



Joint Institute for Nuclear Research: the status and prospects of multidisciplinary complex of large research infrastructures

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JINR: mission and position at the global scientific landscape

JINR – international intergovernmental research organization

FUNDAMENTAL PHYSICS OF ELEMENTARY PARTICLES AND ASTROPHYSICS, ATOMIC NUCLEUS, CONDENSED MATTER, APPLIED RESEARCH IN ACCELERATOR AND DETECTOR TECHNOLOGIES, MATERIAL, LIFE AND ENVIRONMENTAL SCIENCES

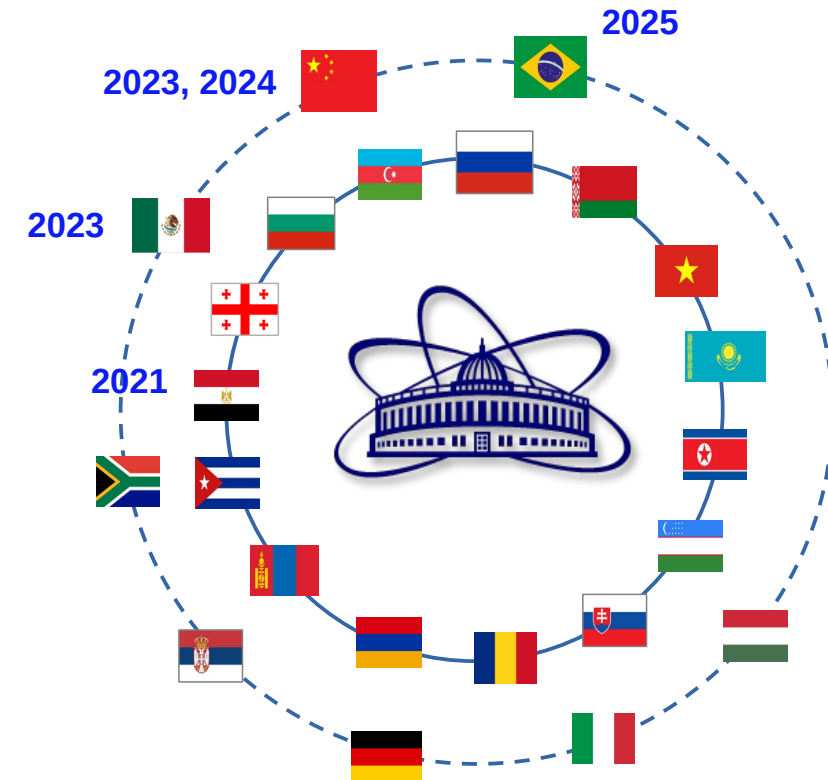
JINR is a very large
interdisciplinary
research infrastructure
that implements a
deeply integrated
management model for
global international
scientific cooperation.

7 laboratories, 5000+ employees from 30+ countries
budget 234 M\$ (2025)

15 member states,
5 associated member states
3 partner states (agreement on
coordination with Government)
800+ partner research organizations
and universities from 60+ countries
and international organizations



2025:



JINR’s position among International Intergovernmental Scientific Organizations (IISO)

2 in terms of the number of personnel among all IISO

6 in terms of budget size among IISO in the field of natural sciences

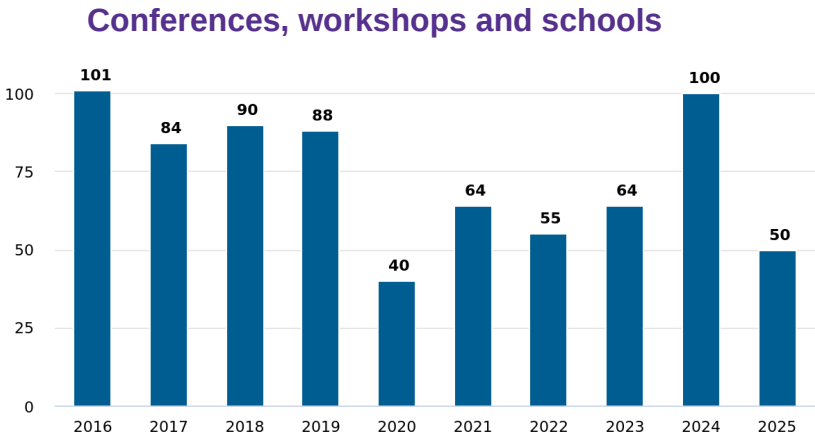
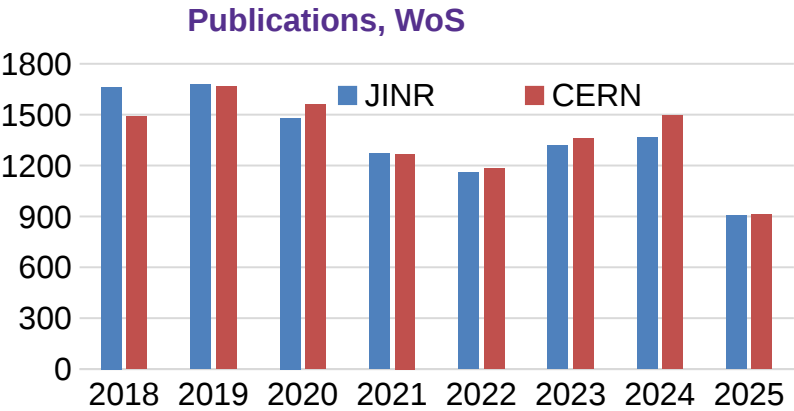
10 in terms of budget size among all IISO

