



Leopoldina
Nationale Akademie
der Wissenschaften

Leopoldina news

5 | 2017

Deutsche Akademie der Naturforscher Leopoldina –
German National Academy of Sciences

Halle (Saale), 10 Oktober 2017



Genome editing: Medicine of the future?

The Annual Assembly of the Leopoldina discusses aspects of genome editing

SYMPOSIUM

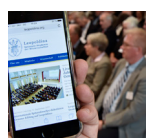
P. 2



Science and society
in dialogue
What next after the
March for Science?

ANNUAL ASSEMBLY

P. 3-5



Cutting-edge research
on genome editing
New molecular genetic
methods discussed

FELLOWSHIP PROGRAMME

P. 8



Studies on chemistry
and neurobiology
Postdocs spend two years
working in California

Editorial

Dear Members and Friends of the Leopoldina,



Providing politicians with science-based advice is a core function of the Leopoldina. Its experts and expertise are in greater demand

than ever when it comes to political decision-making. Yet at the same time, science and politics do not always communicate with one another in sufficient depth: the politicians would often like more recommendations for direct, concrete action. Scientists, on the other hand, sometimes feel that they are not being consulted or listened to enough.

So how might we reconcile expectations and potential whilst maintaining a sense of balance? What opportunities exist for incorporating scientific knowledge – with an awareness of political processes and timeframes and precisely because of this – in democratic discourse? And how can views be exchanged with members of the public? How can their interests be given due weight when providing science-based advice to politicians? All of these questions will be addressed at the event, ‘Science needs society’, which is to take place in a few days’ time at Schloss Herrenhausen (see the accompanying article). The Robert Bosch Foundation, the Leopoldina and the weekly journal DIE ZEIT will be asking, in collaboration with the Volkswagen Foundation, “What next after the March for Science?” The march in April united hundreds of thousands of people from all over the world, who demonstrated for scientific freedom and protested against the hurdles facing scientists. In the light of these encouraging signs, science must also play its part by being open and honest with the public, communicating with a broad section of the population on an equal footing, suggesting solutions to problems which have been identified, and campaigning ceaselessly for an appreciation of the complexity of science.

On this note, I would like to thank you for your support.

Jörg Hacke

“Quo vadis, science communication?”

What next after the March for Science?



Scientific expertise can be very beneficial when discussing social issues. This is evident from the large number of conferences and symposia held – not least by the Leopoldina.

Photo: David Ausserhofer

Scientists from all over the world took to the streets on 22 April to join the March for Science. They were demonstrating in favour of scientific freedom, and reminding us of the value of scientific research in tackling the problems of society. One of the positive outcomes of the March for Science was that it drew the attention of a broad section of the public to one of the challenges facing science; namely that it needs to be more successful at increasing public awareness of research methods, the discoveries made as a result, and their relevance to our lives.

One possible starting-point for this might be the ‘scientific barometer’, an annual survey which questions Germans on their attitudes to science and research. According to the most recent survey in July 2017, roughly two thirds of those questioned claimed to be convinced that science served a useful purpose (see page 7). What problems is science communication now having to tackle, and what are the reasons behind them? Which strategies should scientific organisations be adopting to confront the crisis of confidence which they have found

to exist? If we are to obtain answers to these questions, then there needs to be a frank exchange of views, and not just between scientists. Above all, new methods of science communication need to be put to the test, and these must be developed by collaborating with a number of different target groups from the very outset.

From protest to dialogue to the real world: the steps which need to be taken over and above the March for Science are to be discussed in a series of lectures, panel discussions and working groups at the symposium ‘Wissenschaft braucht Gesellschaft’ (‘Science needs society’). Its

principal objective is to provide the stimulus for real-life projects which can help counteract the dissemination of a worldview which is hostile towards science. The President of the Leopoldina, Prof. Dr. Jörg Hacke ML, will ask what science and politics (still?) have to say to one another. A realistic appraisal is essential if we are to be able to evaluate the potential of science-based advice to resonate in our digitalised democracies.

(art)

25/26 OKTOBER 2017

‘Science needs society – what next after the March for Science?’ is the title of a symposium to be held in Hanover by the Volkswagen Foundation on 25 and 26 October 2017 in conjunction with the Leopoldina, the Robert Bosch Foundation, and DIE ZEIT.

PROGRAMME AND REGISTRATION (ONLY IN GERMAN)

About the changeability of the genome

More than 400 Members of the Leopoldina and guests attended the Annual Assembly in Halle

The Annual Assembly of the National Academy of Sciences on 22 and 23 September focused on ‘Genome editing – challenges for the future’. The development of targeted genetic interventions by scientists specialising in molecular biology prompted a discussion about aspects of their application in relation to plants, animals and humans, and about the ethical, legal and technical issues involved.

