



The Henryk Niewodniczański Institute of Nuclear Physics Polish Academy of Sciences

www.ifj.edu.pl



2013, 2017, 2022, 2026(?)



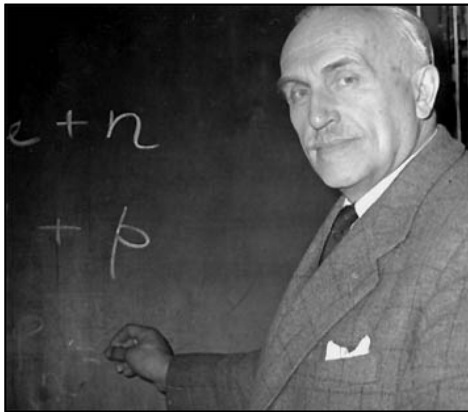
World University Rankings 2025

Discover the world's top 2000 universities



Place 775 (294 in Europe) (3.7%)

Prof. Tadeusz Lesiak
Director General



(Fot. Archiwum of the IFJ PAN)

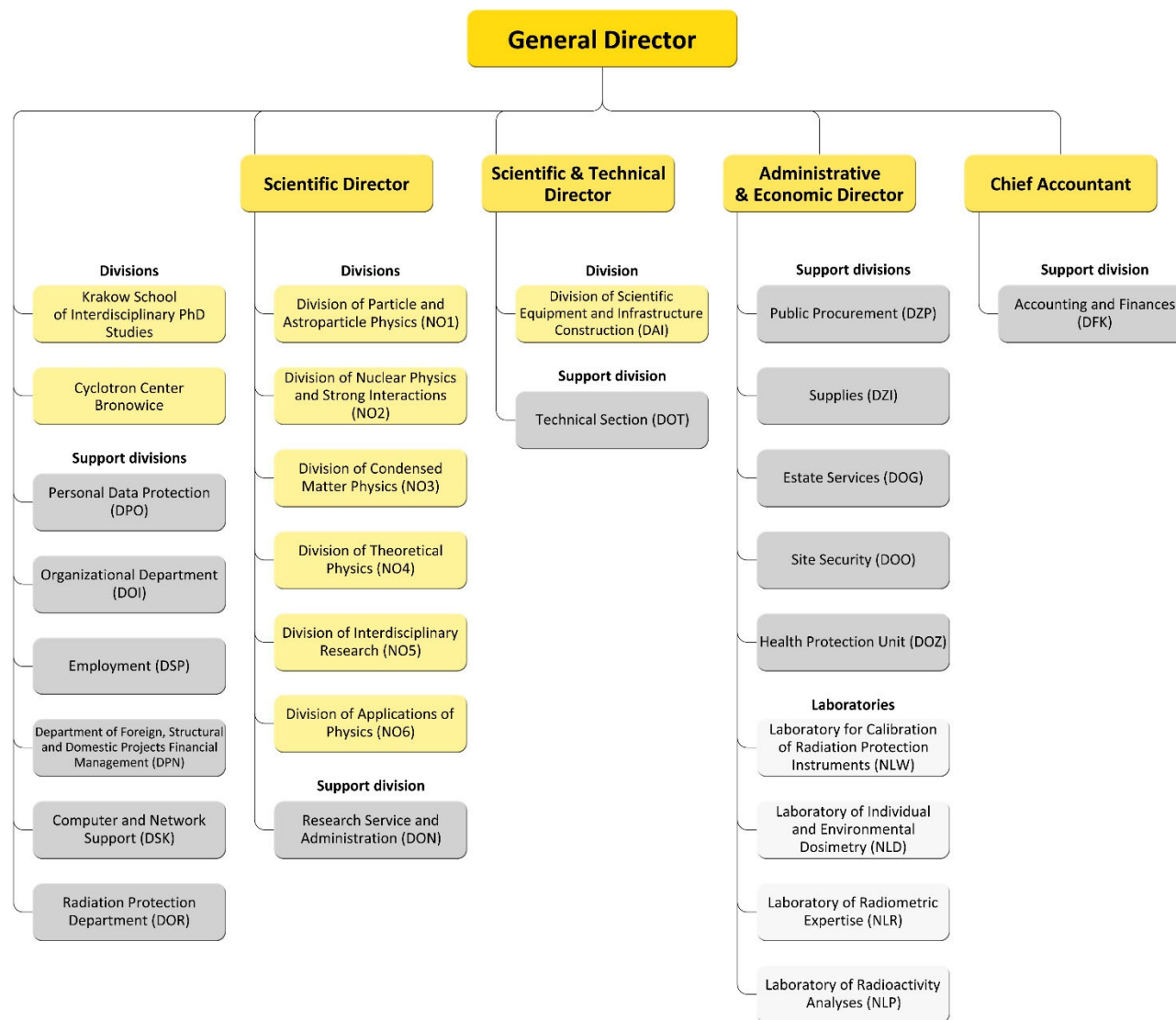
- **1955** – foundation of the IFJ – as a branch of the Institute of Nuclear Research – Prof. Henryk Niewodniczański (1900-1968)
- **1960** – IFJ as a standalone unit
- **1970** – Particle physics enters – Prof. Marian Mięśowicz (1907-1992)
- **1988** – IFJ gets the name of its patron – Henryk Niewodniczański
- **2003** – IFJ gets the status of a research institute of Polish Academy of Sciences
- **2025** – 70th birthday



Organisational Structure



IFJ PAN ORGANIZATIONAL STRUCTURE DIAGRAM



General Information about IFJ PAN



- Personnel: **570**; Prof. **40**, Assoc. Prof. **76**, Ph.D. **121**, engineers **140**

- Scientific Divisions:

- Division of Particle and Astroparticle Physics
- Division of Nuclear Physics and Strong Interactions
- Division of Condensed Matter Physics
- Division of Theoretical Physics
- Division of Interdisciplinary Research
- Division of Applications of Physics

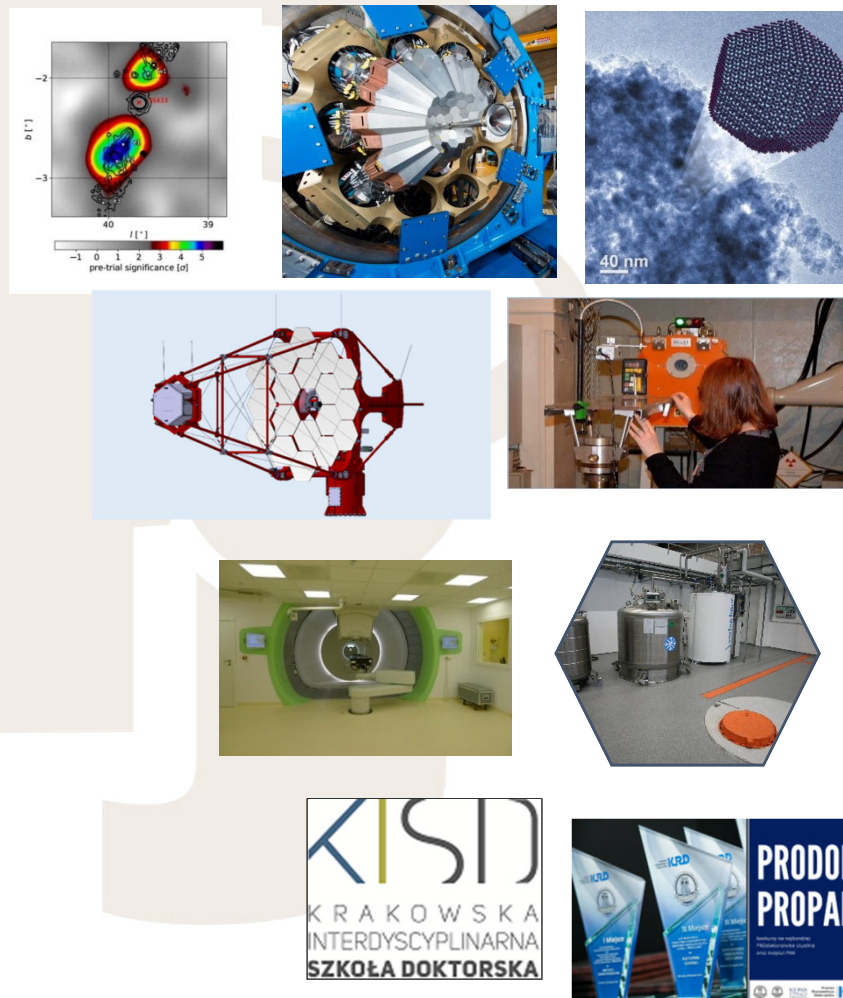
- Researcher Departments:

- Cyclotron Centre Bronowice
- Division of Scientific Equipment and Infrastructure Construction
- Four accredited laboratories

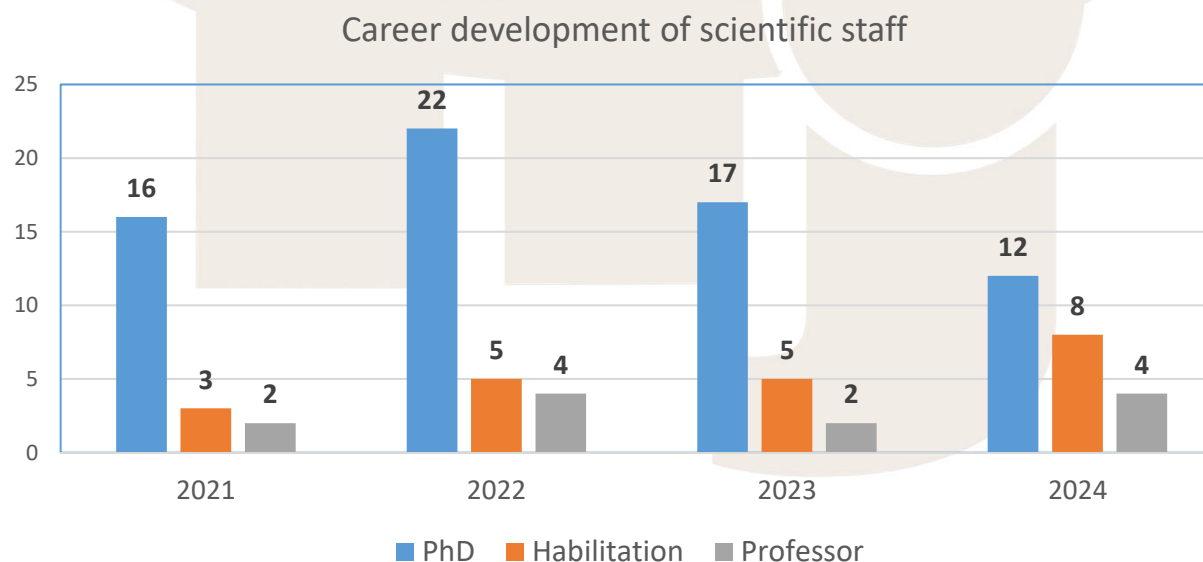
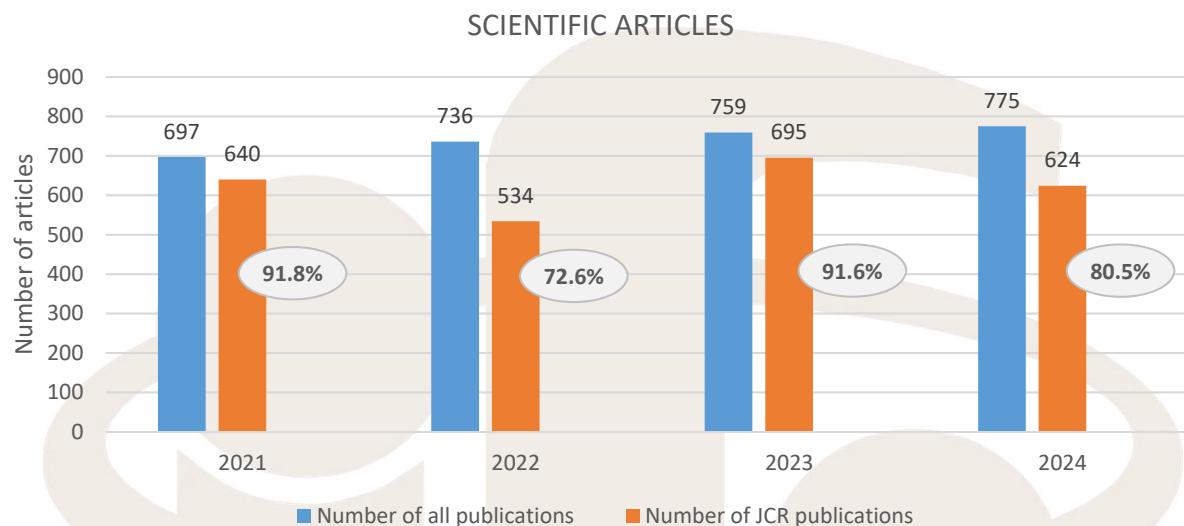
- Education:

- International Ph.D. Studies
- Interdisciplinary Doctoral Studies
- Kraków Interdisciplinary Doctoral School

- Scientific output: **> 650** publications annually



Scientific Activity: Articles and Careers



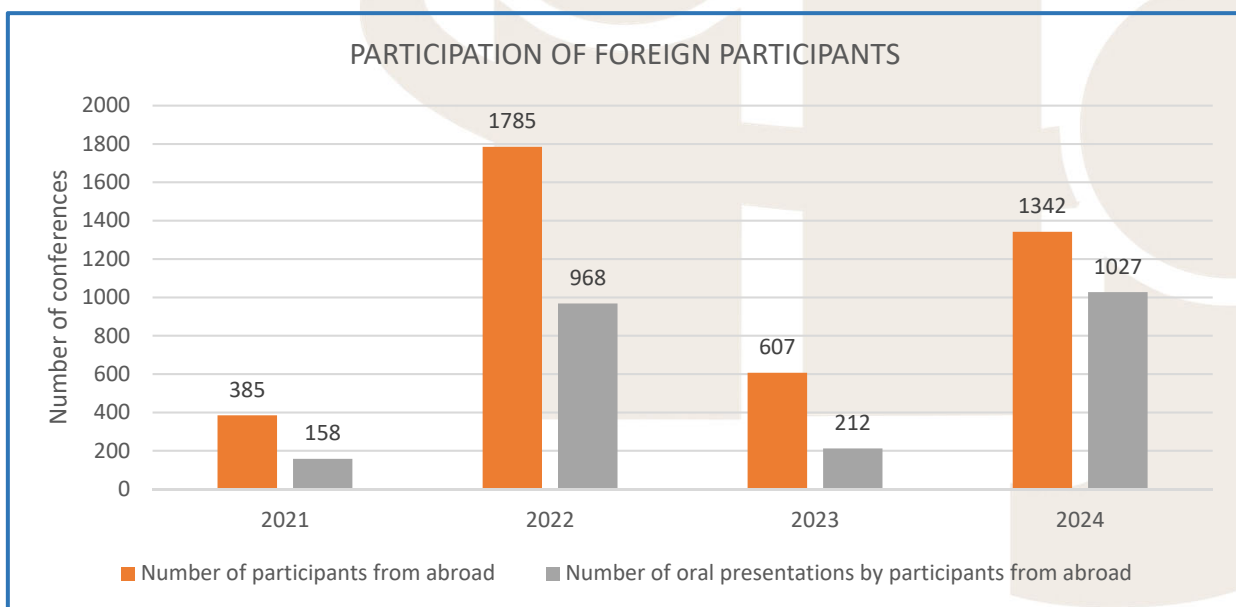
Organisation of International Conferences



