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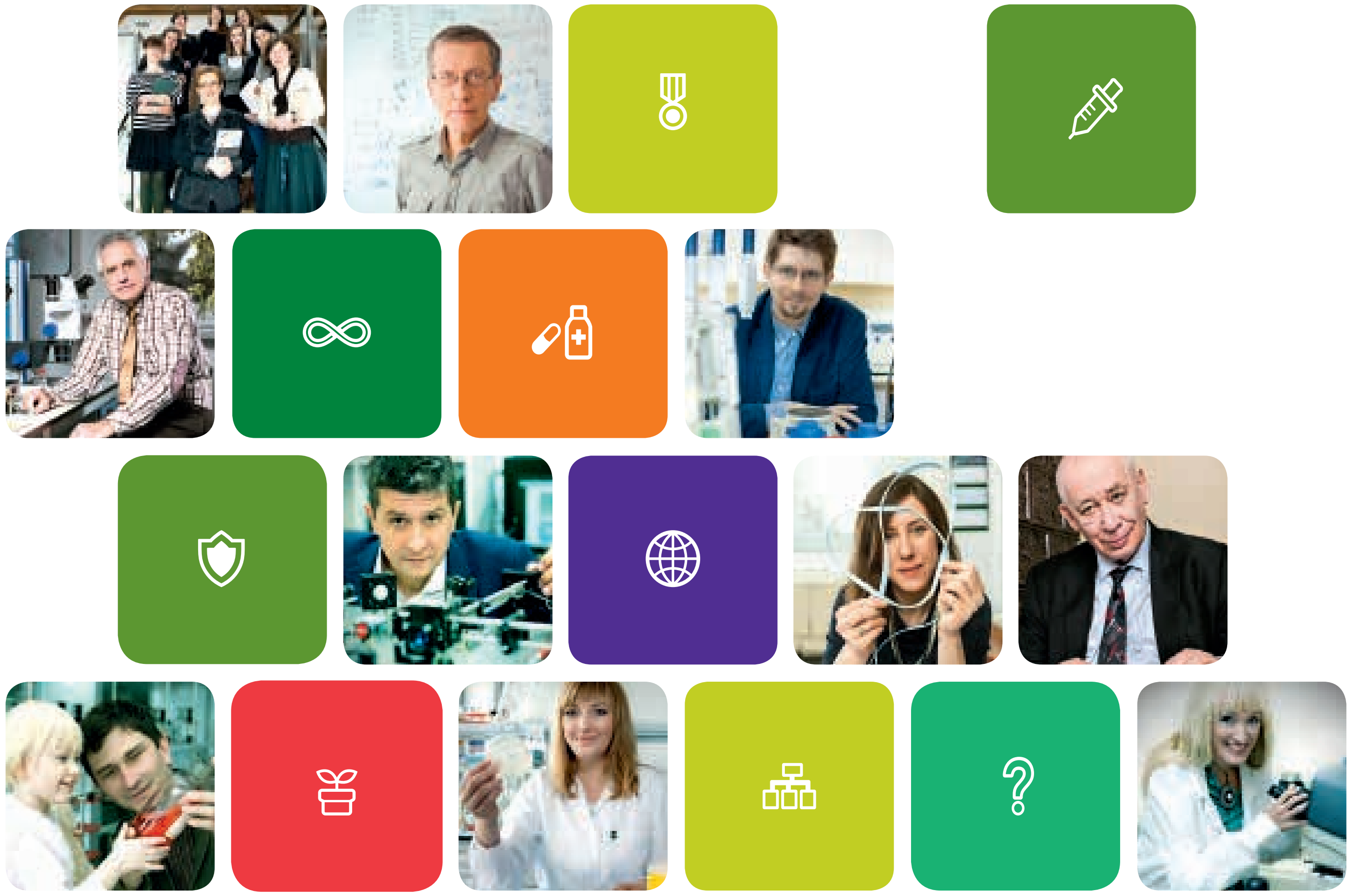

FNP
Foundation
for Polish Science

Foundation for Polish Science Annual Report 2013

Supporting only the best, so that they can become even better.

www.fnp.org.pl

Foundation for Polish Science Annual Report 2013

The programmes WELCOME, International PhD Projects (MPD), TEAM, VENTURES, PARENT-BRIDGE, and HOMING PLUS are co-financed from the European Regional Development Fund within the Innovative Economy Operational Programme.

INNOVATIVE ECONOMY
NATIONAL COHESION STRATEGY

FNP Foundation for Polish Science

EUROPEAN UNION
EUROPEAN SOCIAL FUND

The SKILLS project is co-financed from the European Social Fund within the Human Capital Operational Programme.

HUMAN CAPITAL
NATIONAL COHESION STRATEGY

FNP Foundation for Polish Science

EUROPEAN UNION
EUROPEAN SOCIAL FUND

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Supporting only the best, so that they can become even better

The **Foundation for Polish Science** (FNP) has been active since 1991. It is a non-governmental, apolitical, non-profit organization with a mission to support science. It is the largest Polish non-governmental source of funding for research.

THE FOUNDATION CARRIES OUT ITS STATUTORY TASKS BY:

- supporting leading scientists and research teams,
- modernizing research facilities in all fields of science,
- assisting innovative projects and the commercialisation of scientific discoveries and inventions.

THE FOUNDATION OPERATES IN ACCORDANCE WITH ITS GUIDING MOTTO: SUPPORTING ONLY THE BEST, SO THAT THEY CAN BECOME EVEN BETTER AS WELL AS THE FOLLOWING PRINCIPLES:

- support is provided directly to scientists and research teams,
- all grants, prizes and stipends are awarded by way of a competition,
- the leading criterion in awarding support is scientific excellence,
- the achievements and output of FNP competition entrants is evaluated by scientists respected in their fields – both Polish and international (peer review method),
- support is provided according to the „hard money" principle (high selectivity when choosing recipients).

The Foundation's founding capital of 95 million zlotys originated from the Central Fund for the Development of Science and Technology, which was liquidated in 1990, whereupon the capital was directed to the FNP by a decision of the Polish parliament. For more than 20 years, these funds were effectively increased by way of investment, for example in bonds, investment fund units and shares, allowing the Foundation to create a stable and secure financial base. Thanks to the funds raised from financial market operations, the Foundation had allocated a total of more than **445 million zlotys** to science by the end of 2013. The value of the Foundation's funds is currently more than 340 million zlotys.

In 2003-2004, the Foundation received extra funding for supporting science on the basis of the privatisation law of 29 March 2000, "On amendments to the law on the privatisation of enterprises...". The law stated that 2% of the revenue obtained from privatising State Treasury companies was to be added to the Foundation's assets. The resulting amount of 51.7 million zlotys was used to form a separate fund earmarked solely for financing stipends for young scientists (START programme). In 2007, the Foundation received supplementary funding for its POWROTY/HOMING programme from the European Economic Area Financial Mechanism. In 2008 it launched programmes financed by the structural funds available under Measure 1.2 "Strengthening the human resources potential of science" of the Innovative Economy Operational Programme. As a beneficiary of the IE OP's key programmes, the FNP will receive **421 million zlotys** (this funding is being spent in 2008-2015). In addition, thanks to funding from the Human Capital Operational Programme (Measure 4.2 "Development of R&D system staff qualifications and improving the awareness of the role of science in economic growth"), the Foundation launched the SKILLS project in 2011 and will receive **36 million zlotys** for its implementation in 2010-2015.

By the end of 2013, the Foundation had spent over **330 million zlotys** on programmes supported by European funds (IE OP and HC OP).

Since 2005, the Foundation has held the status of a public benefit organization, which entitles it, among other things, to accept donations from private individuals of 1% of their personal income tax for its statutory activity. The funds obtained from such donations are directed towards supplementing the stipends for beneficiaries of the competitions for young scientists – in 2006-2009, these were stipends for scientists returning from abroad (POWROTY/HOMING programme), and from 2010 – stipends for the most outstanding beneficiaries in the START programme's competition.

In order to ensure that its activities remain transparent, the Foundation publishes extensive information on its activity in the form of Annual Reports and hires renowned auditing companies to have its financial statements audited. The Annual Reports are available on the Foundation's website.

AUTHORITIES OF THE FOUNDATION FOR POLISH SCIENCE

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Prof. Maciej Żylicz, PhD habil.

DEPUTY PRESIDENT
Prof. Włodzimierz Bolecki, PhD habil.

DEPUTY PRESIDENT
Tomasz S. Perkowski, PhD

The FNP's Executive Board (from left): Prof. W. Bolecki, T.S. Perkowski, PhD, Prof. M. Żylicz.

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(term of office from 1 September 2012 to 31 August 2016)

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Prof. Irena E. Kotowska, PhD habil.

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Prof. Henryk Koroniak, PhD habil.
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Prof. Karol I. Wysokiński, PhD habil.

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Prof. Maciej W. Grabski, PhD habil. eng.

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status on 31 December 2013

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Grażyna Żebrowska, PhD (contacts with U.S. institutions)

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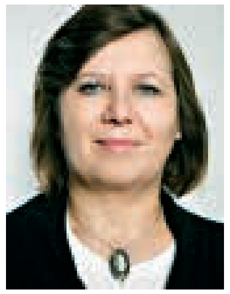
HUMAN RESOURCES
Joanna Antas

The FNP Staff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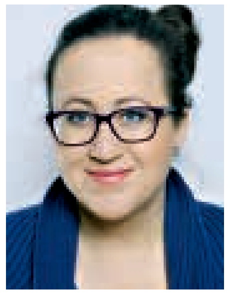
Aneta Antolak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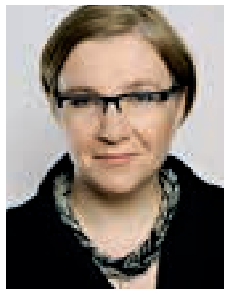
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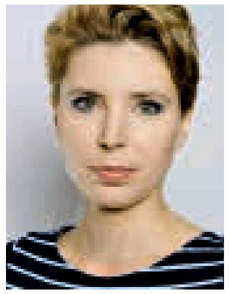
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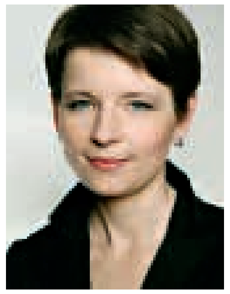
Hubert Choma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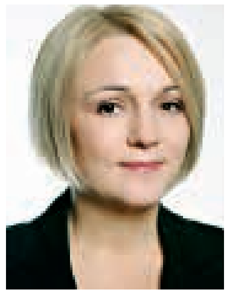
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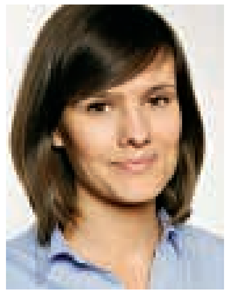
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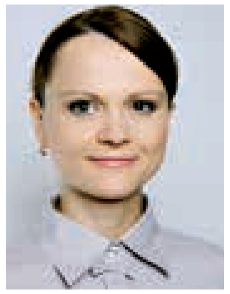
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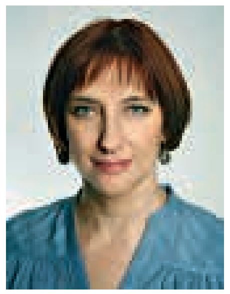
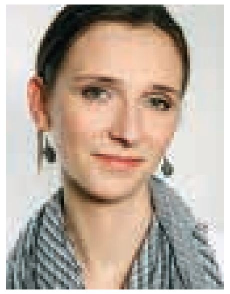

Marta Łazarowicz-Kowalik


Marcin Marcinków


Elżbieta Marczuk


Marta Michalska-Bugajska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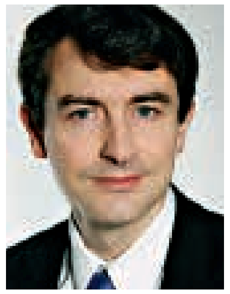
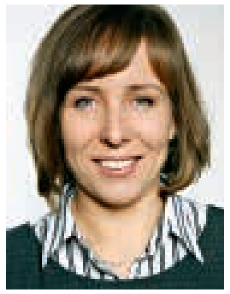

Michał Pietras


Tomasz Poprawka, PhD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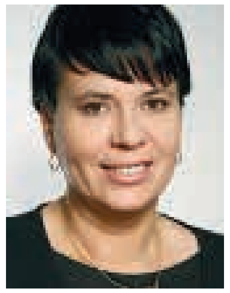
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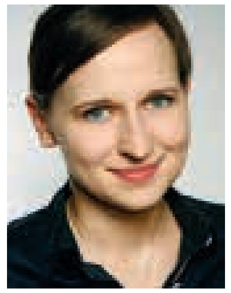
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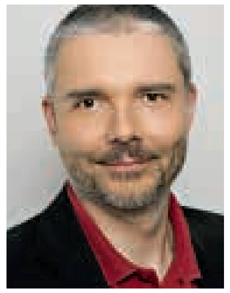
Magdalena Sordyl


Małgorzata Świtalska-Bury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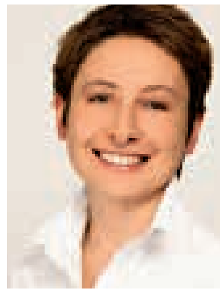
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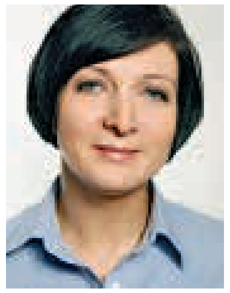
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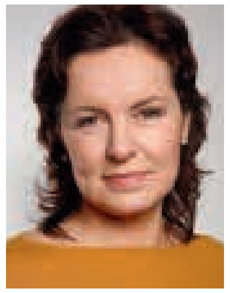
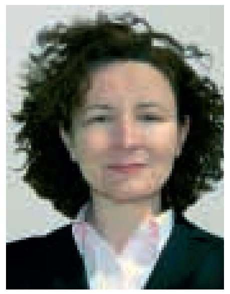

Małgorzata Zawłocka


Adam Zieliński


Julia Zimmermann


Grażyna Żebrowska, PhD

Letter from the Chairman of the Foundation's Council

Dear Readers,
In 2013, similarly to previous years, the Council of the Foundation for Polish Science fulfilled its statutory tasks in close cooperation with the Board. The Council was kept up to date on the Board's day-to-day work and on its plans for the Foundation's near and more distant future. Five joint meetings of the Council and Board were held last year, and the two bodies shared their opinions and discussed current matters via electronic communication.

Next to regular and priority areas of the Council's activity, such as monitoring the standards and quality of procedures in the Foundation's work and choosing candidates for the FNP Prize, we devoted an especially large amount of time to considering long-term strategies enabling us to maintain the Foundation's position and role in Poland's scientific landscape in the time horizon of ten years and beyond. We are fully aware that the Foundation operates in highly dynamic conditions and faces serious challenges. On the one hand, we are witnessing improvement (though not as rapid as we would wish) in the financial conditions in which science operates, the tangible proof being the overall positive effects of establishing independent grant-awarding agencies, primarily the National Science Centre. On the other hand, however, we can still feel the strongly negative impact of ossified and inflexible policies pursued in recruiting and selecting research staff. This last problem involves deep historical, social and psychological factors and therefore is much more serious than a shortage of funding. Insofar as the Foundation can be proud to have played the role of a signpost and model for other institutions in terms of defining and achieving research financing goals and introducing transparent procedures for distributing funds for research, our achievements in reforming staffing policies have been and still are negligible. This is one of the reasons why we spent the last year thinking about whether the Foundation couldn't play a much more serious role in this aspect. We feel that the greatest opportunity lies in the wise use of funds and instruments at our disposal as a member state of the European Union. Compared to extensively developed state agencies like ministries and committees, the Foundation is a small organization. However, it has some invaluable assets: it is independent, flexible and exceptionally efficient. Huge agencies employing lots of people are like gigantic seagoing container ships which need many hours and miles to change course even slightly. Compared to them, the Foundation is like a small motorboat that can do an about-turn in an instant. This flexibility makes it easier to notice new possibilities as they emerge and adapt speedily to changing circumstances. The system for distributing EU funds earmarked for organizing and financing scientific research on our continent is that kind of environment: rich in possibilities but requiring prompt and effective action. As the Foundation's Council, we have no doubts that the FNP can and should be more widely involved in this area.

Compared to extensively developed state agencies like ministries and committees, the Foundation is a small organization. However, it has some invaluable assets: it is independent, flexible and exceptionally efficient.

In 2013, as in previous years, we continued to carefully observe the procedure of selecting candidates for the FNP Prize and how their achievements were evaluated. The Foundation Council consistently attaches great importance to this prize and its role in the Polish scientific community. Since no procedure is perfect, also in this case we held numerous discussions and considered new options that would ensure even better quality and effectiveness for the selection process and guarantee that the Prize's prestige was maintained.

Last year we also devoted a lot of attention to the Board's extremely valuable efforts, which have been continuing for many years, aimed at founding a Polish Studies Chair at Columbia University in New York. It gave us great satisfaction to see the ultimate success of this ambitious and extremely difficult project.

In summary, I consider last year to have been a success in terms of fulfilling our statutory tasks, and an important year for the crystallization of a vision for the Foundation in future. On behalf of the Council, I would like to thank the Board and all of the Foundation staff for our exemplary and harmonious collaboration.

Andrzej Jerzmanowski

Warsaw, May 2014

Letter from the President of the Board

Dear Readers,
At the Foundation, 2013 was yet another year of intensive work for the benefit of the scientific community in Poland. We implemented 21 programmes (including 12 for which we announced new calls for applications), to which we transferred over 108 million zlotys, including more than 91 million zlotys from structural funds.

In view of the approaching deadline for financial accounting of projects carried out in the 2007-2013 structural fund financial perspective (the end of 2015), last year was the final year in which we announced new calls for applications in our programmes financed from this source. That is why we can attempt a preliminary summary of how we utilized the money entrusted to the Foundation. We are implementing six programmes thanks to structural funds: TEAM, WELCOME, International PhD Projects (MPD), PARENT/BRIDGE, HOMING PLUS and VENTURES. The main and common goal of these programmes was to create the best possible work conditions in Poland for the most talented young researchers from Poland and other countries, by enabling them to take part in scientific research of the highest standard. This was a response to what we consider to be one of the most important challenges that science in Poland faces today, namely increasing the country's attractiveness as a place for carrying out research. What did we definitely manage to achieve? Since 2008 we have financed 388 research projects carried out by leading scientists selected in competitions (14 per cent of those applying for funding). Under the programmes listed above, stipends were awarded to 755 graduate students (including 13 from abroad) employed in the beneficiaries' projects, 853 PhD students (including 104 without a Polish passport) and 222 postdoctoral fellows (including 31 from abroad). We enabled our beneficiaries to begin or continue scientific cooperation with almost 1,150 of the world's best research centres. In the TEAM programme, 73 new research teams were formed (and existing ones could develop).

I would like to highlight the special character of this last programme. Developing the principles, we decided against an age limit for the research leaders entering the competition. We did not introduce any extra formal barriers, either, such as requiring prospective team leaders to have a postdoctoral degree (a PhD was sufficient). Our requirements did include outstanding scientific achievements and an original idea for research. Such an open formula meant that the entrants included experienced researchers who had been leading research teams for years as well as young scientists who wanted to form their first team. How did this experiment end? It turned out that 50 per cent of the leaders of the teams that received funding were under 40. We see this as an important signal and also a success of the TEAM programme.

In the HOMING PLUS programme, whose last call for applications was at the turn of 2013/2014 (and whose summary you will find in the supplement to our Report, p. 64), 132 young PhDs decided to come to Poland (including 126 of Polish descent and 6 foreigners) and conduct their research here for at least two years. These proportions give reason to wonder whether the system for financing and conducting research in Poland is becoming more friendly to people from other countries. I think we still have a lot to do in this respect. In connection with the mid-term evaluation of our programmes, I had the opportunity to speak to many young people who came from abroad to conduct research in Poland. Besides the language barrier (especially in contacts with the administration of the institutions where they worked) and inconveniences of daily life that do not just affect foreigners (like renting a home, finding a job for a spouse or a place for children in kindergarten), my interlocutors often observed that our community was struggling with a fundamental limitation: the lack of a culture of quality. Unfortunately my thoughts are similar – the tradition of promoting the best people is waning among scientists. All of us who function in the system of science see examples of this. I think a few are worth citing.

If we look closer at the work of many faculty or institute councils, we will see that the procedures for postdoctoral or professor promotions lay down such low requirements that almost every candidate is promoted.

In 2013 the Central Commission for Degrees and Titles was inundated with an unprecedented number of applications for the title of professor. Why such a sudden increase? Some faculty and institute councils decided to promote their own professors en masse because the new law about to come into force was more restrictive and laid down tougher requirements. Does this testify to concern for quality, for promoting the best?

Another issue: the pay raises that are being introduced at universities starting in 2013. Statistically, every university teacher should get a raise of some 9 per cent. Meanwhile, we hear from many universities that researchers who obtained grants from the National Science Centre (NCN), the National Centre for Research and Development (NCBR) or the FNP got a lower raise, the argument being that they had extra income from the grants anyway. Is this any way to motivate the best researchers to work well?

I think that we as the scientific community need to make an honest examination of conscience and think about the reasons for this state of affairs.

In my view, the problem lies in the fact that in many circles (though luckily there are exceptions) any earnest scientific discussion is on the wane. Sometimes promotions are obtained thanks to "friendly" reviews, there is a lack of honest evaluation of individual researchers' scientific achievements. Such a system results in the promotion of average people. Often they are the ones who become members of faculty and institute councils. Thanks to being in the majority they can win any vote. Will people who do not work effectively but have "successful careers" anyway, promote the best people who remain in the minority?

A good university or scientific institute needs a hierarchy built on genuine scientific achievement and not on a pseudo-democracy operating at the level of scientific councils, faculty councils or senates. Unfortunately in many cases the self-government of universities and scientific institutes has shifted towards a dictatorship of average people. It is they, unwilling (or unable) to take responsibility for their decisions, who hide behind what is often a mutually contradictory tangle of in-house regulations restricting the freedom to practise science. For the same reason, the system for evaluating the scientific achievements of individual researchers or small research teams has been dominated by quantitative and not qualitative criteria (the number of published research papers counts and not the quality; also, the status of the journals in which they are published instead of the original character of the publication itself). The parametric evaluation system, which works well for large research units, is being applied to the evaluation of individual researchers, which is a methodological error.

A good university or scientific institute needs a hierarchy built on genuine scientific achievement.

Can we, therefore, get out of this vicious circle of absurdities in which scientists find it more "profitable" to multiply works that contribute nothing to science and which no one reads than to produce original scientific works that could win genuine appreciation from the scientific community? I am convinced we can! Since the Foundation's inception its motto has been "supporting only the best, so that they can become even better". Under the programmes financed from its own resources the Foundation promotes the best by awarding the FNP Prize (in 2013 the recipients were professors Andrzej K. Tarkowski, Sylwester Porowski, Marek Żukowski and Jan Woleński – you can read more about their breakthrough scientific discoveries on p. 56) and through the START programme for the youngest researchers, the Ideas for Poland programme in which we finance stipends for beneficiaries of ERC Starting Grants, and the MISTRZ/MASTER programme.

We have debated for many years in our community whether the "Humboldtian" idea of master-pupil relations is still relevant. Due to the globalization of science, the role of a master has evolved – for example, masters are no longer required to know everything, but their role in shaping the new generation of researchers remains unchanged. This is why in the MISTRZ/MASTER programme we support scientists who know how to stimulate a sense of freedom among their pupils, who have amazing original observations and the skills to associate facts that are often seemingly unrelated, and who consistently follow a culture of quality in promoting their pupils. In 2013 MISTRZ/MASTER grants went to 19 researchers – beneficiaries of two editions of the programme (2012 – in the field of Mathematics, Physics and Engineering Sciences, and 2013 – in the field of Chemical and Material Sciences). Prof. Brian Kobilka, winner of a Nobel Prize in chemistry, was a special guest of the official ceremony at which the MISTRZ/MASTER grants were presented and delivered a lecture to the participants.

At the Foundation we also take care to promote scientific excellence in all fields of science. In the humanities and social sciences we have worked for many years to reward the best scholars through the FNP MONOGRAPHS programme. This prestigious publication series was expanded in 2013 to include 11 new titles. Most of them are based on the writers' doctoral dissertations. It is worth mentioning that of the 165 writers of the books published so far, as many as 107 were young PhDs, 17 held postdoctoral degrees and 41 were professors.

In 2013 the Foundation continued its contribution to the discussion on the programmes that should be made available in Poland in the new structural fund financial perspective for 2014-2020. Thanks to cooperation with the Ministry of Science and Higher Education, the Ministry of Infrastructure and Development (previously: Regional Development) and the National Centre for Research and Development, the concept of the Intelligent Development Operational Programme includes the Foundation's proposals, such as the idea of establishing 3-5 International Research Institutions in Poland (new structures capable of competing on the international research market), "virtual institutes" (formed with the participation of the best existing teams – I repeat, teams, not institutions – that will carry out research programmes in areas of key importance for Poland's economic development) and improving the offer of the TEAM and HOMING PLUS programmes and expanding them to include "proof of concept" projects. Among other things, this last improvement extends the group eligible to apply in these programmes (research projects can be carried out not only at research units but also at businesses working on new, innovative technologies or at newly established innovative companies).

In December 2013, under the EU's Horizon 2020 Framework Programme, a competition was announced for Teaming of Excellence projects, based on the same principles as the FNP's proposed concept of International Research Agendas. We would like added value in financing science under the new EU financial perspective to come, among other things, from supplementing the programmes under Horizon 2020 with support from structural funds. I hope the Foundation will be able to take part actively in this process. In our effort to obtain new funds we are always guided by the principle that they should be used to support institutional development only at units which guarantee a high organizational culture as well as recruitment rules and management quality enabling a growing number of the best researchers from all over the world to be persuaded to work in Poland.

In conclusion, I would like to extend heartfelt thanks to the Foundation's donors. In 2013 the Foundation received a donation from Tamara Kołakowska, PhD, to fund the Leszek Kołakowski Honorary Fellowship which – by way of an international competition – will be awarded once every two years to young historians of philosophy. I would also like to thank everyone else who decided to support the Foundation financially in 2013. The bank account for the 1% tax contributions and donations for the FNP received over 61,000 zlotys last year. All of this money has been earmarked for increasing the stipends of the best beneficiaries in the START programme. Thank you for believing, like we do, that supporting young talent is the best investment in the future of Polish science.

Maciej Żylicz

Warsaw, April 2014

Programmes of the Foundation for Polish Science

PROGRAMMES OF THE FOUNDATION

In 2013 the Foundation implemented 21 programmes, including 12 in which a competition procedure was conducted. Among the latter, 8 were financed from the FNP's own funds and 4 from the structural funds of the European Union's Innovative Economy and Human Capital Operational Programmes.

Detailed information about the calls for applications and competition results in the individual programmes is presented further on in the Report.

Spending on the programmes in 2013 totalled 108.1 million zlotys.

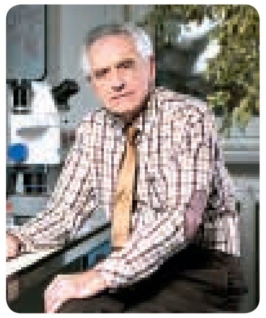
PRIZES AND STIPENDS

FNP PRIZE

Every year the Foundation for Polish Science awards individual prizes to leading scholars for scientific achievements and discoveries that shift the boundaries of cognition, open up new research perspectives, contribute significantly to the advancement of civilization and culture in Poland, and ensure our country a prominent place in world science.

The FNP Prize has been awarded since 1992. In 2013 FNP Prizes were presented for the 22nd time. There have been 80 prize-winners so far. The prize money is 200,000 zlotys.

THE WINNERS OF THE FNP PRIZE IN 2013 ARE:



IN THE FIELD OF LIFE SCIENCES

prof.
ANDRZEJ K. TARKOWSKI
from the Institute of Zoology, Faculty of Biology, University of Warsaw
for discoveries explaining the fundamental mechanisms responsible for the early development of mammalian embryos.

IN THE FIELD OF CHEMICAL AND MATERIALS SCIENCES

prof.
SYLWESTER POROWSKI
from the Institute of High Pressure Physics of the Polish Academy of Sciences
for developing a high -pressure method for producing gallium nitride monocrystals.

IN THE FIELD OF MATEMATHICS, PHYSICS AND ENGINEERING

prof.
MAREK ŻUKOWSKI
from the Faculty of Mathematics, Physics and Informatics, University of Gdańsk
for research on multi-photon entangled states which led to the formulation of information causality as a principle of physics

IN THE FIELD OF HUMANITIES AND SOCIAL SCIENCES

prof.
JAN WOLEŃSKI
professor emeritus of the Institute of Philosophy, Faculty of Philosophy, Jagiellonian University and of the University of Information Technology and Management in Rzeszów
for a comprehensive analysis of the work of the Lvov -Warsaw school and for placing its achievements within the international discourse of contemporary philosophy

Speech by Prof. Lena Kolarska-Bobińska, Minister of Science and Higher Education.

