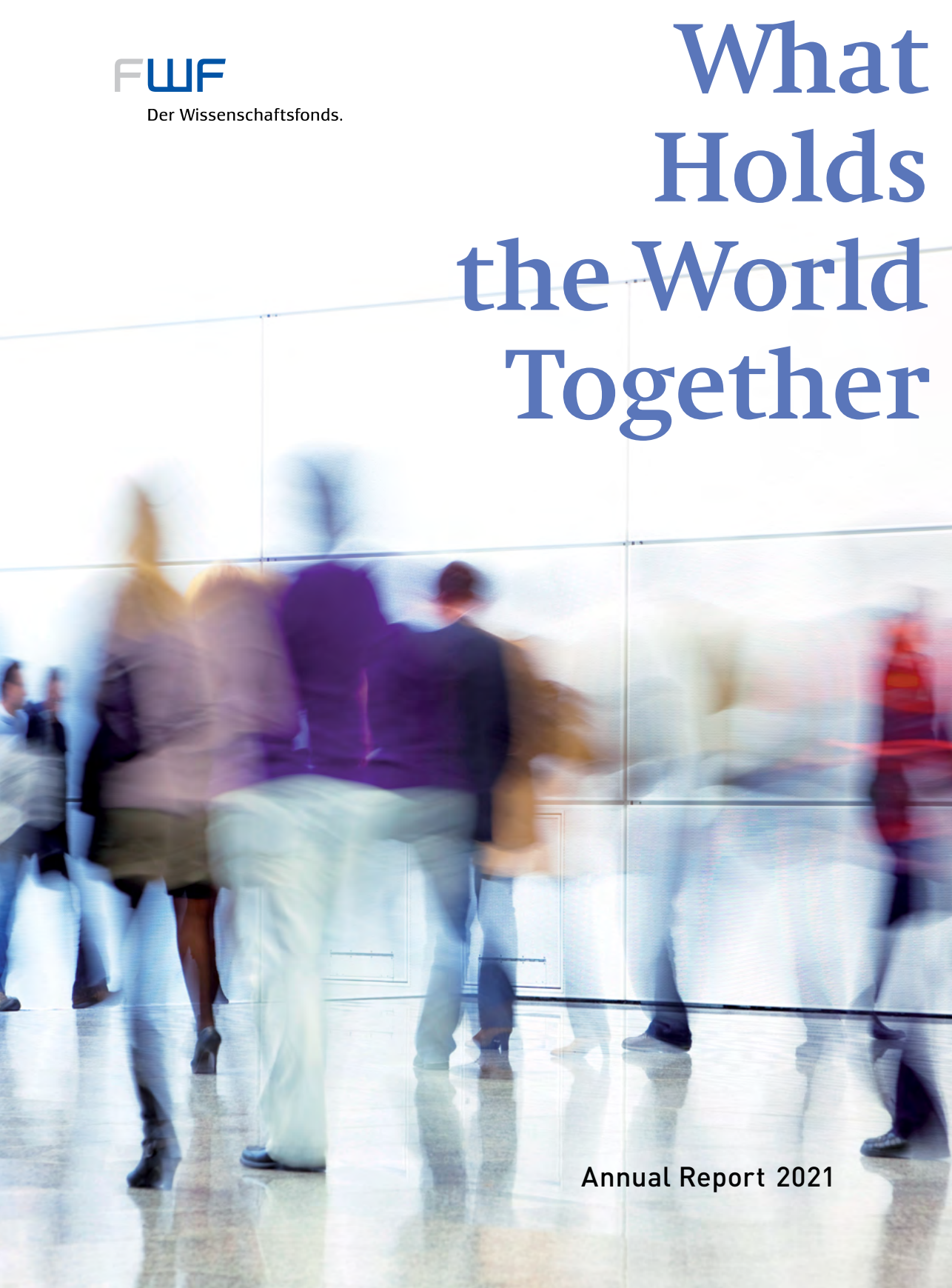
FWF
Der Wissenschaftsfonds.

What Holds the World Together



Annual Report 2021

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The Austrian Science Fund (FWF)

To understand the world, we need to probe deeply. Fundamental research takes time, but it opens up entirely new horizons. This is why we support pioneering researchers on their roads to discovery. The wealth of their insights is the capital of future generations.

FWF

Der Wissenschaftsfonds.

The First Step

ALEXANDER VAN DER BELLEN

Federal President of Austria

The great expeditions of today take place in the sciences and humanities: in the laboratories, the libraries, in the field. Basic research, in particular, is always a journey into the unknown, often with an unclear outcome. At the same time, it creates the potential for amazing discoveries and scientific breakthroughs. The knowledge gained serves as the basis for an enlightened society, makes progress possible and strengthens societal resilience, sustainability and democracy. Science and scholarly research are founded on open-mindedness, exchange and cooperation. It is important to uphold these values, especially in this day and age.

For there to be anything new, someone always has to take the first step. Among these pioneers are researchers who turn their ideas into convincing proposals and apply for the FWF's highly sought-after and competitively awarded third-party funding. Just over 3,300 researchers from universities and research institutions all across Austria lined up at the start last year and submitted an application.

This number alone speaks to the excellence and diversity of top-level research in Austria. I would like to congratulate warmly all those who received funding in the end and wish them every success. I would like to encourage all those for whom it didn't work out last year to keep at it and stick with research.

Dear researchers, the knowledge provided by basic research benefits generations to come. Your research discoveries lay the foundations for tackling the major challenges facing society today and in the future. There are certainly more than enough of them. Stay curious!

The Full Spectrum of Austrian Top-Level Research

MARTIN POLASCHEK

Austrian Federal Minister of
Education, Science and Research

The figure is impressive: 732 researchers and their teams received grants from the FWF last year. 732 outstanding projects provide the basic knowledge needed to come up with better answers to the challenges of tomorrow. What's more, they all increase Austria's attractiveness as a centre of knowledge, boost innovative capacity and contribute to ensuring prosperity for society as a whole. A look at the researchers and their pioneering projects reveals the full spectrum of Austrian top-level research. To introduce them all individually would go beyond the scope of this foreword. However, we could, for example, mention Austria's new Wittgenstein Award winner, Monika Henzinger, a world-class computer scientist. Or the newly funded transdisciplinary #ConnectingMinds teams, in which experts from the worlds of research and living and working experience work closely together to investigate topics such as the future of caregiving, sustainable meat production or new therapies for Parkinson's disease.

Exchange and cooperation are the keys to success in top-level research, which is clearly demonstrated, for instance, by the new joint doctoral programmes between universities and universities of applied sciences. Young researchers can pursue new career paths and, among other things, make technological or medical advances with the opportunities afforded by using artificial intelligence. In addition, the FWF once again helped to launch large research networks through its Special Research Programmes.

The future also looks promising, with the excellent=austria initiative helping to create collaborations between researchers of unprecedented scope. The annual report shows that Austrian basic research is growing and, thanks to the FWF, is more vibrant than ever, a development that we at the BMBWF wholeheartedly support.

I would especially like to thank all those researchers who are providing their expertise to address the pandemic and its consequences. Here too I would like to emphasise the wide range of coronavirus research projects, from those to improve medical treatments, to mitigating the effects on society as a whole.

To all the researchers whose projects were approved in 2021, I would like to express my sincere congratulations and wish you every success. May your projects lead to many scientific breakthroughs 'made in Austria'.

What Holds the World Together

Be daring and break new ground: We took this principle of basic research to heart in designing this year's annual report. Together with ORF's Radiokulturhaus and Ö1, we have launched a new, out of the ordinary, discussion series called 'What Holds the World Together'. Each time, two guests from the world of research and other walks of life get together to discuss the future. What about curiosity, creativity and competitiveness in each of their fields? How does society deal with research, and research with society? What can we learn from each other?

You can look forward to stimulating conversations about scientific progress, social responsibility and about the courage to pursue new frontiers. Two people who at first glance have nothing in common look for what connects, surprises and inspires us. Below you can read a few excerpts, and the full discussions are available online (in German only).

2021 brought with it many new developments for the Austrian Science Fund: The federal government's RTI Strategy 2030, the RTI Pact, and the new three-year funding agreement offer Austrian researchers increased funding with long-term prospects. The BMBWF is providing the FWF with €806 million in funds for the period from 2021 to 2023, an increase of 27 percent compared to the last three years. There was also good news following the loss of funding from the National Foundation. The Austrian federal government announced a successor, Fonds Zukunft Österreich, from which the FWF will also seek funding for its programmes.

In terms of its funding portfolio, the FWF was able to roll out the first pillar of the excellent=austria initiative, or e=a for short.

CHRISTOF GATTRINGER

President

URSULA JAKUBEK

Executive Vice-President

GEORG KASER

Vice-President
Natural Sciences and Engineering

GERLINDE MAUTNER

Vice-President
Humanities and Social Sciences

ELLEN ZECHNER

Vice-President
Biology and Medical Sciences

The launch of the Clusters of Excellence signalled the beginning of the application stage for the first of three e=a pillars, in which research teams receive up to €70 million in funding over a period of ten years for pioneering, large-scale projects in basic research. The new ESPRIT programme was also given the green light in 2021. 18 talented postdocs, half of whom were women, were awarded funding during the first round of approvals. Many others will follow in 2022. The transdisciplinary #ConnectingMinds programme, in which mixed teams from the worlds of research and practice search for answers to society's problems, also got off to a successful start.

A look back at 2021 reveals that the demand for FWF funding continued to grow across all funding programmes. Last year, researchers submitted 3,316 proposals totalling approx. €1.2 billion, a significant increase of more than 14 percent. Of these, 732 projects were approved to the tune of €256 million. The pressure on approval rates continued to increase and the reasons are obvious: Universities are experiencing a welcome surge in growth and are proving successful at attracting new outstanding researchers to Austria. Non-university research institutions, such as the Institute of Science and Technology Austria or the Academy of Sciences, are also expanding. The success of Austrian researchers and their institutions in making scientific progress depends in no small part on the long-term endowment of the FWF's funding budget. Every additional euro that Austria invests in the best researchers in their field enhances the country's resilience and prosperity.

We, the FWF Executive Board, hope you find this year's annual report exciting and inspiring reading.

Independence and diversity

The autonomy of the FWF and the independence of its funding decisions are protected by law. Researchers from all disciplines, regardless of their academic position, are given the time and freedom they need to gain new insights.

Excellence and competition

It is the quality of research that matters, which is why researchers compete in the global arena of ideas. The FWF invests exclusively in those researchers whose proposals receive excellent reviews from international peers.

Transparency and fairness

The FWF is committed to allocating funds in a transparent, fair and inclusive manner. It rigorously avoids conflicts of interest, builds in multiple cross-checks at all stages and clearly communicates its practices and decision-making procedures to researchers and the public.

Gender mainstreaming and equal opportunities

The FWF promotes equal opportunities in world-class research for all genders. Career development programmes and gender mainstreaming in all areas support researchers in their diverse career paths.

International cooperation

Successful research is based on obtaining facts and findings. International cooperation, open access to knowledge and critical reflection bring together complementary fields of expertise and contribute to making research trustworthy. The FWF is committed to facilitating and supporting research cooperation across national borders.

Basic Principles of the FWF

Integrity and ethics

As a founding member of the Agency for Research Integrity, the FWF promotes compliance with the rules of good research practice and internationally established ethical standards. Its own activities and funding effectiveness are also reviewed and evaluated by independent experts on a regular basis.

Dialogue and cooperation

The FWF sees itself as a partner in dialogue and provides an open forum for the exchange of knowledge. It seeks to build bridges between the scientific community, research institutions, business, politics, the media and the public, and encourages critical debate on the role of science in an enlightened society fit for the future.

Key Figures at a Glance

732

Projects approved

3,316

Funding decisions on proposals

Biology and Medical Sciences

Approval rate: 22.3%

284

Natural Sciences and Engineering

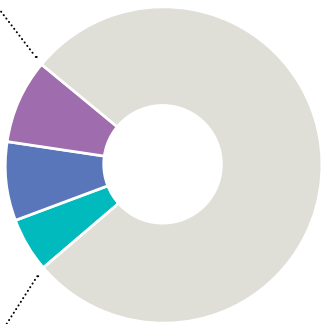
Approval rate: 23.2%

269

Humanities and Social Sciences

Approval rate: 19.6%

179



Over 55 years old

(58 ♀ / 82 ♂)

140

36-55 years old

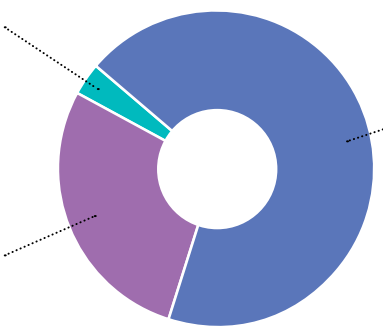
(603 ♀ / 646 ♂)

1,249

16-35 years old

(1,438 ♀ / 1,630 ♂ / 1 other)

3,069



4,458

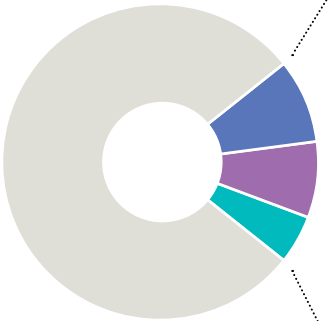
Researchers funded by the FWF

1,203.1

Funding requested (€ million)

256.1

New grants awarded (€ million)



Natural Sciences and Engineering

Approval rate: 21.0%

104.4

Biology and Medical Sciences

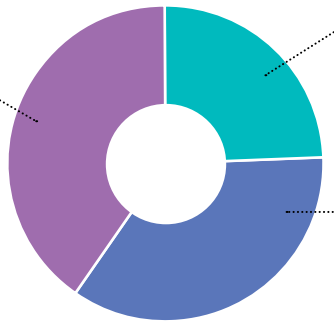
Approval rate: 22.2%

94.3

Humanities and Social Sciences

Approval rate: 18.3%

57.4



Biology and Medical Sciences

1,043

Humanities and Social Sciences

636

Natural Sciences and Engineering

909

2,588

Ongoing projects by discipline cluster (as of 31 December 2021)

A Meeting of Minds

They come together for one hour to talk:
Two people, both successful in widely divergent professions, exchange thoughts and ideas. What about curiosity, creativity and competitiveness in each of their fields?
How does society deal with research, and research with society?
What part does failure play on the road to success?
What can we learn from one another?

The series of talks entitled 'What Holds the World Together' is held in cooperation with the ORF-Radiokulturhaus and the radio station Ö1.

1

Do the laws of physics or great stories hold the world together? Bestselling author **MARC ELSBERG** and surface physicist **ULRIKE DIEBOLD** discuss jazz, their love of physics and their *déformation professionelle* at the ORF-Radiokulturhaus. Journalist **GÜNTER KAINDLSTORFER** led the discussion.