2017-2025	JINR Publications, WoS	JINR RIA
Total	12 400	
2025	992	1118
2024	1365	2274
2023	1320	1760
2022	1160	1468
2021	1273	1479

1336+1107+282+79 = **2804**

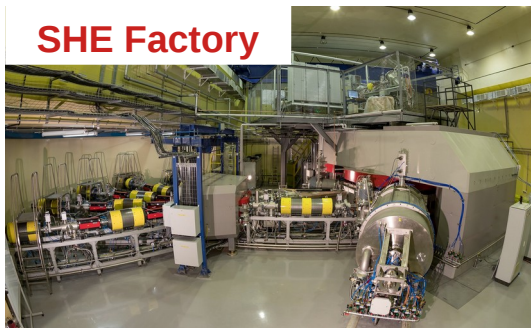
RIA CERN, 2024 <https://bi.siscern.org/superset/dashboard/annual-reports/>

No.	International Intergovernmental Scientific Organization	Annual budget 2024, kUS\$	Personnel 2024
1	CERN	1 599 184	17 691 (users incl.)
2	JINR	214 100	5350 (associated pers. incl)
3	Joint Research Centre	962 552	2 700
4	European Molecular Biology Laboratory	387 428	1 968
5	ITER	665 134	1 102
6	European Southern Observatory	442 313	750
7	European Synchrotron Radiation Facility	145 861	681
8	European Spallation Source	190 000	577
9	Institut Laue-Langevin	114 560	523
10	Square Kilometer Array	332 992	330



JINR - INTERNATIONAL INTEGRATION IN SCIENCE AND TECHNOLOGY: VERY LARGE MULTIDISCIPLINARY COMPLEX OF LRI

SHE Factory



- Construction of new LRI - complex «NICA» (with **BM@N**, **MPD**, **SPD**, **ARIADNA** collaborations), neutrino observatory «Baikal-GVD», partially operational.

- Large scale international multidisciplinary research at LRIs in operation: **SHE Factory**, **Reactor IBR-2M** with spectrometer complex, **Multi-purpose Information Computer Complex** with supercomputer «Govorun», RI of the **Laboratory of Radiation Biology**, **Bogoliubov Laboratory of Theoretical Physics**.

- Training of scientific and engineering personnel for the JINR member and partner countries at **JINR University Centre**.

These facilities represent a very large multidisciplinary research infrastructure, partially distributed across the territory of the Member States.

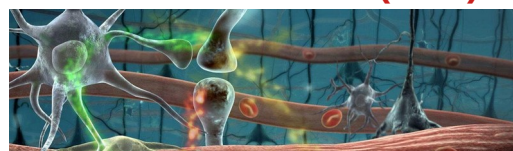
Baikal-GVD



Theoretical physics



Life sciences (LRB)



IBR-2



**Central Information
Computer Complex**



Innovation Centre



University Centre

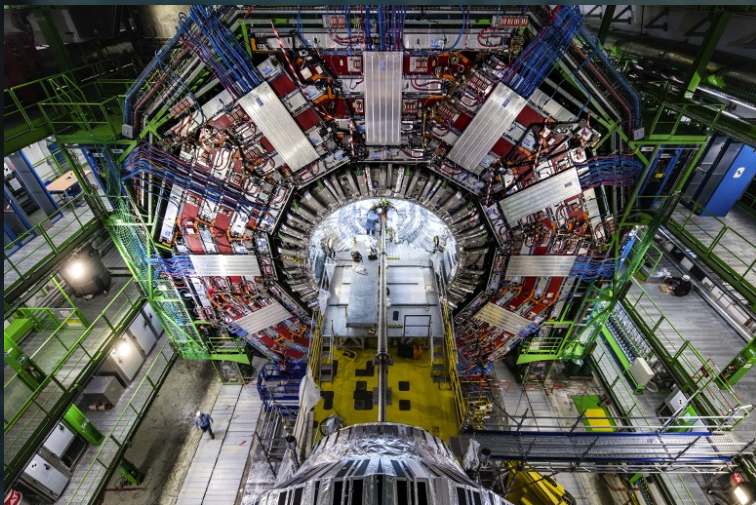


Cooperation with CERN continued

Scientific relations between CERN and JINR date back to 1957, were formalized in 1963. Since 1970, the traditional **CERN–JINR schools for young scientists** have given starting impulses for many scientific careers.

The **scientific contribution of JINR** to the overall CERN activities includes all areas of research and engineering. JINR has contributed to the **LHC machine** (dampers), to the experiments (**CMS**, **ATLAS** and **ALICE**) and to the WLCG, as well as to the non-LHC programme (**COMPASS**, **NA48**, **NA49**, **NA61**, **NA62** and **OPERA**). Within **CMS**, JINR initiated a collaboration scheme called **RDMS** (Russia and JINR Member States) which allowed a good coordination of the participation of these countries and made their contribution more visible. JINR has also been involved in common software development projects (**NICE**, **LabVIEW**, **EDH**) and participates in the **EGEE project**.