Commemorative photo of the FNP Prize 2013 recipients with Prof. Lena Kolarska-Bobińska (Minister of Science and Higher Education), Donald Tusk (Prime Minister), Prof. Andrzej Jerzmanowski (Chairman of the FNP Council) and Prof. Maciej Żylicz (President of the FNP).

Prof. Andrzej K. Tarkowski with his family.

Prime Minister Donald Tusk took part in the ceremony.

The Grand Hall of the Royal Castle in Warsaw.

Prime Minister Donald Tusk congratulates Prof. Marek Żukowski.

The presentation of the FNP Prizes

THE PRESENTATION OF THE FNP PRIZES TOOK PLACE ON 7 DECEMBER 2013, AS USUAL AT THE ROYAL CASTLE IN WARSAW. TOP STATE OFFICIALS WERE PRESENT: PRIME MINISTER DONALD TUSK AND MINISTER OF SCIENCE AND HIGHER EDUCATION PROF. LENA KOLARSKA-BOBIŃSKA. INVITED GUESTS INCLUDED NUMEROUS REPRESENTATIVES OF THE SCIENCE COMMUNITY AND MEDIA AS WELL AS THE RECIPIENTS' FAMILIES, FRIENDS AND ASSOCIATES.

FNP PRIZES COMPETITION IN 2013

DEADLINE FOR SUBMITTING NOMINATIONS	17 December 2012
NUMBER OF CANDIDATES IN STAGE 1	81
NUMBER OF CANDIDATES IN STAGE 2	17
NUMBER OF REVIEWERS AND EXPERTS	64
TOTAL VALUE OF PRIZES AWARDED:	800,000 ZLOTYS

MISTRZ/MASTER PROGRAMME

ACADEMIC GRANTS FOR PROFESSORS

The aim of the MISTRZ/MASTER programme established in 1998 is to support outstanding scholars by awarding them subsidies composed of a research grant and an individual stipend. These subsidies can be spent on new research or on intensification of on-going research.

The subsidies are awarded in a closed competition, each year in one of four areas: life sciences, chemical and materials sciences, mathematics, physics and engineering sciences, and humanities and social sciences.

BENEFICIARIES OF THE COMPETITION ENDING IN 2013 (chemical and materials sciences)

Beneficiary	Project	Institution
Prof. Grzegorz Chałasiński, PhD habil.	*Expanding the power of DFT: towards quantitative predictions for supramolecular chemistry and organic electronics*	University of Warsaw, Faculty of Chemistry
Piotr Garstecki, PhD habil.	*Microfluidic tools for chemistry, biology and diagnostics*	Institute of Physical Chemistry of the Polish Academy of Sciences in Warsaw
Prof. Ewa Górecka, PhD habil.	*Nematics – are they really simple?*	University of Warsaw, Faculty of Chemistry
Prof. Daniel Gryko, PhD habil.	*The synthesis of polycyclic heterocycles via aromatic dehydrogenative coupling mediated by Lewis and Bronsted acids*	Institute of Organic Chemistry of the Polish Academy of Sciences in Warsaw
Prof. Grzegorz Karczewski, PhD habil.	*Molecular beam epitaxy and physical properties of CdTe/Bi/Pb1-xSnxTe/Bi/CdTe quantum wells*	Institute of Physics of the Polish Academy of Sciences in Warsaw
Prof. Janusz Zbigniew Lewiński, PhD habil. Eng.	*Bottom-up approach to nanoscaled functional materials*	Institute of Physical Chemistry of the Polish Academy of Sciences in Warsaw
Prof. Józef Adam Liwo, PhD habil.	*A unified coarse-grained model of biological macromolecules based on mean-field multipole-multipole interactions with extension to multiscale treatment*	University of Gdańsk, Faculty of Chemistry
Prof. Marek Samoć, PhD habil. Eng.	*Nonlinear nanobiophotonics: femtosecond scale studies of nonlinear optical processes relevant for bioimaging and light activated therapies*	Wrocław University of Technology, Faculty of Chemistry
Prof. Jacek Ulański, PhD habil.	*Multifunctional nanostructured materials for organic electronics*	University of Gdańsk, Faculty of Chemistry

A call for applications in the life sciences was announced in 2013. The results will be announced in autumn 2014.

COMPETITION IN 2013

DEADLINE FOR SUBMITTING NOMINATIONS (STAGE 1 OF THE COMPETITION)	15 January 2013
NUMBER OF NOMINEES	34
DEADLINE FOR NOMINATED CANDIDATES TO SUBMIT APPLICATIONS	5 April 2013
NUMBER OF APPLICATIONS (CANDIDATES CONSIDERED IN THE COMPETITION)	25
NUMBER OF REVIEWERS AND EXPERTS	29
NUMBER OF BENEFICIARIES	9
TOTAL VALUE OF GRANTS:	2.7 MILLION ZLOTYS

SABBATICAL LEAVE FOR BENEFICIARIES OF THE MISTRZ/MASTER PROGRAMME

These outgoing research fellowships are available to beneficiaries of the MISTRZ/MASTER programme. After completing their project financed from the FNP's grant, they may apply for an outgoing research fellowship (sabbatical leave). The fellowships are awarded by way of a competition. Up to three such fellowships may be granted each year. A given person may receive the fellowship only once.

BENEFICIARIES OF THE COMPETITION THAT ENDED IN 2013

Beneficiary	Project	Home institution	Host institution	Duration
Prof. Roman Czaja, PhD habil.	*The history of Baltic cities from the 13th to the beginning of the 16th centuries (urbanization – urban space – society – forms of the organization of urban life)*	Nicolaus Copernicus University in Toruń, Faculty of History	Department of History, University of Hamburg	4 months
Prof. Jerzy Lewandowski, PhD habil.	*Canonical loop quantum gravity*	University of Warsaw, Faculty of Physics	Institute of Quantum Gravity, Friedrich-Alexander University of Erlangen-Nürnberg	6 months
Prof. Alina Nowicka-Jeż, PhD habil.	*Classicising and anti-classicising tendencies in Polish Baroque literature*	Opole University, Faculty of Philology	Department of History, Cultures, Religions of La Sapienza University in Rome	4 months

COMPETITION IN 2013

DEADLINE FOR SUBMITTING APPLICATIONS	14 September 2012
NUMBER OF APPLICATIONS	5
NUMBER OF REVIEWERS AND EXPERTS	6
NUMBER OF BENEFICIARIES	3
TOTAL VALUE OF FELLOWSHIPS AWARDED	THE EQUIVALENT OF 290,000 ZLOTYS

The second call for applications in 2013 yielded 2 applications, one each from beneficiaries from 2007 and 2008. The results will be announced in the first quarter of 2014.

THE PRESENTATION OF MISTRZ/MASTER GRANTS IN 2013 WAS ATTENDED BY BENEFICIARIES FROM 2012 (MATHEMATICAL, PHYSICAL AND ENGINEERING SCIENCES) AND 2013 (CHEMICAL AND MATERIALS SCIENCES). PROF. BRIAN KOBILKA (FRONT ROW, FIFTH FROM RIGHT), WINNER OF A NOBEL PRIZE IN CHEMISTRY, WAS A SPECIAL GUEST OF THE CEREMONY.

IDEAS FOR POLAND PROGRAMME

SUBSIDIES FOR ERC STARTING GRANTS RECIPIENTS

The programme aims to encourage outstanding young researchers from all over the world who receive the prestigious Starting Grants, awarded by the European Research Council (ERC), to carry out the research projects under their ERC grant at a Polish scientific institution. In this programme beneficiaries receive research grants comprising an individual stipend and a research subsidy.

The competition held in 2013 was a continuous one. The Foundation received three applications for subsidies. They were approved based on the opinions of reviewers. The total value of the subsidies was **1,082,000 zlotys**.

BENEFICIARIES OF THE IDEAS FOR POLAND PROGRAMME

Beneficiary	Project financed by the ERC and carried out in Poland	Project location	Subsidy period
Justyna Olko-Bajer, PhD	*Europe and America in contact: a multidisciplinary study of cross-cultural transfer in the New World across time*	Faculty of "Artes Liberales", University of Warsaw	3 years
Andrzej Dziembowski, PhD habil.	*Regulation of gene expression by non-canonical poly(A) and poly(U) polymerases*	Institute of Biochemistry and Biophysics of the Polish Academy of Sciences in Warsaw	3 years
Piotr Sułkowski, PhD	*Quantum fields and knot homologies*	Faculty of Physics, University of Warsaw	3 years

KOLUMB PROGRAMME

POSTDOCTORAL OUTGOING FELLOWSHIPS

Fellowships in the KOLUMB programme are awarded to the best young scholars with PhDs for research visits (from 6 to 12 months) to the world's leading scientific centres.
The final competition in the programme ended in 2012. In 2013, similarly to previous years, beneficiaries of KOLUMB outgoing fellowships could apply once for extra funding to extend their fellowship by a maximum of 3 months (the total duration thus not exceeding 15 months). Based on experts' opinions, the Foundation Board approved five such applications. The funding awarded in 2013 was worth a total of **226,000 zlotys**.

SUPPORT GRANTS FOR FNP OUTGOING FELLOWSHIP BENEFICIARIES

Upon completing their fellowships and returning to Poland, beneficiaries of the KOLUMB programme (up to and including the 2009 edition) may apply for support grants of **40,000 zlotys**. These grants are designed to help beneficiaries use the knowledge and skills acquired during their stay at the world's best scientific centres by supporting them in setting up or modernizing research facilities and enabling them to continue their cooperation with the scientific centres where they stayed.

In 2002-2013 support grants were awarded to 106 beneficiaries.
The competition in 2013 was a continuous one. The Foundation awarded 2 support grants in the total amount of **80,000 zlotys**.

THE RECIPIENTS OF SUPPORT GRANTS IN 2013 WERE:

Beneficiary	Research field	Institution
Łukasz Albrecht, PhD	chemistry	Institute of Organic Chemistry, Łódź University of Technology
Maciej Olszewski, PhD	biology	International Institute of Molecular and Cell Biology in Warsaw

HOMING PLUS PROGRAMME

SUBSIDIES FOR YOUNG SCIENTISTS ENCOURAGING THEM TO UNDERTAKE RESEARCH IN POLAND

The HOMING PLUS programme for the Bio, Info, Techno *categories is co-funded from structural funds under Measure 1.2 "Strengthening the human resources potential of science" as part of the Innovative Economy Operational Programme 2007-2013. Projects in other categories are financed from the Foundation's own funds.*

The aim of the programme is to encourage young Polish scientists staying abroad to return and continue their research in Poland, and also to encourage foreign scientists to complete postdoctoral fellowships in Poland.

Two competitions ended in the programme in 2013: one begun in 2012 (6/2012) and the first of two held in 2013 (7/2013). The Foundation also accepted applications and started the competition procedure for the second edition of 2013 (8/2013).

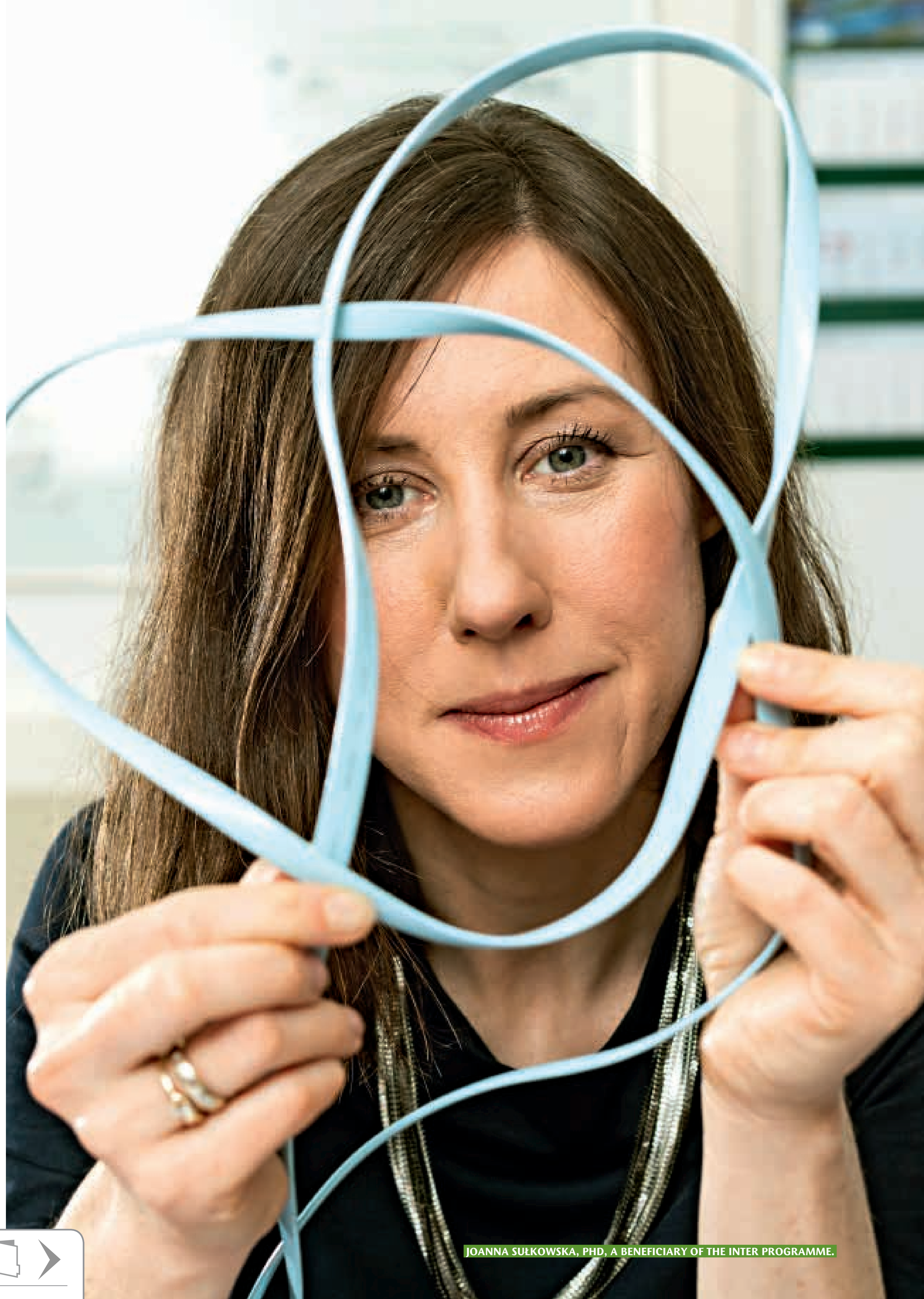
COMPETITION 6/2012

Following the competition, the Foundation selected 16 projects from the *Bio, Info, Techno* categories, which received support in the total amount of **4,657,000 zlotys**, and 3 projects from other fields, which received support in the amount of **749,000 zlotys**. Contracts with all the beneficiaries were signed between May and August 2013.

BENEFICIARIES OF THE HOMING PLUS PROGRAMME (competition 6/2012 – *Bio, Info, Techno* projects)

Beneficiary	Project	Research field	Foreign institution from which the beneficiary has returned	Project location	Amount awarded in zlotys
Łukasz Albrecht, PhD	*New stereocontrolled strategies in asymmetric organocatalysis*	chemistry	Aarhus University (Denmark)	Łódź University of Technology	326,000
Marek Cygan, PhD	*Approximation and parameterized local search algorithms*	mathematics	University of Lugano (Switzerland)	University of Warsaw	310,000

Beneficiary	Project	Research field	Foreign institution from which the beneficiary has returned	Project location	Amount awarded in zlotys
Filip Dutka, PhD	*Trapostat – a microfluidic chemostat for high-throughput screening of cell growth pathways*	physical chemistry	Max Planck Institute for Intelligent Systems (Germany)	Institute of Physical Chemistry of the Polish Academy of Sciences in Warsaw	328,000
James Hooper, PhD	*Atomic-level understanding of electric and magnetic polarization at the organic-metal interface for applications in data storage and spin processing*	chemistry	University at Buffalo, State University of New York (USA)	Jagiellonian University	245,000
Katarzyna Matras-Postołek, PhD	*Novel ZnS(Se) hybrid polymer nanocomposites for optoelectronic applications*	materials chemistry	Münster University of Applied Sciences (Germany)	Cracow University of Technology	318,000
Ksenia Meyza, PhD	*Extracellular matrix factors in the development of autism-like phenotype*	molecular biology	University of Hawaii at Manoa (USA)	Institute of Experimental Biology of the Polish Academy of Sciences in Warsaw	324,000
Piotr Miłoś, PhD	*Analysis of stochastic models*	mathematics	University of Bath (United Kingdom)	University of Warsaw	202,000
Michał Nikodem, PhD	*Developing new technology for sensitive gas sensing and its application to methane monitoring*	engineering	Princeton University (USA)	Wroclaw Research Centre EIT+	298,000
Karol Palka, PhD	*Embeddings and automorphisms of low-dimensional rational varieties*	mathematics	University of Quebec (Canada)	Institute of Mathematics of the Polish Academy of Sciences in Warsaw	320,000
Dario Piano, PhD	*Structural and functional characterization of Photosystem II from Nicotiana tabacum*	biology	University of Cagliari (Italy)	International Institute of Molecular and Cell Biology in Warsaw	326,000
Piotr Pięta, PhD	*Change of nanomechanical properties of phospholipid bilayers in the presence of cholesterol and antimicrobial peptides*	engineering	University of Guelph (Canada)	Institute of Bioorganic Chemistry of the Polish Academy of Sciences in Poznań	316,000
Katarzyna Purzycka, PhD	*How RNA structure governs Ty1 retrotransposition*	biology	National Institutes of Health, National Cancer Institute (USA)	University of Warsaw, Centre of New Technologies	298,000
Piotr Setny, PhD	*Bridging the gap between explicit and implicit solvent models – a novel approach to modelling and systematic analysis of biomolecular hydration*	biophysics	Technical University of Munich (Germany)	University of Warsaw	257,000
Artur Stefankiewicz, PhD	*Multi-stimuli-responsive self-assembled supramolecular nanocapsules*	chemistry	University of Cambridge (United Kingdom)	Institute of Bioorganic Chemistry of the Polish Academy of Sciences in Poznań	324,000
Agata Świątkowska, PhD	*Expression of p53 protein and its N-truncated form, deltaNp53 – towards better understanding the mechanism of p53 IRES-mediated translation process*	biology	University of Edinburgh (United Kingdom)	University of Warsaw	150,000
Monika Wilamowska, PhD	*Silicon oxycarbide (SiOC) as anode materials for lithium ion batteries: synthesis and optimization of ceramics prepared by sol-gel method*	materials chemistry	Technical University of Darmstadt (Germany)	Gdańsk University of Technology	315,000
TOTAL					**4,657,000**



JOANNA SUŁKOWSKA, PHD, A BENEFICIARY OF THE INTER PROGRAMME.

BENEFICIARIES OF THE HOMING PLUS PROGRAMME (COMPETITION 6/2012 – PROJECTS FROM FIELDS OTHER THAN *BIO, INFO, TECHNO*)

Beneficiary	Project	Research field	Foreign institution from which the beneficiary has returned	Project location	Amount awarded in zlotys
Marcin Badziak, PhD	*Implications of the Higgs boson discovery on supersymmetric extensions of the Standard Model*	physics	University of Cambridge (United Kingdom)	University of Warsaw	280,000
Mikołaj Czajkowski, PhD	*Effects of information, experience and uncertainty on preferences – a behavioural economics examination*	economics	University of California (Berkeley, USA)	University of Warsaw	300,000
Grzegorz Pac, PhD	*Images of the Virgin Mary and Ecclesia as female rulers in the context of the religious and political culture of Early Mediaeval Europe*	mediaeval studies	University of Notre Dame (USA)	Adam Mickiewicz University in Poznań	169,000
TOTAL					**749,000**

COMPETITION 6/2012

CALL FOR APPLICATIONS DATE – **14 August 2012**
DEADLINE FOR SUBMITTING APPLICATIONS – **15 October 2012**
NUMBER OF APPLICATIONS – **61**
(including: 50 – *Bio, Info, Techno*; 11 – other fields)
AMOUNT AWARDED (FROM IE OP AND FNP FUNDS) – **5.4 MILLION ZLOTYS**

COMPETITION 7/2013

Following the competition, the Foundation selected 15 projects from the *Bio, Info, Techno* categories, which received support in the total amount of **4,057,000 zlotys**. Contracts with all the beneficiaries were signed between August and November 2013.

BENEFICIARIES OF THE HOMING PLUS PROGRAMME (competition 7/2013 – *Bio, Info, Techno* projects)

Beneficiary	Project	Research field	Foreign institution from which the beneficiary has returned	Project location	Amount awarded in zlotys
Tomasz Antosiewicz, PhD	*Plasmonics for solar energy conversion: understanding efficiency improvements in photovoltaic and photoelectrochemical cells*	physics	Chalmers University of Technology (Sweden)	University of Warsaw	201,000
Alicja Bachmatiuk, PhD Eng.	*Direct synthesis of graphene and 3D-graphene structures over metal oxide supports*	materials engineering	Leibniz Institute for Solid State and Materials Research Dresden (Germany)	Centre of Polymer and Carbon Materials of the Polish Academy of Sciences in Zabrze	300,000
Sylwia Bobis-Wozowicz, PhD	*Stem cell-derived microvesicles as carriers of designer nucleases for genome editing*	biotechnology	University Medical Centre Freiburg (Germany)	Jagiellonian University	284,000
Marcin Dziubiński, PhD	*Strategic resilience of networks*	information technology	University of Cambridge (United Kingdom)	University of Warsaw	228,000
Humberto Fernandes, PhD	*Plant-specific methyltransferase DNA structures*	biology	Imperial College London (United Kingdom)	Institute of Biochemistry and Biophysics of the Polish Academy of Sciences in Warsaw	301,000
Anna Kajetanowic, PhD Eng.	*Transition metal complexes containing quinone moiety as catalysts for oxidation and cross-coupling reactions*	chemistry	University of Basel (Switzerland)	Institute of Organic Chemistry of the Polish Academy of Sciences in Warsaw	258,000
Michał Kawalec, PhD	*pH-Sensitive biodegradable hydrogels based on functional poly(caprolactone)*	chemistry	University of Mons (Belgium)	Centre of Polymer and Carbon Materials of the Polish Academy of Sciences in Zabrze	268,000
Daniel Kikoła, PhD Eng.	*Getting to the bottom of quark-gluon plasma: studies of partonic medium properties with heavy quarks*	physics	Purdue University (USA)	Warsaw University of Technology	275,000
Piotr Kolenderski, PhD	*Single photon sources for quantum applications*	physics	University of Waterloo (Canada)	Nicolaus Copernicus University	297,000
Justyna McIntyre, PhD	*Regulation of human DNA polymerase iota by ubiquitination*	molecular biology	National Institutes of Health (USA)	Institute of Biochemistry and Biophysics of the Polish Academy of Sciences in Warsaw	289,000
Radosław Michalski, PhD	*Mechanistic and kinetic studies on the reactivity of enzymatic and non-enzymatic scavengers of hydroperoxides derived from amino acids, peptides and proteins*	chemistry	Medical College of Wisconsin (USA)	Łódź University of Technology	320,000
Stanisław Andrzej Raczyński, PhD	*Source localisation and navigation using distributed, mobile microphone arrays*	engineering	French National Institute for Research in Computer Science and Control (France)	Gdańsk University of Technology	203,000

Beneficiary	Project	Research field	Foreign institution from which the beneficiary has returned	Project location	Amount awarded in zlotys
Zbigniew Rozynek, PhD	*A new approach to fabricating various colloidal shells and Pickering emulsions*	materials engineering	Norwegian University of Science and Technology (Norway)	Institute of Physical Chemistry of the Polish Academy of Sciences in Warsaw	296,000
Wojciech Solecki, PhD	*Noradrenergic regulation of motivational control*	medicine	Yale University (USA)	Institute of Pharmacology of the Polish Academy of Sciences in Cracow	287,000
Monika Srebro, PhD	*Structure-bonding-property relationships in transition-metal based catalytic and chiral materials: towards rational design of systems with desired properties*	chemistry	University at Buffalo, State University of New York (USA)	Jagiellonian University	250,000
TOTAL					**4,057,000**

COMPETITION 7/2013

CALL FOR APPLICATIONS DATE	15 January 2013
DEADLINE FOR SUBMITTING APPLICATIONS	29 March 2013
NUMBER OF APPLICATIONS	54
AMOUNT AWARDED (FROM IE OP FUNDS)	4.06 MILLION ZLOTYS

COMPETITION 8/2013

CALL FOR APPLICATIONS DATE	14 August 2013
DEADLINE FOR SUBMITTING APPLICATIONS	15 October 2013
NUMBER OF APPLICATIONS	39

The first stage of the merit evaluation continued until the end of 2013. The second stage of the merit evaluation took place in 2014, when the competition was also adjudicated.

ELIZA GŁODKOWSKA-MRÓWKA, MD, A BENEFICIARY OF THE INTER PROGRAMME.

PARENT-BRIDGE PROGRAMME (grants for returnees)

GRANTS FOR PARENTS RETURNING TO RESEARCH AFTER TIME SPENT LOOKING AFTER CHILDREN

The PARENT-BRIDGE programme within the Bio, Info, Techno *categories is co-financed from structural funds under Measure 1.2. "Strengthening the human resources potential in science" as part of the Innovative Economy Operational Programme 2007-2013. Projects in other scientific fields are financed from the Foundation's own funds.*

The programme aims to enable the best scientists bringing up small children to return to intensive research work. Those eligible to apply for funding in the programme are researchers holding at least a doctoral degree who submit their application within four years of giving birth to a child.

Two competitions in the programme ended in 2013: one begun in 2012 (6/2012) and one held and completed in 2013 (7/2013).

COMPETITION 6/2012

Following the competition, the Foundation selected 14 projects from the *Bio, Info, Techno* categories, which received support in the total amount of **4,357,000 zlotys**, and 3 projects from other fields, which received support in the amount of **822,000 zlotys**. Contracts with all the beneficiaries were signed between April and July 2013.

COMPETITION 7/2013

Following the competition, the Foundation selected 15 projects from the *Bio, Info, Techno* categories, which received support in the total amount of **3,968,000 zlotys**. Contracts with all the beneficiaries were signed between August and December 2013.

START PROGRAMME

STIPENDS FOR YOUNG RESEARCHERS

The Foundation has awarded the START stipends since 1993, to young scientists at the start of their career who can already boast achievements in their respective fields. The stipends are a token of recognition for the beneficiaries' achievements so far and provide encouragement for further development. The programme receives some 1,000-1,200 applications every year.

Under the programme's extra option, it is possible to obtain funding for short study visits to foreign research institutes for the purpose of establishing cooperation and learning about the methods of work at such centres, and for seeking out the best place for a postdoctoral fellowship.

The Foundation awarded **127 stipends** in 2013, in the total amount of **3,641,000 zlotys** (including stipends for study visits: 69,000 zlotys). The stipend amount per person in 2013 was **28,000 zlotys**. Following a decision of the Minister of Science and Higher Education, START stipends are exempt from personal income tax.

The Foundation awarded two **special stipends** to beneficiaries with the highest results in the competition.

These stipends went to:
- **Wojciech Fendler, MD**, from the Medical University of Łódź, and
- **Grzegorz Soboń, MSc Eng.**, from the Wrocław University of Technology.

Their stipends were increased to 36,000 zlotys thanks to money the Foundation received from donations of 1% of income tax to public benefit organizations.

GRZEGORZ SOBOŃ, THE START PROGRAMME BENEFICIARY WHOSE STIPEND WAS INCREASED BY THE MONEY THAT THE FNP RECEIVED FROM DONATIONS OF 1% OF INCOME TAX.

Pursuant to an agreement from 2006 and the partnership agreement of 2011 between the Foundation and the Council for the Lindau Nobel Laureate Meetings (Germany), each year START programme beneficiaries selected by the Foundation may participate in these prestigious annual meetings between young scientists from all over the world and Nobel Prize winners.

In 2013, five people from among those suggested by the Foundation took part in the meeting of representatives of chemical sciences:

Szymon Bocian from Nicolaus Copernicus University in Toruń,
Anna Olejniczak from Adam Mickiewicz University in Poznań,
Dawid Pinkowicz from Jagiellonian University in Cracow,
Marek Polański from the Military University of Technology in Warsaw,
Cezary Samojłowicz from the Institute of Organic Chemistry of the Polish Academy of Sciences in Warsaw.

VENTURES PROGRAMME

SUPPORTING INNOVATIVE PROJECTS CARRIED OUT BY YOUNG RESEARCHERS

The aim of the programme is to stimulate pro-business and pro-innovation attitudes among young scientists, get them interested in research work, and increase the attractiveness of a career in science in Poland. It is targeted at students, graduates and PhD students as well as research units conducting research leading up to master's or doctoral dissertations, and at scientific institutions employing university graduates holding master's degrees in research-teaching or research-technical positions.

Two competitions in the VENTURES programme ended in 2013: one begun in 2012 (10/2012) and one held and completed in 2013 (11/2013).

