



THE HENRYK NIEWODNICZAŃSKI
INSTITUTE OF NUCLEAR PHYSICS
POLISH ACADEMY OF SCIENCES

The Institute a THOUSAND times the best

Krakow, December 2020
Prof. Tadeusz Lesiak
Director of IFJ PAN



Awards and recognitions

- IFJ PAN enjoying a high position in the NTU ranking
- Strong representation of projects coordinated by IFJ PAN and those with the participation of IFJ PAN on the Polish Roadmap for Research Infrastructures
- IFJ PAN – “Horizon Star 2020”
- IFJ PAN – winner of the “Institute a Thousand Times the Best” competition
- Dr Natalia Piergies – laureate of the Polish Intelligent Development Award 2020

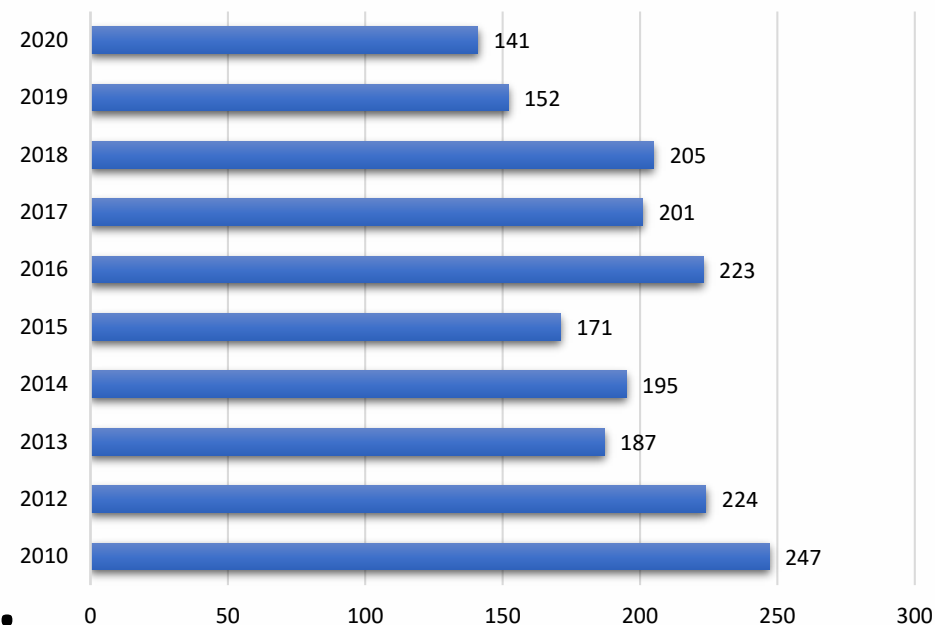


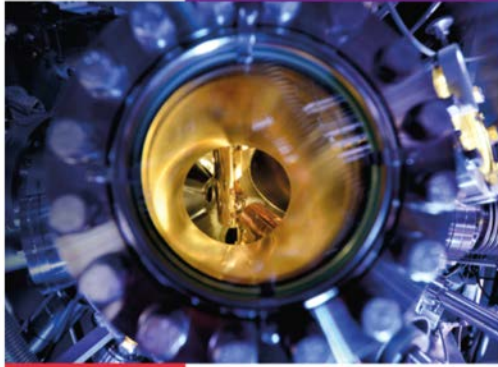
IFJ PAN in the NTU RANKING – a ranking list of universities and scientific institutions based on bibliometric indicators.

The Institute is one of the six institutes from Poland placed on the list.

Within the discipline of physical sciences, IFJ PAN was ranked **141st** together with the University of Warsaw, which is **the highest position among the Polish institutions.**

IFJ PAN's position in the NTU RANKING





Polska Mapa
Infrastruktury
Badawczej



Ministerstwo Nauki
i Szkolnictwa Wzrznego

In October 2020 the Polish Ministry of Science and Higher Education published a brochure with a list of 70 strategic research infrastructures placed on the Polish Roadmap for Research Infrastructures in January 2020.

Projects coordinated by IFJ PAN:

- 1. Cyclotron Centre Bronowice CCB (infrastructure development)**
- 2. Centre of Engineering of Cryogenic Materials and Research Equipment**
- 3. ESS – European Spallation Source**
- 4. SPIRAL2**
- 5. Particle Physics Research with the CERN Infrastructure**



Projects included in the Polish Roadmap for Research Infrastructures and projects related to the Polish contribution to international projects from the ESFRI Roadmap with the participation of IFJ PAN:

- 1. RAPID - Centre of Radiation Research and Technology, Coordinator: Institute of Nuclear Chemistry and Technology**
- 2. E-XFEL – Free Electron Laser, Coordinator: National Centre for Nuclear Research in Otwock-Świerk**
- 3. ELI – Extreme Light Infrastructure, Coordinator: Military University of Technology in Warsaw**
- 4. CTA – Cherenkov Telescope Array, Coordinator: Jagiellonian University in Krakow**
- 5. FAIR - Facility for Antiproton and Ion Research, Coordinator: Jagiellonian University in Krakow**
- 6. ESRF - European Synchrotron Radiation Facility**



IFJ PAN was awarded
the title of

“Horizon Star 2020”

in the competition for “The Most
Active Participant in the Framework
Program Horizon 2020” from the
Małopolskie and Podkarpackie
Voivodeships in the category of
research institute.



