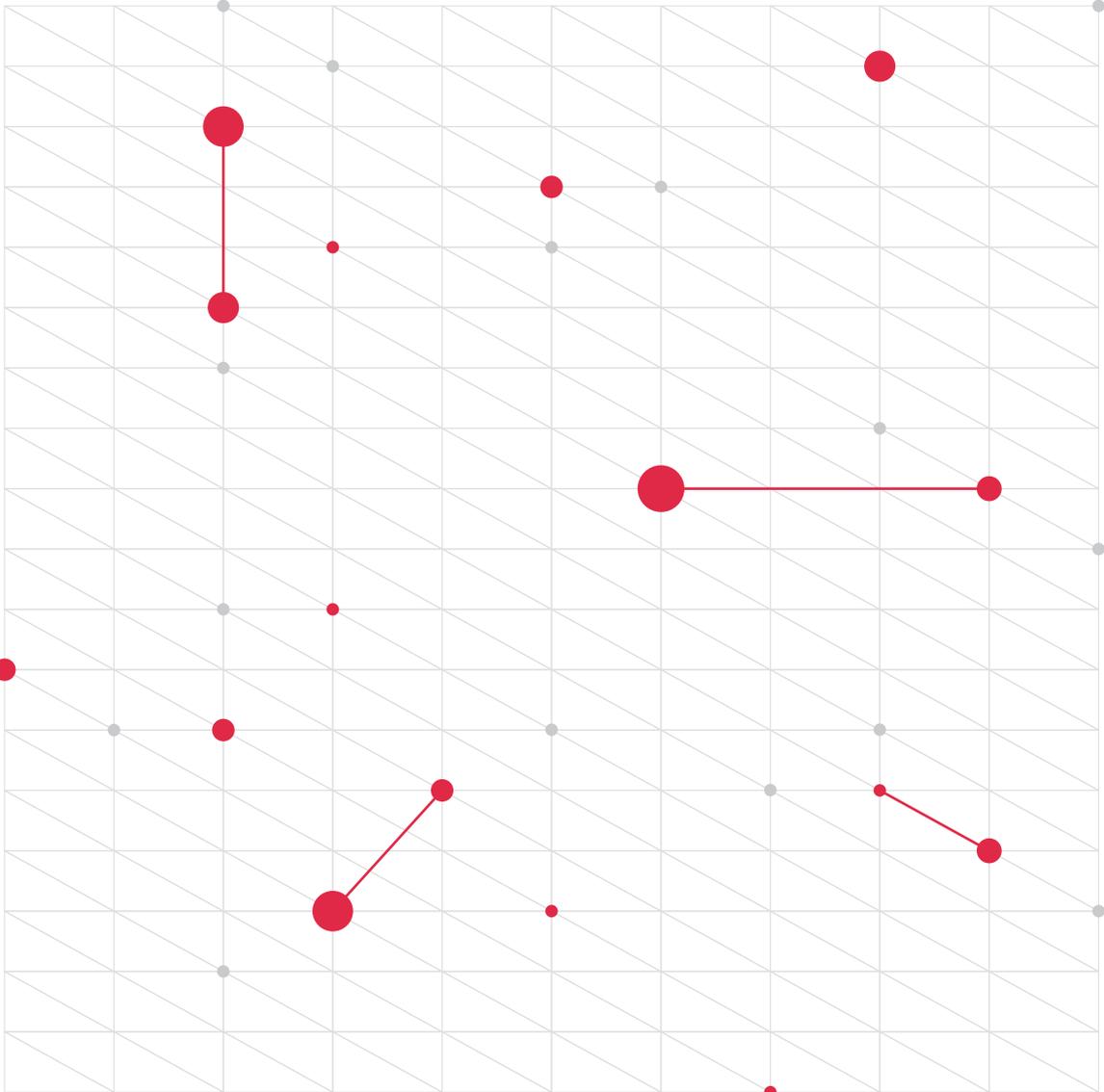
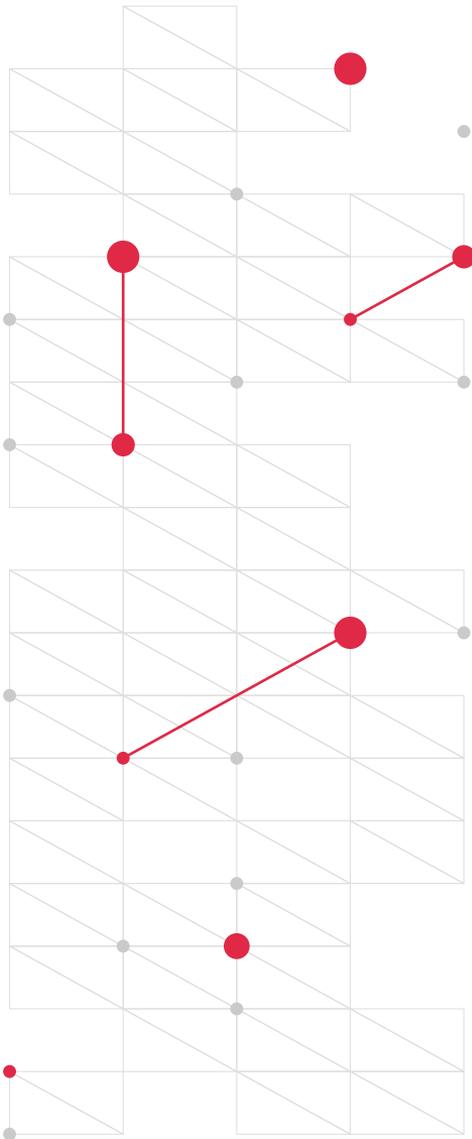