Year	2021	2022	2023	2024
Number of conferences and meetings of large scientific collaborations organized or co-organized	9	16	22	26
Number of participants from abroad	385	1785	607	1342
Number of papers presented by participants from abroad	158	968	212	1027

International, periodic conferences:

- Cracow Epiphany Conference
- Zakopane School of Physics (2 series)
- Cracow School of Theoretical Physics
- Multiscale Phenomena in Molecular Matter – MULTIS

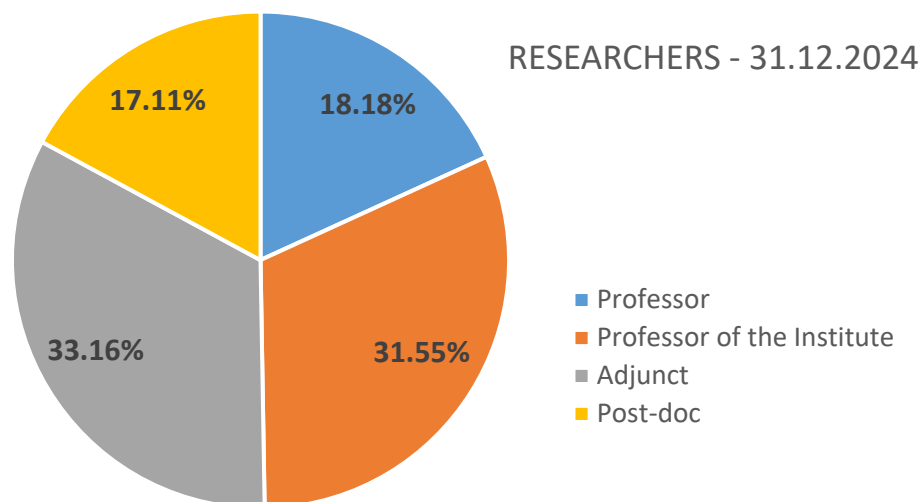
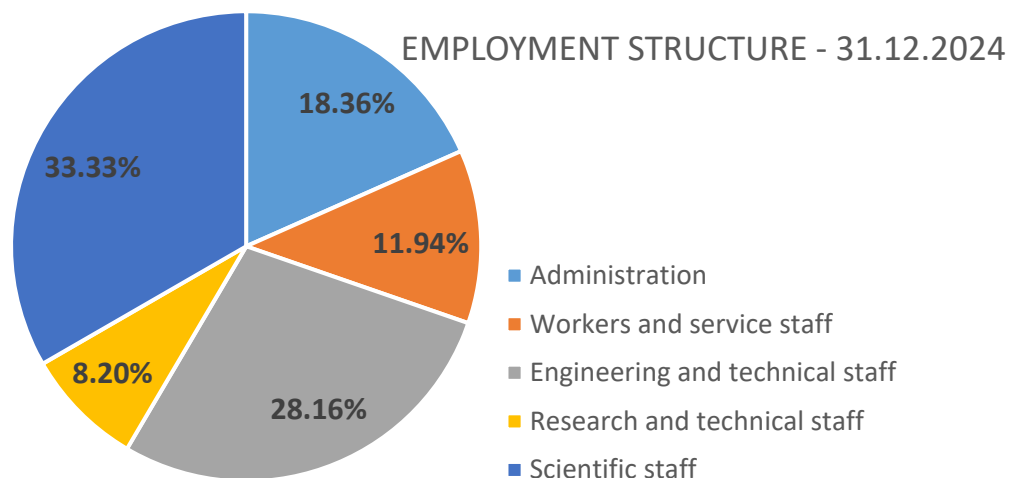