COMPETITION 10/2012

Following the competition, the Foundation selected **6 projects** from among the PhD student applications, which received support in the total amount of **769,000 zlotys**, and **1 project** from among the graduate student applications, which received support of **93,000 zlotys**. Contracts with all the beneficiaries were signed between April and June 2013.

COMPETITION 11/2013

Following the competition, the Foundation selected **9 projects** from among the PhD student applications, which received support in the total amount of **1.17 million zlotys**, and **1 project** from among the graduate student applications, which received support of **53,000 zlotys**. Contracts with all the beneficiaries were signed between July and October 2013.

MAJA KOCHANOWSKA-ŁYŻEŃ, A BENEFICIARY OF THE VENTURES PROGRAMME.

ONGOING PROGRAMMES WITHOUT NEW CALLS FOR APPLICATIONS

TEAM PROGRAMME

FINANCING OF PROJECTS INVOLVING YOUNG SCIENTISTS AND CARRIED OUT BY THE BEST RESEARCH TEAMS

The aim of the programme is to increase the involvement of young scientists in research work conducted by the best teams at the best scientific laboratories in Poland. The TEAM programme supports projects involving graduate students, PhD students and postdoctoral fellows.
In 2013 the Foundation announced no new calls for applications in the TEAM programme. Funding is being provided to a total of **73 projects** selected in 2008-2012, in which over 1,000 beneficiaries had taken part by the end of 2013.

INTERNATIONAL PHD PROJECTS (MPD)

The aim of the programme is to improve the standard of scientific research conducted in Poland by young researchers working on their doctoral dissertations and to intensify the international cooperation of Polish research units.
In 2013 the Foundation announced no new calls for applications in the MPD programme. Funding is being provided to a total of **22 projects** selected in 2008-2010, in which 377 beneficiaries had taken part by the end of 2013 and in which 35 PhD have been obtained so far. The projects last 5-6 years.

WELCOME PROGRAMME

SUPPORT FOR PROJECTS CARRIED OUT BY OUTSTANDING SCIENTISTS FROM OTHER COUNTRIES WHO SET UP RESEARCH TEAMS AT POLISH RESEARCH UNITS

The aim of the programme is to support projects carried out by leading foreign scientists (or Polish scientists returning to Poland from abroad) who set up research teams at Polish research units.
In 2013 the Foundation announced no new calls for applications in the WELCOME programme. Funding is being provided to a total of **11 projects** selected in 2008-2011, in which almost 200 beneficiaries had taken part by the end of 2013. The projects last 4-5 years.

FOCUS PROGRAMME

ESTABLISHING NEW RESEARCH GROUPS

The aim of the programme is to support young researchers with considerable scientific achievements by enabling them to build their own teams. The Foundation's support in this programme aims to help beneficiaries undertake new, original, promising and important directions of research, and also to provide them with extra support in the early stages of building their own research team. Calls for applications in the FOCUS programme were made in 2006-2010.

Before the end of three years of receiving the subsidy, beneficiaries may apply to have it extended for another two years. To be eligible for the extension, a beneficiary has to obtain additional funding from external sources.

In 2013 the Foundation Board, based on experts' opinions, extended the subsidy to six beneficiaries from 2009 and four beneficiaries from 2010. Subsidies worth a total of **2 million zlotys** were awarded in 2013.

INTERNATIONAL COOPERATION

POLISH-GERMAN COPERNICUS SCIENTIFIC AWARD

The COPERNICUS Award is a joint project of the FNP and Deutsche Forschungsgemeinschaft (DFG). The award aims to distinguish the most active participants of Polish-German scientific cooperation, who can demonstrate outstanding research achievements that are the result of such cooperation. The prize is conferred every two years.

The jury of the Copernicus Award includes:

Prof. Bernd Buchner from the Leibniz-Institut für Festkörper- und Werkstoffforschung in Dresden
Grażyna Jurkowlaniec, PhD habil., from the Institute of Art History of the University of Warsaw
Prof. Włodzimierz Krzyżosiak from the Institute of Bioorganic Chemistry of the Polish Academy of Sciences in Poznań
Prof. Maria Mittag from the Institut für Allgemeine Botanik, Friedrich-Schiller-Universitat in Jena
Prof. Mieczysław Mąkosza from the Institute of Organic Chemistry of the Polish Academy of Sciences in Warsaw
Prof. Adam Wolisz from the Institut für Telekommunikationssysteme, Technische Universität in Berlin

Applications in the fifth competition for the Copernicus Award started being accepted in July 2013. Sixteen applications were received, from among which the jury qualified six applications for the next stage. The competition will be adjudicated in the second quarter of 2014.

The official presentation will be held on 10 September 2014 in Berlin.

POLISH-AMERICAN SCIENTIFIC AWARD

In 2013 the FNP and the American Association for the Advancement of Science (AAAS) signed an agreement on establishing the Polish-American Scientific Award. The document was signed on 28 May 2013 in Berlin by Prof. Maciej Żylicz, FNP President, and Dr Alan Leshner, AAAS Chief Executive Officer.

The aim of this award is to consolidate and underline the value of cooperation between scientists from Poland and the United States. The award will be presented biannually, by way of a competition, to leading Polish and American researchers – regardless of their field of research – for exceptional scientific achievements that are the result of cooperation. The award amount that will be granted in 2014 will be the equivalent of **$5,000** for each recipient.

The first call for nominations for the Polish-American Scientific Award was announced in October 2013; the deadline for submitting nominations was 15 December 2013. A total of **52** nominations were received. The results will be announced in the second quarter of 2014.

ALEXANDER VON HUMBOLDT POLISH HONORARY RESEARCH FELLOWSHIP

Alexander von Humboldt Fellowships are the equivalent of the Humboldt-Forschungspreise, a prestigious award which the Humboldt Foundation (Alexander von Humboldt Stiftung) presents to foreign scholars. The aim of the fellowships awarded by the FNP is to give recognition to leading German scientists and their research output and to stimulate long-term cooperation between Polish and German researchers.

In 2013 the Foundation awarded fellowships for which applications had been submitted in 2012. Based on the opinions of reviewers, two beneficiaries were chosen.

BENEFICIARIES OF THE ALEXANDER VON HUMBOLDT POLISH HONORARY RESEARCH FELLOWSHIP

Beneficiary	Home institution	Host institution	Fellowship duration
Stefan Stolte, PhD	University of Bremen, Centre for Environmental Research and Sustainable Technology	Faculty of Chemistry, University of Gdańsk	6 months
Timo Burster, PhD habil.	University Medical Centre Ulm	Institute of Immunology and Experimental Therapy of the Polish Academy of Sciences in Wrocław	6 months

COMPETITION IN 2013

DEADLINE FOR SUBMITTING APPLICATIONS	30 September 2012
NUMBER OF APPLICATIONS	2
NUMBER OF REVIEWERS AND EXPERTS	6
NUMBER OF BENEFICIARIES	2
TOTAL AMOUNT AWARDED:	THE EQUIVALENT OF 200,000 ZLOTYS

In 2013 the Foundation received 12 applications for Alexander von Humboldt Fellowships. The recipients will be chosen in the first quarter of 2014.

PUBLICATIONS

MONOGRAPHS PROGRAMME

In the MONOGRAPHS programme, the Foundation finances the publication of original and as yet unpublished works from the humanities and social sciences, which are chosen in a competition. This competition has continued uninterruptedly since 1994. An average 10-12 new publications are released every year; approximately 10% of candidates receive financing for their books to be published. As of 2011, the series has been published by the Nicolaus Copernicus University Press in Toruń.

In the MONOGRAPHS programme, applicants can also receive funding for translations of works previously published in the FNP Monographs series into one of the congress languages.

The jury in the competition is the Publishing Council comprising:

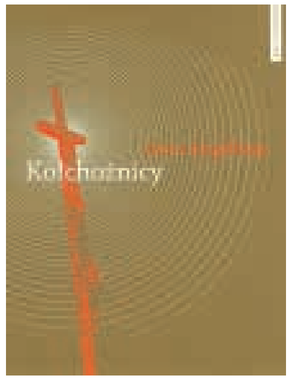
Prof. Marek Ziółkowski (chairman)
Prof. Tomasz Kizwalter
Prof. Janusz Sławiński
Prof. Szymon Wróbel
Prof. Antoni Ziemba

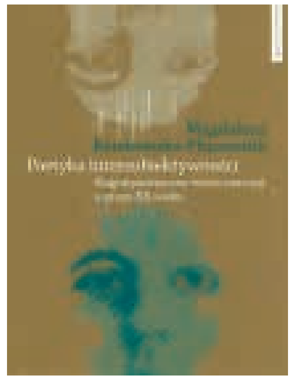
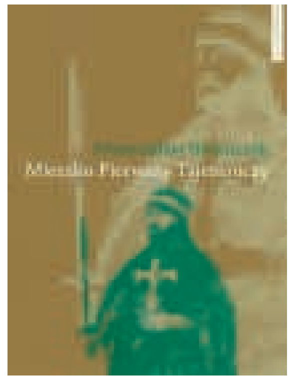
In 2013 the Publishing Council accepted 9 works for publication, while 11 new titles accepted earlier appeared in print. From the programme's launch until the end of 2013, the FNP Monographs series comprised **172 titles**.

BENEFICIARIES OF THE FNP MONOGRAPHS PROGRAMME IN 2013
(authors of works accepted for publication)

Beneficiary	Research field	Institution	Book title
Prof. Edward Balcerzan	literary studies	Adam Mickiewicz University	*Literackość. Modele, gradacje, eksperymenty* [Literary Quality. Models, Gradations, Experiments]
Piotr Feliga, PhD	theology	Cardinal Stefan Wyszyński University	*Czas i ortodoksja. Hermeneutyka teologii w świetle „Prawdy i metody" Hansa-Georga Gadamera* [Time and Orthodoxy. The Hermeneutics of Theology in the Light of Hans-Georg Gadamer's *Truth and Method*]
Marcin Juś, PhD	philosophy	Adam Mickiewicz University	*Spór o redukcjonizm w medycynie. Studium filozoficzne i metodologiczne* [The Dispute over Reductionism in Medicine. A Philosophical and Methodological Study]
Agnieszka Kluba, PhD	literary studies	Institute of Literary Research of the Polish Academy of Sciences in Warsaw	*Poemat prozą w Polsce. Monografia* [The Prose Poem in Poland. A Monograph]

Beneficiary	Research field	Institution	Book title
Paulina Małochleb, PhD	literary studies	Jagiellonian University	*Przepisywanie historii. Powstanie styczniowe w powieści polskiej w perspektywie pamięci* [Re-writing History. The January Uprising in Polish Novels from the Viewpoint of Memory]
Filip Schmidt, PhD	sociology	Adam Mickiewicz University	*Para intymna dawniej i dziś. Współczesne dyskusje nad przemianami intymności w perspektywie historycznej* [Intimate Couples in the Past and Today. Contemporary Discussions on Changes in Intimacy in a Historical Perspective]
Magdalena Śniedziewska, PhD	literary studies	Adam Mickiewicz University	*Siedemnastowieczne malarstwo holenderskie w literaturze polskiej po 1918 roku* [Seventeenth-century Dutch Painting in Polish Literature after 1918]
Sylwia Urbańska, PhD	sociology	University of Warsaw	*Przemiany macierzyństwa w procesie globalnych migracji kobiet* [Changes in Maternity in the Process of Global Migration of Women]
Anna Wylegała, PhD	sociology	Institute of Philosophy and Sociology of the Polish Academy of Sciences in Warsaw	*Przesiedlenia a pamięć. Studium społecznej (nie)pamięci na przykładzie Polski i Ukrainy* [Resettlement and Memory. A Study on Social (Non)memory on the Example of Poland and Ukraine]



FUNDING FOR TRANSLATIONS OF BOOKS AWARDED IN 2013

Beneficiary	Research field	Institution	Book title
Prof. Roman Michałowski	mediaeval history	University of Warsaw	*Zjazd gnieźnieński. Religijne przesłanki powstania arcybiskupstwa gnieźnieńskiego* [The Congress of Gniezno. Religious Premises for the Foundation of the Gniezno Archbishopric]
Łukasz Niesiołowski-Spanó, PhD	ancient history	University of Warsaw	*Dziedzictwo Goliata. Filistyni i Hebrajczycy w czasach biblijnych* [The Legacy of Goliath. Philistines and Hebrews in Biblical Times]

In 2013 the Nicolaus Copernicus University Press in Toruń continued its project of digitizing and publishing the second editions of titles published in the *FNP Monographs* series in previous years and no longer available on the market. By the end of 2013, **23 titles** had appeared in print in the *Res humanae* series. The complete electronic versions of these books are available on the *www.fnp.org.pl/monografie* website in the *Open Access* formula.

PUBLISHING PROJECTS

The aim of the programme is to support publication series that scientifically document Poland's heritage of history and civilization. 2013 saw the continuation of projects that had received subsidies in previous years.

The programme also supports the ***Origines Polonorum*** series (a series of monographic archaeological works written as part of the research programme *Ziemie polskie na przełomie tysiącleci* [Poland at the Turn of the Millennia]).

Volume 6 in the series was published in 2013:

Wolin wczesnośredniowieczny – część 1 [Early Mediaeval Wolin – Part 1], edited by Błażej Stanisławski and Władysław Filipowiak

Two further volumes were in production:
- vol. 7: *Wolin wczesnośredniowieczny – część 2* [Early Mediaeval Wolin – Part 2], edited by Błażej Stanisławski and Władysław Filipowiak
- vol. 8: *Gród i zamek w Międzyrzeczu w wiekach IX–XIV* [The Town and Castle of Międzyrzecz in the 9th-14th Centuries], edited by Stanisław Kurnatowski

Furthermore, as part of the Foundation's publishing initiatives, in 2013 **Magdalena Bajer's *Rody uczone. Kreski do szkicu*** [Learned Families. Lines for a Sketch] appeared in print. It is a record of 67 meetings that the writer had in 1995-2012 with people from families in which practising science is a family tradition. The book offers an outline of a self-portrait of the Polish intelligentsia: it presents portraits of families in which consecutive generations identified themselves with the intelligentsia and academic ethos, shows readers the intellectual inspirations that led people to choose science as their way of life, re-creating the sources of such choices, the evolution of scholars' interests and what they experience in their research work.

OTHER INITIATIVES

SKILLS PROJECT

DEVELOPING THE SKILLS OF THE RESEARCH AND DEVELOPMENT SECTOR'S EMPLOYEES AND PHD STUDENTS IN DIFFERENT ASPECTS OF SCIENCE MANAGEMENT, TECHNOLOGY TRANSFER, SCIENTIFIC COMMUNICATION AND INTERDISCIPLINARY COOPERATION

The SKILLS project is supported with European Union funds from the European Social Fund (Measure 4.2 of the Human Capital Operational Programme: "Development of R&D system staff qualifications and improving the awareness of the role of science in economic growth").

IN 2013 THE SKILLS PROJECT INVOLVED:

SKILLS/TRAINING COURSES

In 2013 the Foundation organized **45 training courses** involving a total of **653 participants**. The topics included: research team management, interdisciplinary cooperation, commercialization of research results (off-site course in Cambridge, UK), enterprise (also including an off-site course, at Wyboston Lakes, Bedfordshire, UK), negotiations, presentation of research results, self-presentation and the art of public speaking, mentoring and writing scientific texts.

SKILLS/MEETINGS INITIATED BY THE PROJECT'S PARTICIPANTS

The aim of the meetings is to present the latest research trends, exchange ideas and experiences as well as integrating the research groups financed by the FNP.

A total of **21 meetings** were held in 2013, involving a total of about **1,150 people**.

The meetings discussed the following issues:
- interdisciplinary cooperation
- scientific communication
- financing scientific research and developing a scientific career
- mentoring in science
- research project management
- popularization of science
- the grant application evaluation process

SKILLS/INTER PROGRAMME – SCIENCE POPULARIZATION CONTEST

The aim of the INTER programme is to promote interdisciplinary research and develop science popularization skills. The participants in this competition present their original interdisciplinary scientific projects in public. The winners receive a prize of **100,000 zlotys** (including 20,000 zlotys of individual support and a subsidy of 80,000 zlotys to carry out the winning research project).

In 2013 the Foundation held the second INTER competition. Applications for funding for an interdisciplinary project were submitted by 31 entrants. Following a merit evaluation, 13 finalists were chosen, and 12 of them took part in self-presentation training. In the second and final stage, which took place on 18 October 2013 at the Zamoyski Palace in Warsaw, the 13 finalists presented their projects to the public and to the competition committee. After the final presentations the committee chose 8 winners, each of whom received **prize money of 100,000 zlotys**.

SKILLS/PROGRAMME OFFICERS ACADEMY (AMP)

The aim of the Academy is to improve grant and stipend programme management skills and to achieve closer cooperation among science managers in Poland. The programme is targeted at employees of the National Centre for Research and Development and the National Science Centre who are directly involved in handling grant and/or stipend programmes.

The following is offered as part of the Academy:
- training courses, seminars and workshops taught by leading experts from Poland and other countries,
- international study visits and traineeships at leading institutions that finance scientific research abroad.

In 2013 the Foundation made the fifth call for applications in the programme, which increased the number of Academy participants to 78.

AMP training courses in 2013 covered the following issues: peer-review, strategic management with elements of project management, public speaking and working with the media, financing of science and higher education in Poland and selected other countries, technology transfer and commercialization of research results, bibliometric methods for the evaluation of scientific work, ethics in science and the innovation ecosystem in Israel.

Study visits in 2013:
- Netherlands: Netherlands Organization for Scientific Research (NWO) – 11 participants
- Belgium: European Research Council (ERC), Science Europe, PolSca – 15 participants
- Switzerland: Swiss National Science Foundation – 8 participants
- Germany: Deutsche Forschungsgemeinschaft (DFG) – 3 participants
- Czech Republic: Deutsche Forschungsgemeinschaft (DFG) – 1 participant (the DFG panel was held in Prague)

Foreign traineeship in 2013:
- United Kingdom, University of Manchester – 1 participant

SKILLS/FNP MENTORING

The aim of this programme is to enable young scientists working in Poland to establish contacts and cooperation with experienced scholars respected in their fields – from Poland or a foreign country. The programme supports one-to-one mentoring aimed at furthering the development of the programme participant's career. Applications for the programme are accepted on a continual basis, with new participants being qualified every quarter. Together, the mentoring pairs develop and then carry out programmes lasting from one to two years and having specific goals important for the mentored person's professional career.

In 2013, 27 participants were accepted for the programme.

All of the above activities in the SKILLS project will be continued in 2014.

THE FINALISTS AND COMMITTEE OF THE INTER COMPETITION IN 2013.

ANNA ORYLSKA'S PRESENTATION DURING THE INTER COMPETITION FINALS.

PROJECT INSPECTIONS

In accordance with the plan of inspections for 2013 approved by the Foundation Board, the Contracts and Control Section conducted 51 inspections in programmes financed from European funds as part of the IE OP.

The inspections encompassed 23 projects carried out by HOMING PLUS programme beneficiaries, 9 projects carried out by PARENT-BRIDGE programme beneficiaries, 8 projects carried out by VENTURES programme beneficiaries, 8 projects carried out by TEAM programme beneficiaries and 3 projects carried out by MPD programme beneficiaries. The inspections were conducted all over the country, wherever the individual projects were being carried out, and did not find any irregularities. Each inspection involved two or three Foundation employees.

THE FOUNDATION'S EVALUATION ACTIVITY

For several years the Foundation has conducted regular evaluations of its programme activity. This serves to analyse the relevance, quality and effects of FNP programmes, thus supporting the process of building the FNP's programme strategy.

In 2013 the Foundation evaluated the FOCUS and MISTRZ/MASTER programmes. The evaluation of the FOCUS programme, besides an analysis of existing data (mainly programme documentation: applications received, project implementation reports, applications for subsidy extensions, reviews), involved a qualitative study. In-depth interviews (IDI) were conducted with most of the programme's beneficiaries.

The aim of the evaluation of the MISTRZ/MASTER programme was to identify the programme's effects to date and its current role. The evaluation included qualitative studies (in-depth interviews with beneficiaries, observation of the panels selecting the programme's beneficiaries) and quantitative ones (bibliometric analysis of the beneficiaries' output and the output of their stipend recipients). A report from the MISTRZ/MASTER programme evaluation was presented to the FNP Council and will be available on the FNP website shortly.

The year 2013 also saw the conclusion of the study on "The Attractiveness of a Research Career to Talented Young Scientists" conducted on a sample of 221 START programme beneficiaries from 2008-2012. Respondents were asked about their current professional and financial situation, further plans, aspirations and fears. The study was similar to a questionnaire from 2002, thanks to which the results could be used to compare the situation and opinions of the beneficiaries over a period of 10 years.

THE FNP'S REVIEWERS AND EXPERTS IN 2013 (POLISH AND INTERNATIONAL)

Gregory Abadias, Benjamin Abecassis, Krzysztof Marek Abramski, Pedro Abreu, Anna Beata Adamczyk, Zbigniew Adamczyk, Marcin Adamiak, Anshu Agrawal, Paulo Aguiar, Hans-Erik Akerlund, Leigh Aldous, Ryszard Amarowicz, Birgitte Andersen, Sofia Andringa, Bolesław Andrzejewski, Leon Andrzejewski, Dominik Antonowicz, Dimitrios Argyropoulos, Enrique Artal Bartolo, Katsura Asano, Dariusz Asendrych, Terry Aspray, Stéphane Audry, Maria Augustyniak, Jan Awrejcewicz, Angelo Azzi, Krzysztof Badyda, Artur Badyda, Stephen Badylak, Maciej Bagiński, Tomasz Bajda, Bogusław Bakuła, Wojciech Bal, Edward Balcerzan, Paul Baldock, Claudia Baldus, Edward Balog, Guido Baltes, Jerzy Bałdyga, Ticijana Ban, Zbigniew Banaszak, Teresa Bandosz, Józef Baniak, Jerzy Bańbura, Ramon Barat, Jan Barciszewski, Teresa Bardzińska-Bonenberg, Grzegorz Bartosz, Grzegorz Bartoszewski, Monika Basiura-Cembala, Nicholas Basta, Zsuzsanna Bata-Csorgo, Michel Baudry, Grzegorz Bazylak, Tomasz Bączek, Tomasz Bergel, Andreas Berger, Nicolas Bernet, Jerry Bernholc, Roberto Bertolani, Piotr Białasiewicz, Mariola Bidzan, Wioletta Biel, Eleonora Bielawska-Batorowicz, Zbigniew Bielecki, Arkadiusz Bieliński, Dariusz Marian Bieliński, Tomasz Bigaj, Piotr Biler, Wiesław Binienda, Marvin Bishop, Jerzy Błażejowski, Jacek Błażewicz, Krzysztof Bobrowski, Jerzy Bobryk, Tomasz Bocheński, Piotr Bojarski, Aneta Borkowska, Andrzej Borkowski, Franciszek Borowiec, Tadeusz Borowiecki, Rodney Borup, Luigi Boschetti, Simon Boulton, Alistair Boxall, Nicolas Bredeche, Georg Breier, Grzegorz H. Bręborowicz, Neil Brockdorff, Witold Brostow, Bogumił Brycki, Jolanta Bryjak, Ewa Bryl, Tomasz Brzozowski, Etienne Bucher, Michał Buchowski, Patrick Bultinck, Sue Burchill, Wojciech Burszta, Marek Bury, Sarah Butcher, Jarosław Byrka, Ximing Cai, Josep Call, Wendy Calvin, Darren Candow, Ward Capoen, Jean Cardinal, Eugenia Carvalho, Jiri Cejka, Grzegorz Cema, Czesław Cempel, Jeff Chamberlain, Gerard Chaouat, Matthew Charette, Mike Cheetham, Jiaping Paul Chen, Ju Tao Chen, Jianhan Chen, Kuan Yew Cheong, Phil Chilibeck, Izabela Anna Chincinska, Teresa Chirkowska-Smolak, Bartosz Chmielowski, Andrzej Chochowski, Janne Winther Christensen, Peter Christiansen, Waldemar Chrostowski, Piotr Chrzan, Zofia Chrzanowska-Lightowlers, Barbara W. Chwirot, Andrzej Chwojnowski, Lech Chyczewski, Andrzej Cichocki, Joanna Cichy, Romana Cielątkowska, Maria Anna Ciemerych Litwinienko, Marek Cieplak, Dorota Cieślak, Andrzej Cieślik, Alejandro Cifuentes, David Clark, Keith Clay, Aled Clayton, Sierd Cloetingh, Lark Coffey, Peter Convey, Louis Rene Corrales, Nieves Corzo, Ciro Costagliola, Gary W. Cox, Terry Cox, Krzysztof Cpałka, David Crowley, Michele Curioni, Michał Cyrański, Przemysław Czapliński, Dariusz Czarkowski, Piotr Czarnocki, Małgorzata Czermińska, Marta Cześnikiewicz-Guzik, Danuta Czępińska-Kamińska, Tomasz Czyszanowski, Andrzej Czyżewski, Bogdan Dabrowski, Armin Dadgar, Ewa Dahlig-Turek, Antonio d'Alessandro, Scott J. Dalgarno, Peter Dalko, Anthony P. Davis, Piotr Dawidowicz, Barbara Dąb-Kalinowska, Roman Dąbrowski, Jacqueline de Belleroche, Gudrun De Boeck, Jose M. De Teresa Nogueras, Mathijs de Weerdt, Asterios Deligiannis, Kostas Demadis, Yang Deng, Philippe Derreumaux, Gautam Desiraju, Mari Dezawa, Nikhil Dhurandhar, Jorge Manuel Miranda Dias, Ulrike Diebold, Benjamin Dietzek, Alexandru Dimca, Ricardo Dinis Oliveira, Richard Dinsdale, Brian Dixon, Roger Dmochowski, Leszek Adam Dobrzański, Agnieszka Dobrzyń, Maria Doligalska, Apostolos Dollas, Ewa Domańska, Urszula Domańska-Żelazna, Jolanta Dorszewska, Józef Drabowicz, Krzysztof Dragan, Goran Drazic, Marcin Drąg, Jarosław Drelich, Judith Driscoll, Adam Drobniak, Marek Drozdzik, Adam Dubin, Józef Dulak, Piotr Durka, Dorota Dworakowska, Jiri Dybal, Grzegorz Dziamski, Leszek Dziawgo, Andrzej Dziedzic, Tomasz Dziedzic, Piotr Dzięgiel, Marek Dziubiński, Joanne Edwards, Javier Erena, Alexander Etkind, Simos Evangelou, Ireneusz Ewiak, Mark A. Exley, Piotr Faliszewski, Wojciech Fałkowski, Fang Fang, Magdalena Fąfrowicz, Michael Feig, Armin Feldhoff, Wojciech Fendler, Wiesław Fiebig, Marek Figlerowicz, Sławomir Filipek, Witold Filipowicz, Elżbieta Firlit, Robin Flynn, Naomi Lynne Forrester, Zygmunt Frajzyngier, Piotr Franaszek, Piotr Francuz, Barbara Fryzeł, Mitsuru Funato, Jacek Furdyna, Virginia Garcia Canas, Piotr Garstecki, Nicholas Gathergood, Romain Gaume, Stanisław Gawiejnowicz, Dariusz Gawin, Wojciech Gawlik, Jacek Gawroński, Leszek Gąsieniec, Zofia Gdaniec, Emilie Genty, Andre Gerber, Ewa Gębicka, Krzysztof Giannopoulos, Tomasz Giaro, Tomasz Giesko, Frédéric Gimbert, Victor Giurgiutiu, Michał A. Glinicki, Ewa Głodek, Marek Główka, Tomasz Goban-Klas, Krzysztof Goczyła, Katalin Goda Kormosné, Paweł Golik, Carlos J. Gomez – Garcia, Marijan Gotić, Teodor Paweł Gotszalk, Michael Gottfried, David Gozal, Katarzyna Górak-Sosnowska, Ewa Górecka, Kazimierz Grabas, Marcin Grabowski, Marek Grad, Tom Gregorkiewicz, Karol Grela, Gert Martin Greuel, Jarosław Grobelny, Adam Grobler, Wojciech Grochala, Maciej Grochowski, Ludger Grote, Łukasz Gruszczyński, Stanisław Gruszczyński, Wiesław Ignacy Gruszecki, Dorota Gryko, Michał Gryziński, Anna Grzybek, Halina Grzymała-Moszczyńska, Daniel Guay, Sebastian Guettler, Pedro Gundel Maciej S. Gutowski, Przemysław Guzik, Viktor Hacker, Marek Haftek, Kurt Hanevik, Laurence Harwood, Bass Hassan, Quazi K. Hassan, Talia Hatzor, Ernst Hauber, Paweł Hawrylak, Maria Hayward, Roman Hejft, Marek Jarosław Henczka, Andrzej Hendrich, Fritz Henn, Javier Hernandez Borges, José Ángel, Hernando Morata, David Hilton, Jane Hodgkinson, Arjen Hoekstra, Christian Holm, Robert Hołyst, Henning Hopf, Maryla Hopfinger, Istvan T. Horvath, Keith Howard, Tadeusz Hryniewicz, Jiaoti Huang, Eagle Yi-Kung Huang, Ted Hupp, Paweł Idziak, Chris Ikonomidou, Xavier Intes, Jun Ishihara, Marianna Jacyna, Peter Jahns, Artur J. Jakimiuk, Dagmara Jakimowicz, Antal Jakli, Maciej Jakubowski, Hieronim Jakubowski, Wojciech Janczukowicz, Jacek Adam Jania, Maciej Jankowski, Marta Janosz-Rajczyk, Andrzej Januszewicz, Wojciech Jarecki, Artur Michał Jarmołowski, Krystian Jażdżewski, Philippe Jeandet, Leo Jeffcott, Mikael Jensen Peter Uhd Jepsen, Tadeusz Jezierski, Bogumił Jeziorski, Elżbieta Jędrych, Wiesław Jędrychowski, Andrzej Jodłowski, Jukka Jolkkonen, Alicja Józkowicz, Krzysztof Jóźwiak, Katarzyna Juda-Rezler, Hannes Jung, Przemysław Juszczyński, Marcin Kaczmarek, Leszek Kalinowski, Roman Kaliszan, Yuri Petrovich Kalmykov, Tadeusz Kałdoński, Elżbieta Kałuszyńska, Maciej Kamaszewski, Marcin Kamiński, Piotr Kamiński, Stanisław Kandefer, Yibin Kang, Tomasz Kapitaniak, Ewa Karwowska, Magdalena Kasprowicz, Włodzimierz Kasprzak, Paweł Kaszycki, Gergely Katona, Andrzej Katrusiak, Akio Katsumata, Małgorzata Kazana, Adam Kaznowski, Kaja Kaźmierska, Adrian Kells, Brendan Kennedy, Krzysztof Kędzior, Aggelos Kiayias, Marcin Kiciński, Reinhard Kienberger, Jerzy Kijowski, Minsung Kim, Tomasz Kizwalter, Marcin Kleban, Artur Klimek, Jacek Klinowski, Andrzej Kloczkowski, Krzysztof Kluszczyński, Waldemar Koczkodaj, Hans Herbert Koegler, Mirosław Kofta, Piotr Kokoszka, Bożena Natalia Kolarz, Zygmunt Szymon Kolenda, Wacław Kołodziejski, Andrzej Komosa, Janusz Kompała, Hanna Konicka, Mirosław Konopiński, Genevieve Konopka, Jerzy Konorski, Bernard Karol Kontny, Eugene Kontorovich, Józef Korecki, Ryszard Korona, Michał Korostyński, Małgorzata Kossut, Jacek Kossut, Jozsef Kota, Jan Kotwica, Jolanta Kowalewska, Cezary Kowalewski, Tomasz Kowalewski, Beata Elżbieta Kowalska, Michał