NATIONAL SCIENCE CENTRE
POLAND







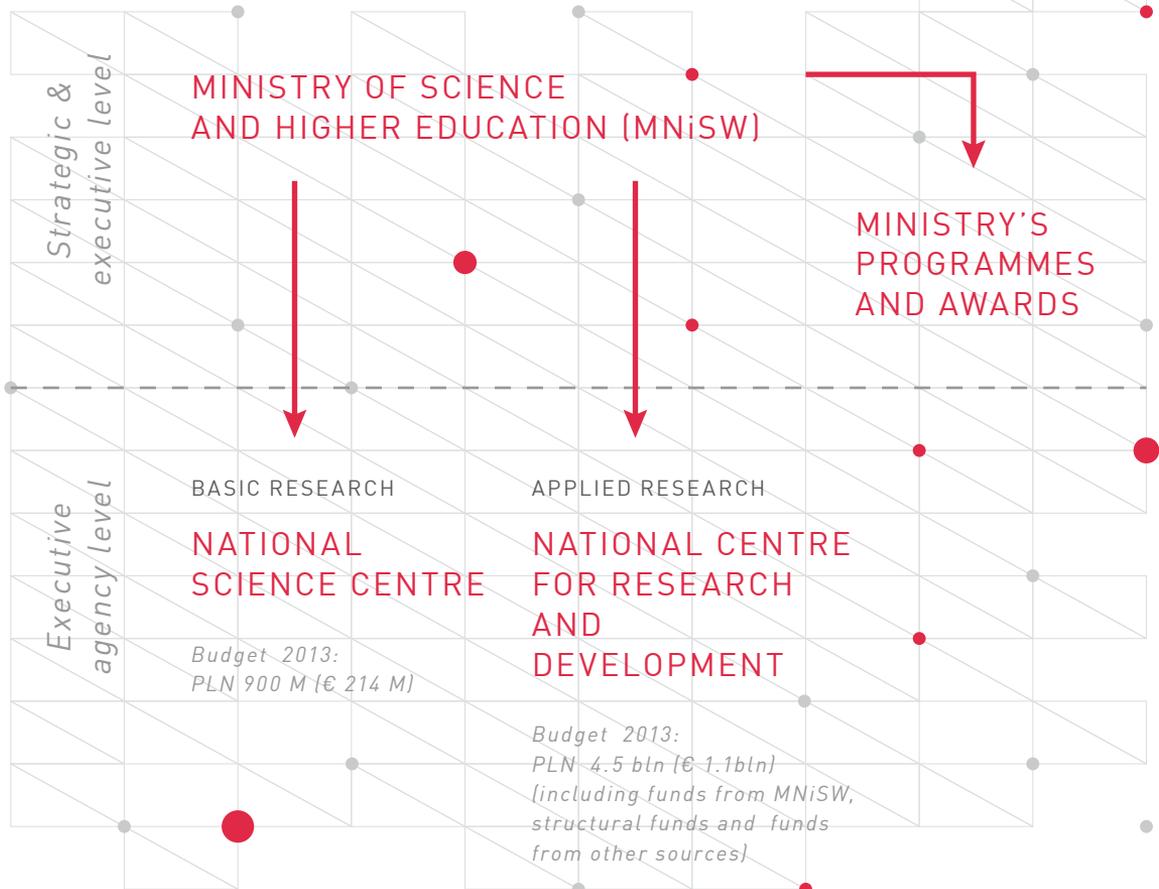
ABOUT THE NCN

The National Science Centre (Narodowe Centrum Nauki, NCN) is a government executive agency set up to fund basic research. Thanks to this institution, researchers themselves can now decide how a substantial portion of research funds is allocated from the state budget.

Basic research is original experimental or theoretical research work that strives to expand knowledge of the fundamentals of phenomena and observable facts. It is not intended to have any direct practical application or use.

THE STRUCTURE OF RESEARCH FUNDING IN POLAND

National budget for research 2013: PLN 6.5 bln (€ 1.6 bln)

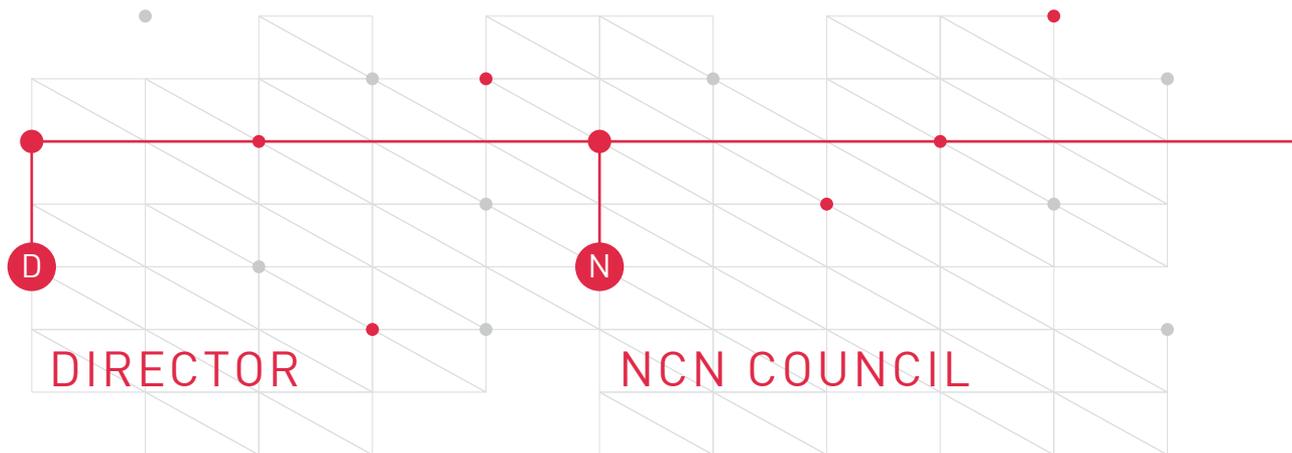


MANAGEMENT

Andrzej Jajszczyk is the Director of the National Science Centre and a professor at the AGH University of Science and Technology in Kraków, Poland. He graduated from Poznań University of Technology. He was a visiting professor at the University of Adelaide in Australia, at Queen's University in Kingston, Ontario, Canada, and at Ecole Nationale Supérieure des Télécommunications de Bretagne, France. He is the author and co-author of seven books and more than 280 research papers, as well as 19 patents in the areas of telecommunications switching, high-speed networking, network management, and reliability. He has been a consultant to industry, telecommunications operators, and government agencies in Australia, Canada, France, Germany, India, Poland, and the USA. He serves on editorial boards of several journals. He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE).

