FWF
Der Wissenschaftsfonds.

Annual report 2019

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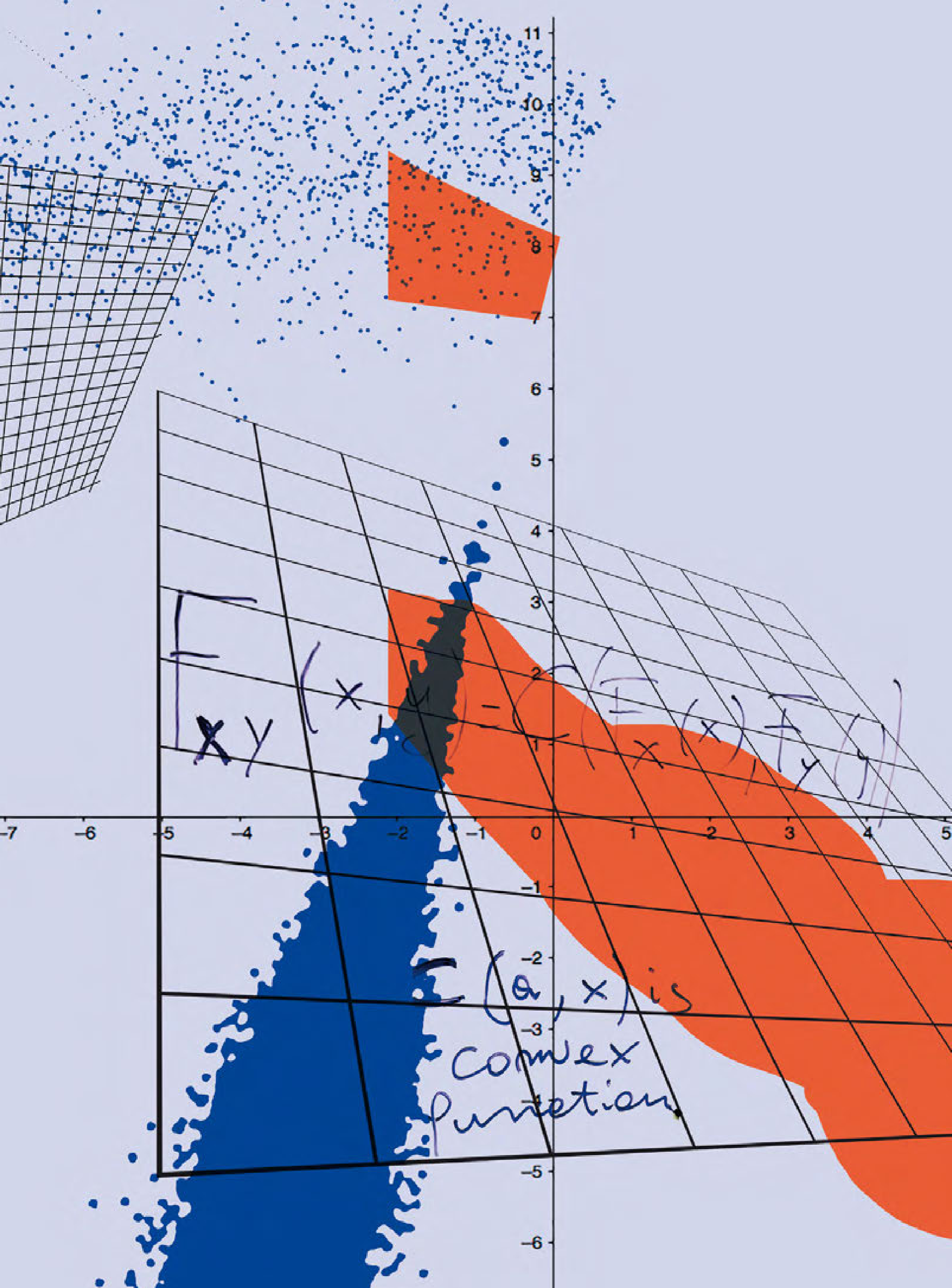
FWF

Der Wissenschaftsfonds.

The FWF stands for excellence, competition, and diversity. It supports projects as well as researchers in their research and manifold approaches.
The illustrator Blagovesta Bakardjieva has translated cutting-edge research into the language of art.
Ten exemplary projects completed in 2019 are featured in the annual report and can also be downloaded as wallpapers using the QR code below.
The FWF would like to thank all the researchers for their contributions.



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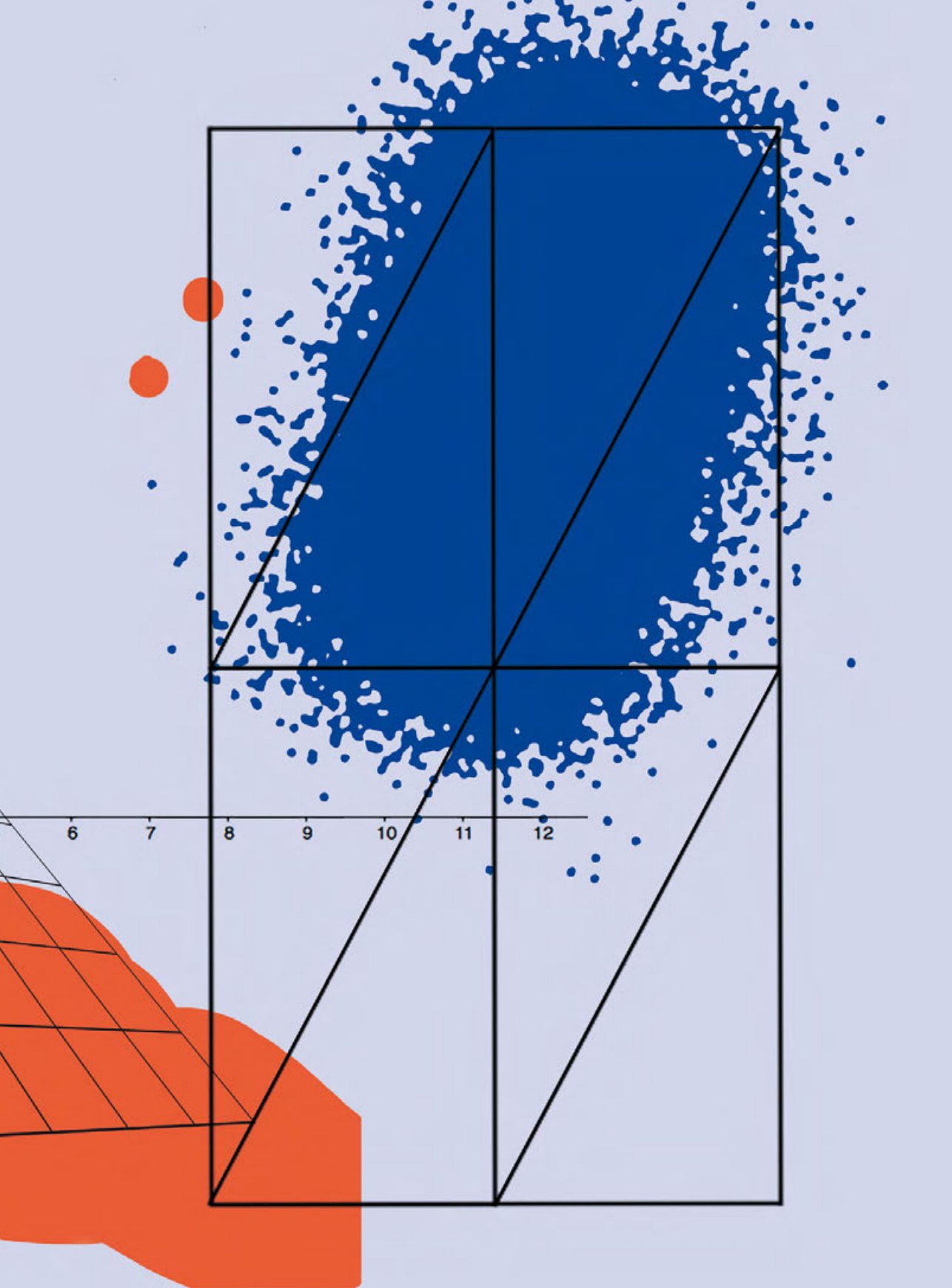
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FWF—The Austrian Science Fund

We strengthen scholarship in Austria.

Guiding principle

The Austrian Science Fund (FWF) is Austria's central funding organisation for basic research.

Mission

The FWF's mission is to support the ongoing development of basic research in Austria in line with the highest international standards. In pursuing that aim, the FWF makes a significant contribution to Austria's cultural enrichment, to its development as a knowledge-based society and thus to creating value and prosperity in the country.

Goals

- To further improve Austria's research performance on the international stage and to increase the country's attractiveness as a research location, primarily by funding top-class research conducted by both individuals and teams, but also by helping to enhance the competitiveness of Austria's research facilities and its innovation system as a whole.

- To heighten Austria's research potential, both qualitatively and quantitatively, in line with the principle of research-based education.

- To strengthen links and foster interaction between scholarly research and all other fields of economic, social and cultural activity, and in particular to enhance the standing of basic research through concerted, long-term public relations work.

Basic principles

Excellence and competition

The FWF's funding activities focus on research devoted to generating fresh knowledge, the qualitiy of which is assessed on a competitive basis and by international referees.

Independence

Creativity in basic research requires freedom. Thanks to its legally independent status, the FWF is able to shield researchers from the direct influence of interest groups and so guarantee that freedom.

Internationality

The FWF is guided by the highest standards of the international academic community and supports cooperation across national borders.

Equal treatment of all disciplines

The FWF treats all researchers according to the same principles, neither favouring nor discriminating against particular disciplines.

Transparency and fairness

To attain a maximum of impartiality, the FWF strives to avoid conflicts of interest, to build in checks and balances at all stages of its procedures and to communicate clearly its practices and decision-making processes.

Gender mainstreaming

Ensuring the equal treatment of all researchers, regardless of gender, is a priority for the FWF, which it pursues through specific programmes and by practising gender mainstreaming in all areas of its work.

Equal opportunities

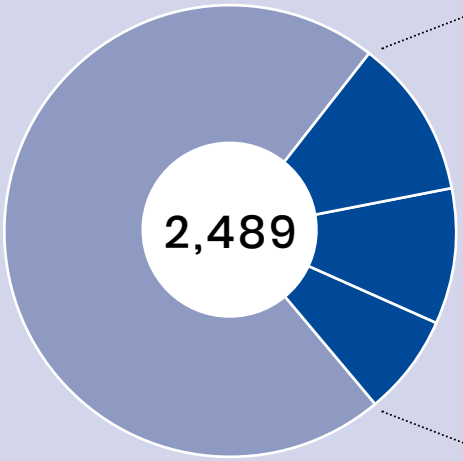
The FWF assesses all the applications for funding it receives without regard to the applicant's position or academic title.

Ethical standards

The FWF is committed to ensuring, within its sphere of influence, that the rules of sound research practice and internationally recognised ethical standards are scrupulously observed.

The FWF 2019

Funding decisions on projects



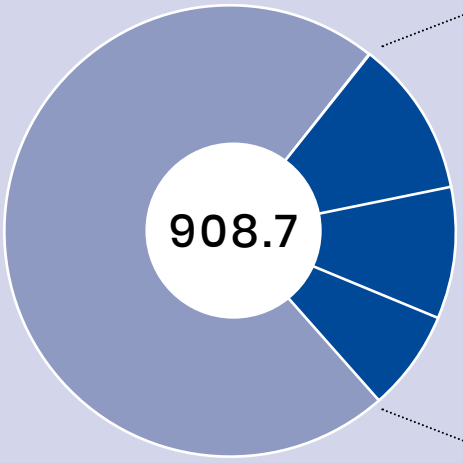
Approved projects: 707

Biology and Medical Sciences
285 (Approval rate: 25.3%)

Natural and Technical Sciences
242 (Approval rate: 28.6%)

Humanities and Social Sciences
180 (Approval rate: 26.2%)

Funding requested (m €)



New grants awarded: 237.4

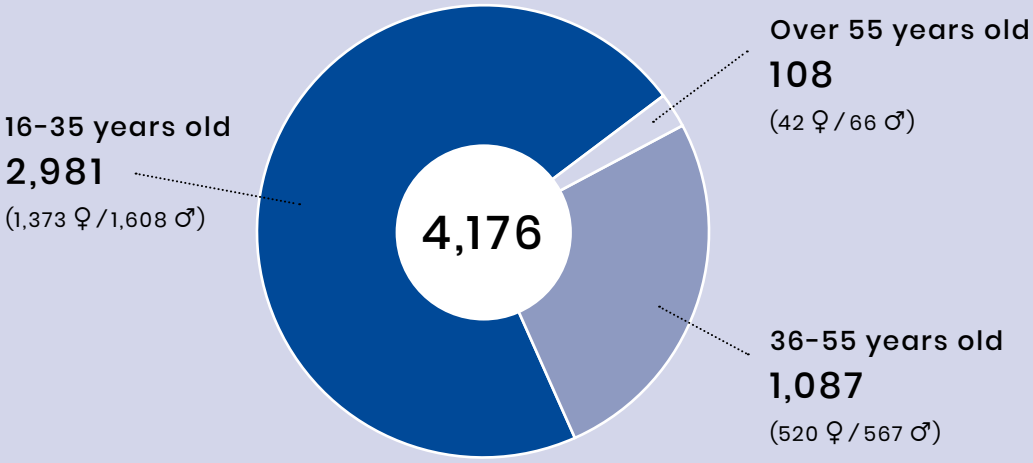
Natural and Technical Sciences
95.4 (Approval rate: 23.9%)

Biology and Medical Sciences
86.6 (Approval rate: 23.9%)

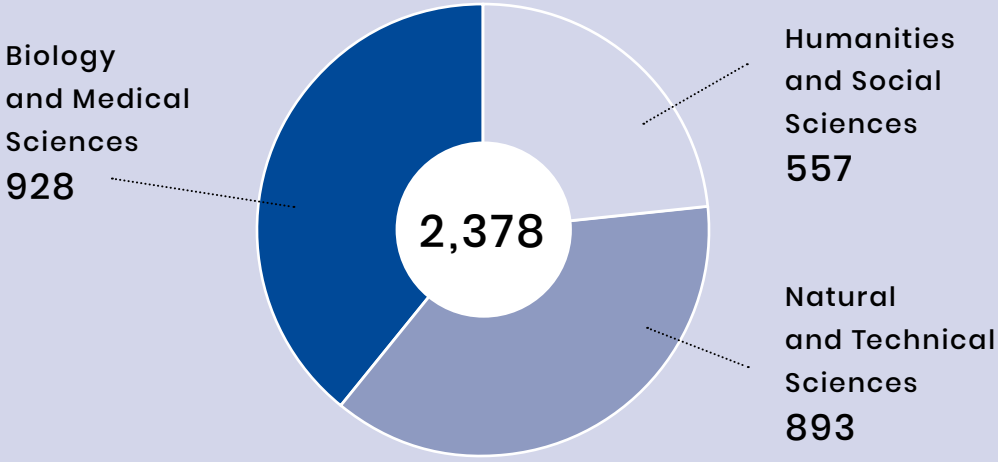
Humanities and Social Sciences
55.4 (Approval rate: 22.9%)