‘We have a particular fascination for what we do not understand.’

GÜNTER KAINDLSTORFER: Ms Diebold, how would you explain surface physics to my 14-year-old daughter? She tells me she gets average-to-good grades in physics.

ULRIKE DIEBOLD: Our work is based on the atom: To put it simply, we place molecules on the surfaces of atoms and observe what they do.

KAINDLSTORFER: How can we see that?

DIEBOLD: We use special microscopes. Half of the Wittgenstein Award, in other words half-a-million euros, was earmarked for just such a microscope. We use them in stainless steel chambers. This allows us to see individual atoms, and even how they move.

KAINDLSTORFER: What kinds of surfaces are you talking about? Erasers or water glasses?

DIEBOLD: *(laughs)* No, metal oxides, because they have fascinating properties, like whether or not they conduct electricity.

KAINDLSTORFER: Mr Elsberg, can you see some inspiration here for your next thriller?

MARC ELSBERG: Definitely. Thrillers keep you in suspense because they thwart your expectations. I can picture the scene right now: It could be about a completely new method for generating energy, for example; there are thousands of possibilities.

KAINDLSTORFER: In which sinister forces are at work – but I don't want to tell you how to write your books.

ELSBERG: One possibility might be for the matter to be invisible.

KAINDLSTORFER: Is that plausible, Ms Diebold? Is some kind of cloaking device being developed at Vienna's University of Technology?

DIEBOLD: Such a thing already exists: non-reflective meta-materials. The

'For me, always very clear in hand with

light is deflected around the material, showing us the objects behind it.

KAINDLSTORFER: Ms Diebold, how do you work? And Mr Elsberg, what is your work like as an author?

DIEBOLD: We are a large, very international team. Unfortunately, as a professor, I have less and less time to spend at the microscope myself, which I find regrettable.

physics was and went hand common sense.'

ELSBERG: My books require a lot of research: I work on some material for ten years. If I need to tap into specialised knowledge, I consult experts. Most of them like to talk to me because they see that I can turn their expertise into something which is understandable. The next step is the plot and the characters. I used to write pages and pages of biographies for them. I could even tell you their grandfather's favourite meal. And then they still ended up doing whatever they wanted. *(laughs)* They take on a life of their own and, in the end, the characters know best.

KAINDLSTORFER: I've read that some authors even take psychological tests for their characters on the internet.

ELSBERG: I have never tried that.

KAINDLSTORFER: Our series is called What Holds the World Together. As a physicist and as an author, how do you both see this?

DIEBOLD: There are forces that bind positive atomic nuclei to negative electrons. There are weak interactions and there is gravitation. In the standard model of physics, it is easy to keep track of the number of forces at work. This standard model is what we try to poke holes in. *(laughs)* We are particularly fascinated by what we don't understand.

KAINDLSTORFER: Does an invisible world exist?

DIEBOLD: Yes, dark matter and dark energy are both being researched.

KAINDLSTORFER: Mr Elsberg, what holds the world together for you?

ELSBERG: Maybe I suffer from a *déformation professionelle*, but I think it's the great stories. The old myths and legends, such as the ones which tell us of resurrection from the dead. I'm still of a generation when everybody gathered on Saturday nights to watch *Wetten, dass..?* on TV. Today, society is much more fragmented. Everyone watches what they want, when they want. It's more difficult to find a unifying narrative. But humans are social animals, and we need interaction to survive. There is also a tie-in to physics: My book *Greed* focuses on economic models and explains why societies that cooperate grow. There is a mathematical model that proves that if wealth is pooled and redistributed, there is a long-term benefit.

KAINDLSTORFER: Why don't we do that?

ELSBERG: We do to a certain extent, for example in cooperatives or with the welfare state. In the so-called good old days, the top tax rate in the United States was 97 percent. Today, it's five.

KAINDLSTORFER: So, it's our willingness to cooperate that holds the world together?

ELSBERG: Yes.

KAINDLSTORFER: Ms Diebold, has there always been a passion for science in your family?

DIEBOLD: I come from a very modest background. My father was the first to attend university. My family comes from Upper Styria, where they were farmhands. One of them even made it to foreman in the Kapfenberg steel mill.

KAINDLSTORFER: And where did you get your love of physics?

DIEBOLD: For me, physics was always very clear and went hand in hand with common sense. A physics teacher in the sixth grade was a great influence on me. He taught us about the Leidenfrost effect – that's when drops of a liquid dance on the stove top – by hopping around the classroom. But I was interested in many things, literature, economics... It was through music that I ended up at the University of Technology. Jazz is really the only music I can stand, and there were regular concerts at the TU. So I thought: I'll go to the TU, they have the best jazz there.

KAINDLSTORFER: How did you fare as a woman in such a technical discipline?
DIEBOLD: I was often the only one. But now the number of women at the TU has increased fivefold, and today the proportion of female first-year students is 25 to 30 percent. But there are still not enough women in technical professions; it's different in the Arab world and also in countries where Romance languages are spoken.
KAINDLSTORFER: Would jazz be a way to boost the number of women? Are there still jazz concerts at the TU?
DIEBOLD: *(laughs)* That's a great idea, I will suggest that to the rector.
KAINDLSTORFER: What role have mentors played in your career?
DIEBOLD: A major role. My doctoral advisor and my postdoc supervisor were both very supportive, so I was able to become a professor in the US at a very young age. But you need a lot of commitment and a lot of luck. In Austria, unfortunately, there is still not enough funding for basic research. We need more brain circulation. Research must be international, but good people should be able to return to Austria.
KAINDLSTORFER: In which fields does Austria have world-class research?
DIEBOLD: In quantum physics and certainly also in computational materials physics. By providing funding, the FWF plays a crucial role in basic research. If you don't water the roots, nothing can grow.
KAINDLSTORFER: Can human-driven climate change be solved with technology?
DIEBOLD: The natural sciences must help through manufacturing methanol from CO_2.
ELSBERG: In other words, *capture*.
KAINDLSTORFER: What does that mean?
DIEBOLD: The CO_2 emitted by major polluters is captured and converted immediately. It is already being done, but not very efficiently.
ELSBERG: Fortunately, we are already in the midst of the energy transition.
KAINDLSTORFER: So, the world will not end in an apocalypse?
ELSBERG: I write thillers for a living. *(laughs)*
DIEBOLD: I am sure we will achieve significant breakthroughs.
KAINDLSTORFER: Thank you for the discussion.

You can hear the full discussion online (in German only).

ULRIKE DIEBOLD

Is professor for surface physics at the Vienna University of Technology (TU). Over her career she has been the recipient of a number of prizes, including the Wittgenstein Award. In 2021 a special research programme funded by the FWF began under her leadership.

MARC ELSBERG

Was a strategy consultant and creative director in advertising. Today he is an author living and working in Vienna. Through his international bestsellers, BLACKOUT, ZERO and HELIX, he has become a master in the genre of science thrillers.

‘Not everything has to be ground-breaking’

Political scientist **KATHARINA T. PAUL** and ORF journalist **GÜNTHER MAYR** talked about science and journalism, success and failure, as well as work during the lockdown.

GÜNTER KAINDLSTORFER: Mr Mayr, you are the face of the pandemic. How are you handling your celebrity?

GÜNTHER MAYR: For me, it's not about personal celebrity. It's about elevating science reporting, about appreciation for science editors.

KAINDLSTORFER: What were your working conditions like during quarantine?

MAYR: I still remember the first reports from China about a mysterious lung disease, then the whole thing exploded within the span of two weeks. It culminated in my managing editor telling me, 'You have to get to the studio in ten minutes!' I had to dig out a tie first. Science editors usually work behind the scenes. The lockdown itself was spooky; a car came and took us to the ORF broadcasting centre and back to our apartments. We were instructed not to speak to the driver. During quarantine, I slept in my office. We were completely isolated, and the knowledge that there were two, three million people out there, waiting to hear what you have to say. That's quite a responsibility, and it wasn't always easy.

KAINDLSTORFER: What is your personal attitude towards news reporting on the coronavirus?

MAYR: Communicate the facts clearly and calmly. You can't send an entire country into panic. Personally, I found Niki Popper, who did the projections, extremely helpful. It was important not to completely lose your sense of humour in all this: like the Austrian minstrel Augustin.

KAINDLSTORFER: Ms Paul, how was it professionally and personally for you during that time?

KATHARINA T. PAUL: I can't separate my professional life from my personal life. I have two sons aged seven years and seven months. I had already been carrying out research into vaccines for two years before the pandemic broke out, and all of a sudden it went from niche to mainstream.

'It is about political courage we don't

KAINDLSTORFER: What was the focus of your research?

PAUL: Vaccination has always been a contested issue historically. There is more to it than just medical intervention. It's about how far the state is allowed to intervene in the private lives of its citizens. At what point does a political discourse become moralizing? There are people who are afraid.

having the to say sometimes, know.'

KAINDLSTORFER: How did you research people's attitudes toward vaccination?

PAUL: In home-schooling mode. *(laughs)* No, seriously, I worked on two studies, the Corona Panel Project and Solidarity During Pandemics, both in the form of in-depth interviews, on a comparative and international basis. As I said, I was focused on the issue of mandatory vaccination before that. Now everyone wants to be part of the conversation. But in principle, it's good to have a broad discussion.

KAINDLSTORFER: Do you have any advice for the Austrian health minister?

PAUL: Any vaccination is only as good as the political system in which it is embedded. People must not be left to make such a decision on their own. It is important to build trust in doctors and authorities with the lowest possible threshold. We see that some countries have been better at this than others. For example, personal letters were sent out with vaccination appointments. In Austria, there was already a discussion about vaccination scepticism before the opponents of vaccination had even become organised.

KAINDLSTORFER: In a nutshell, personal letters are the instrument of choice.

PAUL: Not just letters. It's also about where low-threshold questions can be asked: for example, by people who are afraid of needles. It is also about having the political courage to tell people sometimes, we don't know.

KAINDLSTORFER: How did you get your start in political science?


OTHEKE
FIVE GUYS
WIENER STADTBRAU

PAUL: I have always been interested in how the state interacts with society. I also did a six-month internship at the European Commission and realised how much I like theoretical work. That's what I was missing. I then decided to do a PhD in Amsterdam.

KAINDLSTORFER: What about you Mr Mayr?

MAYR: I always wanted to become a journalist. As a boy in Murau, I recorded my commentary of Austrian skier Franz Klammer's downhill races on audio cassette. I always read and wrote a great deal. My mother said, 'You'll starve to death as a writer.' So, I studied journalism. Egon Erwin Kisch's *Der rasende Reporter* was very important for me as it ties literature and journalism together. During my years at university Vienna was also a place of social learning for me. After I had finished, I sent out a cheeky application letter looking for an internship. I think there were eleven internships in all of Austria at the time, and I figured they were already taken anyway. But the regional studio in Klagenfurt, Carinthia, ended up accepting me. And I now know every nook and cranny of the province.

KAINDLSTORFER: You have been working at the Austrian broadcaster ORF for 35 years now. What do you love about your work?

MAYR: Working with language. And that I have freedom. None of my analyses for the ZIB newscast have ever been subject to editorial interference. And you always meet incredibly fascinating people. I've already had the privilege of meeting several Nobel laureates.

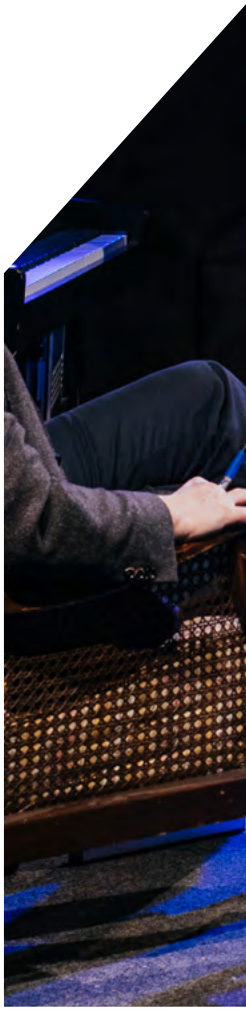
KAINDLSTORFER: What about you Ms Paul?

PAUL: The social relevance of my research, that it can be put into practice. My work is also very international. And I have a lot of freedom. The FWF, which provided the funding for my START Award, doesn't interfere. And I personally enjoy excellent conditions for my research. But there is a bit of a lack of career prospects in Austria as a whole, in order to stop the so-called brain drain. This is a problem for women in particular, because they are structurally even worse off, since they do most of the caregiving. Women are still underrepresented in professorships.

KAINDLSTORFER: What could be done about that?

PAUL: In the Netherlands, there is a quota for professorships at the University of Technology.

KAINDLSTORFER: What role does failure play in your professional life?
MAYR: I once failed to get a story on the Russian mafia in Vienna. And as a war reporter during the war in Yugoslavia, I almost walked across a minefield, but a soldier pulled me back.
KAINDLSTORFER: That kind of failure would have been your last.
PAUL: I personally failed at home-schooling. *(laughs)* I would even fail the school-readiness evaluation.
KAINDLSTORFER: Which subject?
PAUL: Even sport.
KAINDLSTORFER: What do you expect from good science reporting?
PAUL: Modesty. Not everything has to be ground-breaking. And we should also be able to report on failures in science and research.
MAYR: The challenge in reporting science for the ZIB newscast is content reduction. That's exactly why we invented analysis interviews. The use of metaphors in coronavirus reporting was also an experiment for me that, fortunately, worked out well.



You can hear the full discussion online (in German only).

GÜNTHER MAYR

Is the head of science reporting for the Austrian broadcaster ORF. He holds a university degree in communication and is known to a wide TV audience from his interviews and statements across a variety of news programmes, most recently on the subject of Covid-19.

KATHARINA T. PAUL

Has received numerous awards as a political scientist and conducts research into health policy, regulation, medicine and biopolitics at the University of Vienna. She was the recipient of one of the FWF's six START Awards in 2021.

The head of Vienna's cemeteries **RENATE NIKLAS** and neuroscientist **RUPERT LANZENBERGER** discuss science and faith, the miracle of the brain and images in our heads, the culture of grieving and how emotions are created.

‘Change only happens through irritation.’

GÜNTER KAINDLSTORFER: The brain is one of life's greatest miracles. What is so exciting about your research work?

RUPERT LANZENBERGER: The brain is an organ that weighs only as much as one and a half litres of milk, and yet it contains 100 billion neurons. I work in the field of imaging in human medicine. I don't do animal experiments.

KAINDLSTORFER: Your specialty is imaging. What exactly does that entail?

LANZENBERGER: Fortunately, we have state-of-the-art equipment here in Vienna. My focus is on functional magnetic resonance imaging. In psychiatry, we do studies with patients and control groups made up of healthy people. You are also welcome to contact us.