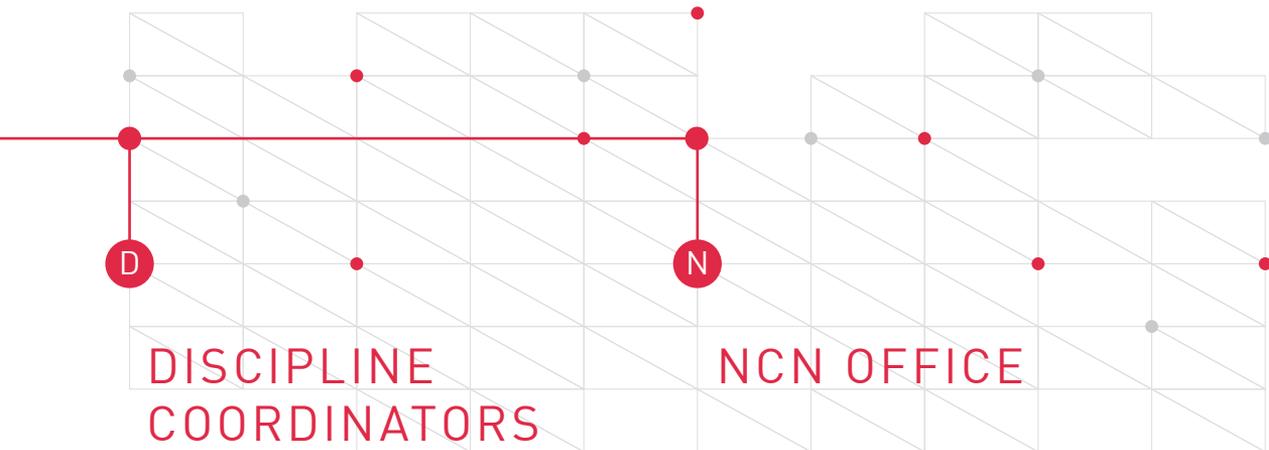
Michał Karoński is the Chair of the NCN Council as well as a professor and head of the Department of Discrete Mathematics in the Faculty of Mathematics and Computer Science at Adam Mickiewicz University in Poznań. He is the author of over 50 publications and has delivered over 30 plenary lectures and guest speaker talks at international conferences. During his academic career he has held several positions including a postdoctoral fellowship at the University of Florida and visiting professorships at Southern Methodist University, Purdue University and The Johns Hopkins University. Since 1992 he has been a visiting professor at Emory University in Atlanta. He has also conducted research in many academic centres abroad, including universities in Moscow, Lund, Bielefeld, Pittsburgh and Singapore, as well as at research centres in the USA, Denmark, South Korea, England and Sweden.

ORGANISATION CHART



The Director of the NCN is the executive responsible for financial management as well as correct and efficient completion of NCN tasks. The Director is also in charge of international cooperation and acts as a legal representative on behalf of the Centre.

The NCN Council is a policy body consisting of 24 distinguished researchers selected from candidates proposed by Polish research institutions. The Council sets priority areas in basic research, decides on the type of programmes, specifies call regulations and selects members of the Expert Teams responsible for proposal evaluations.



NCN Discipline Coordinators are scientific officers responsible for launching calls for proposals for research projects and project evaluation process management. Their responsibilities also include evaluation of the impartiality of the peer review process. In particular cases, the Coordinator, following consultation with the opinions of the Expert Teams, may change the order of research proposals on the ranking list.

The NCN Office is a structure combining the efforts of a number of the NCN's departments and teams. On a day-to-day basis, the Office is responsible for processing calls for proposals and organising meetings for experts at the peer review evaluation stage. The Office also provides support to the applicants and answers their queries. Furthermore, its major responsibilities include administrative and financial management of grant agreements and fostering international cooperation.

INTERNATIONAL COOPERATION

One of the main objectives of the National Science Centre is to foster international cooperation with leading institutions supporting research. The NCN's mission is to offer Polish scientists the freedom to conduct research in a broad international context and contribute to the multinational debate on basic research.

Since 2012 the NCN has been involved in international networking activities which inspire researchers to carry out research in the following disciplines:

- **Astroparticle Physics – ASPERA-2 (ASTroparticle ERAnet) and ApPEC (Astroparticle Physics European Coordination)**
- **Humanities – HERA (Humanities in European Research Area)**
- **Social Sciences – NORFACE (New Opportunities for Research Funding Agency Cooperation in Europe)**
- **Infectious Diseases – INFECT-ERA**

- **Neurodegenerative Disease Research – Joint Programme – Neurodegenerative Disease Research**
- **Cultural Heritage – Joint Programming Initiative on Cultural Heritage**

HARMONIA – PROJECTS CARRIED OUT IN COOPERATION WITH FOREIGN PARTNERS

Researchers who would like to carry out research in cooperation with foreign partners may also submit applications within HARMONIA funding scheme. A proposal outlining research tasks to be performed by Polish partners must be submitted to the NCN by the Polish host institution. Tasks performed by foreign partners participating in the project must be financed by organisations (agencies or foundations) funding basic research in their country of residence or from other sources.

GRANTS

The National Science Centre funds research projects carried out by scientists, academics, national and international research teams, as well as doctoral scholarships and post-doctoral internships. One of the priorities of the Centre is to support and develop the scientific careers of pre-doctoral and doctoral researchers about to embark on a career in research (maximum 5 years since PhD award). The Centre allocates more than 20% of its budget towards grants for this group of researchers.