Kozakiewicz, Slawomir Koziel, Andrzej Kozłowski, Roman Kozłowski, Henryk Kozłowski, Christoph Krafft, Grażyna Krasnowska, Wacław Krasucki, Marek Krawczuk, Marek Kręglewski, Artur Krężel, Alois Krost, Jan Kryński, Włodzimierz Krzyżosiak, Ladislas Kubin, Bogdan Kuchta, Magdalena Kucia, Andrzej Kudelski, Joanna Kufel, Wojciech Kujawski, Paweł Kulesza, Maria Kulisa, Zdzisław Kurczyński, Anna Kurnatowska, Alex Küronya, Maciej Kurpisz, Marek Edward Kuryłowicz, Iwona Kurz, Monika Agnieszka Kusiak, Wiesław Kuźmicz, Jacek Kuźnicki, Anna Kwak, Joao A. Labrincha, Alain Laederach, Pablo Laguna, David Laitin, Bjorn Landfeldt, Ingrid Lang-Olip, Marek Lankosz, Zdzisław Latajka, Małgorzata Latałowa, Longin Jan Latecki, Alessandra Lattanzi, Tadeusz Laudański, Charles Laughton, Oleg Lavrentovich, David Lawson, Alberto Leardini, Laura M. Lechuga, Dong-Bae Lee, Alan Lehmann, Jerzy Leszczyński, Natalia Letki (Garner), Marek Lewandowski, Kazimierz Lewartowski, Andrzej Lewiński, De Quan Li, Yujing Li, Paweł Liberski, Yong Lin, Jerzy Lis, Gina Lisignoli, Grzegorz Litwinienko, Jordi Llorca Piqué, Mirosław Loba, Alexander Loewer, Lech Longa, Elżbieta Lorek, Paul J. Low, Ewa Lubina, Teresa Lubińska, Ralf Ludwig, Wen Luo, Małgorzata Łobocka, Ewa Łojkowska, Władysław Łosiak, Sergiusz Łuczak, Henryk Łukowicz, Barbara Łydżba-Kopczyńska, Piotr Machnikowski, Wojciech Macyk, Sebastian Maćkowski, Hala Madanat, Artur Magnuszewski, Pedro Jesus, Maireles Torres, Katarzyna Majewska, Paweł Mak, Stefan Malepszy, Mariusz Malinowski, Boris Malomed, Łukasz Małek, Sridhar Mani, Halina Manikowska, Steven Mansbach, Tadeusz Marciniak, Jan Marciniak, Adam W. Marczewski, Ilan Marek, Udo Markert, Krzysztof Markowicz, David H. Mathews, Dariusz Matosiuk, Fiona McGuigan, Peter McNeil, Zbigniew Meger, Jaroslaw Meller, Ronald Mensink, Henning Menzel, Anna Maria Mercuri, Jerzy Merkisz, Ingo Mey, Wojciech Michalowski, Grzegorz Michałek, Enrique G. Michel, Josef Michl, Magdalena Micińska, Władysław Mielczarski, Jan Mielniczuk, Bernard Mignon, Ewa Miklaszewska, Tomasz Mikulski, Sławomir Milewski, Holger Militz, Karol Miller, Agata Mirek, Oleg Mishin, Wioletta Miśkiewicz, Bogdan Miśkowiak, John Mitani, Christian Mitterer, Jarosław Mizera, Jacek Młynarski, Janina Maria Molenda, Michel Monod, Trevor Moraes, Akio Mori, Finlay D. Morrison, Sylwia Mozia, Adam Mrozowicki, Michał Mrozowski, Ewa Mrukwa-Kominek, Piotr Marcin Mucha, Janusz Mucha, Alejandro J. Müller, Masayuki Murata, Elżbieta Muskat-Tabakowska, Jan Najbar, Krzysztof Narkiewicz, Urszula Narkiewicz, Enrique Navarro, Zbigniew Nawrat, Barbara Nawrot, Nam-Trung Nguyen, Przemysław Niedzielski, Tomasz Niedzielski, Maciej Niedźwiecki, Jacek Niemiec, Arent Nieukerken, Małgorzata Nita, Daniele Noel, Zdzisław Noga, Krzysztof W. Nowak, Ewa Nowak, Maria Nowakowska, Anna Nowak-Węgrzyn, Michał Nowicki, Dominika Nowis, Marcin Nowotny, Jean-Michel Nunzi, Ryszard Nycz, Marcin Nyk, Renata Ochocka, Adrian Oehmen, Ewa Okoń-Horodyńska, Beata Olas, Krzysztof Olechnicki, Mikołaj Olejniczak, Józef Oleksyszyn, Foster Olive, Paweł Olko, Rafał Olszanecki, Marcin Opałło, Juliusz Orlikowski, Eric Ortlund, Thordur Oskarsson, Jacek Józef Otlewski, Takaharu Otsuka, Martin Ott, Józef Pacyna, Andrzej Paczkowski, Marian Paluch, Rahul Pandharipande, Tomasz Pańczyk, Pagona Papakonstantinou, Sergi Papiol, Katarzyna Paprzycka, Vittorio M. N. Passaro, Stefan Antoni Paszek, Zbigniew Paszenda, Eleanor Elizabeth Patton, Robert Pawlak, Magdalena Pecul- Kudelska, Witold Pedrycz, Xyoli Perez-Campos, Bertil Persson, Szymon Peszat, Stephane Petoud, Frank Petriello, Ivan Petrović, Marek Pfützner, Wojciech Piątkiewicz, Katarzyna Piekarska, Paweł Pieniążek, Andrzej Pieńkos, Adam Andrzej Pietraszko, K. Michał Pietrusiewicz, Dorota Pietrzyk-Reeves, Joanna Elżbieta Pijanowska, Simone Pika, Krzysztof Pikoń, Maciej Pilarczyk, Andrzej Pilc, Małgorzata Pilot, Barbara Piłacińska, Guadalupe Pinar, Andrzej Piotrowski, Tomasz Piskier, Jakub Piskorski, Jeffrey Plescia, Paweł Pluciński, Adam Płaźnik, Sebastian Płóciennik, Kacper Pobłocki, Robert Poczobut, Wioletta Anna Podgórska, Stefaan Poedts, Irena Poniatowska, Colin F. Poole, Włodzimierz Popek, Stefan Postrzednik, Anna Potocka, Marek Potrzebowski, Bartosz Powałka, Ruth Prassl, Thomas Preiss, Stephen D. Prentice, Boris Prilutsky, Krystyna Prochaska, Andreas Prokop, Adam Proń, Artur Przelaskowski, Łukasz Przybylski, Tadeusz Przylibski, Łukasz Pułaski, Tomasz Puzyn, Krzysztof Pyrć, Tahir Qayyum, Grzegorz Rachlewicz, Katja Radon, Jacek Radwan, Katarzyna Radwańska, Piotr Radziszewski, Matthew Rampley, Jesper Reinholdt, Martha M. Robbins, Miguel Angel Rodriguez Delgado, Anne-Cecile Roger, Krzysztof Rolka, Elżbieta Romanowska, Zbigniew Rosłaniec, Eugeniusz Rosołowski, Keith Ross, Janet Rossant, Francois Rosset, Leszek Roszkowski, Sayon Roy, Alexander Ruban, Błażej Rubiś, Paweł Rudawy, Beata Rutkowska, Janusz Rybakowski, Jarogniew Rykowski, Jan Ryś, Antonio Salgado, Marek Samoć, Katarzyna Samsel, James Samuel, Barry Sanders, Irina Sandu, Lidia Sas Paszt, Maria Sąsiadek, George C. Schatz, Joshua Schiffman, Michael Schloter, Wolfgang Schmickler, Katrina Schmid, Stefan Schmid, Philippe C. Schmitter, Joachim Schultze, Lars Schwabe, Fabio Sciarrino, Barry Scott, Jose Luis Serrano, Konstantin Severinov, Robert Seyfarth, Dana Shai, Bożena Shallcross, Łukasz Sienkiewicz, Helmut Sies, Jan Sikora, Jerzy Silberring, Alex Simonian, Tom Simpson, Animesh Sinha, Anna Sip, Tadeusz Siwiec, Zuzanna Siwy, Hana Skalova, Magdalena Skompska, Andrzej Skowron, Czesława Ilona Skupińska-Lovset, Maria Anna Słomczyńska, Maree Smith, Ryszard Smoleński, Krzysztof Sobczak, Arkadiusz Sochan, Abner Soffer, Wacław Andrzej Sokalski, Agnieszka Sokołowska, Bogdan Solnica, Enikö Pivarcsi Sonkoly, Helena Sovova, Józef Spałek, Rainer Spanagel, James S. Speck, Gyaneshwar Srivastava, Katarzyna Starowicz-Bubak, Jacek Stawiński, Michael Stear, Piotr Stepnowski, Barbara Stewart-Knox, Kristine Stiles, Jonathan Stock, Anna Stojakowska, Katarzyna Stolarz-Skrzypek, Tomasz Stompór, Norbert Sträter, Kvido Strisovsky, Matija Strlic, Ryszard Stroynowski, Tomasz Stryjek, Stanisław Stupkiewicz, Adam Styk, Krzysztof Stypuła, Masashi Sugano, Ziemowit Suligowski, Joanna Surmacz-Górska, Małgorzata Suska-Malawska, Brendan Sweetman, Arthur J.Sytkowski, Zbigniew Szadkowski, Krzysztof Szalewicz, Marek Stanisław Szczepański, Stanisław Szczepański, Lech Szczucki, Tomasz Szlendak, Czesław Szmidt, Aleksander Szmigiel, Andrzej Szpociński, Jakub Szulwic, Agnieszka Szumna, Andrzej Szwarc, Zofia Szweykowska-Kulińska, Agnieszka Szyk, Jacek Śliwiński, Magdalena Ślusarczyk, Dariusz Śnieżko, Szymon Świeżewski, Jerzy Święch, Ryszard Tadeusiewicz, Andrzej Tarczyński, Elżbieta Tarkowska, Jan R. E. Taylor, Christian Templin, Andrzej Teodorczyk, Sören Thiele-Bruhn, Philippe Thiran, Nikolaos S. Thomaidis, Pall Thordarson, Wolfgang Tichy, Galin Tihanov, Yu Ting, Anna Tischner, Jerzy Tiuryn, Przemysław Tomalski, Paul D. Topham, Władysław Torbicz, Jose Torero, Lluis Torner, Maria Carolina Touz, Franz Trautinger, Konstantinos Triantafyllidis, Joanna Trylska, Mieczysław Trypuć, Piotr Trzonkowski, Rodica Paula Turcu, Katarzyna Turnau, Jack Adam Tuszyński, Włodzimierz Tyburski, Tadeusz Tyszka, Piotr Zbigniew Tyszko, Dariusz Uciński, Anna Ujwary-Gil, Werner Ulrich, Matt Van De Rijn, Chris Van de Walle, Guido van der Werf, Nick van Remortel, Arnoudvan Vliet, Rene van Weeren, Jasper van Wezel, Elena Velkoska, Rossella Ventura, Emma Versteegh, Jagdish K.Vij, Judith Volmer, Aleksi Vuorinen, Przemysław Wachulak, Teresa Walas, Wolfgang Waltenberger, Barbara Janina Wandelt, Nicole Ward, Jerzy Warmiński, Julita Wasilczuk, Marta Wasilewska-Radwańska, Bożena Waszkiewicz-Robak, Jerzy Weber, Johanna Weiss, Jerzy Weremczuk, Marzenna Weresa, Marian Andrzej Wesoły, Jan Węsławski, Theodore White, Justyna Widera, Piotr Widłak, Piotr Wieczorek, Paweł Wielgosz, Anna Wierzbicka, Jędrzej Wierzbicki, Michael Wiese, Jacek R. Wilczyński, Kazimiera A.Wilk, Jerzy Wilkin, Michael Wiltberger, Jeffrey Wilusz, Richard Wirth, Michael Withford, Andrzej Witkowski, Marcin Witkowski, Jacek M. Witkowski, Hélene Włodarczyk, Stanisław Wnuk, Krzysztof Witold Wojciechowski, Tomasz Woliński, Bogdan Wolski, Grzegorz Woszczek, Adam Woźniak Agnieszka Woźniak, Dorota Wójcicka-Migasiuk, Marek Janusz Wójcik, Anna Wójtowicz, James Wray, Helen Yarwood, Liya E. Yu, Jan Zaanen, Inigo Zabalgogeazcoa, Alexandre Zagoskin, Małgorzata Zagórska, Paweł Zajas, Zbigniew Zapałowicz, Szczepan Zapotoczny, Marcin Zaremba, Neven Zarkovic, Artur Zbiciak, Marek Zdanowski, Rafał Zdunek, Zenon Zduńczyk, Geralyn Zeller, Guoquan Zhang, Ireneusz Ziemiński, Paweł Zięba, Cyril Zipfel, Barbara Zitova, Fryderyk Andrzej Zoll, Ewa Zuba-Surma, Mariusz L. Zubert, Lech Zwierzchowski, Sławomira Żerańska-Kominek, Marek Żukowski, Witold Żukowski Jarosław Żygierewicz

Abridged Financial Information and the Independent Registred Auditor's Opinion

The complete report on the Foundation's activity in 2013, drawn up in accordance with the Minister of Justice's ordinance of 8 May 2001 on the general scope of reports on the activity of foundations (*Journal of Laws* No. 50 of 2001, item 529), has been submitted to the Minister of Science and Higher Education.

Fulfilling the provisions of the 6 April 1984 Act on Foundations (*JoL* No. 21 of 1984, item 97, as amended) and the 24 April 2003 Act on Public Benefit and Volunteer Work (*JoL* No. 96 of 2003, item 873, as amended), the Foundation enables anyone interested to access the complete report on the Foundation's activity in 2013, which is available at the Foundation's head office in Warsaw, ul. Krasickiego 20/22.

The financial statements and merit report from the activity of this public benefit organization in 2013 will be published on the website https://opp.mpips.gov.pl under KRS 0000109744.

pwc

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INDEPENDENT REGISTERED AUDITOR'S OPINION ON THE ABRIDGED FINANCIAL INFORMATION

TO THE BOARD OF THE FOUNDATION FOR POLISH SCIENCE

The accompanying abridged financial information, which comprise the balance sheet as at 31 December 2013, the income statement for the period from 1 January to 31 December 2013, the statement of changes in equity, the cash flow statement for the year then ended and note concerning principles of preparation of this financial information (hereinafter called 'the financial information') are derived from the audited financial statements of the Foundation for Polish Science, 11, Grażyny Street, Warsaw (hereinafter called 'the Foundation') for the year ended 31 December 2013 (hereinafter called 'the financial statements') in conformity with the Polish Accounting Act of 29 September 1994 (uniform text – Journal of laws of 2013, item 330, as amended, hereinafter called 'the Accounting Act').
We have audited the financial statements, based on which the financial information is prepared, in accordance with the provisions of Chapter 7 of the Accounting Act and national standards of auditing issued by the National Council of Registered Auditors. We expressed an unmodified audit opinion on those financial statements in our report dated 20 March 2014. Those financial statements and the financial information do not reflect the effects of events that occurred subsequent to the date of our opinion on those financial statements.
The financial information of Foundation does not contain all the disclosures required by the Accounting Act. For a full understanding of Foundation's financial position as at 31 December 2013, its results for year from 1 January to 31 December 2013 and the scope of the audit of financial statements, the financial information should be read in conjunction with the financial statements and our opinion and audit report thereon.

MANAGEMENT'S RESPONSIBILITY FOR THE FINANCIAL INFORMATION

Management is responsible for the preparation of the financial information on the basis described in the note thereto.

AUDITOR'S RESPONSIBILITY

Our responsibility is to express an opinion on the financial information based on our procedures, which were conducted in accordance with International Standard on Auditing (ISA) 810, 'Engagements to Report on Summary Financial Statements'.

OPINION

In our opinion, the financial information derived from the audited financial statements of the Foundation for the year from 1 January to 31 December 2013 is consistent, in all material respects, with those financial statements on the basis described in the note to the financial information.

Person conducting the audit on behalf of PricewaterhouseCoopers Sp. z o.o., Registered Audit Company No. 144:

Tomasz Kociołek
Key Registered Auditor
No. 11920

Warsaw, 20 May 2014

Translation note:
This version of our report is a translation from the original, which was prepared in Polish language. All possible care has been taken to ensure that the translation is an accurate representation of the original. However, in all matters of interpretation of information, views or opinions, the original language version of our report takes precedence over this translation.

THE ABRIDGED FINANCIAL INFORMATION AS AT 31 DECEMBER 2013

This financial information contains the Foundation's for Polish Science balance sheet as at 31 December 2013, income statement, statement of changes in equity and cash flow statement for the year ended 31 December 2013 and has been prepared on the basis of the Foundation's audited annual financial statements prepared in accordance with the policies specified in the Accounting Act of 29 September 1994 (uniform text – Journal of Laws of 2013, item 330 as amended).

The abridged financial information does not contain all of the disclosures required by the Accounting Act for full annual financial statements and, therefore, in order to gain a full understanding of the Foundation's financial position and its results of operations as at and for the year ended 31 December 2013 the Foundation's full financial statements, as well as the independent registered auditor's opinion and report on the said financial statements should be read.

BALANCE SHEET

ASSETS (in thousand PLN)	31.12.2013	31.12.2012
Non-current assets	**24 670**	**13 632**
Intangible assets	**4**	**3**
Other intangible assets	4	3
Tangible fixed assets	**24 666**	**13 629**
Fixed assets	547	742
Buildings, offices, apartments, civil and marine engineering facilities	345	473
Plant and machinery	156	214
Other fixed assets	46	55
Fixed assets under construction	24 119	12 887
Current assets	**355 576**	**363 458**
Inventories	**15**	**15**
Materials	15	15
Short-term receivables	**2 386**	**1 326**
Receivables from other entities	2 386	1 326
Trade receivables, due:	9	10
- within 12 months	9	10
Tax, subsidy, customs duty, social security and health insurance and other benefits receivable	16	9
Other receivables	2 361	1 307
Short-term investments	**353 126**	**362 085**
Short-term financial assets	353 126	362 085
In other entities	310 480	310 185
- shares	54 528	62 035
- other securities	255 952	248 150
Cash and cash equivalents	42 646	51 900
- cash in hand and at banks	24 371	15 313
- cash equivalents	18 275	36 587
Short-term prepayments and deferred costs	**49**	**32**
TOTAL ASSETS	**380 246**	**377 090**

BALANCE SHEET (cont.)

LIABILITIES AND EQUITY (in thousand PLN)	31.12.2013	31.12.2012
Equity	**340 471**	**341 869**
Capital Fund	95 000	95 000
Statutory Fund	268 225	268 225
Reserve Fund	27 615	27 615
Accumulated losses	(48 971)	(54 993)
Net profit/loss for the year	(1 398)	6 022
Liabilities and provisions for liabilities	**39 775**	**35 221**
Provisions for liabilities	**1 743**	**1 572**
Provision for pensions and similar benefits	1 717	1 544
- long-term	773	679
- short-term	944	865
Other provisions	26	28
- short-term	26	28
Short-term liabilities	**23 711**	**20 044**
To other entities	23 709	20 040
Trade payables, due:	132	310
- within 12 months	132	310
Tax, customs duty, social security and other benefits payable	2 761	1 143
Wages and salaries payable	–	22
Other	20 816	18 565
Special Funds	2	4
Accruals and deferred income	**14 321**	**13 605**
Other accruals and deferred income	14 321	13 605
- short-term	14 321	13 605
TOTAL LIABILITIE	**380 246**	**377 090**

INCOME STATEMENT (BY NATURE OF EXPENSE)

(in thousand PLN)	2013	2012
Revenue from statutory activities	**92 363**	**90 852**
Other contributions	92 363	90 852
Costs of statutory activities	**108 123**	**110 424**
Loss on statutory activities	**(15 760)**	**(19 572)**
Administrative expenses	**7 129**	**6 981**
Depreciation and amortization	251	286
Consumptions of materials and energy	150	158
External services	1 788	1 728
Taxes and charges	144	144
Wages and salaries	3 740	3 621
Social security and other benefits	721	707
Other costs by type	335	337
Loss on statutory and administrative activities	**(22 889)**	**(26 553)**
Other operating income	**10**	**15**
Gains on disposal of non-financial non-current assets	-	2
Other	2	13
Other operating expenses	**136**	**199**
Other	136	199
Operating loss	**(23 015)**	**(26 737)**
Financial income	**21 695**	**32 778**
Dividends and shares in profits	2 282	2 495
Interests income	6 454	8 417
Gains on disposal of investments	7 860	1 839
Revaluation of investments	4 548	19 365
Other	551	662
Financial expenses	**54**	**2**
Interest expense	3	1
Other	51	1
(Loss)/profit before tax	**(1 374)**	**6 039**
Income tax expense	**24**	**17**
Net (loss)/profit	**(1 398)**	**6 022**

STATEMENT OF CHANGES IN EQUITY

(in thousand PLN)	2013	2012
Equity as at the beginning of the period	**341 869**	**335 847**
Capital Fund at the beginning of the period	95 000	95 000
Capital Fund at the end of the period	95 000	95 000
Statutory Fund at the beginning of the period	268 225	268 225
Statutory Fund at the end of the period	268 225	268 225
Other Reserve Fund at the beginning of the period	27 615	27 615
Other Reserve Fund at the end of the period	27 615	27 615
Accumulated losses at the beginning of the period	**(54 993)**	**(21 862)**
Increases/ decreases (due to)	6 022	(33 131)
- accumulated profit/losses brought forward to offset	6 022	(33 131)
Accumulated losses at the end of the period	**(48 971)**	**(54 993)**
Net (loss) or profit	**(1 398)**	**6 022**
- Net (loss)/profit	(1 398)	6 022
Equity as at the end of the period	**340 471**	**341 869**
Equity, as adjusted for the proposed appropriation of profit (offset of loss)	**340 471**	**341 869**

CASH FLOW STATEMENT (INDIRECT METHOD)

(in thousand PLN)	2013	2012
Cash flows from operating activities	**(34 498)**	**(14 386)**
Net (loss)/profit	**(1 398)**	**6 022**
Total adjustments	**(33 100)**	**(20 408)**
Depreciation and amortization	251	286
Interest and shares in profits (dividends)	(8 733)	(10 910)
Losses on financing activities	(12 959)	(21 850)
Increase in provisions	171	161
Decrease in inventory	–	1
Increase in receivables	975	468
Increase in short-term liabilities, except for loans and credits	(13 505)	(363)
Decrease in prepayments, accruals and deferred income	700	11 801
Other adjustments	–	(2)
Net cash flows from operating activities	**(34 498)**	**(14 386)**
Cash flows from investing activities	**25 244**	**49 393**
Cash inflows	**767 270**	**3 061 668**
From financial assets, including:	767 270	3 061 668
a) In other entities	767 270	3 061 668
- disposal of financial assets	758 537	3 050 758
- dividends and shares in profits	2 282	2 495
- interest received	6 451	8 415
Cash outflows	**(742 026)**	**(3 012 275)**
Acquisition of intangible assets and tangible fixed assets	(11 290)	(1 253)
On financial assets, including:	(730 736)	(3 011 022)
a) In other entities	(730 736)	(3 011 022)
- acquisition of financial assets	(730 736)	(3 011 022)
Net cash flows from investing activities	**25 244**	**49 393**
Net (decrease)/increase in cash and cash equivalents	**(9 254)**	**35 007**
Change in cash and cash equivalents in the balance sheet	**(9 254)**	**35 007**
Cash and cash equivalents as at the beginning of the period	**51 900**	**16 893**
Cash and cash equivalents as at the end of the period, including:	**42 646**	**51 900**
- of restricted cash and cash equivalents	**2**	**4**

SUPPLEMENT: About our beneficiaries, initiatives and projects

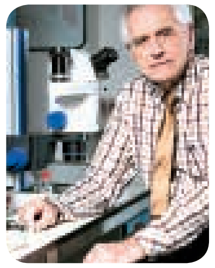
Gazeta Wyborcza, 5 November 2013

The Foundation Council announces the winners of the FNP Prize

THE COUNCIL OF THE FOUNDATION FOR POLISH SCIENCE HAS SELECTED THE LAUREATES OF THE FNP PRIZE, WHICH IS CONSIDERED THE MOST HIGHLY-REGARDED ACADEMIC AWARD IN POLAND. THIS YEAR'S LAUREATES ARE PROF. ANDRZEJ K. TARKOWSKI, PROF. SYLWESTER POROWSKI, PROF. MAREK ŻUKOWSKI AND PROF. JAN WOLEŃSKI.

Founder of the school of embryology

PROF. ANDRZEJ K. TARKOWSKI



The winner of the 2013 Foundation for Polish Science Prize in the field of Life Sciences is Professor Andrzej Krzysztof Tarkowski of the Institute of Zoology at the University of Warsaw. His original work conducted many years ago laid the foundations for exceptionally important research in the areas of in vitro fertilisation, stem cells and cloning.

Prof. Tarkowski is the founder of the Warsaw school of experimental mammalian embryology.

He carried out his pioneering research on the developmental potential of embryonic cells on mice. The findings of this research enabled him to formulate, among other things, the inside-outside hypothesis, according to which the separation of the first two cell lines in an early embryo depends on the cells' position. The cells situated on the inside of an embryo form what is known as an inner cell mass (ICM), while those outside the embryo form the trophectoderm. The inner cell mass later forms the foetus and most of the foetal membrane, while the embryonic part of the placenta develops from the trophectoderm.

Prof. Tarkowski has also shown that a normal adult specimen can be developed from the isolated cells of an early embryo of a mouse (comprising even only several cells). These observations, which research on other species of mammals has confirmed, demonstrate the significant regulatory capacity of early embryos in this group of animals.

The developmental plasticity of embryonic cells has also been confirmed by Prof. Tarkowski's further research based on the experimental fusion of two multicellular mouse embryos. As a result of this procedure, he produced the first-ever chimaeras, i.e. normally formed specimens constructed of cells taken from two different embryos and thus possessing four parents. Chimeric mice are currently an important tool in research on embryonic development, cellular differentiation and stem cells, while they are also widely used in producing genetically-modified animals.

Prof. Tarkowski was born in 1933 in Warsaw. Throughout his career he has been associated with the University of Warsaw. Between 1964 and 2003 he was the head of the Department of Embryology, while serving as the director of the Institute of Zoology of the University of Warsaw between 1972 and 1981, then again from 1987 to 2002. He has collaborated with leading research centres around the world. He was awarded a Rockefeller Foundation scholarship to study at the University of North Wales (1960-61) and has also been a visiting professor at the University of Oxford and elsewhere.