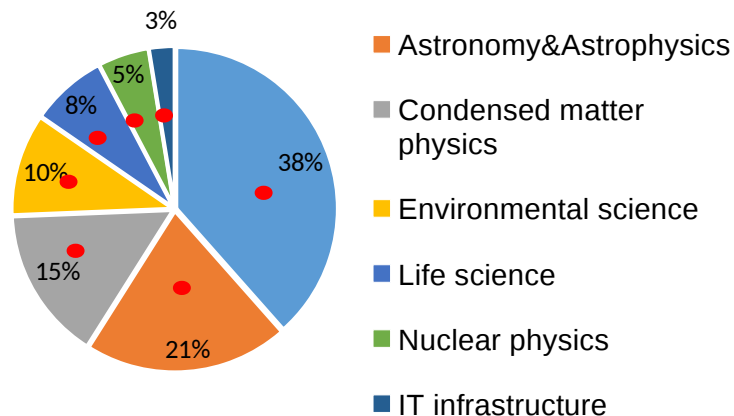
JINR has had the status of **Observer** in the CERN Council since 2014.



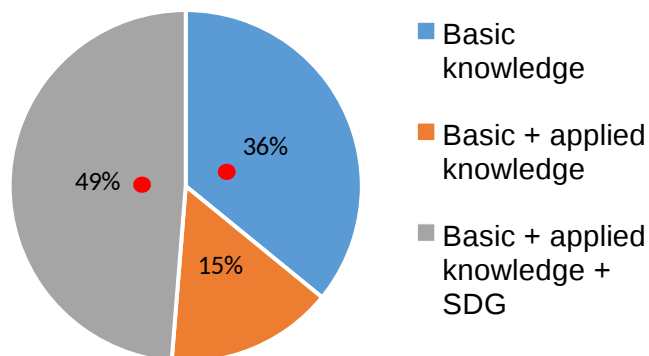
Distribution of top 40+ LRIs

by fields of science

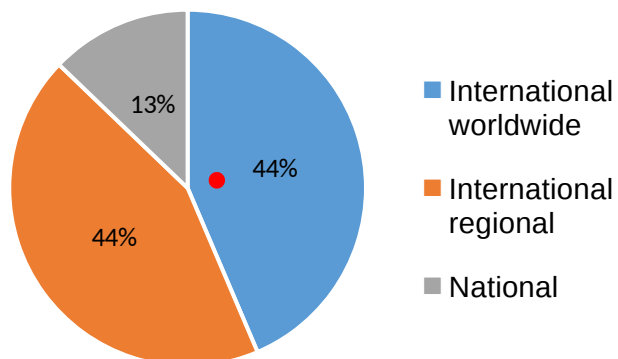
● – JINR



by mission



by international dimension

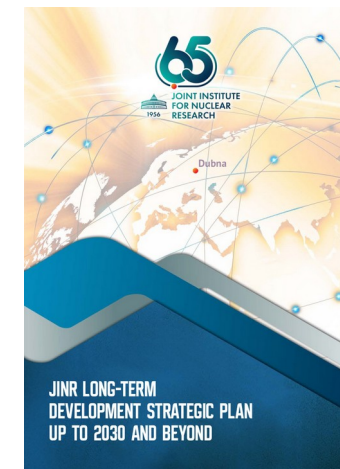


Global trends and JINR development

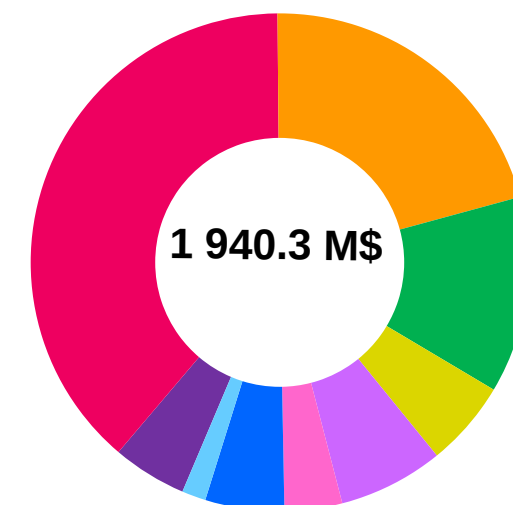
The analysis (40+ LRIs worldwide) shows that almost half of modern projects in the field of basic sciences have accompanying programs of applied research aimed at sustainable development goals (SDG).

JINR fields of science occupy a priority position in the world scientific agenda and development of a large research infrastructure.

Worldwide international dimension, the multi-disciplinary scientific program and large infrastructure projects of JINR harmoniously complement the global scientific agenda and the worldwide landscape of large research infrastructure, assuming, along with the main goals in the field of fundamental research, the achievement of certain SDG.