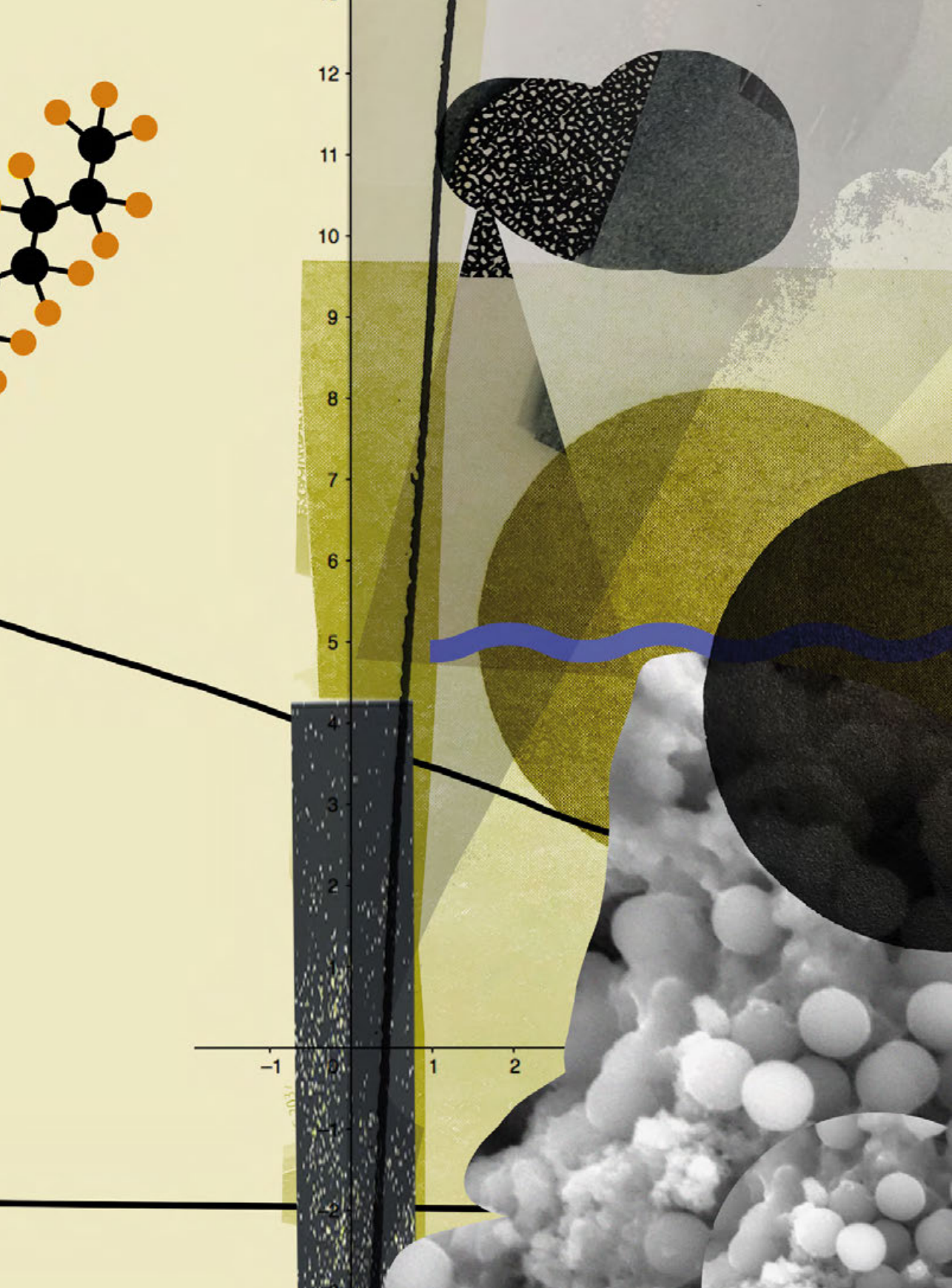
Key figures

Researchers funded by the FWF



Ongoing projects by discipline

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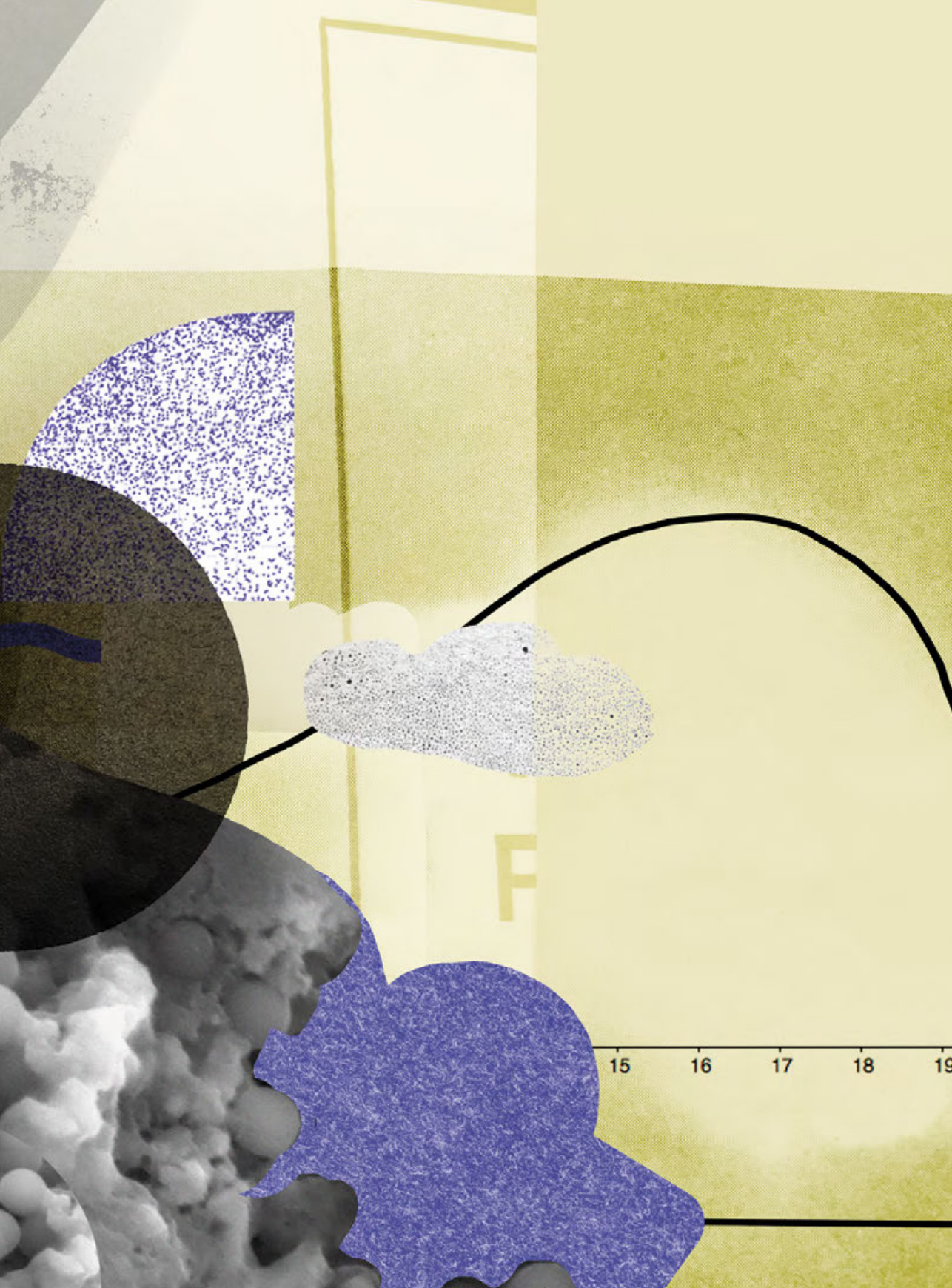
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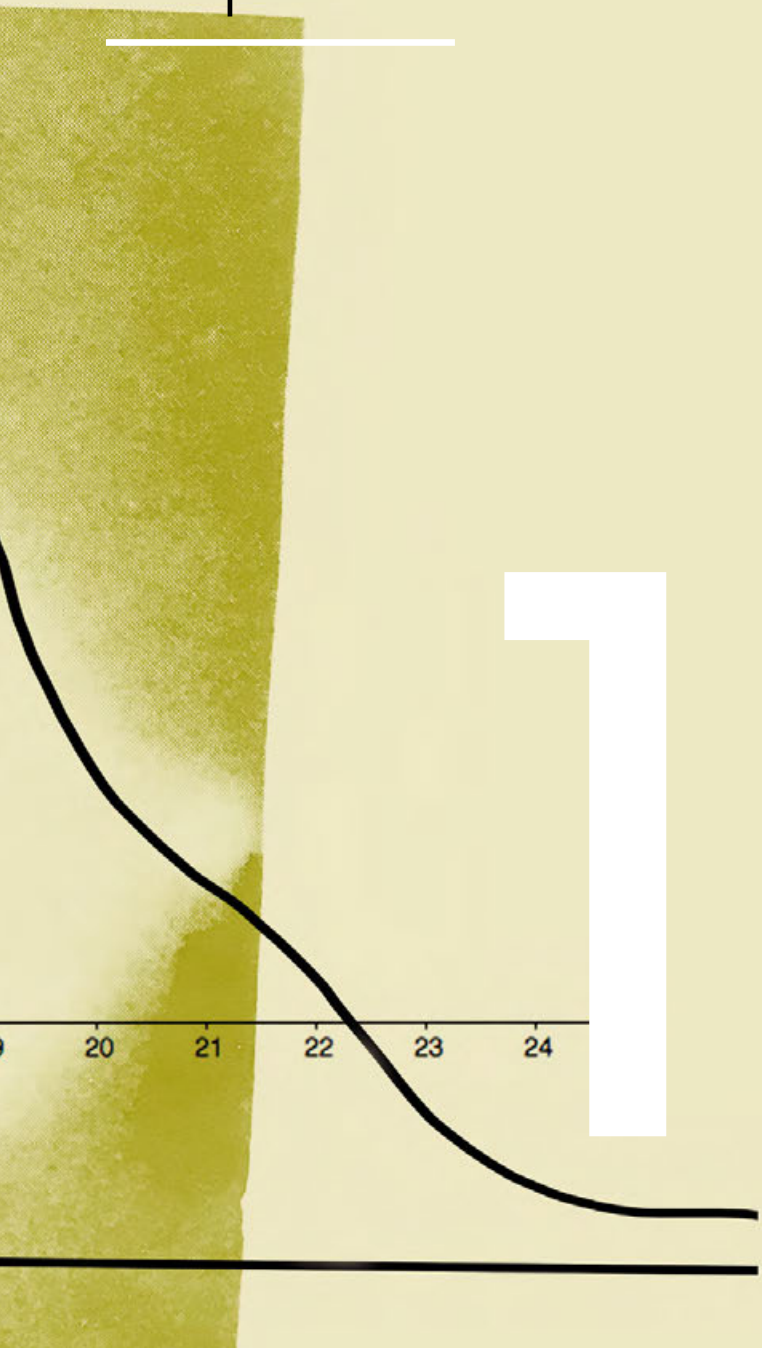
Executive Board's report



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Focus on excellence

2019: A year of political turbulence

For science and research, 2019 got off to quite a promising start. The ÖVP-FPÖ government's programme provided for the implementation of long-standing research-policy demands, and a certain sense of anticipation could be felt. At the end of February, the FWF presented its multi-year programme for 2019–2021, which defined strategic milestones and outlined projects in the area of quality assurance and the further development of its portfolio.

On 14 May 2019, Federal Minister Heinz Faßmann and FWF President Klement Tockner looked back on the year 2018 at a joint press conference and presented their goals for the next year. Federal Minister Faßmann also referred, among other things, to the OECD report on the Austrian RTI ecosystem, which was published in December 2018. In it, Austria received a predominantly positive review. The fact that the report also included clear recommendations for action—for instance, in terms of the competitive allocation of funding for basic research—led the Minister of Science to view it as a mission for the future. FWF President Tockner emphasised that competitively awarded funds generate the leverage necessary to ensure the highest quality and make a substantial contribution to establishing Austria as a world-class location for science and business. For the first time, two FWF-funded top researchers took an active part in the FWF's annual press conference: Alice Vadrot, FWF Schrödinger fellow and ERC Starting grantee in 2018, and Muammer Ücal, coordinator of an FWF Young Independent Researcher Group, spoke about their journey to the top and the importance of the support they received from the FWF.

On 17 May 2019, just a few days after the FWF's press conference, the governing coalition came to a sudden end, as did the federal government headed by Sebastian Kurz shortly after. Iris Rauskala was appointed interim Minister of Education, Science and Research as part of Chancellor Brigitte Bierlein's caretaker government, which was sworn in on 30 May 2019. Chancellor Bierlein's professed motto of 'administrate, not legislate' led to an unexpected interruption in the implementation of the research-policy project. At the beginning of January, the interim government ended, and Iris Rauskala handed over the Ministry of Science to her successor (and predecessor) Heinz Faßmann.

Alliance's recommendations for strengthening Austria as a research country

In mid-August 2019, the Alliance of Austrian Science Organisations presented the future Austrian federal government with five research-policy recommendations. The Alliance's key message was that it was imperative to use this window of opportunity to prepare Austria for the future, stay innovative in the long run, and remain competitive as a research- and business-friendly country. In detail, the five recommendations were:

1 **Enhancing the role of competition in promoting research**
Since evidence has shown that projects approved using a competitive review process—if done in a fair and transparent manner—exhibit the highest quality, the Alliance called for a significant increase in the amount of funding awarded by competition. Following the findings of an OECD report, it was stated that the largest gap in funding was that for basic research.

2 **Improving the legal framework**
The core of this recommendation was that the independence of publicly-funded research must be enshrined in a new research-funding act. This would provide for a three-year planning cycle and an annual increase of the funding budget for all institutions covered by the research-funding act to ensure the security necessary for planning.

3 **Implementing the Excellence Initiative**
The Excellence Initiative, developed, among others, by the FWF in line with international standards, aims to further boost cutting-edge research and cooperation between disciplines and institutions. It is intended to help Austria close the gap with the world's leading countries in science and innovation.

4 **Introducing overhead funding throughout Austria**
The Alliance also recommended initiating uniform and binding overhead funding as a means of bolstering competitive research funding.

5 **Endowing the national foundation in a sustainable way**
It was recommended to ensure the long-term and adequate endowment of the National Foundation for Research, Technology and Development (NFTE), which finances essential components of eligible organisations' funding portfolios.

Alpbach 2019

The European Forum Alpbach took place amid a turbulent political atmosphere in August 2019 and addressed the general theme of 'Liberty and Security'. Together with the Austrian Federal Ministry of Education, Science and Research (BMBWF), the FWF organised a breakout session on 'Artificial Intelligence and Governance: Liberty, Trust, Security'. Chaired by FWF President Klement Tockner, the working group consisting of Meredith Broussard (New York University), Patrice Chazerand (DIGITAL EUROPE), Ulrike Felt (University of Vienna), Sepp Hochreiter (JKU Linz), Tim O'Brien (Microsoft) and Jack Stilgoe (University College London) discussed the new opportunities presented by artificial intelligence (AI) in the areas of public policy and administration. The experts left no room for doubt that collective reflection on artificial intelligence and potential ways of regulating it were needed urgently. More than almost any other technological development, AI entails far-reaching changes to all aspects of society. An evaluation of the opportunities and risks associated with this development was the central theme of the discussion among experts as well as the numerous local and international participants.

Gender equality actions within the FWF

While women have constituted the majority of Austrian university graduates since 2000, they are still clearly under-represented in many areas of research. As part of its gender-mainstreaming strategy, the FWF has made an ongoing commitment to highlighting disparities at both Austrian and European levels and, at the same time, initiating and shaping positive changes in equality of gender representation. Since 2005, the following initiatives have been put in place:

- Enhancing the attractiveness of the FWF's portfolio in terms of the career development of women (see 'Consultation process for the career programmes', p. 17)
- Increasing the visibility of women as principal investigators (through, for example, science-communication initiatives)
- Awareness-raising activities to increase the number of female applicants
- Ensuring the quality of data concerning gender balance in research and communicating the corresponding key indicators on an annual basis

Thanks to its monitoring of equal opportunities, the FWF is able to present all the relevant data, updated on an annual basis, and thus illustrate the current situation of the FWF's structures, programmes, and processes. In 2019, a third of all applications were submitted by women when considered across all the funding programmes. This is consistent with the long-term average. The only area in which the percentage of women is lower is the natural and technical sciences (18%), whereas the percentage in the areas of biology and medical sciences as well as humanities and social sciences is 40 and 46 per cent, respectively. The key figure for the issue of equal opportunities is the approval rate, which, in 2019, was 27 per cent for women and 26.7 per cent for men.

To further emphasise gender awareness, a balanced participation of female and male researchers is a funding decision-making criterion in three programmes (Young Independent Researcher Groups, Special Research Programmes, and Research Groups). In addition, since the beginning of 2019, all applicants have been required to reflect explicitly on the gender dimension of their project's research approach. These statements are also taken into consideration when evaluating the project.

