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Biodiversity and the future of variety

**Annual Assembly of the Leopoldina
from 24 to 25 September**

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President of the Leopoldina

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The Leopoldina on Social Media



Editorial

Dear Members and Friends of the Leopoldina,

Over the past few months, digitalisation has been a common thread running through Leopoldina publications and events. Mid-June saw the publication of the statement on “Digitalisation and Democracy” (see page 10), which presented an analysis of the role of digital technology within public discourse and set out their impact on a democratic society. In partnership with the Israel Academy of Sciences and Humanities and the U.S. National Academy of Sciences, the Leopoldina went on to host the symposium “Digitization and Democracy” (see page 10). It was absolutely fascinating to consider perspectives on the major digital platforms and players from the USA and Israel, two tech-savvy nations. This was the first time that these academies have worked together as a three and we hope that we can pick up this collaboration again soon.

Digitalisation has also been playing a major role during the COVID-19 pandemic. That much is clear from the Leopoldina discussion paper on “Ways to boost digital efforts to tackle the pandemic”, which explains the role played by apps, wearables and administration software in the fight to curb the coronavirus pandemic and looks into potential ways of better exploiting the strengths of these technologies (see page 11). More needs to be done – and swiftly – to make the most of the opportunities afforded by digitalisation in schools too. The ad hoc statement on “Psychosocial and educational challenges and opportunities for children and adolescents during the COVID-19 pandemic” published on 21 June also raises this point (see page 9). Meanwhile, the statement on “Economic consequences of the COVID-19 pandemic – analysis and possible courses of action” published on 21 July describes digitalisation as an opportunity and an essential factor in boosting productivity across society as a whole (see page 8).

Here at the Leopoldina, we have digital solutions to thank for the fact that the academy can continue with its work at full pace despite the ongoing pandemic. For the Annual Assembly (see page 4 et seq.) we decided on a hybrid format to combine on-site discussions in Halle (Saale) and digital exchange.

I hope you find this issue an interesting and inspiring read.



Prof. (ETHZ) Dr. Gerald Haug, President of the Leopoldina

Image: David Ausserhofer | Leopoldina

“Climate change and biodiversity are inextricably linked”

Leopoldina members Katrin Böhning-Gaese and Joachim von Braun on the Annual Assembly



The central theme of this year's Leopoldina Annual Assembly is biodiversity. The presentations will cover relevant topics including the conservation of biodiversity and the role of human activity in nature.

Image: Karoline Thaihofer | Adobe Stock

The theme of the Leopoldina Annual Assembly on 24 and 25 September will be “Biodiversity and the Future of Variety”. Biologist Katrin Böhning-Gaese ML and agricultural economist Joachim von Braun ML are two of the speakers lined up to talk about this topic. In this interview, they outline the current situation and explain why we need to take action.

Ms Böhning-Gaese, your presentation is on biodiversity in the Anthropocene. Has the natural world ever been in such a precarious position as it is today?

Katrin Böhning-Gaese: Biodiversity is facing a bigger threat now than it has at any other point in human history. In fact, the situation has only been this serious a few times in the entire history of the Earth. According to a report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), one million species out of an estimated eight million on this pla-

net are endangered. The extinction rate has shot up dramatically. To be precise, Earth's sixth major mass extinction event is already underway. Considering that the last time this happened on the same scale was the demise of the dinosaurs, we need to take serious action to tackle this problem as a matter of urgency.

Mr von Braun, the world population will be hitting nine or ten billion before we know it. Can we feed that many people without exploiting nature?

Joachim von Braun: As it stands, not everyone has access to a healthy diet. If we are to be able to feed the world population and preserve biodiversity, we need a productive and sustainable food system that does not rely upon natural landscapes as heavily as our current system does. An important measure here would be to do away with large-scale monocultures, something agricultural research and perhaps even innovative field robotics could underpin.

To what extent is agriculture causing the decline in species?

Böhning-Gaese: The main factor causing this decline is changes in land use. This is followed by the exploitation of species and then climate change. Changes in land use are often brought about by agriculture, such as when forests are cut down to make more space for farming and when farming efforts are ramped up. Species being exploited is also linked to food production – take for example fishing activities.

So would you say that the agricultural system needs to be changed as a priority?

Böhning-Gaese: Here in Germany, we are seeing agriculture have a particularly serious impact on species survival rates. We argued in favour of transformational change across the entire society when it comes to agricultural ecosystems in the academy statement on the biodiversity

of agricultural landscapes back in October 2020. But we do still need to extend nature reserves and restore forests, wetlands and grassland ecosystems too if we are to avoid species becoming extinct.

von Braun: Ahead of the UN Food Systems Summit, many countries are in agreement that monumental change is required within the agricultural sector. The organic quota recently agreed upon by the European Union highlights that this issue is now on the political agenda. Ultimately, nature-positive farming is the way forward.



Katrin Böhning-Gaese ML

Director of the Senckenberg Biodiversity and Climate Research Centre (SBiK-F) and professor at the Goethe University Frankfurt/Germany. Image: Michael Frank

It sounds like major changes are required. But how can we help as individuals?

Böhning-Gaese: When agricultural practices are more respectful of biodiversity, crop yields tend to be lower. We can balance this out by following a plant-based diet. And that doesn't mean we have to give up meat entirely. After all, grazing animals are essential when it comes to maintaining biodiverse pastures. That gives us the all-clear to enjoy our once-a-week roast beef on a Sunday. Planting a wildflower patch in your garden and creating living walls are other great ways to contribute. It is easier to do something to help preserve biodiversity than it is to tackle climate change.

von Braun: The consumer is a power-

ful figure in the supply chain. They can check labels on products to make sure they have been made sustainably. Anyone in a comfortable financial position should also think about sufficiency, that is the notion that there is such a thing as "enoughness".

