



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

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

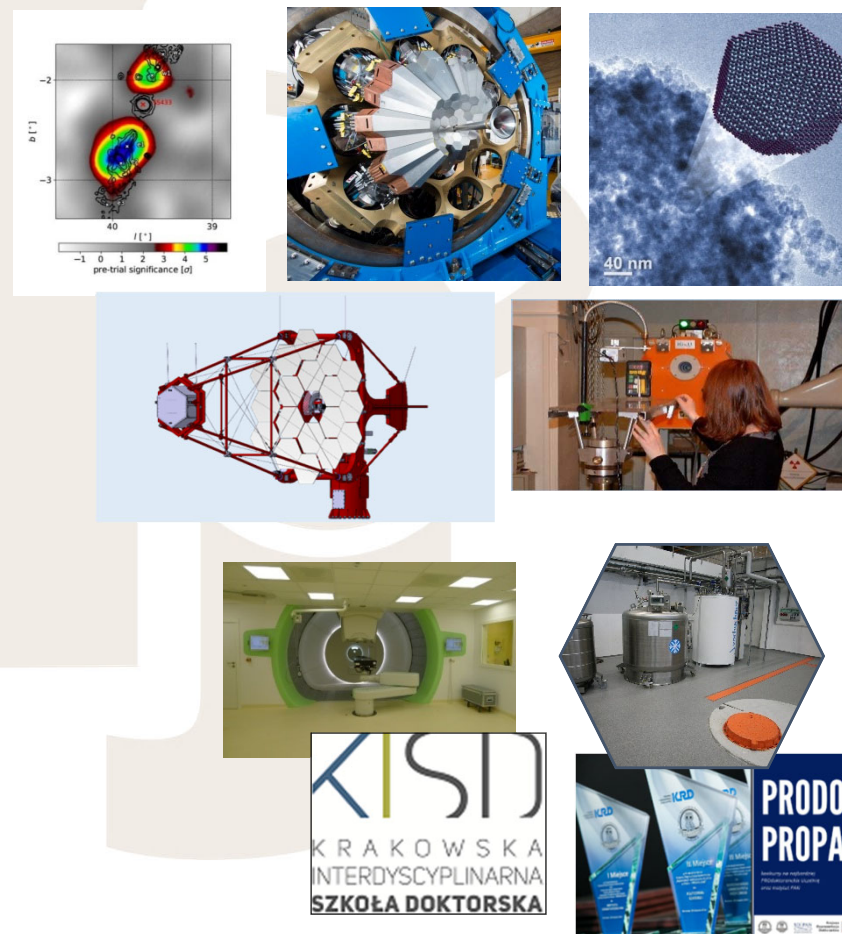
- Researcher Departments:

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

- Education:

- ➔ ▪ Kraków Interdisciplinary Doctoral School

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



- **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

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**

IFJ PAN on Polish Roadmap for Scientific Infrastructure:

Projects coordinated by the IFJ PAN

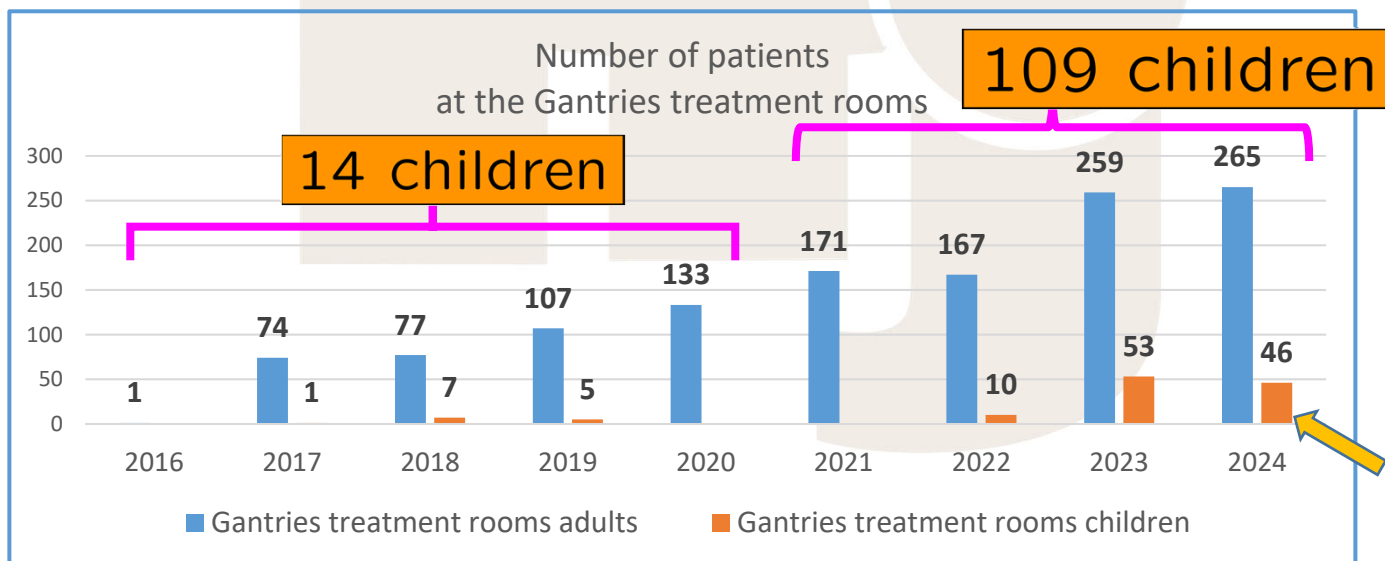
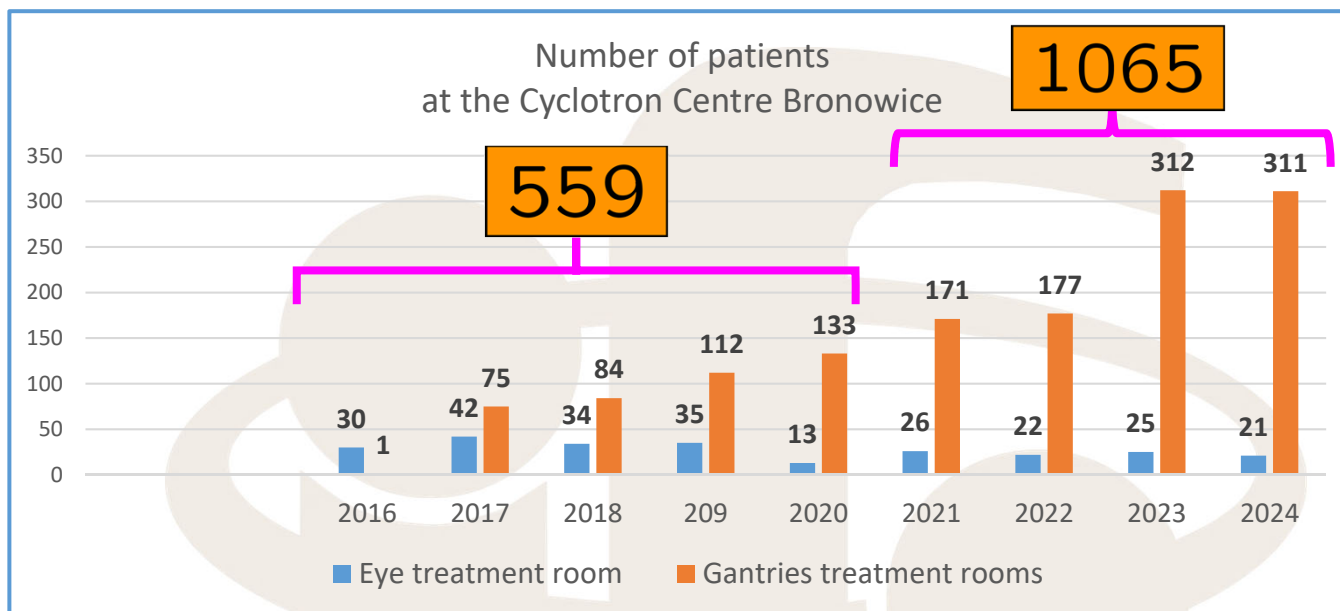
1. CCB – Cyclotron Center Bronowice (development, next phase)
2. Centrum of Engineering of Cryogenic Materials
3. ESS – European Spallation Source
4. SPIRAL2
5. Research in particle physics at CERN

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







- 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)**

IFJ PAN vs National Plans For Nuclear Power Plants



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

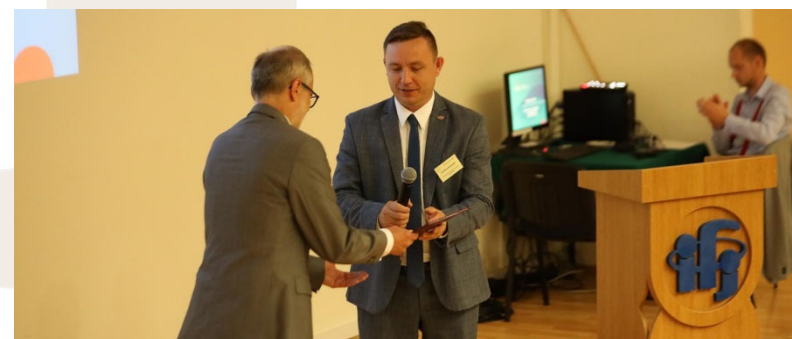


- **Authorisation from the National Atomic Energy Agency (July, 2024)**

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**





✓ **The 1st meeting in September**

- ✓ **Composition:**
- Hans Feigenhans'l
 - Marek Lewitowicz
 - Fulvio Piccinini
 - Helmut Schober
 - **Achille Stocchi**
 - Maurizio Vretenar

✓ **The most important recommendations:**

„Given that the research cyclotron may soon reach the end of its operational life, and that the proton therapy cyclotron has reached full clinical capacity, leaving limited availability for research, the construction of a new accelerator should be seriously considered as part of this vision. However, any such development must be underpinned by a strong and clearly articulated scientific case, broadly supported across multiple Divisions. Potential directions to explore include nuclear physics—one of the Institute’s traditional core strengths—as well as emerging opportunities in compact neutron sources and medical applications such as radioisotope production.

The Advisory Board recommends that, within approximately one year, a conceptual design be produced. This document should outline the potential scientific impact of a new infrastructure, demonstrating its relevance both to the Institute’s research strategy and to the broader landscape of Polish science and industry”

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THANK YOU FOR YOUR ATTENTION