Politechnika Krakowska
im. Tadeusza Kościuszki



Prof. dr hab. Tadeusz Lesiak

Dyrektor Instytutu Fizyki Jądrowej
im. Henryka Niewodniczańskiego
Polskiej Akademii Nauk

Z wielką przyjemnością informujemy, że zgodnie z regulaminem konkursu na „Najaktywniejszego Uczestnika programu ramowego Horyzont 2020” z województwa małopolskiego i podkarpackiego Instytut Fizyki Jądrowej PAN otrzymał tytuł „Gwiazda Horyzontu 2020” w kategorii Instytut Badawczy.

Wspomniany konkurs został zorganizowany przez Regionalny Punkt Kontaktowy Programów Badawczych UE w Krakowie jako podsumowanie kończącego się 8. programu ramowego Horyzont 2020. Była to już trzecia edycja konkursu, który podkreślał wagę uczestnictwa osób i podmiotów z naszego regionu w programach Komisji Europejskiej. W poprzednich edycjach wyróżniliśmy najaktywniejszy udział w 6. i 7. programie ramowym.

Oficjalne ogłoszenie wyników konkursu nastąpi w drugiej połowie grudnia bieżącego roku. Ze względu na okoliczności uniemożliwiające zorganizowanie tradycyjnej gali rozdania nagród, jak to było w latach poprzednich, jesteśmy zmuszeni zmienić formułę wydarzenia. Przed ogłoszeniem wyników planujemy nagrać krótkie filmy z przedstawicielami laureatów konkursu. W tej sprawie będą się kontaktować z Działem Współpracy Europejskiej moi współpracownicy.

Uroczyste wręczenie statuetek odbędzie się w 2021 roku, jak pozwoli na to sytuacja epidemiologiczna.

Serdecznie gratulujemy i mamy nadzieję, że wyróżnienie tytułem „Gwiazda Horyzontu 2020” przyczyni się do jeszcze większej aktywności Instytutu w przyszłym programie ramowym Horyzont Europa.

Anna Armuła

Kierownik Regionalnego Punktu Kontaktowego
Centrum Transferu Technologii
Politechnika Krakowska

The Institute is the winner of the "Institute a Thousand Times the Best" competition!

The competition aimed to select a research unit with superior scientific accomplishments creating the best conditions for carrying out research and training PhD students. The last three years of the scientific activity of the Institute were assessed.

State-of-the-art infrastructure at a global level:

- IFJ PAN infrastructure placed on the Polish Roadmap for Research Infrastructures
- 4 accredited laboratories

- IFJ PAN – the most prodoctoral Institute of the Polish Academy of Sciences of 2019
- IFJ PAN student self-government – the most active doctoral self-government of 2019
- Horizon Star 2020
- Scientific category A+

International cooperation:

- CERN – first observation of the Higgs boson decaying into two muons, Large Hadron Collider
- ALICE experiment – search for dark matter

Institute a Thousand Times the Best... and why is it the Institute of Nuclear Physics?

Cyclotron Centre Bronowice – the centre of proton therapy

Innovative discoveries:

- Catalyst made from nanoparticles Pt/Re/SnO₂
- Progress in works on quantum computers
- Theoretical analysis of the photomagnetic effect
- Proton therapy studies on non-small cell lung carcinoma in children

Research communication:

- Małopolska Researchers' Night
- Physics - the key to understand the world
- Science and Art Festival in Krakow
- Tricks of Physics for an encore
- Popular science articles published through EurekAlert! platform
- Elementary particle workshops (Masterclass)



Dr Natalia Piergies was a laureate of the Polish Intelligent Development Award 2020

in the category of “Researcher of the Future” for the implementation of the project “Analysis of the effectiveness of anticancer activity of tyrosine kinase inhibitors combined with nanoparticles in *in vitro* model of non-small cell lung cancer lines using spectroscopic methods” funded by the National Science Centre.