Everyone is talking about climate change at the moment. Is this to the detriment of biodiversity?

Böhning-Gaese: The decline in biodiversity is as dramatic as global warming – if not more so. Both problems come down to the fact that we overexploit natural resources. And a major transformation is the only solution in both cases. The IPBES and the Intergovernmental Panel on Climate Change have also highlighted the similarities recently. If you ask me, it shouldn't be possible to speak about climate change or biodiversity loss without mentioning the other.

von Braun: Around 30 percent of greenhouse gases can be traced back to changes in land use. Climate change and biodiversity loss are inextricably linked – in terms of both the problems and the solutions. That's why it's essential for policy strategies at the UN summits on climate change, biodiversity and food systems due to be held this autumn to be interlinked.

Biodiversity is a public good without a market value. Does that need to change?

von Braun: The indirect costs associated with the food system as a result of damage caused to the environment are just as high as the market value of the food itself. Around USD 9 trillion is spent globally on food every year. And that's more or less on par with the cost of environmental damage affecting soil, water, biodiversity and the climate. We need to change the way we value food. It's a question of ethics as much as anything else.

Böhning-Gaese: Sure, we can try to put a monetary value on biodiversity. But ultimately we need to change the way we calculate value. Environments that are home to diverse species also have an impact on our well-being and mental health. That impact is really quite consi-

derable – even more so than we realise at this stage.

Is it going to be possible to slow down climate change and species loss significantly enough?

Böhning-Gaese: We don't have a choice. The use of the Earth's resources has gained momentum at an alarming rate during our generation's lifetime. Now it is our responsibility to do something about it. There's still time to counte-



Joachim von Braun ML

Director of the Center for Development Research (ZEF) and Professor of Economic and Technological Change at the University of Bonn/Germany.

Image: ZEF

ract the effects and preserve biodiversity by working to protect species.

von Braun: But we don't have a lot of time to hang around. We need to take decisive action within this decade. I am filled with optimism by the change of mindset and a growing awareness of nature and planetary health – in Europe and beyond. We also have a crystal-clear scientific understanding of the situation, meaning that science-based policy advice can have a better success rate.

■ THE INTERVIEW WAS CONDUCTED BY ANNE BRÜNING

▶ Annual Assembly
"Biodiversity and
the Future of Variety"

Annual Assembly of the Leopoldina: “Biodiversity and the Future of Variety”

PROGRAMME

Friday, 24 September

9:00am **Opening ceremony and presentation of awards and medals**

10:45am **Presentation of the Early Career Award 2020 and winner's speech**

1:30pm **Scientific session I “Biodiversity: monitoring and data collection”** with Katrin Böhning-Gaese ML (Frankfurt am Main/Germany), Sabina Leonelli (Exeter/UK) and Helen Curry (Cambridge/UK)

4:15pm **Scientific session II “Renaturation”** with presentations by Harry W. Greene (Ithaca/USA) and Martin Wilming (Greifswald/Germany)

8:15pm **Evening lecture on “Biodiversity – impact and change” by Christian Wirth** (Leipzig/Germany)

Saturday, 25 September

9:00am **Scientific session III “Biodiversity – the perspective of the humanities”** with Kärin Nickelsen ML (Munich/Germany), Ulrich Brose (Leipzig/Germany) and Manfred Krifka (Berlin/Germany)

11:45am **Scientific session IV “Biodiversity and plant protection”** with Paul Schulze-Lefert ML (Cologne/Germany) and Urs Niggli (Frick/Switzerland)

2:15pm **Scientific session V “Food and health”** with Joachim von Braun ML (Bonn/Germany), Michael Wagner ML (Vienna/Austria) and Wolfgang Weisser (Freising/Germany)

5:00pm **Scientific session VI “Diversity as a societal goal”** with Nico Eisenhauer (Leipzig/Germany) and Elke Weber ML (Princeton/USA)

■ Upper floor, banquet hall

Everything on the programme is subject to the coronavirus restrictions in place.

▶ Annual Assembly programme

EVENING LECTURE BY CHRISTIAN WIRTH ON 24 SEPTEMBER

Christian Wirth won't have very far to travel before he steps up to deliver the evening lecture at the Leopoldina at 8:15pm on Friday, 24 September.

The biologist is Professor of Systematic Botany and Functional Biodiversity at Leipzig University and the Director

of the Botanical Garden. He is also one of the speakers of the German Centre for Integrative Biodiversity Research (iDiv) at its Leipzig location.

His presentation on “Biodiversity – impact and change” is inspired by his area of expertise – functional biological diversity



research, which is all about properties and changes relating to functional features along environmental gradients and the impact of the diversity and identity of species on ecosystem functionality and services.

Christian Wirth also works with his colleagues to advise

associations, local authorities, administrative institutions and committees and to put forward solutions with the specific aim of conserving biodiversity, such as floodplain renaturation and the TRY plant trait database.