“We are dealing with an area of research which is nothing less than revolutionary.” These were the words with which the President, Prof. Dr. Jörg Hacker ML, welcomed the more than four hundred guests to the 2017 Annual Assembly. Since 2015, new processes in the field of molecular genetics, in particular CRISPR/Cas9 molecular scissors, had spread from one research laboratory to another like wildfire. That is why Armin Willingmann, Minister of Economic Affairs, Science and Digitisation of the State of Saxony-Anhalt, also welcomed this choice of ‘groundbreaking topic’. Georg Schütte, Secretary of State at the Federal Ministry of Education and Research, also stressed the need to bring the debate on the genome into the public spotlight, and to continue the conversation in both specialist and political circles.

As expected, the speakers were keen for there to be more discussion about the various fields of application and the social relevance of genome editing. Prof. Dr. Ernst-Ludwig Winnacker ML (Munich) began by talking about how modern genetics “sets out its stall”; not only offering a solution to chronic sleep disorders, but also promising to help us to live longer and to provide a cure for breast cancer. Prof. Dr. Emmanuelle Charpentier ML (Berlin), Prof. Dr. Rudolf Jaenisch ML (Cambridge, MA/USA) and Prof. Dr. Ethan Bier (San Diego, CA/USA) then went on to explain the origins, breakthroughs, starting-points and operating principles of genome editing. Applications in the field of human biology were exemplified by Prof. Dr. Eric Olson (Dallas, TX/USA), Prof. Dr. Boris Fehse (Hamburg) and Prof. Dr. Ugur Sahin (Mainz), while Prof. Dr. Jens Boch (Hanover) and Prof. Dr. Ralph Bock ML



Some fifty gifted schoolchildren from Germany were our guests at the Annual Assembly of the Leopoldina. They attended the lectures, discussed the issues with scientists, and found out more about the publications produced by the Leopoldina.

Photo: Markus Scholz

(Potsdam) explained the biotechnological methods used with plants. Prof. Dr. Ephrat Levy Lahad (Jerusalem/Israel), Prof. Dr. Andy Greenfield (Harwell/UK) and Prof. Dr. Jochen Taupitz ML (Mannheim) later drew on their own national perspectives when talking about the legal, ethical and regulatory repercussions associated with genome editing.

In-depth conversations then took place at the Annual Assembly between different specialist disciplines, based on

the earlier contributions. These revolved again and again around the relationship between actions, ethics and knowledge. Prof. Dr. Manfred Eigen ML, winner of the 1967 Nobel Prize for Chemistry, put this in a nutshell when he said, “The more we can do, the less we should do. The less we should do, the more we must know.” This quotation, with which Jörg Hacker opened the Annual Assembly, will no doubt also shape our future discourse.

(dw)



Georg Schütte, Secretary of State at the Federal Ministry of Education and Research, and Armin Willingmann Minister of Economic Affairs, Science and Digitalisation of the State of Saxony-Anhalt, were taken through the Annual Assembly in the company of Jörg Hacker (l to r).

Photo: Thomas Meinicke

Debate on principles of gene therapy procedures

Panel raises medical, ethical and legal issues



Members of the Leopoldina and the Young Academy and other scientists discuss the consequences of germline therapy and somatic gene therapy.

Photo: Markus Scholz

The panel discussion on Saturday evening considered the application of gene therapy procedures. On the one hand, there is the option of intervening directly in the germline – and thereby turning off a genetic defect for future generations too.

Alternatively, there is a method of ‘repairing’ the genetic programme of certain cells – and thus making an adjustment which is not passed on to the individual’s offspring.

The potential represented by the CRISPR/Cas9 procedure for clinical applications gave added momentum to the debate about the two options and their consequences. This was also reflected in the

panel discussion held by Prof. Dr. Silja Vöneky (Freiburg), Junior Prof. Dr. Bettina Keller (Berlin), Prof. Dr. Volker Gerhardt (Berlin), Prof. Dr. Claus R. Bartram ML (Heidelberg) and Prof. Dr. Bettina Schöne-Seifert ML (Münster), which was chaired by Kathrin Zinkant (Süddeutsche Zeitung).

Various scientific, ethical, legal, medical and – last but not least – economic perspectives came to light. It was emphasised on several occasions that germline therapy was not currently a treatment option. Fundamental questions still remained to be answered by researchers.

(rg, dw)

What do genes say about us and our lives?

Evolutionary biologist holds evening lecture for the public

Prof. Dr. Axel Meyer ML was delighted to be greeted by a packed hall at the Leopoldina for his evening lecture on, ‘How genes shape our lives, and the disparity between men and women’. The evolutionary biologist was keen to improve the audience’s understanding of the genetic differences between people.

He argued that a person’s genetic make-up can shed light on their origins and those of their forebears. It is also possible to trace back our relationship

to Neanderthal Man.

Meyer referred to some recent developments in the USA, where genetic screening is already used for faces on police mugshots, and it has now also occurred for an individual’s genetic information to be passed on to their health insurer. Where might this lead? The audience members were left to ponder this thought as they were sent out into the night by the university professor from Constance.