Consultations, concepts, and collaboration

Consultation process for the career programmes

An essential component of the gradual reform of the FWF's portfolio is the further development of the career programmes, with the aim of retaining more female researchers at research institutions and creating fair conditions for all applicants. In order to incorporate the views, expertise, and recommendations of the relevant stakeholders in planning for the future, the FWF has organised an in-depth consultation process. In spring 2019, consultation rounds started with several stakeholder groups. A total of five groups were involved: the representatives

of the Assembly of Delegates, the FWF Board, the Richter Network, and the Young Academy, as well as a group of gender equality experts. Their findings and recommendations for the restructuring of the FWF's career programmes were submitted to the FWF in mid-December.

By way of background, the restructuring of the career programmes announced in the multi-year programme provides for two measures: First, the Lise Meitner and the Hertha Firnberg Programmes are to be merged into a new Early Stage Programme. Second, the Elise Richter and the START Programmes are to be harmonised and combined into a new Advanced Stage Programme. The long-term aim of reducing the programmes down to two stages (Early and Advanced) is to create equal opportunities and equal standing for all outstanding researchers at different stages of their careers.

After the conclusion of the initial consultation process, the new Early Stage Programme in its basic form has met with broad approval. The possibility of submission on a rolling basis, need-based funding, the expansion of mentoring for women, and the equal allocation of funding (50 per cent of the funds are reserved for women) are some of the most highly rated aspects of the new Early Stage Programme. The new programme and the accompanying measures are designed to retain female researchers in cutting-edge research for the long term. The discussion process also revealed that the ministries, research institutions, and the FWF must work together and share responsibility in order to take the next big step towards the sustainable promotion of women.

Since it appears that more time is needed for the reform of the Advanced Stage Programme, the FWF Executive Board has decided to extend the planning phase and the consultation process. However, the goal remains the same, to develop specific measures for improving the long-term retention of female researchers in cutting-edge research.

As things stand, the further consultations, which have been delayed due to the SARS-CoV-2 virus, will start mid-year so the decision on the measures for the further development of the programmes can be made by the end of 2020. The Early Stage Programme, however, will be fully developed as planned by summer 2020.

Concept for the Excellence Initiative

Science and academia are characterised by global competition and rapid developments. Within this dynamic environment, establishing Austria as one of Europe's leading research countries requires continuous improvement of the framework for researchers. This is the ambitious goal of the current Excellence Initiative.

In December 2018, Minister of Science Heinz Faßmann commissioned an expert team consisting of Hannes Androsch (RFTE), Antonio Loprieno (OWR), Helga Nowotny (ERA Council), and Klement Tockner (FWF, chair) to outline a concept for an excellence initiative. In March 2019, the group sent the ministry a concept for further consultation with stakeholders.

According to the group of experts, the Excellence initiative would stimulate a culture of competition within the Austrian research community. Furthermore, it would promote a spirit of cooperation and pave the way for a dynamic research environment in all disciplines—including the arts and arts-based research. In addition, it would attract internationally outstanding researchers and provide young Austrian researchers with better career prospects. At the same time, the different programmes would also have an impact on the economy and society and create sustainable synergies.

New avenues for new initiatives and programmes

1,000 Ideas Programme

In 2019, researchers could, for the first time, request funding for new, daring, or particularly original research ideas as part of the 1,000 Ideas Programme. The aim of the programme is to investigate novel, future-oriented research topics with a high degree of relevance for science and research in general—one of the requirements being the courage to fail.

The demand was impressive: The more than 400 applications received from all academic disciplines demonstrated the great creative potential of Austrian researchers. In addition, the new programme expanded the circle of first-time applicants and clearly attracted new research institutions. With the 1,000 Ideas Programme, the FWF is also breaking new ground in how project proposals are reviewed. The proposals are selected on an anonymous and partially random basis as part of the evaluation by an international jury with broad expertise.

#ConnectingMinds

With the new #ConnectingMinds Programme, the FWF wishes to expand the transdisciplinary component of its portfolio. The aim is to support the common search for answers to complex contemporary issues and to promote social commitment and collective learning. What is unique about this programme is the way it includes actors from civil society right from the beginning. This means that they are already involved in the development of the research questions and the aims of the project. The experiences, views, and suggestions of these societal actors are intended to increase the project's relevance to society and, ultimately, the knowledge gained from the project. The target group of societal actors includes, for example, representatives from NPO/NGOs, associations, public administrations, companies, health or educational institutions, as well as all others not directly involved in science and academia.

Funding is offered to teams that combine scientific and societal knowledge and thereby attempt to meet social, technological, ecological, and economic challenges. The first call for proposals was issued in spring 2020.

International agreements and developments

Central European Science Partnership (CEUS)

In June 2019, the presidents of the FWF's partner organisations from Poland (NCN), Slovenia (ARRS), and the Czech Republic (GAČR) were guests at the START/Wittgenstein Awards ceremony. During this event, a memorandum of understanding was signed with the purpose of establishing a flexible framework for cooperation between the organisations. Starting in February 2020, researchers from these countries can receive joint funding not only for bilateral, but also trilateral research projects as part of the 'Central European Science Partnership' (CEUS). Thus, the CEUS initiative is making a significant contribution to the further integration of the Central European research area.

Partnerships

Liechtenstein: In September 2019, Liechtenstein's Minister of Education Dominique Hasler and FWF President Klement Tockner met in Vienna and signed an agreement on continuing their countries' cooperation in the area of research. The agreement provides researchers at research institutions in Liechtenstein with access to all the FWF's funding programmes.

Israel: Since establishing the legal foundations for closer cooperation between Austria and Israel in the area of research in summer 2018, the FWF and the Israeli Ministry of Science and Technology (MOST) have taken concrete steps towards this and issued the first joint call for proposals in April 2019.

Funding can be requested for outstanding joint research projects in selected areas and involving Austrian and Israeli researchers on specific topics. The projects run for a period of three years and are financed proportionally by the FWF and MOST.

Taiwan: The successful and long-standing cooperation between the FWF and the Taiwanese Ministry of Science and Technology was further strengthened in 2019. The highlight was the visit of a Taiwanese delegation led by Yu-Han Tsou, the Vice-Minister of Science and Technology. The common goal is to continue to expand the opportunities for bilateral cooperation between excellent researchers of both countries in the future. In 2019, funding was granted to two Austrian-Taiwanese joint seminars (multi-day, thematic workshops/seminars) and two Austrian-Taiwanese research projects (joint projects), for the first time with a duration of four years.

Georgia: As part of its European Neighbourhood Policy (ENP), the EU has developed the Twinning instrument to support institutional cooperation between public administrations of the EU Eastern and Southern Neighbourhood partner countries. Together with partners from Austria, Germany, and Latvia, the FWF is participating in a project to support the organisational development of the Shota Rustaveli National Science Foundation of Georgia (SRNSFG) in the areas of science and industry cooperation and internationalisation. The Austrian Federal Ministry of the Environment, Joanneum Research, and the FFG are also involved in the Austrian part of the project.

GRC-Meeting 2019

High-ranking representatives of research funding organisations from all over the world get together once a year as part of the Global Research Council (GRC). In 2019, the event was organised in São Paulo by the Brazilian funding organisation FAPESP. As the host of the European preparatory meeting in Vienna in November 2019, the FWF was jointly responsible for the themes and focus of the event. At the GRC in São Paulo, in which President Tockner took part on behalf of the FWF, the discussion centred around research-policy themes of global importance.

The main issue was how funding organisations respond, or should respond, to increased expectations regarding the social applicability of scientific research. The participants passed a statement of principles which summarised the results.

Central European University in Vienna

Central European University (CEU) opened its doors in Vienna at the end of September 2019. Its US-accredited degree programmes primarily focus on the social sciences and humanities. The FWF has already received the first proposals from researchers working at CEU.

Multilateral lead agency procedure

In 2019, Science Europe—together with the FWF, among others—developed a procedure for combining the many bilateral cooperation agreements currently existing between European funding organisations into one integrated multilateral agreement. The coordination of the administrative framework creates the opportunity to expand cooperation and—starting probably in 2020— support multilateral research collaboration. This new form of cooperation is a groundbreaking research-policy project to promote the integration of European research.

Further development of open science

Plan S

The Plan S initiative, which will take effect in 2021, is an initiative to promote increased open access to research results. After an in-depth consultation process, the revised principles and guidelines were published at the end of May 2019. The FWF is part of a group of internationally renowned funding organisations that support the initiative. Owing to its previous activities in the area of open science, the FWF is well-prepared for the implementation of the initiative.

Data management plan

The FWF, like comparable organisations, requires a data management plan (DMP) for all projects approved according to the new application guidelines after 1 January 2019. A DMP describes how the data for a certain project are collected, organised, stored, backed-up, preserved, shared, archived, and destroyed. All of this is done in accordance with the open-access policy for research data.

Promoting philanthropic commitment in cutting-edge research

International comparisons clearly show the enormous potential of philanthropy for science and research. Successful initiatives at universities and research institutions have also led to a welcome change of culture in Austria, which the FWF wishes to further promote through the establishment of the non-profit alpha+ foundation. The aim is to provide researchers who have succeeded in obtaining FWF funding with additional support from new private donors. The foundation kicked off its fundraising activities at the end of 2019 under the honorary chairmanship of Georg Winckler, long-time rector of the University of Vienna. In the context of the FWF's existing collaboration with private partners, approximately one million euros in funding were granted to outstanding researchers in 2019 thanks to the funding awards sponsored by the Dr. Gottfried and Dr. Vera Weiss Science Foundation, the Internet Foundation Austria, and the Herzfelder Family Foundation.

Encouraging signs for the future

Science and research in the government's programme

References to research and scientific expertise show up in many policy areas of the ÖVP-Green government's programme, which was presented at the beginning of 2020. Among other things, it provides for the development of an ambitious RTI Strategy 2030 to implement the recommendations of the OECD report. This report calls for a significant increase in the funding awarded to basic research on a competitive basis. Three points of major importance to the FWF in this regard are mentioned explicitly in the government's programme:

- Adoption of a research-funding act
- Commitment to an autonomous FWF
- Fostering basic research for example through an excellence initiative

Priorities for 2020

Research-funding act

The government's programme provides for the implementation of a new research-funding act on the basis of the planned RTI Strategy 2030. If the recommendations of the OECD are followed, as announced, then for the FWF this would mean a stabilisation of the budget at a high level and subsequently a significant rate of growth over the next three years. The FWF estimates that the funding budget must grow by at least seven per cent per year to catch up with leaders in European innovation.

Excellence Initiative

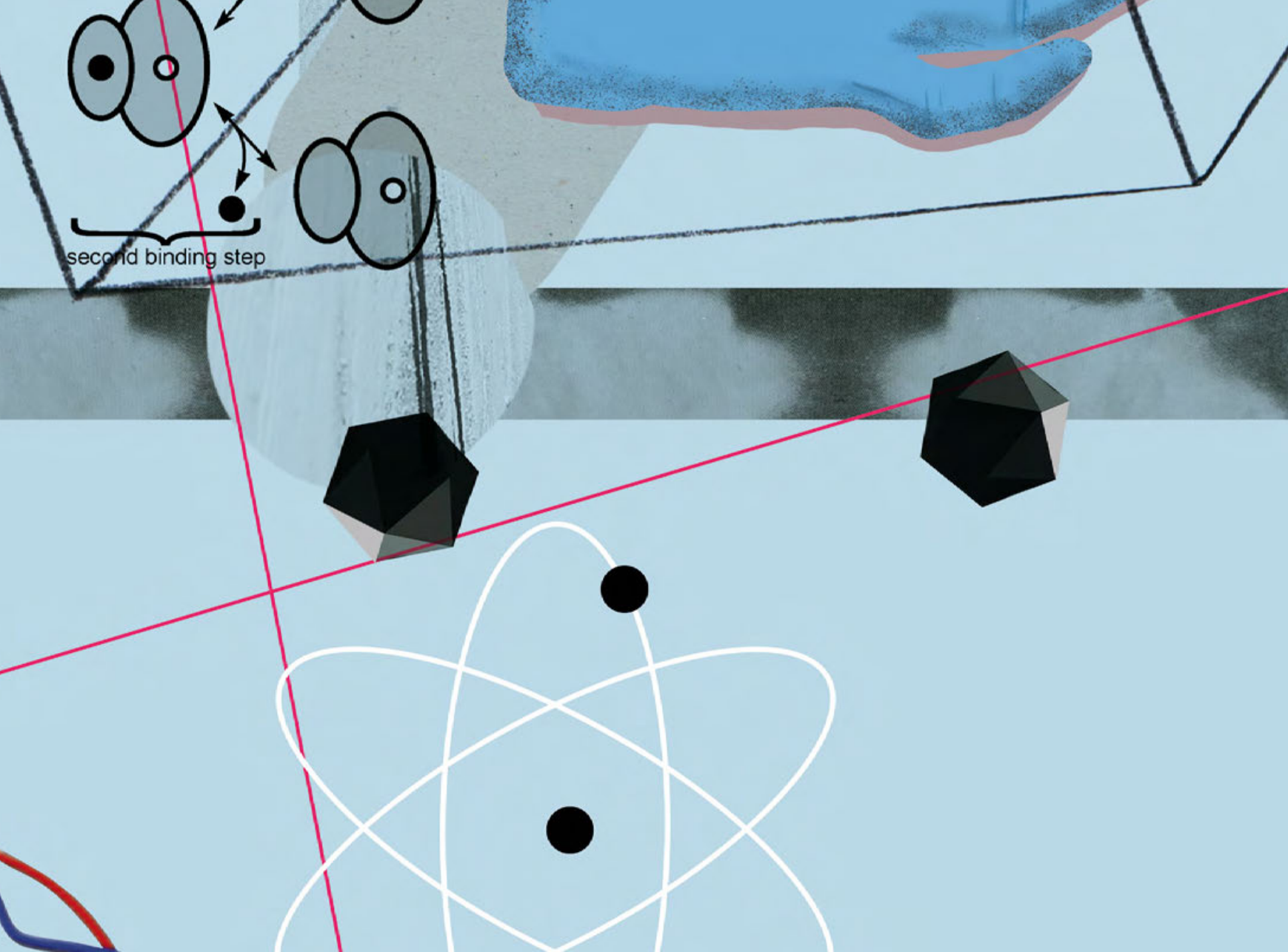
After completing the initial concept phase, it is now time to get the Excellence Initiative off the ground. The government's programme explicitly states that the FWF should be responsible for its implementation. The concept recommends establishing three facets to the programme: 'Emerging Fields' to stimulate innovation potential, an 'Excellence Cluster' to build on existing strengths, and 'Austria Chairs of Excellence' to make the Austrian science and research sector more attractive to outstanding international researchers. Overall, the Excellence Initiative is intended to foster the development of a competitive research culture, to promote cutting-edge research in line with international standards, and to ensure the freedom of research. Among the top priorities of the initiatives are the long-term enhancement of institutional reputations as well as closer cooperation between the different disciplines and institutions.

Putting an end to the standstill

Every plan and every initiative is only as good as its actual implementation. In the case of the chapter on science and research in the ÖVP-Green government's programme, the ambitious plans require a similarly ambitious level of funding. The speed with which this is granted also plays a major role as the competition for the best research talent is a global race—one that is already in full swing.

The RTI Strategy 2030, the Research Funding Act, the Excellence Initiative, and other projects provide the Austrian research community with plenty of reasons to look optimistically to the future. After a year of standstill, 2020 could be a year of action and implementation, something from which Austria as a research country would benefit.