Planned expenses of the 7Year Plan for 2024-2030 by fields of research



International Intergovernmental Scientific Organization:

Global International Expertise and Management

International Decision-making, Management and Expertise System of JINR

**WG on Financial Issues at
the CP**

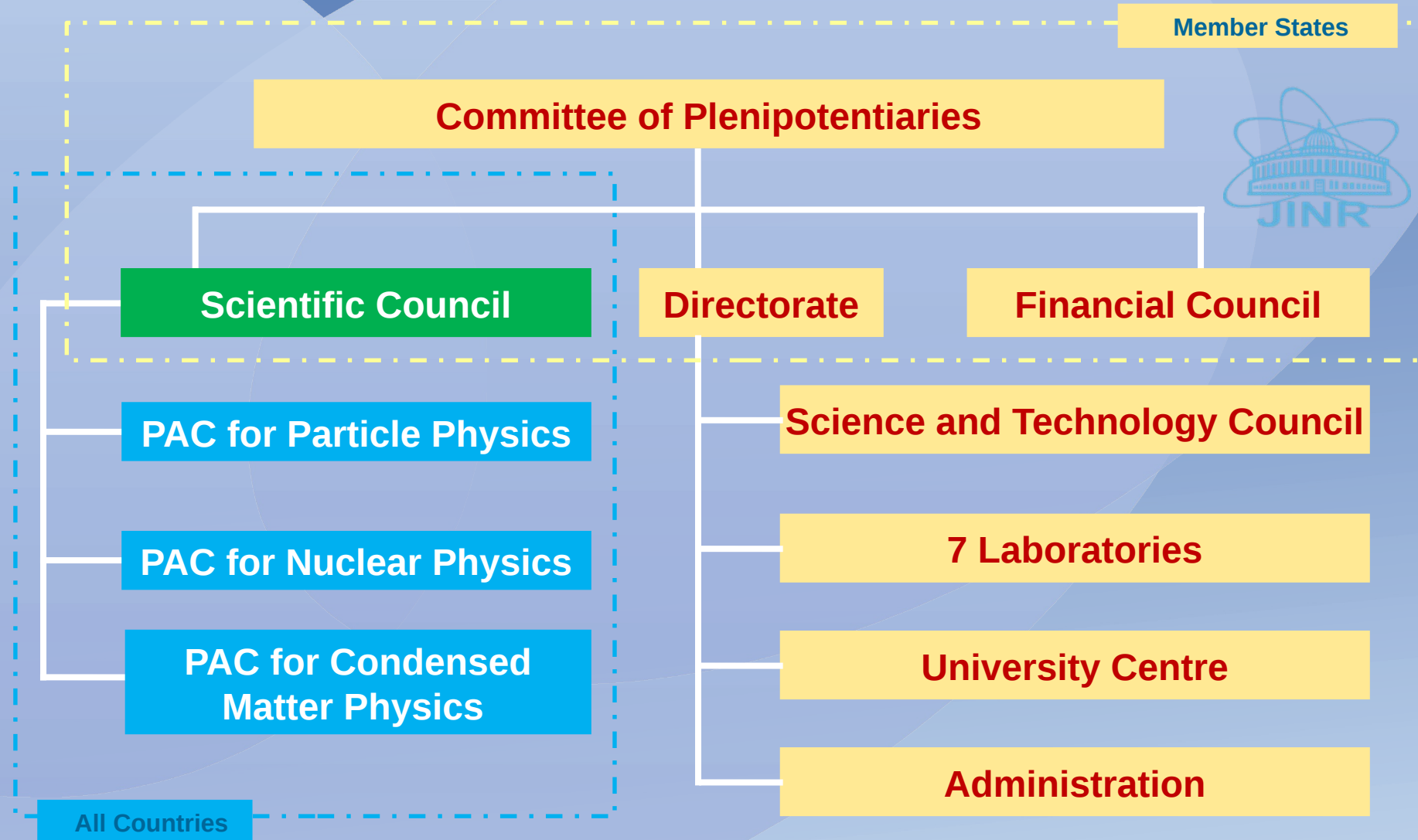
Expert WG at the CP

**Expert-analytical WG at
the Directorate**

**WG on Social
Infrastructure under the