Quark Matter 2022
NEUDOS-14

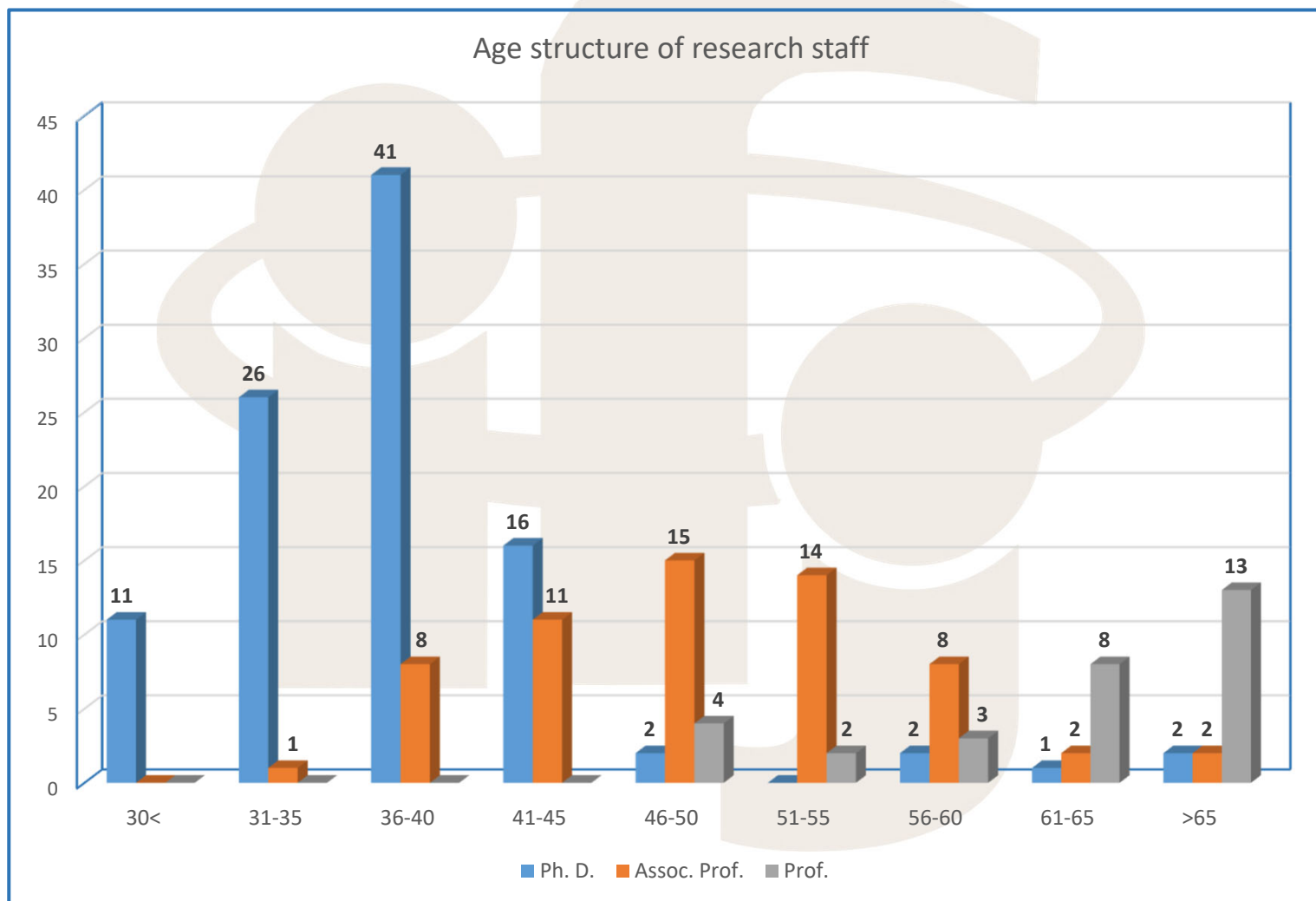
CHEP2024
ALICE Upgrage Week 2024



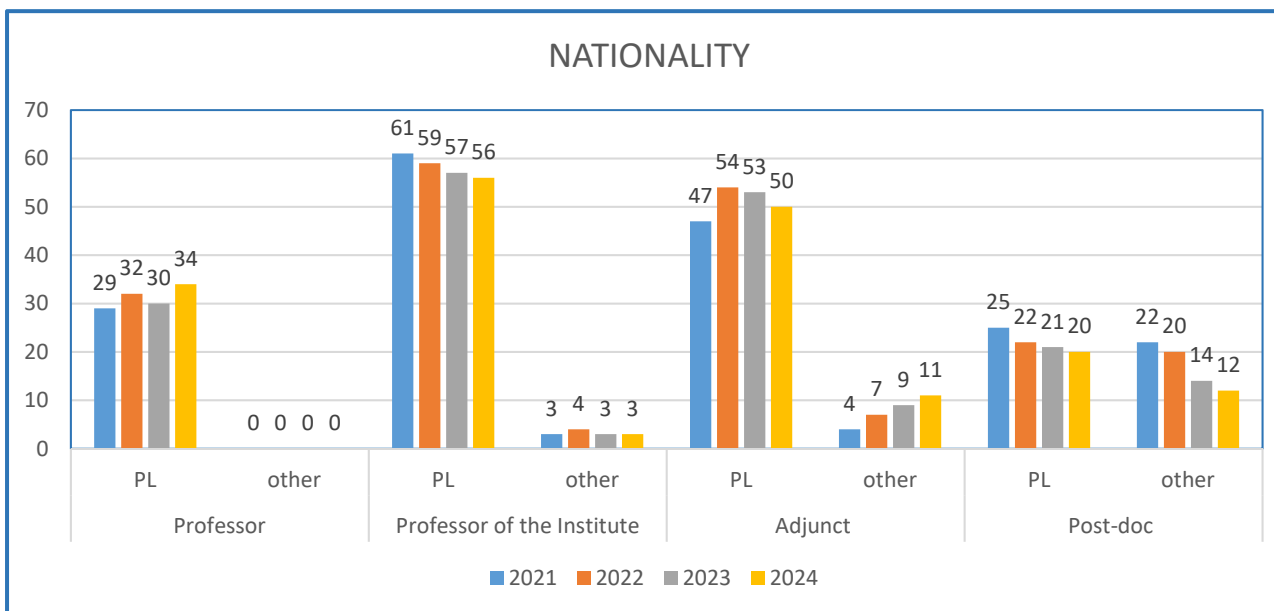
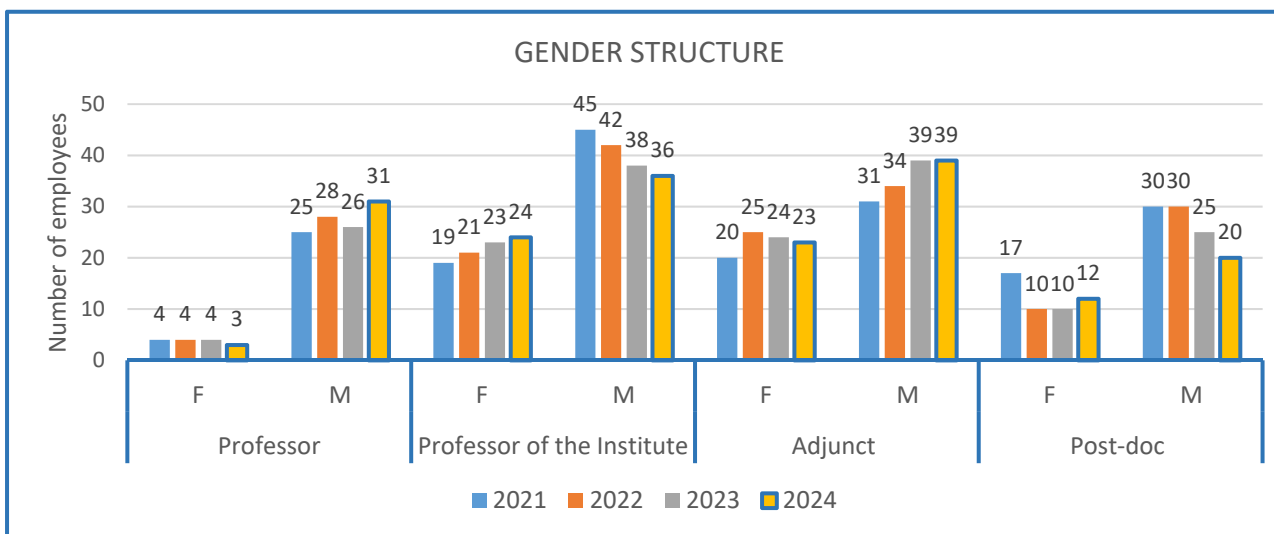
Employment Structure