KAINDLSTORFER: Does it hurt?

LANZENBERGER: Not as a rule. You can see what your own brain looks like.

KAINDLSTORFER: I'll consider it. Ms Niklas, you made headlines when you allowed jogging in Vienna's Central Cemetery. How has the culture of grieving changed?

RENATE NIKLAS: Urbanisation, globalisation and digitisation have an impact on cemetery culture as well. We are very heterogeneous, even if we grow up in the same city. And the mental images we generate on any subject are heterogeneous as well. When you think of cemeteries, what images do you see in your mind's eye?

KAINDLSTORFER: A shady grove, tree leaves dappling the sunshine.

NIKLAS: The question is, what is permissible in places like that? Change only happens through irritation. We want to bring life into our cemeteries. Our burial-ground regulations allow everything that reverence for the space permits. And that depends in some cases on what your beliefs are. Many people come in the bright-

'If we knew at an form of therapy was an enormous

est colours, singing and shouting…

KAINDLSTORFER: Shouting in pain?

NIKLAS: We see the cemetery as a place where people meet and express a variety of feelings. Vienna's cemeteries cover an area of 5.2 square kilometres. They also provide a habitat, and not only for the people living directly adjacent to them. We use this area to benefit the city. There are 46 active cemeteries in Vienna with flower meadows and bee colonies.

early stage which best, that would be step forward.'

KAINDLSTORFER: You want to bring life into the cemetery: One custom that has changed is that there are no more open casket funerals. Doesn't that mean that death is being rendered invisible?

NIKLAS: Open casket funerals are no longer very common, but they do happen. The pandemic in particular has also forced us to become creative. For example, we streamed funerals live via the Internet at a time when the number of people in attendance had to be very limited, or when relatives were scattered all over the world. Funerals come in all shapes and sizes, ranging from the very pompous to the very subdued. We also have natural graves.

KAINDLSTORFER: Do you do cremations?

NIKLAS: Yes, and you can, for example, choose which tree you wish to be buried under. In Hietzing we also have rainwater urns. The rain dissolves the organic urn, so you are in harmony with the natural cycle.

KAINDLSTORFER: Would that appeal to you?

LANZENBERGER: Yes, for me as a natural scientist, I find that very appealing. This is the first time I've heard of it.

KAINDLSTORFER: I once talked to a medical examiner who was no longer afraid of dying. She had looked at hundreds of brains of dead people and said they were all flooded with feel-good hormones. Is that credible? What role do endorphins play at the moment of death?

LANZENBERGER: What happens when you are dying? There is a significant lack of blood flow to the cerebral mantle, and the older parts of the brain, which are responsible for emotions, take over. We know that certain neurotransmitter systems give us positive experiences.

KAINDLSTORFER: Why is that so difficult to research?

LANZENBERGER: Mostly we can only carry out measurements for short periods of about an hour.

KAINDLSTORFER: But you would need several hours of measurements?

LANZENBERGER: Yes, and right at the time of death.

KAINDLSTORFER: How many brain researchers are there worldwide? Surely someone would be available?

LANZENBERGER: Around the world there are hundreds of thousands. The question is whether the FWF would fund it. And an ethics commission would also have to give its approval.

KAINDLSTORFER: One more question on the current state of research: 15 percent of all people suffer from depression at least once in their lives. What can imaging technology tell us about that?

LANZENBERGER: The therapeutic approach works very well for about a third of sufferers, but unfortunately not at all for another third. If we knew at an early stage which form of therapy was best, that would be an enormous step forward.

KAINDLSTORFER: Are there any theories about where depression comes from?

LANZENBERGER: The term covers many different diseases. In many cases, we do not know.

KAINDLSTORFER: I usually feel my emotions more in the solar plexus. I experience negative emotions sometimes in my neck. Do feelings arise in the heart?

LANZENBERGER: Every conscious perception originates in the brain. Feelings simply symbolize complex physical conditions.

KAINDLSTORFER: Our society has also become more complex, more plural. How is this reflected in cemetery culture?

NIKLAS: Our cemeteries are run on an interdenominational basis. I really recommend that you go to Vienna's Central Cemetery on All Saints' Day. Some people go there with a handcart full of pizza and Red Bull.

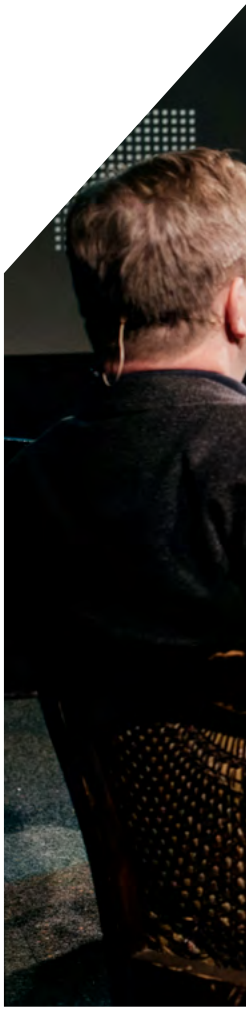
KAINDLSTORFER: Ready to party?

NIKLAS: Yes.

KAINDLSTORFER: Is saying goodbye to someone integrally important to people, no matter how it appears?

NIKLAS: Yes, and we offer many different ways to do so. The few hundred people who take the urns home, sometimes bring them back after a while. It is good to have a ritual and then to let go.

KAINDLSTORFER: Is there a trend towards cremation?
NIKLAS: In Vienna, cremation accounts for 33 percent of funerals, and natural burial for ten percent. In western Austria, natural burials are far more common. In Germany cremation accounts for as many as 90% of funerals.
KAINDLSTORFER: Is there also an economic reason for that?
NIKLAS: It depends on how much space is available; in Vienna, there's less pressure. Recently we added a digital grave as an addition to every analogue grave. So, grave administration can be done any time, anywhere.
KAINDLSTORFER: Like online banking for graves?
NIKLAS: *(laughs)* We also have digital memorial spaces where you can share thoughts and pictures. We are currently working on adding video formats. Soon we will be setting up a photovoltaic system with Wien Energie, the Viennese municipal energy supplier.
KAINDLSTORFER: You are using open spaces for that.
NIKLAS: Yes, the areas used by grounds maintenance.
KAINDLSTORFER: Mr Lanzenberger, one consequence of demographic growth is an increase in dementia. What is the current state of the research in this field?
LANZENBERGER: Unfortunately, we cannot yet cure dementia. However, the pharmaceutical industry is placing a great deal of focus on Alzheimer's. But it will still take decades. By the time recognisable symptoms emerge, it is usually already too late.
KAINDLSTORFER: In terms of prevention, at what age should you have a check-up?
LANZENBERGER: At 50 or 60. Dementia is the umbrella term, and Alzheimer's is only one category.
KAINDLSTORFER: You and many of your colleagues are funded by the Austrian Science Fund, the FWF. What is the state of medical research in Austria?
LANZENBERGER: It's certainly something to be proud of. In recent decades, there has been a significant increase in publications and a great deal of funding for basic research.
KAINDLSTORFER: Finally, a personal question: What would be your ideal way to die?
LANZENBERGER: As late in life as possible and while I'm still healthy.
NIKLAS: Same for me.



You can hear the full discussion online (in German only).

RENATE NIKLAS

Has been the managing director of Vienna's cemeteries since 2017. Prior to that she was the head HR for Wiener Linien, Vienna's public transport. After receiving a degree from the Vienna University of Economics and Business, she began her career in corporate consulting before taking a job at Wienstrom GmbH, a subsidiary of the Viennese municipal energy supplier, in 2002.

RUPERT LANZENBERGER

Is a neuroscientist at the Medical University of Vienna, where he heads up the Neuroimaging Lab focusing on psychiatric diseases and the effects of psychotropic medication. The FWF has funded his research for many years, most recently as part of the Clinical Research Programme in 2021.

FWF Videos: Science in Motion

Ant Migration

'For us, ants have never lost their fascination', says Birgit Schlick-Steiner, an evolutionary biologist at the University of Innsbruck. Together with her husband, Florian Steiner, she has been studying these animals and their extraordinarily cooperative behaviour for years. She has also observed how invasive species are increasingly crowding out native fauna. Despite their social behaviour, ants also engage in fierce territorial battles: 'These fights are a matter of life and death'. Funding from the Austrian Science Fund (FWF) has enabled the two researchers to develop methods to decipher the genetic particularities of these creatures.

The World's First Territorial State

Even as a small child, Christiana Köhler liked digging in the sand, and she is still doing it. For many years, this archaeologist has been excavating in Helwan, a town south of Cairo, where a huge ancient necropolis has been uncovered. The findings made there provide evidence of the first territorial state in world history. Köhler, a keen glider pilot in her free time, focuses her research on ordinary people and shows how the population lived and worked 5,000 years ago. The findings allow for parallels to be drawn with the requirements of modern confederations such as the European Union.

‘Science in motion’ opens a window on to the many-faceted world of basic research. Internationally renowned researchers from Austria report on current projects, insights into, and questions relating to their disciplines.

Understanding How Life Works

Michael Wagner’s interest and expertise lies in the study of microorganisms in the field. He is specifically concerned with nitrifying bacteria and their impact on the environment. These microorganisms play an important part in the Earth’s nitrogen cycle. Wagner, the 2019 winner of FWF’s Wittgenstein Award, also brought his expertise to the fight against the coronavirus with the development of the gargle test. Whenever Wagner is not in the lab, he can be found recharging his batteries in nature. The destruction of the environment that he can observe there also provides him with food for thought.

What Do Animals Talk and Think About?

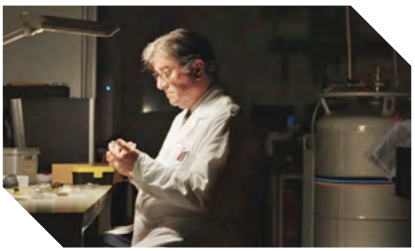
His grandparents’ love of nature marked Tecumseh Fitch for life. Growing up in Pennsylvania (USA), he was surrounded by forests and wildlife and had one goal: to become a scientist. Today, Fitch is a cognitive biologist in Vienna and studies how animals communicate and what they think. To do this, he records animal calls from many species and analyses them on computers. He also studies the evolution of music and argues that music evolved in early humans to create lasting social bonds in groups. His research contributes to a better understanding of the evolution of humans and animals, and of their common evolutionary roots.

‘Nothing in Life is Risk-Free’

Virologist Christoph Steininger is concerned with what makes viruses function as well as the mechanisms that lead to the outbreak of a disease. This climbing enthusiast was able to use his expertise on how viruses work during the coronavirus pandemic. He made a significant contribution to the development of tests and launched a PCR self-test that delivers reliable results within 24 hours. The FWF has supported several of his basic research projects.

‘We Need to Understand Climate Change’

From an early age, Gina Moseley was intrigued by caves, and she has been exploring them since the age of 13. At the moment, UK-born Moseley is carrying out FWF-funded research at the University of Innsbruck, where she explores the climate history of the Arctic, using deposits found in caves. To this end, Moseley regularly travels to the northernmost part of the globe, to northern Greenland, where the impact of climate change is expected to be most pronounced.



Organic Solar Cells for a Better Future

There is a good reason that the sun is the oldest deity worshipped by humans: ‘It is the best and cleanest source of energy we know’, says physicist Niyazi Serdar Sarıçiftçi. For the last 30 years, Sarıçiftçi has been working on the question of how solar energy can be used in an efficient and eco-friendly way. In his research, Sarıçiftçi – winner of the Wittgenstein Award – focuses on the development of organic solar cells.

The Importance of Emotions

The political scientist and sociologist Anna Durnová explores the question of how emotions determine our actions. Using case studies from politics and society and supported by the FWF, she is trying to get to the bottom of the role played by hopes, fears, anger, or joy in order to create better mutual understanding. Durnová is convinced that marginalising feelings or failing to address them can be dangerous, particularly from a political perspective. Repressed emotions are a fertile ground for radical movements, polarisation and the disillusionment with politics.

The IT Landscape Planner

Our everyday lives depend on complex IT systems more than we think: hospitals, parliaments and companies depend on them. With the support of the FWF, computer scientist Ruth Breu is working to make such IT landscapes secure and manageable. For this purpose, the native Bavarian develops living models which – not unlike urban planning models – evolve continuously to cope with increasing requirements. Breu was able to turn her basic research successfully into a practical application in 2017 with the spin-off 'txture'.

Wittgenstein: Austria's most generously supported research programme

The Wittgenstein Award is open to outstanding researchers from all disciplines. Endowed with 1.5 million euros per winner, the award enables recipients to conduct their research with the utmost freedom and flexibility. Researchers are thus enabled to intensify their research activities at the highest international level.

START: Excellence grants for aspiring top researchers

The START programme is aimed at top young researchers, who are awarded up to €1.2 million for six years to enable them to carry out their research in the long term and with financial security. By setting up and/or expanding a research group working under their leadership, principal investigators of START projects have the opportunity to qualify for a leadership position in the world of research.

Award Winners

START/Wittgenstein Jury

In the START Programme and the Wittgenstein Award, the START/Wittgenstein Jury makes a funding recommendation to the FWF Board. The Jury consists of thirteen international top researchers who make their decision based on the reviews by international experts.