■ DW

Image: Swen Reichhold | Leipzig University

Academy awards

Seven Leopoldina prizes and medals for scientific achievements

The scientific achievements of ten exceptional scientists are being honoured at the Leopoldina Annual Assembly. Biophysicists Werner Kühlbrandt ML and biochemist Rudolf K. Thauer ML will receive the Cothenius Medal for a lifetime of scientific achievement. The Schleiden Medal will be awarded to cell biologist Nikolaus Pfanner ML, whilst the Mendel Medal will be going to human geneticist Stefan Mundlos ML. Mathematician Tanja Stadler and physical chemist Dominic Bresser will receive the Carus Medal for important scientific achievements by younger scientists. The Leopoldina Prize for Junior Scientists will be awarded to astrophysicist Hayley Allison and physicist Philipp Lorenz-Spreen. Historian Caterina Schürch's outstanding dissertation will be rewarded with the Georg Uschmann Award for the History of Science. In addition Patrick Weigelt will receive the Leopoldina Early Career Award 2020 for developing biodiversity databases and for his research on plant biodiversity. ■ AB

▶ Leopoldina awards and honours

“Mobilisation of society, economy and politics to achieve climate neutrality”

The Council for Sustainable Development (RNE) and the Leopoldina pave the way for a successful transformation

We are living in an age of multiple global crises. The actions of the human race are destabilising the Earth system so significantly that the very existence and opportunities of present and future generations are under threat as is the diversity of life on our planet. Faced with the challenge of our times – centred in particular around the climate crisis – the Leopoldina and the Council for Sustainable Development (RNE) decided to publish a joint position paper.

BY GERALD H. HAUG ML*

After eight months of intense deliberations, the position paper was presented to Dr. Angela Merkel, Germany’s Chancellor, at the annual RNE conference on 8 June 2021. The work of 15 members of the RNE and 15 scientists representing a range of fields who had been selected by the Leopoldina, the position paper set out prioritised options for ways to successfully manage the major transformation of our economy and society required to achieve climate neutrality. The aim of the project was to provide the next government with specific steps that could be put into action.

Climate neutrality needs to have been achieved globally by the middle of the century at the latest if we are to have any chance of stabilising the climate and being left with a habitable planet. If we do not take serious action now, we will have used up our remaining greenhouse gas emission budget set to keep global warming within a limit of 1.5 °C before 2030.

We are on the brink of irreversible tipping points, for example when it comes to coral reefs, ice sheets, permafrost soils and rainforests. The upcoming legislature period is going to prove critical in decidedly pushing forward with efforts to combat climate change and

“Climate neutrality needs to have been achieved globally by the middle of the century at the latest if we are to have any chance of stabilising the climate and being left with a habitable planet.”

Gerald Haug
President of the Leopoldina



Image: David Ausserhofer | Leopoldina

meeting the goals of the Paris Agreement. In its decision dated 24 March 2021, the German Federal Constitutional Court (BVerfG) decreed that the burden of reducing emissions must not be placed disproportionately on the shoulders of future generations. Continuing with the theme of generational equity, all generations have a responsibility to mobilise society, economy and politics to ensure that everyone contributes towards the efforts to achieve climate neutrality.

There is a huge political push for fundamental change all around the world right now. We need to make the most of the European Green Deal, the new

US administration and the additional climate pledges by China and the G7 nations to forge and consolidate international alliances in the fight against climate change.

The emissions trading system is seen as a key tool in achieving climate neutrality. But this needs to be incorporated into an overarching climate strategy setting out the legal framework, funding and

regulatory policies at the political level. Cross-sector investments in infrastructure developments and new eco-friendly technology are also required, with a forward-focused approach a must.

All of these points are discussed at length in the joint position paper along with more on funding, foreign policy, international solidarity, social balance and education. Any measures taken now to achieve climate neutrality will also need to be adapted in light of the COVID-19 pandemic, which has – and will continue to have – long-term repercussions for politics, the economy and society. Now is the time to set our course for the future.

* Gerald H. Haug is a climate researcher, geologist and paleoceanographer. The President of the National Academy of Sciences Leopoldina since 2020, he is a co-author of the position paper by RNE and the Leopoldina.



Position paper
“Climate neutrality”

Economic and social policy after the outbreak of the COVID-19 pandemic

Statement: guest article by co-speakers of the working group

The handling of the COVID-19 pandemic in Germany has been something of a mixed bag. With a view to presenting suggestions for improving economic and social policy based on the lessons learnt, the Leopoldina statement on “Economic consequences of the COVID-19 pandemic – analysis and possible courses of action” looks into structural change and economic growth, inequality and distribution, the capacity of government organisations and the sustainability of public finances.

BY REGINA T. RIPHAHN ML*
AND CHRISTOPH M. SCHMIDT ML*

The first aspect of economic policy to be addressed in the statement relates to measures taken to overcome the negative repercussions of the pandemic on the economy as a whole. In the future, the frameworks need to be conducive to facilitating economic structural change and boosting growth potential going forward. “Digitalisation and expedited structural change should be viewed as essential factors in improving productivity levels throughout society rather than as some kind of threat to be feared”, says Christoph M. Schmidt, co-speaker of the working group and President of the RWI – Leibniz Institute for Economic Research in Essen/Germany.

The second section focuses on the effects of the pandemic on the distribution of opportunities and income in society. Even though the progressive tax system already provides an effective means of redistribution between those in the best and worst positions, specific steps need to be taken to counter the exacerbated inequality in the education sector.

For example, special support measures need to be rolled out quickly to certain groups of pupils as a priority. The statement also puts forward suggestions for ways to reinforce professional develop-



“Digitalisation and expedited structural change should be viewed as essential factors in improving productivity levels throughout society rather than as some kind of threat to be feared.”