Particularly at a time in which every effort is being made to contain the spread of the SARS-CoV-2 virus, the importance of trust in science has become clear, and also how high-quality basic research acts as an insurance policy against challenges that we are not even aware of yet. In view of this fact, the FWF assumes two things: First, that despite the necessary budgetary measures of the government to support the economy and companies in the wake of the health crisis, there will also be another package of measures for the long-term support of research, and thereby Austria as a business location; and second, that the government's original plans will remain the same. Investment in research has been shown to strengthen the resilience of centres of business and innovation.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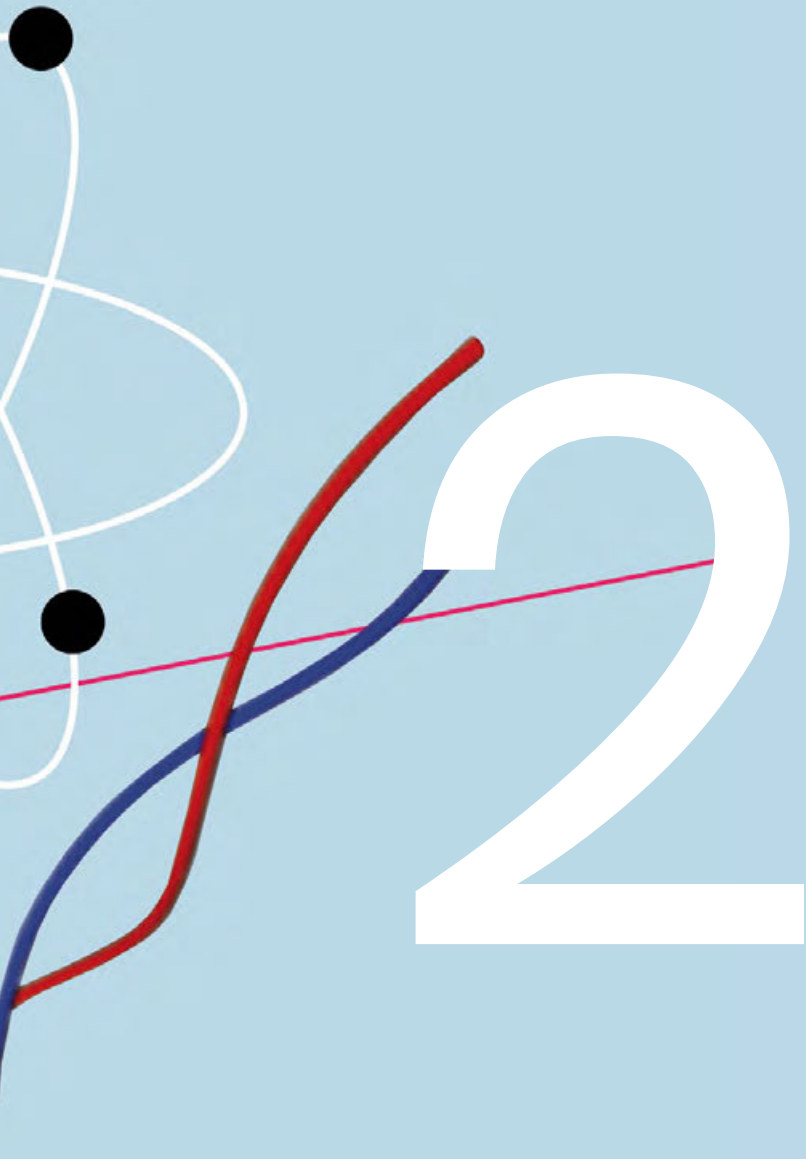
Highlights and prize winners



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Highlights

Press conference of Federal Minister of Science Heinz Faßmann and FWF President Klement Tockner

In mid-May, Federal Minister of Science Heinz Faßmann and FWF President Klement Tockner presented the current figures for 2018 and looked ahead to 2019. While Federal Minister Faßmann referred, among other things, to the OECD report, in which Austria received a predominantly positive review, FWF President Tockner emphasised the leverage created by competitively awarded third-party funding.

A celebration of top female researchers

On International Women's Day on March 8, the FWF honoured, as in every year, the new Fellows on the 'Herta Firnberg' and 'Elise Richter' career programmes. In the impressive, columned hall of the Museum of Applied Arts (MAK), guests talked and celebrated late into the night.

Science on stage: ‘Am Puls’ brings research closer to society

Now in its 13th year, the successful ‘Am Puls’ series of events once again attracted a large audience in 2019. Over the course of five evenings, more than 2,000 people were able to learn about and discuss the current practical applications and future possibilities of basic research ‘made in Austria, funded by FWF’. The topics in 2019 were ‘Dementia: When the Brain No Longer Plays Along’, ‘Designer Babies, Mammoths & Such: The Possibilities of Synthetic Biology’, ‘Beauty‘s Power of Attraction: The Adaptive Sense of Beauty’, ‘Autonomous Driving: When the Autopilot Takes Over’, and ‘50th Anniversary of the Moon Landing and the Settlement of Planets’. Reviews of all the ‘Am Puls’ talks are published on the FWF website.

ORF DialogForum

Must we fear the practical applications of artificial intelligence in the media or are there socially compatible ways of using it? What are the political, social, and ethical implications of an algorithm-driven media world? Is there such a thing as a good algorithm? These questions were the focus of the ORF DialogForum ‘Occupy Internet: The “Good” Algorithm’, which was co-hosted by the FWF in mid-November. FWF President Klement Tockner gave the keynote address at the event.

An evening among friends: The START/ Wittgenstein Awards ceremony 2019

In 2019, the annual highlight of the FWF's events calendar was once again the START/Wittgenstein Awards ceremony. The setting was the Museum of Applied Arts (MAK), where the ceremony and reception were held in the large exhibition hall and garden. For the first time, the names of the prize winners were not announced in advance, which kept everyone in suspense right until the end. The two Wittgenstein Award winners and the six START Award winners celebrated late into the night together with their families, friends, and teams, as well as numerous guests from the realms of politics, business, media, and society.

Wittgenstein Award winners 1996–2018

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 Silencing
of Plant Transgenes

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,
Miniaturizing 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
Informatics, 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

Wittgenstein Award winner 2019

Philipp Ther

The Great Transformation: A comparative social history of global upheavals

Why did history 'end' differently than expected after 1989? This is the question that Philipp Ther explores as a social historian as well as an '89er' who experienced first-hand a part of the Velvet Revolution in Prague and then lived and conducted research in East Germany, the former Czechoslovakia, Poland, and the Ukraine for several years in the 90s.

In the award winner's view, a broader temporal and spatial perspective is necessary in order to better understand the transformation that took place after the end of state socialism. On the one hand, one must begin as far back as the eighties and, in some cases, the seventies, and on the other hand, extend the focus to include other global transformations, like the rise, the hegemony, and the radicalisation of neoliberalism, as well as their social implications. Besides this macro-perspective, in the coming years Philipp Ther plans to continue his research into the 'transformation from below', i.e., specific regional and local case studies, social groups like industrial workers, former collective farmers, migrant workers (the history of migration is also one of his long-standing research areas), families, and children.

To this end, he has established the Research Center for East Central Europe and the History of Transformations (RECET) together with colleagues from Poland, Sweden, Germany, the Czech Republic, Hungary, Croatia, and Austria. The funding from the award will enable him to expand this cluster and conduct research on the European and global level based on the concept of comparative area studies.

Wittgenstein Award winner 2019

Michael Wagner

Microbiology

Michael Wagner is one of the world's leading researchers in microbial ecology and microbiome analysis. These domains of microbiology involve the study of the composition and function of micro-organism communities in the environment and medicine, without which life on earth would not be possible.

Over the last 25 years, Michael Wagner and his team have developed methods that, for the first time, enable this 'dark matter' of microbes to be studied directly in medical or environmental samples. Currently, his research is focused on microbes that perform important functions in the global nitrogen cycle. Half of humanity is dependent on food produced using industrially manufactured nitrogen fertilisers. Due to the activity of certain groups of micro-organisms known as nitrifying bacteria in agricultural soil, a large part of the fertiliser, however, is not absorbed by the plants, but instead makes its way into the groundwater, rivers, and oceans. On the other hand, these nitrifying bacteria play an essential role in the purification of wastewater in modern sewage treatment plants.

Wagner plans to use the Wittgenstein Award funding to further strengthen the position of the Centre for Microbiology and Environmental Systems Research, which was established at the University of Vienna in 2019, as the world's leading research institution in this field and to develop a new generation of methods for the functional analysis of microbiomes. If he succeeds, the function of individual cells in microbiomes will be able to be analysed in almost real time, thus revolutionising microbiome research.


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START Award Winners 1996–2018

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

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

START Award winners 2019

Moritz Brehm

Silicon Light Emitters Based on Defect-Enhanced Quantum Dots

Silicon is the dominant material of the digital world as all integrated chips are based on it. However, digitalisation based on silicon electronics will clearly reach its limits in the foreseeable future. This project investigates a fundamentally new approach for extracting light from silicon-compatible group IV materials. The success of this project could be a decisive step in the integration of silicon-based light sources in modern semiconductor components.

Christa Cuchiero

Universal Structures in Mathematical Finance

This project focuses on mathematics and financial economics. The finance part is concerned with robust empirical features that can be observed universally across various financial markets, share classes, and, in particular, over time. The mathematics part deals with universally occurring model classes and probabilistic properties which unite phenomena that, at first glance, often seem unrelated. The goal is to develop a probabilistic framework that allows universal phenomena to be studied using universal mathematical methods.

Bruno De Nicola

Nomads' Manuscripts Landscape

The rise of Genghis Khan and the expansion of the Mongol Empire in western Eurasia in the 13th century had a dramatic impact on the Islamic world. The Mongols are generally regarded as unstoppable nomadic warriors. This project starts from the hypothesis that the interaction of the nomadic rulers with resident elites went so far as to initiate a process of vigorous mutual cultural borrowing. The project will also develop two openly accessible digital databases.

Christoph Gammer

Nanoscale Strain Mapping of Metallic Glass Composites

The word *glass* is usually associated with glass for windows. However, metals can also form a glass. They have very attractive properties, but, like window glass, they can break catastrophically. In this project, metallic glasses are produced with specifically arranged nanocrystals. This makes it possible to develop new materials that are extremely hard but do not break catastrophically. This previously unachieved combination of properties is fundamental for the future development of high-performance materials.

José Luis Romero

Time-Frequency Analysis, Randomness and Sampling

Time-frequency analysis studies various phenomena of the domains of time and frequency simultaneously. It is a broad field that comprises not only many areas of mathematics, but also acoustics, wireless communication, statistical data analysis, and mathematical physics. The limits within which simultaneous time-frequency analysis is possible are determined by the uncertainty principle. The project deals with problems in which the uncertainty limit is reached.

Richard Wilhelm

Ion Impacts in Real-Time (time4ions)

In his project, Richard Wilhelm studies surfaces on the atomic scale. They are irradiated by bright laser flashes and bombarded almost simultaneously with pulses of charged particles. This is made possible by an ultrafast ion source which can fire high-energy charged atoms at a material sample. This project is the world's first ion scattering experiment in which the time sequences can be observed with such precision. This enables us to make specific changes to material properties using customised pulses.

Organisation and decision-making bodies

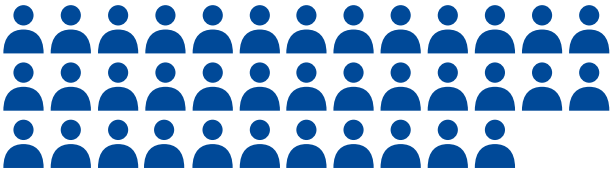
Supervisory Board

Appointed by the Assembly of Delegates (4), FWF Works Council (1), BMVIT (1), BMBWF (3) and an elected member (1)

Executive Board

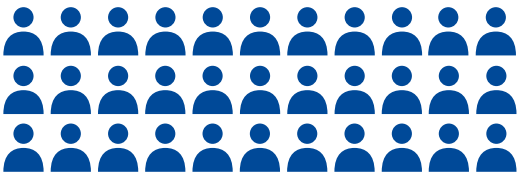
President, Executive Vice-President,
3 Vice-Presidents of Research

Assembly of Delegates



30 voting members of the universities,
non-university research institutions, and stakeholders
as well as the (non-voting) BMVIT (1), BMBWF (1), FWF Executive Board (5)

FWF Board



28 expert advisors from all disciplines
(and 28 deputies) as well as the FWF Executive Board

Executive Board

5th term
(since September 2016)

Klement Tockner, Ellen Zechner, Gerlinde Mautner, Artemis Vakianis, Gregor Weihs (from left to right)

President

Klement Tockner

Executive Vice-President

Artemis Vakianis

Vice-President
Humanities and Social Sciences

Gerlinde Mautner
Vienna University of Economics and Business
Institute for English Business Communication

Vice-President
Natural and Technical Sciences

Gregor Weihs
University of Innsbruck
Department of Experimental Physics

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 (IHS)

Members

Gabriele Ambros
Forschung Austria,
Verlag Holzhausen GmbH

Iris Fortmann
FWF Works Council

Martin Grötschel
Berlin Brandenburg Academy of Sciences and Humanities, Germany

Renate E. Meyer
Vienna University of Economics and Business, Institute for Organization Studies

Martin Netzer
BMBWF– Federal Ministry of Education, Science and Research

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	Members	Deputies
Academy of Fine Arts Vienna	Michaela Glanz	—
Austrian Institute of Technology GmbH	Wolfgang Knoll	Katja Lamprecht
Federal Ministry for Transport, Innovation and Technology (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
Ludwig Boltzmann Association	Sylvia Knapp	Martina Mara
Medical University of Graz	Caroline Schober-Trummler	Michael Speicher
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	Desmond Grossmann	Adrijana Novakovic
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	Hubert Hasenauer

Chair

Michaela Fritz
Medical University of Vienna

Deputy Chair

Horst Bischof
Graz University of Technology

University of Art and Design Linz	Karin Harrasser	Thomas Macho
University of Music and Performing Arts Graz	Gerd Grupe	Roland Reiter
University of Music and Performing Arts Vienna	Therese Kaufmann	Nikolaus Urbanek
University of Graz	Christof Gattringer	Petra Schaper-Rinkel
University of Innsbruck	Ulrike Tanzer	Bernhard Fügenschuh
University of Klagenfurt	Friederike Wall	Martina Merz
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	Harald Badinger
	Non-voting members	
FWF Executive Board	Klement Tockner Artemis Vakianis Gerlinde Mautner Gregor Weihs Ellen Zechner	
Federal Ministry of Education, Science and Research	Eva Gottmann	Wolfgang Neurath
Federal Ministry of Transport, Innovation and Technology	Mario Steyer	Margit Harjung

FWF Board

5th term
(2017–2020)

Biology and Medical Sciences

Discipline	Expert Advisor	Deputy
Biology I	**Kurt Kotrschal** University of Vienna	Ilse Kranner University of Innsbruck
Biology II	**Elisabeth Haring** Natural History Museum Vienna	Ruben Sommaruga University of Innsbruck
Genetics / Microbiology, Biotechnology / System biology	**Ortrun Mittelsten Scheid** Austrian Academy of Sciences Vienna	Joachim Reidl University of Graz
Cell Biology	**Ludger Hengst** Medical University of Innsbruck	Wilfried Ellmeier Medical University of Vienna
Biochemistry and Structural Biology	**Iain B. H. Wilson** University of Natural Resources and Life Sciences, Vienna	Ruth Prassl Medical University of Graz
Neurobiology and Cognitive Neuroscience	**Bernhard E. Flucher** Medical University of Innsbruck	Claus Lamm University of Vienna
Biomedical Research I	**Akos Heinemann** Medical University of Graz	Barbara Kofler Paracelsus Medical Private Univ. Salzburg
Biomedical Research II	**Maria Sibilia** Medical University of Vienna	Till Rümenapf University of Veterinary Medicine, Vienna
Clinical Research I	**Thomas Bauernhofer** Medical University of Graz	Marc-Michael Zaruba Medical University of Innsbruck
Clinical Research II	**Christoph J. Binder** Medical University of Vienna	Elke Gizewski Medical University of Innsbruck

Humanities and Social Sciences

Business and Economics	**Sigrid Stagl** Vienna University of Economics and Business	Paul Schweinzer University of Klagenfurt
Social Sciences I	**Jessica Fortin-Rittberger** University of Salzburg	Ursula Kriebaum University of Vienna

Social Sciences II	**Libora Oates-Indruchová** University of Graz	Tobias Greitemeyer University of Innsbruck
Philosophy, Theology and Cultural Studies	**Anne Siegetsleitner** University of Innsbruck	Ruth Sonderegger Academy of Fine Arts Vienna
Historical Studies	**Susan Zimmermann** Central European University	Reinhard Stauber University of Klagenfurt
Classical Studies	**Erich Kistler** University of Innsbruck	Reinhard Wolters University of Vienna
Literary Criticism and Linguistics	**Norbert Christian Wolf** University of Salzburg	Ulrike Jessner-Schmid University of Innsbruck
Art and Art History	**Raphael Rosenberg** University of Vienna	Federico Celestini University of Innsbruck