A flash of genius and a blue laser

PROF. SYLWESTER POROWSKI

Prof. Sylwester Porowski is a physicist specialising in solid state physics. He works in the Polish Academy of Sciences (PAS) Institute of High Pressure Physics in Warsaw. Born in 1938 in Bierzyn, he graduated in physics from the University of Warsaw in 1960 before defending his doctoral thesis and habilitation at the PAS Institute of Physics. He was awarded the title of professor in 1978.

On 12 December 2001, the research team led by Prof. Porowski gave the first public demonstration of the blue semiconductor laser it had developed. The basis for this new light source was monocrystals of gallium nitride. In 2002, Prof. Porowski was awarded the Polish Presidential Prize for this discovery.

The method for creating high-quality gallium nitride monocrystals developed by Prof. Porowski, together with the analysis of their qualities, laid the foundations for establishing in Poland technologies producing quantum structures and diode lasers based on them.

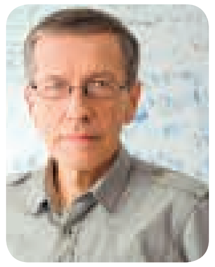
Like silicon, gallium nitride is a semiconductor but it boasts numerous qualities that make it far superior. Above all, it emits light. Depending on which dopants are used, gallium nitride can shine in all colours of the rainbow, from violet through green to red. It is currently used as the basic material in the production of the pinhead-sized blue lasers which read the discs used in Blu-ray players and games consoles.

An important use of gallium nitride in future will be in laser television projectors, which will be so minute that they can be built into a great variety of devices including laptops, mobile phones or even watches. They will enable the projection of high definition (HD) video in colours impossible to achieve using LCD technologies. This technology will make watching television and films on smartphones much more convenient, while computers will be reduced to the size of a pen, which will then project a keyboard onto a desk and images onto walls.

Gallium nitride is also used in the construction of LED diodes that emit white light. And it also has a further advantage. It is an excellent material for components in electrical circuits such as transistors, thyristors, convertors and invertors, since gallium nitride-based models can cope better with large currents and high frequencies than their silicon counterparts.

Information causality

PROF. MAREK ŻUKOWSKI



The laureate of the 2013 Foundation for Polish Science Prize in the field of Mathematics, Physics and Engineering Sciences is Prof. Marek Żukowski of the Department of Mathematics, Physics and Computer Science at the University of Gdańsk. He was awarded the prize for his research into states of multiphoton entanglement, with this leading to the formulation of information causality as a principle of physics.

Prof. Żukowski's principle area of interest is in quantum interferometry. He has collaborated with Prof. Anton Zeilinger of the University of Vienna in this field. Together they worked on developing the theory of quantum information. They focused on the phenomenon of quantum teleportation and its uses in future quantum computers and cryptography. Their first joint paper was published in 1991.

Professor Żukowski won the Foundation Prize for formulating a new principle of physics, namely information causality. It is based on the theorem that a message cannot acquire access to information consisting of a greater number of bits than the number which it itself contains. Thanks to this proposition it was possible to define precisely the value of corrections in quantum systems. It will therefore become possible develop practical applications for the mechanisms of quantum physics, with the encryption of data transmission providing one such example.

Żukowski has also collaborated with Harald Weinfurter in Munich, Jian-Wei Pan in Heidelberg and Mohamed Bourennane in Stockholm.

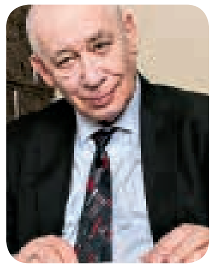
Professor Żukowski was born in 1952 in Gdynia. He graduated from the Department of Mathematics, Physics and Chemistry at the University of Gdańsk. He defended his doctoral thesis in 1983 r. and was awarded his habilitation by the Nicolaus Copernicus University (UMK) in Toruń in 1995 before being made professor in 2003. Since 1976 he has worked at the University of Gdańsk. Between 1996 and 2005 he was the head of the Quantum Optics Division of the Institute of Theoretical

Physics and Astrophysics of the University of Gdańsk before becoming director of the Institute in 2005.

Prof. Żukowski has authored around 140 works appearing in leading academic journals, including several in *Nature*. He is the four-time winner of the individual Polish Ministry of Education Prize (1983, 1994, 2000 and 2007) and a three-time laureate of the University of Gdańsk Rector's Prize (1993, 1998 and 2005). He was awarded a Batory Foundation stipend in 1998 and received a Foundation of Polish Science MISTRZ/MASTER academic grant for professor in 2003.

Truth, cognition and knowledge

PROF. JAN WOLEŃSKI



Professor Jan Woleński is a laureate of the 2013 Foundation for Polish Science Prize in the field of Humanities and Social Sciences for his comprehensive analysis of the Lwów-Warsaw School which ensured that the School's achievements achieved recognition in international discourses on contemporary philosophy.

Are our cognitive abilities capable of enabling us to understand reality? And how do they influence me? These are the questions that the branch of philosophy known as epistemology answers. And it is the classical concepts from this sphere that Prof. Woleński analyses. He is thus concerned with truth, cognition and knowledge. Particular epistemological, methodological and ontological questions such as realism, intentionality, significance, nominalism, reism, conventionalism and determinism, are subjects also covered by his research.

Prof. Woleński thus continues the traditions of the Lwów-Warsaw School, a famous Polish centre of philosophical and logical thought formed towards the end of the nineteenth century under the auspices of Kazimierz Twardowski. Thanks to the work of Prof. Woleński work and his followers, Polish analytical philosophy has been generally recognised as one of the greatest achievements in twentieth-century humanities. 'In the interwar period, Polish philosophy was world class and had much to offer', Prof. Woleński told *Gazeta Wyborcza*. 'It is therefore all the more painful to see how today the teaching of philosophy in Polish schools is being given such a raw deal. There are three pillars of European culture: Greek philosophy, Roman law and Christian religion. Of this triad, philosophy was established earliest. Without philosophy it will be difficult to understand our culture. It is also worth emphasising that philosophers are particularly highly regarded in the job market in a variety of professions. They adapt very well to new situations and demonstrate flexible thinking. And, after all, the greatest academics – Euclides, Pythagoras, Copernicus, Newton, Darwin, Einstein – they were all philosophers too.'

Prof. Jan Woleński is one of most recognised Polish philosophers in the world today. He is known for his works in the fields of the history of philosophy, particularly Polish philosophy, formal logic and its history, the philosophy of language and epistemology, ethics and the philosophy of law. He is the author of around two thousand publications in total, including some 650 published abroad.

He was born in Radom in 1940 and graduated in philosophy from the Jagiellonian University. In 1968 he was awarded his doctorate, followed by his habilitation in 1972. He has lectured at many foreign universities including the University of Salzburg and the Hebrew University of Jerusalem. Prof. Woleński has won numerous prizes including the Polish Prime Minister's Prize for academic achievement (2002). He was awarded the Knight's Cross of the Order of Polonia Restituta in 2011.

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Tygodnik Powszechny, 4 August 2013

Time to think

TO UNDERSTAND THE WORLD, TO MAKE IT A BETTER PLACE: THESE ARE THE OBJECTIVES THAT POLISH ACADEMICS ARE SEEKING TO MEET. FOR SEVERAL YEARS THEIR ACTIVITIES HAVE BEEN SUPPORTED BY AN EXTERNAL AGENCY...

This agency is the European Regional Development Fund. Poland has been a beneficiary of the Fund through its "Innovative Economy" Operational Programme. Part of the funds received, close to 400 million zlotys (€100 million)*, are distributed by the Foundation for Polish Science (FNP). Financial support, sometimes reaching several million zlotys, is awarded to projects which are most highly rated by outstanding scholars (from Poland and abroad) in a given field following an interview assessing a candidate's existing work and ability to manage a research team. In the 2014-2020 period, Poland will receive €72.9 billion from the European Union budget as part of its cohesion policy. Let us assume that science will receive a prominent slice of this pie, then the resources dedicated to conducting research and creating scientific infrastructure should be no less than the €4.1 billion already spent (that is how much was given to science in the 2007-2013 period).

Polish science possesses great potential, while very well–equipped laboratories and excellent research teams are already in place.

The view that the road to Poland's civilisational development lies in financial support of scientific activities already sounds trite. Investing these funds in fundamental research, distributed through competitive applications judged solely on their merit, is the only way to ensure that they are used reliably in order to create a situation where the findings of Polish academics receive more significant international recognition. Polish science possesses great potential, while very well-equipped laboratories and excellent research teams are already in place. Even working conditions, so pay above all, can be attractive.

For Polish science, as it tries to catch up with British or German research, EU funding for the next seven years is crucial. This does not mean that during this period we will become one of the European leaders in science but simply that we will be offered the opportunity to reduce the gap. Currently, on the basis of sums invested in science, Poland is not even in the leading position among Central-Eastern European states (the 2013 budget allocated 6.8 billion zlotys – €1.7 billion – to science which, taken together with EU funds, is 0.4% of GDP).

And what is the situation with the academic community's potential? Have we got anyone to invest in? Prof. Maciej Żylicz, the head of the FNP, once answered such questions by mentioning the incomparable levels (in Japan's favour) of investment in science in Poland and in Japan. Yet the ratio of citations of Polish academics' work to GDP is close that achieved by Japanese colleagues. Perhaps this is an indication of the quality of Polish 'academic capital'?

ONE DAY IT WILL PAY OFF

Radosław Kitel leaves his laboratory at the Silesian University of Technology in Gliwice at 10 p.m. He returns home to Piekary Śląskie using two minibuses, changing in Bytom. If the first bus is on time and he makes the connection then he is home by 11 p.m. He sleeps for five or six hours. He would prefer a longer sleep but you can get accustomed to it – it is a question of getting into the rhythm. And never relenting: working in the laboratory on the project, studying for a degree in chemistry (after graduating in biotechnology in 2010 he started studying bioorganic chemistry, since he felt helpless in the face of the tasks he had set himself),

* A simplified exchange rate was applied when converting zlotys to euros: EUR 1.00 = PLN 4.00. All the sums in euros mentioned in the text are therefore only approximate values; the actual conversion could be different due to currency exchange rate changes.

and research at the Institute of Oncology… On top of that, every two weeks, he travels to Krakow for a postgraduate degree in Business in Biotechnology at the Jagiellonian University, which he began because he was convinced that knowledge on the commercialisation of research is also necessary for an academic. It often happens that he goes twelve days without a moment of rest.

He might be able to catch his breath every other weekend, although that does not always come true because there is a conference to prepare for, a research presentation or… something goes wrong in the course of research. And then at the end of the day the laboratory glassware is cleaned, the lights are turned off, and the door of the building closed in time to make the last bus home… But then before supper the books come out and sketching the structures of compounds starts again, hoping that it will be this time for sure, far from the laboratory glassware and with a pencil in hand, that it will become clear why something went wrong.

'I wouldn't say that things are hard, because they're not', Radosław Kitel says. 'The first year after university when I wanted to work in academia but all I could do was become a volunteer at the Institute of Oncology in Gliwice, that was hard. I looked at my coursemates who were starting to earn their first real paycheques while I was still at home with my parents… That's what was hard, but I told myself that I was in a period of investing in myself and one day it will pay off.'

He conducted research and made a successful appearance at an academic conference. Then he wrote his first ever research project proposal seeking funding through the VENTURES programme of the Foundation for Polish Science (it funds research which can have economic application and is conducted by students among others). Diligent examination of his existing achievements and plans resulted in him receiving 80,000 zlotys (€20,000). Kitel: 'Together with my colleagues at that time I started looking for a needle in a haystack…' What Radosław Kitel and his colleagues are trying to get their heads around are genistein derivatives, a chemical compound present in soya which is the most important component of the diet of Asians, whose rate of morbidity for cancer-related illnesses is much less than for white people. Why is it the case that particles of this substance can slow the proliferation of cancerous cells and even kill off those that have reproduced already? Solving the mystery is largely dependent upon the need to find the proteins from cancerous cells that react with derivative genisteins. There are several thousand proteins…

Radosław Kitel: 'Such experiments are a challenge. I think about what will come next after we finally find the proteins that we are looking for – so I think about research in silico, using computers which will allow us to better identify their properties and strengthen their anti-cancerous abilities. After all, we are not conducting this research in order to find out the mechanisms of one chemical compound's affects; it is for future patients of the nearby Institute of Oncology.'

UPPSALA, TOKYO, MUNICH

'In genetics you need persistence and luck', is something Prof. Magdalena Rakowska-Boguta of the Polish Academy of Sciences Institute of Biochemistry and Biophysics often repeats. She used over 6 million zlotys (€1.5 million) awarded from EU funds to establish an international PhD in the field of molecular biology. Recruitment to the programme saw ten candidates for each available place, with analysis of CVs, covering letters and references, as well as the outcome of interviews, leading to the selection of nineteen new doctoral students. Each of them receives a monthly grant of 3,000 zlotys (€750) over the four years of their doctorate and they are expected to spend between six months and two years at the foreign university that is the partner on their project.

The hope of continuing to change the perception of Polish academia held in recognised research centres lies in individuals who think creatively.

Prof. Krzysztof Nawotka, a historian and classical philologist at the Institute of History at Wrocław University, received funding for this purpose. 'After the first selection stage, the FNP gave us access to reviews, which were of course anonymous – this is standard practice in academia. The formulations and language used showed that all the reviews came from Western Europe and US universities. This is because the Foundation sets the bar high before awarding a grant and then it requires rigorous reports to account for how its funds have been used. But this is part of the deal: in return you get funds (our project got over 5 million zlotys – €1,25 million) enabling you to conduct good research and make a living from it. For people who have just completed their studies and might usually expect a doctoral stipend of 1000 zlotys (€ 250), this is an unprecedented opportunity in Poland.'

Young classics students must learn how to apply an interdisciplinary approach in Classics, a field in which the pool of source materials is essentially stable and not expanding, while the majority of research questions has already been posed. So the chance to apply a methodology linking elements of several disciplines is a way to carve a fresh path in a one-way street.

'Let us take the theme of the consumption of Greek wine in Italy', Prof. Nawotka suggests. 'Beyond reading written sources it is necessary to acquire skills in archaeology, literary studies and epigraphy, with this requiring collaboration with specialists in several areas. Even if you are not working alone on your research, the need to interpret the results of laboratory tests on the contents of amphorae, for example, forces you to acquire additional knowledge. This is what multidisciplinarity is founded on – the need to acqiure the tools and methods relevant to at least two scientific disciplines.'

Prof. Nawotka's fifteen doctoral students can acquire these methods in Wrocław, Liverpool (a foreign partner of the project) or any foreign university. If the research findings are considered interesting enough for presentation at an academic conference, then the trip will be funded by the FNP. Young academics are supposed to encounter abroad not only better-equipped libraries and world-class specialists in their filed but they are also expected to experience the atmosphere in which academic work takes place in renowned institutions where those undertaking difficult tasks, writing important books and driving forwards crucial endeavours are granted recognition. And where people who shirk such responsibilities are removed from their posts.

Regardless of the discipline, what is considered important is who these young people are now: can they think independently? What do science and research mean to them? The hope of continuing to change the perception of Polish academia held in recognised research centres lies in individuals who think creatively. It is no secret that when the transformation of the country began, outstanding individuals were highly regarded but not Polish science in general. The general consensus was that we had no right to conceive of anything interesting here in Poland.

Prof. Rakowska-Boguta remembers the late 1990s when she and her colleagues attempted to publish an article in a prestigious journal on an as-yet-unknown gene of yeast. They received rejection after rejection from editors. 'We sought a breakthrough for two years. The negative reviews were, to a great extent, dictated by the belief that no significant discovery could be made in such an unknown laboratory and all the more so one located in this part of Europe.'

They were helped by Prof. André Santenac, the famous molecular biologist, whom they met at a conference. He took seriously Prof. Rakowska-Boguta's story about finding in yeast this gene which is common to all higher organisms, including humans, and is most probably an important regulator in tumour formation too. The prestigious journal *Molecular and Cell Biology* published the text in 2001, over ten years after the then Dr Rakowska-Boguta stood by a poster on her research at a conference in Canada. She waited for questions from interested individuals but no one approached her. Her research, carried out on sucrose rather than restriction enzymes, which are specific to particular DNA sequences, was outside the mainstream. Her findings were of no interest to anyone, just as no one was interested in the reasons why such enzymes were unavailable in Poland in the mid-1980s. The professor's nineteen doctoral students, who can take research training during their doctorate at Universities including Uppsala, Tokyo and Munich, do not even need to be aware of such stories. What is important is for these students to possess similar defiance and persistence in overcoming barriers – and not only those related to research.

PROF. MAGDALENA RAKOWSKA-BOGUTA (FIRST FROM LEFT) WITH HER TEAM.

ON BALANCE, THINGS LOOK QUITE HEALTHY

Prof. Sebastian Maćkowski lives twenty kilometres from Toruń in a house which is sometimes approached by deer. In winter heavy snow can leave the expert on hybrid nanostructures enabling the development of an efficient system of synthetic photosynthesis in energy production cut off, so he spends several hours thinking with a shovel in his hands. After defending his doctorate the PAN Institute of Physics and carrying out postdoctoral research at the University of Cincinnati, he took on another postdoctoral position in Munich. It was there, when he was thinking of a further research project, that he first asked himself what would happen if plants' photosynthesis systems, which absorb light, were transferred to a layer of undulated metal? When he finally gave up research on what are known as quantum dots in 2004, he already knew that chlorophyll could absorb more sunlight thanks to metal.

Prof. Maćkowski: 'When my wife and I returned to Poland in 2008, it seemed like I had come out of nowhere arriving at the Copernicus University in Toruń. And I arrived with a subject that no one at the university was working on. But, for the university authorities, this was not a problem, which is quite unusual for Poland. As an employee of the Copernicus University I was allocated one empty room and it was enough to fill it with people and equipment.'

The research team that was formed in November 2009 (as part of the WELCOME programme organised for researchers from abroad who form research terms in Poland) now has 23 members. The optical table, the first piece of equipment to appear in the empty room, now has a useful and expensive neighbour, namely high class scientific apparatus. The four-million-zloty grant (€1 million) is slowly running out but the balance sheet shows a healthy return in terms of output. Over thirty publications have emerged from the project, with three doctoral students graduating this year. A significant number of young people have conducted research since 2009 living off decent grants, publishing their work and travelling to conferences (without have to pay out of their own savings, which was once the norm). And now they have a chance to seek further training at high-ranking research centres.

'This might seem obvious', says Prof. Maćkowski bringing his cursory enumeration to a close, 'but I'll repeat it anyway: these young people have learned with time that conducting research is not simply an arduous struggle with your material; it's hard work, work that doesn't always seem to offer hope of success – but it's such pleasant work… Think about it: we come up with an idea, we show that the fusion of natural biological systems with what we can create in a laboratory can improve the functioning of the former. What is crucial for us now is to be able to drill chlorophylls from proteins in much the same way that cherries are pitted and then place nonorganic systems inside with these then functioning according to how they will have been programmed. The idea of photosynthesis is retained – absorbing sunlight, transmitting energy – but it's just the system that changes… Isn't that interesting? Furthermore, a physicist would not get very far working alone and it is only through collaboration with biologists and chemists that it is possible to start speaking of discoveries.'

NOT ONLY TECHNOLOGIES

Viewed under a microscope tardigrades look like bear cubs. These invertebrates measuring 300 micrometres have small eyes, neat little paws and a stomach filled with green algae. Their entire life, taking place beside them in a drop of water from a pond, is as hectic as life in New York. Only these tardigrades, calm and focused, live in the here and now. Quite literally so. They are nourished by a drop of water even if they have earlier been frozen, dried, subject to gamma radiation or placed in a vacuum.

Dr Łukasz Michalczyk of the Faculty of Biology and Earth Sciences at the Jagiellonian University received over 300,000 zlotys (€75,000) as part of the HOMING PLUS programme after returning from the University of East Anglia in Norwich. The FNP uses this programme to encourage young scholars to return to Poland. Now Dr Michalczyk is establishing a permanent tardigrade farm and he speaks about them with the same affection normally reserved for younger siblings.

It is the fundamental fields of learning that require financial support – simply put: those that are focused on interpreting the world rather than those seeking to implement inventions. Contrary to appearances, it is in these areas that the greatest potential for the much–vaunted idea of innovativeness lies.

Why is knowledge of tardigrades useful? Dr Michalczyk could reply that these invertebrates' ability to survive drought or low temperatures could be applied, for example, in transplantology, where the time between the harvesting and transplantation of an organ must be as short as possible, hence the ability to freeze an organ without the risk of damaging it would make many things much simpler. This knowledge has already enabled the development of what are known as long-lasting dry vaccines which do not need to be stored in a fridge. This is significant particularly in tropical countries of the Third World.

This young scientist, however, opts for a different explanation. 'In the nineteenth century, Friedrich Reinitzer, an Austrian botanist, observed under a microscope carrot juice that was repeatedly cooled and warmed. The liquid changed colour because, as it later turned out, liquid crystals were part of its composition. Would anyone today fund the observation of colours under a microscope? Yet it was the first step towards the construction of liquid-crystal displays… Later on someone noticed that the crystals change the direction of their arrangement under the influence of electric current, while someone else thought that such properties could enable the construction of flat, energy-saving screens, the kind that we encounter everywhere today even when buying a ticket at the station… That would be my short reply as to why research should be funded, even – and perhaps above all – that which has no obvious immediate commercial technological application.'

This anecdote from a young scholar who assisted by EU funds to re-establish himself in Polish academia provides a good reason to draw attention to two issues. EU funds for the development of Polish science should not be distributed, as they have been until now, according to the key terms: info, bio, techno. The filter imposed by Polish politicians has excluded scholars from the arts, humanities and social sciences from the benefits of the EU. The same applies to mathematicians and theoretical physicists. It is the fundamental fields of learning that require financial support – simply put: those that are focused on interpreting the world rather than those seeking to implement inventions. Contrary to appearances, it is in these areas that the greatest potential for the much-vaunted idea of innovativeness lies. We have become accustomed to think that innovation signals principally modernisation of the economy, whereas its greatest source is, in fact, the creative thought of an individual.

Alongside the red tape that always accompanies funding applications and the reports on how funds have been utilised, there should always be time… to think (this is something that many heads of research projects can only dream of). Thinking about projects, research findings and questions without answers… Perhaps even about naïve questions? Let us not be surprised that, as Nobel Prize-winning poet Wisława Szymborska said, as ever 'the most pressing questions/are naïve ones'…

Anna Mateja

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RADOSŁAW KITEL, A BENEFICIARY OF THE VENTURES PROGRAMME.

A wide-open door

In 2013, the final round of recruitment to the HOMING PLUS programme took place. A further fourteen early-career researchers will join 119 previous grant holders, making a total of 133 beneficiaries of the programme. The chosen projects will each last at least one year and can finish on 31 December 2015 at the latest. HOMING PLUS is aimed at young people who have recently completed a doctorate and are considering their next career steps. FNP grants should help the best candidates return to (or in the case of foreigners, move to) Poland and carry out their planned research here.

'The HOMING PLUS programme combines the most important objectives which the Foundation has been seeking to realise

If we fail to offer good working conditions for these outstanding individuals, then it is unrealistic to expect significant success from research conducted in Poland.

over the last few years, so: supporting the careers of the most talented academics, with a crucial part of this being assistance in ensuring they achieve academic independence sooner, and also increasing Poland's attractiveness as a place to conduct academic research. We want to bring the best young academics, both Polish and foreign, to Poland. If we fail to offer good working conditions for these outstanding individuals, then it is unrealistic to expect significant success from research conducted in Poland', says the President of the Foundation Prof. Maciej Żylicz.

The programme began in 2010. Although no age limit was specified in the candidate specification, they were expected to be people who had received their doctorate within the last four years. An exception was made for those who had recently become parents, with maternity (and paternity) leave extending the period in which grant applications could be submitted to six years after a doctoral award.

The most important criterion that candidates had to meet was that they had spent at least nine months working abroad in a research-related capacity or on a postdoctoral placement. Appliations were most common from people who had completed their theses at a Western academic institution.

'Coming to the end of my time abroad and thinking about a return to Poland, I browsed grant opportunities looking for one that would enable me to focus solely on research while also offering financial stability in Poland. In the States I learned optogenetics, a method based on expressing light-sensitive ion channels on neuron cell membranes that open up under the influence of a laser set at a particular wavelength. The activities of particular neurons can be activated or halted by applying a beam of light to them. I wanted to bring this method to Poland, since it opens up exceptional research potential. Thanks to a HOMING PLUS grant we have become the first research team in Poland to use this method. Together with my colleagues we are attempting to establish the nature of dysphoria, i.e. the negative experiences and emotions that accompany processes of coming off addictive substances. We know a great deal already about withdrawal but relatively little about dysphoria. According to one idea, strong negative emotions trigger a desire to seek addictive substances and they effectively prevent maintaining abstinence', explains Dr Wojciech Solecki, laureate of the 2013 programme with an award of 287,000 zlotys (€ 71,750) for a project titled 'Noradrenergic Regulation of the Motivation System'. Before his return to the Polish Academy of Sciences' Institute of Pharmacology he worked at Yale.

Assessment of candidates follows a standard procedure. After checks as to whether applications satisfied the procedural regulations, they were assessed by at least three reviewers. The scholars who received the greatest number of points were invited for an interview, the aim of which was to verify the reviews, and this resulted in the final ranking of candidates. Overall, 417 applications have been submitted to the programme since it was established, with 133 grants awarded. The laureates have returned to Poland from all over the world, with Germany (28 laureates), the USA (21) and the UK (17), the most common locations of previous study. There were also six foreigners awarded grants after deciding that Poland was where they wanted to carry out their research projects.

'The majority of competitions have seen all academic disciplines considered, but for the 2013 edition we limited the selection to the fields of bio-info-techno. This was determined by the fact that these research areas were co-funded by the European Regional Development Fund. Meanwhile, funding for laureates from all social science and humanities fields, the so-called non-application fields, which had also been considered in previous editions of the competition, was drawn from the Foundation's own sources. Statistically, the vast majority of applicants represented the natural sciences with some editions, at the application stage, seeing these disciplines outnumber all others by ten to one', says Kinga Słomińska, coordinator of the programme, summarising the running of the competitions. The project authored by Jewish Studies scholar Dr Marzena Zawanowska stands out all the more so against a backdrop of the applications from chemists, physicists and biologists. She was awarded a HOMING PLUS programme research grant in 2010 worth 145,500 zlotys (€ 36,375). Dr Zawanowska is currently working at the Faculty of Oriental Studies at the University of Warsaw but carried out her HOMING PLUS-funded project at the Department of Jewish Culture and History in the Institute of Cultural Studies at the Maria Curie-Skłodowska University (UMCS) in Lublin.

'I had a postdoctoral position in Tel Aviv, which was connected to a different research theme, although it was something that I had had in mind for a while. Unfortunately, I didn't have the financial resources to carry it out. My project had two leading protagonists. They were Chaim Nahman Bialik, the "national poet" of Israel who wrote in Hebrew and Yiddish, and Salomon Dykman, the outstanding translator of his works. Bialik is an exceptionally difficult poet, full of allusions and references to the Bible, Jewish tradition, religious writings (the Mishna and the Talmud) and medieval poetry. Consequently, very few people translated him and those that did, didn't always do the best job. Dykman, though, translated almost all of his Hebrew poems into Polish and received significant praise for these translations. He carried them out in an extremely interesting way, since he gave Bialik's difficult poems a Polish appearance, changing the allusions to classic Jewish texts into allusions to Polish Romantic and Modernity poetry, while also referencing Christian culture.'

THE WORKS OF CHAIM NAHMAN BIALIK HAVE BEEN PUBLISHED IN A BILINGUAL SERIES (PICTURED: THE COVERS OF VOLUMES ONE AND FOUR).

Dykman is a tragic figure, as he submitted his volume of translations to publishers in August 1939. But before the book could appear, war broke out and almost all copies burned in a fire at the printers. Just one copy has survived into our time and this provided the basis for a new, bilingual (Polish-Hebrew) edition. It is the first of four volumes in a series bearing the title, *Literackie spotkania w międzywojennej Polsce* (*Literary Encounters in Interwar Poland*), which is being published thanks to a HOMING PLUS grant. The series also includes a volume of studies on Bialik and Dykman, a bilingual edition of all of Bialik's Yiddish works and a collection of translations, letters and essays by Dykman. Dr Zawanowska's project – 'Polish-Jewish literary encounters in interwar Poland and their cultural context: Rescuing a lost manuscript', to give it its full title – required a great deal of work. Almost fifteen specialists from Israel, the United Kingdom and Poland were involved.

Returning to the subject of the first volume of the series, fortunately for Dykman he received several drafts of his translations for correction and he sent one of the copies to an acquaintance in Jerusalem. It was this copy, currently held in the Bialik Museum in Tel Aviv, that survived into our times. ‘As an aside, it was a massive challenge to get permission to scan its contents. Dykman’s work has had to wait seventy years for publication. Since the original was incomplete, I translated the missing works into Polish myself, while Jacek Dehnel, whom I invited to collaborate, adapted them into poetic form. I don’t think any other language has an equally complete translation of Bialik’s works’, Dr Zawanowska states.