Age Structure of Research Staff

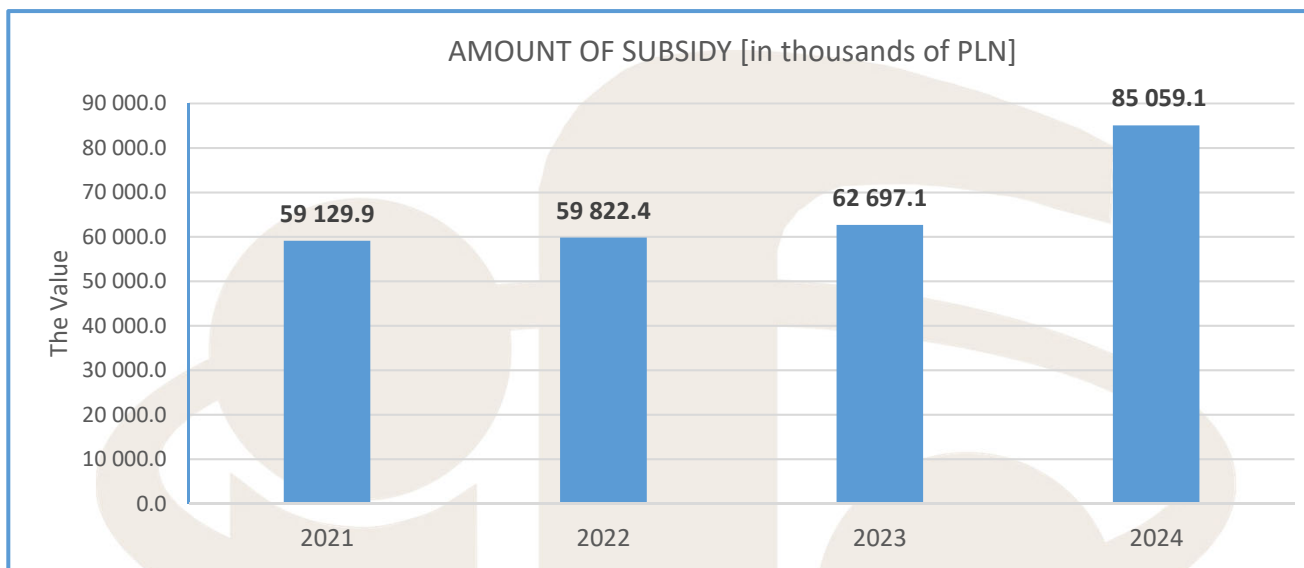


Employment Structure: Gender and Nationality

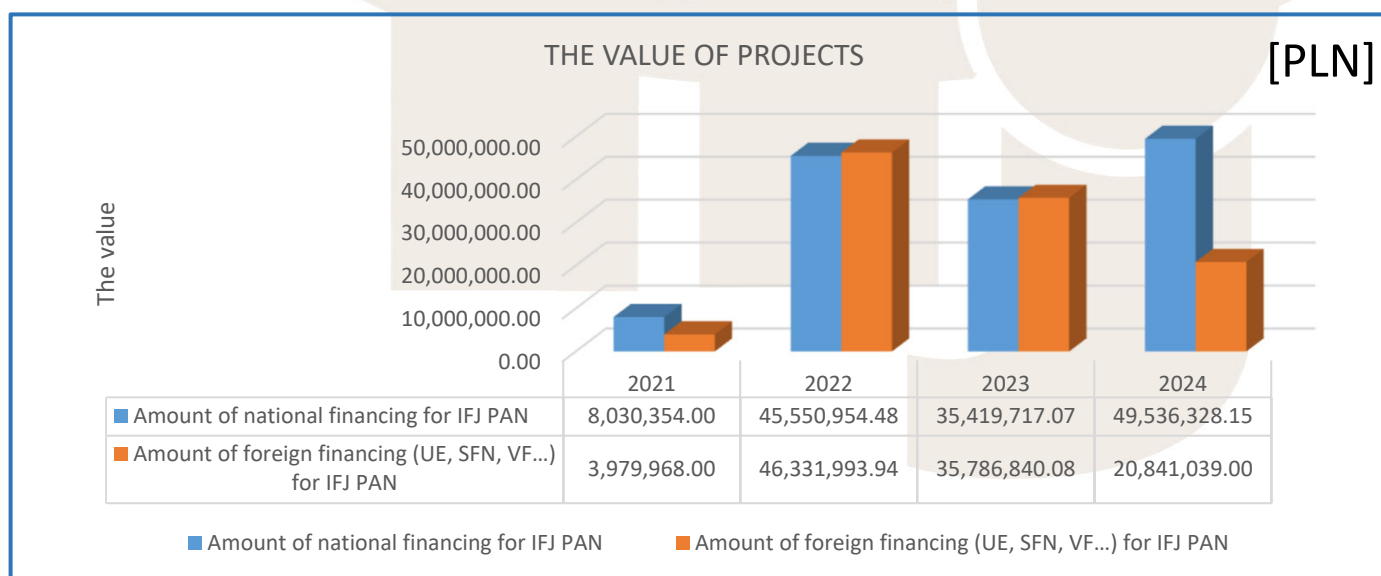
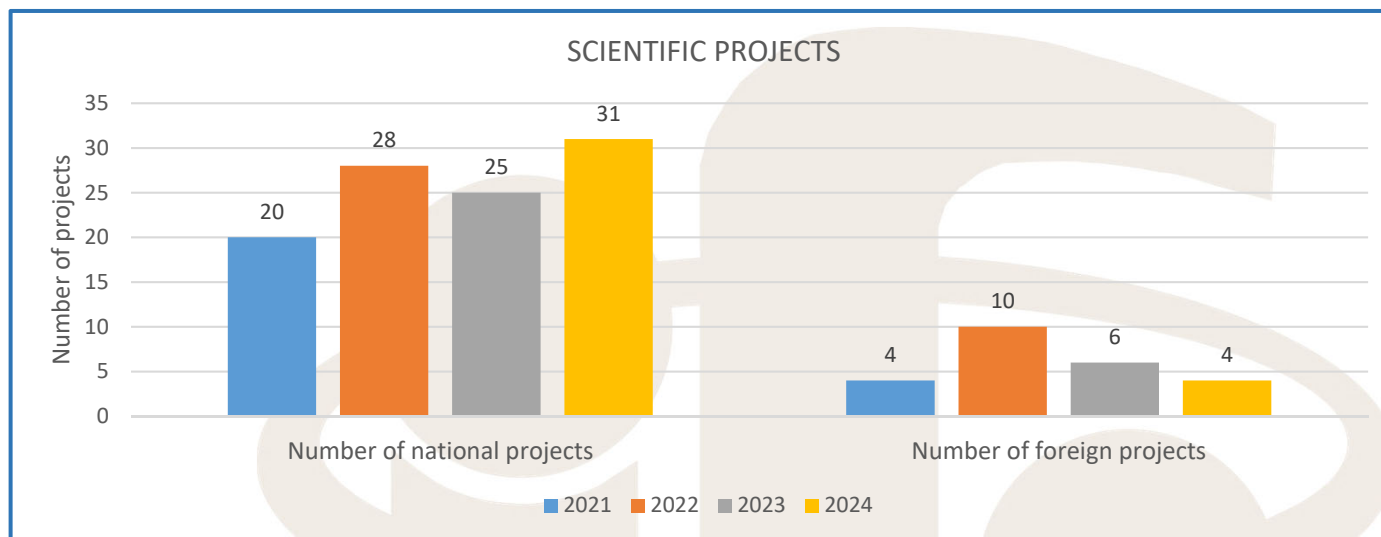


Foreigner
employees
~14%

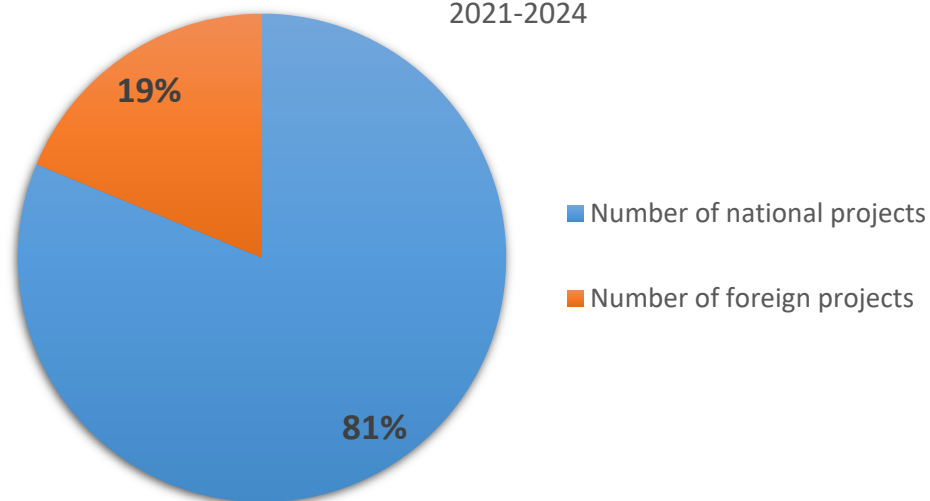
- **National subsidy**
- **National grants, European Projects**
- **In-kind contributions to the construction of big research infrastructures (now ESS), proton therapy, services of accredited labs etc.**
- **Incomes from services (LADIS, CCB, tests at cyclotrons, labs...)**



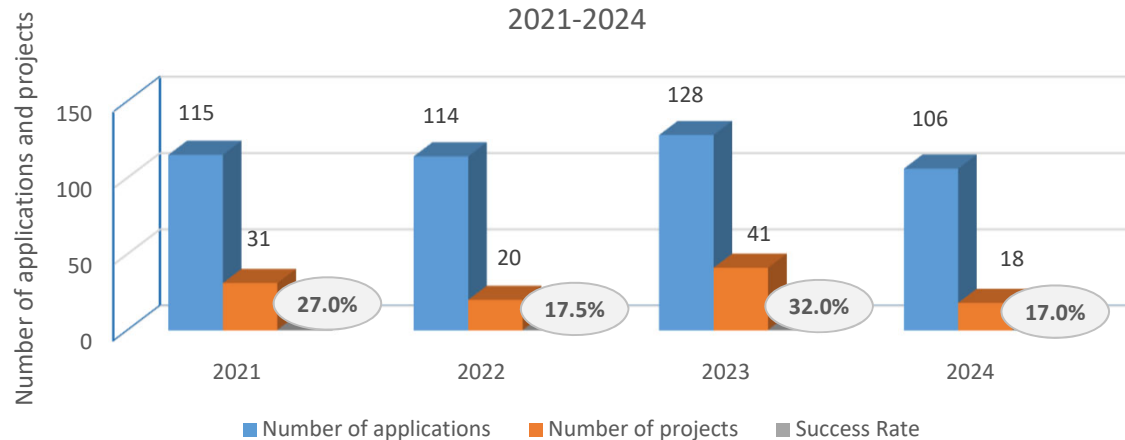
Category [PLN]	2021	2022	2023	2024
Capital expenditure	4 710 248,19	578 195,91	392 476,17	736 579,58
Costs	57 517 297,36	58 674 989,94	62 304 623,83	74 448 634,58
Total subsidy	59 129 900	59 822 400	62 697 100	85 059 100
Revenue from paid activities	14 755 252,64	14 691 051,37	22 984 258,80	25 637 683,60
Revenue from projects	29 114 037,66	37 118 246,09	41 401 475,32	35 864 383,03