Christoph M. Schmidt
Leopoldina member and
co-speaker of the working group
Image: Sven Lorenz | RWI Essen



“The pandemic has opened up an opportunity for a broad initiative aimed at modernising our society, especially when it comes to actions taken by the government.”

Regina T. Riphahn
Vice President of the Leopoldina and
co-speaker of the working group
Image: David Ausserhofer | Leopoldina

ment, balance out gender inequality and improve the level of protection provided by the social security system.

In its third section, the statement turns its attention to ways of improving the capacity of the government. Recommendations include the creation of an independent external investigative committee to be tasked with delving into key areas such as crisis management, distribution of duties, education, healthcare and international cooperation.

“The pandemic has opened up an opportunity for a broad initiative aimed at modernising our society, especially when it comes to actions taken by the government”, says Regina T. Riphahn, co-speaker of the working group, Professor of

Statistics and Empirical Economics at Friedrich-Alexander-University in Erlangen-Nürnberg/Germany.

The statement closes with an analysis of ways of financing state spending on a national and European level. Alongside a discussion on the need for action to be taken at the European level, the questions covered in this section include when the debt brake regulations need to be reinstated, how macroeconomic debt can be limited and how the financial standing of local authorities can be improved.

▶ Statement on “Economic consequences of the COVID-19 pandemic”

The situation facing children and adolescents during the COVID-19 pandemic

Psychologist Jutta Mata and Leopoldina member Ralph Hertwig on the 8th ad hoc statement

COVID-19 has changed all our lives. But children and adolescents are perhaps the age group to have been most affected by the pandemic and the protective measures taken, at least in terms of their education and other opportunities for development. In light of this, the Leopoldina's 8th ad hoc statement focuses on their psychosocial and educational circumstances.

BY RALPH HERTWIG ML*
AND JUTTA MATA*

A working group of 26 scientists from various disciplines examined the growing evidence base and used it to draw up empirically informed recommendations for action. Due to the fluid nature of the pandemic, studies conducted during such a time are inevitably snapshots of the current situation and have limited validity. Bearing this in mind, the working group came to four key conclusions.

Firstly, there is no reason to make sweeping negative assumptions about a "COVID-19 generation". Describing children and adolescents in this way does not adequately account for the plasticity of the brain and the resilience of the organism in the sense of an ability to reverse any potential harmful consequences.

Secondly, there are already numerous empirical studies providing clear evidence of burdens and deficits. For example, an analysis covering more than 2.5 million pupils in five countries (including Germany) found that overall these pupils lost around 23 to 35 percent of their learning time as a result of school closures during the first lockdown. These losses were particularly high among younger children, who were estimated to have lost roughly a quarter of an academic year.

Thirdly, some groups are better equipped to deal with the challenges than others. This is because the pandemic has



Jutta Mata

Professor of Health Psychology at the University of Mannheim and Associate Research Scientist at the Center for Adaptive Rationality at the Max Planck Institute for Human Development in Berlin/Germany. Her work focuses on psychological and behavioural processes.

Image: Leonie Kopetzki



Ralph Hertwig ML

Director of the Center for Adaptive Rationality at the Max Planck Institute for Human Development in Berlin/Germany. He conducts research on human decision-making, with a particular emphasis on analysing bounded-rational strategies.

Image: Arne Sattler

exacerbated existing inequalities. The situation has worsened the burdens and disadvantages experienced by children and adolescents who already faced poverty, domestic violence or educational difficulties. The signs of this "crisis before the crisis" can be quantified by two pieces of data, which are indicative of the circumstances as a whole: In 2019, almost 200,000 children had such poor maths and science skills at the end of the final year of primary school that they would in all likelihood not have the core knowledge required to continue effectively learning after starting lower secondary education.

Before the pandemic, only 26 percent of children and adolescents in Germany met the World Health Organization's recommendation of at least one hour of moderate-to-vigorous-intensity exercise a day. Preschool and school closures have inflamed these and other symptoms

of the crisis. Finally, the statement sets forth 15 recommendations for action which address both the burdens caused by the pandemic as well as pre-pandemic inequalities in educational and development opportunities. The pandemic has therefore given us a chance to create future-proof educational and support structures which will put children and adolescents in Germany in a better situation than before the pandemic. The statement aims to help ensure that this opportunity is not wasted.

* Ralph Hertwig and Jutta Mata are the speakers of the working group which prepared the Leopoldina's 8th ad hoc statement on the COVID-19 pandemic.



Ad hoc statement
"Children and adolescents in
the COVID-19 pandemic"

“Our report pleads for new laws”

Leopoldina member Johannes Buchmann discusses digitalisation and democracy

Together with acatech – National Academy of Science and Engineering and the Union of the German Academies of Sciences and Humanities, the Leopoldina published a statement on digitalisation and democracy and organised a symposium with the National Academies of Israel and the USA. Leopoldina member and computer scientist Johannes Buchmann from the Technical University of Darmstadt about both projects.

The big internet platforms have been facing criticism for a while. What does science have to contribute to the debate?

Johannes Buchmann: First, we wanted to use our expertise as scientists to investigate whether the criticism is really valid. And second, our report is not only about criticism, but also about the opportunities that digitalisation offers for democracy. Based on this analysis, we have made some recommendations for political action.

You also organized a symposium with the academies of science from the U.S. and Israel – both very tech-friendly nations. What was your colleagues’ position?