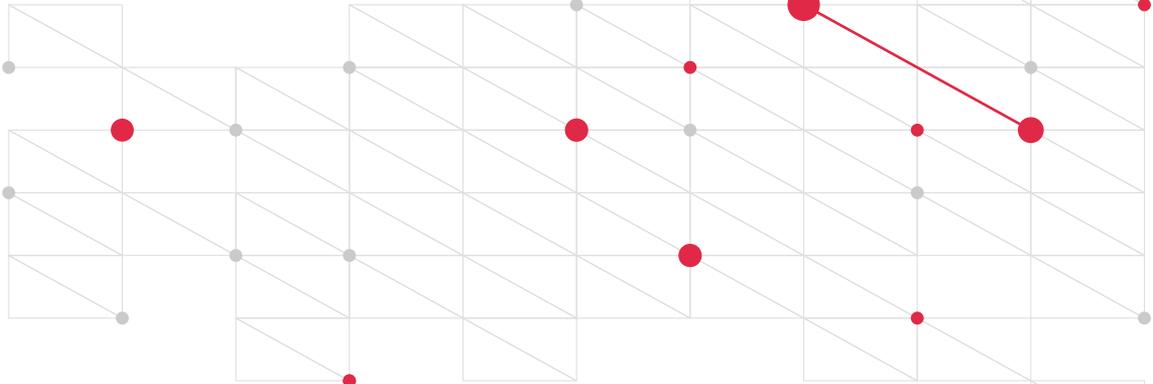
The NCN finances some research equipment, however large-scale research infrastructure is financed by the Ministry of Science and Higher Education. The funding programmes are open to a wide range of applicants and the proposals must be written in both Polish and English. Although parties signing contracts with the NCN are required to be Polish institutions, their research teams may include foreign researchers.

NCN SUBJECT AREAS

The NCN announces calls for proposals four times a year. Applications from the academic disciplines covered by 25 discipline panels may be submitted in response to calls for proposals. The NCN panels are grouped into three disciplinary domains:

- **Arts, Humanities and Social Sciences**
- **Life Sciences**
- **Physical Sciences and Engineering**

FUNDING SCHEMES

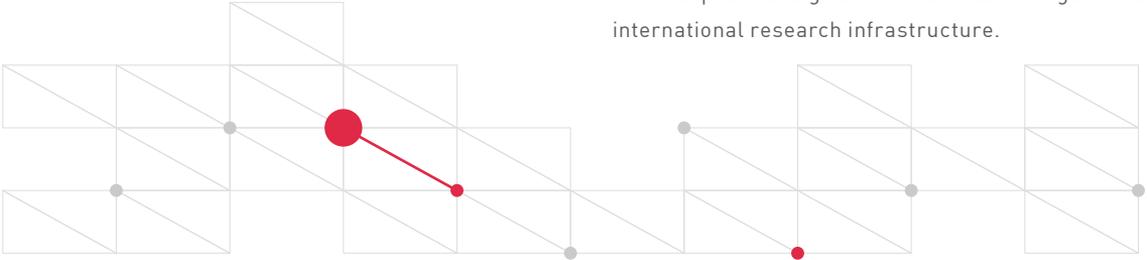


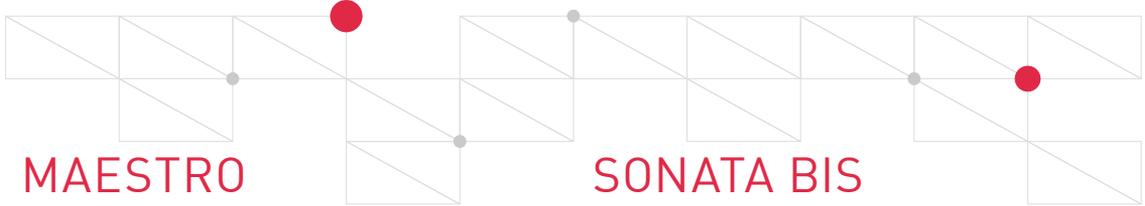
OPUS

Intended for a wide range of applicants, irrespective of their research experience. The research proposal submitted under this funding scheme may include the purchase or construction of research equipment.

HARMONIA

Aimed at applicants wanting to carry out research in cooperation with foreign partners. This funding scheme offers the researchers the opportunity to develop scientific ideas in collaboration with international peers and gives them access to large-scale international research infrastructure.





MAESTRO

Designed for advanced researchers wanting to conduct pioneering research, including interdisciplinary research which is important for the development of science. Projects within this funding scheme should surpass the current state of knowledge, lead to the creation of new paradigms, or forge pathways to new frontiers in research.

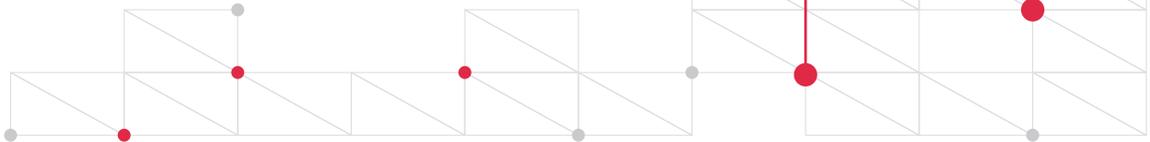
SONATA BIS

Addressed to researchers with 2-12 years scientific experience since their PhD award. This funding scheme gives the scientists an incentive to establish a new research team and become independent research leaders.



SYMFONIA

Applicants in this funding opportunity should be advanced researchers wanting to carry out interdisciplinary or cross-domain research in collaboration with teams representing different areas of research. Projects submitted under this funding scheme are expected to surpass current frontiers of knowledge and gain new perspectives in science and humanities.