Natural and Technical Sciences

Mathematics I	**Josef Schicho** Johannes Kepler University Linz	Michael Drmota Vienna University of Technology
Mathematics II	**Barbara Kaltenbacher** University of Klagenfurt	Georg Pflug University of Vienna
Informatics I	**Silvia Miksch** Vienna University of Technology	Ruth Breu University of Innsbruck
Informatics II	**Thomas Pock** Graz University of Technology	Bernhard Rinner University of Klagenfurt
Experimental Physics	**Gottfried Strasser** Vienna University of Technology	Peter Zeppenfeld Johannes Kepler University Linz
Theoretical Physics and Astrophysics	**Enrico Arrigoni** Graz University of Technology	Andreas Läuchli University of Innsbruck
Inorganic Chemistry	**Julia Kunze-Liebhäuser** University of Innsbruck	Erik Reimhult University of Natural Resources and Life Sciences, Vienna
Organic Chemistry	**Rolf Breinbauer** Graz University of Technology	Nuno Maulide University of Vienna
Geosciences	**Georg Kaser** University of Innsbruck	Rainer Abart University of Vienna
Engineering	**Oszkár Biró** Graz University of Technology	Andreas Ludwig Montanuniversität Leoben

International 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 and Technical Sciences

Christoph Beckermann
The University of Iowa, USA

Carlo W. J. Beenakker
Leiden University, NL

Stefan Hell
Max Planck Institute for Biophysical Chemistry, Germany

Gitta Kutyniok
Technische Universität Berlin, Germany

Mira Mezini
Technische Universität Darmstadt, Germany

Equal Opportunities

Executive Board	
Supervisory Board [1]	
FWF Board BIOMED [2]	
FWF Board HUMSOC [2]	
FWF Board NATTEC [2]	
Assembly of Delegates [2]	
International START/Wittgenstein Jury	
PEEK Board	
WKP Jury	
Staff [3]	
Total	

PEEK Board

Darla Crispin
Norwegian Academy of Music, Norway

Lynn Hughes
Concordia University, Canada

Sandra Kemp
Imperial College, UK

Michael Punt
University of Plymouth, UK

Anton Rey (Chair)
Zurich University of the Arts, Switzerland

Marc Aurel Schnabel
Victoria University of Wellington, NZL

	FWF sections by gender (female/male)	
	5	3/2
	10	7/3
	20	7/13
	16	8/8
	20	4/16
	59	23/36
	12	5/7
	6	3/3
	6	3/3
	119	81/38
	273	**144/129**

1) voting members;
2) incl. deputies;
excl. non-voting members;
3) incl. part-time staff and freelancers;
excl. staff on parental leave
and Executive Board members
(as at 31 December 2019)

WKP Jury

Gian-Andri Casutt

Beate Langholf

Oliver Lehmann

Christian Müller

Jutta Rateike

Barbara Streicher

International Strategic Advisory Board

Jutta Allmendinger

Professor of Educational Sociology and Labour Market Research, Humboldt University, Berlin;
President of the Berlin Social Science Centre (WZB)

Dymph van den Boom

Professor of Education, University of Amsterdam;
former Rector of the University of Amsterdam
and the Amsterdam University of Applied Sciences

Stephen Curry

Professor of Structural Biology, Imperial College London;
Panel member of the European Research Council (ERC)

Lino Guzzella

Professor of Thermotronics, ETH Zurich;
former President of ETH Zurich

Hermann Parzinger

Professor of Prehistoric Archaeology, Free University of Berlin; President of the Prussian Cultural Heritage Foundation, Berlin

Sarah de Rijcke

Professor of Science, Technology and Innovation Studies, Scientific Director of the Centre for Science and Technology Studies, Leiden University; Co-chair of the Research on Research Institute (RoRI)

Sverker Sörlin

Professor of the History of Science, Technology and the Environment, KTH Royal Institute of Technology Stockholm;
Member of the Swedish Climate Policy Council

Ulrike Tillmann

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

FWF programmes

4

Exploring new frontiers: Funding top-quality research

Stand-alone project funding

Stand-Alone Projects

Objective:

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

1,000 Ideas Programme

Objectives:

- To encourage risk-taking, foster creativity, 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

Objective:

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

Funding programmes:

- Joint projects: bi- and trilateral research projects, sometimes with a specific focus
- ERA NET calls: multilateral (European) research cooperation with a specific focus
- Joint seminars: seminar events to initiate cooperative projects

Priority research programmes

Special Research Programmes (SFB)

Objective:

- To create areas of focus for research at one or more locations and 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 research institutions with more limited infrastructure or in certain disciplines that cooperate on smaller scales
- To cooperate on medium-term projects on a complex, current topic in mixed teams of 3 to 5 researchers
- To promote inter- or multidisciplinary, innovative research collaboration that explores a topic in more depth or breadth
- To place young researchers in a leadership role
- To define an internationalisation strategy to connect with the international scientific/ 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 researchers 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)

Objective:

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

netidee SCIENCE

(funded by the Internet Foundation Austria)

Objectives:

- To 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)

Objective:

- 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 researchers to carry out basic research in the field of biochemical/medical cell research
- To support research into cell changes and ageing as well as the search for new means of influencing these processes

Cultivating talents: Human resources development

Doctoral programmes

doc.funds

Objectives:

- To promote outstanding education and training for doctoral students in existing internationally oriented doctoral programmes with clearly defined structures and quality standards
- To reinforce the research orientation and sustained consolidation of existing education and training structures for highly qualified junior researchers

Young researcher programmes

Young Independent Researcher Groups

Objectives:

- To promote cooperation and networking among internationally outstanding young researchers through interdisciplinary research cooperation (for up to 4 years) in teams of 3 to 5 researchers
- To promote advanced interdisciplinary research into complex issues at a minimum of 2 distinct research institutions or 2 organisational units of a single institution

International mobility

Erwin Schrödinger Fellowships

Objectives:

- To help (young) researchers work on basic research at leading research institutions outside Austria
- To help researchers gain experience abroad at the postdoc stage
- To facilitate access to new fields of research, methods, procedures, and techniques, so that fellows can contribute to the development of their respective fields

Lise Meitner Programme

Objectives:

- To enhance the quality of research at Austrian research institutes
- To increase quality levels and scholarly expertise among Austria's scientific community
- To help researchers establish international contacts and support career development

Career development for women in research

Hertha Firnberg Programme

Objectives:

- To help enable female researchers carry out basic research
- To support female postdoc researchers early in their academic careers or on their return from maternity leave
- To enhance women's opportunities for academic careers at Austrian research institutions

Elise Richter Programme

Objectives:

- To enable female researchers to carry out basic research
- To support the development of women's academic careers and help them obtain 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 obtain the qualifications necessary for a professorship in Austria or abroad

Realising new ideas: A bridge between research and society

Funding of application-oriented basic research

Clinical Research Programme (KLIF)

Objectives:

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

Quantum Research and Technology (QFTE)

Objectives:

- To promote the transfer of knowledge from basic research on quantum physics to the development and application of quantum technologies and vice versa
- To help establish highly qualified researchers in the field of applied quantum technologies
- To offer researchers career opportunities in business as an alternative to an academic career
- To provide researchers with experience of working in a company

Funding research into the arts

Arts-Based Research Programme (PEEK)

Objectives:

- To enable researchers to carry out innovative arts-based research projects
- To increase awareness of arts-based research and its potential applications among a broader audience and within the research and arts communities

Funding trans-disciplinary research

#ConnectingMinds

Objectives:

- To support teams that combine scientific and societal knowledge to meet looming social, technological, ecological, and economic challenges
- To strengthen the dialogue between science and society as well as increase the transfer 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

Objective:

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

Peer-Reviewed Publications

Objective:

- To support the publication of peer-reviewed works

Science Communication Programme (WKP)

Objective:

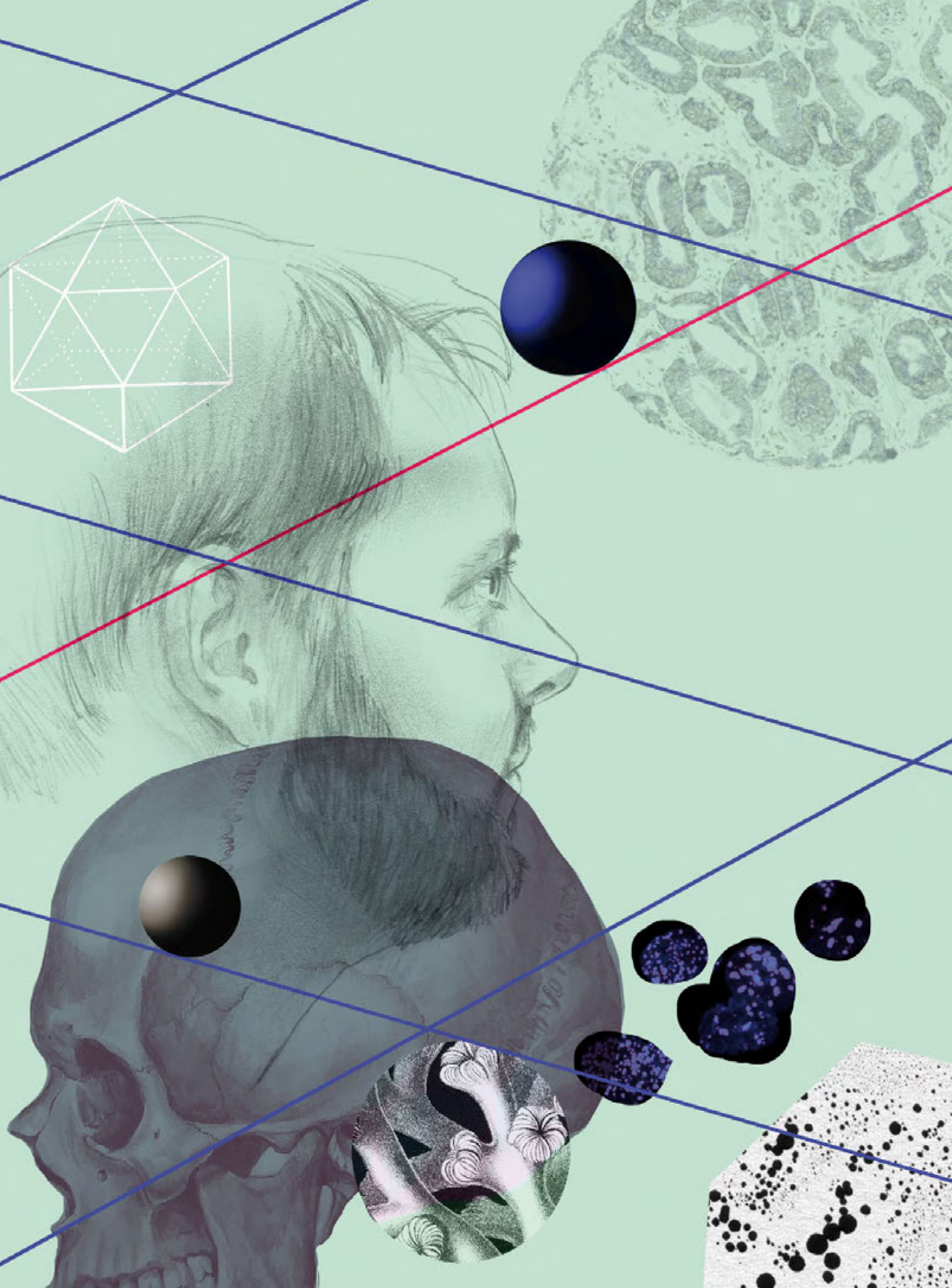
- To support outstanding science-communication measures related to the research project funded by the FWF

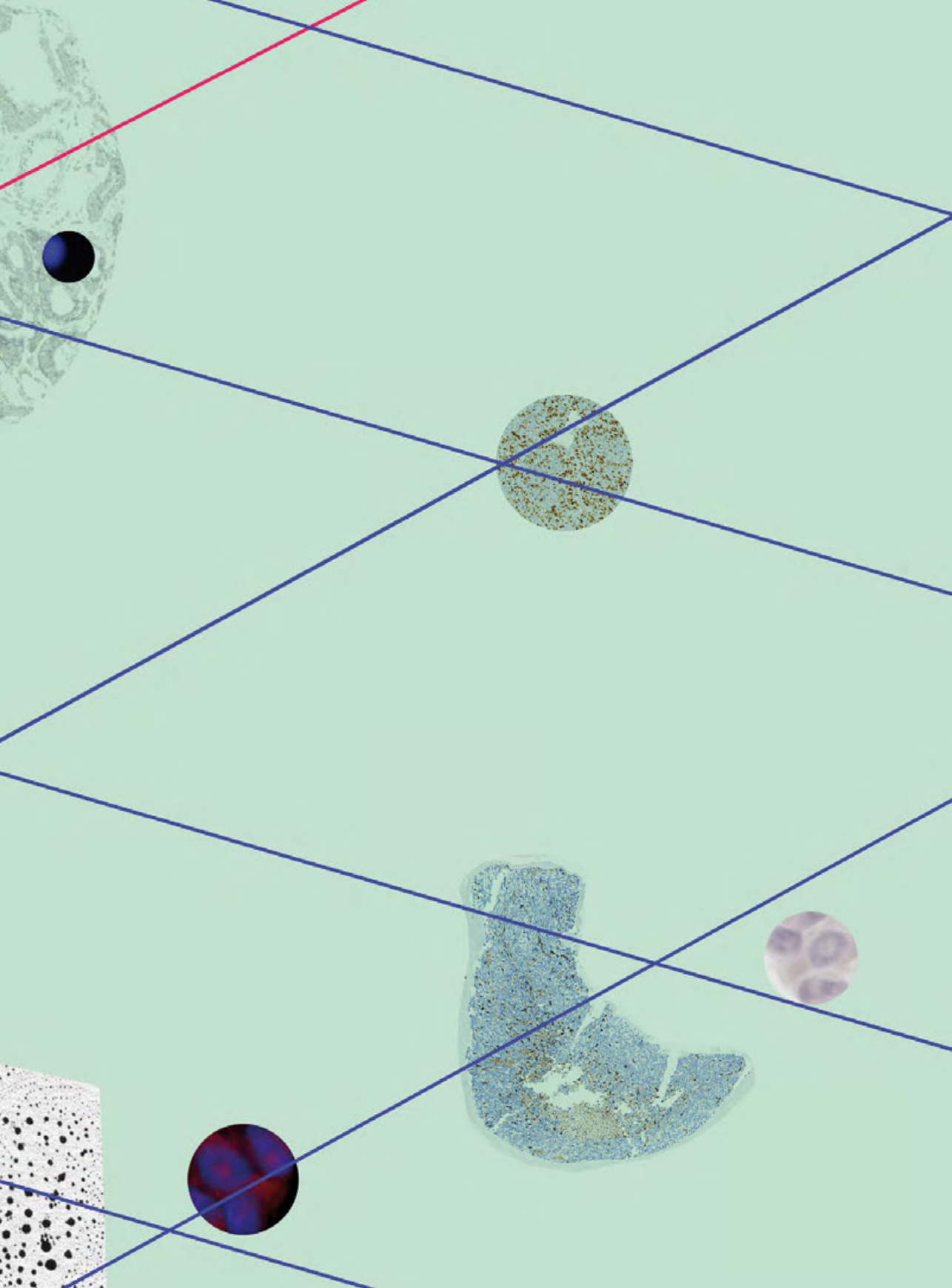
Expansions of FWF-funded projects

Top Citizen Science (TCS)

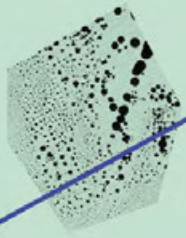
Objectives:

- To support research activities that promote the active involvement of citizens
- To incorporate citizens' skills, expertise, curiosity, and willingness to participate.