(ak, dw)

Outstanding research

Prizes and medals awarded

Nine scientists were awarded prizes and medals by the Leopoldina this year for their outstanding research. Prof. Dr. Fritz Melchers ML (Berlin) and Prof. Dr. Joachim Trümper ML (Garching) received the Cothenius Medal for their lifetime achievements in science. The research conducted by Prof. Melchers has contributed fundamentally to our understanding of the formation of blood cells and immune system malfunctions. Joachim Trümper enjoys an international reputation as a pioneer of X-ray astronomy. He was the driving force behind and scientific director of the ROSAT satellite mission, which succeeded in conducting the first all-sky survey using an X-ray telescope.

The Carus Medals went to Prof. Dr. Elisabeth Binder ML (Munich), an internationally renowned neuroscientist in the field of anxiety and depression research, and to Prof. Dr. Matthias Tschöp ML (Munich), whose studies promise major advances in the treatment of diabetes and obesity.

Prof. Dr. Peter Hegemann ML (Berlin) was honoured with the Mendel Medal. A co-founder of optogenetics, he has developed a process to control cells with light irradiation. This has opened up the possibility of new discoveries being made about neurological diseases.

Prof. Dr. Anthony Hyman (Dresden), who was awarded the Schleiden Medal, identified the decisive gene for cell division in the embryo of the nematode. This will enable us to gain a new insight into the formation of gene defects.

The 2017 Prize for Junior Scientists went to Dr. Tobias Giessen (Boston/USA), who is studying the biosynthesis of antibiotics, as well as to Dr. Markus Tschurtschenthaler (Munich) for his studies on the development of chronic enteritis. This year’s George Uschmann Prize for Scientific History was awarded to Dr. des. Gunthild Peters (Berlin) for her work on mediaeval measuring methods.

(ak)

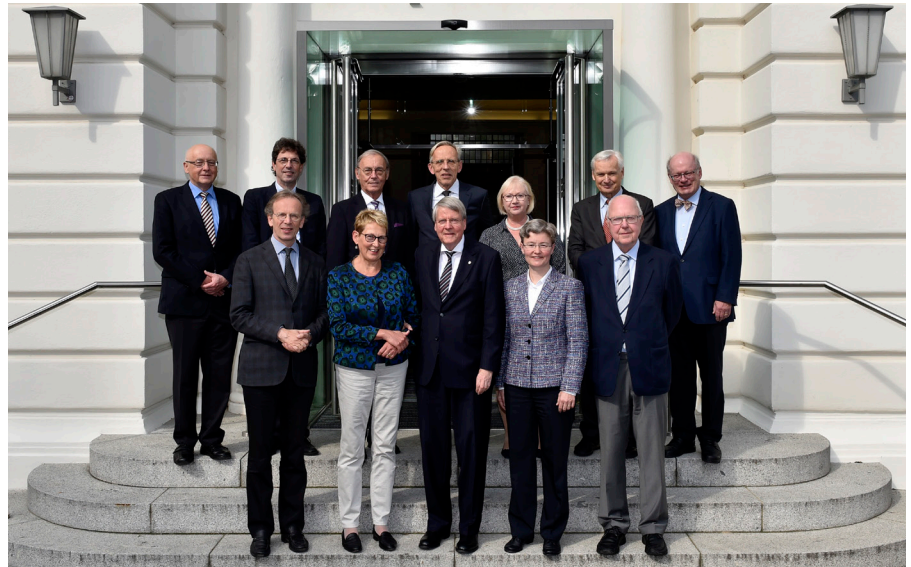
Topics for the Annual Assemblies in 2018 and 2019

Senate meets at annual convention in Halle (Saale) and discusses latest developments

The Senate of the Leopoldina met on 21 September for its annual convention in the run-up to the Annual Assembly in Halle. The Board of the Academy gave a detailed account to the Senators and guests of the latest developments at the Leopoldina, and talked in depth about some of the important topics on which it had given scientific advice to political and social agencies, its international activities, the work of the Study Centre and its press and public relations work.

As well as discharging the Board for the 2016 financial year, the Senate passed a resolution on the admission of new members to the Presidium, in the course of which Prof. Dr. Regina T. Riphahn ML (Nuremberg) was elected as the new Vice President for the Humanities, Social and Behavioural Sciences. Prof. Dr. Sigmar Wittig ML (Karlsruhe) was also re-elected to serve a second term as Secretary of Class I – Mathematics, Natural Sciences and Engineering.

The Board of the Leopoldina also informed those present about the preparations being made for the 2018 Annual Assembly, which will once again be held in Halle (Saale) from



The Presidium of the Leopoldina on the eve of the Annual Assembly.