2

Wittgenstein Award Winners 1996–2020

1996

ERWIN F. WAGNER
Morphogenesis of the Vertebrate Face

RUTH WODAK
Discourse, Politics, Identity

1997

GEORG GOTTLOB
Information systems and Artificial Intelligence

ERICH GORNIK
Semiconductor Nanoelectronics

ANTONIUS AND MARJORI MATZKE
Epigenetic Inactivation of Transgenes in Plants

1998

WALTER SCHACHERMAYER
Stochastic Processes in Finance

PETER ZOLLER
Theoretical Quantum Optics and Quantum Information

1999

KIM ASHLEY NASMYTH
Yeast Cell Cycle

2000

ANDRE GINGRICH
Local Identities and Wider Influences

PETER A. MARKOWICH
Applied Mathematics

2001

MEINRAD BUSSLINGER
Molecular Mechanisms of Lineage Commitment in the Hematopoietic System

HERIBERT HIRT
Cell Division Control in Plants

2002

FERENC KRAUSZ
Quantum Optics: Ultrafast and High-Field Processes

2003

RENÉE SCHROEDER
RNA Folding and Catalysis, RNA-Binding Antibiotics

2004

WALTER POHL
Early Medieval History and Culture

2005

BARRY J. DICKSON
The Development and Function of Neutral Circuits

RUDOLF GRIMM
Atomic and Molecular Quantum Gases

2006

JÖRG SCHMIEDMAYER
Atomic Physics, Quantum Optics, Miniaturising on a Chip

2007

CHRISTIAN KRATTENTHALER
Classic Combinatorics and Applications

RUDOLF ZECHNER
Metabolic Lipase in Lipid and Energy Metabolism

2008

MARKUS ARNDT
Quantum Interference with
Clusters and Complex Molecules

2009

JÜRGEN A. KNOBLICH
Asymmetric Cell Division

GERHARD WIDMER
Computer Science
AI, Music

2010

WOLFGANG LUTZ
Demography

2011

GERHARD J. HERNDL
Microbial Oceanography,
Marine Biochemistry

JAN-MICHAEL PETERS
Chromosome Segregation
during Human Cell Division

2012

THOMAS A. HENZINGER
Formal Methods for the Design
and Analysis of Complex Systems

NIYAZI SERDAR SARIÇIFTÇI
Solar Energy Conversion

2013

ULRIKE DIEBOLD
Surface Science

2014

JOSEF PENNINGER
Functional Genetics

2015

CLAUDIA RAPP
Byzantium, Late Antiquity,
Social and Cultural History

2016

PETER JONAS
Neurology (Synaptic
Communication in Neuronal
Microcircuits)

2017

HANNS-CHRISTOPH NÄGERL
Experimental Physics:
Ultracold Quantum Matter

2018

HERBERT EDELSBRUNNER
Mathematics,
Computer Science

URSULA HEMETEK
Minority Research
in Ethnomusicology

2019

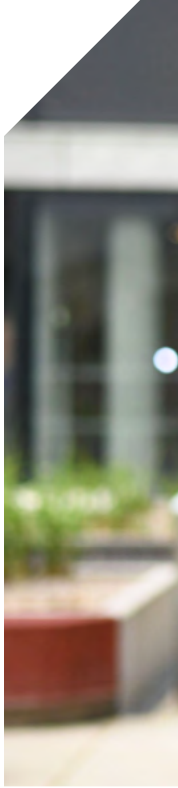
PHILIPP THER
The Great Transformation:
A Comparative Social History
of Global Upheavals

MICHAEL WAGNER
Microbiology

2020

ADRIAN CONSTANTIN
Mathematics
of Wave Propagation

Wittgenstein Award Winner 2021



MONIKA HENZINGER

'Computer science can change the world', says Monika Henzinger. You can feel the researcher's enthusiasm for her field in every word she speaks. The international research career of the award winner is impressive: After finishing her studies in computer science in her native Germany, she received her PhD from Princeton University in the USA and worked as an assistant professor at Cornell University. A temporary switch to the private sector culminated in Henzinger's position as Director of Research at Google. Back in the academic world, she was a professor at EPF Lausanne in Switzerland until she finally moved to Vienna in 2009.

New Algorithms for More Privacy

In her Theory and Applications of Algorithms research group at the University of Vienna, Monika Henzinger specialises in the development and analysis of algorithms, including in the field of big data analysis. Her areas of research include algorithms for combinatorial problems, especially in graphs, distributed and parallel computation, computer-aided verification, and algorithmic game theory. Recently, her research has focused on differential privacy which aims to protect personal information among large quantities of data. In his speech praising the 2021 Wittgenstein Award winner, FWF President Christof Gattringer noted that 'In a digital world, data protection is of great importance. This was already an important topic before Corona, but now, with the collection of health data all over the world, it is more topical and significant than ever.'

Innovative and Groundbreaking

The START/Wittgenstein Jury of 13 researchers noted in their statement: 'Monika Henzinger's work is innovative, impactful, and highly regarded both in top academic as well as business circles'. The results of her efforts so far include more than 200 scientific publications and more than 80 patents. Her research has been recognised by numerous awards, including two European Research Council Advanced Grants. She is a member of the Austrian Academy of Sciences, the German National Academy of Sciences Leopoldina, Academia Europaea, and the Science Councils of Austria and Switzerland. She is also a Fellow of the Association of Computing Machinery, a recognition that is only awarded to the top 1% of computer scientists around the world.

1996

CHRISTIAN KÖBERL
FERENC KRAUSZ
ULRICH SCHMID
PETER SZMOLYAN
KARL UNTERRAINER
HARALD WEINFURTER
GERHARD WOEGINGER
JAKOB WOISETSCHLÄGER

1997

GERHARD HOLZAPFEL
BERNHARD PALME
MICHAEL SCHMID

1998

PETER GRABNER
GOTTFRIED KIRCHENGAST
RUDOLF VALENTA
GERHARD WIDMER

1999

CHRISTOPH MARSCHNER
NORBERT J. MAUSER
OTMAR SCHERZER
THOMAS SCHREFL
CHRISTOPH SPÖTL
JOSEPH STRAUSS

2000

THOMAS BRABEC
SUSANNE KALSS
DIETRICH LEIBFRIED
HERBERT STROBL
BERNHARD TILG

2001

MARKUS ARNDT
MICHAEL BUCHMEISER
WOLFGANG DREXLER
WILFRIED ELLMEIER
CLEMENS SEDMAK

2002

WOLFGANG HEISS
MICHAEL JURSA
GEORG SCHETT
DIETER SCHMALSTIEG
JOACHIM SCHÖBERL

2003

GEORG KRESSE
HANNS-CHRISTOPH NÄGERL
ANDREAS VILLUNGER

2004

THOMAS BACHNER
MICHAEL KUNZINGER
VASSIL PALANKOVSKI
THOMAS PROHASKA
GERHARD SCHÜTZ

2005

MICHAEL HINTERMÜLLER
MATTHIAS HORN
ALEXANDRA LUSSER
MICHAEL MOSER
NORBERT ZIMMERMANN

2006

HARTMUT HÄFFNER
NORBERT POLACEK
PIET OLIVER SCHMIDT
JOSEF TEICHMANN
GERALD TESCHL

2007

KATHRIN BREUKER
THOMAS BUGNYAR
OTFRIED GÜHNE
BERNHARD LAMEL
THOMAS LÖRTING
PAUL MAYRHOFER
SIGRID WADAUER
THOMAS WALLNIG

2008

MARKUS ASPELMEYER
TOM BATTIN
MASSIMO FORNASIER
DANIEL GRUMILLER
ALEXANDER KENDL
KAREL RIHA
KRISTIN TESSMAR-RAIBLE
CHRISTINA WALDSICH

2009

FRANCESCA FERLAINO
ILSE FISCHER
ARTHUR KASER
MANUEL KAUERS
THORSTEN SCHUMM
DAVID TEIS

START Award Winners 1996–2020

2010

JULIUS BRENNECKE
BARBARA HOREJS
BARBARA KRAUS
MELANIE MALZAHN
FLORIAN SCHRECK
BOJAN ZAGROVIC

2011

PETER BALAZS
AGATA CIABATTONI
SEBASTIAN DIEHL
ALWIN KÖHLER
THOMAS MÜLLER
PETER RABL
MICHAEL SIXT
PHILIP WALTHER

2012

KAAN BOZTUG
JULIA BUDKA
ALEXANDER DAMMERMANN
JÜRGEN HAUER
SOFIA KANTOROVICH
MICHAEL KIRCHLER
FRANZ SCHUSTER

2013

STEFAN L. AMERES
NOTBURGA GIERLINGER
CLEMENS HEITZINGER
GEORGIOS KATSAROS
DAVID A. KEAYS
OVIDIU PAUN
THOMAS POCK
PAOLO SARTORI
STEFAN WOLTRAN

2014

MARKUS AICHHORN
BETTINA BADER
MATHIAS BEIGLBÖCK
ALEXANDER GRÜNEIS
SIGRID NEUHAUSER
MANUEL SCHABUS
KARIN SCHNASS
RENE THIEMANN

2015

CHRISTOPH AISTLEITNER
IVONA BRANDIC
MARCUS HUBER
BEN LANYON
GARETH PARKINSON
RUPERT SEIDL
KRISTINA STÖCKL
CAROLINE UHLER

2016

CHRISTOPHER CAMPBELL
MICHAEL EICHMAIR
HARALD GROBNER
FELIX HÖFLMAYER
NIKOLAI KIESEL
TRACY NORTHUP

2017

HANNES A. FELLNER
VERA FISCHER
CLAUDINE KRAFT
WOLFGANG LECHNER
ANDREA PAULI
MIRIAM UNTERLASS

2018

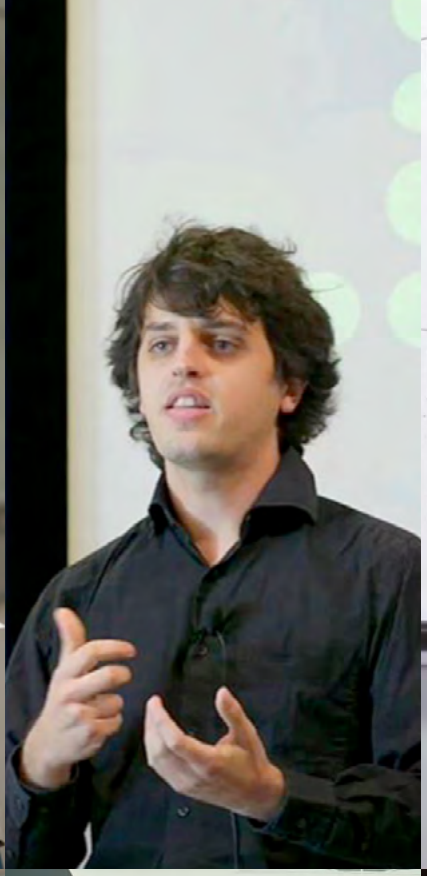
EMANUELA BIANCHI
JOSEF NORBERT FÜSSL
PHILIPP HASLINGER
OLIVER HOFMANN
ROBERT R. JUNKER
GINA ELAINE MOSELEY

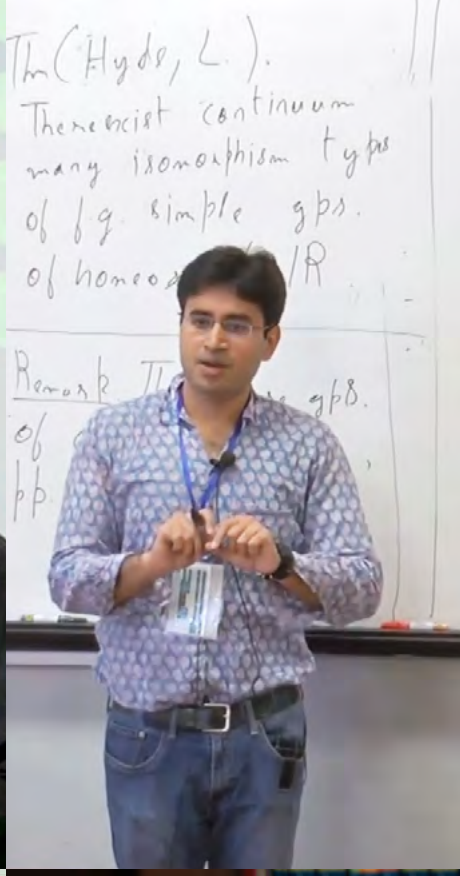
2019

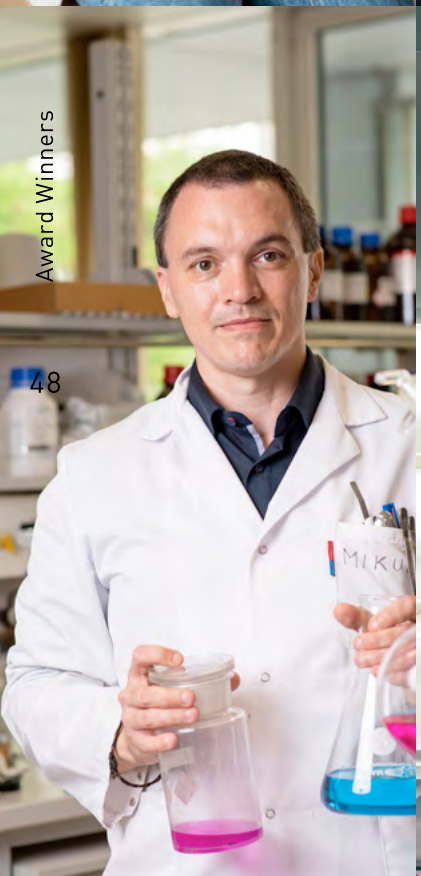
MORITZ BREHM
CHRISTA CUCHIERO
BRUNO DE NICOLA
CHRISTOPH GAMMER
JOSÉ LUIS ROMERO
RICHARD WILHELM

2020

ALICE AUERSPERG
ELISA DAVOLI
GEMMA DE LAS CUEVAS
ROBERT GANIAN
JULIA LAJTA-NOVAK
ALEKSANDAR MATKOVIC
BIRGITTA SCHULTZE-BERNHARDT




Thm (Hyds, L.).
There exist continuum
many isomorphism types
of f.g. simple gps.
Remark



START Award Winners 2021

LAURA DONNAY

Vienna University of Technology
Department of Theoretical Physics

Black Hole Soft Hair and Celestial Holography

In Laura Donnay's project she has become the first researcher to describe a number of properties of black holes. These properties are symmetries occurring near the event horizon. She intends to answer the question of why black holes are so disordered from the point of view of quantum mechanics (i.e. they contain so much information), but very simple and orderly from the point of view of relativity theory. Black holes are at the centre of the search for a link between relativity theory and quantum physics, because both theories are necessary to describe the extreme conditions prevailing in black holes.

JULIAN LEONARD

Vienna University of Technology
Atom Institute

Quantum Optimization with an Atom-Light Simulator

The aim of Julian Leonard's OptimAL project is to develop a new quantum computer that can be used to solve difficult problems in materials research faster than before. The physicist wants to create this computer based on neutral atoms serving as quantum bits that interact with light. This is the special nature of his approach, because previously it was only possible to produce reliable communication between quantum bits from neutral atoms within the immediate vicinity.
With the help of light, even distant quantum bits should be able to communicate with each other. The platform is designed to deal specifically with optimisation problems that are particularly difficult to solve and for which quantum computers have long been considered a potential tool in finding a solution.

START
Award Winners 2021

YASH LODHA

University of Vienna
Faculty of Mathematics

Algebraic, Analytic, Dynamical Properties of Groups Actions

In his project, Yash Lodha addresses elements of group theory, a central area of mathematics. He studies mathematical symmetries, employing both geometrical and algebraic approaches. They are important for the resulting common language that encompasses both geometric facts and arithmetic rules. This field has a long history, but it was not until the 20th century that researchers understood that group theory could also be used to gain a better understanding of geometrical questions. Group theory is a central research field within mathematics today, and one that has many applications, for example in computer science, cryptography or in physics.