SUPPORTING YOUNG RESEARCHERS

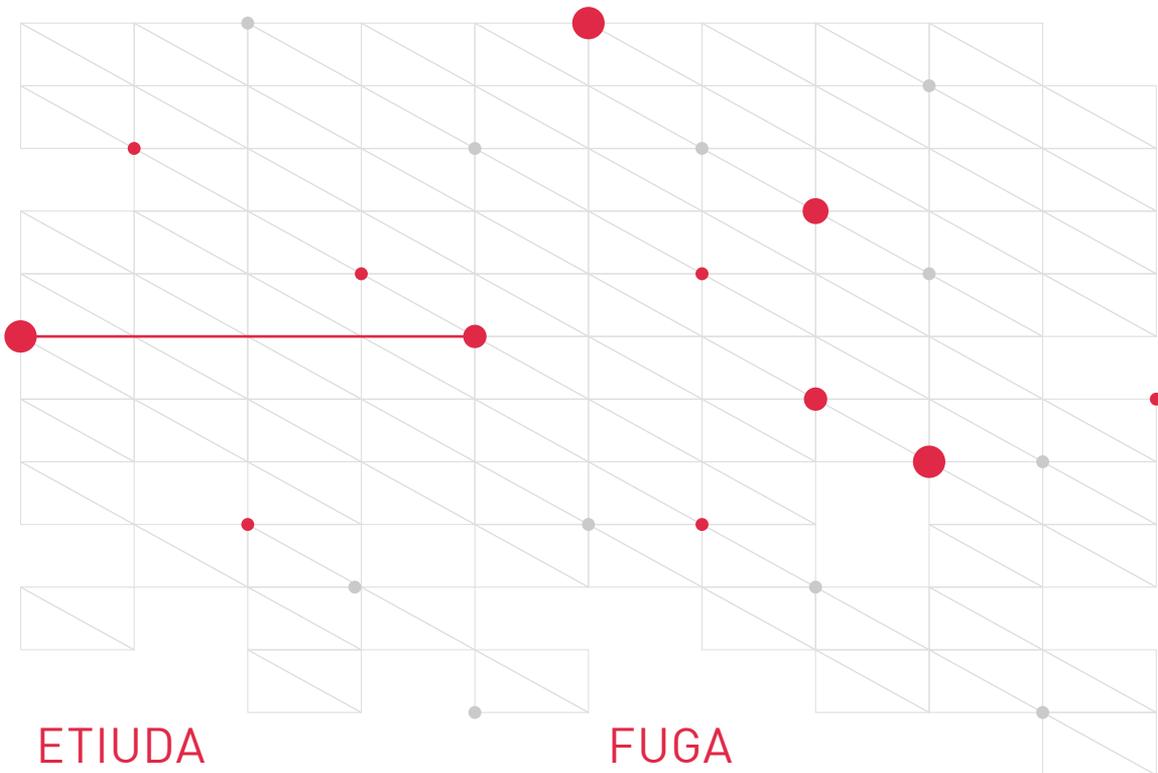


PRELUDIUM

Aimed at pre-doctoral researchers starting their career in research. This funding scheme seeks to inspire the scientists to develop innovative ideas and helps them gain research experience, thus becoming a prelude to their future career.

SONATA

Targeted at emerging researchers with up to 5 years scientific experience since their PhD award. This funding opportunity strives to encourage the researchers to create an innovative scientific or academic approach or equipment, thus helping them become independent researchers.



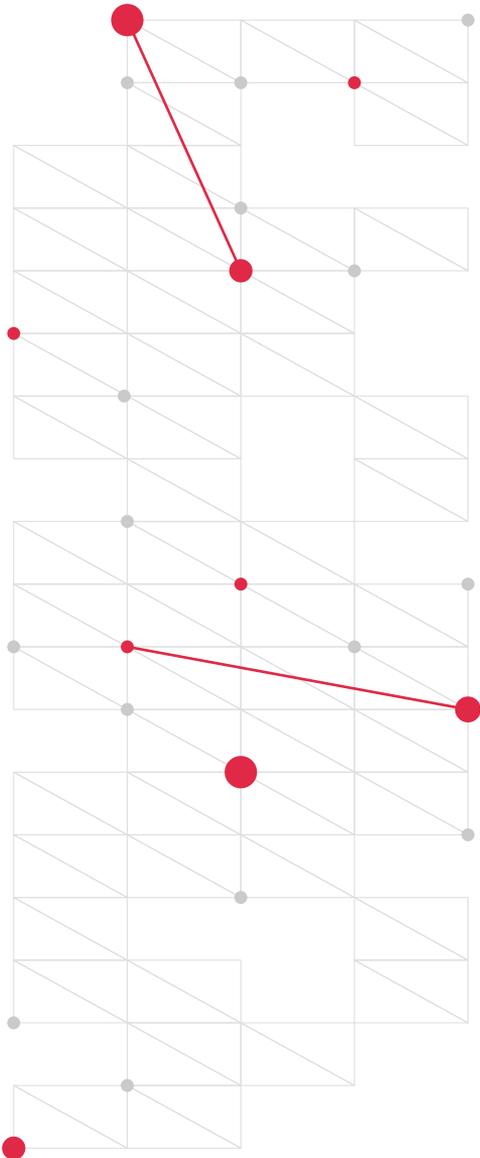
ETIUUDA

This funding opportunity, addressed to PhD candidates, intends to provide the best young researchers with financial support and the optimal working conditions. The applicants in this scheme should plan a research stay abroad which will be funded solely by the NCN. The awardees will also receive a monthly salary and are obliged to obtain their PhD degree within 12 months of completing the scholarship.

FUGA

Targeted at researchers holding a doctoral degree. The programme intends to facilitate mobility of Polish researchers between different research institutions in Poland and encourage the exchange of scientific ideas. The grantees will be employed in an academic unit or other research institution on a full-time basis and will receive funding for their research.