Photo: Thomas Meinicke

21 to 22 September on the theme of 'Nature – Science – Society: results and perspectives after ten years of the National Academy of Sciences'. The topic of 'Time in nature, medicine and society' (working title) has been chosen for the 2019 Annual Assembly. This was proposed by Prof. Dr. Horst Werner Korf ML (Frankfurt), Prof. Dr. Elmar Peschke ML (Halle) and

Prof. Dr. Bernd Herrmann ML (Göttingen), three Members of the Anatomy and Anthropology section. A programme committee led by Presidium member Prof. Dr. Thomas Lengauer ML (Saarbrücken) is soon to start work on drawing up a broad scientific programme which incorporates disciplines such as astrophysics, chronobiology and cultural studies. (jb)

Ursula Staudinger passes the baton to Regina Riphahn

New Vice President of the Leopoldina elected to honorary position by the Senate

On the day before the Annual Assembly, the Senate elected Prof. Dr. Regina T. Riphahn ML to serve as the new Vice President of the Leopoldina. An economist, she is currently Professor at Friedrich Alexander University in Erlangen-Nuremberg, and has been a Member of the Leopoldina since 2007. She succeeds Prof. Dr. Ursula M. Staudinger ML, who has served as Vice President of the Leopoldina since 2007. "Ursula Staudinger has made a major contribution during her ten years in office", said Prof. Dr. Jörg Hacker ML in his tribute to the psychologist and gerontologist. The President of the Academy

pointed in particular to the national recommendations 'A Future with Children' and 'Gewonnene Jahre' ('extra years') as

well as the achievements made by Ursula Staudinger on an international level, and for which we owe her an equally large debt of gratitude. This responsible and demanding honorary position will now be filled by Regina T. Riphahn. She conducts research into empirical education economics, the employment market and human resources economics, as well as into social policy and population economics. She works both at the Institute for the Study of Labour in Bonn, and at the CESifo in Munich and also holds a research chair at the German Institute for Economic Research in Berlin.



Ursula M. Staudinger (left) has been Vice President of the Leopoldina since 2007. She is now to be succeeded in this post by Regina T. Riphahn (right).



Photos: David Ausserhofer, Thomas Meinicke

(dw)

Research into antibiotics: What remains to be done?

Discussion paper presented on drug development and our future response to resistance

The subject of antibiotics has entered the social consciousness. However, we must continue to work ceaselessly in this area, especially on the development of new active agents and on the prevention of resistance. That is the conclusion drawn by the authors of the discussion paper, 'Antibiotics research – five years later', which was published recently.

Pathogens develop resistance to antibiotics – a realisation of this has gradually filtered through to all areas of society. The problem has been much discussed on a national and international level by scientific institutions, the pharmaceutical industry, civil society and political figures. The Hamburg Academy of Sciences and the Leopoldina have been listening in to these debates ever since the publication of their joint statement on 'Antibiotics research: problems and perspectives' in 2013. Thus the 'Antibiotics Research' round table met for consultations on three occasions between 2014 and 2016, in order to draw up a summary of our efforts to date and to set priorities for our future response to antibiotic resistance.

In particular, the experts – who include Prof. Dr. Bernhard Fleischer ML, Prof. Dr. Michael Hecker ML, Prof. Dr. Thomas C. Mettenleiter ML and Prof. Dr. Lothar Wieler ML as well as Prof. Helga Rüb-

men-Schaeff – are examining the relationship between pure research and translation, modalities in diagnostics and therapy, the potential of new active agents, and how antibiotics are used in practice, as well as prophylactic and antibiotic-independent approaches.

The eighteen authors involved in the discussion paper believe it is essential for

the various concrete approaches to solutions to be "given equal weight as they are adopted within the framework of coordinated initiatives". "Multimodal approaches ... (are) required to tackle the antibiotics problem." (kh)

■ DISCUSSION PAPER ON ANTIBIOTICS
(ONLY IN GERMAN)



Cultivating bacteria for antibiotics research is a long-winded process.

Photo: Photographee.eu - fotolia.com

Discussion paper about Science for sustainability

The Leopoldina discussion paper 'The turn to sustainability? The agenda 2030 and its implications for science and policy' records the proceedings of the symposium of the same name held in October 2016 in Berlin. In their contributions, prominent figures from science and politics underline the central importance which science can play if we are to meet the sustainability targets set by the United Nations.

They generate a wide-ranging understanding of science

which encompasses both pure science and applied research, as well as the whole spectrum of disciplines. The authors also demonstrate how science policy can be designed to be sustainable, point to the national and international experiences from which we can learn, and tell us where there is a pressing need for action in scientific practice if we are to improve sustainability. (chw)

■ DISCUSSION PAPER (ONLY IN GERMAN)

New advisory body on health policy

The 'International Advisory Body on Global Health Policy' was appointed in August to advise the Federal Ministry of Health on the realignment of its strategy on international health policy. One of the six experts appointed to the body was Prof. Dr. Jörg Hacker ML, President of the Leopoldina. Prof. Dr. Ilona Kickbusch, Director of the Global Health Centre at the Graduate Institute of International and Development Studies in Geneva (Switzer-

land), is to chair the committee.