Buchmann: Their contributions were even more critical than ours. For example, Cynthia Dwork from Harvard said: the boat is sinking, we’re just trying to put a few lifeboats in the water. We take these concerns seriously and propose some promising solutions.

The appearance of new media always raises criticism and skepticism. When television was introduced in Germany, it was considered so dangerous and manipulative that private TV stations weren’t allowed at all. The internet has been allowed to run virtually unregulated for 25 years. Is now the time to tighten the legal reins?

Buchmann: We need to look at the curation strategies of the platforms, that is, the selection algorithms for the news you get to see, because there is a conflict



Johannes Buchmann: Co-speaker of the “Digitization and Democracy” working group and Member of the Scientific Committee for the “Digitization and Democracy” Symposium. Image: Katrin Binner

between the goal of informing people as well as possible and the attention-driven economics of the platforms which may favor sensational or even fake news. We don’t want to impose reins, but we want to create democratically legitimized supervisory bodies for the platforms. Similar to the broadcasting councils that have existed in Germany for a long time.

Those suggestions are targeted towards European lawmakers. Will it impress American companies that operate internationally?

Buchmann: We can see from the European General Data Protection Regulation (GDPR) that our regulations have an international impact, whether you like them or not. This was also confirmed by the international partners at our symposium. What the Europeans do is not irrelevant.

And the General Data Protection Regulation is not sufficient to enforce the transparency of the algorithms in social media?

Buchmann: Our report pleads for new laws, in particular the establishment of these independent oversight boards. These boards can and should look at the algorithms that the platforms use –

and then decide whether they have to be made more democracy-friendly.

You also call for German public broadcasters to be allowed to be more active on the Internet. The publishers of print media won’t like to hear that.

Buchmann: Public broadcasters are a gigantic resource, not just because they have money. They are also an authority for reliable information and must be allowed to expand their digital footprint.

The platforms’ user data can be very interesting for science, for example for sociologists. You demand that the social networks make these data available. Facebook has had a procedure to share its user data with scientists for some years now – what are the experiences?

Buchmann: My colleagues who have had experience with Facebook’s procedure find it completely unsatisfactory. Especially because Facebook and the other platforms make the rules themselves. Given the importance of this kind of research for democracy, society must have a say in who has access to these data.

What are the opportunities that digitalisation offers for democracy?

Buchmann: There are a lot of great initiatives. For example the Open Data community which advocates for open access to important public data, or journalistic initiatives that work to inform and educate us. These developments need to be supported in a systematic fashion. Digitalisation is indispensable for democracy.

■ THE INTERVIEW WAS CONDUCTED BY CHRISTOPH DROESSER

▶ Joint Statement
“Digitalisation and
Democracy”
▶ Symposium “Digitization
and Democracy”

Pandemic preparedness and the role of science

Science academies make recommendations to the G20 nations

As part of Science20 (S20), the national science academies of the G20 nations published a joint statement in early August. Developed under the leadership of the Italian Accademia Nazionale dei Lincei, the recommendations address the heads of state and government of the 20 most important industrialized and emerging countries and call for better pandemic preparedness worldwide.

The statement explains how it is important that the right lessons be learnt without delay from the COVID-19 pandemic to be better prepared for fu-

ture international health emergencies. Emerging clusters of disease or deaths need to be detected more quickly and responsiveness needs to be accelerated by sharing detailed data. Increased international coordination is essential to ensure a global supply of diagnostics, medicine, vaccines and medical equipment during a crisis.

The key for more adequate pandemic preparedness lies in global cooperation, which could be strengthened by an international agreement on pandemic preparedness and management at the level of the World Health Organization.

Members of the Leopoldina played a major role in drafting the statement, which will be officially presented to the Italian G20 Presidency during a meeting of the S20 academies in Rome/Italy from 22 to 23 September.

G7 and G20 policy advice is among the most important strategic work conducted by the Leopoldina internationally. The S20 academies group was established in 2017 under Germany's G20 Presidency. ■ CHW

▶ [S20 statement 2021](#)

Using apps, tags and wearables to fight the COVID-19 pandemic

Discussion paper on digital tools and their effectiveness

Digital tools have become a key means of keeping the COVID-19 pandemic under control. Given the considerable success of global vaccination campaigns, they will continue to play a significant role.

Digital tools are used to facilitate contact tracing, to provide early warning to people who are at risk of a possible infection, to support public health authorities in their legal mandate to combat the pandemic and to assist with scientific studies, such as on the dynamics and mechanisms of how the virus spreads.

New, more contagious virus mutations, such as the Delta variant, with unknown immune escape responses and the further easing of restrictions are increasing the risk of further waves of infections. This is already being observed in countries like Israel and the United Kingdom. In such cases, contacts of an infected person still need to be detected

quickly even in the event of low incidence rates and individuals need to be notified in good time of potential high-risk exposure and advised to self-isolate.

The "Ways to boost digital efforts to tackle the pandemic" discussion paper describes how effective various digital contact tracing tools are in such circumstances and explores how they can be improved.

The authors pay particular attention to Germany's Corona-Warn-App. They comment on how this app provides an exemplary level of data protection and data security. However, they also explain how following its launch in mid-2020, opportunities were missed to strengthen public confidence in the app and to consistently promote its benefits.