Directorate**

**JINR Science and
Technology Councils
of laboratories**

Technical Council

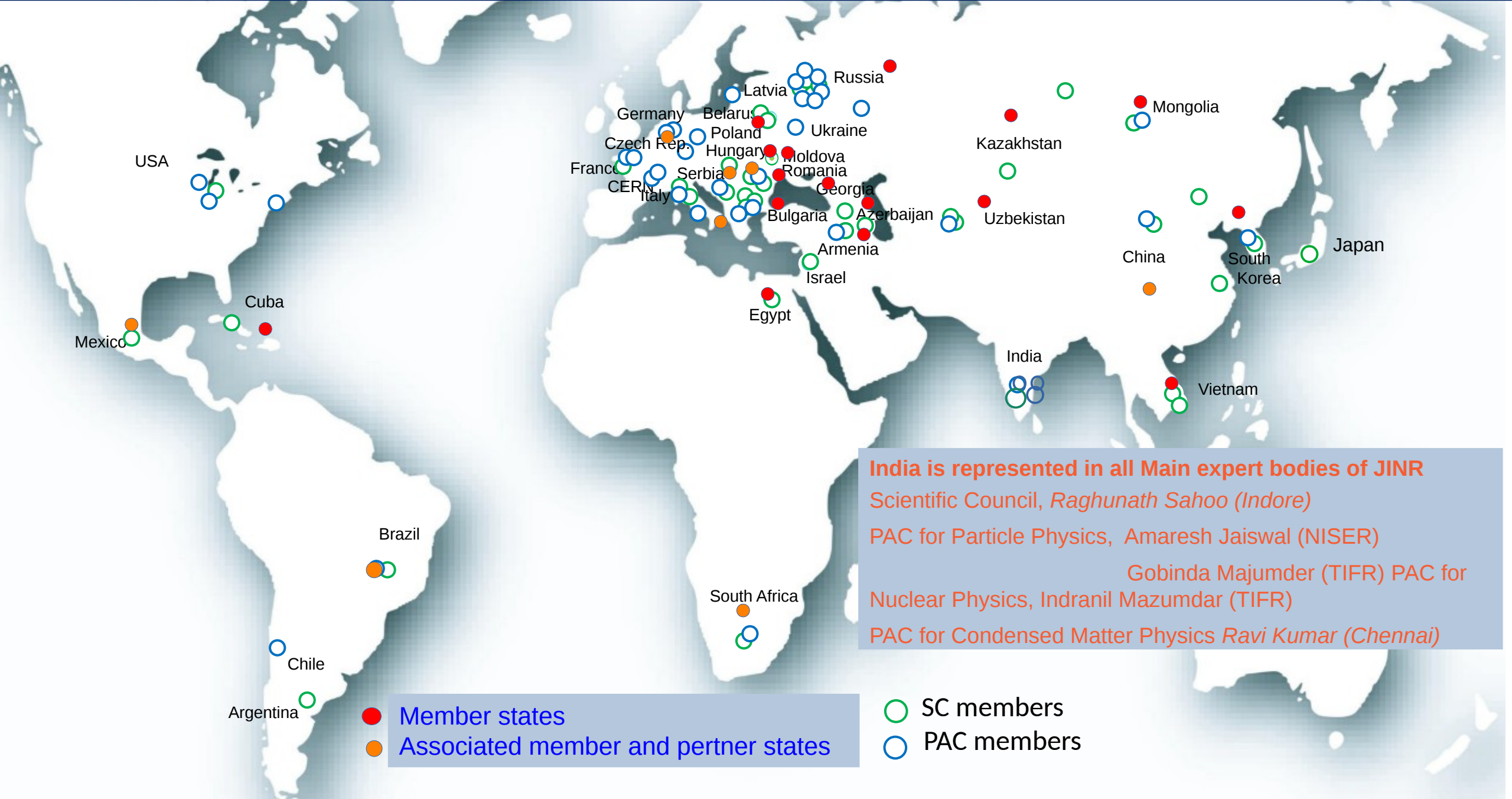


Committee of Plenipotentiaries

Each Member State has one representative in the supreme governing body of the Institute and the right to one vote in the voting



JINR International Scientific Council and Programme Advisory Committees – 2025



Scientific research and international cooperation:

Strategy, medium-term and annual planning

65



1956

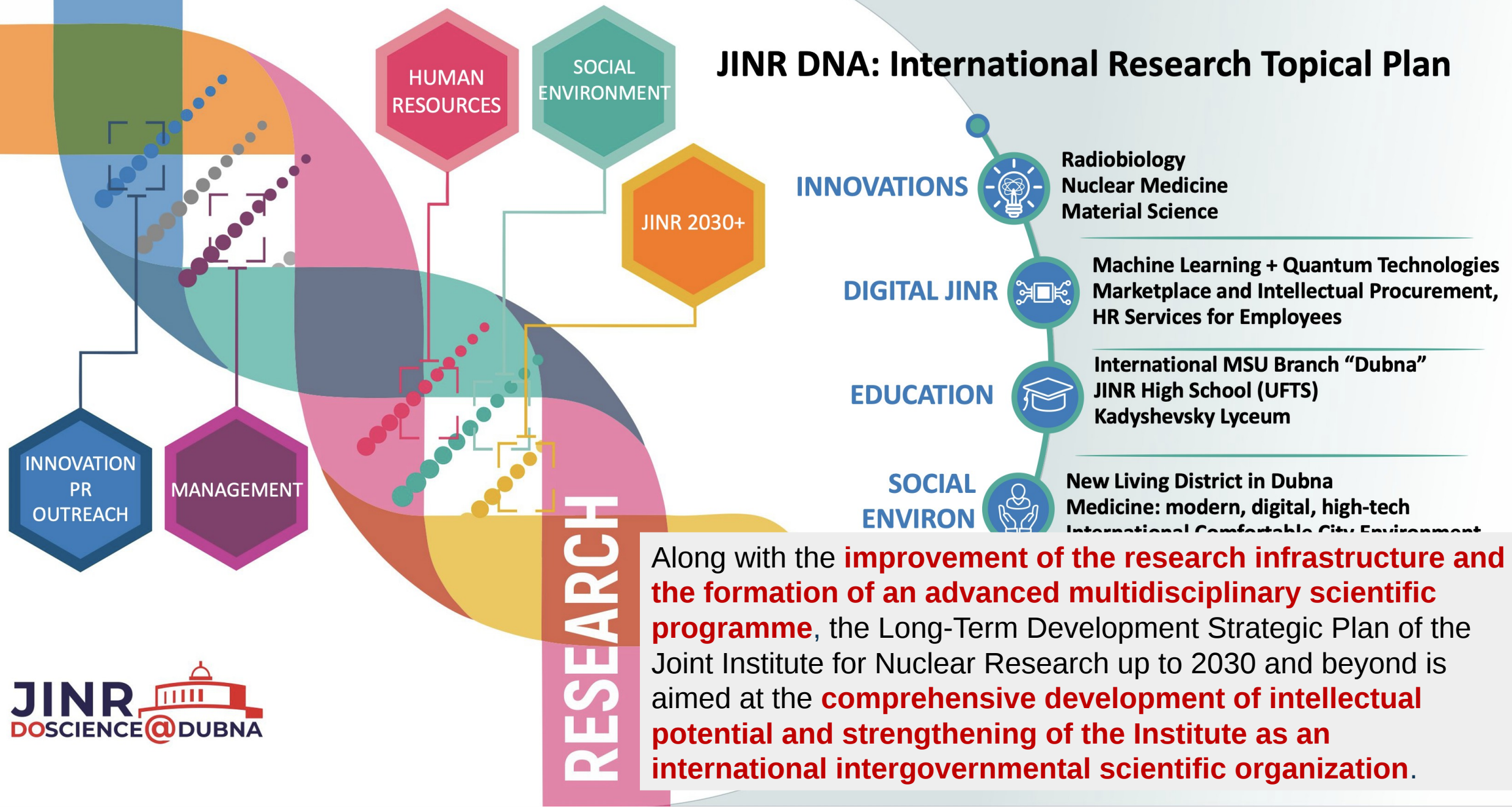
JOINT INSTITUTE
FOR NUCLEAR
RESEARCH

Dubna

**JINR LONG-TERM
DEVELOPMENT STRATEGIC PLAN
UP TO 2030 AND BEYOND**

2030+ STRATEGY ARCHITECTURE

JINR DNA: International Research Topical Plan



Along with the **improvement of the research infrastructure and the formation of an advanced multidisciplinary scientific programme**, the Long-Term Development Strategic Plan of the Joint Institute for Nuclear Research up to 2030 and beyond is aimed at the **comprehensive development of intellectual potential and strengthening of the Institute as an international intergovernmental scientific organization.**

Joint Institute for
Nuclear Research



SEVEN-YEAR PLAN FOR THE DEVELOPMENT OF JINR FOR 2024-2030



JOINT INSTITUTE FOR
NUCLEAR RESEARCH

TOPICAL PLAN
FOR JINR RESEARCH
AND INTERNATIONAL COOPERATION
2024

7-YEAR PLAN FOR JINR DEVELOPMENT 2024-2030

Development of Large Research Infrastructure

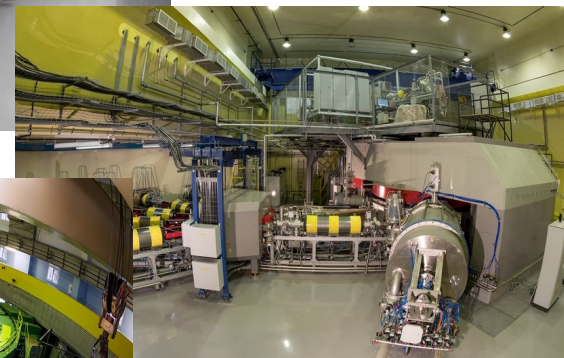
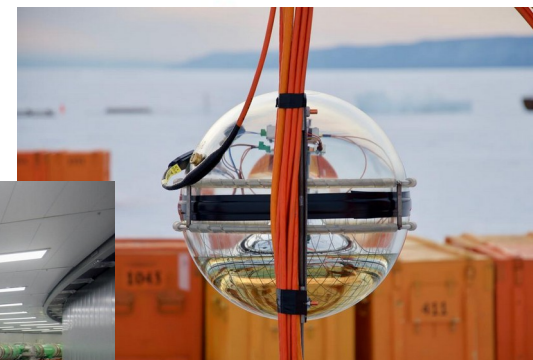
- Collider NICA and experiments BM@N, MPD, SPD, ARIADNA
- DRIBs-III (SHE Factory, U-400R, DC-140, RCL 1st class)
- IBR-2M, New neutron source
- Neutrino telescope Baikal-GVD
- Multifunctional information and computing complex

INTERNATIONAL RESEARCH COLLABORATIONS

Completion of the creation of a Large Research Infrastructure: the NICA complex (BM@N, MPD, SPD collaborations), the Baikal-GVD neutrino telescope, the new U-400R experimental complex, new innovative nuclear physics installations (medicine, energy).