The newly established advisory body is to give fresh impetus to identifying solutions to global health policy challenges. The spotlight is on the role played by Germany's planning regions in the international community. According to Kickbusch, their previous work has been characterised by a multilateral approach and collaboration with many national and international stakeholders. (dw)

Global Young Academy extends networks even further

National Young Academies discuss access to international policy consultation

Sixty-plus representatives from more than 35 National Young Academies of Sciences (NYAs) and academy initiatives from all over the world met in Johannesburg, South Africa this July. The convention, which was hosted by the South African Young Academy of Science (SAYAS), and which was organised in collaboration with the Global Young Academy (GYA), was already the third of its kind. It was being held for the first time in Africa, where the Young Academy movement is particularly dynamic.

The participants exchanged information about current challenges they are facing which are of central importance to NYAs. This includes questions relating to funding, gender equality, and cooperation with established National Academies of Sciences, and with policymakers and the public.

A central theme of the networking event was the question of how Young Academies and their members can contribute to the achievement of UN sustainability targets. Prof. Dr. Peter Fritz ML (Leipzig) and Dr. Tracey Elliott for the InterAcademy Partnership presented the project, 'Improving scientific input into global policymaking' on this very issue. They demonstrated ways in which NYAs could



Leopoldina Member Peter Fritz was actively involved in the third global convention of National Young Academies of Sciences in Johannesburg. Photo: SAYAS/ASSAF

play a greater role in evidence-based policy consultation and how they could become involved in advising the UN on policymaking.

The event provided the stimulus for a position paper addressing the role of Young Academies, which will be published in October. The meeting also highlighted

the current growth spurt in the global NYA network, for which the GYA acts as a platform and as a supporter of newly established academies. Today, there are 33 Young Academies, and many more are being set up in countries including Hungary, Cameroon and Bangladesh.

(amg)

What do German citizens think about science and research?

Are members of the general public interested in scientific subjects? Do people trust science in an age of 'fake news'? What do people see as being the role of science in society? The 'science barometer' provided by Initiative Wissenschaft offers up answers to these and other questions for discussion. The survey also prepares important ground for the 'Wissenschaft braucht Gesellschaft' ('Science needs society') conference (see page 2), which also addresses these issues.

A representative survey has been held every year since 2014 in order to take stock of what Germans think about science and research. The aim is to facilitate

a fact-based discussion on the relationship between science and the public, and to contribute to the further development of science communication.

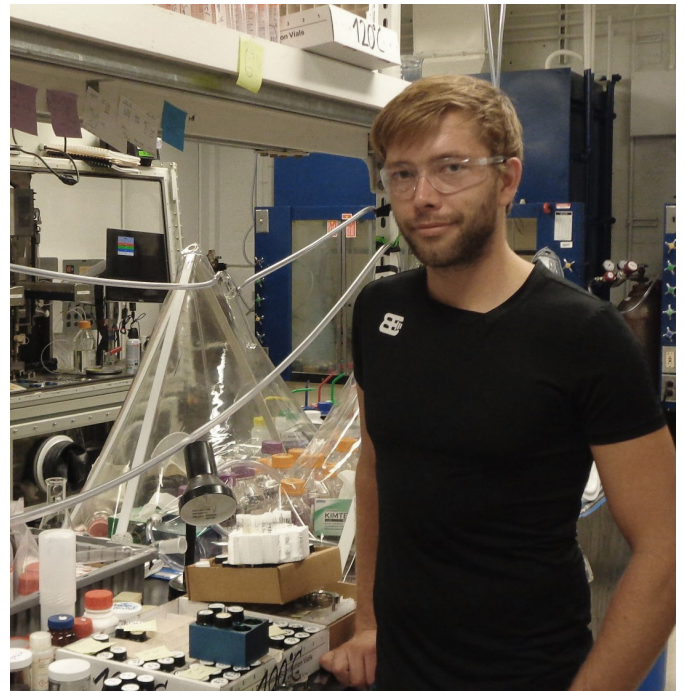
With the German elections being scheduled for 2017, the role of science and research in the electoral campaign was central to the survey held in late July. Sixty-five percent of those questioned were of the opinion that insufficient attention had so far been paid to scientific subjects during the electoral campaign, while 21 percent held the opposite view. Of those surveyed, 58 percent claimed to be interested in science and research. About two-thirds were convinced that science served a use-

ful purpose, while eleven percent answered that it did more harm than good.

The 2017 science barometer considered the aspect of trust in greater detail than in previous years: twelve percent of those surveyed said that they either did not, or tended not to trust science and research, while half said they trusted it either completely or for the most part; 37 percent were undecided. The expertise of scientists was given as the main reason for trusting them. But among those who did not trust them, their dependence on those providing the funding was the most common factor cited.