NATIONAL AND FOREIGN PROJECTS
2021-2024



NUMBER OF APPLICATIONS AND IMPLEMENTED SCIENTIFIC PROJECTS
2021-2024



Rene Poncelet;

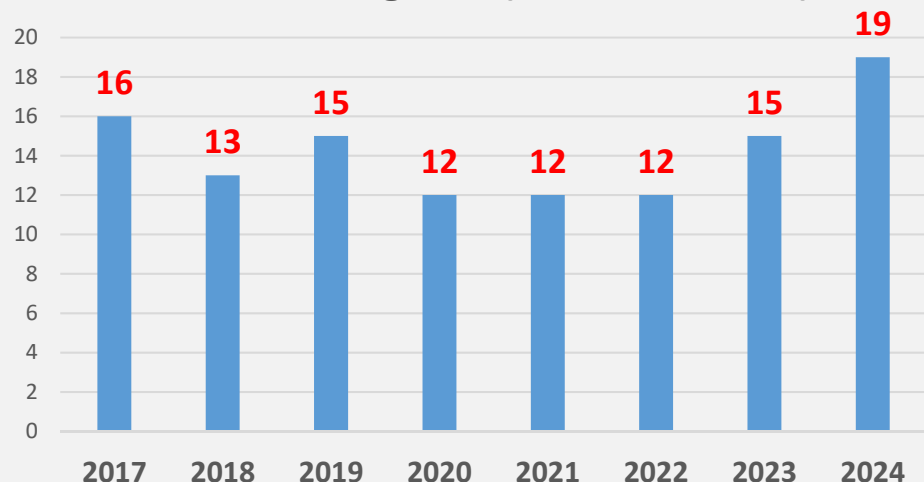
ERC starting grant

"Shower Thoughts
About Precision LHC
Events Simulations"
– STAPLE

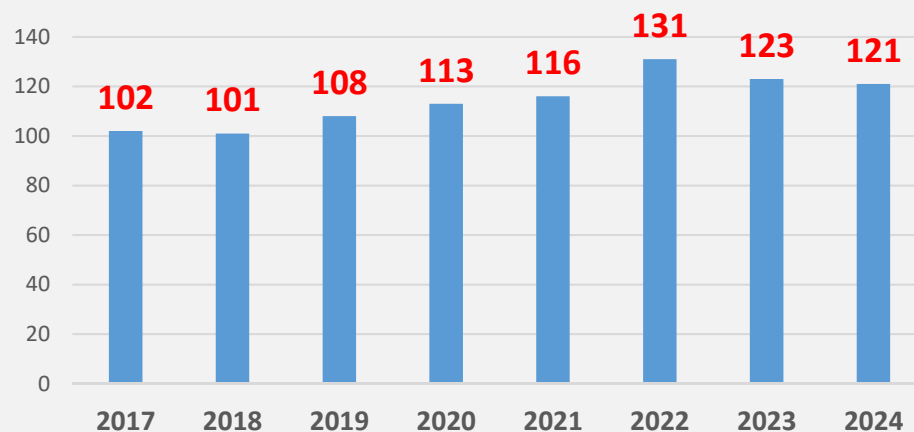
International and Polish Grants (2017-2023)



International grants (EU, F4E, VP, SNF)



National grants
(NCN, NCBiR, FNP, MNiSW, NAWA)



IFJ PAN on Polish Roadmap for Scientific Infrastructure:

Projects coordinated by the IFJ PAN

1. CCB – Cyclotron Center Bronowice (development, next phase)
2. Centrum of Engineering of Cryogenic Materials
3. ESS – European Spallation Source
4. SPIRAL2
5. Research in particle physics at CERN

Projects with IFJ PAN as a partner, correlated with the national contribution to ESFRI:

1. E-XFEL – Free Electron Laser
2. ELI – Extreme Light Infrastructure
3. CTA – Cherenkov Telescope Array
4. FAIR – Facility for Antiproton and Ion Research
5. ESRF – European Synchrotron Radiation Facility

Very special partnership with the IJCLAB



The Funds Acquired Recently



1. European Funds for Malopolska Voivodship

3(4) projects submitted – all three received –out of 14 accepted in the final round

2 projects for NO3 and one for NO5

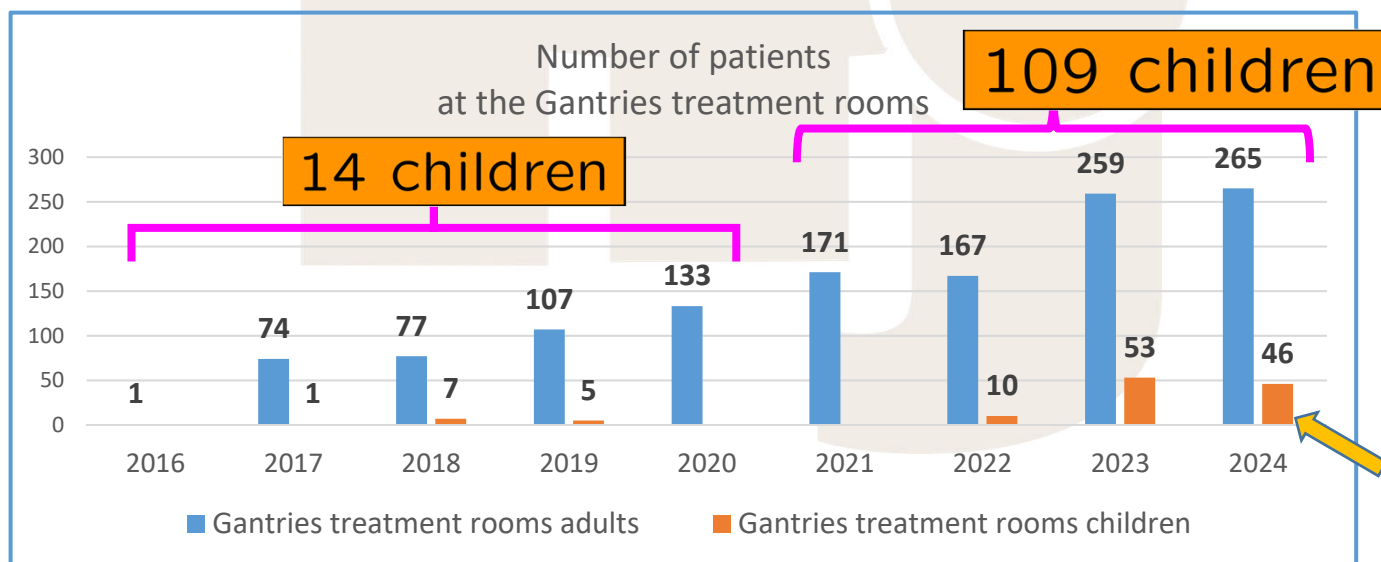
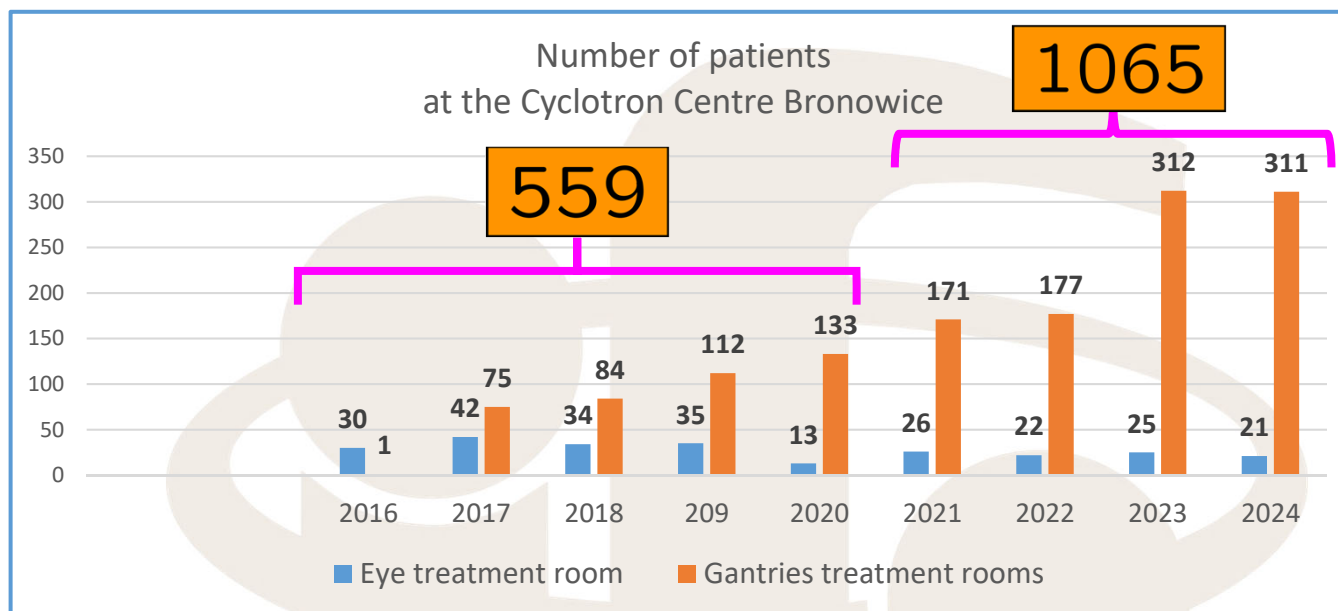
Total sum **52.5 mln PLN** (15% of it as the contribution of IFJ PAN)