Large-scale international multidisciplinary research at existing LRIs:

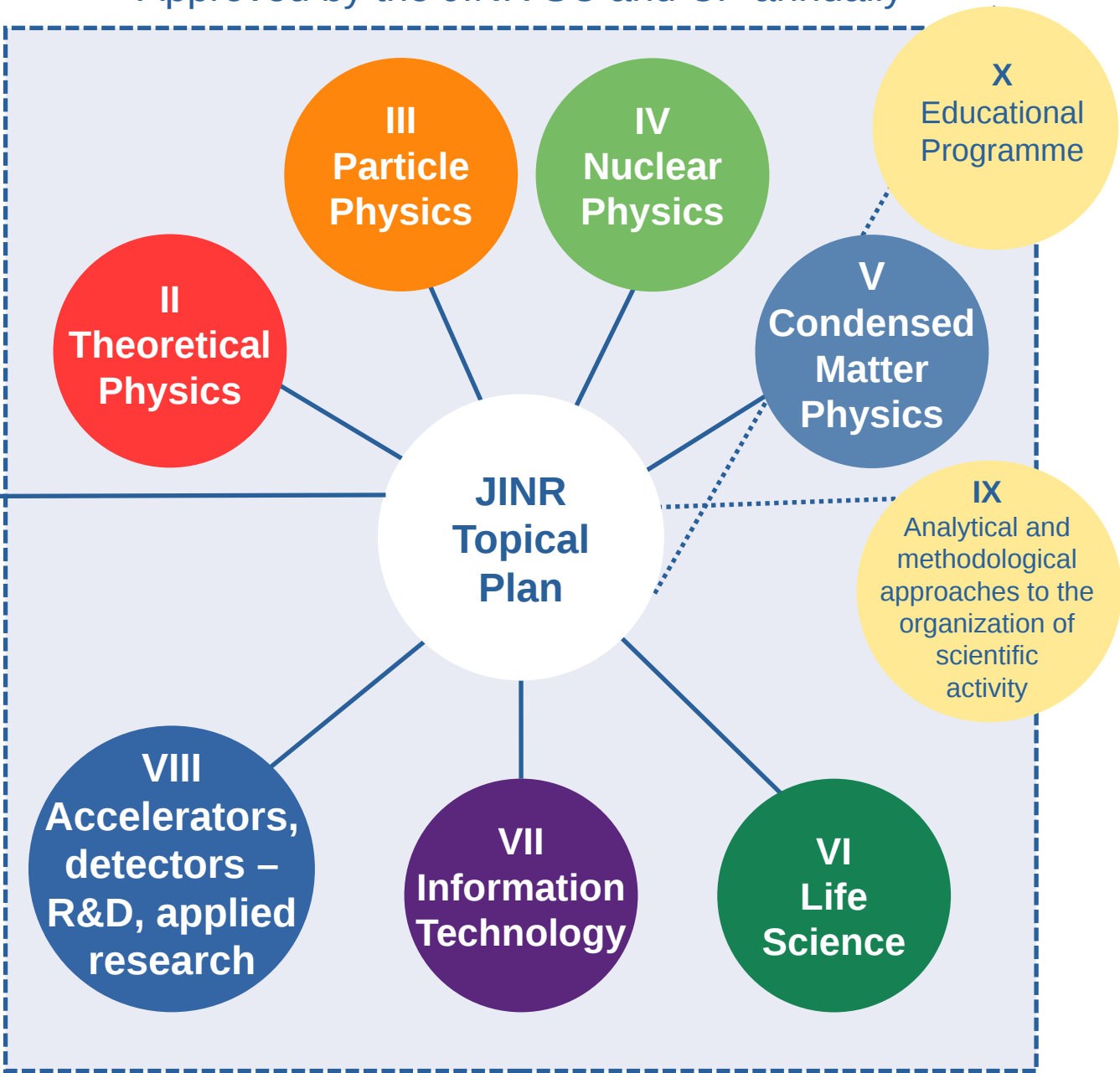
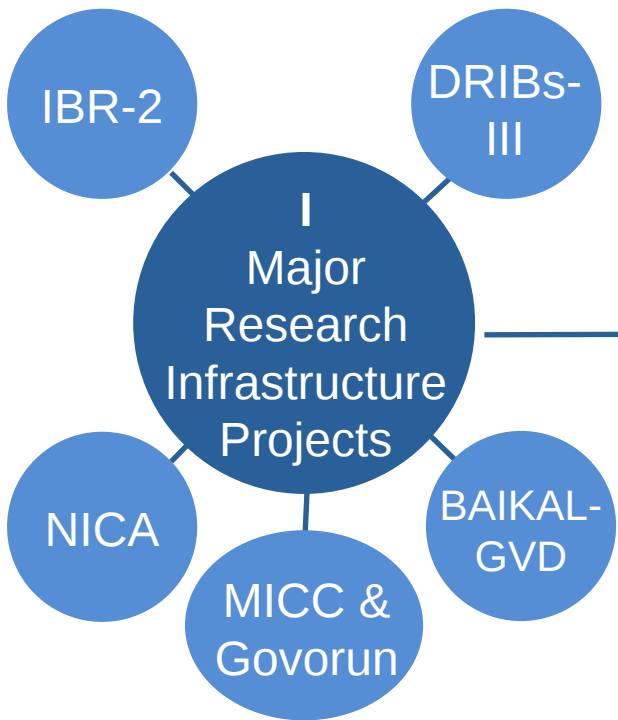
the SHhE factory, the IBR-2 reactor with a complex of spectrometers, the computing complex with the Govorun supercomputer, the Laboratory of Theoretical Physics, the Laboratory of Radiation Biology – biomedicine and radiobiology, innovative research.