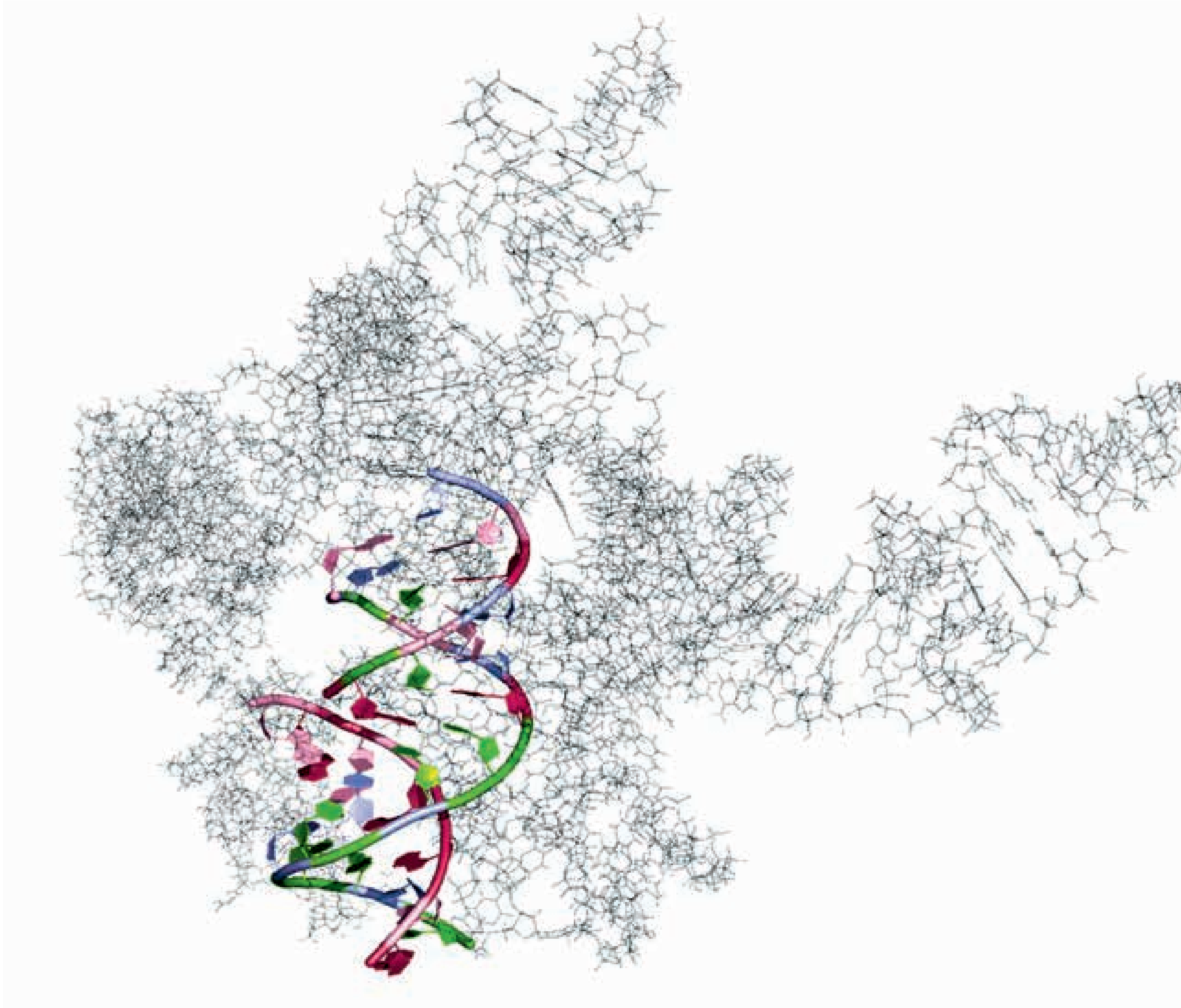
The projects of HOMING PLUS laureates have lasted between one and two years. They have received an annual research grant of up to 80,000 zlotys (€20,000) plus an academic stipend of 5,000 zlotys (€ 1250) monthly. Funding covered research costs, apparatus and research materials, as well as the costs of international academic exchanges and monthly stipends of 1,000 zlotys (€250) for up to two student research assistants chosen through a competitive selection process to conduct research as part of the project. Laureates taking part in the programme admit that one of the greatest difficulties was adapting from being a researcher with a boss to being the head of a project. This stage of transitioning from being a doctoral student to a postdoc was a new and exciting experience. Young researchers learned to manage and plan, stimulating the development of managerial qualities whether in the recruitment of student assistants or in the later stages of a project when it was necessary to teach Master’s students how to conduct experiments and write academic texts.

‘As project leader, I am able to decide how to carry it out, how to allocate funds and how to manage my research team. Thanks to the programme I was able to get excellent students and improve the equipment in the laboratory so that it became possible to conduct world-class research and compete with the best’, says Dr Łukasz Albrecht of the Institute of Organic Chemistry at Łódź University of Technology, a laureate of the 2012 programme. ‘In Denmark I learned a research method based on the application of chiral organocatalysts in asymmetrical synthesis. This is a new area that has been undergoing dynamic growth since 2000. The aim is to achieve chemical compounds of strictly-defined spatial construction. Particles with identical chemical composition but differing solely in their spatial construction can vary drastically in their biological activity. For example, a given compound could be a medical cure yet its mirror image could reveal toxic properties. It’s no surprise that this method of synthesis is something that the pharmaceutical and agrochemical industries are very interested in. In our research we use those organocatalysts that are superior to all other catalysts used in asymmetrical synthesis because they are relatively non-toxic, compact, cheap and enable the production of reactions in the presence of oxygen and water. Achieving the same properties in other catalysts can be problematic’, Dr Albrecht explains before adding: ‘In the course of the current project we are also looking for new catalysts as well as innovative catalytic strategies. We are currently at the halfway stage of the grant and we are already enjoying some initial successes. On the basis of the research we have conducted so far, two publications are being prepared on the subject of new synthetic strategies that should lead to producing biologically significant compounds.’

One of the conditions of the programme is finding another Polish or international partner institution. Dr Albrecht, thanks to 325,800 zlotys (€ 81,450) of funding for his project titled ‘New stereocontrolled strategies in asymmetrical organocatalysis’, convinced one of the leading scholars in the field of asymmetrical catalysis, Prof. Karl Anker Jørgensen to participate in the project. He heads the Centre for Catalysis at Aarhus University where Dr Albrecht conducted his postdoctoral research. He was able to go to Denmark thanks to the FNP, since he was funded by the KOLUMB programme.

The fact that laureates could use their grant to fund visits to Poland by foreign partners working in a similar area improved their international standing. ‘Receiving such a grant gives significant scientific support on many levels. With no stress I was able to establish cooperation with foreign partners. I am very pleased to be able to employ students, since this provides foundations for forming a research group that, I hope, will develop fully in future. As part of the HOMING PLUS programme I was able to fund three individuals. They are carrying out their Master’s research under my supervision. One of the students graduated with a distinction in September and was awarded an attractive doctoral grant, while the remaining two students collaborating with me on this programme may also reap significant benefits. Thanks to the grant, we had money for research trips, and most of these funds went to students. The sponsorship of such trips comes from several sources, with part of the costs covered by the host institution. Having my own grant made it easier for me to seek funding’, is how Dr Jarosław Buczyński of the PAS Institute of Mathematics in Warsaw assesses his own experiences. He is a laureate of the 2011 programme and before his return to Poland worked at Institut Fourier in Grenoble, France. The subject of his funded project in mathematics is ‘Secant varieties, computational complexity, and toric degenerations’.

The significance of being able to continue inspiring collaboration begun during a postdoctoral placement is also stressed by Dr Katarzyna Purzycka of the PAS Institute of Bioorganic Chemistry in Poznań. Since 2012 she has been carrying out a project titled ‘Structural determinants of Ty1 retrotransposition’. As a laureate of the HOMING PLUS programme she established what was a new direction of research for the Polish laboratory to which she returned from the US National Institutes of Health. ‘I am trying to develop a fairly innovative method



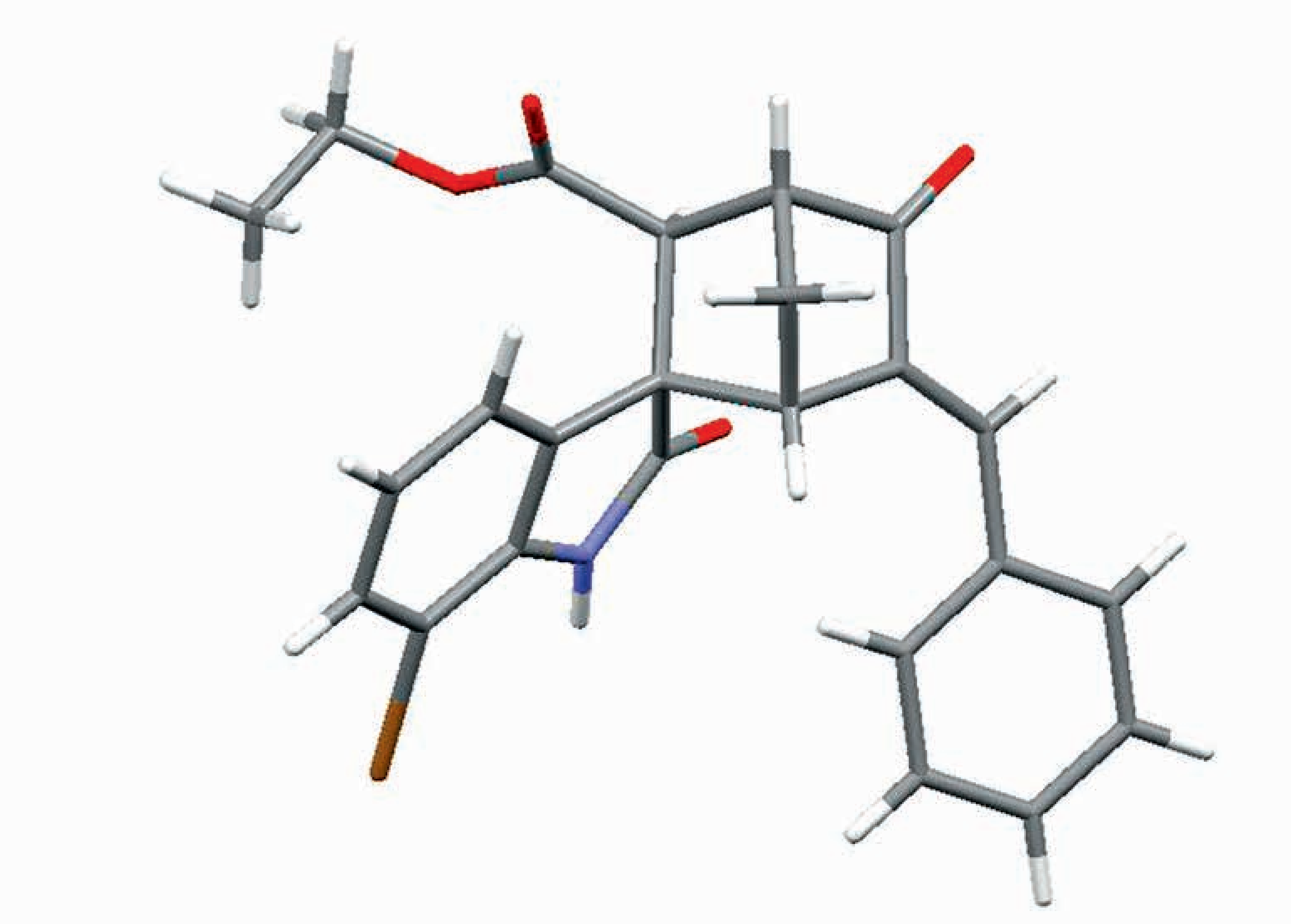
KATARZYNA PURZYCKA, PHD, IS WORKING ON AN INNOVATIVE METHOD FOR OBTAINING 3D STRUCTURES OF RNA AND RNA AND PROTEIN COMPLEXES (ILLUSTRATION: 3D STRUCTURE MODEL OF Ty1 RNA).

of deriving the spatial structure of RNA, RNA complexes and proteins. I am applying a model of endogenous retroelements (retrotransposons). The same endogenous retroelements are a good model of retroviruses. During my doctoral research I was interested in the HIV retrovirus. I decided to combine the two areas, starting from the assumption that research into the evolutionary similarities at the level of the RNA function will bring us closer to understanding how the evolution of our genomes is taking place. Furthermore, research on retrotransposons can contribute to their use in synthetic biology or in gene therapy’, says Dr Purzycka.

A retroelement is, simply speaking, a ribonucleic acid which, thanks to a process of reverse transcription, can be implanted into various places in the host’s genome. Perhaps the comparison of retrotransposons and retroviruses will make it possible to establish which of these molecular structures is older in evolutionary terms. Retrotransposons never leave the host’s cells, whereas retroviruses can infect other cells. And this is the fundamental difference between them. ‘An interesting question for research is to consider what caused the loss of this infectiousness or what caused it to develop’, Katarzyna Purzycka explains. ‘Tracing the difference between these genetically-related elements will enable us to find out more about the evolution of our genomes. Essentially, a great proportion of them are formed of transposons and these were considered evolutionary junk in the past. Now we know that they contain many interesting and still unknown functions. I am also working on developing new methods of structural sampling, which will enable me to predict the spatial structures of large RNA when applied in conjunction with experimental data. In order to understand the role of RNA in a cell we must first know its spatial structure because this is what to a large extent determines the function of a particle. If my method proves successful then it can be applied to any RNA-protein system. It will be an important step in modelling carried out by many therapeutists', says the researcher summarising her work.

Experience gained through the HOMING PLUS programme opens the door for the best young scientists and has given them many benefits. Laureates could not only realise their professional aspirations but have also brought to Poland scientific innovations while also perfecting "soft" skills, so learning how to recruit and manage employees. Within projects sponsored by the programme they formed their first research teams and shared their personal opportunity for development with students. The projects carried out by HOMING PLUS laureates provided employment and stipends for 196 students.

Ewa Nieckuła



THE X-RAY STRUCTURE OF A COMPOUND OBTAINED IN THE PROJECT OF ŁUKASZ ALBRECHT, PHD.

Intensive research by satisfied parents

THEY ARE YOUNG SCIENTISTS WHO GAIN SATISFACTION FROM THEIR INTENSIVE RESEARCH AS WELL AS THEIR FAMILY LIFE. A VIROLOGIST, A PSYCHOLOGIST, AN ASTROPHYSICIST, AN ONCOLOGIST AND A BIOCHEMIST – FOUR MOTHERS AND ONE FATHER – ALL CLAIM THAT THE PARENT-BRIDGE PROGRAMME ENABLES THEM TO CONDUCT GROUND-BREAKING RESEARCH WHILE ALSO DEDICATING THEMSELVES WHOLEHEARTEDLY TO PARENTHOOD.

WE ARE DEVELOPING HERPESVIRUSES FOR INNOVATIVE VACCINES

'The PARENT-BRIDGE programme was ideally suited to our needs', says virologist Andrea Lipińska, who after maternity leave following the birth of her son Franciszek (now 8) returned to scientific work at the Intercollegiate Faculty of Biotechnology at the University of Gdańsk and the Medical University of Gdańsk. She then had a daughter, Marysia (4), and intensive academic work became impossible. Her little girl was cared for by her grandmothers. An already tight budget was further burdened by the cost of sending her son to a private preschool, which she had to do because the "quite average" situation of the family meant he was not accepted to a state kindergarten. This marriage, with two academic spouses, was reliant upon the support offered by parents.

'I was talking with my boss then about the financial support offered to female academics in Germany for childcare and preschool fees. We envied them because there was nothing like that on offer in Poland', Dr Lipińska recalls.

But something was on offer in 2010 when the Foundation for Polish Science launched a new assistance programme aimed at academics who were parents of young children.

'We noticed a gap in the support on offer to academics in Poland. There are plenty of grant and stipend programmes available in the country. But we wanted to deal with this sensitive moment in the career path, which particularly affects women in science, when children appear, which naturally has an impact on their professional life. We wanted PARENT-BRIDGE to assist in bridging two poles: leading research projects and family life. This was one of the first programmes of its kind in the world', Dr Tomasz Perkowski, deputy president of the FNP, explains.

Andrea Lipińska was successful in the second edition of this programme, receiving 554,000 zlotys (€138,500) in funding for a project on herpesviruses. Additional rewards for leading the administration of the project were of significant help to the family budget. The researcher could concentrate on her principle academic work, since a large part of the simpler tasks were taken on by doctoral students whom Dr Lipińska allocated stipends from the grant funds. These totalled 386,000 zlotys (€96,500) over two years. Previously she had sought to realise her ideas alone and the speed of research was even three times slower than after receiving funding.

'I am a lecturer and researcher, so having a valued research team is a great relief for me. The participation of students on

ANDREA LIPIŃSKA, PHD, WITH HER SON.

IZABELA KREJTZ, PHD, WITH HER SONS.

ŁUKASZ SZYRWIEL, PHD, WITH HIS DAUGHTER.

stipends in the project sped up the experiments. As a result I can focus more on conceptual work, while as a team we intensify our output in terms of publishing findings and we are also applying for further grants', Lipińska states.

She is investigating how viruses restrict an organism's immunity. Knowledge in this field improves understanding of the course of infections. Finding out about such mechanisms determines what innovative medicines and vaccines are developed. Herpesviruses are a cause of chicken pox and shingles in humans, while in cattle and swine they can cause respiratory and reproductive illnesses.

'Herpesviruses remain in a latent state in the infected animal and are often activated during transportation or other stressful situations. In pigs and cows this leads to related illnesses such as pneumonia, a loss of milk or miscarriage', says Dr Andrea Lipińska.

This is a significant issue in veterinary medicine. And although Poland carries out compulsory vaccination of swine in accordance with EU regulations, the vaccines used are far from perfect. Meanwhile, there are no vaccines whatsoever for herpesviruses that affect humans aside from chicken pox and shingles. Consequently, virologists are still looking for information that would enable the development of innovative substances that require lower dosages and are not conducive to related illnesses. This is no simple task because these viruses significantly hinder our immune systems.

Dr Lipińska collaborates with research partners in Holland and Belgium. Reagents and basic research apparatus is bought for the project, while the grant also enables visits to foreign partner institutions and participation in international conferences. It also includes funds for issuing Open Access publications. The virologist stresses that money from the research-related part of the grant opens the way to both personal and professional development; conferences are a chance to meet interesting people, to learn about the current state of research, while publications enable widespread dissemination of research findings.

The project is already bringing real results. Dr Lipińska's team has given a detailed explanation of how two proteins function in a virus that hinders immunological response. The researchers themselves identified the properties of a third, previously-unknown protein.

'The most effective vaccines are based on live viruses but it is necessary to remove their immunomodulatory properties. Our research shows which virus genes should not be included in the vaccine', Dr Lipińska summarises.

WE WILL ASSIST THE TREATMENT OF ANXIETY DISORDERS

Psychologist Izabela Krejtz found information about grants for parents two years ago at her university, the University of Social Sciences and Humanities (SWPS) in Warsaw. The youngest of her three sons, Maurycy, was almost four at that time.

'Scientific research is so interesting that it can be considered a pleasure and it is possible to remain active even on maternity leave. I managed to achieve this when the children were little. But the chance to form a team that would support me in conducting my research freed me of the burden of collecting all the data myself.'

This laureate of the PARENT-BRIDGE programme also allocated a large portion of the grant to stipends. Thanks to this it is possible for her to work partly from home and observe her sons' development in music school – Szymon (10) and Franek (8) play the percussion and trumpet – while also sometimes supporting their sailing activities on Optimist dinghies.

'The boys are always active, we have to exhaust their spare energy. The chance to work from home while collaborating with an independent research team is also invaluable in case of illness. Sometimes the boys will get infected one after the other and this can last up to a month. With the team in place there is no letting up in the research', the mother of three says.

Dr Krejtz received 540,000 zlotys (€135,000) to carry out a three-year research project on responses to stress. The researcher is seeking to establish the chief spheres which cause of stress and tests whether such events affect our psyches. She plans to use this knowledge in a therapeutic context.

The chance to create a team enabled by the PARENT–BRIDGE programme is an opportunity for grant–holders to acquire not only financial support but also to enter into collaboration with renowned experts in Poland and abroad.

'For Poles, health questions, interaction with officials, financial matters and the small problems of everyday life, such as traffic jams, are among the most stressful events. The biggest sources of positive emotions are family, partners and interaction with people', the researcher outlines.

In this research funded by the PARENT-BRIDGE programme participants include both healthy individuals as well as over 100 patients of the Warsaw Psychotherapy Centre suffering from anxiety, personality or eating disorders. They are all set the task of focusing over fourteen days on important aspects of everyday life. They then write them up in an internet diary and assess whether these were positive or negative events, how stressful they were and what mood they were in. Dr Krejtz also conducted research on the question of gratitude. Some of the participants were asked to consider what they felt grateful for each day.

'Grateful thinking played the role of a buffer for positive emotions. It allowed our subjects to react more moderately to stressful situations. The very act of keeping a diary can, in my view, also have a therapeutic impact', the coordinator of the project says.

The team has collected over 30,000 entries to internet diaries. According to the therapists, the descriptions provided coincide with their own view of the patients. It is for this reason that Dr Krejtz plans to include the idea of the internet diary, created during the course of the project, into the therapy process, suggesting it to therapists as a tool for maintaining contact with patients between sessions, for example.

The chance to create a team enabled by the PARENT-BRIDGE programme is an opportunity for grant-holders to acquire not only financial support but also to enter into collaboration with renowned experts in Poland and abroad. Dr Krejtz also made use of this opportunity and raised the profile of the project while establishing priceless contacts crucial to the further development of her academic career.

'Our research team is international while the theme is a combined result of our interests. Prof. John Nezlek, Dr Paweł Holas and I joined forces; Prof. Nezlek was interested in Poles' everyday lives and diary-based methods, while Dr Holas explores anxiety disorders and stress, hence the idea for creating a diary recording responses to stress. Meanwhile, my existing research interests were focused on attentional bias explored using oculography.'

PhD student Marzena Rusanowska and several Master's students are also part of the team, with six master's dissertations funded by the project so far. Each of the students received a monthly stipend of 1,000 zlotys (€250), while the doctoral student received 3,500 zlotys (€875). A total of 175,000 zlotys (€43,750) in pay was allocated from the Foundation's grant. The remaining money was used to purchase an oculograph, which was necessary to investigate attentional bias in people with anxiety disorders. This piece of equipment will remain at the university once the three-year grant is over.

WE ARE OPENING A NEW WINDOW ON THE UNIVERSE

A professional opportunity to create her own research team emerged when Dorota Rosińska was pregnant with her third child. After ten years spent on various postdoctoral placements and working as a visiting professor in France and Spain, she returned to Poland together with her husband and two children, their son Janek (2 at the time) and their daughter Joanna, then nine. Wiktoria was due to be born at the same time as her mother was successful in her application to the FNP's FOCUS competition. The programme enabled the formation of a research team which would work at the Institute of Astronomy at the University of Zielona Góra on gravitational waves that had been predicted by Einstein's Theory of General Relativity, a hot topic in astrophysics world-wide. The researcher initially led the group while on maternity leave. The PARENT-BRIDGE programme allocated over 326,000 zlotys (€81,500) for a further pioneering project, this time based in information technology. It aims to create a programme that would solve some crucial problems in relativistic astrophysics. The project titled 'Numerical tools for the astrophysics of compact objects' began in 2013. Dorota Rosińska's team is working on an explanation of the nature of compact objects such as black holes and neutron stars, as well as their accompanying phenomena.

‘Our computer programme will assist, for example, the finding of gravitational waves by surface detectors called Advanced Virgo and Ligo. These exceptionally sensitive observatories will provide us with unique information about the Universe. We modulate numerically compact objects and count the signal as if were the fingerprint of each astrophysical source, e.g. black holes or neutron stars. It is thanks to these digital models, unique to each astrophysical object, that we will be able to pick out the signal coming from a particular object in the data provided by the gravitational wave detectors’, says Dr Dorota Rosińska.

The European Virgo and American Ligo observatories are being perfected constantly, with their sensitivity levels increased. In a few years’ time they will enable scientists to verify the predictions made in Einstein’s General Theory of Relativity.

‘Thanks to the detectors’ increased sensitivity we are hoping to see the very origins of the Universe, to observe the explosions of supernovas and the collision of neutron stars and black holes in double systems. We should in a few years’ time already be able to observe dozens of such events annually. This will open a new window on the universe and indeed a whole new field of science: the astrophysics of gravitational waves’, Dr Rosińska states convincingly. ‘Perhaps we will witness objects that we had never even considered before. My research team will have a role in these discoveries thanks to its numerical modelling of the most important astrophysical sources of gravitational waves.’

Perhaps we will witness objects that we had never even considered before. My research team will have a role in these discoveries thanks to its numerical modelling of the most important astrophysical sources of gravitational waves.

Around a dozen Polish scientists, including Dr Rosińska, out of a total of around 700 renowned experts around the world, are involved in these unique experiments. The international group is investigating one of the fundamental challenges facing contemporary astrophysics, namely the direct detection of gravitational waves. Until now, the existence of these waves has been confirmed only indirectly, with Russell Hulse and Joseph Taylor receiving the 1993 Nobel Prize for their work in this area.

Gravitational waves produce only very weak reactions with matter, travelling through the Universe practically without hindrance. Thanks to them it is possible to observe unhindered even the most distant objects or those that are invisible to use due to electromagnetic radiation.

Such ground-breaking research attracts young people. FNP programmes feed their enthusiasm by offering, among other things, rewards for young scientists employed by FNP grant-holders. This makes it possible to speed up the progress of research while enabling simultaneous research on several subjects. Dorota Rosińska supervised three Master’s students even during her maternity leave when her children were still very small. Currently her group consists of six doctoral students and several doctors, including four awarded stipends funded by the PARENT-BRIDGE programme. This works to the advantage of the project because Dr Rosińska coordinates what is now a much broader set of investigations. Under her leadership a passionate group of scientists is creating computer software that will help with some still unsolved crucial problems regarding compact objects in astrophysics. After the conclusion of the project, the software will be made available to other research groups. Dr Rosińska is leading the research alongside the best experts in relativistic astrophysics from research institutes in France, Germany, Greece and the USA. In collaboration with a mathematician from Jena University in Germany she was able to create an exceptionally stable and precise numerical computer programme. In contrast to the coding of other research groups, her version enables full modelling of hot neutron stars during various stages of their evolution.

‘Our results will enable investigation of the stability of these objects which can be strong sources of gravitational waves and x-radiation. This is of crucial significance in understanding, among other things, the final stages of the evolution of double neutron star systems and supernova explosions’, the astrophysicist explains. The team also created software for investigating phenomena taking place in the environment of rotating neutron stars and black holes in low-mass x-ray binaries.

The researcher admits that understanding the rules on financing and creating documents to be submitted to the Innovative Economy Operational Programme was difficult, but having been able to employ an assistant responsible for administrative work thanks to the FNP programme, it quickly became possible to get matters in order.

‘The ability to employ young people enabled me to conduct research with a much broader scope than had been previously possible, while also saving me time. It is significant the additional pay that I am awarded for managing the project allows me to pay for a cleaning person or, in emergency situations, a childminder. Previously I would have been unable to afford these things. I have much more time now for my family and for my research. However, the greatest support has always come and still comes from my family and my husband’s family’, says the mother of Wiktoria, a little girl who loves to draw, dance and swim, Janek, who is fascinated by the world of flora and fauna, and Joanna, who loves to read and is interested in history, science and designing clothes and jewellery.

WE WILL OUTLINE MICROELEMENTS’ INFLUENCE ON THE BODY

The sole father who was successful in his application to the PARENT-BRIDGE programme is Dr Łukasz Szyrwiel. This Polish researcher at Wrocław Medical University took a break in his scientific work following the birth of his child although he was not formally on paternity leave. His daughter Helenka is now three years old and, thanks to funding from the Foundation, her researcher father can conduct ambitious investigations which are to a large extent founded upon fruitful collaboration with the French Centre National de la Recherche Scientifique.

‘I opted for the PARENT-BRIDGE programme because the way the budget was constructed granted funds for realising already planned tasks. The programme worked like a flywheel thanks to which I could not only initiate my work but also reach further and develop my future scientific research topics’, the FNP grant-holder says.

The role of microelements, such as iron, copper or zinc, in the body is generally known. These ions have a crucial function in essential life processes. However, many questions connected to the effects of these metals in conjunction with proteins or medicines are not fully understood and recognised. It is these processes that Dr Szyrwiel is trying to comprehend using various research techniques in his investigations.

The scientist designs metal-peptide systems. They can serve in creating materials that are biomimetic, i.e. imitate biological structures, or peptide hybrids containing metal ions, in cells with can provide a platform transporting metal ions in cells with the aim of better understanding their functions. The findings are a result of basic research meaning that it is as yet difficult to determine their specific application.

‘The majority of known biomimetic peptides are based on linear structures. They are like strings which can be bound up and knotted in various ways. However, systems designed in such a way are limited due to their linear construction. We can ramify such structures and thanks to this we achieve completely new compounds with new properties. The linking of metal ions in bonds designed in this way is more stable’, the scientist explains.

