz ML**, Professor of Organic Chemistry at the Technische Universität Berlin, has been made a Foreign Associate Member of the American National Academy of Sciences. He was selected for his merits in original research, having been significantly involved in the advancement of mass spectrometry.

**Hans-Peter Steinrück ML**, Professor of Physical Chemistry in the Department of Chemistry and Pharmacy at the Friedrich Alexander University Erlangen-Nürnberg, has been elected into the European Academy of Sciences. An expert in the chemical-physical area of surface science, he focuses on the development of new materials with innovative electronic, geometric and chemical properties.

**Volker ter Meulen ML**, President of the Leopoldina from 2003–2010, was made an Honorary Senator at the University of Würzburg, and also named an Honorary Doctor of the Charité – University Medicine Berlin.

### New Class II members

**Carmen Birchmeier ML**, Berlin, Max Delbrück Centre for Molecular Medicine (Human Genetics and Molecular Medicine Section)

**Roland Eils ML**, Berlin, Berlin Institute of Health (BIH) and Charité, BIH Digital

Health Centre (Human Genetics and Molecular Medicine Section)

**Jan Ellenberg ML**, Heidelberg, European Molecular Biology Laboratory, Cell Biology and Biophysics Unit (Genetics/Molecular Biology and Cell Biology Section)

**Heinz Feldmann ML**, Hamilton, USA, Rocky Mountain Laboratories, National Institutes of Health, National Institute of Allergy and Infectious Diseases (Microbiology and Immunology Section)

**Garret A. FitzGerald ML**, Philadelphia, USA, University of Pennsylvania, Perelman School of Medicine, Institute for Translational Medicine and Therapeutics (Physiology and Pharmacology/Toxicology Section)

**Wolf-Dietrich Hardt ML**, Zurich, Switzerland, Swiss Federal Institute of Technology Zürich, Institute of Microbiology (Microbiology and Immunology Section)

**Manajit Hayer-Hartl ML**, Martinsried, Max Planck Institute of Biochemistry, Department of Cellular Biochemistry (Biochemistry and Biophysics Section)

**Claudia Köhler ML**, Uppsala, Sweden, Swedish University of Agricultural Sciences, Uppsala Biocentre (Organismic and Evolutionary Biology Section)

**Johannes Lehmann ML**, Ithaca, USA, Cornell University, School of Integrative Plant Science, Section of Soil and Crop Sciences (Agricultural and Nutritional Sciences Section)

**Matin Qaim ML**, Göttingen, Georg August University of Göttingen, Department of Agricultural Economics and Rural Development (Agricultural and Nutritional Sciences Section)

**Peter Rehling ML**, Göttingen, Göttingen University Medical Centre, Institute for Cellular Biochemistry (Biochemistry and Biophysics Section)

**Chris-Carolin Schön ML**, Freising-Weihenstephan, Technical University of Munich, Chair of Plant Breeding (Agricultural and Nutritional Sciences Section)

**Holger Stark ML**, Göttingen, Max Planck Institute for Biophysical Chemistry (Biochemistry and Biophysics Section)

**Miguel Vences ML**, Braunschweig, Technische Universität Braunschweig, Zoological Institute (Organismic and Evolutionary Biology Section)

### New Class III members

**Christiane J. Bruns ML**, Cologne, University Hospital Cologne, Department of General and Visceral Surgery and Surgical Oncology (Surgery, Orthopaedics and Anaesthesiology Section)

**Thomas Deller ML**, Frankfurt/Main, Dr. Senckenberg Anatomy, Institute for Clinical Neuroanatomy (Anatomy and Anthropology Section)

**Simone Fulda ML**, Frankfurt/Main, Institute for Experimental Cancer Research in Paediatrics, Clinic for Paediatric and Adolescent Medicine (Gynaecology and Paediatrics Section)

**Thomas Gasser ML**, Tübingen, University Hospital Tübingen, Department of Neurology, Centre for Neurology (Neurosciences Section)