(rz)

■ SCIENCE BAROMETER 2017



Neurobiologist Lena Veit (l) and chemist Günter Thiele (r) are among the 18 scholarship winners whose research trip to the USA is currently being supported by the Leopoldina fellowship programme.

Photos: Andreas Clausing

Leopoldina programme supports postdocs in the USA

Neurobiologist Lena Veit and chemist Günter Thiele conduct research at universities in California

San Francisco and nearby Berkeley have for many years been popular destinations for scholarship winners under the Leopoldina funding programme. At present, Dr. Lena Veit and Dr. Günter Thiele – a neurobiologist and a chemist respectively – are engaged in projects in the US state of California: Dr. Veit is studying birdsong at the University of California (San Francisco) in the working group led by Prof. Dr. Michael Brainard, while Dr. Thiele is conducting research under Prof. Dr. Jeffrey R. Long at the Department of Chemistry of the University of California (Berkeley).

Brainard's team is examining how the behaviour of living creatures can alter as a result of experiences which impact upon the nervous system. Lena Veit is studying the Bengalese finch in particular. It learns its typical song from adult birds while it is still young, which is usually continues to sing throughout its life. But adults can also be stimulated by external factors to change their song.

A motor learning network exists in the brains of birds – but also mammals –

which regulates this process. Because of their relatively simple and already well studied brain structure, birds are ideal subjects for those wishing to identify and evaluate the processes of late learning using the example of birds. Analyses of this type can, after all, also help us better understand language acquisition by humans in childhood, adolescence and adult life. This in turn opens up an opportunity for us to identify with greater accuracy factors which trigger diseases such as Parkinson's.

Günter Thiele's project is primarily concerned with the synthesis and characterisation of metal-organic frameworks, or MOFs, which contain mercury. Although the use of mercury and its compounds has

largely been superseded in industry and research today because of their toxicity, some processes still continue to require their use, just as they did in the past. It is often expensive to remove and dispose of such mercury compounds.

Thiele's research might help make it possible to replace them. The use of MOFs allows mercury compounds to be dissolved more easily and reused for catalysis. In theory, this might even increase catalytic activity. The consequence would be that much smaller amounts of mercury were required for synthesis.

The postdoc chemist has also identified other MOF applications which he would like to study in greater detail following his return to Germany. The next step he would like to take in his career is to earn his habilitation at the Free University in Berlin. Lena Veit, who completed her doctorate in Tübingen, would also like to continue studying the subject from her postdoc period. She plans to set up her own research group from the spring of 2019 at Eberhard Karls University in Tübingen.

(ac)

GERMAN ACADEMIC INTERNATIONAL NETWORK

The annual conference of the German Academic International Network (GAIN) was once again held from 25 to 27 August in San Francisco on the west coast of the USA. The roughly 450 participants included five scholarship winners from the Leopoldina. For the first time, the National Academy of Sciences had its own information stand at the event. President Prof. Dr. Jörg Hacker ML joined the working group on 'German scientists in North America in dialogue with policy-makers in Germany', and chatted to the scholarship winners about their experiences of the USA.

■ LEOPOLDINA FELLOWSHIP PROGRAMME

People

Aleida Assmann ML Aleida Assmann ML was awarded the 2017 Balzan Prize for her work on the concept of collective memory. Every year, the Balzan Prize honours initiatives in the cause of humanity, peace, and fraternity among peoples.

The medical researcher **Horst-Werner Korf ML** was the recipient of the Johannes Ariens Kappers Medal of the European Biological Rhythms Society for his work on the development of chronobiology and chronomedicine.

The German Society for Gastroenterology, Digestive and Metabolic Diseases (DGVS) elected **Ole Petersen ML** as an honorary member.

The chemist and President of the Humboldt Foundation **Helmut Schwarz ML** was elected a Foreign Member of the Russian Academy of Natural Sciences.

Celâl Şengör ML was awarded the 2017 Mary C. Rabbitt History and Philosophy of Geology Award by the Geological Society of America for his articles on the history of the geosciences.

The psychologist **Ursula M. Staudinger ML** was awarded the SENECA Medal of the Industrie-Club e.V. Düsseldorf. She received the medal for her outstanding research achievements in the field of gerontology.

Education economist **Ludger Wössmann ML** won the Gustav Stolper Award of the German Economic Association. The prize pays tribute to researchers whose findings have made an important contribution to public discussions on economic problems and interrelationships.

Deceased members

■ **Hanskarl Müller-Buschbaum ML**
24.5.1931 - 21.11.2016 | Kiel
Chemistry

The chemist Hanskarl Müller-Buschbaum was the Director of the Institute of Inorganic Chemistry at the University

of Kiel. There he developed the only field of study in Germany dedicated to high-temperature solid-state chemistry, focusing his research on the synthesis at high temperatures of oxometalates and halogen oxometalates of the main group metals and transition metals. These high temperatures were achieved using plasma torches, solar furnaces and carbon dioxide lasers, and the resulting – often metastable – structures were examined by means of X-ray diffraction. Müller-Buschbaum was admitted to the Academy as a Member in 1992.