The discussion paper also identifies the general need for governments to have a strategy for the use and development of digital tools. These tools could include extremely precise electronic devices for

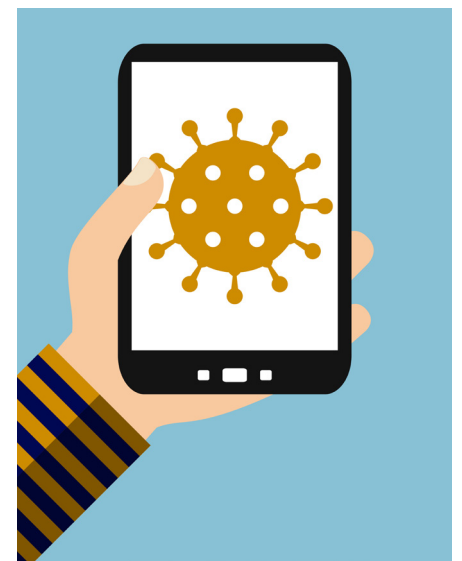


Image: kebox | Adobe Stock

measuring distances (tags and wearables) using ultra-broadband technology, which could be deployed in schools or businesses. The restrictions on the processing of personal data must generally be upheld. ■ JF

▶ [Discussion paper \(German only\)
"Stärkung digitaler
Pandemiebekämpfung"](#)

International discussion series

Are distancing and masks changing us?

How has the COVID-19 pandemic changed our health-related behaviour and which behaviours will continue beyond the pandemic? The Leopoldina and the Brazilian Academy of Sciences organised the interdisciplinary “COVID-19 and Human Health Behavior: Impacts and Trends” virtual panel discussion to give international experts the chance to discuss this topic. The panel also examined efforts by governments and society to control human health behaviour. Psychologist Ralph Hertwig ML was the expert representing the Leopoldina. The panel discussion was part of the Leopoldina International Virtual Panel Series.

■ JN

▶ COVID-19 and human health behaviour

International discussion series

Data – a means of controlling COVID-19

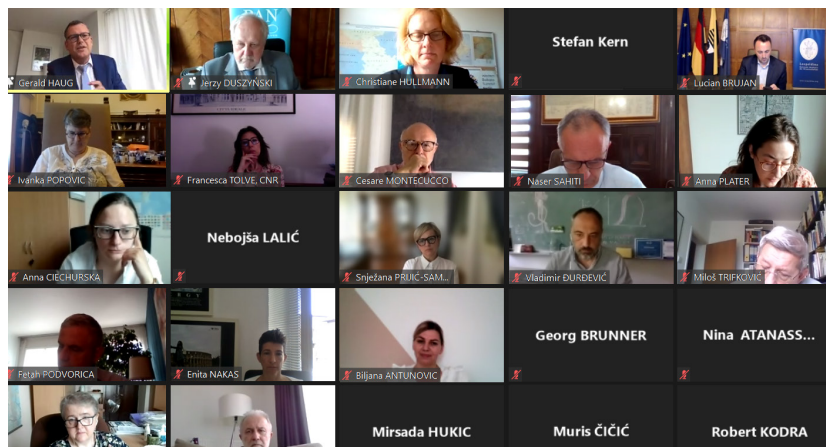
In July, the Leopoldina organised an international virtual panel discussion on the role of data in the COVID-19 pandemic. The experts came from France, the United Kingdom, Italy and Germany and included Gerd Gigerenzer ML. They discussed the benefits and limitations of data as a means of informing public health responses as well as opportunities for using data to increase preparedness for international health emergencies in the future. 110 guests from 13 countries watched the 6th International Virtual Panel. The series is organised by the Leopoldina in cooperation with its international partners.

■ CHW

▶ Data in the COVID-19 pandemic

Western Balkans – 10 Point Plan to control COVID-19

Recommendations from the Berlin Process Joint Science Conference



At the conference, President of the Leopoldina Gerald Haug (top left) called for improved pandemic preparedness and crisis resilience. Screenshot: Stefanie Kirsch | Leopoldina

The 6th Berlin Process Joint Science Conference prepared recommendations on combatting the pandemic for the virtual meeting of the heads of state and government at the Western Balkans Berlin Summit.

The sixth annual conference of the national stakeholders of the education and science systems in the framework of the Berlin Process focused on COVID-19. The virtual meeting was held in early July and was attended by around 60 high-level representatives of national academies, universities and research organisations from the 16 countries involved in the Berlin Process.

It was jointly organised by the Polish Academy of Sciences and the German National Academy of Sciences Leopoldina under the 2021 German Presidency of the Berlin Process. “We need to draw lessons from the pandemic without delay. The first logical step is to improve pandemic preparedness and crisis resilience,” advised the President of the Leopoldina Gerald Haug ML.

Ivan Đikić ML, Goethe University Frankfurt, reminded participants of the need to remain vigilant: “The European

continent should be treated as a single epidemiological area. More vaccinations and unitary travel regulations are necessary.”

The discussions resulted in a “10 Point Plan”, which outlines short-term, mid-term and long-term measures for the next two years to curb the spread of the pandemic in South East Europe and Europe as a whole. The short-term measures include increasing the supply of vaccines to Western Balkan countries and setting uniform regulations for travel within Europe which cover standards on vaccinations, tests and the use of the forgery-proof EU Digital COVID Certificate.

The “10 Point Plan” also recommends prioritising the EU investments earmarked for the recovery of the Western Balkans for the following: creating an efficient healthcare system, meeting the objective of climate neutrality with a particular focus on the urgent need to reduce air and water pollution, the digitalisation of education, public administration, the economy and the health system.