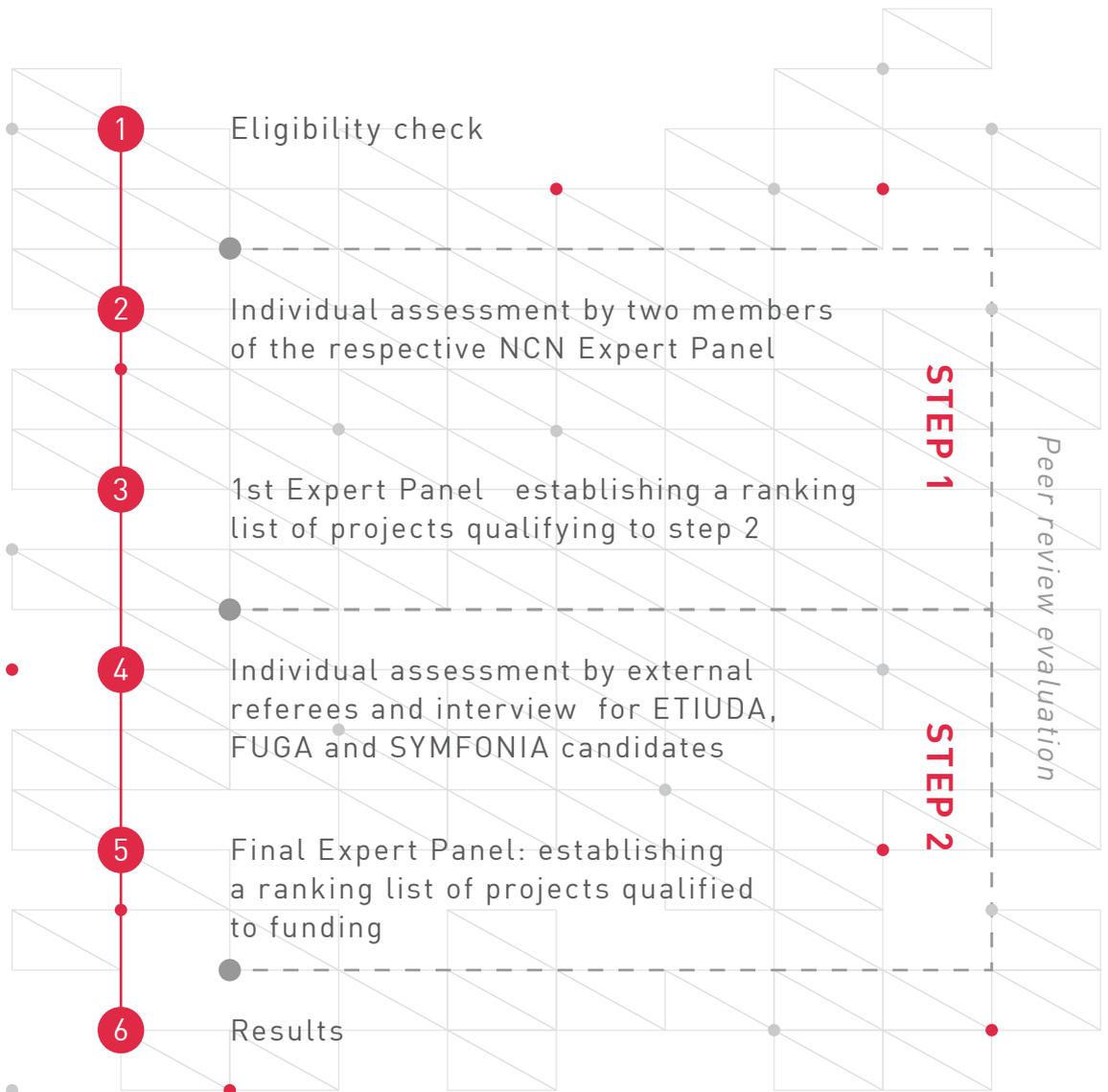




PROJECT EVALUATION

The eligibility of research projects submitted to the NCN is checked by the NCN Discipline Coordinators. Afterwards the projects are peer reviewed by both Polish and foreign referees. Scientific excellence is a prime selection criterion within the NCN evaluation system.

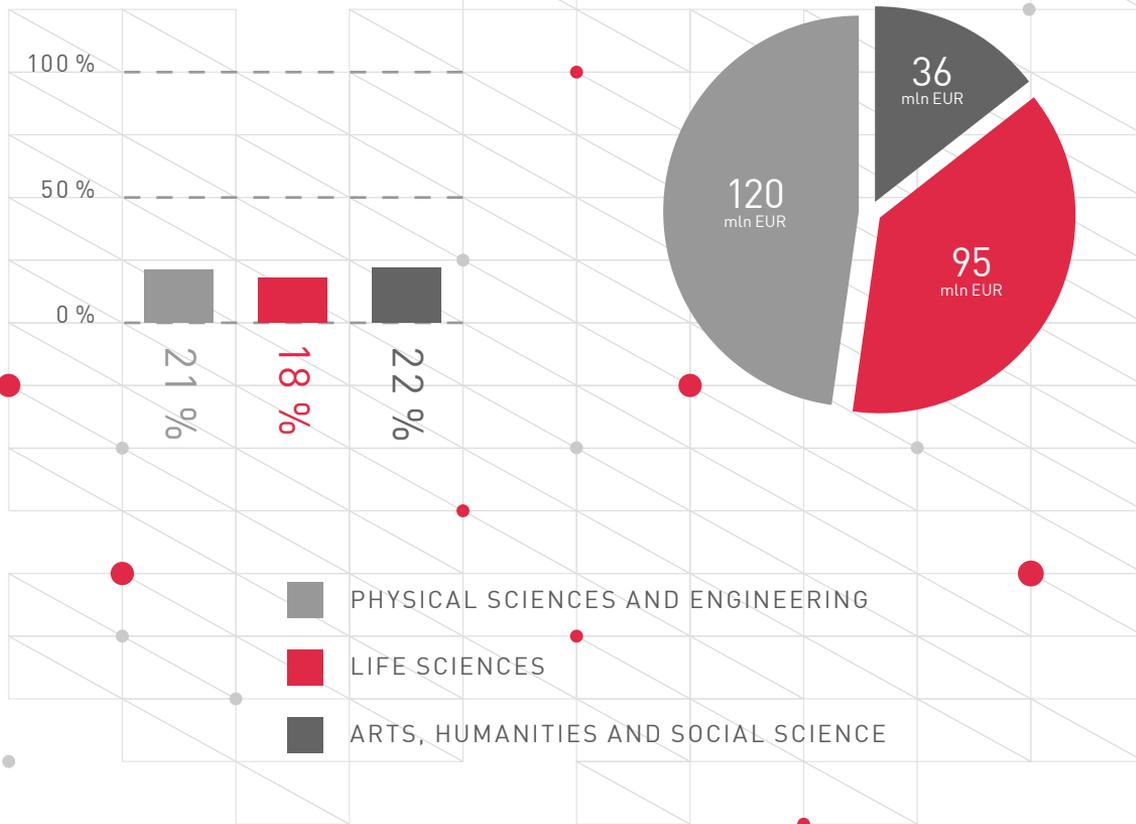
The NCN Expert Panel is a group of experts selected from distinguished researchers by the NCN Council and appointed by the Director of the NCN. The panel is responsible for evaluation of applications submitted in response to the call for proposals.