**Anca-Ligia Grosu ML**, Freiburg, University Medical Centre Freiburg, Department of Radiation Oncology (Radiology Section)

**Susanne Hartmann ML**, Berlin, Freie Universität Berlin, Centre for Infection Medicine, Institute of Immunology (Veterinary Medicine Section)

**Frank Heppner ML**, Berlin, Charité – University Medicine Berlin, Department of Neuropathology (Pathology and Forensic Medicine Section)

**Georg F. Hoffmann ML**, Heidelberg, Heidelberg University Hospital, Centre for Paediatric and Adolescent Medicine (Gynaecology and Paediatrics Section)

**Martin Hrabě de Angelis ML**, Neuherberg, Helmholtz Zentrum München, Institute of Experimental Genetics (IEG) (Veterinary Medicine Section)

**Peter Rosenberger ML**, Tübingen,

University Department of Anaesthesiology and Intensive Care Medicine (Surgery, Orthopaedics and Anaesthesiology Section)

**Ursula Schlötzer-Schrehardt ML**, Erlangen, Universitätsklinikum Erlangen, Ophthalmology Clinic with Polyclinic (Ophthalmology, Oto-Rhino-Laryngology and Stomatology Section)

### Deceased members

■ **Felix Largiadè ML**  
18 December 1930 – 4 July 2018 | Erlenbach, Switzerland  
Surgery, Orthopaedics, Anaesthesiology

Felix Largiadè served as Professor of Surgery in the Faculty of Medicine at the University of Zurich from 1985–1998. As head of the then newly established Department of Surgery and Director of the Clinic for Visceral Surgery at the University Hospital, he made a major contribution to the further development of surgery. He integrated the results of his research in transplantation medicine into his everyday clinical practice and performed the first human pancreas transplant in Europe in 1973. Largiadè was an honorary member of the German, the Austrian and the Swiss Societies of Surgery. Felix Largiadè was elected a member of the Leopoldina in 1988.

■ **Günther Schilling ML**  
16 August 1930 – 8 August 2018  
Agricultural and Nutritional Sciences

Günther Schilling was Professor of Physiology and Nutrition of Crops at the Martin Luther University in Halle-Wittenberg (MLU) from 1970 until his retirement in 1995. He was elected Rector of the MLU in May 1990 in the first open election in 40 years, and held the position until 1993. During his time in office, he led the university through the democratic reformation process with great personal dedication. It is predominantly to Günther Schilling's credit that the MLU was one of the first East German universities to become a member of the German Rectors' Conference, of the German Academic Exchange Service and of the German Research Foundation. In 1997, he was awarded the prestigious Sprengel-Liebig Medal in Gold by the Association of German Agricultural

Analytic and Research Institutes in recognition of his scholarly achievements and in June 2018, he received the Order of Merit of Saxony-Anhalt, the most prestigious award in the state. Günther Schilling was elected a member of the Leopoldina in 1969.

■ **Werner Schröter ML**  
**6 July 1933 – 5 May 2018 | Göttingen**  
**Gynaecology and Paediatrics**

As the Chair for Paediatrics, Werner Schröter directed the Paediatrics Department at the University Medical Centre in Göttingen from 1973 until his retirement in 2000. He was awarded the prestigious Adalbert-Czerny Prize by the German Society of Pediatrics and Adolescent Medicine in recognition of his work on the cause of icterus neonatorum simplex. As a professor, he spoke out for improvements in the diagnosis and treatment of congenital disorders which cause anaemia. He was a co-editor of the journal “Monatsschrift für Kinderheilkunde”, held a managerial role in organising the Göttingen Workshop for Paediatric Research and was part of international scientific societies including the European Society for Paediatric Research and the German Society for Haematology. Werner Schröter was elected a member of the Leopoldina in 1988.