■ LB

▶ Berlin Process “10 Point Plan”



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Friends of the Leopoldina

Bausch fellow: research on a chemist

The Friends of the Leopoldina Academy have awarded the Johann-Lorenz-Bausch Fellowship for the sixth time. This year's fellow is Josephine Musil-Gutsch. The PhD candidate conducts research at the Ludwig-Maximilians-University of Munich on the development of disciplines across the boundaries of the sciences and the humanities.

During her four-month stay at the Centre for Science Studies, she will research Leopoldina member, chemist and chemistry historian Edmund von Lippmann (1857 to 1940) who worked at the interface between industry, the sciences and the humanities. ■ LBE



Friends of the Leopoldina academy

EASAC

Decarbonisation of buildings

25 percent of the greenhouse gases in Europe can be traced back to buildings. There are an estimated 250 million buildings in the European Union (EU). To meet the climate commitments made under the Paris Agreement, the European Academies' Science Advisory Council (EASAC) is calling for a dramatic change of course in the regulation of building emissions.

The experts argue that instead of merely focusing on energy-efficient building methods, emphasis also needs to be placed on increasing renovation rates and on designing buildings which can be taken down and recycled at the end of their lifetime. ■ JMO



Decarbonisation of buildings

EASAC

The Atlantic and Europe's climate

A study by the European Academies' Science Advisory Council (EASAC) analyses and explores the current issues being researched in the field of oceanography. The publication explains how Europe's past and future are inextricably linked with the state of the Atlantic Ocean and its key circulation patterns and how these determine Europe's climate and ecosystems and influence the weather.

This has impacts on agriculture and renewable ocean energy sources. The report also examines whether circulation patterns could change dramatically as a result of global warming. ■ AS



Europe's future in the Atlantic Realm

People

Awards and Honours

- **Claus Bachert** ML, member of the Ophthalmology, Oto-Rhino-Laryngology and Stomatology Section, was awarded the Hamberger Medal from the Swedish ENT Society.
- **Katja Becker** ML, member of the Microbiology and Immunology Section, was elected President of the Global Research Council (GRC).
- **Ralph Bock** ML, member of the Genetics/Molecular Biology and Cell Biology Section, was elected as member of the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW).
- **Katrin Böhning-Gaese** ML, member of the Organismic and Evolutionary Biology section, receives the German Environmental Prize (Deutscher Umweltpreis) awarded by the German Federal Environmental Foundation (DBU).
- **Alessandra Buonanno** ML, member of the Physics Section, was elected as member of the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW).
- **Stefanie Dehnen** ML, member of the Chemistry Section, received the Alfred Stock Memorial Prize from the German Chemical Society (GDCh).
- **Christian Drosten** ML, member of the Microbiology and Immunology Section, was awarded an honorary doctorate from the University of Veterinary Medicine Hannover (TiHo) and the 2020 Berliner Wissenschaftspreis (Berlin Science Prize).
- **Bernhard Eitel** ML, member of the Earth Sciences Section, was elected to the Board of Directors of the League of European Research Universities (LERU).
- **Reinhard Genzel** ML, member of the Physics Section, was elected Vice Chancellor of the Order Pour le Mérite for Sciences and the Arts (Berlin/Germany).
- **Onur Güntürkün** ML, member of the Psychology and Cognitive Sciences Section, was elected as member of the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW).
- **Gerald Haug** ML, member of the Earth Sciences Section, was elected as member of the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW).
- **Jürgen Heinze** ML, member of the Organismic and Evolutionary Biology Section, received the Karl Ritter von Frisch Medal, the science prize awarded by the German Zoological Society (DZG).
- **Monika Henzinger** ML, member of the Informatics Section, was presented with the Wittgenstein Award by the Austrian Science Fund FWF (Vienna/Austria).
- **Bernhard Korte** ML, member of the Mathematics Section, was awarded the Innovationspreis (Innovation Prize) of the German federal state of North Rhine-Westphalia in the honorary award category.
- **Heyo K. Kroemer** ML, member of the Physiology and Pharmacology/Toxicology Section, was elected as member of the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW).
- **Karl Leo** ML, member of the Physics Section, was honoured with the European Inventor Award by the European Patent Office (Munich/Germany) and received the Blaise Pascal Medal from the European Academy of Sciences (EURASC).
- **Maria Leptin** ML, member of the Biochemistry and Biophysics Section, will be the next President of the European Research Council (ERC).
- **Thomas Mettenleiter** ML, member of the Veterinary Medicine Section, was named as one of two Chairs of the One Health High Level Expert Panel, a new panel established by WHO, the OIE, FAO and UNEP to improve pandemic preparedness.
- **Hans-Christian Pape** ML, member of the Neurosciences Section, was elected Vice President for Medicine at the Universität zu Lübeck.
- **Hermann Parzinger** ML, member of the Cultural Sciences Section, was elected Chancellor of the Order Pour le Mérite for Sciences and the Arts (Berlin/Germany).
- **Matin Qaim** ML, member of the Agricultural and Nutritional Sciences Section, will be the next President

of the International Association of Agricultural Economists (IAAE).

■ **Manfred Scheer** ML, member of the Chemistry Section, was awarded the Alexander Todd-Hans Krebs Lectureship in Chemical Sciences by the Royal Society of Chemistry (London/UK).

■ **Hans Joachim Schellhuber** ML, member of the Physics Section, was awarded the Grand Cross of Merit of the Order of Merit of the Federal Republic of Germany.

■ **Bettina Schöne-Seifert** ML, member of the Epistemology Section, was elected as a member of the Academia Europaea (London/UK).