HANNES MIKULA

Vienna University of Technology
Department of Applied Synthetic Chemistry

Bioorthogonal Cascade-Targeting

Chemotherapy is still not very targeted when it is used in the fight against cancer. That means that it is not yet possible to control the movement of molecules in a cellular environment. In his project situated at the interface between chemistry and biology, Hannes Mikula wants to develop strategies to deliver active substances directly into tumour cells. Molecular cascade targeting is intended to prevent the substances from also landing in healthy cells and destroying them. In this research, Mikula is engaging in pioneering work, as the field is still very young. The newly developed chemical tools have recently been used for the first time on humans as part of a clinical trial in the USA.

MARKUS MÖST

University of Innsbruck
Department of Ecology

Eco-Evolutionary Dynamics: Admixture and Global Change

Water fleas are a particularly apt subject for research into the interactions between evolutionary and ecological change. In his project, biologist Markus Möst studies how global changes affect aquatic ecosystems. In addition to climate change, overfishing and pollution of habitats are also problems. Möst focuses on two factors, eutrophication and heat waves, both of which have a major impact on lakes. His findings are expected to improve the management of lakes and ecosystems and help preserve their functions. The project encompasses twelve lakes in Austria, Italy, Switzerland and Germany.

KATHARINA THERESA PAUL

University of Vienna
Department of Political Science

Valuing Vaccination: A Multi-Sited Policy Valuography

What is the value that society attributes to vaccinations? This is the basic question that underlies the research work of Katharina T. Paul. The political scientist analyses which criteria decision-makers in politics and business, researchers and the public at large apply in making decisions about vaccinations. How do different stakeholders value vaccinations, and how do these assessments reflect their attitudes towards governance? Based on interviews, ethnographic observation and the analysis of social media data, the project aims at a comprehensive analysis of values that, due to the corona pandemic, are at the centre of public debates.

Executive Board

Composed of the President, three Vice-Presidents of Research and the Executive Vice-President, the Executive Board coordinates the organisation's activities and is in charge of defining the FWF's strategic objectives as well as developing and carrying forward its funding programmes. In addition, the Executive Board takes part in negotiations with Austrian and European research policy-makers, cooperates with universities and other research institutions in Austria and abroad, and represents the FWF at the national and international level. The Vice-Presidents of Research are each in charge of a specialist department at the FWF.

Supervisory Board

The Supervisory Board is entrusted with numerous powers of monitoring and approval. It adopts resolutions on the FWF's annual accounts as well as its annual budget forecasts and its multi-annual and annual work plans. The Supervisory Board also elects the Executive Board.

Assembly of Delegates

The Assembly of Delegates makes decisions on the rules of procedure for its own activities as well as those of the Executive Board and the FWF Board. This body also submits a shortlist of three candidates for the office of President and elects the members of the FWF Board based on a proposal by the Executive Board. The Assembly also elects four members of the Supervisory Board.

Decision-Making Bodies of the FWF

FWF Board

The FWF Board decides which research projects are to be funded.

Juries & Boards

The juries and boards appointed for specific programmes make funding recommendations to the FWF Board.

Strategic Advisory Board

The FWF has established a Strategic Advisory Board made up of highly renowned researchers from abroad. The Board's task is to advise the FWF independently, drawing on exceptional expertise and providing an international perspective.

Executive Board

6th term (2020–2024)

President

CHRISTOF GATTRINGER

Executive Vice-President

URSULA JAKUBEK

Vice-President
Natural Sciences and Engineering

GEORG KASER

University of Innsbruck,
Department of Atmospheric and Cryospheric Sciences

Vice-President
Humanities and Social Sciences

GERLINDE MAUTNER

Vienna University of Economics and Business,
Institute for English Business Communication

Vice-President
Biology and Medical Sciences

ELLEN ZECHNER

University of Graz,
Institute of Molecular Biosciences

Supervisory Board

6th term (2019–2023)

Chair

SONJA PUNTSCHER RIEKMANN
University of Salzburg,
Salzburg Centre of European Union Studies

Deputy Chair

EVA LIEBMANN-PESENDORFER
Institute for Advanced Studies

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MARTHA BRINEK
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Science and Research

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FWF Works Council

MARTIN GRÖTSCHEL
Berlin Brandenburg Academy
of Sciences and Humanities

RENATE E. MEYER
Vienna University of Economics and Business,
Institute for Organization Studies

JOHANNA RACHINGER
Austrian National Library

BARBARA SPORN
Vienna University of Economics and Business,
Institute for Higher Education Management

HANS SÜNKEL
Austrian Academy of Sciences,
Institute for Space Research

Consultant Members

MARTIN GERZABEK
Christian Doppler Research Association

GERTRUDE TUMPEL-GUGERELL
FFG Supervisory Board

Assembly of Delegates

6th term (2019–2023)

Institution	Member	Deputy
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Austrian Institute of Technology GmbH	**WOLFGANG KNOLL**	LINA BITTNER
BMK: Non-university research	**IRIS FILZWIESER**	ELKE GUENTHER
Danube University Krems	**VIKTORIA WEBER**	FRIEDRICH FAULHAMMER
Institute of Science and Technology Austria	**THOMAS A. HENZINGER**	CARL-PHILIPP HEISENBERG
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Medical University of Innsbruck	**CHRISTINE BANDTLOW**	GÜNTER WEISS
Medical University of Vienna	**MICHAELA FRITZ**	MICHAEL FREISSMUTH
Montanuniversität Leoben	**WILFRIED EICHLSEDER**	OSKAR PARIS
Austrian Academy of Sciences	**OLIVER JENS SCHMITT**	GEORG BRASSEUR
Austrian Conference of Universities of Applied Sciences	**JOHANN KASTNER**	ANDREAS ALTMANN
Austrian National Union of Students	**NAIMA GOBARA**	—
Austrian Conference of Private Universities	**RUDOLF MALLINGER**	STEFAN HAMPL
Graz University of Technology	**HORST BISCHOF**	GERNOT MÜLLER-PUTZ
Vienna University of Technology	**JOHANNES FRÖHLICH**	ULRIKE DIEBOLD
University of Applied Arts Vienna	**ALEXANDER DAMIANISCH**	BARBARA PUTZ-PLECKO
University of Natural Resources and Life Sciences, Vienna	**CHRISTIAN OBINGER**	EVA SCHULEV-STEINDL
University of Art and Design Linz	**KARIN HARRASSER**	THOMAS MACHO

Chair

MICHAELA FRITZ

Medical University of Vienna

Deputy Chair

HORST BISCHOF

Graz University of Technology

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University of Graz	**JOACHIM REIDL**	PETRA SCHAPER-RINKEL
University of Innsbruck	**ULRIKE TANZER**	BERNHARD FÜGENSCHUH
University of Klagenfurt	**MARTINA MERZ**	FRIEDERIKE WALL
Johannes Kepler University Linz	**ALBERTA BONANNI**	PETER PAULE
Mozarteum University Salzburg	**EUGEN BANAUCH**	ELISABETH GUTJAHR
University of Salzburg	**NICOLA HÜSING**	HENDRIK LEHNERT
University of Vienna	**JEAN-ROBERT TYRAN**	HEINZ ENGL
University of Veterinary Medicine, Vienna	**OTTO DOBLHOFF-DIER**	VERONIKA SEXL
Vienna University of Economics and Business	**MICHAEL LANG**	REINHARD SEFELIN

Non-voting members

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Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology	**SILVIA NEUMANN**	MARGIT HARJUNG

Biology and Medical Sciences

Discipline	Reporter	Deputy
Biochemistry and Structural Biology	**FATIMA FERREIRA-BRIZA** University of Salzburg	RUTH PRASSL Medical University of Graz
Biology I	**ILSE KRANNER** University of Innsbruck	KRISTINA SEFC University of Vienna
Biology II	**ELISABETH HARING** NHM Wien	JILLIAN PETERSEN Universität Wien
Biomedical Research I	**AKOS HEINEMANN** Medical University of Graz	WILFRIED ELLMEIER Medical University of Vienna
Biomedical Research II	**FRITZ ABERGER** University of Salzburg	FLORIAN GREBIEN University of Veterinary Medicine, Vienna
Biomedical Research III	**MARCUS HACKER** Medical University of Vienna	TILL RÜMENAPF University of Veterinary Medicine, Vienna
Genetics, Microbiology, Biotechnology, Systems Biology	**SILJA WESSLER** University of Salzburg	ALEXANDER STARK IMP Vienna
Clinical Research I	**THOMAS BAUERNHOFER** Medical University of Graz	EVA SCHERNHAMMER Medical University of Vienna
Clinical Research II	**CHRISTOPH J. BINDER** Medical University of Vienna	KATHRIN ELLER Medical University of Graz
Neuroscience I	**BERNHARD E. FLUCHER** Medical University of Innsbruck	CLAUS LAMM University of Vienna
Neuroscience II	**GEORG WIDHALM** Medical University of Vienna	GAIA NOVARINO Institute of Science and Technology Austria
Cell Biology	**LUDGER HENGST** Medical University of Innsbruck	EVA STÖGER University of Natural Resources and Life Sciences, Vienna

FWF Board

6th term (2020–2023)

The FWF Board consists of the Executive Board
and the reporters of the FWF.

Humanities and Social Sciences

Discipline	Reporter	Deputy
Classical Studies	**ERICH KISTLER** University of Innsbruck	REINHARD WOLTERS University of Vienna
Historical Sciences	**CLAUDIA KRAFT** University of Vienna	CHRISTINA ANTENHOFER University of Salzburg
Studies of the Arts	**EVA KERNBAUER** University of Applied Arts Vienna	FEDERICO CELESTINI Universität Innsbruck
Literature and Linguistics	**CHRISTOPHER F. LAFERL** University of Salzburg	ULRIKE JESSNER-SCHMID University of Innsbruck
Philosophy, Theology, and Cultural Studies	**MAX KÖLBEL** University of Vienna	RUTH SONDEREGGER Academy of Fine Arts Vienna
Political Science, Law, and Administrative Sciences	**JESSICA FORTIN-RITTBERGER** University of Salzburg	SUSANNE KALSS Vienna University of Economics and Business
Psychology and Educational Sciences	**TOBIAS GREITEMEYER** University of Innsbruck	HELGA FASCHING University of Vienna
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FWF Board

Natural Sciences and Engineering

Discipline	Reporter	Deputy
Inorganic Chemistry	**ERIK REIMHULT** University of Natural Resources and Life Sciences, Vienna	JULIA KUNZE-LIEBHÄUSER University of Innsbruck
Experimental Physics	**ANDREAS NEY** University of Linz	HARTMUT ABELE Vienna University of Technology
Geosciences	**RAINER ABART** University of Vienna	ANDREA KARIN STEINER University of Graz
Computer Science I	**SILVIA MIKSCH** Vienna University of Technology	ANA SOKOLOVA University of Salzburg
Computer Science II	**THOMAS POCK** Graz University of Technology	BERNHARD RINNER University of Klagenfurt
Engineering Technology	**TIBOR GRASSER** Vienna University of Technology	MARTIN HORN Graz University of Technology
Material Sciences	**ANDREAS LUDWIG** Montanuniversität Leoben	PAUL-HEINZ MAYRHOFER Vienna University of Technology
Mathematics I	**MICHAEL DRMOTA** Vienna University of Technology	VERENA BÖGLEIN University of Salzburg
Mathematics II	**ERIKA HAUSENBLAS** Montanuniversität Leoben	LAZLO ERDÖS Institute of Science and Technology Austria
Organic Chemistry	**NUNO MAULIDE** University of Vienna	ROLF BREINBAUER Graz University of Technology
Theoretical Physics and Astrophysics	**JOSEF PRADLER** Austrian Academy of Sciences	MARKUS AICHHORN Graz University of Technology

START/Wittgenstein Jury

Biology and Medical Sciences

BRUCE BEUTLER
University of Texas, USA

ADRIAN BIRD
University of Edinburgh, UK

CARLO CROCE
Ohio State University, USA

CHRISTINE FOYER
University of Leeds, UK

Humanities and Social Sciences

ROBIN MANSELL
London School of Economics and Political Science, UK

PETER VAN DOMMELEN
Brown University, USA

JANET WOLFF (Chair)
University of Manchester, UK

Natural Sciences and Engineering

CHRISTOPH BECKERMANN
The University of Iowa, USA

CARLO W. J. BEENAKKER
Leiden University, Netherlands

STEFAN HELL
Max Planck Institute for Biophysical Chemistry, Germany

GITTA KUTYNIOK
Technical University Berlin, Germany

EGBERT WILLEM MEIJER
University of Technology Eindhoven, Netherlands

MIRA MEZINI
Technical University Darmstadt, Germany

PEEK Board

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Vrije Universiteit Brussel, Belgium

ASTRID ENSSLIN
University of Bergen, Norway

SANDRA KEMP
Lancaster University, UK

RASMUS ÖLME
The Danish National School
of Performing Arts, Denmark

MICHAEL PUNT (Chair)
University of Plymouth, UK

MARC AUREL SCHNABEL
Victoria University of Wellington, New Zealand

WKP Jury

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BEATE LANGHOLF

OLIVER LEHMANN

CHRISTIAN MÜLLER

JUTTA RATEIKE

BARBARA STREICHER

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Professor of Science, Technology and Innovation Studies,
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Co-chair of the Research on Research Institute

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the Environment, KTH Royal Institute of Technology Stockholm;
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ULRIKE TILLMANN

Professor of Mathematics, Oxford University;
Council Member of the Royal Society, United Kingdom

Equal Opportunities

FWF Gender Data

		Women/Men
Executive Board	5	3/2
Supervisory Board	10	8/2
Assembly of Delegates[1]	58	24/34
Strategic Advisory Board	8	4/4
FWF Board Biology and Medical Sciences	24	11/13
FWF Board Humanities and Social Sciences	18	10/8
FWF Board Natural Sciences and Engineering	22	6/16
PEEK Board	6	3/3
WKP Jury	6	3/3
START/Wittgenstein Jury	13	5/8
FWF Office[2]	139	102/37

1) Voting members
2) Active employees

(As of 1 April 2022)

FWF Programmes

4

Clusters of Excellence (COE)

Clusters of Excellence (COE) are the first of three pillars of the excellent=austria funding initiative to strengthen Austria's position as a top location for research within the international scientific community.

OBJECTIVES

- COEs enable groups of researchers at Austrian research institutions to achieve outstanding results through cooperation as either interdisciplinary research or in one area (including arts-based research), to establish the field in Austria over the long term and at a top international level.

- They provide young researchers with outstanding research training, career development and research-based education to create optimal conditions for the next generation of researchers to be competitive at an international level.

- They aim to create synergies leading to achievements that could not be arrived at by one institute.

- They promote science communication and the transfer of knowledge.

- They support the use of results of basic research in business and society.