Funds from the grant enabled him to produce a synthesis of the newly designed compounds and to buy laboratory equipment that analysing them simpler. The FNP programme also allowed him to pay for research trips thanks to which his research can be conducted in various centres. Three scientific teams are currently working on the project in Poland, France and Hungary. Eight people are involved in the work, including specialists in the field of synthesis, analysis and imaging. This group includes four doctors and also Master’s and doctoral students funded by the PARENT-BRIDGE programme grant. The project partners were chosen based on expert opinion as well as their previous experience of collaboration, including work resulting from the award of a KOLUMB foreign research stipend which Łukasz Szyrwiel received from the Foundation in 2012. For his PARENT-BRIDGE grant, the Foundation awarded Dr Szyrwiel over 220,000 zlotys (€55,000) for the period between November 2012 and June 2015.

The programme worked like a flywheel thanks to which I could not only initiate my work but also reach further and develop my future scientific research topics.

WE WILL MAKE CANCER TREATMENT MORE EFFECTIVE

Dr Iwona Ługowska treats patients with tumours, both melanomas and sarcomas, at the Warsaw Oncology Centre while also working in a research capacity at the Department of Epidemiology at the Institute of Mother and Child in Warsaw. She sees patients two days a week at an out-patient clinic and on the remaining three days she conducts research on new cancer medicines and factors connected to the biology of sarcomas. She is most proud, however, of a project connected to the construction of a computer system that will assist oncologists in their decision making. The FNP has allocated 240,000 zlotys (€60,000) to the project.

‘I applied to the PARENT-BRIDGE programme in the final months of my pregnancy and I knew that in the near future I would not be able to return to work and commit to the schedule that such projects demand. This programme allowed me to combine my work and domestic life, above all raising three children’, says the mother of 18-month-old Ala, Kamila (9) and Maciek (8).

Where did the idea to combine oncology and IT come from? Well, oncology is working towards an individual programme of treatment adapted to each patient’s clinical situation. In order for this to happen, it is necessary to combine patients’ clinical assessment with knowledge of the tumour’s biological make-up. Then doctors will be able to infer what course the illness will take and what medicines will prove most effective in the particular clinical case. The findings from the latest scientific research are included in the treatment recommendations issued. Doctors are obliged to heed these recommendations, although this is not always the case in practice. In the FNP-funded project, a computer application is being created that is supposed to indicate European guidelines and thus support decisions taken by doctors.

'In our clinic we investigate biological factors that prevent the adaptation of treatment to a particular tumour. There is more and more knowledge produced but it is difficult for doctors to keep track of all the changes and new medicines. So I thought that with the developments in computer technologies it was worth creating an IT system that would support doctors in their daily clinical practice', says Dr Ługowska.

The researcher is working on a computer application for doctors. When a doctor enters key information about the patient the system generates recommendations specific to this particular clinical situation in accordance with the European Society for Medical Oncology (ESMO) guidelines. These are identical to those applied in Poland. Aware of the recommended treatment, doctors can their make their decisions.

'For me it is important that this application can be implemented and made accessible to doctors. I have two years to complete this scientific research project. During the first eight months we created a prototype system. We based it on the example of oncological treatment of gastrointestinal stromal tumours and we are working on building computer engines, interfaces, knowledge bases and databases. We still have validation tests ahead of us, including clinic-based tests involving doctors and patients. If the results of the work are satisfactory then we will extend the application to include other tumours', the researcher states.

The prototype will enable expert doctors in a particular field to update information. If the expert knows that the guidelines pertaining to a particular type of tumour have chanced then the application can be used to update the knowledge base.

The medical team working on the project consists of Sławomir Falkowski and Anna Klimczak, doctors in the Clinic of Tumours of Soft Tissue, Bones and Melanomas at the Warsaw Oncology Centre, and two leaders in gastrointestinal stromal cancers, Prof. Piotr Rutkowski and Prof. Jean-Yves Blay of Lyon. The latter leads the ESMO panel of European experts.

The IT side of the project is supported by a team led by Prof. Henryk Rybiński of Warsaw University of Technology, with licences for interfaces, databases and knowledge bases provided by the firm Cognitum. There was no need to employ students on stipends in this project, since work connected to development of medical recommendations should be conducted exclusively by doctors with clinical experience. Programme funds will be allocated for honoraria for specialists, computer equipment and services provided by an outside company.

'Regardless of the possibilities that programmes such as PARENT-BRIDGE generate, the key to success in scientific research is persistence, hard work and a supportive family. In my case, this came from my husband and my parents. Thanks to them I have the opportunity to combine my professional career and raising my children. My oldest son Kamil is interested in economics, and he also likes maths and reading, while Maciek has an artistic spirit and plays the piano. Our Ala is the cherry on top, she is a sweet and clever little lady', says this proud mother and passionate scientist in conclusion.

WOMEN ABOVE ALL REQUIRED A PLATFORM

852 people who are parents and researchers have applied for grants that simplify the return to research work after a period raising small children. An army of reviewers consisting of 999 Polish and 784 foreign experts selected the best 111 projects to receive funding. Alongside 110 mothers who received support, there was just one father. The chosen projects provided work for 151 recipients of stipends, including five people outside Poland.

40.8 million zlotys (€ 10,2 million) was allocated in grants, with eight rounds of applications organised over three years by the Foundation. Six of these rounds included projects both from the 'Bio-Info-Techno' areas (PARENT-BRIDGE programme is co-funded by structural funds as part of Measure 1.2 'Improvement of human potential of science' in the Innovative Economy Operational Programme for disciplines that come under these abbreviations) as well as the remaining academic disciplines which are funded through the FNP's own sources. Two rounds of funding were dedicated solely to the 'Bio-Info-Techno' research areas.

Furthermore, as part of the PARENT-BRIDGE programme, the Foundation allocated an additional 500,000 zlotys (€125,000) to women who during pregnancy were conducting research that could affect their wellbeing. 61 of 68 applicants were successful in acquiring funds that would pay for the employment of a substitute who would carry out tasks potentially endangering the health of the mother-to-be.

Karolina Olszewska, Polish Press Agency (PAP)

DOROTA ROSIŃSKA, PHD HABIL.

FOCUS – putting the best at the centre of attention

THE ORIGINS OF FOCUS, OR: ADJUSTING THE FOCUS

The FOCUS programme run by the Foundation for Polish Science between 2006 and 2010 was aimed at young researchers who had, as a minimum, completed their doctoral studies and were keen to develop their careers, take on new challenges and share their experiences with younger colleagues. The conference of Laureates and Stipend-holders of the FOCUS Programme, held on 5 April 2013, showed that this programme reflected ideally the Foundation's philosophy, which is based on offering support and opportunities to academics at various stages of their careers.

After the conference, the deputy director of programme division at FNP Dr Tomasz Poprawka mentioned that the idea of creating the FOCUS programme emerged around 2005. It was then that the need was recognised within the FNP for a new system of funding that would be open to early-career researchers who would like to create their own research teams and laboratories where they could conduct research in new, original and crucial areas.

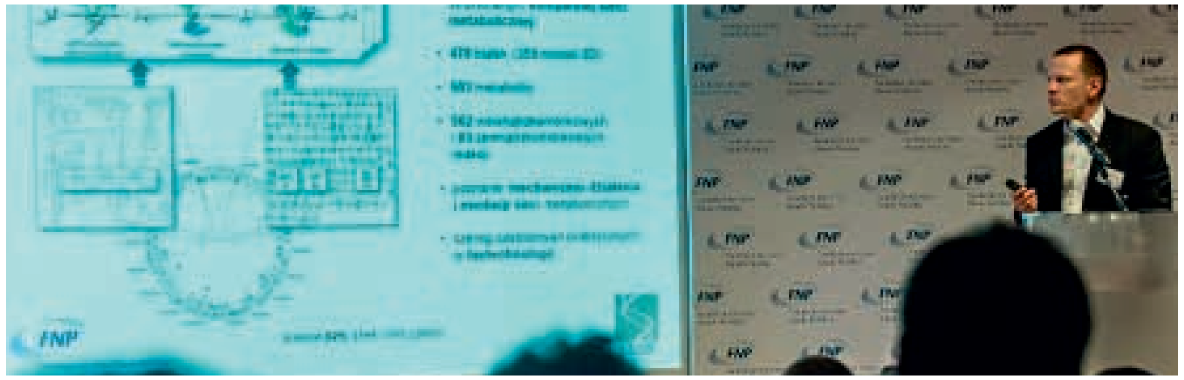
The deputy president of the Foundation, Dr Tomasz Perkowski, spoke in 2010 about the objectives of the programme. 'A natural stage in the career path of a researcher is a placement abroad in a field related to the doctorate. But it is also important for young people to have an opportunity to develop further after returning to Poland. Hence the idea for the FOCUS programme. We would like these relatively modest means to ensure young scholars have the opportunity to build their own research teams and possess the means for initiating a new research programme in Poland.'

FINANCIAL FOCUSSING

The subsidies awarded as part of the FOCUS programme were allocated each year to a different field of scientific research, which was quite unusual, as Dr Perkowski stressed, in the work of the Foundation, since its programmes are generally open to all disciplines. This time, however, research themes were "focused" in such a way, as the President of the FNP Prof. Maciej Żylicz noted at the conference, as to enable the Foundation to focus on young scholars who were engaged in disciplines that at the moment were most crucial for the development of Polish science and for bringing civilisational progress the country. Such an approach enabled the selection of 23 laureates in five rounds of funding, with each of the award-holders forming a dynamically-developing research team.

The theme of the first call for applications to the FOCUS programme, organised in 2006, was 'Mathematical modelling of biological processes', with four laureates selected from among 33 applicants. The 2007 round of funding focused on 'Astrophysics and research on cosmic space', with four of thirteen applicants securing funding. The following year, five of 22 applications were awarded funding for 'Molecular and biochemical research on tumours'. The largest number of grants was awarded in 2009, with six of 43 candidates successful in the sole arts and humanities round of funding, which was focused on 'Linguistic categorisation of the world'. The final edition of the programme in 2010 saw four of nineteen candidates receive subsidies to work on 'Nano- and microtechnology in medicine'. As Dr Perkowski explained, the financing of the FOCUS programme had several stages. The first saw the signing of a three-year contract for a subsidy [80,000 zlotys, (€20,000), annually in 2006 and 2007, rising to 100,000 zlotys (€25,000) for the rounds launched after that], with the opportunity to extend funding for a further two years. This grant included funds for salaries for laureates and for stipends for their collaborators, as well as, of course, financial support paid into the accounts of the research centre hosting the new research team to cover the cost of conducting investigations. In the second stage, laureates could apply for larger grants (apparatus grants), which would provide funding for research apparatus, equipment or fitting out laboratories. Thanks to these funds, many grant-holders were able not only to create research teams but build complete, excellently-equipped research laboratories. Many of them, thanks to these additional grants, were able to receive and adapt new spaces into laboratories. In effect, by April 2013, beneficiaries of the FOCUS programme altogether had received the not insignificant sum of 17 million zlotys (€4.25 million).

PANEL DISCUSSION DURING A CONFERENCE HELD IN 2013
TO SUMMARIZE THE RESULTS OF THE FOCUS PROGRAMME.



KRZYSZTOF GINALSKI, PHD, PRESENTING HIS RESEARCH PROJECT FINANCED IN THE FOCUS PROGRAMME.

TARGETING ENZYMES...

One of the four laureates of the first edition of the FOCUS programme was Dr Krzysztof Ginalski of the Interdisciplinary Centre for Mathematical and Computational Modelling, now known as the Centre of New Technologies, at the University of Warsaw. Thanks to a subsidy from the FNP and support from other sources, Dr Ginalski could create a laboratory for molecular biology and a Centre for Next Generation Sequencing within the existing Laboratory for Bioinformatics and Systems Biology. A project carried out by his team, titled 'Sequential-structural classification of large functional groups of enzymes, the search for new families and their representatives in the human genome', enabled the realisation of a series of research tasks which, as the laureate himself stressed, 'aimed at both developing bioinformatics methods and also applying them to investigations of the structure, functions and evolution of proteins of crucial biological significance, with this including a complete classification of large groups of enzymes such as nucleases and nucleotidyltransferases, with a particular focus on human proteins.' According to Dr Ginalski, it was research funded by the grant that has led to the discovery of many new families of enzymes, enabled understanding of their mechanisms and the molecular basis of certain genetic diseases, as well as leading to the search for new active molecules that could potential serve as cures.

For Dr Ginalski's team, what was particularly important was the fact that thanks to FOCUS, ground-breaking research by young Polish scientists was recognised not only in Poland but also internationally. The findings of FOCUS-funded research have been published in thirty papers in renowned international journals, including some of the most prestigious academic titles such as *Science, Nature Methods, PNAS* and *Genes & Development*. Furthermore, the grant enabled Dr Ginalski to engage intensively with international projects carried out in conjunction with leading centres outside Poland. These projects including work on the characterisation of genes responsible for the degradation of nicotinic acid, the full metabolic network of the Thermatoga maritima bacterium, and the study of the spatial structure of human telomeres, which are exceptionally important enzymes responsible for rebuilding chromosome endings that are shortening. The findings of this research shed new light on the functions, mechanisms and evolution of biological networks and can have a series of practical applications in biotechnology, including, for example, the degradation of the main pollutants of the environment, as well as crucial medical applications.
Thanks to additional funding (an apparatus grant within the programme) and support from other sources, Dr Ginalski's team is in a position to conduct cross-sectional studies which also cover genomics and transcriptomics. Such studies have already resulted in a high-definition map of double-strand breaks in the human genome, which is something that, in future, could have many practical applications.

The laureate of the FOCUS programme stresses that thanks to its broad-ranging effects, it enabled him to retain young, highly-talented PhD students and doctors, demonstrating to them that remaining in Poland is no barrier to their intellectual development.

FOCUS ON PROJECT SOLARIS

Since receiving a funding award in the second call for FOCUS funding, Maciej Konacki of the Polish Academy of Sciences Nicolaus Copernicus Astronomical Centre has already managed to gain not only the title of Professor, but also a grant from the European Research Council (ERC) and from the FNP's Ideas for Poland (*Idee dla Polski*) programme, which supports the ERC scheme. He has also received funding from Poland's National Science Centre (NCN) and the Ministry of Science and Higher Education to continue Project SOLARIS. Its origins lie in an exceptionally ambitious scientific aim, one which could prove real something that science fiction writers and directors merely imagined, namely planets in double and multiple stellar systems. Its initial stages were realised in a FOCUS-sponsored project, 'Extrasolar planets in double and multiple stellar systems.' As part of this project, the team created by Prof. Konacki began its search for planets orbiting ecliptic double stars. While the entire Project SOLARIS budget totals around 10 million zlotys (€2.5 million) acquired from several sources, as Prof. Konacki underlines,

PROF. MACIEJ KONACKI.

it was only thanks to the apparatus grant within the FOCUS programme that young scholars in Poland could afford to buy their first telescope and the camera for it that were essential for looking at the stars and into their own futures. Were it not for the 450,000 zlotys (€112,500) received from the FNP, the young researchers from Toruń would not have been in a position to even think about applying for the prestigious ERC grant.

Now, almost seven years after receiving the initial FOCUS subsidy, the young academics led by Prof. Konacki can seek to realise in peace their "cosmic dreams" with the assistance of four robotic telescopes located in astronomical observatories across three continents: the South African Astronomical Observatory (SAAO) the Siding Spring Observatory (SSO) in Australia and the CASLEO (Complejo Astronómico El Leoncito) in Argentina. These sites were made operational in December 2013, enabling around-the-clock observation. What is particularly crucial is the fact that the measurements taken by this network of telescopes can be watched over by a control centre located at the Polish Academy of Sciences Copernicus Astronomical Centre in Toruń, Poland. While the programme is initially scheduled to run until the end of 2016, Prof. Konacki's team is convinced that a well-maintained network could even run even for several decades. This is why this young team already has plans for new projects and believes that thanks to subsequent grants, including awards from FNP programmes, it will be able to realise its cosmic endeavours in the near future.

MICRORNA AT THE FOCUS OF ATTENTION

Professor Krystian Jażdżewski of the Laboratory of Genome Medicine at the Department and Clinic of General, Transplant and Liver Surgery at Warsaw Medical University already as a PhD became one of the five laureates of the third edition of the FOCUS programme in 2008.

Within the project titled 'The role of microRNA in thyroid cancer' he created a team whose aim was to 'investigate the function of deregulated microRNA in thyroid cancer, in particular the mechanism whereby the overexpression of microRNA-146a and the polymorphism of the sequence of the precursor of microRNA-146a increases the risk of papillary thyroid carcinoma (PTC).'

After receiving the grant, this is how Prof. Jażdżewski explained why he explored thyroid cancer in his research: 'Thyroid cancer is a fairly common problem among our population. Around 30-40% of people have thyroid nodules and many people wonder whether they are cancerous. The truth is, however, that only a few percent of these mutations, barely into double-figure percentages, signal thyroid cancer. Despite everything, though, the number of cases is increasing. We are also interested in this tumour because it has a high level of hereditariness. If a blood relative had thyroid cancer then the chances of remaining family members suffering from

it increase eight fold. Undoubtedly, then, there are mutations of genes which increase morbidity. We recognised that it is worth finding them. And that is what we allocated the funds from FNP to.'

Prof. Jażdżewski's team was successful in achieving its research objectives. As the grant-holder states, 'the mutations predisposing a person to thyroid cancer were found, as were new genes in the microRNA class and microRNA sequences specific to the thyroid, while a diagnostic panel for thyroid cancer was also created.' But, Prof. Jażdżewski stresses, the principal, fundamental and direct outcome of the FNP subsidy was that we created from scratch the Laboratory of Genome Medicine, a modern research unit within the Department and Clinic of General, Transplant and Liver Surgery at Warsaw Medical University (WUM). It is this laboratory which guarantees students, PhD students and early--career researchers access to the most modern equipment and innovative projects in the field of genome medicine. The laboratory and team were created at WUM from scratch, thus giving young academics an exceptional opportunity to participate in building a laboratory and research centre, having a say on the procurement of equipment and establishing collaboration. According to Prof. Jażdżewski, the main strength of the laboratory that he has created at Warsaw Medical University is that it has a very young research team with a high intellectual standing.

PROF. KRYSTIAN JAŻDŻEWSKI (FIFTH FROM LEFT) WITH HIS TEAM.

A further key objective of the project carried out by Prof. Jażdżewski was to continue collaboration with the Laboratory of Prof. Albert de la Chapelle at the Ohio State University Comprehensive Cancer Center in Columbus. Shortly after receiving the grant, Prof. Jażdżewski underlined that it was in the United States where he first became involved in research on microRNA, learning there all the methods and concepts involved in the research he was now seeking to establish in Poland. He stressed that 'thanks to subsidies from the FNP, the chance for my team to collaborate with colleagues across the Atlantic became a reality. The project is from beginning to end a thoroughly Polish-American endeavour. The team will conduct research in both Poland and the United States.' And it is thanks to international, intergenerational, interdisciplinary and inter-group collaboration that the FOCUS grant enabled the intellectual development of early-career researchers.

Prof. Jażdżewski says that in his future research he 'would very much like to continue our research while also bringing clinical trials to a conclusion. During the course of the project we discovered several new genes in the microRNA class and now we are focussing on establishing their functions and significance in carcinogenesis. The truth is that research such as ours can never be concluded…' Prof. Jażdżewski's collaboration with the Foundation has also not reached a conclusion, since thanks to the TEAM programme, early-career researchers from his team are currently working on continued improvement to the potential of personalised medical care.

THE EUROPEAN FOCAL POINT OF NAHUATL CULTURE

In 2009, one of the laureates of the penultimate edition of the competition, the sole round of FOCUS funding calling for applications from the arts and humanities, was Dr Justyna Olko of the Artes Liberales Institute of Interdisciplinary Studies (now the Faculty of Artes Liberales) at the University of Warsaw. She received funding for her project titled 'Language Encounters between the Old and New Worlds: Language as the medium of cross-cultural transfers in early New Spain'. As part of the grant, which – as Dr Olko stresses – 'gave me wings', the Centre for Encounters Between the Old and the New Worlds was established, with its team currently comprising the largest group of Europeans speaking and teaching the Aztec Nahuatl language, while also exploring the pre-Spanish and early-colonial world of the Nahua Indians (Aztecs) and the problem of European-Indigenous culture clashes. As the young researcher underlines, 'I had dreamed for years of conducting the project I am now leading. I wanted to establish a group in Poland that would produce world-class work in close collaboration with leading scholars in the United States, Mexico and Europe… Since my early childhood I have been fascinated by the cultures of the New World including that of the Aztecs.

I started by investigating pre-Columbian cultures that blossomed prior to Europeans' arrival but for the last decade I have been fascinated by the idea of encounters between the Old and New Worlds, culture clashes, encounters between Europeans and the advanced civilisations of the New World and investigating the reactions on both sides to this inter-cultural contact.'

The project carried out by Dr Olko's team using the FNP grant led to another scientific endeavour, which in 2012 received over €1.3 million as a prestigious European Research Council Starting Grant. As the grant-holder says, 'FOCUS was the start of this endeavour, it was the first stage in research that enabled the formation of a complete vision for a project encompassing not only the 16th century and the first stage of contact, but also the period leading up to the present day. It is a multidisciplinary project. We want to remove the barriers between history, linguistics, ethnolinguistics and anthropology, as well as barriers between research fields and ideological barriers... We want students and researchers of indigenous origin, today's Aztecs, to visit us and work with us. We do not want to treat them simply as informants but as partners, scientific researchers, who will participate in the project, collaborate with us and who will have the opportunity to write their doctoral theses in Europe. In exchange we will receive from them knowledge about contemporary culture and contemporary dialects of the Nahuatl language. I hope that we will be able to create a new model of collaboration between European and indigenous researchers by making use of the potential offered by Poland and Europe. What we have in mind is securing for our colleagues from South America the chance to gain an education at a European level and a background enabling further work in Mexico, so that they continue their research resulting in greater prestige for the Nahua people's language and culture. I hope that this project will help us to create new programmes and revitalising activities.'

AMAZING ZINC

One of the four people awarded a grant in the final edition of FOCUS in 2010 was Dr Artur Krężel (who has since completed his habilitation) of the Laboratory of Biological Chemistry of the Faculty of Biotechnology at the University of Wrocław. His project, 'Synthesis and application of Zn (II) biosensors on quantum dots in medical diagnosis and in vivo research', focuses its research on zinc, which the researcher calls 'the element of life and a fantastic object of research.' Zinc is one of the most essential elements in the functioning of all organisms. It regulates gene expression, controls enzyme activity, gives structure to proteins and also plays a part in the transmission of signals within and between cells. The size of the pool of accessible zinc ions is controlled by a giant piece of homeostatic machinery, with interference in the level of ions leading to pathological states. For some time now he has conducted research on measuring the concentration of free zinc given the crucial correlation between fluctuations in its level and pathological changes (prostate tumours). And although Dr Krężel investigated zinc during his doctoral studies it was only a postdoctoral placement in Texas, and above all collaboration with his American boss, that revealed to him 'how little we still know about the biology of this element'. In order to learn more, the FOCUS grant-holder created a young team working at the borders of biotechnology, biochemists and nonorganic chemistry. The team is working on new, sensitive tools for measuring free zinc levels by applying nanotechnology and, principally but not exclusively, methods based on quantum dots.

Assessing the FOCUS programme, Dr Krężel stresses that 'it was a milestone in our efforts to create a unique research group and technique, while the interdisciplinary themes of the programme on nano- and microtechnology in biomedical research fitted ideally into the themes that interest me. The funding received from the Foundation gave me, above all, financial independence and the great freedom, uninhibited and unhindered by administrative regulations and red tape, to disburse money from the subsidy; this is what made this funding programme particularly valuable.' This freedom allowed Dr Krężel not only to buy materials and unique apparatus essential in initiating independent research (for example a hybrid fluid chromatograph and a microwave peptide synthesiser), but also design fittings for the laboratory specific to the needs of his team.

'There are many young and capable researchers who are unable to manage following their return from a placement abroad

PRESENTATION BY JUSTYNA OLKO, PHD, AT THE CONFERENCE SUMMARIZING THE FOCUS PROGRAMME.

ARTUR KRĘŻEL, PHD, TALKING ABOUT HIS RESEARCH PROJECT FINANCED IN THE FOCUS PROGRAMME.

mainly because of a lack of equipment or at least a lack of easy access to it. The Foundation was particularly keen to encourage FOCUS grant-holders to acquire further funding for future research, understanding very well that the injection of funds on its part merely provided the initial stimulation to form a research team. At this moment in time, my group consists of over a dozen people and together we hold ten grants financed from various sources and we have a laboratory fitted with very expensive and indeed unique measuring devices', Dr Krężel says. He also recalls that the stipends awarded from the grant allowed young scientists working on his project to become involved more freely and with greater peace of mind in that which is most essential in their research work, meaning that the members of the team still respond to the word "zinc" with the same amazement and excitement as before.

FOCUS ON THE EFFECTS OF THE PROGRAMME

At the conference summarising the work of the FOCUS programme, Prof. Maciej Żylicz underlined that these grants enabled the creation of 'dynamic research teams with access to good infrastructure', while the research conducted as part of this programme had been recognised in Poland and abroad, which is evident not only in the numerous publications that emerged but above all in the subsequent grants awarded to its laureates by renowned research institutions. In the FNP's view, it was FOCUS that had enabled many Polish early-career researchers to develop further and acquire further grants, while also encouraging them to continue their scientific work in Poland.

Young scientists, when asked about the significance of the FOCUS programme in the development of their careers, unanimously agree that it was a subsidy from the FNP that allowed them to undertake initially research that, in their view, is crucial to the development of science not only in Poland but around the world. FOCUS gave them at a key moment, early in their careers, not only financial support but also the opportunity to form their own research groups whose innovation enabled the establishment and development of contacts with foreign institutions while also maintaining the integrity and importance of their own laboratories and Polish research centres. It is important to note that FOCUS laureates and beneficiaries awarded stipends from its funds continue to conduct research, much of it funded by further grants from various institutions. The programme enabled early-career researchers to define their 'scientific desires', granting them the opportunity to choose their own career path and pursue it with peace of mind. It helped them to gain the experience necessary in applying for further grants. In concentrating on these early-career scholars and the young scientists under their supervision, together with their collaborative research, FOCUS proved that scientific dreams can come true not only abroad but also in Poland.

Prof. Krystian Jażdżewski summarises his experience of FOCUS: 'This programme granted me the satisfaction of having my own research team formed of wonderful young people working in the Laboratory, with four doctoral students graduating and collaboration with other clinical centres developing. It took a long time to set everything in motion; the first findings from the research are only just emerging – there are publications, patent applications, and also new grants, but, what is crucial, is that they are now not only my grants but that there are also grants managed by younger colleagues. And, in my view, that was precisely the aim of the FOCUS programme.'

These stories of experiences of the programme from Dr Krzysztof Ginalski, Prof. Maciej Konacki and Prof. Krystian Jażdżewski, as well as Dr Justyna Olko and Dr Artur Krężel, show that for some FOCUS was a 'milestone', while to others it 'gave wings'. But what was true for all of these young researchers was that it offered an opportunity to gather momentum and believe in their own abilities and strengths. It encouraged them to reach higher and... for more.

While the Foundation does not envisage further calls for applications to this programme, it is aware that its laureates' research should be continued. As Dr Tomasz Poprawka noted, the fact that the FOCUS programme has been concluded does not mean that scientists have been left to fend for themselves. Many projects continue to be realised, with part of them now reaching a conclusion, and some laureates will be able to apply, or are already applying, to extend their subsidies. The TEAM programme, run since 2008, was in a way an extension of the idea that guided the Foundation when it established the FOCUS programme, albeit on a much larger scale. Five laureates from FOCUS developed their teams all thanks to a subsequent successful application for the Foundation's TEAM grant, with 73 teams now conducting research on this basis. This means that the effects of the FOCUS programme are still "under construction" even if it has now concluded.

Krzysztof Michalski, Polish Radio, TVP Polish Television.

Science – is it good business?

SCIENTISTS LIKE TO POST BIG QUESTIONS AND MOST OF THEM DREAM OF BEING AWARDED THE NOBEL PRIZE. HOWEVER, SINCE INNOVATIVENESS BECAME THE MAIN WEAPON IN THE GLOBAL ECONOMIC RACE, THE ROLE OF SCIENTIFIC RESEARCH IS ALSO CHANGING. IT MUST INCREASINGLY FIND PRACTICAL APPLICATION AND, CONSEQUENTLY, TRANSLATION INTO BUSINESS REALITIES. SO HOW ARE POLISH SCIENTISTS COPING WITH THIS CHALLENGE?

A young Master's student, Maciej Wojtkowski, leaves Poland in 1998 for the University of Vienna on a scholarship. There he begins research on the retina using a method based on measuring wave interference. His Master's dissertation results from these investigations. After returning to the Nicolaus Copernicus University in Toruń (UMK), Wojtkowski develops his research method, increasing the speed of his experiment one hundred fold, and he designs a tomograph enabling non-invasive analysis of the inside of the eye. Towards the end of 2004 there is interest in the prototype from a company distributing medical equipment, Optopol from Zawiercie. Two years later, the tomograph is successfully launched on the market. In 2010, the firm, together with the technology developed by Maciej Wojtkowski, is bought out by the Japanese company Canon. It paid 276 million zlotys (€69 million). Today the majority of tomographs of this type available on the market are based on technology developed in Toruń.