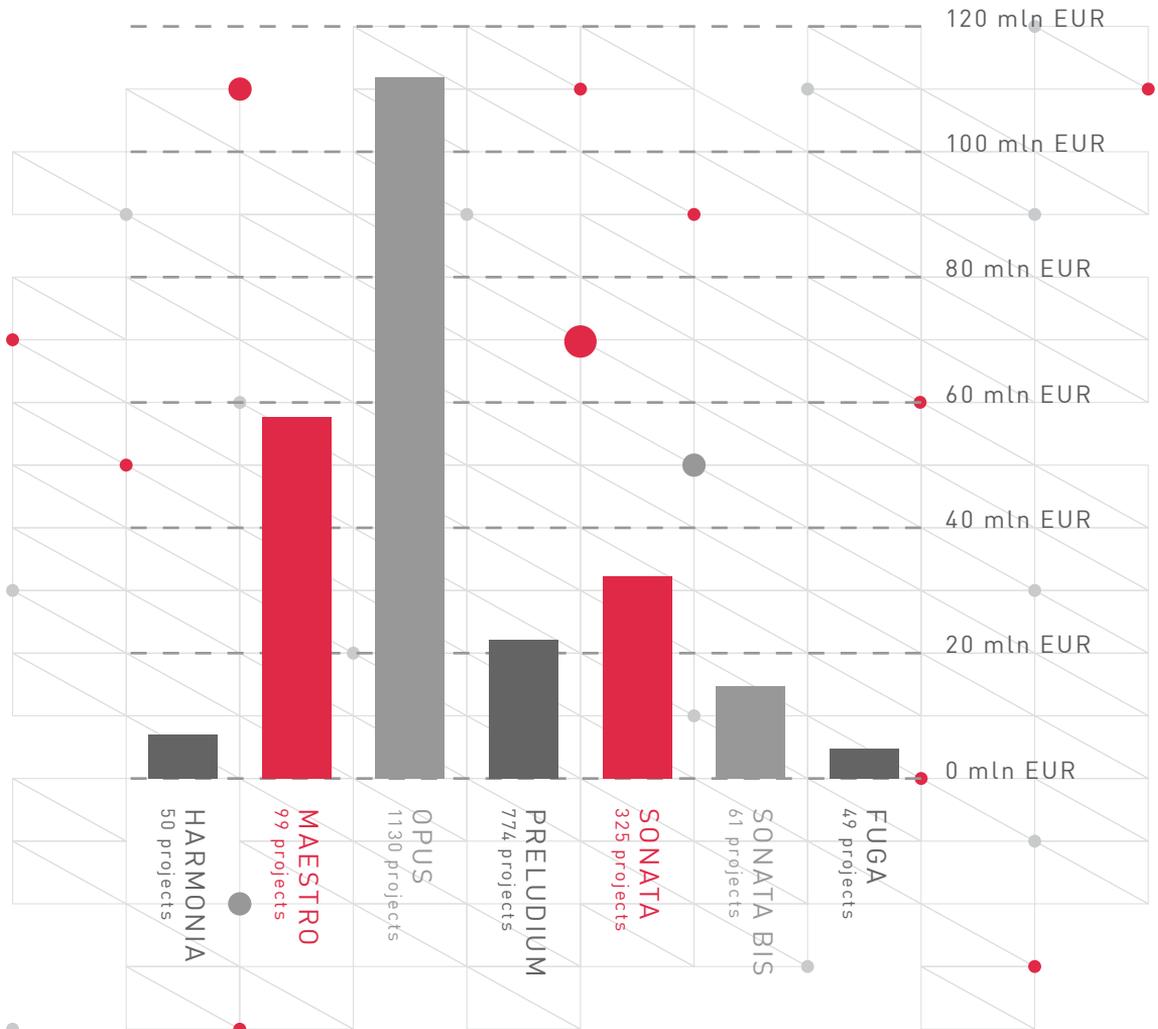
STATISTICS

Success rate within the NCN discipline panels in 2012

Funding granted within the NCN panels in 2012



Funds allocated within NCN funding schemes in 2012



RESEARCH STORIES

HARMONIA

GERDA – searches for neutrino-less double beta decay*

Principal Investigator: **GRZEGORZ ZUZEL, PhD**
Host institution: **Jagiellonian University, Kraków**
Project duration: **36 months**

The GERDA (Germanium Detector Array) experiment searches for neutrino-less double beta decay – an extremely rare nuclear process, which, if identified, would mean that neutrinos could be both matter and antimatter. This feature of neutrinos may confirm theoretical hypotheses and significantly change our current understanding of the structure of matter and the development of the Universe. GERDA, therefore, addresses some key questions for today's particle physics, astrophysics and cosmology.

The searched for decay is so rare that the extremely sensitive detectors looking for it have to be protected against all natural radiation. This includes protection against cosmic rays which constantly bombard the Earth. Consequently, the GERDA detector is located in Italy's Gran Sasso Underground National Laboratory, in one of three underground halls deep beneath 1400 metres of rock.

* Search for neutrino-less double beta decay of ^{76}Ge in the GERDA experiment. Data analysis and investigations of new background reduction techniques using liquid argon scintillation in the LArGe project.