Exploring New Frontiers: Funding of Top-Quality Research

Stand-Alone Project Funding

Stand-Alone Projects

OBJECTIVES

- To enable researchers to carry out research projects in basic research

1000 Ideas Programme

OBJECTIVES

- To foster creativity, encourage risk-taking and facilitate the development of novel, innovative research domains
- To focus on high-risk, original or transformative research at an early stage
- To address visionary research ideas that cross disciplinary boundaries and/or are not yet the subject of debates in academic research and/or in society

International Programmes

Transnational Funding Activities

OBJECTIVES

- To enable researchers to carry out closely integrated bi- or multilateral research projects in basic research

FUNDING PROGRAMMES

- Joint projects: Bi- and trilateral research projects, sometimes in response to Calls for research addressing specific topics
- ERA NET calls: thematically focused multilateral (European) research cooperations
- Joint seminars: Seminar events to initiate cooperative projects

Priority Research Programmes

Special Research Programmes (SFB)

OBJECTIVES

- To consolidate research performed by multiple investigators at one or more locations towards a thematic focus

- To develop extremely productive, tightly interconnected research units for long-term and interdisciplinary work on complex research topics

Research Groups

OBJECTIVES

- To fund cooperative projects between researchers at institutions with more limited infrastructure or in disciplines that cooperate on smaller scales
- To cooperate on medium-term projects on a complex, contemporary topic in mixed teams of three to five researchers
- To promote inter- or multidisciplinary, innovative research collaboration that consolidates or explores a topic in more depth
- To integrate young researchers in leadership positions
- To implement an internationalisation strategy for establishing a connection to the international scholarly community

Awards and Prizes

START Programme

OBJECTIVES

- To provide outstanding young researchers with long-term support to carry out basic research
- To help researchers gain the qualifications necessary for leadership positions in research by developing, growing and managing their own working groups

Wittgenstein Award

OBJECTIVES

- To provide outstanding established scholars with long-term support to carry out basic research
- To give those researchers maximum freedom and flexibility in pursuing their research

Gottfried and Vera Weiss Prize

(funded by the Dr. Gottfried and Dr. Vera Weiss Science Foundation)

OBJECTIVES

- To enable (young) researchers to carry out basic research in the fields of meteorology and anaesthesiology

netidee SCIENCE

(funded by the Internet Foundation)

OBJECTIVES

- Basic research should make a sustainable contribution to expanding, strengthening and preserving the benefits of the internet for all members of society

- To support researchers from all disciplines who can help to achieve the foundation's objectives in the fields of technology, the natural sciences, business and economics, and the social sciences

ASMET Research Award

(funded by the Austrian Society of Metallurgy and Materials)

OBJECTIVES

- To support researchers in the fields of metallurgy and materials development with a focus on the use of AI methods

Herzfelder Foundation Projects

(funded by the Herzfelder Family Foundation)

OBJECTIVES

- To enable scholars to carry out basic research projects in the fields of biochemical and/or medical cell research

- To support research addressing the alteration and ageing of cells as well as the search for new means of influencing these processes

Alternative Methods to Animal Testing

OBJECTIVES

- To support investigators in the research and development of alternative methods to animal testing

- To develop research and testing methods that fulfil '**3R**' goals: completely **replace** animal testing, **reduce** the number of animals used, or **refine** techniques to minimise the animals' pain and distress

Cultivating Talents: Human-Resources Development

Doctoral Programmes

doc.funds*

OBJECTIVES

- To promote outstanding academic and arts-based education and training for doctoral students in existing internationally oriented doctoral programmes with clearly defined structures and quality standards
- To strengthen the research orientation and sustain the consolidation of existing training structures for highly qualified young researchers

doc.funds.connect

OBJECTIVES

- To establish and facilitate doctoral programmes jointly developed and organised by a university and a university of applied sciences to international standards
- To ensure an excellent education and training for PhD candidates through the creation of sustainable cooperative education and research structures between universities of applied sciences and universities
- To strengthen the cooperation between universities of applied sciences and universities
- To promote the career development of research staff at universities of applied sciences
- To integrate basic research and applied research into the domain of doctoral education and to establish application-oriented basic research

Postdoc Programme

ESPRIT: Career Advancement for Postdocs

OBJECTIVES

- To promote excellent, innovative research
- To attract, retain or enable the return of outstanding researchers and thus strengthen Austrian research institutions
- To support outstanding female researchers

- To promote career and skills development while enabling recipients to advance their independent research profile

- To strengthen career prospects and boost competitiveness by supporting publications, collaboration and increased visibility

International Mobility

Erwin Schrödinger Fellowship

OBJECTIVES

- To help (young) researchers work on basic research at leading research institutions outside Austria

- To help researchers gain experience abroad at their post-doc stage

- To facilitate access to new fields of research, methods, procedures and techniques so that researchers – following their return to Austria – can contribute to the development of their fields

Career Development for Female Researchers

Elise Richter Programme

OBJECTIVES

- To enable female researchers to carry out research projects in basic research

- To support the development of women's academic careers and help them gain the qualifications necessary for a professorship in Austria or abroad

Elise Richter PEEK

OBJECTIVES

- To enable young female researchers to carry out innovative arts-based research projects

- To support the development of women's academic careers and help them gain the qualifications necessary for a professorship in Austria or abroad

* Made possible by a special endowment of the National Foundation.

Realising Ideas: Interactive Effects Science – Society

Application-Oriented Basic Research

Clinical Research Programme (KLIF)

OBJECTIVES

- To enable researchers to carry out clinical research projects
- To generate new knowledge and fundamental insights in order to improve clinical practice
- To optimise diagnostic and therapeutic procedures

Support for Artistic Research

Programme for Arts-Based Research (PEEK)

OBJECTIVES

- To enable researchers to carry out innovative arts-based research projects
- To increase the research capacity, quality and international standing of arts-based researchers in Austria
- To increase awareness of arts-based research and its potential applications among a broader audience and within the research and arts communities

Support for Transdisciplinary Research

#ConnectingMinds*

OBJECTIVES

- To support teams that combine scientific and societal knowledge in order to meet prospective social, technological, ecological and economic challenges
- To strengthen the dialogue between science and society as well as increase the translation of research results into practice
- To improve the ability of researchers to build capacity in terms of transdisciplinary research

Funding of Publications and Communication

Stand-Alone Publications

OBJECTIVES

- To support the publication of stand-alone scholarly works in an appropriate and economical manner using conventional or digital publication formats

Peer-Reviewed Publications

OBJECTIVES

- To support the publication of peer-reviewed works

Science Communication Programme (WKP)

OBJECTIVES

- To support outstanding science communication related to a research project funded by the FWF

Expansion Projects to FWF-Funded Projects

Top Citizen Science (TCS)

OBJECTIVES

- To support research activities that promote the active involvement of citizens
- To incorporate the skills, expertise, curiosity and willingness of citizens to perform research within ongoing projects

*Made possible by a special endowment of the National Foundation.

Information on the annual accounts for 2021 will be published on the FWF's website in mid-June 2022.

The FWF's Activities in Figures

5

Number of Grants

Programmes	Applications assessed		Projects approved		Approval rate (%)	
	2020	**2021**	2020	**2021**	2020	**2021**
Stand-Alone Projects (incl. clinical research)	1,201	1,342	303	353	25.2	26.3
1000 Ideas Programme	401	270	24	22	6.0	8.1
#ConnectingMinds	–	11	–	5	–	45.5
doc.funds	30	36	4	6	13.3	16.7
doc.funds.connect	–	28	–	5	–	17.9
Schrödinger Programme	123	78	53	32	43.1	41.0
Meitner Programme	207	319	52	76	25.1	23.8
Firnberg and Richter Programme	163	153	42	40	25.8	26.1
ESPRIT Programme	–	69	–	18	–	26.1
START Programme and Wittgenstein Award	139	125	8	7	5.8	5.6
Young Independent Researcher Groups	23	14	4	2	17.4	14.3
Research Groups[1]	31	8	15	3	12.0	9.7
Special Research Programmes (SFB) Extensions (subprojects)	29	8	29	8	100.0	100.0
International Programmes	495	674	130	126	26.3	18.7
Arts-Based Research Programme (PEEK)	–	69	–	13	–	18.8
European Groupings of Territorial Cooperation (EVTZ)	–	66	–	7	–	10.6
Top Citizen Science (TCS)	14	35	3	5	21.4	14.3
Science Communication Programme	22	11	7	4	31.8	36.4
Total[2]	2,980	**3,316**	708	**732**	23.0	**21.9**
Women	1,031	1,167	232	248	21.6	21.1
Men	1,949	2,149	476	484	23.8	22.4
Research Groups: Draft proposals	25	31				

1) The approval rate is calculated from the ratio of approved full applications to draft proposals.
2) 2020: including CM workshops, DK extensions, QFTE, SFB new applications.
3) Increases, extensions, completion funding, etc.

Research Funding Overview

Grant Totals (€ million)

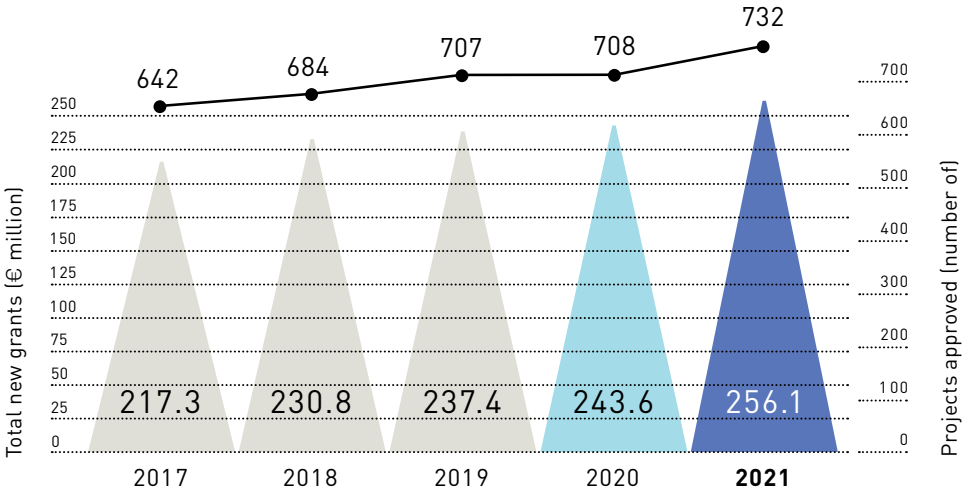
Total assessed		Total approved		Approval rate (%)		
2020	**2021**	2020	**2021**	2020	**2021**	
436.4	496.7	113.0	134.4	25.9	27.1	
56.5	37.9	3.4	3.3	6.0	8.6	
0.5	10.4	0.1	4.6	20.7	44.0	
51.8	64.5	7.7	10.6	14.9	16.4	
–	26.7	–	5.0	–	18.8	
16.2	11.5	7.0	4.5	43.2	39.5	
35.1	55.1	8.9	13.1	25.3	23.7	
45.4	43.2	11.6	11.1	25.5	25.7	
–	20.1	–	5.2	–	25.8	
169.8	153.5	9.5	8.4	5.6	5.5	
36.5	23.1	8.6	3.5	23.6	15.1	
8.7	11.9	4.3	4.5	11.7	10.0	
13.3	4.0	12.9	4.0	97.1	100.0	
151.2	205.9	39.2	37.2	25.9	18.1	
–	26.3	–	5.2	–	19.8	
–	10.2	–	1.1	–	11.2	
0.7	1.7	0.2	0.2	21.4	14.5	
1.0	0.5	0.3	0.2	32.7	40.5	
1,052.7	**1,203.1**	243.6	**256.1**	21.4	**20.7**	Total new grants
348.0	408.3	80.5	83.9	21.3	20.0	
704.7	794.8	163.2	172.2	21.5	21.1	
		7.6	**6.5**			Supplementary grants[3]
		251.2	**262.6**			Total grants
36.6	45.0					

Total new grants 2021

256.1

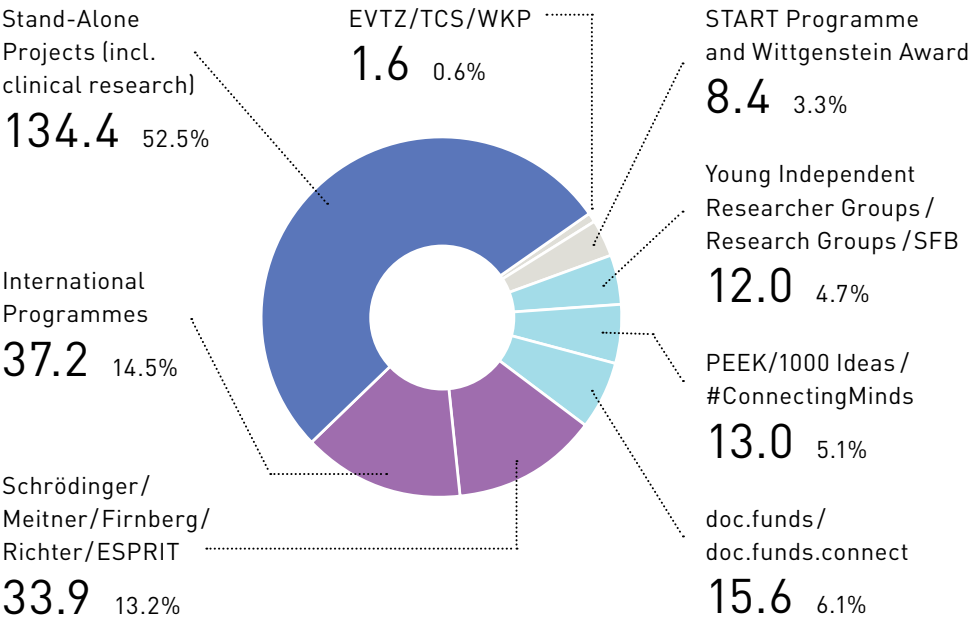
€ million

Funding Development



Share of Programmes Funded

Total new grants (in € million)



Research Staff Funded by the FWF

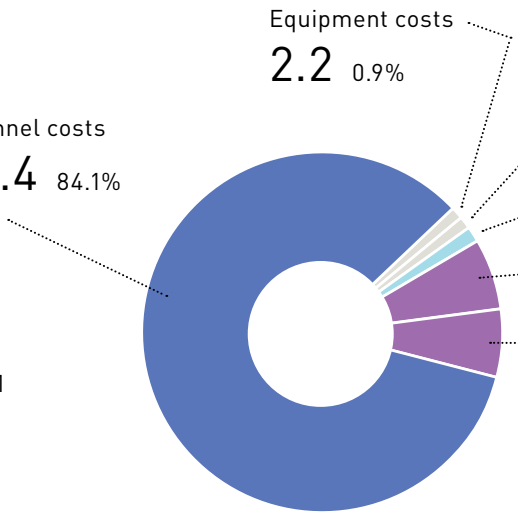
2021	Female	Other	Male	Total
Total	2,099	1	2,358	4,458
Postdocs	714	1	911	1,626
Doctoral students	954		1,177	2,131
Other staff	431		270	701