The FWF's activities in figures



5

FWF balance sheet

Assets

A Fixed Assets	31 Dec. 2018	**31. Dec. 2019**
1. Intangible assets	181,708.45	329,332.99
2. Construction investment in non-owned facilities	48,089.57	42,570.84
3. Tangible fixed assets (equipment)	163,841.06	167,805.73
	393,639.08	**539,709.56**
B Current assets		
I. Accounts receivable and other assets		
1. Accounts receivable from the BMBWF	21,650,004.85	21,650,004.85
2. Accounts receivable from the BMK	811,845.00	811,845.00
3. Accounts receivable from the National Foundation for Research, Technology and Development	104,160,191.39	111,020,191.39
4. Accounts receivable from provincial governments and other sponsors	9,977,641.45	7,898,815.79
5. Accounts receivable from the BMBWF, approved grants for future years	410,460.878.74	426,670,062.91
6. Other receivables and assets	609,800.25	525,206.31
	547,670,361.68	**568,576,126.25**
II. Cash on hand or in banks		
	72,128,854.93	**88,747,232.90**
	619,799,216.61	**657,323,359.15**
C Accruals and deferred items		
	105,917.46	**205,348.68**
Assets	620,298,773.15	**658,068,417.39**

as at 31 December 2019, all figures in euros
(with the exception of scientific equipment)

Liabilities

A Provisions	31 Dec. 2018	**31. Dec. 2019**
	2,201,321.32	**2,337,081.80**
B Liabilities		
I. Liabilities from research funding		
1. from research projects	545,302,545.61	581,748,916.50
2. Contingent liabilities: international projects still open	2,348,046.94	3,216,828.14
3. Liabilities from international agreements	96,805.00	0.00
4. Liabilities to publishers	35,753.93	104,351.40
5. Liabilities from payroll costs	298,226.90	292,396.53
	548,081,378.38	**585,362,492.57**
II. Liabilities from contractual agreements		
6. with the BMK	1,296,218.09	1,287,184.11
7. with the European Union (COFUND)	32,490.07	0.00
8. with the National Foundation for RTD	67,108,969.61	67,305,667.18
9. with Austrian provincial governments	960,748.50	1,132,598.12
	69,398,426.27	**69,725,449.41**
III. Other liabilities: office costs		
	562,785.18	**615,962.61**
	618,042,589.83	**655,703,904.59**
C Accruals and deferred items		
	54,862.00	**27,431.00**
Liabilities	620,298,773.15	**658,068,417.39**

FWF income statement

I Revenue

		2018	2019
1.	**Revenue from research funding**		
a	Contributions from the BMBWF	217,275,398.17	222,209,184.17
b	Contributions from the National Foundation for RTD	75,200,000.00	27,200,000.00
c	Other contributions	6,952,522.02	4,239,289.59
d	Grants and donations	1,004,080.67	853,727.85
		300,432,000.86	**254,502,201.61**
2.	**Change of use of approved grants**		
		– 56,321,789.11	**-327,160.97**
3.	**Revenue from unused research grants (returned funds)**		
		7,954,771.69	**8,944,725.62**
4.	**Other revenues**		
a	Revenues from completed research projects	4,722.07	2,308.16
b	Reimbursements for services and other revenues: Administrative activities	693,776.17	599,640.34
c	Interest income	47,079.39	18,275.10
		745,577.63	**620,223.60**
	Revenues	252,810,561.07	**263,739,989.86**

II Expenses

5.	**Expenditure for research funding**		
a	Projects (incl. KLIF & PEEK)	115,207,665.62	126,720,746.88
b	Doctoral Programmes	22,651,266.27	19,981,899.90
c	International mobility	19,884,610.30	18,949,732.67
d	Programmes for female researchers	14,195,556.76	12,865,052.06
e	Wittgenstein Award / START Programme	10,139,791.00	10,196,498.97

f	Young Independent Researcher Groups & Research Groups	12,990,709.40	4,226,747.68
g	Special Research Programmes (SFB) & NFN	13,822,010.18	20,912,888.50
h	International Programmes	30,739,021.71	33,365,760.66
i	Experimental research formats	38,643.79	14,871.85
j	Dissemination und Outreach	2,404,916.11	2,923,385.42
k	Programmes funded by third parties	1,267,677.60	2,847.46
l	Changes in contingent research project approvals BMBWF	-3,394,777.05	868,781.20
m	Expenses for research support from international agreements	597,173.38	586,110.38
		240,544,265.07	**251,615,323.63**
6.	**Expenses for research support**		
a	Expenses for research support from international agreements	36,062.35	42,332.05
b	Other	36,193.99	9,416.67
		72,256.34	**51,748.72**
7.	**Administrative expenses**		
a	Personnel expenses	7,686,468.01	8,049,632.24
b	Other	4,507,571.65	4,023,285.27
		12,194,039.66	**12,072,917.51**
	Expenses	252,810,561.07	**263,739,989.86**
	Result for the year	0.00	**0.00**

Research funding overview

Number of grants

Programmes	Assessed applications 2018	Assessed applications **2019**	Approved projects 2018	Approved projects **2019**	Approval rate[2] (%) 2018	Approval rate[2] (%) **2019**
Stand-Alone Projects (incl. clinical research)	1,131	1,169	315	331	27.9	28.3
Programme for the Development and Understanding of the Arts (PEEK)	68	60	11	11	16.2	18.3
Doctoral Programmes (DK): extensions	8	3	6	2	75.0	66.7
doc.funds	—	28	—	6	—	21.4
Erwin Schrödinger Programme	132	129	53	50	40.2	38.8
Lise Meitner Programme	238	221	70	64	29,4	29,0
Career Development for Women Researchers	174	159	51	45	29.3	28.3
START Programme and Wittgenstein Award	105	109	8	8	7.6	7.3
Research Groups	—	5	—	3	—	7.7
Special Research Programmes (SFB): new applications[1]	62	56	29	45	10.3	25.0
Special Research Programmes (SFB): extensions[1]	—	9	—	8	—	88.9
International Programmes	456	491	121	124	26.5	25.3
Top Citizen Science	10	21	5	4	50.0	19.0
Science Communication Programme (WKP)	—	29	—	6	—	20.7
Total[3]	2,501	**2,489**	684	**707**	26.7	**26.8**
Women	858	857	243	247	27,8	27.0
Men	1,643	1,631	441	459	26,1	26.7
Non-gender-binary	—	1	—	1	—	100.0
SFB: draft proposals and approved full applications	29	16	4	4		
Research Groups: draft proposals	—	39				

Grant totals (€ million)

Assessed total		Approved total		Applications rate[2] (%)		
2018	**2019**	2018	**2019**	2018	**2019**	
384.5	423.4	108.1	119.5	28.1	28.2	
25.2	22.3	4.1	4.2	16.5	19.0	
26.0	9.0	19.0	6.0	73.2	66.5	
—	44.9	—	10.7	—	23.7	
17.5	17.1	7.1	6.8	40.5	39.6	
38.8	36.4	11.4	10.6	29.4	29.0	
45.3	42.9	13.4	11.8	29.4	27.6	
129.9	135.7	9.9	10.0	7.6	7.4	
—	6.7	—	4.2	—	7.7	
26.4	22.1	13.3	17.3	11.0	24.9	
—	3.9	—	3.2	—	81.2	
126.9	141.8	30.0	32.7	23.6	23.0	
0.5	1.0	0.2	0.2	47.1	19.8	
—	1.4	—	0.3	—	19.1	
948.7	**908.7**	230.8	**237.4**	22.1	**23.6**	Total of new approvals[3]
318.6	292.2	75.5	78.7	21.9	22.6	
630.1	616.3	155.3	158.5	22.3	24.1	
—	0.2	—	0.2	—	100.0	
		8.6	**9.1**			Supplementary approvals[4]
		239.5	**246.5**			Total approvals
120.3	69.4	4	17.3			
—	55.1					

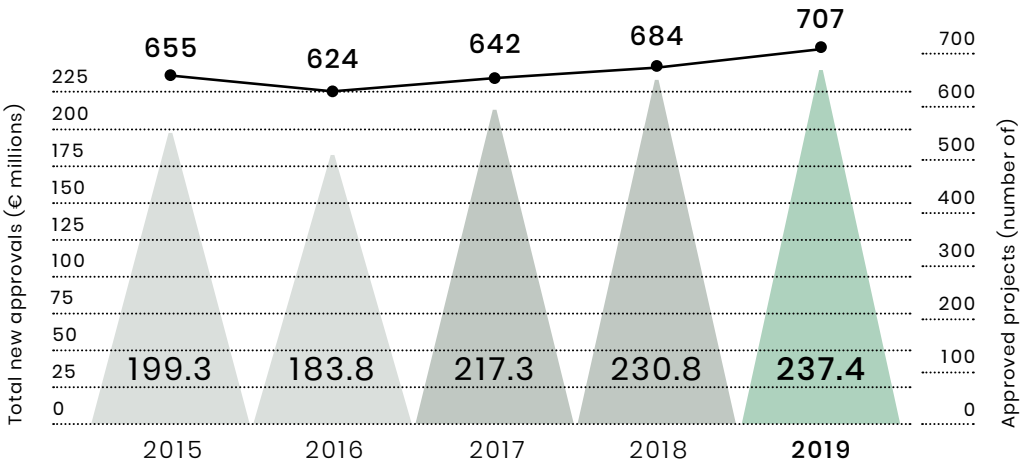
1) Relates to sub-projects
2) The approval rate is calculated from new approvals of assessed applications or the relation of approved full applications to draft proposals.
3) 2018: incl. Young Independent Researcher Groups, EVTZ
4) Increases, completion funding, etc.

2019

237.4

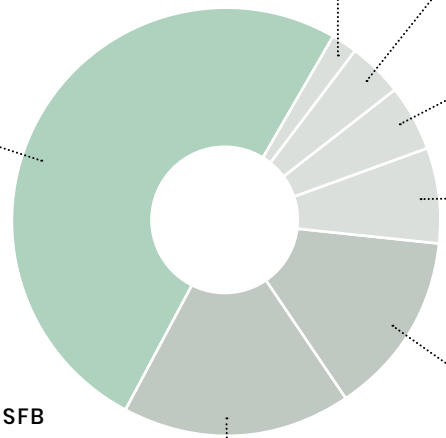
€ million

Funding development



Share of funded programmes

Total of new approvals
(in € millions)



Stand-Alone Projects (incl. clinical research)
119.5 50.3 %

PEEK / Top Citizen Science / WKP
4.7 2.0 %

START Programme and Wittgenstein Award
10.0 4.2 %

Career Development for Women Researchers
11.8 5.0 %

Schrödinger / Meitner
17.3 7.3 %

International programmes
32.7 13.8 %

Doctoral Programmes doc.funds Research Groups / SFB
41.4 17.4 %

Research staff funded by the FWF

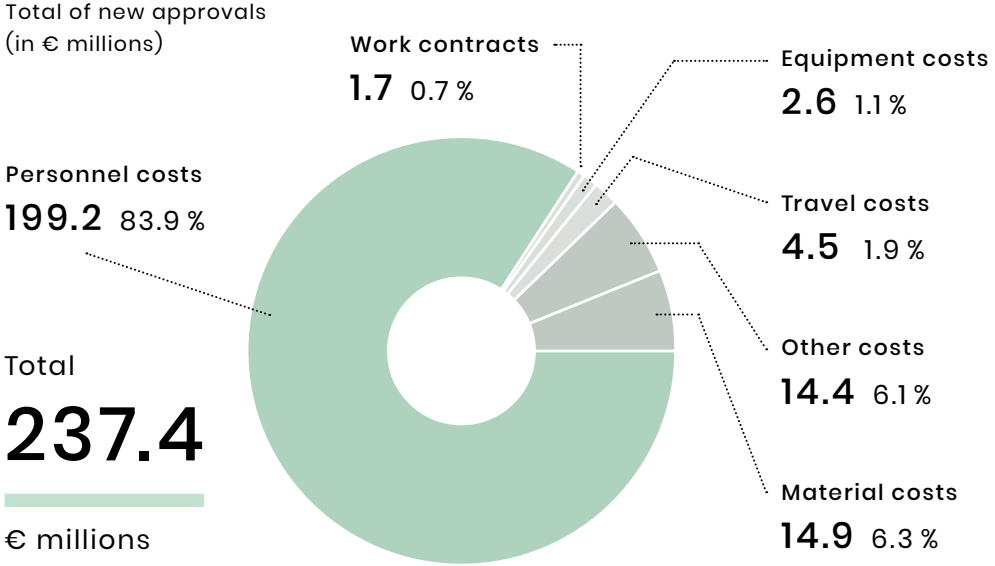
In 2019, 4,176 people working in research were funded by the FWF. More than half of these are young researchers aged between 26 and 35. The figures underline the importance of the FWF as a supporter of young talent and prove its commitment to the development of scientific human capital in Austria. As at 31 December 2019

2018	Women	Men	Total
Other staff	410	285	695
Doctoral students	844	1,102	1,946
Postdocs	617	813	1,430
Total	1,871	2,200	**4,071**

2019	Women	Men	Total
Other staff	414	287	701
Doctoral students	893	1,128	2,021
Postdocs	628	826	1,454
Total	1,935	2,241	**4,176**

Approvals by cost category

Total of new approvals (in € millions)



Total

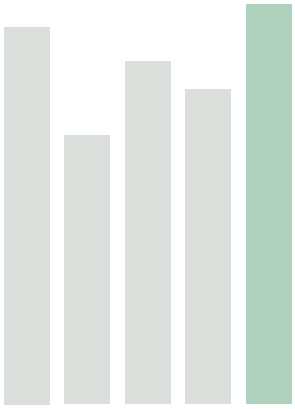
237.4

€ millions

Total new grants:

University research institutes

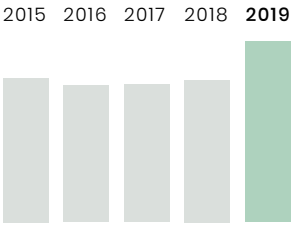
according to Section 6 para. 1 UG 2002
(in € millions)



2015 2016 2017 2018 **2019**

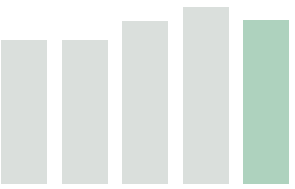
49.9 35.5 45.3 41.6 **52.9**

University of Vienna



19.1 18.1 18.2 18.8 **23.9**

University of Innsbruck



19.0 19.0 21.5 23.3 **21.6**

Medical University of Vienna

19.2 19.7 21.3 22.1 **20.5**

Technical University Vienna

11.0 10.7 15.1 12.0 **16.0**

University of Graz

8.4 7.2 6.5 11.3 **8.3**

University of Natural Resources and Life Sciences, Vienna

5.5 6.0 7.7 10.0 **8.0**

University of Salzburg

8.3 6.5 10.1 8.5 **7.8**

Johannes Kepler University Linz

6.7 6.8 7.0 7.8 **7.4**

Technical University of Graz

5.1 6.6 10.3 5.7 **7.3**

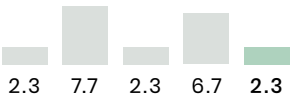
Medical University of Innsbruck

4.7 3.1 6.5 10.9 **5.1**

Medical University of Graz

2.0 0.7 0.,8 2.2 **2.7**

University of Applied Arts Vienna



2.3 7.7 2.3 6.7 **2.3**

University of Veterinary Medicine, Vienna

0.1 1.3 2.7 3.4 **2.3**

Vienna University of Economics and Business

1.4 0.7 1.3 1.5 **2.2**

Montanuniversität Leoben

0.3 0.7 2.5 1.6 **1.8**

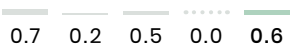
Academy of Fine Arts Vienna

1.5 1.7 2.3 2.3 **1.8**

University of Klagenfurt

0.3 0.2 1.3 2.2 **0.6**

University of Music and Performing Arts Vienna

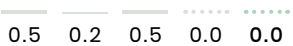


0.7 0.2 0.5 0.0 **0.6**

University of Art and Design Linz

0.4 0.2 1.2 0.4 **0.4**

University of Music and Performing Arts Graz



0.5 0.2 0.5 0.0 **0.0**

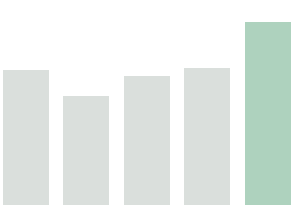
Danube University Krems

0.0 0.0 0.1 0.0 **0.0**

Mozarteum University Salzburg

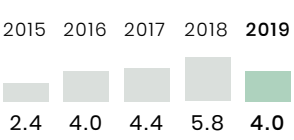
Total new grants: Non-university and other research institutes