SONATA

Improving implant biocompatibility*

Principal Investigator: **AGNIESZKA SOWIŃSKA, PhD**

Host institution: **The Children's Memorial Health
Institute in Warszawa**

Project duration: **36 months**

The project, carried out by a team working at the Children's Memorial Health Institute in cooperation with the Department of Surface Engineering at Warsaw University of Technology, deals with biomaterials which are used in the production of cardiovascular implants. The increasing demands placed on biomaterial engineering are, first and foremost, connected with an improvement in the surface properties of implants.

As earlier analyses have indicated, the diffusion surface layer of titanium nitride (TiN), produced under certain conditions, may improve the biocompatibility of implants which should function as successfully as any other part of a living organism. The project aims to gain an insight into how biofilm structure is affected by biological environments of varying pH value and given surface properties.

The research tasks are also focused on how to limit blood platelet adhesiveness and increase the chances of developing normal vascular endothelial cells. The research results obtained will have an impact on the improvement of implant biocompatibility and cardiovascular devices.

* Surface engineering of titanium implants towards enhancing biocompatibility for cardiovascular applications



PRELUDIUM

The cognitive role of gestures in the language of blind and visually-impaired children

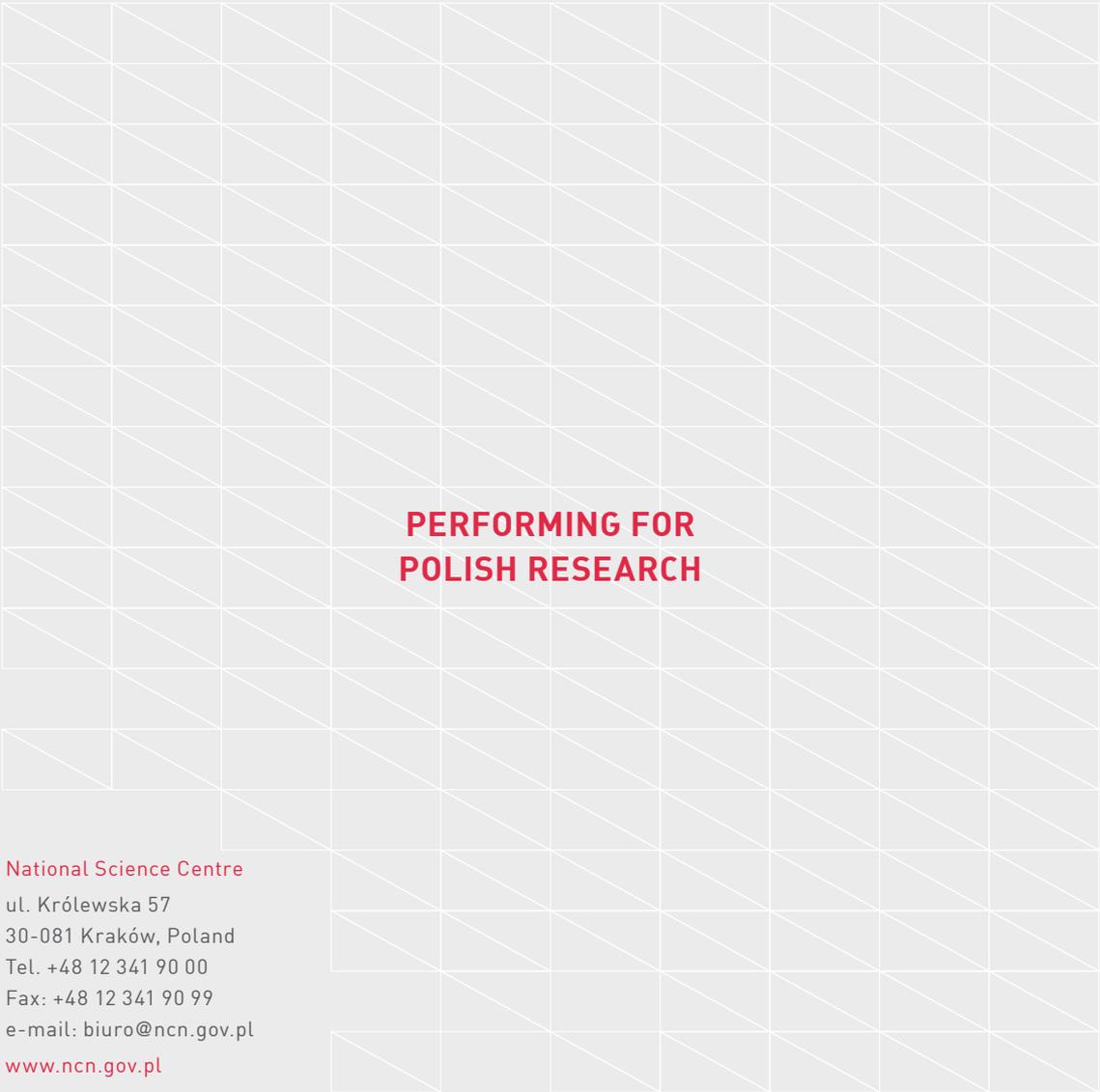
Principal Investigator: **ANNA JELEC**
Host institution: **Adam Mickiewicz University**
(AMU), Poznań
Project duration: **24 months**

A project conducted by Anna Jelec in collaboration with Dorota Jaworska and Zuzanna Fleischer (all three are PhD students at the AMU School of English in Poznań) deals with the language of gestures unconsciously made by children who are blind or visually-impaired.

The authors seek to establish which of the senses – touch, sound or smell – is most often represented in the non-verbal speech of the observed group. In order to elicit from the children the use of gestures that support conceptualisation, the researchers have developed a special computer programme which asks the children to define certain concepts. A child sitting in front of a computer screen has to explain both specific concepts, such as an envelope or a hole, as well as more abstract ones, e.g. love or

kindness. The research, well-grounded in the context of cognitive studies, may help improve didactic materials for blind and visually-impaired children, as well as shape the development of glottodidactics and teaching methodology for these pupils.





**PERFORMING FOR
POLISH RESEARCH**

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