2020	Female	Other	Male	Total
Total	2,034	1	2,308	4,343
Postdocs	676	1	894	1,571
Doctoral students	921		1,127	2,048
Other staff	437		287	724

In 2021, approx. 4,500 people working in research were funded by the FWF. Roughly 70 percent of these were young researchers under the age of 36. The figures underline the importance of the FWF as a supporter of young talent and reflect its commitment to the development of a broad and talented base of researchers in Austria.
As of 31 December 2021

Grants by Cost Category

Total new grants (in € million)



Equipment costs
2.2 0.9%

Personnel costs
215.4 84.1%

Work contracts
2.9 1.1%

Travel costs
4.0 1.6%

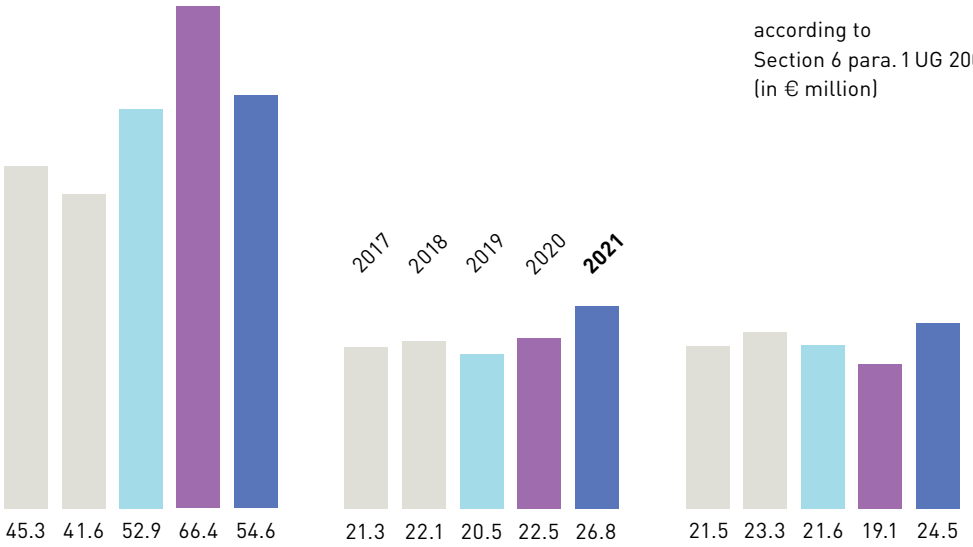
Material costs
15.8 6.2%

Other costs
15.9 6.2%

Total new grants 2021
256.1
€ million

Total New Grants: University Research Institutions

according to Section 6 para. 1 UG 2002 (in € million)



	2017	2018	2019	2020	2021
University of Vienna	45.3	41.6	52.9	66.4	54.6
Vienna University of Technology	21.3	22.1	20.5	22.5	26.8
Medical University of Vienna	21.5	23.3	21.6	19.1	24.5
University of Innsbruck	18.2	18.8	23.9	23.4	21.7
Medical University of Innsbruck	10.3	5.7	7.3	10.7	12.5
University of Graz	15.1	12.0	16.0	13.2	11.6
University of Natural Resources and Life Sciences, Vienna	6.5	11.3	8.3	9.0	10.9
University of Salzburg	7.7	10.0	8.0	4.3	8.6
Johannes Kepler University Linz	10.1	8.5	7.8	6.1	8.0
Graz University of Technology	7.0	7.8	7.4	8.5	7.7
Medical University of Graz	6.5	10.9	5.1	5.5	7.1
University of Veterinary Medicine, Vienna	2.3	6.7	2.3	10.9	6.3

University of Music and Performing Arts Vienna

Montanuniversität Leoben

University of Klagenfurt

University of Music and Performing Arts Graz

University of Applied Arts Vienna

Vienna University of Economics and Business

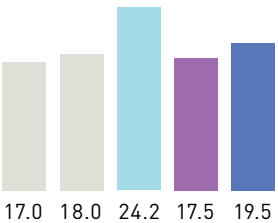
Academy of Fine Arts Vienna

Danube University Krems

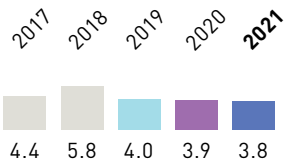
University of Art and Design Linz

Total New Grants: Non-University and Other Research Institutions

(in € million)

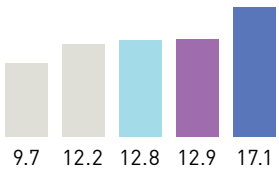


Austrian Academy of Sciences



Institute of Science and Technology Austria

Private universities

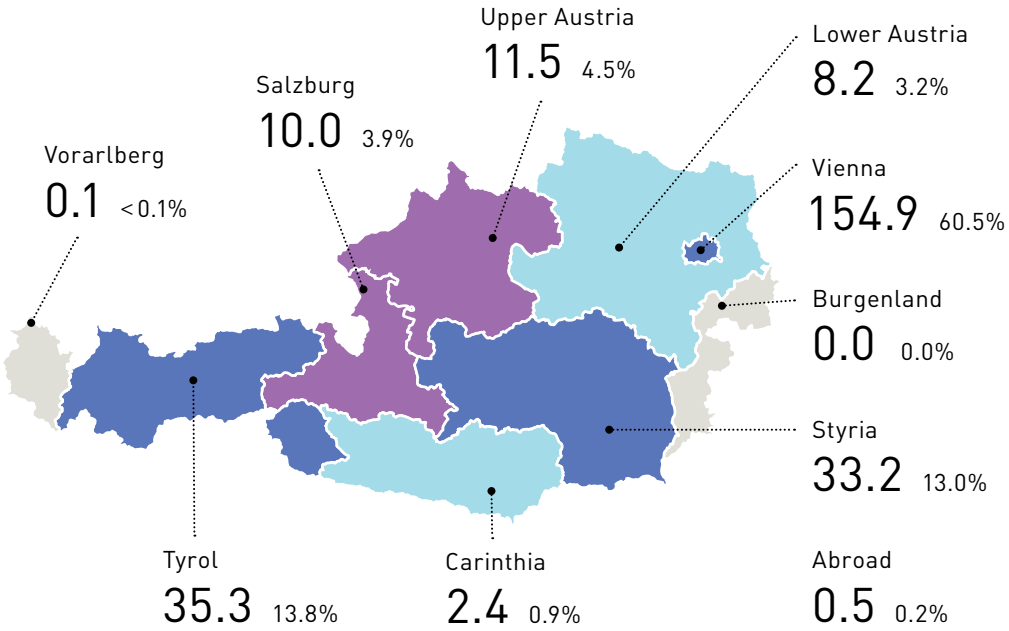


Other research institutions*

* Also includes research institutions and fellowships abroad.

Grants by Province

Total new grants: € 256.1 million (2021)



Matching Funds

Projects approved / Total grants (in € million)

5 → 12 Projects

1.6 → 4.4 € million

Styria	1	0.1	2020: 0.4
Carinthia	1	0.3	2020: 0.0
Salzburg	2	0.8	2020: 0.3
Upper Austria	3	1.3	2020: 0.9
Tyrol	5	1.8	2020: 0.0

Peer-Reviewed Publications

In terms of funding organisations, the FWF has for many years pursued one of the world's most effective open-access strategies. In 2021, 82% of all quality-assured publications listed in final FWF project reports were openly accessible.

2021*

4,700 = 82%	Open-access
1,035 = 18%	No open-access
5,735	Total

2020

4,028 = 84%	Open-access
780 = 16%	No open-access
4,808	Total

2019

6,525 = 89%	Open-access
801 = 11%	No open-access
7,326	Total

* Owing to the automation of the monitoring processes and the introduction of Plan S of cOAlition S, the category of 'other open-access' (self-archiving in an unmaintained repository, the website, or archiving of preprints), which in the past was determined manually, is no longer taken into account. As a result, the percentage of open-access peer-reviewed publications has decreased compared to previous years.

Publication Funding[1]

2021	€ million
Stand-Alone Publications	0.9
Peer-Reviewed Publications[2]	4.0
– Hybrid Open-Access	2.4
– Gold Open-Access	1.6
– Other publication costs	<0.1
Total	5.0
– of which open-access[3]	5.0

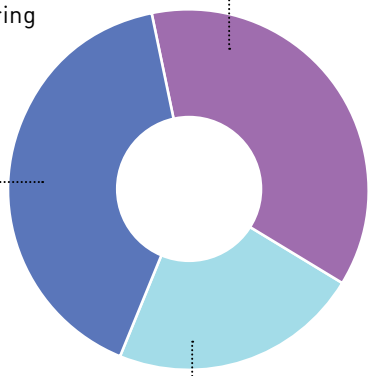
1) The publication funding was published on the FWF's website and in the Zenodo repository in spring 2022.
2) Consists of a) direct billing to publishers and b) payment through applications for publication costs.
3) Total of Stand-Alone Publications, Hybrid Open-Access, and Gold Open-Access and their percentage of the total amount.

Grants by Discipline Cluster

Total new grants (in € million)

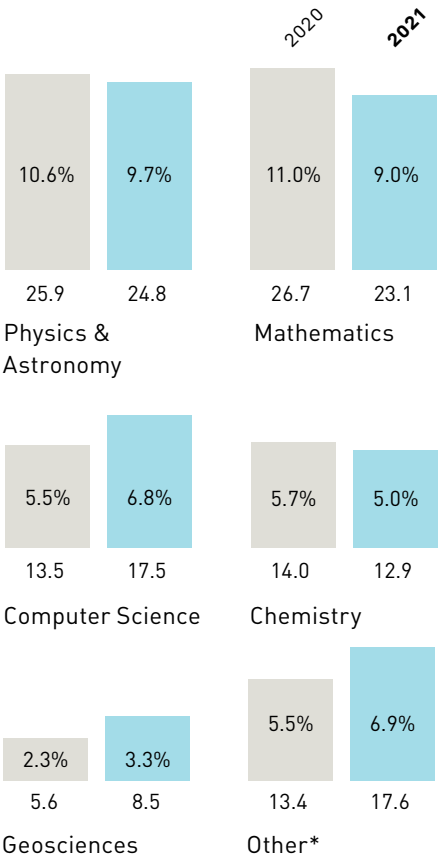
Biology and Medical Sciences
94.3 36.8%
∅ 2016–2020: 37.4%

Natural Sciences and Engineering
104.4 40.8%
∅ 2016–2020: 40.6%



Humanities and Social Sciences
57.4 22.4%
∅ 2016–2020: 22.0%

Natural Sciences and Engineering



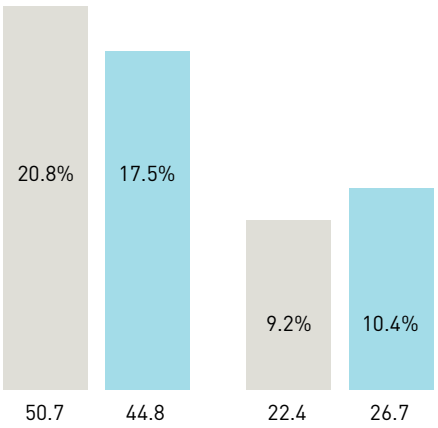
2020		2021		*
0.4	0.2%	**1.1**	0.4%	Other Natural Sciences
1.0	0.4%	**1.2**	0.5%	Civil Engineering
1.3	0.5%	**2.6**	1.0%	Electrotechnology, Electronics, Information Technology
1.0	0,4%	**1.0**	0.4%	Mechanical Engineering
0.1	< 0.1%	**0.8**	0.3%	Chemical Engineering
1.3	0.6%	**1.0**	0.4%	Material Technology
0.6	0.2%	**1.0**	0.4%	Medical Technology
0.7	0.3%	**1.7**	0.7%	Environmental Engineering, Applied Geosciences
0.1	< 0.1%	**0.1**	< 0.1%	Environmental Biotechnology
1.0	0.4%	**2.0**	0.8%	Industrial Biotechnology
2.2	0.9%	**1.0**	0.4%	Nanotechnology
1.2	0.5%	**0.9**	0.4%	Other Technical Sciences
1.7	0.7%	**1.1**	0.4%	Agriculture, Forestry, Fishery
0.6	0.3%	**0.4**	0.2%	Livestock Breeding and Farming
0.3	0.1%	**1.3**	0.5%	Other Agricultural Sciences
–	–	**0.4**	0.2%	Agricultural Biotechnology, Food Biotechnology

Total new grants 2021

256.1

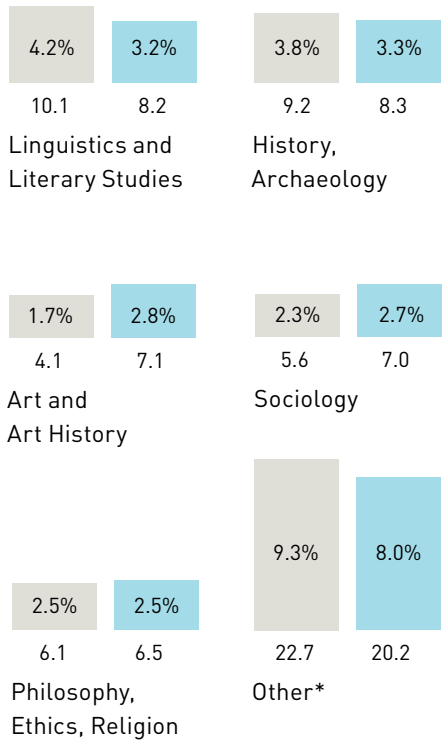
€ million

Biology and Medical Sciences



2020		2021		*
2.0	0.8%	**3.6**	1.4%	Health Sciences
0,8	0.3%	**2.0**	0.8%	Medical Biotechnology
0.3	0.1%	**0.5**	0.2%	Other Human Medicine, Health Sciences
0.6	0.2%	**0.4**	0.1%	Veterinary Medicine