MACIEJ WOJTKOWSKI, PHD HABIL.

'His success demonstrates that the commercialisation of scientific research is possible in Polish conditions', explains Dr Piotr Masłowski, a colleague of Wojtkowski's at UMK in Toruń. Masłowski works at the Centre for Quantum Optics in the Institute of Physics where he investigates, among other things, the use of laser light for defining quickly and precisely the concentration of particles in gas mixtures. This method could, potentially, be applied in measuring air pollution, detecting dangerous substances and in medical diagnosis, particularly of lung diseases. Dr Masłowski is conducting his research thanks to 302,000 zlotys (€75,500) of funding awarded by the Foundation for Polish Science (FNP) as part of the HOMING PLUS programme. The aim of this programme is to encourage scientists working abroad to take up their research in Poland.

Before returning to Poland, Piotr Masłowski worked at the JILA Institute at the University of Colorado in a laboratory now led by Prof. Jun Ye but established by John Hall, a Nobel Prize laureate in physics for his contribution to the development of laser spectroscopy and for constructing the optical frequency comb. This is a form of laser emission whose spectrum consists of a set of many clearly-defined frequencies. Until recently, the frequency comb had been used primarily in frequency metrology (a field of science concerned with ways of conducting measurements), for example in the construction of optical atomic clocks, such as the one being built at the National Laboratory for Atomic, Molecular and Optical Physics (KL FAMO) in Toruń.

'We built a device based on the optical frequency comb that enabled the detection of particles present in, for example, the air exhaled by people in concentrations even as low as one part per billion', explains Dr Piotr Masłowski.

Until this point, it had been possible using lasers to monitor simultaneously only one type of molecule. The solution proposed by Piotr Masłowski enables identification of many particles simultaneously as well as analysis of the correlations between their levels. This could signal a small revolution in diagnostics, particularly where lung diseases are concerned, such as asthma, acute respiratory distress syndrome, or chronic obstructive pulmonary disease, since the complete monitoring of the air exhaled by a patient potentially enables a doctor to receive not only information regarding the accuracy of his or her diagnosis but also provides a more general indication of the individual's health. What is particularly important is that this method of diagnosis is quick, non-invasive and could have wide application, for example in early prophylactic screening in high-risk groups. This would enable early detection of many diseases, thus reducing the cost treating them. This is a high-stakes game considering around €55 billion is spent annually across Europe on treating respiratory diseases, while the total losses resulting from it are estimated at €380 billion.

'At the Foundation we have always attached great importance to the quality of research funded by us. But today it is becoming important to consider also how the activities we are supporting can be transferred into everyday life and into economic practice', explains the director of the FNP's programme division, Michał Pietras. This is why the Foundation commits to activities which aim to make it easier for scientists to enter the market with innovative ideas. One of the FNP programmes created with this in mind is VENTURES, which offered financial support to young scholars, including final year students, graduates, PhD students and early-career researchers, with innovative projects with commercial potential. One such project received 172,000 zlotys (€43,000) from the Foundation, with Michał Mikulski, a PhD student at the Silesian University of Technology, consequently able to construct an exoskeleton of the leg.

'It is supposed to be a robot for rehabilitation thanks to which people who today are wheelchair-bound could be able to stand and walk', the young inventor explains. It sounds like science fiction but Michał Mikulski has already enjoyed significant success in developing an exoskeleton of the arm, with this having been the subject of his Master's dissertation. An improved version will enter the market this year in the form of the EgzoEMG rehabilitation robot. 'Thanks to its sensors and microprocessors, this device is capable of sensing even a barely noticeable muscle tension in a disabled person and it can then strengthen it to the extent that the sufferer can move the weakened limb', explains Michał Mikulski. The robot is designed for rehabilitation centres and it is used principally by people suffering from muscle atrophy as a result of conditions such as multiple sclerosis or Duchenne muscular dystrophy. However, its potential applications are much broader with 7.6 million physiotherapy procedures related to the rehabilitation of movement function carried out in Poland annually. Such a device could provide significant relief for therapists. This Polish invention has twice won prizes in competitions organised by Google, which meant that Michał Mikulski could present it at the Techweek conference in Chicago, the largest technology event in the American Mid-West. He was subsequently invited on a two-week excursion to Silicon Valley for meetings with investors.

DAWID NIDZWORSKI, A BENEFICIARY OF THE VENTURES PROGRAMME.

'In the case of the leg exoskeleton the challenge is ensuring correct interpretation of the signals issued by the disabled person and fluid cooperation with the user in real time', says Michał Mikulski. Forward movement, for example, is carried out by leaning the torso in relation to the spine of the exoskeleton. This action is detected by inert sensors and interpreted as a signal to initiate movement. Electric motors are responsible for the robot's movements, while the network of sensors includes four microprocessors. The potential market for such a skeleton seems massive. While the entire rehabilitation robot market is today worth only $50 million, this is a result of the lack of existing solutions rather than a lack of demand. Today there are 20,000 people undergoing rehabilitation who need such a solution and this could rise to 60,000 in three years. In order to be able to compete in this market Michał Mikulski created the EgzoTech company and found an investor, the Jagiellonian

MICHAŁ MIKULSKI WITH AN UPPER LIMB EXOSKELETON.

Centre of Innovation. It invested €200,000 as seed funding in Mikulski's technology and this Centre will adapt the idea to the needs of potential users then bring it on the market.

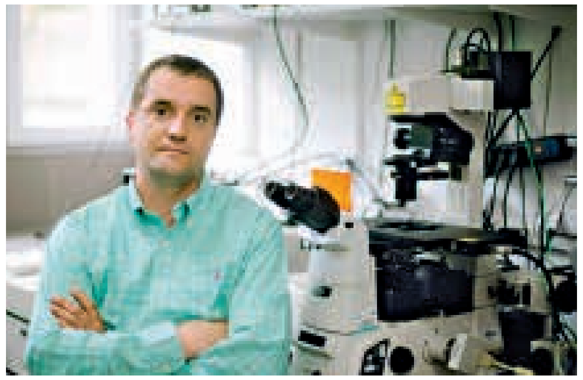
As scientists are keen to stress, inventing a new technology or product based on an innovative idea is only the first step. The road leading from laboratory to market in Polish conditions can be rocky. 'For a scientist what is most interesting is exploring new areas of knowledge, but unfortunately business expects a ready product that can be put on the market. That is why it is crucial to have an intermediary who can take on all the mundane work associated with the commercialisation of a product', Prof. Wojtkowski explains. With this is mind, together with the group of scientists around him at UMK, he established the AM2M company. 'In our academic work we like to pose the big questions, while the tasks involved in the spin-out, the company founded by the scientists, often come down to "boring", strictly applied work involving checking a load of details, selecting materials and constantly reworking the construction and solutions, milling parts and creating prototypes', Prof. Wojtkowski adds.

'It's all about translating effectively scientific discoveries into industrial innovation. Delegating the applied work to the spin-off, the firm separated from the academic institution tasked with commercialising scientific knowledge and technology, allows us, on the one hand, conduct the market implementation process while on the other hand, we can continue our scientific work', explains Prof. Piotr Garstecki of the Polish Academy of Sciences Institute of Physical Chemistry. It is for this reason that Marcin Izydorzak, a man brought in from industry, was made director of Scope Fluidics, which was founded by Piotr Garstecki and is the Polish Academy of Sciences' first spin-off company. Izydorzak was for many years the head of research and development at Adamed, Poland's second-largest pharmaceutical company. Scope Fluidics, now in its third year of existence, can boast a developed prototype of BlueBox, a mobile blood analyser. The project was inspired by years of research conducted by Garstecki's team on microflows, the funding for which included several FNP grants as part of the KOLUMB, HOMING, TEAM and MISTRZ programmes.

Microflows are still a new area of science but its significance for chemistry is comparable to the revolution that integrated circuits brought to electronics. 'We were the first in the world to develop a technique for manipulating microflows; we can fully control their movements and this is all down to a system of small channels just a fraction of a millimetre thick on a credit-card-sized board', explains Professor Piotr Garstecki. Each drop circulating in this system has its own unique identifier thanks to which it is possible to control all the operations carried out on each microdroplet at a given moment by adding or removing a tiny amount of fluid as required. Thanks to this precise measurement of fluid levels any arbitrariness is removed from the experiment. But what is even more important is the optimisation of the entire process resulting from the miniaturisation of the equipment involved and this easily translates into savings when conducting testing. This technology uses fewer reagents. The tests are also conducted more quickly. It is possible to produce several dozen thousand chemical reactions daily.

One of the practical applications of this technique can be seen in BlueBox, a device which differs from traditional chemical analysers by allowing patients' blood to be tested in a doctor's surgery, meaning that results are available within minutes. All that is necessary to carry them out is a drop of blood taken from the fingertip. The simplified procedure can eliminate the most common causes of errors, accounting for 71% of mistakes: poor patient preparation, poor technique in taking a blood sample, inadequate storage and transportation to the laboratory, and mislabelling of samples. The device should be on the market by the end of the coming year and it will be launched by the listed company Cormay.

'My PhD students encountered Cormay as they were preparing applications for VENTURES grants. The president of the company Tomasz Tuora became interested in the techniques for manipulating microportions of fluids being developed at the Polish Academy of Sciences Institute of Physical Chemistry and that is how our collaboration began', explains Professor Garstecki. The technology developed at Scope Fluidics is a world first. The most significant competition for BlueBox comes from the Piccolo analyser produced by Abaxis. However, Piccolo works on the basis of dry reagents and this very much limits the scope of blood tests that can be conducted to around twenty types. BlueBox, however, uses classical fluid reagents meaning that it can be adapted to the full spectrum of around 100 tests.



PIOTR GARSTECKI, PHD HABIL.

The potential success of BlueBox confirms that the diagnostics market is one of the most attractive sites for commercialising Polish scientists' work.

'This is the case because business is very much interested in such solutions and the case is similar in computing and chemistry', explains Michał Pietras.

Dawid Nidzworski, a PhD student at the Intercollegiate Faculty of Biotechnology at the University of Gdańsk and the Medical University of Gdańsk, is another person who is hoping to enjoy successful commercialisation of his project. He developed a censor detecting the influenza virus. 'Untreated influenza can have severe consequences and that is why it is important to identify it quickly. Beyond that, the Polish National Health Fund (NFZ) could save 50 million zlotys (€12.5 million) annually on unnecessary prescriptions of antibiotics, even after refunding health centres the cost of the biosensor', Dawid Nidzworski says.

The biosensor that he is working on will work on a similar principle to a pregnancy test, allowing the detection of viruses by means of a throat swab that should identify the protein characteristic of each influenza virus. Using 219,000 zlotys (€54,750) of funding received from the Foundation's VENTURES programme, Dawid Nidzworski designed and constructed a laboratory prototype of the device. 'It is fairly large, so now I would like to miniaturise it and prepare it for clinical trials', says Dawid Nidzworski outlining his future plans. He hopes that he will receive a further grant or assistance from a capital investor to fund this stage. In parallel to this he is working on an edible flu vaccine for poultry.

Dr Piotr Masłowski has also adopted a similarly multi-tracked approach to research as he investigates the application of the optical frequency comb not only in relation to lung disease but also in completely different fields, such as monitoring pollution in production processes (for example semiconductor production where ultra-high levels of cleanliness are essential) or in controlling combustion engines where not only the concentration of particular components of emissions are analysed but also the correlation between various elements. The same is happening at the PAS Institute of Physical Chemistry where Professor Garstecki's research group is analysing new applications of microflow technologies. 'We are experimenting, adapting microflow systems to a great variety of biological and chemical processes. For example, bacteria can be cultivated in droplets and then the speed at which they multiply on different cultural media and in the presence of different medicines can be measured quickly. We would very much like to apply this technology in solving genuine problems such as the identification of microorganisms that cause systemic diseases' explains Piotr Garstecki. Today it can take up to even three hours to identify them in hospital conditions but shortening this period can be of huge significance in the fight against sepsis, for example.

These examples of projects carried out by FNP laureates show that scientific research can improve our quality of life in important areas including health and the environment. There is no shortage of good ideas but the problem remains the distance that continues to separate the worlds of business and science in Poland. Firms expect innovative products that can be immediately put on the market, as was the case with the tomograph developed by Professor Maciej Wojtkowski. But inventing such ground-breaking technology that can also be readily commercialised happens exceptionally rarely. It is for this reason that scientists are establishing their own firms to start commercialising research themselves. In order for them to succeed in this they need mechanisms and funds to make the time between creating a prototype and offering it to customers both shorter and also less challenging. 'The challenge for science today is to minimise to the greatest extent possible the time between big discoveries and their application in economic practice. And we can see that we are enjoying our first successes in Poland in this area', says Michał Pietras in conclusion.

Piotr Karnaszewski, *Forbes*.

Our opportunity lies in searching for niches

Dr Joanna Łojewska*: The team that I lead is conducting research on developing catalytic convertors that will reduce air pollution. The most popular version of catalytic convertors is the reactors that remove car exhaust fumes. The current norms on exhaust emissions also force industry to use catalytic convertors to clean emissions from factory chimneys and power stations. Our project is concerned with installing them in biogas power plants. Convertors are required in this case to burn off volatile organic compounds and methane, as well as reducing nitrogen oxides resulting from biogas fumes.

I have learned from conversations with industry representatives that scientists have very limited opportunities to implement their ideas in large industrial complexes because such complexes seek to reduce the risk of failure by buying licences for already recognised solutions, even if they are not free of errors. Our opportunity, as inventors, lies in searching for niches – the need for new technologies in small and medium-sized businesses. However, in contrast to the large enterprises, such companies do not have large investment and implementation budgets.

The project funded by PARENT-BRIDGE programme was a response to a real need in the area of alternative energy sources derived from biomass and the biogas it produces. This is a renewable raw material which can be used to produce energy and heat satisfying local needs without incurring the expenses associated with energy transmission. Biogas engines are relatively small devices. But classic emission cleaning technology takes up far more space than such an engine, which is 15m in length. And an additional problem is the cost of catalytic converters because most of them are based on noble metals. This all means that the whole enterprise is hardly cost-effective. Our aim in the project was to develop a smaller converter (we're in a position to make it even five times smaller) that does not use noble metals, or one that at least uses them in smaller amounts (we managed to replace palladium with a catalyst made of metal oxides). The project was, however, principally about research. It is necessary to conduct further testing on how the reactors work in conditions simulating those in a biogas plant. After completing this stage we will then be able to start talking to biogas suppliers.

Thanks to the project we were able to develop a methodology for analysing the surfaces of catalysts as they worked in real time by applying spectroscope analysis in situ and operando. It is very satisfying to know that Polish industry is interested in this research and that we are already receiving orders. This gives me hope that after years of stagnation, things are getting going again in the Polish chemical industry.

* DR JOANNA ŁOJEWSKA IS THE HEAD OF THE LABORATORY OF CATALYST RESEARCH AT THE JAGIELLONIAN UNIVERSITY. SHE IS A LAUREATE OF THE PARENT-BRIDGE PROGRAMME, RECEIVING ALMOST 800,000 ZLOTYS (€200,000) TO CARRY OUT HER RESEARCH PROJECT.

Interviewed by Elżbieta Marczuk

Mentors pave the way

THEY WILL TELL YOU HOW TO MANAGE A RESEARCH TEAM. THEY WILL SHOW YOU HOW TO WRITE A GRANT APPLICATION. THEY WILL ADVISE YOU WHICH RESEARCH PATH IT IS WORTH FOLLOWING AFTER YOUR DOCTORATE. THEY WILL JUDGE WHETHER COLLABORATING WITH A PARTICULAR LABORATORY IS WORTHWHILE. THANKS TO THE MENTORING PROGRAMME OF THE FOUNDATION FOR POLISH SCIENCE (FNP), 62 YOUNG POLISH DOCTORS HAVE TAKEN THE OPPORTUNITY TO COLLABORATE WITH RENOWNED ACADEMICS. THEY HAVE VISITED MENTORS IN ALMOST ALL CORNERS OF THE GLOBE.

The MENTORING programme, which allowed Polish early-career researchers to "observe" recognised scholars in their field and draw from their expertise, is based on the master-pupil relationship. The FNP has run it since 2012 as part of the SKILLS project. It is open to people with a completed PhD who are either working at a Polish academic centre or have completed their doctoral studies within the last twelve months.

The principle is clear: a young researcher who wants to apply to the programme selects a mentor. If the application is approved, the researcher can count on four meetings with his or her more experienced colleague. The Foundation covers travel, accommodation and food costs. The amount of funding depends on the location chosen for the meeting.

The aim of mentoring, the programme coordinator Justyna Motrenko explains, is primarily to assist young academics in their professional development and acquiring skills rather than knowledge transmission in the traditional sense. 'The object of mentoring can be, for example, to become acquainted with methods of managing a laboratory with a particular profile, managing scientific projects or managing a team. It cannot, however, be used as an opportunity to learn a particular laboratory technique because such knowledge can be acquired from books or by participating in courses', explains Motrenko while noting that the MENTORING programme includes the things that standard grants usually overlook.

A LABORATORY OF IDEAS AND ACADEMIC PRACTICES

'If I were to define the MENTORING programme in a few words, I would say that it is a kind of laboratory of ideas and academic practices', says Dr Adam Kola of the Faculty of Philology at the Nicolaus Copernicus University (UMK) in Toruń.

He decided to participate in the programme because it offered the opportunity to collaborate with an outstanding academic abroad. 'I work in an area which has little visibility in Polish academic institutions and so the help of an external mentor was essential for me', explains Dr Kola. His research explores the question of knowledge transfer from Central and Eastern Europe to the USA in the 1940s, which includes the period of the Second World War and mass emigration by intellectuals.

'This programme afforded me an opportunity not only to develop as a researcher but also to acquire academic know-how, develop my soft skills, become acquainted with those in my field and establish new contacts. It came at just the right point in my life', the researcher adds.

Dr Agnieszka Podborska of the AGH University of Science and Technology in Krakow stresses that a researcher taking the first steps in his or her career must, in order to establish international collaboration, almost always visit a foreign laboratory. And finding such a placement is not easy. One reason for this is significant levels of competition, while establishing cooperation with a stranger is not so simple.

'After your viva it is necessary to think of your own scientific career path, gaining independence in your postdoctoral (habilitation) field, and find your own scientific niche. That is why it is important to have a mentor who can offer advice', Dr Podborska stresses.

Dr Barbara Piętka of the Faculty of Physics at the University of Warsaw first made use of the mentoring programme when she was on a postdoctoral placement in Switzerland. 'This was the first time I had a mentor with whom I could discuss the most important elements in my academic career as they arose', says Dr Piętka.

After completing her placement in Switzerland, she had to make a decision as to where she would continue her research. 'I returned to Poland and I was certain that I wanted to work here. But I also wanted to maintain international collaboration and conduct international projects alongside my purely Polish investigations. It turned out that my mentor was useful at each and every stage, since during the course of a project it is necessary to constantly make decisions, decisions that are binding and involve a large number of people. It is good to be able to talk through such decisions with a person who has an outside perspective on my academic career. The mentor's view offers this kind of outside perspective. This is why when the FNP created its mentoring programme it was ideally suited to my needs', says Dr Piętka describing her experience.

Meanwhile, Dr Tomasz Klimczuk of the Faculty of Applied Physics and Mathematics at Gdańsk University of Technology wanted to make use of mentoring in order to learn things which 'passed me by ten years ago'. He was working at that time as part of the FNP KOLUMB programme at the Cava Lab, i.e. Robert Cava's laboratory at Princeton University's Department of Chemistry. 'I did not think then that I would ever have my own research group so that is why I paid no attention at all to certain matters. This time, as part of the MENTORING programme, I travelled to the USA and observed how Prof. Cava leads his team, his approach to management and incorporating new PhD students. I was and remain very impressed by his ways of motivating students, particularly PhD students, in their scientific work', says Dr Klimczuk.

THE EASIEST THING IS THE FIRST STEP

Applications to the programme are possible at any point because they are assessed constantly. However, decisions on who has been accepted are announced quarterly.

'The application is very brief. It is to be completed and submitted online, there is no need for signatures, paper versions or attestations. Applicants are required to explain why they want to participate in the programme, describe their objectives, existing achievements and justify their choice of mentor. After that, invitations to interview are issued. When it proved impossible for me to travel to Warsaw for such an interview, I was able to have it as a teleconference', says Dr Agnieszka Podborska, describing her experience.

Justyna Motrenko explains that the objectives outlined in the application are not set in stone. After being accepted to the programme, the person making use of mentoring is obliged to prepare in collaboration with the mentor a plan of the aims they seek to realise and describe how they envisage their cooperation: when they plan to meet, what they will do between meetings. 'This plan, confirmed by the mentor, is sent by the participant to the FNP and this document is considered binding and final. It does happen, however, that the objectives are altered during the course of the programme with the agreement of the mentor and the mentee', explains Motrenko.

Dr Podborska, as she herself admits, applied to the programme twice. 'The first time around I was unsuccessful because the commission decided that the difference in academic standing between me and the mentor I had chosen that time around was too small. It was suggested that I should apply again but choose a different mentor. That is what I did and the second time around I was successful', says the AGH University of Science and Technology academic.

MENTOR: EXPERIENCED, INSPIRING AND RENOWNED

The choice of mentor is taken by the applicant. The FNP states only that it should be a person with a significant body of work. The choice of mentor must also be determined by the objective outlined by the applicant as the reason for participating in the programme. The mentor must also be, as Dr Podborska herself learned, at a notably more advanced stage in their academic career than the mentee. However, the mentor can come from a different school of thought, a different tradition and even a different academic discipline.

'Acquiring the mentor is the candidates' own responsibility. We can only suggest what traits to look for in a potential mentor. This is the first test for the mentees because they are expected to present themselves and their scholarly achievements in a way that is interesting enough to convince the mentor to collaborate with them. We are deeply convinced that for the programme to be a success, the mentor must be interested in collaborating with the young academic', notes the programme coordinator.

Dr Adam Kola met his future mentor, the comparative literature expert Prof. Haun Saussy of the University of Chicago, during one of his trips to the United States, which was enabled by the funding he received from the FNP START programme. 'During one such visit we met in New Haven and Prof. Saussy spent half a day with me, talking and taking me around Yale where he was working at the time. When I wrote to him suggesting that he become my mentor, he was pleased to accept', says Dr Kola.

Dr Agnieszka Podborska's mentor was Dr David Magri of the University of Malta. She did not know him personally beforehand but she followed his publications and work. She opted to be mentored by this scientist on the advice of another renowned scholar, Prof. A. Prasanna de Silva, whose work she knew from conferences and publications. Prof. A. Prasanna de Silva invented the concept of molecular logic gates, i.e. molecular scale electronic circuits.

Dr Barbara Piętka also had no previous contact with her mentor. 'It was essential for me to have a person directly involved in my scientific field. I wanted this person to have an understanding of the physics of my idea when we were discussing the selection of particular projects so that the mentor could judge whether, for example, my habilitation thesis is at the right level, whether it is worth carrying on in a particular direction with the research or whether a particular centre is suitable for collaboration', Dr Barbara Piętka explains. Her research concerns optical semiconductors.

A professor from the Swiss Federal Institute of Technology in Lausanne became her mentor. 'We once travelled together to the same conference and I was able to spend a lot of time with him during the journey. A long time had passed since that moment, but when I began searching for a mentor, I made a list of the most suitable candidates. I came to the conclusion that he was the best person for me because he is easy to talk to, he listens carefully and has good advice. He is someone with vast experience and has led a large number of projects, while the number of academic careers he has witnessed is very high. It was not a challenge to convince him to collaborate, he agreed immediately', Dr Piętka explains.

MENTORING... IT'S A GOOD START

Dr Adam Kola divides the advantages resulting from his participation in the project into two groups: those connected to merit and those connected to his standing in the academic world. He linked his trips as part of the MENTORING programme with conference appearances in France and the United States, where he would also meet his mentor. There he had the chance to present his ideas not only to Prof. Saussy but also to other conference delegates. 'Thanks to the contacts developed during these trips I am now preparing my first papers for publication in international journals and presses. They are a tangible advantage resulting from participating in the programme which also served to make publication easier and quicker', says the researcher as he describes his experience.

His mentor also helped him in 'more trivial matters which are nevertheless crucial', for example with ways of preparing and editing documents for the English-speaking academic world and with preparing applications. 'These are fundamental and technical matters of which we all have experience. However, a critical review from a person who is experienced in assessing them is invaluable', he adds.

Dr Magri, mentor to Dr Podborska, twice visited Krakow's AGH University of Science and Technology as part of the collaboration established through the MENTORING programme. 'He wanted to see what equipment we had, what I am involved in and he suggested what direction I should take my research in. Thanks to him I started working on sensors which will serve both detection of metal ions and also measuring their concentration in the environment', says Dr Podborska. The main focus of her research is semiconductors such as cadmium sulphide or titanium dioxide which are used in electronics, optoelectronics and solar cells. Turning to this research theme resulted in Agnieszka Podborska submitting a funding application to pursue her research and creating her own team as part of the Lider (Leader) programme run by the National Centre for Research and Development (NCBR).

'Developing my collaboration with Dr Magri allowed me to grow in confidence. It also helped me to get a new perspective on my research and the next stages of my career path. Dr Magri also indicated what I should do in order to successful submit articles to leading journals. He offered practical and realistic advice', the researcher states.

Although her mentoring programme came to an end in 2013, she still collaborates with her mentor and maintains regular email contact with him. They are currently preparing two joint publications.

Dr Tomasz Klimczuk discussed with his mentor things such as how to write grant applications. 'I am now at a stage where this skill is absolutely essential. I recently applied successfully to the Polish National Science Centre (NCN) Sonata BIS programme. One of Professor Cava's valuable pieces of advice was his suggestion that I should imagine myself as the reviewer of the application I was submitting', says Dr Klimczuk.

He too continues collaboration with his mentor despite having already conducted all four meetings that the programme funds. 'The trips initiated by the MENTORING programme not only revived our collaboration but they also gave fresh impetus to our academic relationship. Last year, while I was at Cava Lab, I discovered superconductivity in niobium selenide. I also participated in the characterisation of three other superconductors, with the findings subsequently published in two papers in the highly regarded journal *Physical Review B*. A further work is currently being reviewed and two are in preparation. Thanks to this I already have my own research group and a partly-equipped laboratory. And it seems to me that I have become an equal partner for Prof. Cava', Dr Klimczuk explains.

IDEAS ARE BORN OF DISCUSSION

During the course of the programme, the mentor and mentee may have four short meetings, lasting several days. However, mentoring is not only a question of face-to-face encounters with exchanges by email and telephone a crucial part of it. 'Some matters are very difficult to discuss over a distance and face-to-face meetings are useful for summing up things and making plans. They are a crucial part of this relationship', Justyna Motrenko stresses.

According to Dr Kola, the combination of actual meetings with constant contact through electronic communication is very important in carrying out mentoring. He met with his mentor for discussions over three or four successive days, while email contact allowed him to prepare for those meetings. 'I can't imagine, however, a purely e-version of this programme. Much is born of discussion in science and many opportunities emerge in the course of conversations', he says.

Dr Piętka shares his opinion, stressing that personal contact is essential in discussing very difficult matters or in asking questions which are sometimes difficult to compose. 'The chance to travel even for one day to discuss a problem face-to-face is highly valuable. I do not believe, though, that a mentor should be someone who is expected help with even the most minor matters. If you have clearly defined your problem for discussion, separating important questions from insignificant matters, then four meetings are enough', the researcher notes.

Equally, according to Dr Podborska – mother to three year-old Amelka – basing the collaboration on four short meetings is an advantage. 'In my current situation, I cannot allow myself a longer trip. MENTORING is the only programme that provides an opportunity for short trips', she underlines.

Until now, the FNP has funded one or two nights' accommodation depending on how long the journey to a meeting destination lasts. 'Now we will adapt the principle somewhat in order to fund trips for researchers lasting up to one week. This has been possible until now, although the participant always had to cover part of the costs from his or her own pocket. It turns out, however, that quite often these stays of one or two days are insufficient, particularly when a long journey is involved', the funding programme's coordinator notes.

Researchers have another opportunity that will enable them to join the group of academics who have made use of this form of support for developing their careers and sought to engage a mentor. In 2014 the FNP is accepting further applications to the programme but the important difference is that a time limit has been imposed on collaboration and it must be concluded by October 2015.

The MENTORING programme is particularly helpful, says Dr Klimczuk, for those who are building a research team and applying for grants. 'It provides an opportunity to establish scientific collaboration, or maintain existing ties, with a mentor. It enables interaction with him or her both in the form of discussion and also through observations of the mentor's everyday work', the researcher stresses. 'What is more, there is no great effort required in terms of formalities, whether at the level of preparing an application or then providing reports on how the funding was used', he says in conclusion.

Ewelina Krajczyńska, Polish Press Agency (PAP)

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