(in € million)



17.8 14.4 17.0 18.0 **24.2**

Austrian Academy of Sciences



2015 2016 2017 2018 **2019**

2.4 4.0 4.4 5.8 **4.0**

Institute of Science and Technology Austria – ISTA

1.7 2.1 1.2 2.6 **3.1**

Private universities

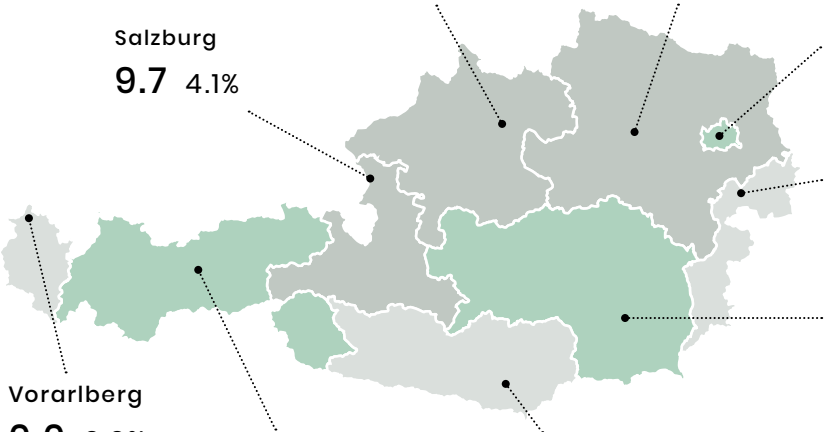
10.6 10.8 9.7 12.2 **12.8**

Other research institutes*

* also includes research institutes and fellowships abroad

Grants by province

Total new grants:
237.4 € millions (2019)



Upper Austria
11.6 4.9%

Lower Austria
7.8 3.3%

Salzburg
9.7 4.1%

Vienna
140.1 59.0%

Burgenland
0.0 0.0%

Styria
34.1 14.4%

Vorarlberg
0.0 0.0%

Tyrol
32.3 13.6%

Carinthia
1.4 0.6%

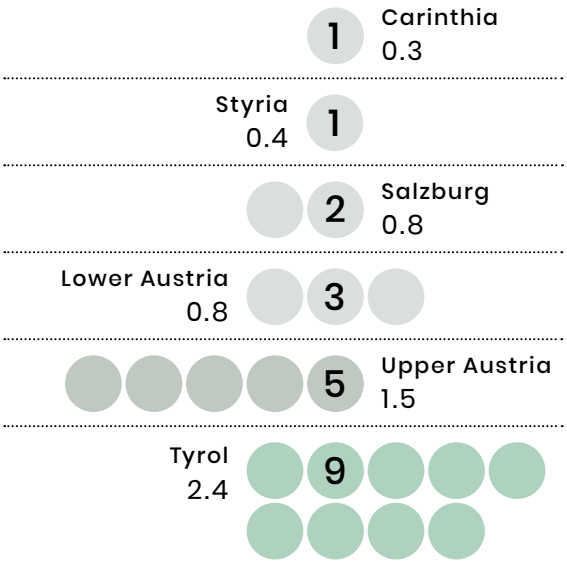
Abroad
0.4 0.2%

Matching funds

Number of projects / Total grants (€ millions)

21
Projects

6.2
€ millions



Peer-reviewed publications

The FWF has for many years pursued one of the world's most effective open-access strategies among funding organisations. In 2019, 89% of all quality-assured publications listed in final FWF project reports were openly accessible.

2019

6,525 = 89%	Open Access
801 = 11%	No Open Access
7,326	**Total**

2018

7,094 = 92%	Open Access
608 = 8%	No Access
7,702	**Total**

2017

5,771 = 90%	Open Access
668 = 10%	No Open Access
6,439	**Total**

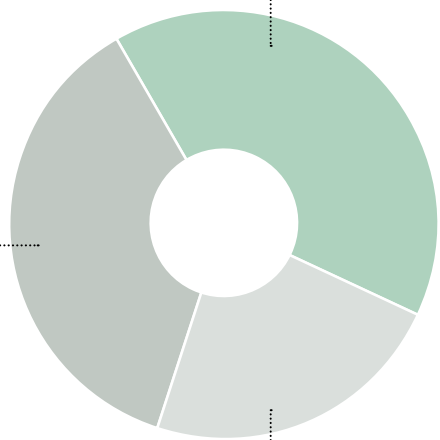
Publication funding[1]

2019	Mio. €
Stand-Alone Publications	0.6
Peer-Reviewed Publications[2]	2.9
› Hybrid Open Access	1.9
› Gold Open Access	0.9
› Other Publication Costs	0.1
Total	**3.5**
of which Open Access[3]	3.5

1) The publication funding was published on the FWF website and in the Zenodo repository in spring 2020.
2) consists of a) direct billing to publishers and b) payment through projects
3) Total of Stand-Alone Publications, Hybrid Open Access and Gold Open Access and their percentage of the total amount

Grants by scientific discipline

Total of new grants
(€ millions)

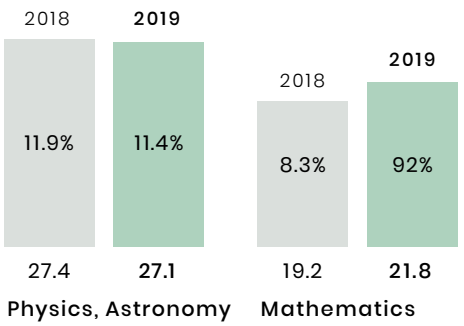


Natural and Technical Sciences
95.4 40.2%
2014–2018: 41.1%

Biology and Medical Sciences
86.6 36.5%
2014–2018: 37.9%

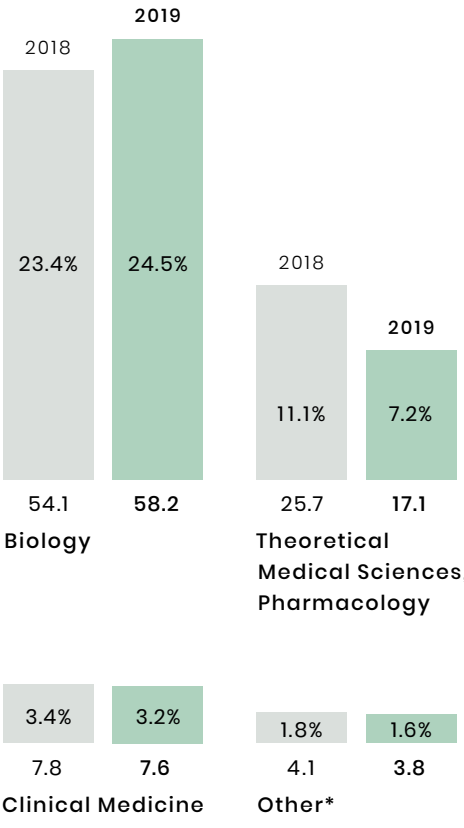
Humanities and Social Sciences
55.4 23.3%
2014–2018: 21.0%

Natural and Technical Sciences



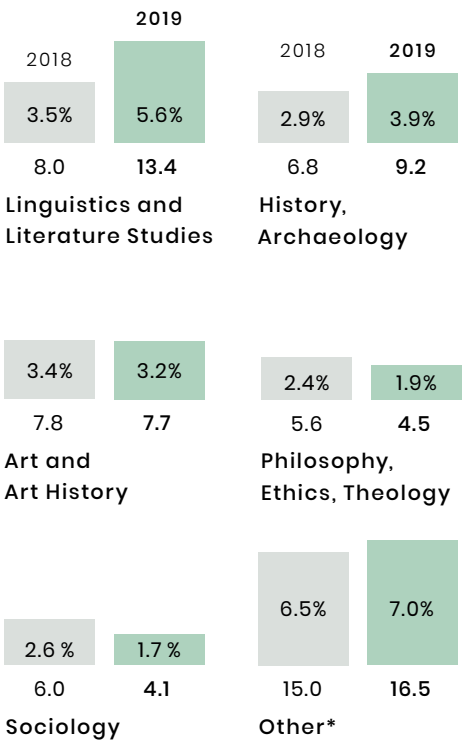
2018		2019		*
3.1	(1.3%)	2.8	(1.2%)	Electrotechnology, Electronics, Information Technology
3.2	(1.4%)	2.7	(1.1%)	Civil Engineering
0.5	(0.2%)	1.7	(0.7%)	Other Technological Sciences
0.6	(0.3%)	1.3	(0.5%)	Mechanical Engineering
1.7	(0.7%)	1.2	(0.5%)	Nanotechnology
0.9	(0.4%)	1.2	(0.5%)	Agriculture, Forestry and Fishery
0.2	(0.1%)	1.0	(0.4%)	Other Natural Sciences
1.4	(0.6%)	0.7	(0.3%)	Medical Technology
0.2	(0.1%)	0.6	(0.2%)	Industrial Biotechnology
1.2	(0.5%)	0.3	(0.1%)	Environmental Engineering, Applied Geosciences
0.1	(<0.1 %)	0.3	(0.1%)	Livestock Breeding and Farming
0.3	(0.1 %)	0.1	(0.1%)	Other Agricultural Sciences
0.1	(<0.1 %)	0.1	(0.1%)	Chemical Engineering

Biology and Medical Sciences



2018		2019		*
2.9	(1.2%)	2.1	(0.9%)	Health Sciences
0.1	(0.1%)	0.7	(0.3%)	Veterinary Medicine
0.9	(0.4%)	0.5	(0.2%)	Other Human Medicine, Health Sciences
0.3	(0.1%)	0.5	(0.2%)	Medical Biotechnology

Humanities and Social Sciences



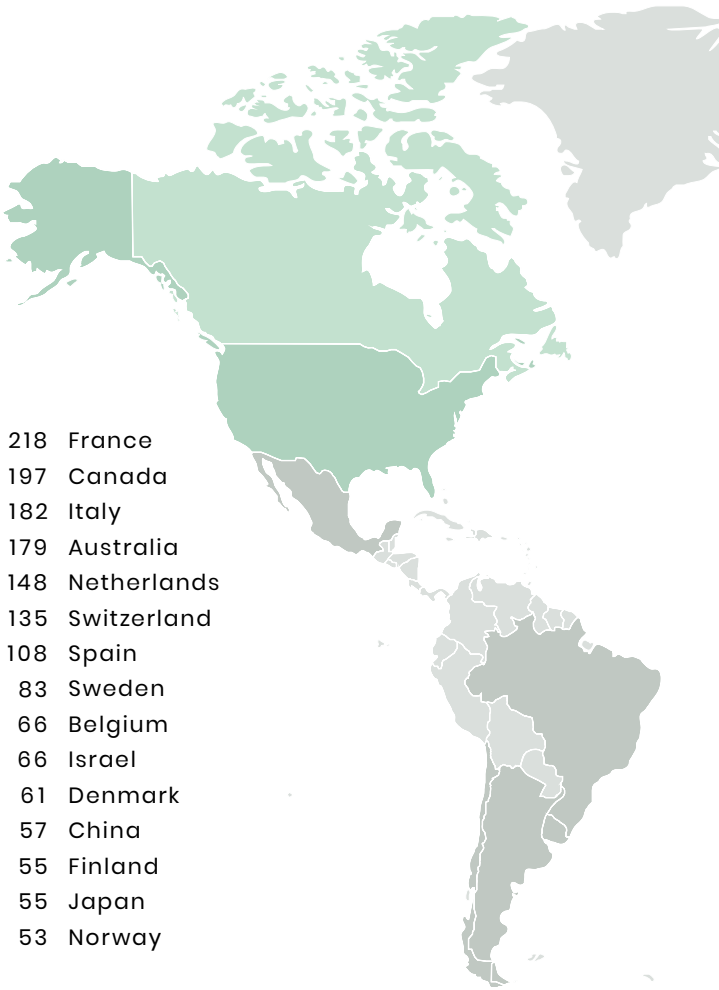
2018		2019		*
1.4	(0.6%)	4.7	(2.0%)	Other Humanities
3.7	(1.6%)	3.2	(1.3%)	Psychology
4.3	(1.9%)	2.7	(1.1%)	Business and Economics
1.3	(0.6%)	1.2	(0.5%)	Political Sciences
0.1	(<0.1%)	1.2	(0.5%)	Law
0.6	(0.3%)	1.2	(0.5%)	Educational Sciences
1.0	(0.4%)	1.0	(0.4%)	Human Geography, Regional Geography, Spatial Planning
2.1	(0.9%)	0.7	(0.3%)	Other Social Sciences
0.4	(0.2%)	0.7	(0.3%)	Media and Communication Sciences

2019

237.4 € millions
Total of new grants

Reviews received by country

In 2019 the FWF assessed 2,489 applications amounting to a total of 908.7 million euros. 15,669 review applications led to a total of 4,632 reviews from 64 countries and regions, and funding decisions were based on these.

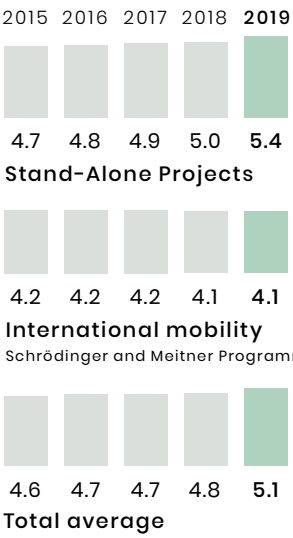


1,396 USA
589 Germany
542 UK

218 France
197 Canada
182 Italy
179 Australia
148 Netherlands
135 Switzerland
108 Spain
83 Sweden
66 Belgium
66 Israel
61 Denmark
57 China
55 Finland
55 Japan
53 Norway

Average processing time

(in months)



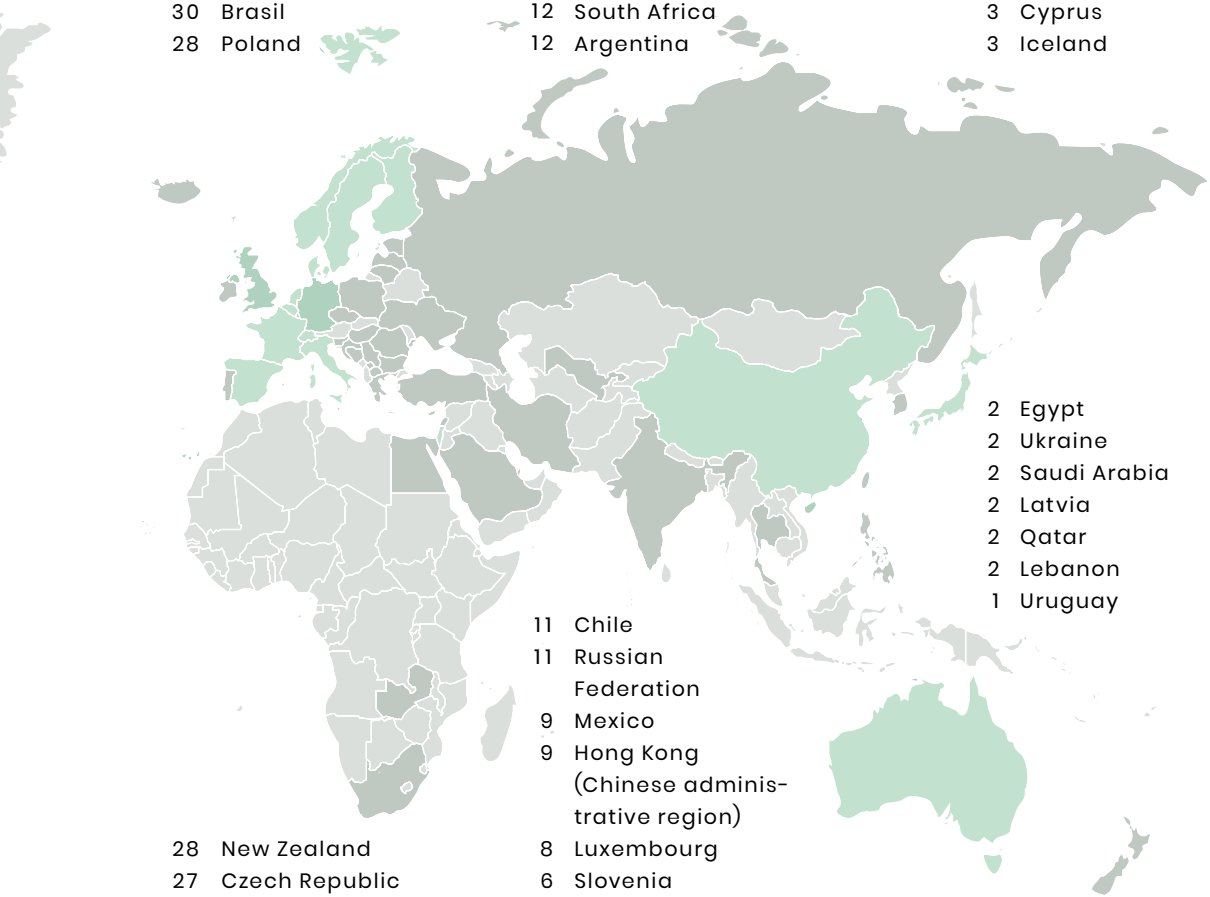
Share of reviews by region (in %)