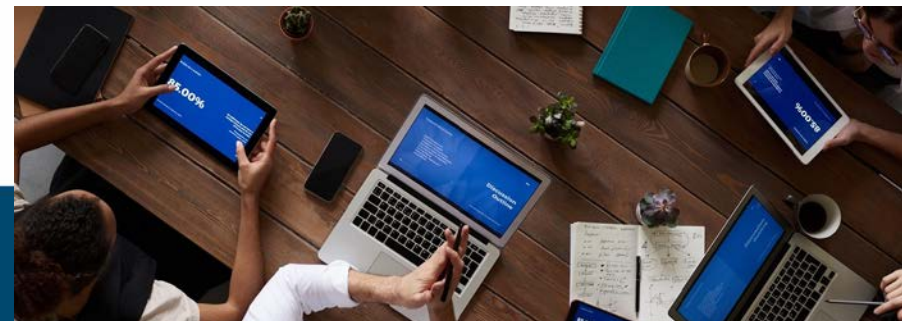
Current affairs:

- **Completion of the recruitment process for KISD for the academic year 2020/2021**
- **Verification of the publication output of the Institute in view of the evaluation regulations for research units**
- **Further actions related to the implementation of the *Human Resources Strategy for Researchers***
- **Upgrade of the IT system**
- **Implementation of the projects: ESS, ITER RNC (new contract from F4E), COMPASS-U, LHC projects (new contracts from CERN)**
- **Implementation of the engineering part of the projects: CTA, T2K, DONES-STUMM**
- **Upgrade of the cryogenic infrastructure at IFJ PAN**
- **Renovation of rooms at IFJ PAN**
- **Implementation of strategic investments for IFJ PAN: upgrade of the power system, new server room**
- **Preparation for the implementation of the project “Mass spectrometry laboratory”**



Recruitment for KISD for the academic year of 2020/2021

- Applications could be submitted via regular mail, ePUAP or in person
- **56 applications** were submitted, out of which **24** were related to research topics pursued at IFJ PAN
- Entrance examinations were held on 14-17 September 2020 and 22 September 2020 (supplementary recruitment) and were conducted in a traditional as well as remote way
- **33** candidates were admitted, out of whom 12 were admitted to research topics carried out at IFJ PAN
- A detailed distribution of PhD students admitted for the academic year 2020/2021 in relation to a research unit where a given topic will be pursued is as follows:
 - IFJ PAN – 12 PhD students
 - IkiFP – 5 PhD students
 - IF PAN – 5 PhD students
 - IMIM PAN – 8 PhD students, including 4 PhD students pursuing the “Implementation Doctorate”
 - AGH – Discipline: Physical sciences – 1 PhD student
 - AGH – Discipline: Material engineering – 2 PhD students





HR Excellence in Research Logo – personnel changes



HR EXCELLENCE IN RESEARCH

- Coordinator - **prof. dr hab. Tadeusz Lesiak**
- Co-coordinators – **prof. dr hab. Bogdan Fornal, dr hab. Dariusz Bocian**
- Monitoring Team for the implementation of the HRS4R and OTM-R policy – **prof. dr hab. Bogdan Fornal, mgr inż. Ewa Figiel-Repel, mgr Magdalena Kostecka**
- Coordinator of the Team for the OTM-R policy implementation – **prof. dr hab. Wojciech Kwiatek**
- Extension of the composition of the **WG1 Group** (Development of young researchers and PhD students, PhD school, starter kit, career paths) and **WG5 Group** (Strategy, ethical principles, freedom of academic research, professional responsibility, good practices in research)



Further actions related to the implementation of the Human Resources Strategy for Researchers



HR EXCELLENCE IN RESEARCH

- An initiative to submit 3 applications to NAWA (e.g. Welcome Center)
- Open Access training for research staff and PhD students
- Classification of Director's Decrees by topics on the IFJ PAN website
- Update of IFJ PAN webpages
- Adapting IFJ PAN webpages to the needs of people with disabilities
- Update of the Regulations on the Periodic Evaluation of Research Staff
- Intense meetings with the groups and within the groups **WG1**, **WG2** (Development of experienced research staff, academic supervision, mentoring, starter kit, career paths, supervision and responsibilities related to management), **WG3** (Dissemination and utilization of research outcomes, social involvement, intellectual property), **WG4** (Equality and diversity at IFJ PAN) and setting multiple directions for further actions
- Meetings with the representatives of the **OTM-R** and **WG5** groups



IT infrastructure

- Upgrade of the power system for the already existing and future server room with the electric power generator protection (under commissioning)
- Building a new server room (in progress)
- Upgrade of the IFJ PAN computer network increasing its speed and reliability (in progress)
- Purchase of 10 ZOOM licenses for the needs of IFJ PAN and 1 ZOOM license for KISD
- Purchase of new IT equipment for IFJ PAN seminar rooms:
 - video mixer (2 pieces)
 - radio microphone (3 pieces)
 - HDMI transmitter
 - digital camera (2 pieces – in progress)