■ **Paul Champagnat ML**
23.1.1921 - 17.12.2011 | Aubusson, France
Organismic and evolutionary biology

Paul Champagnat, Director of the Institute of Plant Physiology at the University in Clermont-Ferrand and of the Phytotron Institute at the Centre national de la recherche (CRNS) in Gif-sur-Yvette, had a major impact in France on research into the branch of botanical science known as experimental morphology. He was admitted to the Leopoldina as a Member in 1976.

■ **Zbigniew R. Grabowski ML**
11.6.1927 - 28.1.2017 | Warsaw, Poland
Chemistry

Zbigniew Grabowski taught for forty years at the University of Warsaw, where he was also the Director of the Institute of Physical Chemistry. His main field of research was the spectroscopy and photochemistry of organic molecules, in particular the structure and transformation of electronically excited molecules. Last but not least, he was intrigued by the spectra and reactions of interstellar molecules. Grabowski was elected a Member of the Leopoldina in 1977.

■ **Hans Groß ML**
30.10.1928 - 14.7.2017 | Berlin
Chemistry

Hans Gross, an Honorary Member of the Latvian Academy of Sciences, taught in

the Department of Organic Chemistry of the Faculty of Mathematics and Natural Sciences of Humboldt University in Berlin. He was awarded the honorary title ‘Honoured Inventor of the USSR’ in 1983 for his contribution to the development of a process to synthesise methoxybenzyl acetone. Gross was admitted to the Leopoldina as a Member in 1970.

■ **Rainer Jaenicke ML**
30.10.1930 - 26.6.2016 | Schwabach a. Ts.

Biochemistry and biophysics

Rainer Jaenicke began his career researching the structure of protein complexes, such as those of the tobacco mosaic virus. He later studied the folding and stability of proteins under extreme physical conditions, such as a high salt content or extremes of temperature. He was awarded the Max Planck Research Prize in 1994. Jaenicke was a Member of the Leopoldina from 1991.

■ **Otto L. Lange ML**
21.8.1927 - 14.8.2017 | Würzburg
Organismic and evolutionary biology

The botanist Otto L. Lange is viewed as one of the founders of ecophysiology. This field of study aims to identify the behaviour and reactions of plants in interaction with the environment. Lange held the Chair in Botany at the University of Würzburg for 35 years, published a series of standard works, and received many honours, including the Cothenius Medal of the Leopoldina, which was awarded for his life's work. Lange was a Member of the Academy from 1972.

■ **Christian Nezelof ML**
19.2.1922 - 18.5.2015 | Paris
Pathology and forensic medicine

Christian Nezelof was a French medical researcher who distinguished himself in the fields of paediatrics and pathology. As a professor at the University of Paris, he was partly responsible for more than 350 publications. In 1962, he discovered the Nezelof Syndrome which bears his name, a rare congenital disease of the thymus

gland. The Christian Nezelof Prize is awarded annually for outstanding achievements in paediatric pathology. Nezelof was elected a Member of the Academy in 1979.

■ Achim Trebst ML

9.6.1929 - 4.9.2017 | Bochum

Biochemistry and biophysics

The biochemist Achim Trebst conducted most of his research in the field of photosynthesis. He carried out pioneering work in this area, among other things on the functional autonomy of the chloroplast system and on a mechanical understanding of the flow of electrons using dibromthymoquinone. Trebst developed chemical tools for the functional and structural localisation of energy sources and energy storage systems during photosynthesis. Trebst was a Member of the Leopoldina from 1974.

■ Hiroaki Ueki ML

30.10.1936 - 11.5.2016 | Okayama, Japan

Internal medicine and dermatology

The Japanese medical researcher Hiroaki Ueki studied how immunofluorescence methods could be applied in dermatology, the pathogenic importance of immune complexes, and the effect of autoantibodies in the skin. After spending time studying in Germany, he became an advocate of German-Japanese relations in the field of dermatology. Ueki was elected a Member of the Leopoldina in 1989.

Leopoldina Fellowship Programme

New fellows

■ Dr. Tim Krappitz from the Institute for Technical and Macromolecular Chemistry of the University of Hamburg is to spend 24 months at Queensland University of Technology (QUT) in Brisbane, Australia, working with Prof. Christopher Barner-Kowollik.

■ Dr. Elena Mäder-Baumdicker from the Institute for Analysis at Karlsruhe Institu-

te of Technology has been awarded a scholarship enabling her to spend 14 months in the working group of Prof. Dr. Fernando Coda Marques at the Department of Mathematics, Princeton University, New Jersey, USA.

■ Dr. Lynn Jeanette Savic, who recently worked at the Charité – University Medicine in Berlin, is spending 24 months working in the Department of Radiology and Biomedical Imaging at the Yale School of Medicine in New Haven, USA, under Prof. Dr. Jean-Francois Geschwind.