2015	2016	2017	2018	2019	
36.4	36.1	37.8	36,4	**36.0**	rest of EU
34.5	34.7	34.2	33,9	**34.4**	USA/Canada
16.5	15.9	17.1	16,4	**15.6**	Germany/Switzerland
12.1	13.4	11.0	13,3	**14.0**	rest of world

32 Ireland
32 Portugal
31 Hungary
30 Brasil
28 Poland

14 Taiwan (Chinese province)
13 South Korea
12 Serbia
12 South Africa
12 Argentina

4 Turkey
4 Iran
3 Bulgaria
3 Cyprus
3 Iceland



2 Egypt
2 Ukraine
2 Saudi Arabia
2 Latvia
2 Qatar
2 Lebanon
1 Uruguay

11 Chile
11 Russian Federation
9 Mexico
9 Hong Kong (Chinese administrative region)

28 New Zealand
27 Czech Republic
24 India
23 Singapore
16 Greece

8 Luxembourg
6 Slovenia
5 Estonia
5 Romania
4 Croatia

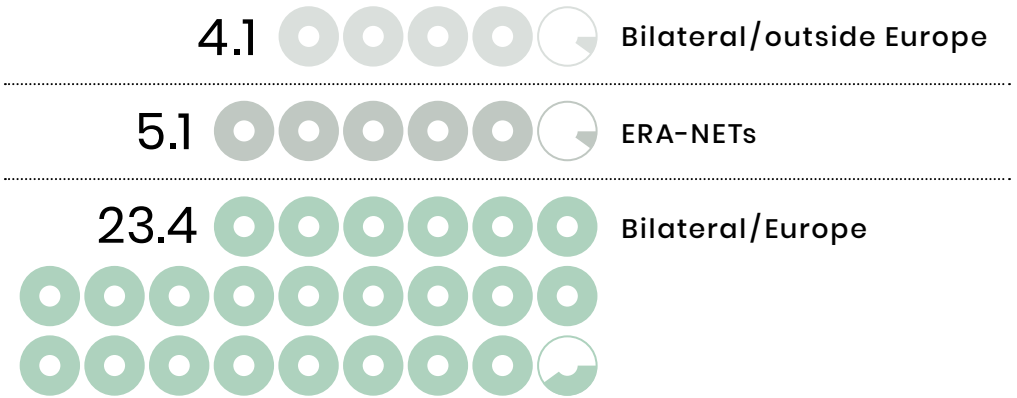
1 Zambia
1 Uzbekistan
1 North Macedonia
1 Bosnia and Herzegovina
1 Thailand
1 Kosovo
1 Bahrain
1 Lithuania
1 Philippines
1 Malta

Reviews applied for and received

2015	2016	2017	2018	**2019**	
14,706	15,203	15,221	15,845	**15,669**	applied for
4,831	4,723	4,701	4,726	**4,632**	received
32.9	31.1	30.9	29.8	**29.6**	response rate (%)

International programmes

Invested FWF funds 2019 (in € millions)



ERA-NET participation by FWF

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

77

Participation in calls
2004–2019

199

Funded projects
2004–2019

13

Active participation
2019

International mobility 2019

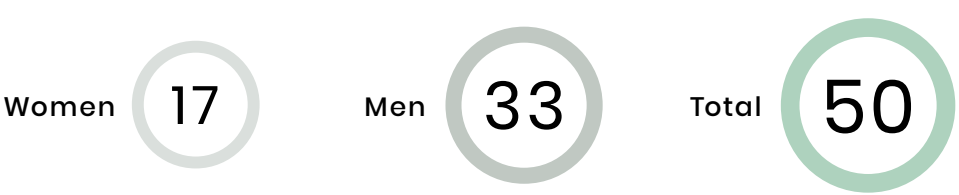
The FWF supports successful young researchers on their way to scientific independence with the Schrödinger and Meitner mobility programmes. In 2019, 50 young postdocs from Austria carried out research in 15 countries worldwide. In return, 64 international young researchers worked at Austrian research institutes.

Lise Meitner grantees

Countries of origin/nationalities: Italy (8), Germany (6), China (6), Austria (4), France (4), Czech Republic (3), Russian Federation (3), USA (3), Poland (3), Belgium (2), Vietnam (2), Greece (1), Slovakia (1), Romania (1), Israel (1), Sri Lanka (1), Brazil (1), UK (1), Uzbekistan (1), Bosnia and Herzegovina (1), Albania (1), Spain (1), Netherlands (1), Taiwan (Chinese province) (1), Belarus (1), Hungary (1), Argentina (1), India (1), Portugal (1), Latvia (1), Montenegro (1)

Erwin Schrödinger fellows

Destination countries: USA (11), Germany (7.5), UK (6), Canada (5), Switzerland (4), Spain (3.5), Sweden (3), Italy (2), Netherlands (2), Australia (1), Belgium (1), Finland (1), France (1), Portugal (1), Hungary (1)



ERC grants since 2007

Top 20 host countries,
listed 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/library/publications/the-world-factbook/

	Country	Residents	Approved projects	Grants (per million res.)
1	Switzerland	8,403,994	735	87.46
2	Israel	8,675,475	581	66.97
3	Netherlands	17,280,397	933	53.99
4	Denmark	5,869,410	215	36.63
5	Sweden	10,202,491	358	35.09
6	Finland	5,571,665	188	33.74
7	UK	65,761,117	2,133	32.44
8	Belgium	11,720,716	371	31.65
9	Austria	8,859,449	280	31.60
10	Ireland	5,176,569	122	23.57
11	Norway	5,467,439	115	21.03
12	Germany	80,159,662	1,547	19.30
13	France	67,848,156	1,246	18.36
14	Luxembourg	628,381	11	17.51
15	Iceland	350,734	5	14.26
16	Cyprus	1,266,676	17	13.42
17	Spain	50,015,792	624	12.48
18	Portugal	10,302,674	107	10.39
19	Italy	62,402,659	581	9.31
20	Estonia	1,228,624	11	8.95

Bibliometric data 2009–2018

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

*) Sources: Population data: United Nations Statistics Division; Publications and citations: Scimago Journal & Country Rank; 2009-2018; 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
* *) Special Administrative Region of the People's Republic of China

	Country	Publications	Citations	Residents (in thousands)	Publications (per 1,000 res.)	**Citations (per 1,000 res.)**
1	**Iceland**	14,906	314,507	348	42.8	903.8
2	**Switzerland**	425,244	7,606,517	8,545	49.8	890.2
3	**Denmark**	243,288	4,081,832	5,781	42.1	706.1
4	**Sweden**	373,345	5,819,378	10,230	36.5	568.9
5	**Netherlands**	568,354	9,795,460	17,328	32.8	565.3
6	**Singapore**	191,652	3,021,622	5,639	34.0	535.8
7	**Norway**	199,750	2,731,684	5,296	37.7	515.8
8	**Finland**	190,150	2,714,441	5,513	34.5	492.4
9	**Australia**	875,134	11,564,432	24,993	35.0	462.7
10	**Belgium**	315,013	4,895,381	11,399	27.6	429.5
11	**UK**	1,927,836	26,356,861	66,274	29.1	397.7
12	**Ireland**	134,890	1,924,698	4,922	27.4	391.0
13	**Canada**	1,011,078	14,160,584	37,059	27.3	382.1
14	**New Zealand**	146,135	1,846,370	4,917	29.7	375.5
15	**Austria**	234,627	3,255,772	8,822	26.6	369.1
16	**Luxembourg**	16,771	208,249	614	27.3	339.2
17	**Israel**	199,997	2,816,283	8,884	22.5	317.0
18	**Hong Kong****	169,347	2,374,782	7,524	22.5	315.6
19	**Estonia**	27,757	390,783	1,325	20.9	294.9
20	**Slovenia**	59,581	601,838	2,067	28.8	291.2

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

Vienna, May 2020

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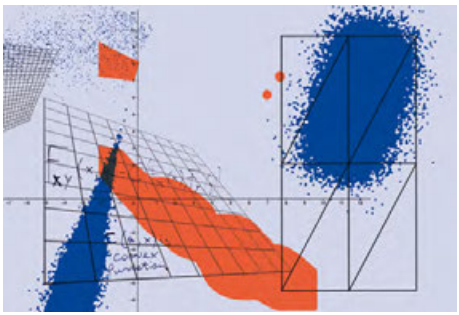
of the Research and Technology Funding Act (FTFG)

Natalie Nitsch

ÖAW – Austrian Academy of Sciences,
Institute of Demography

Early fertility desires and later union formations

We know little so far about whether early fertility desires also have an influence on later union formations. The relevant literature on the subject argues that both union formations as well as the birth of the first child are guided by the same preferences and have a strong influence on each other. In this project, Natalie Nitsche explores whether early preferences in terms of children have an influence on whether and when unions are formed later in life.

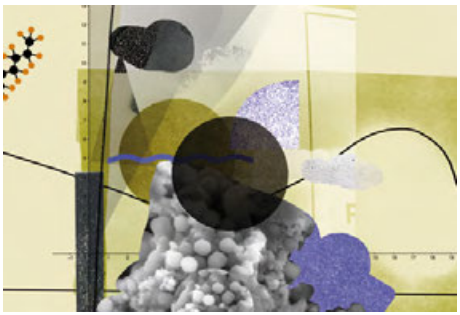


Elisa Perrone

MIT – Massachusetts Institute of Technology,
Institute for Data, Systems, and Society

Geometry of discrete copulas for weather forecasting

Copula functions are a flexible tool for describing the behaviour of dependencies between random variables and are thus largely employed in applied statistics. In this Schrödinger project, Elisa Perrone defines the geometry of multivariate discrete copulas (MDCs) and develops new methods for weather forecasting.



Melanie Maria Kah

BOKU – University of Natural Resources
and Life Sciences, Vienna, Interuniversity
Department of Agrobiotechnology, IFA Tulln

Environmental fate of nanopesticides

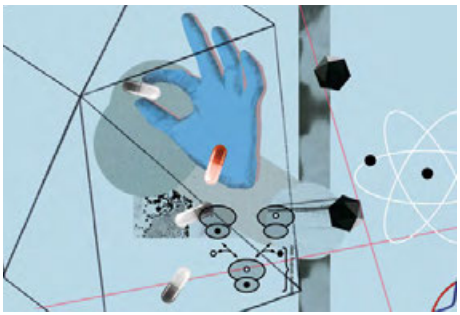
Agriculture urgently needs innovations to meet the growing demand for food, feed, and fuels. Large quantities of pesticides are currently used to maintain high crop yields with devastating consequences for the environment. In this project, Melanie Maria Kah develops a better understanding of the processes that influence the environmental fate of nanoparticles. In this way, she contributes to establishing a global basis for harmonising the ecological risk assessment of nanopesticides.

Gesche Westphal-Fitch

Medical University of Graz,
Department of Neurology

Visual patterns and how the brain processes them

This project is based on the observation that visual geometric patterns are present in all human societies. Gesche Westphal-Fitsch's project is guided by the hypothesis that the study of visual patterns offers profound insights into the structures and functions of human understanding.

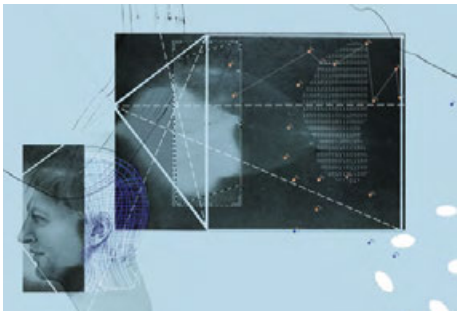


Tobias Bollenbach

University of Cologne,
Institute of Theoretical Physics

The underlying mechanisms of drug interactions

This project investigates the mechanisms of antibiotic interactions. Tobias Bollenbach is conducting research into the genetic factors and functions that control drug interactions by identifying mutants in antibiotic combinations. Overall, this will offer a new approach for the rational design of drug combinations.



Cezary Kaliszyk

University of Innsbruck,
Department of Computer Science

Interactive proof: Proof translation, premise selection, rewriting

Formal proof development is becoming a more and more accepted means of identifying errors in computer programmes and mathematical theories. In this project, Cezary Kaliszyk develops techniques for using automated approaches in interactive proof systems. This allows for the computer verification of the mechanical construction of proofs.

Daria Siekhaus

IST Austria – Institute of Science
and Technology Austria

Drosophila TNFa's function in immune cells

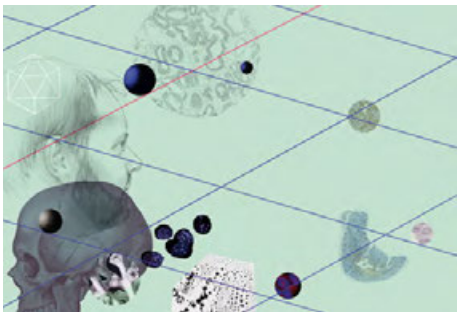
In this project, Daria Siekhaus studies fruit flies (Drosophila) to show that a certain type of immune cell called a macrophage can penetrate tissue barriers more easily if the barrier cells receive a signal that reduces the tension inside them. The cell signalling protein, or cytokine, sent out is a tumour necrosis factor (TNF). Since TNF signalling molecules also play an important role in vertebrates, the potential significance of these results extends far beyond fruit flies.

Walter Gössler

University of Graz,
Institute of Chemistry

Arsenic hyperaccumulation in mushrooms

Arsenic hyperaccumulation in mushrooms plays an important role in the distribution and transformation of chemical elements in nature. Different types of mushrooms have been shown to have the ability to accumulate certain elements. In this project, Walter Gössler significantly expands our knowledge of arsenic speciation in mushrooms. This study helps us to better understand the arsenic cycle in mushrooms and the role this element plays in their symbiotic relationship with plants.



Frédéric R. Santer

Medical University of Innsbruck,
Department of Urology

Tumour-initiating cells and therapy resistance

Prostate cancer is one of the most common tumour diseases in the Western world. If the tumour is detected at an early stage, the chances of recovery are high. In this project, Frédéric R. Santer identifies several molecular mechanisms which regulate stem-cell characteristics. These mechanisms are good starting points for the development of new prostate cancer therapies.

Irene Mittermann

Medical University of Vienna,
Centre for Pathophysiology, Infectiology, and Immunology

Towards new forms of safe immunotherapy for insect allergy

The most severe and life-threatening allergic reaction of the immediate type is anaphylactic shock. Honeybee and wasp venom allergy is the most common cause in adults and the second most common cause in children after food-related anaphylaxis. In this project, Irene Mittermann identifies and characterises the allergenic components of the venom so that a safe immunotherapy can be developed using a precisely defined vaccine with significantly reduced side effects.

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