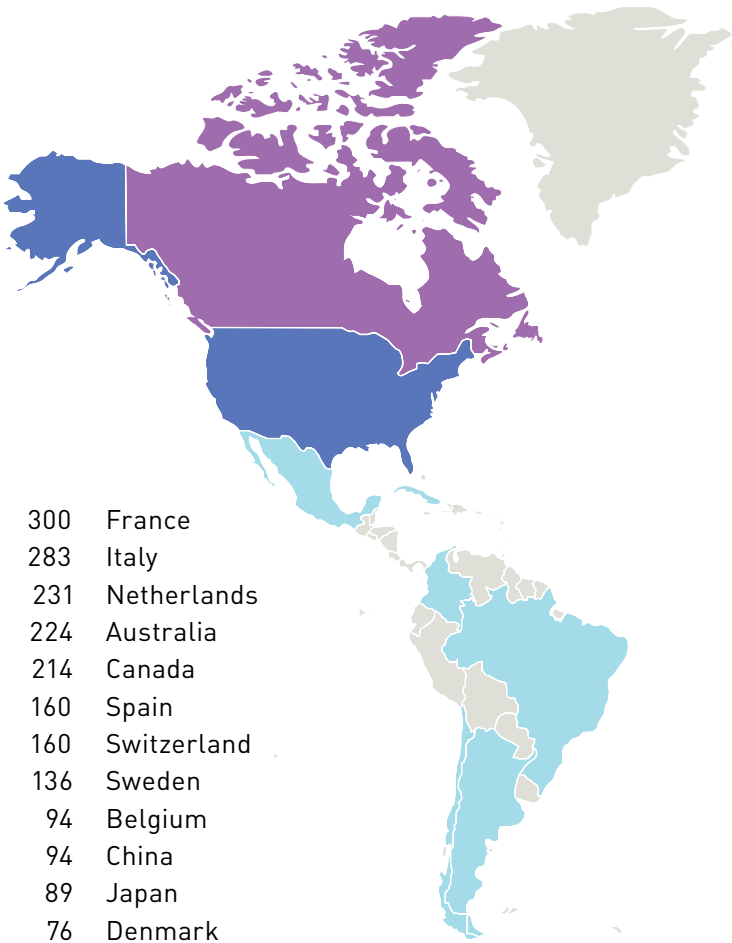
Humanities and Social Sciences



2020		2021		*
5.3	2.2%	**4.8**	1.9%	Psychology
0.8	0.3%	**1.4**	0.6%	Education
1.3	0.5%	**0.6**	0.2%	Law
1.3	0.5%	**3.3**	1.3%	Political Science
1.1	0.4%	**1.2**	0.5%	Human Geography, Regional Geography, Spatial Planning
1.5	0.6%	**1.8**	0.7%	Media and Communication Studies
0.4	0.2%	**1.0**	0.4%	Other Social Sciences
8.2	3.4%	**3.1**	1.2%	Business and Economics
2.8	1.1%	**3.0**	1.2%	Other Humanities

Reviews Received by Country

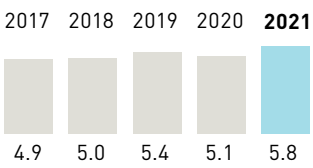
In 2021, the FWF assessed 3,316 applications amounting to a total of €1.2 billion. 20,853 inquiries were sent to potential reviewers leading to a total of 5,766 reviews from 67 countries and regions. Funding decisions were made based on these expert assessments.



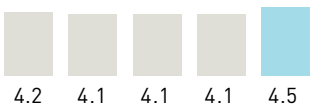
1,535	USA
714	Germany
681	UK
300	France
283	Italy
231	Netherlands
224	Australia
214	Canada
160	Spain
160	Switzerland
136	Sweden
94	Belgium
94	China
89	Japan
76	Denmark

Average Processing Time

(in months)

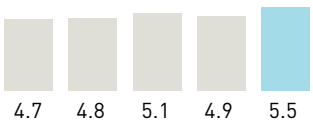


Stand-Alone Projects



International mobility

Schrödinger and Meitner Programmes



Total average

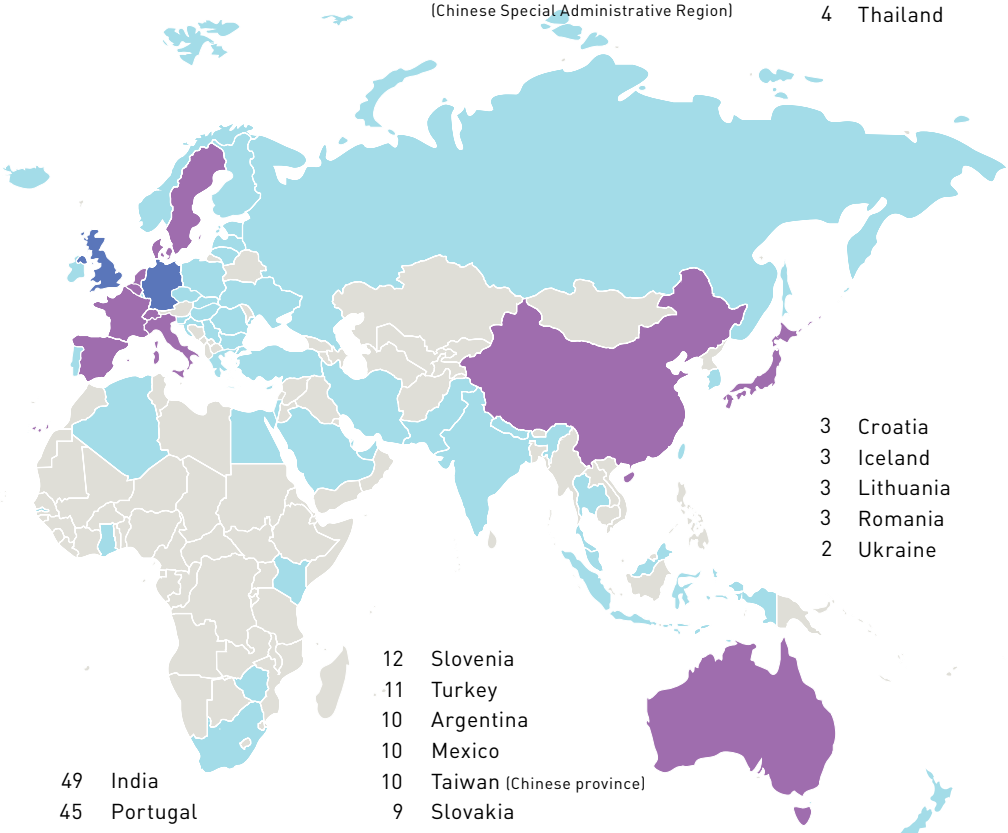
Reviews by Region (in %)

2017	2018	2019	2020	**2021**	
37.8	36.4	36.0	37.6	39.9	Rest of EU
34.2	33.9	34.4	33.2	30.3	USA/Canada
17.1	16.4	15.6	15.7	15.2	Germany/ Switzerland
11.0	13.3	14.0	13.5	14.6	Rest of world

63 Finland
56 Poland
55 Ireland
55 Norway
52 Israel

23 Greece
23 Singapore
20 Russian Federation
18 Hungary
14 Hong Kong (Chinese Special Administrative Region)

5 Estonia
5 United Arab Emirates
4 Malaysia
4 Saudi Arabia
4 Thailand



3 Croatia
3 Iceland
3 Lithuania
3 Romania
2 Ukraine

12 Slovenia
11 Turkey
10 Argentina
10 Mexico
10 Taiwan (Chinese province)
9 Slovakia
8 Cyprus
8 Iran
8 Luxembourg
7 Chile
7 Serbia

49 India
45 Portugal
41 New Zealand
34 Brazil
28 Czech Republic
25 South Korea
24 South Africa

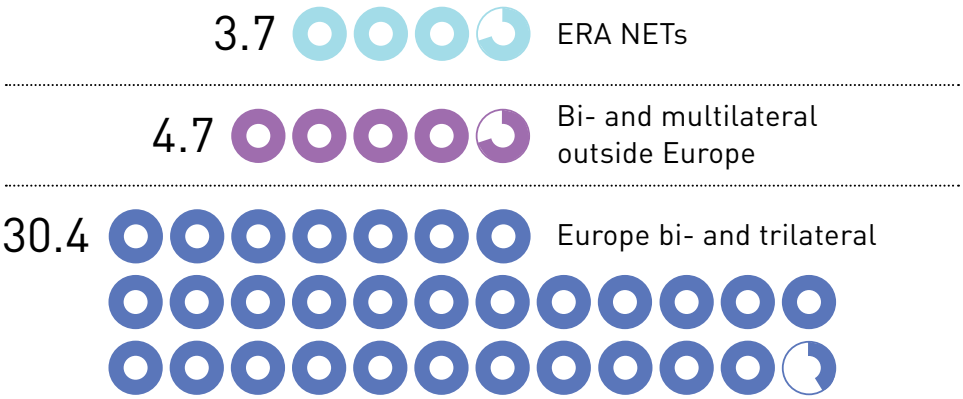
1 Algeria
1 Bahrain
1 Bulgaria
1 Columbia
1 Cuba
1 Egypt
1 Ghana
1 Indonesia
1 Kenya
1 Liechtenstein
1 Nepal
1 Pakistan
1 Qatar
1 Zimbabwe

Reviews Requested and Received

2017	2018	2019	2020	**2021**	
15,221	15,845	15,669	16,520	20,853	Requested
4,701	4,726	4,632	4,884	5,766	Received
30.9	29.8	29.6	29.6	27.7	Response rate (%)

International Programmes

Total grants 2021 (in € million)



ERA NET Participation

BiodivERsA3	Biodiversity
CHISTERA 3	Information Technology
EJP Rare Diseases	Rare Diseases
ERACoSysMed	Systems Medicine
ERA-CVD	Cardiovascular Diseases
ERA PerMed	Personalised Medicine
FLAGERA II	Future Emerging Technologies
Gendernet	Gender Dimension in Research
HERA	Humanities
NEURON III	Neuroscience
NORFACE	Social Sciences
QuantERA	Quantum Technology
TRANSCAN-2	Cancer Research

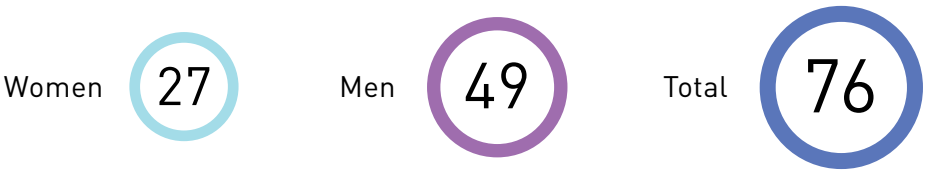
International Mobility

The FWF supports successful young researchers on their way to scientific independence with the Schrödinger and Meitner mobility programmes. In 2021, 32 young postdocs from Austria carried out research in 11 countries worldwide. In return, 76 international young researchers worked at Austrian research institutions.

Meitner Fellows

COUNTRIES OF ORIGIN/NATIONALITIES

Italy (14), Germany (8), China (5), France (5), USA (4), Austria (3), Columbia (3), Hungary (3), Netherlands (3), Poland (3), Spain (3), Greece (2), India (2), Iran (2), Romania (2), Australia (1), Bangladesh (1), Brazil (1), Czech Republic (1), Estonia (1), Ireland (1), Mexico (1), New Zealand (1), Portugal (1), Serbia (1), Slovakia (1), Slovenia (1), Switzerland (1), Ukraine (1)



Schrödinger Fellows

DESTINATION COUNTRIES

Netherlands (5), Spain (5), USA (5), Germany (4), Switzerland (4), UK (3), Finland (2), Canada (1), Czech Republic (1), Italy (1), Sweden (1)

ERC Grants since 2007

Top 20 countries ranked by grants per million residents*

* (a) without Advanced Grants 2017; 'host country' means the country of the host institution that supplied the recommendation at the time of application.
(b) with regard to Synergy Grants, only the host country of the project coordinator is taken into account.
Sources: (1) Grants: European Research Council (ERC), https://erc.europa.eu/projects-figures/erc-funded-projects
(2) Residents: CIA World Factbook February 2020, https://www.cia.gov/the-world-factbook/

	Country	Residents	Projects approved	Grants (per million res.)
1	Switzerland	8,403,994	876	104.2
2	Israel	8,675,475	698	80.5
3	Netherlands	17,280,397	1,098	63.5
4	Denmark	5,869,410	263	44.8
5	Sweden	10,202,491	431	42.2
6	Austria	8,859,449	343	38.7
7	Finland	5,571,665	213	38.2
8	Belgium	11,720,716	446	38.1
9	UK	65,761,117	2,420	36.8
10	Ireland	5,176,569	150	29.0
11	Norway	5,467,439	150	27.4
12	Luxembourg	628,381	17	27.1
13	Germany	80,159,662	1,911	23.8
14	France	67,848,156	1,507	22.2
15	Cyprus	1,266,676	22	17.4
16	Iceland	350,734	6	17.1
17	Spain	50,015,792	741	14.8
18	Portugal	10,302,674	126	12.2
19	Italy	62,402,659	720	11.5
20	Estonia	1,228,624	12	9.8

Bibliometric Data 2011–2020

Top 20 countries ranked by citations per 1,000 residents*

* Sources: Population data: United Nations Statistics Division. Publications and citations: Scimago Journal & Country Rank; 2011-2020; generally only includes countries with at least 10,000 publications; Taiwan is not included because the United Nations Statistics Division does not list it as a country.
** Chinese Special Administrative Region

	Country	Publications	Citations	Residents (in thousands)	Publications (per 1,000 res.)	Citations (per 1,000 res.)
1	Switzerland	465,113	5,502,125	8,696	53.5	632.7
2	Iceland	16,502	229,168	364	45.3	629.6
3	Denmark	273,045	3,025,332	5,823	46.9	519.5
4	Singapore	212,779	2,323,341	5,686	37.4	408.6
5	Sweden	409,728	4,215,349	10,380	39.5	406.1
6	Netherlands	609,483	6,923,094	17,475	34.9	396.2
7	Norway	222,667	2,008,576	5,368	41.5	374.2
8	Finland	206,332	1,963,663	5,525	37.3	355.4
9	Australia	977,923	8,619,868	25,366	38.6	339.8
10	Belgium	338,158	3,532,154	11,456	29.5	308.3
11	Ireland	147,957	1,380,158	4,964	29.8	278.0
12	UK	2.049,691	18,551,679	67,081	30.6	276.6
13	Luxembourg	19,959	172,949	626	31.9	276.3
14	Austria	257,370	2,389,764	8,901	28.9	268.5
15	New Zealand	159,354	1,330,746	5,084	31.3	261.8
16	Canada	1,079,282	9,929,525	38,005	28.4	261.3
17	Hong Kong**	193,197	1,796,647	7,482	25.8	240.1
18	Estonia	31,969	318,805	1,330	24.0	239.7
19	Cyprus	25,563	193,712	888	28.8	218.1
20	Israel	216,129	2,000,504	9,216	23.5	217.1

Organisational Chart

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Note: Figures cited in this report may display slight differences due to rounding errors.

Vienna, April 2022

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INPUT B – BM AUX


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