2. Adaptation of the current space in the basement of the building 2 to the function of labs – **10.3 mln PLN** – investment grant from the MNiSW

Only six (big) projects awarded on the national level

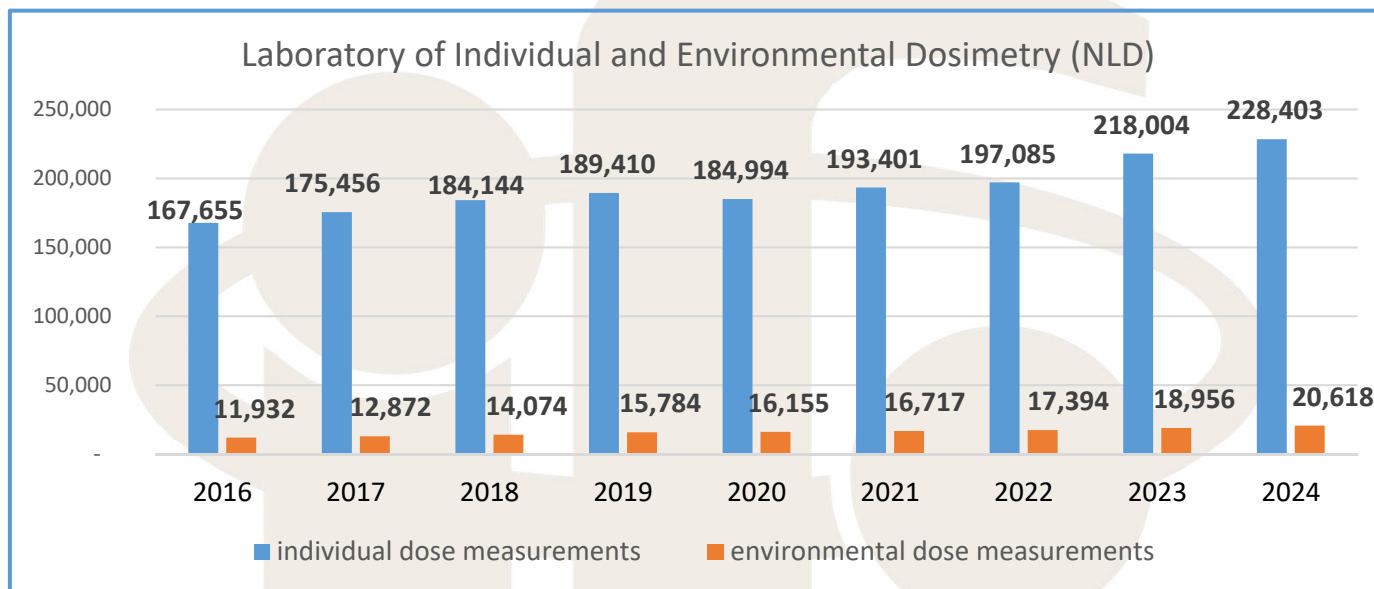
3. FAIR in-kind agreement: **9.06 mln EUR** (75.5 FTEs)

Trilateral agreement between FAIR- Jagiellonian University-IFJ PAN
Considered as the 1st phase of Polish contribution to FAIR,
as granted by the MNiSW



Laboratory of Individual and Environmental Dosimetry (LADIS)

- Measurements of individual and environmental doses by (home made) thermoluminescence method



Laboratory of Calibration of Radiation Protection Instruments

Laboratory of Radiometric Expertise

Laboratory of Radioactivity Analyses

Underground Low Radiation Background Laboratory



failure

Krakov School of Interdisciplinary PhD Studies (KISD)



- Evolution from the International Doctoral Studies (MSD, since 1984) to the doctoral school KISD due to the reform of national higher education system in 2019.
- Over the 40 years of MSD operation, 353 students from 12 countries have been trained.

Krakov School of Interdisciplinary PhD Studies (established in 2019)