■ **Jens Scholz** ML, member of the Surgery, Orthopaedics, Anaesthesiology Section, was elected as Chair of the Verband der Universitätsklinika Deutschlands (Association of University Hospitals in Germany, VUD).

■ **Andreas Voßkuhle** ML, member of the Cultural Sciences Section, was elected Vice President of the German Research Foundation (DFG).

■ **Lothar H. Wieler** ML, member of the Global Health Section, was awarded an honorary doctorate from the University of Veterinary Medicine Hannover (TiHo) and from the Vetsuisse Faculty at the University of Zurich/Switzerland. He was also awarded the Albrecht von Graefe Medal from the Berliner Medizinische Gesellschaft (Berlin Medical Society).

■ **Johann-Dietrich Wörner** ML, member of the Engineering Sciences Section, was named Space Travel Coordinator for the German federal state of Hesse.

Deceased members

■ **Wolfgang U. Eckart** ML | 7 February 1952 to 16 August 2021 | Heidelberg/Germany | History of Science and Medicine Section

■ **Richard Ernst** ML | 14 August 1933 to 4 June 2021 | Zurich/Switzerland | Chemistry Section

■ **Cornelis de Jager** ML | 29 April 1921 to 27 May 2021 | Texel/Netherlands | Physics Section

■ **Joachim Kalden** ML | 23 November 1937 to 6 February 2021 | Erlangen/Germany | Internal Medicine and Der-

matology Section

■ **Hans Dieter Klenk** ML | 25 June 1938 to 1 June 2021 | Marburg/Germany | Microbiology and Immunology Section

■ **Werner Köhler** ML | 24 March 1929 to 2 August 2021 | Jena/Germany | Microbiology and Immunology Section

■ **Rolf Kreienberg** ML | 27 October 1946 to 10 May 2021 | Ulm/Germany | Gynaecology and Paediatrics Section

■ **Boris Lapin** ML | 10 August 1921 to 30 April 2020 | Sochi/Russia | Pathology and Forensic Medicine Section

■ **Peter Meier-Abt** ML | 10 May 1947 to 27 May 2021 | Zurich/Switzerland | Physiology and Pharmacology/Toxicology Section

■ **Gottfried O. H. Naumann** ML | 25 April 1935 to 5 June 2021 | Erlangen/Germany | Ophthalmology, Oto-Rhino-Laryngology and Stomatology Section

■ **Günther Sterba** ML | 20 May 1922 to 15 June 2021 | Markkleeberg/Germany | Organismic and Evolutionary Biology Section

New Class II members

■ **Patrick A. Baeuerle** ML, Cambridge/USA, MPM Capital LLC

■ **Melanie Blokesch** ML, Lausanne/Switzerland, Laboratory of Molecular Microbiology, Swiss Federal Institute of Technology Lausanne

■ **Ulrich Brandt** ML, Nijmegen/Netherlands, Radboud Institute of Molecular Life Sciences, Radboud University Nijmegen Medical Center

■ **Lars Chittka** ML, London/UK, School of Biological and Chemical Sciences, Queen Mary University of London

■ **Christian Drosten** ML, Berlin/Germany, Institute of Virology, Charité – Universitätsmedizin Berlin

■ **Jeanette Erdmann** ML, Lübeck/Germany, Institute for Cardiogenetics, Universität zu Lübeck

■ **Charlotte Förster** ML, Würzburg/Germany, Chair of

Neurobiology and Genetics, University of Würzburg

■ **Jonathan Gershenzon** ML, Jena/Germany, Biochemistry Department, Max Planck Institute for Chemical Ecology

■ **Edith Heard** ML, Heidelberg/Germany, European Molecular Biology Laboratory

■ **Joseph Heitman** ML, Durham/USA, School of Medicine, Duke University

■ **Gerhard Hummer** ML, Frankfurt am Main/Germany, Department of Theoretical Biophysics, Max Planck Institute of Biophysics

■ **Anthony A. Hyman** ML, Dresden/Germany, Max Planck Institute of Molecular Cell Biology and Genetics

■ **Anna Köttgen** ML, Freiburg (Breisgau)/Germany, Institute of Genetic Epidemiology, Medical Center – University of Freiburg

■ **Maria von Korff Schmising** ML, Düsseldorf/Germany, Institute for Plant Genetics, Heinrich Heine University Düsseldorf

■ **Ute Krämer** ML, Bochum/Germany, Molecular Genetics, Ruhr University Bochum

■ **Bernhard Küster** ML, Freising/Germany, Chair of Proteomics and Bioanalytics, Technical University of Munich

■ **Marco Prinz** ML, Freiburg (Breisgau)/Germany, Institute of Neuropathology, Medical Center – University of Freiburg

■ **Barbara Rehermann** ML, Bethesda/USA, Department of Health & Human Services, National Institutes of Health

■ **Matthias C. Rillig** ML, Berlin/Germany, Ecology of Plants, Freie Universität Berlin

■ **Blanche Schwappach** ML, Hamburg/Germany, Dean's office, Medical Center Hamburg-Eppendorf (UKE)

■ **Anne Spang** ML, Basel/Switzerland, Department Biozentrum, University of Basel

■ **Helle Ulrich** ML, Mainz/Germany, Institute of Molecu-

lar Biology gGmbH

■ **Nicolaus von Wirén** ML, Gatersleben/Germany, Leibniz Institute of Plant Genetics and Crop Plant Research

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Abbreviations:

ML = Member of the Leopoldina