■ Dr. Sarita Silveira from the Institute for Medical Psychology of Ludwig Maximilian University in Munich, will be spending 24 months in the Posit Science and Brain Plasticity Institute at the University of California in San Francisco (UCSF), USA, under Prof. Michael Merzenich.

■ Dr. Klaus Speck, who was recently employed in the Faculty of Chemistry and Pharmacy at Ludwig Maximilian University in Munich, will be working with Prof. Dr. Stephan L. Buchwald for 18 months in the Department of Chemistry at Massachusetts Institute of Technology in Cambridge, USA.

Former fellows

■ Prof. Dr. Sabine Becker has been employed as a junior professor in the Department of Chemistry at the University of Kaiserslautern since May 2017. She worked with Prof. Dr. Stephen J. Lippard in the Department of Chemistry at Massachusetts Institute of Technology in Cambridge, USA between 2015 and 2017 after winning a Leopoldina scholarship.

■ Dr. Gisa Gerold is to receive the Robert Koch Postdoctoral Prize of the Robert Koch Foundation in November 2017 in Berlin. The prize is awarded annually to three young scientists for their outstanding work in different fields, based on the recommendations of the German Society

for Hygiene and Microbiology, the German Society for Immunology, and the Society for Virology. Gerold was a Leopoldina scholarship winner in 2009, and is currently working in Hanover at the Institute for Experimental Virology of the TWINCORE Centre for Experimental and Clinical Infection Research.

■ PD Dr. Klaus Neuhaus, who received a scholarship from 2001 to 2003, earned his habilitation in 2016 and now leads the Core Facility Microbiome/NGS at the ZIEL Institute for Food and Health of the Technical University of Munich in Freising.

■ Prof. Dr. Alexander Szameit from the University of Rostock, a Leopoldina scholarship holder from 2009 to 2011, received the Alfried Krupp Prize for Young Professors awarded by the Alfried Krupp von Bohlen und Halbach Foundation, which comes with a prize fund of Euro 1 million. Born in Halle, he was appointed Chair of Experimental Solid State Optics in December 2016.

■ Dr. Lena Veit, a Leopoldina scholarship holder since 2016, has been awarded the Klaus Tschira Award for Achievements in Public Understanding of Sciences - Klar-Text. She is the fourth of our scholarship winners to be awarded this prize. The Klaus Tschira Foundation has been presenting the award, which is open to candidates from Germany, Austria and Switzerland, since 2006.

■ Prof. Katharina Anna Zweig from the University of Kaiserslautern, a Leopoldina scholarship holder from 2008 to 2010, received the Ars Legendi Faculty Prize for Engineering in July 2017, which is awarded by the umbrella organisation of the Faculty Associations of Engineering and Computer Science at Universities (4ING) and the Association for the Promotion of Science and the Humanities. The award comes with a prize fund of Euro 25,000.



Leopoldina
Nationale Akademie
der Wissenschaften

Imprint

**Deutsche Akademie der Naturforscher
Leopoldina – National Academy of Sciences**
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:

PD Dr. Stefan Artmann, Head of Presidential Office (art)
Dr. Jörg Beineke, Senior Scientific Coordinator (jb)
PD Dr. Andreas Clausing, Coordinator of the Fellowship Programme (ac)

Dr. Renko Geffarth, Deputy Head Department Press and Public Relations (rg)
Anna-Maria Gramatté, Project Officer Global Young Academy (amg)
Dr. Kathrin Happe, Deputy Head Department Science - Policy - Society (kh)
Axel Kunz, Editor Department Press and Public Relations (ak)
Daniela Weber, Editor Department Press and Public Relations (dw)
Christian Weidlich, Senior Officer International Relations Department (chw)
Ricarda Ziegler, Assistance of the Management Wissenschaft im Dialog gGmbH (rz)

Photo credits:

Title: Markus Scholz; further photos on title: [Acrogame - stock.adobe.com](https://www.acrogame.com), Thomas Meinicke, [123dartist - Fotolia.com](https://www.123dartist.com)

Design:

Agentur unicom, Berlin

Copyright:

For the Leopoldina newsletter the copyright and all other rights are held by the Deutsche Akademie

der Naturforscher Leopoldina – National Academy of Science, Jägerberg 1, 06108 Halle (Saale), Germany. Redistribution, including in the form of extracts, is permitted for educational, scientific and private purposes if the source is quoted (unless otherwise explicitly indicated by the article in question). Permission must be sought from the Leopoldina for commercial use. Leopoldina Akademie der Wissenschaften, Jägerberg 1, 06108 Halle (Saale), Germany.

Links to external Websites:

The Leopoldina does its best to select all hyperlinks in Leopoldina news and their contents carefully, but has no influence on the content or design of the pages linked to. The Leopoldina hereby explicitly rejects any liability for the contents of external Internet pages.

Abmeldung:

Please send an email to presse@leopoldina.org.

Abbreviations: ML = Member of the Leopoldina