■ **Bernd Wilhelmi ML**  
**6 January 1938 – 8 July 2018 | Jena**  
**Physics**

Professor for Applied Physics/Quantum Electronics at the Friedrich Schiller University Jena from 1973–1989, Bernd Wilhelmi was also Rector of the university from 1983–1989. He then directed the Department of Advance Development in the company Jenoptik AG from 1992–2009. He was awarded the Ernst Abbe Prize and the National Prize of the German Democratic Republic for Science and Technology for his pioneering work in ultrafast laser physics. Bernd Wilhelmi was a member of the Saxon Academy of Sciences and Humanities, the Leibniz Society of Sciences in Berlin, and the European Physical Society. He had been a member of the Leopoldina since 1987.

## Leopoldina Fellowship Programme

### New fellows

Dr. Annabelle Doerr of the Walter Eucken Institute e. V. and the Chair for Labour Economics in Freiburg will be continuing her research at the Centre for Labour Economics (CLE) in the Department of Economics at the University of California in Berkeley (USA) under Prof. David Card.

Dr. Annika Eisenschmidt, most recently involved with the ESF postgraduate qualification programme at the TU Dresden, is moving to a post at the Christian Doppler Laboratory in the Department of Chemistry at the University of Cambridge (Great Britain) and will join the working group led by Prof. Dr. Erwin Reisner.

Dr. Andreas Geißner is set to move from the Max Planck Institute of Colloids and Interfaces in Potsdam to the Department of Chemistry at the University of British Columbia in Vancouver (Canada) under Prof. Dr. Stephen G. Withers.

Dr. Felix Graßmann from the Institute of Human Genetics at the University of Regensburg will pursue his project at the Department of Medical Epidemiology and Biostatistics at the Karolinska Institutet in Stockholm (Sweden) under the supervision of Prof. Dr. Kamila Czene.

Dr. Markus Schmitt from the Max Planck Institute for the Physics of Complex Systems in Dresden is also heading to the University of California, Berkeley (USA). He will be researching at the Condensed Matter Theory Centre in the working group led by Prof. Joel Moore.

Dr. Lisa Vondung from the Faculty of Chemistry at the University of Marburg will be starting at the School of Chemistry at the University of Manchester (Great Britain) under Prof. Dr. Stephen Liddle.

### Former fellows

Dr. Frank Heppner is a Professor and Director at the Department of Neuropathology at the Charité – University Medicine Berlin. He was a research fellow at the Leopoldina in 2003 and went on to work at

the Swiss Federal Institute of Technology Zürich (Switzerland) for many years. He has now been accepted as a new member of the Pathology and Forensic Medicine Section of the Leopoldina.

## Leopoldina employees

**Stefanie Poster** started work in July as a member of the library staff.

The following staff members took up their posts in August: **Jenny Brückner** and **Dr. Theresa Witting** are supervising the project “Topographies of European Cabinets of Art and Curiosities” in the Centre for Science Studies. **Robert Nasarek** started work as a scientific employee. **Dr. Simon Rebohm** is coordinating the project “Objektsprache und Ästhetik – Wertdimensionen des Objektbezugs in historischer Perspektive. Das Beispiel Konchylien” (Object Language and Aesthetics – Value Dimensions of the Object Relation in a Historical Context Using the Example of Mollusc Shells). **Johannes Mengel** has joined the Science-Policy-Society Department as an advisor, and **Agata Maria Turek** has taken a role as a Specialist in Media and Information Services in the archive and library. **Dr. Fatima Kareem** has been appointed GloSYS Project Researcher for the Global Young Academy.

The following staff members took up their posts in September: **Anne Faulmann** has started as the assistant in the Press and Public Relations Department based in Berlin. **Susanne Lehmann** has been appointed assistant to the Secretary General, and **Karin Pietsch** has started working in the archive as an archivist. The library team has welcomed **Paulina Zakrzewska** in her new role as academic librarian. **Dr. Oliver Rymek** has joined the Young Academy as scientific coordinator.



## Leopoldina

### Nationale Akademie der Wissenschaften

## Imprint

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