New structures

- Popular science team
- Research communication team
- Commercialization team
- Coordinator of Open Access to publications and research outcomes
- Disciplinary Proceedings Representative at IFJ PAN
- Preparation of the Workers' Council election
- Changes within the organizational structures



- **Popular science team** (Anna Czarny, dr Dominika Kuźma)
 - Organization of popular science events
 - Promotion of the Institute in social media and through the popular science webpage, update of information
 - Contact with schools, printing houses and companies producing promotional materials

- **Research communication team** (dr hab. Paweł Brückman de Renstrom, IFJ PAN professor, dr hab. Jerzy Grębosz, dr hab. Paweł Jochym, IFJ PAN professor)
 - Representing the Institute in mass media
 - Preparation of multimedia reports on research conducted at IFJ PAN



- **Commercialization team** (dr hab. Maciej Budzanowski, IFJ PAN professor, dr Wiktor Parol, mgr Alicja Borys)
 - Identification of innovative solutions worked out at IFJ PAN and analysis of their market potential
 - Complex protection of intellectual property rights
 - Administrative support to the process of protection and exercise of intellectual property rights at IFJ PAN
 - Identification of potential business partners who might be interested in cooperation on commercialization or licensing of technologies developed by scientists at IFJ PAN in Krakow
- ✓ Successfully and officially patented invention: “The *detection and diagnosis method of the diabetes mellitus*” (UJ – IFJ PAN cooperation [dr hab. Czesława Paluszkiewicz, dr Marcin Roman])



- **Appointment of a new Coordinator of Open Access to publications and research outcomes**

dr hab. Katarzyna Górski

- **Appointment of a new Disciplinary Proceedings Representative at IFJ PAN**

dr hab. Adam Trzupek



Changes in the structural organization of IFJ PAN

- The Department of Leptonic Interactions changes its name into The Belle II Experiment Department
- The Department of Mathematical Physics is included into the Department of Theory of Complex Systems
- The Department of Medical Physics is formed in CCB
- The IT Section and the Radiation Therapist Section are formed in CCB



Cyclotron Centre Bronowice – current situation

- The Supreme Audit Office control has been completed – “The availability of proton therapy and the use of cyclotrons at the Cyclotron Centre Bronowice in Krakow” – **no irregularities were observed**
- The Centre functions normally, the number of patients is growing, over 500 people have undergone treatment so far
- A new contract with the National Health Fund (NFZ) is currently under preparation
- Efforts are being made to attract private entities to provide treatment at CCB
- Research on medical and nuclear physics is continued



Events and conferences

- **Małopolska Researchers' Night**
- **SPAS conference**

Małopolska Researchers' Night at the Institute of Nuclear Physics PAN

How researchers change the world

27 November 2020

The number of viewers watching the event:

ca. 3000 active transmissions

The total number of people involved in the preparations: **ca. 165 people**

The number of PhD students: **ca. 35 people**

This year the Małopolska Researchers' Night will take place in a new formula and at a different time. Because of the epidemic threat we will meet on 27 November 2020 – fully online.

Titles of shows and other attractions:

- Shows "Tricks of Physics" (2 live shows)
- Lecture "Horrors of Science" (1 live show)
- Couch interview "Ask a Physicist" (2 on-air broadcasts)
- "Face Physics" – Quiz (2 on-air broadcasts)
- Young Engineer's Workshop (2 on-air broadcasts, video material)
- In the Labyrinth of Science – Laboratories Stay Open After All – (2 shows, video material)
- Laboratory for Magnetic Studies
- On Theory and Practice in Particle Physics
- Nano-laboratory – Atomic force microscope
- Whole Body Spectrometer
- Plasma Focus Laboratory
- Intricacies of Science (7 on-air broadcasts, video material)
- To the Frontiers of Knowledge
- Solid State Physics
- Boring and Hard or Necessary? Physics at War with Tumor
- The World as Seen by a Physicist (2 on-air broadcasts, video material)
- Team competition for high schools (postponed to spring due to coronavirus)
- **Overall 27 films were recorded owing to the involvement of ca. 70 employees**





SPAS conference – the consolidation of the Polish accelerator community

- **24 November 2020 – “Superconductivity and Particle Accelerators 2020” conference – (SPAS ’20)**
- Presentation of progress in studies on applied superconductivity and particle accelerators in Poland and determination of needs for the infrastructure necessary to support those studies
- Subject of the conference: applied superconductivity, particle accelerators, large research infrastructures and projects included in the Polish Roadmap for Research Infrastructures. In particular, the following projects were included in the year 2020: ESS, CERN, PolFEL and CIKMUB
- 42 participants (including 9 from abroad)
- 16 talks (5 talks given by participants representing foreign research institutions, 2 talks given by IFJ PAN employees, 9 talks given by representatives of other domestic institutions)