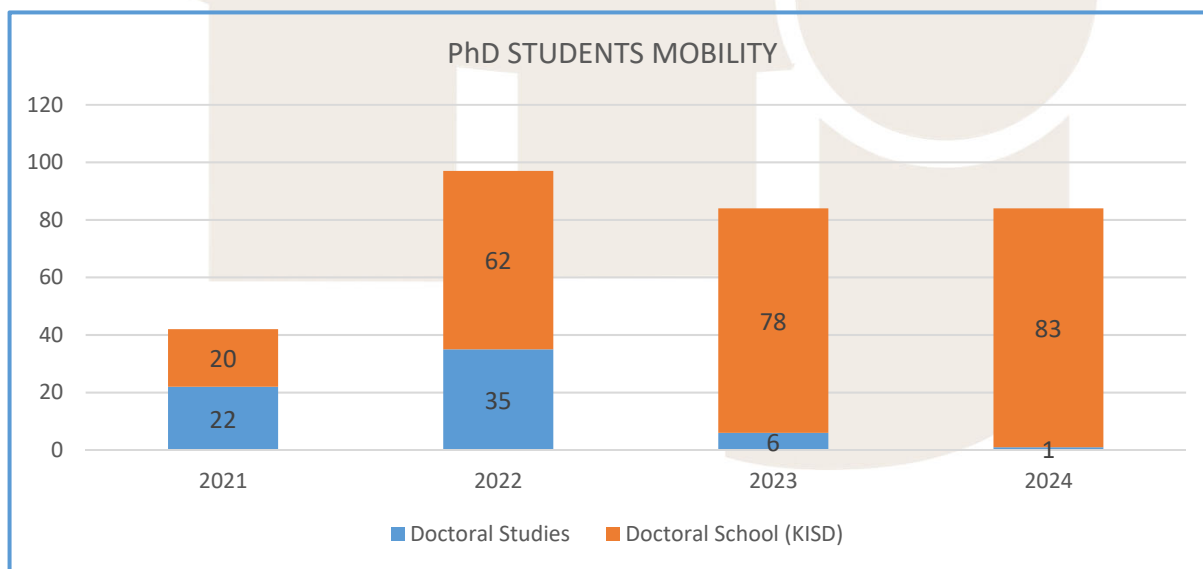
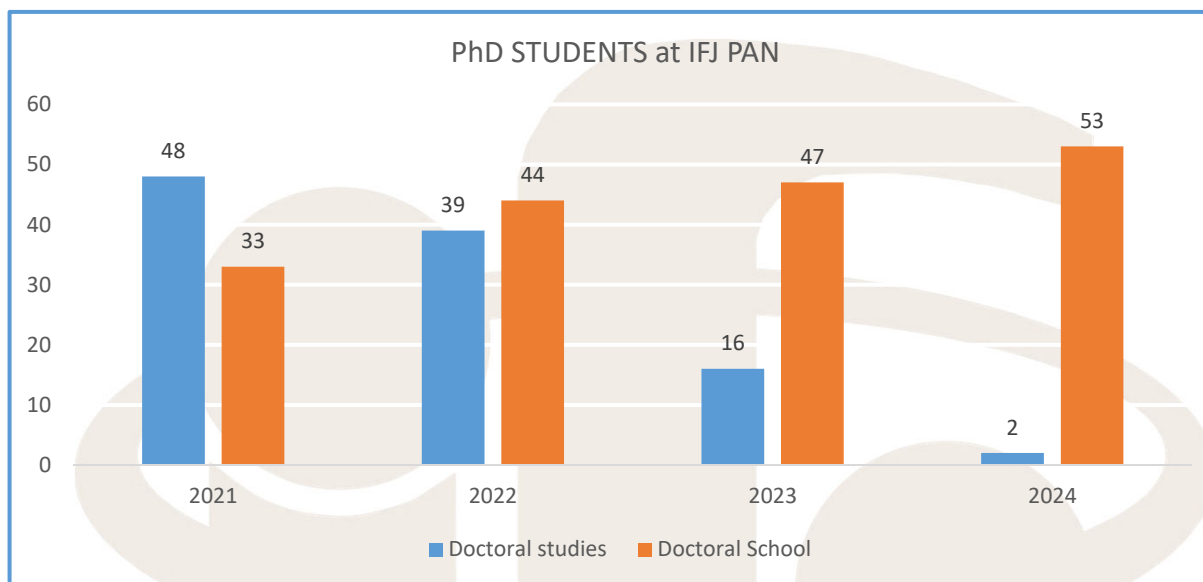
- I. The Henryk Niewodniczański Institute of Nuclear Physics PAN - **coordinator**
- II. Jerzy Haber Institute of Catalysis and Surface Chemistry PAN
- III. Jerzy Maj Institute of Pharmacology PAN
- IV. Mineral and Energy Economy Research Institute PAN
- V. Strata Mechanics Research Institute PAN
- VI. Institute of Metallurgy and Materials Science PAN
- VII. Faculty of Materials Science and Ceramics AGH
- VIII. Faculty of Physics and Applied Computer Science AGH



Theoretical and experimental research work is carried out in the following directions:

- Particle physics and astrophysics
- Nuclear physics and strong interactions
- Solid state physics
- Interdisciplinary research:
 - medical physics,
 - physics in biological systems,
 - radiation protection,
 - environmental protection,
 - new energy sources.

**~130 PhD students
(20% of non-Poles;
43% for IFJ PAN alone)**



- **2020 – establishment of the Commercialization Team**
- **10 patents granted to IFJ PAN in 2021-24:**

Patent application number	Patent application date	Title	Patent number	Date of patent grant decision
P.444003	2023-03-07	Equipment for heat treatment of materials in a gas atmosphere, especially in a muffle furnace	246254	2024-09-17
P.428732	2019-01-30	Method of determining the strength limit and fracture degree of a material using optical interferometry	242311	2022-10-24
P.431996	2019-11-28	Method of obtaining a system containing gold nanomolecules and application of such system in anticancer therapy	241754	2022-09-16
P.432875	2020-03-10	A device for post-synthesis chemical treatment of porous matrices, especially aluminum oxide matrices.	237928	2021-02-18



- Patents granted to IFJ PAN in 2021-24 cont.:

P.430708	2019-07-24	Device for electrochemical measurement	242476	2022-11-16
EP20760907.4A	2020-07-24	Device for electrochemical measurement	EP4004533	2024-03-21
P.423634	2017-11-29	Method for detecting and diagnosing of a course of diabetes	235682	2020-05-25
EP 18884407.0	2020-06-29	A method of detecting and diagnosing the progression of diabetes		
PCT/PL2018/0 50059	2018-11-29	A method of detecting and diagnosing the progression of diabetes		
US 16/767,208	2020-05-27	A method of detecting and diagnosing the progression of diabetes	US 11,506,609	2022-11-22

- And 2 patents granted to another entity, with the participation of creators from IFJ PAN

IFJ PAN vs National Plans For Nuclear Power Plants



- **National Consortium of Radiological Protection (born in 2022)**



- **Authorisation from the National Atomic Energy Agency (July, 2024)**

Scope:

Evaluation of radiological state of environment at the potential sites of planned power plants with the extension to the period of construction and exploitation

Evaluation of the systems of individual and environmental dosimetry for nuclear power plants and measurements in its surroundings



IFJ PAN vs the Growing Threat of Russian Agression



- Eight (false) bomb attacks
- Constant national alert dictated by law :additional safety measures and obligations to the Institute
- Proposal of the system of individual dosimeters for Polish army, submitted to the NCBiR (The National Centre for Research and Development)
– **TIWADOZ system**



Outreach Activities

– Promotion and Education in Science



Małopolska
Researchers' Night



"Physics Couch"
discussion series



Shows "Fascinating
Physics" for children
and teenagers



CERN Accelerating
Science



Collaborations with
science centres

Festival of Science
and Art in Krakow

Scientific Picnic of
the Polish Radio and
Copernicus Science
Centre

Scientific Picnic
of the Polish
Academy of Sciences

Visits of high school
students to
laboratories at IFJ
PAN

IFJ PAN Open Day
for students

Małopolski Festival of
Innovation

Global scientific
press service:
EurekAlert
(ca. 15 per year)

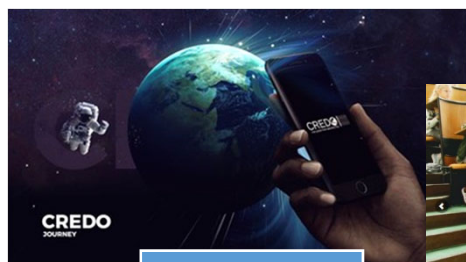
QuickPhysX and
QuizFiz contests

Particle Physics
Summer Student
Program at IFJ PAN

Int. Masterclasses -
Hands on Particle
Physics for high school
students

Making popular
science movies on
research carried out
at IFJ PAN

Activity in social
media: Facebook,
Twitter and YouTube



"Particle Hunters"
contest with the
CREDO Detector
application



Children's Day
at IFJ PAN



A large, light beige watermark of the IFJ logo is centered in the background of the slide.

THANK YOU FOR YOUR ATTENTION