The Topical Plan for JINR Research and International Cooperation

Approved by the JINR SC and CP annually

Approved by the JINR SC
and CP annually



2024	Agreements (NEW!)
Total	139
Russia	64
Azerbaijan	3
Belarus	12
Bangladesh	1
Bulgaria	4
Brazil	3
Armenia	3
Kazakhstan	15
China	11
Serbia	1
Uzbekistan	9
Vietnam	2
Switzerland	1
Cuba	2
Hungary	1
Romania	1
India	2
Mexico	1
South Africa	2
Türkiye	1

Topical Plan	2024	2025
Countries & Int. Org.	76	76
Research Org.	882	897
Themes	34	36
Projects	77	82

JINR Laboratories



The Bogoliubov Laboratory of Theoretical Physics is one of the world's largest institutions of theoretical physics. Research topics: fundamental interactions of fields and particles; theory of nuclear systems; theory of complex systems and advanced materials; modern mathematical physics: gravity, supersymmetry and strings. The Laboratory provides theoretical support for experimental research at JINR and in other research centres with the participation of JINR.



The Veksler&Baldin Laboratory of High Energy Physics is implementing a project for the construction of an accelerator complex of the NICA megascience class, including the upgraded accelerator Nuclotron-M, a Booster and the heavy nuclei collider and polarized particles. The megaproject is aimed at recreating and studying nuclear matter under extreme conditions that arose in nature at the early stages of the evolution of the universe and in the bowels of neutron stars.



The Dzhelepov Laboratory of Nuclear Problems — the oldest in JINR. The laboratory is mainly occupied with the research in neutrino physics and astrophysics, established by Bruno Pontecorvo. The laboratory is involved in the creation of the Baikal-GVD (deep underwater neutrino telescope on a cubic kilometer scale), which is one of the three largest telescopes in the world in terms of effective area and volume for observing natural neutrino fluxes and the largest in the northern hemisphere.



The Flerov Laboratory of Nuclear Reactions is a leading research centre in heavy ion physics, occupying a leading position in the field of synthesis and research of nuclear physical and chemical properties of new superheavy elements. The further development of this scientific direction is connected with the successful implementation of the unique project of the world's first "Superheavy Elements Factory", the basic installation of which is the new accelerator DC-280.



The Frank Laboratory of Neutron Physics is developing an ambitious scientific programme of studies of the neutron as an elementary particle and its application in nuclear physics, condensed matter physics and other modern trends of applied research. The main basic facility of the laboratory is the IBR-2 pulsed neutron source with a spectrometer complex, which allows us to actively develop a user programme in a wide range of areas in condensed matter physics, nuclear physics, medicine and ecology.



The Meshcheryakov Laboratory of Information Technologies is a world-class supercomputer centre equipped with powerful high-performance computing and information tools integrated using high-speed communication channels into global computer networks. The laboratory has created and put into operation a unique supercomputer GOVORUN — a heterogeneous computing platform for cardinal acceleration of complex theoretical and experimental research conducted at JINR.



The Laboratory of Radiation Biology develops research on radiation genetics and radiobiology, photoradiobiology, astrobiology, physics of radiation protection and mathematical modeling of radiation-induced effects. LRB is a member of the international biophysical collaboration, cooperates with scientific institutions of JINR Member States and other countries. Here, in particular, a number of studies have been carried out to assess the radiation risk of astronauts during long interplanetary flights and to develop methods of experimental space radiobiology.

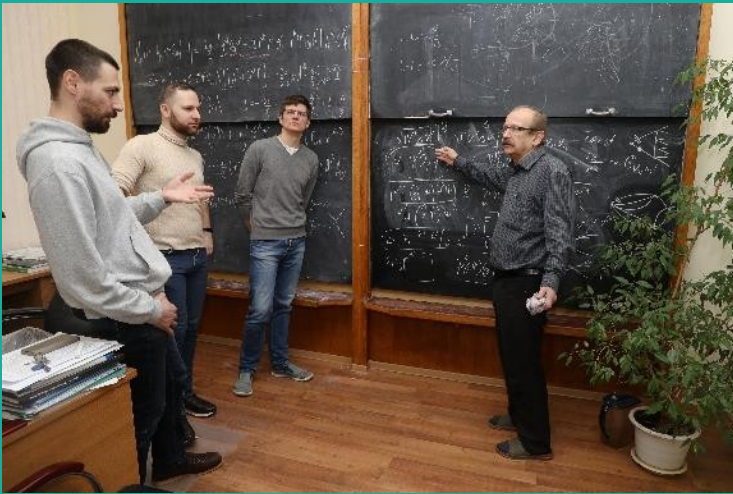


The JINR University Centre was created to implement the educational programme of the Institute, aimed primarily at training highly qualified personnel for further work and research in JINR laboratories and research centres of the participating countries. The UC has created and regularly improves conditions for the participation of students and postgraduates in the work of scientific groups of the Institute.

Multidisciplinary Complex of Large Research Infrastructures

Bogoliubov Laboratory of Theoretical Physics at JINR

A unique laboratory with more than **200 researchers from more than 20 countries** conducting multidisciplinary research.



THEORETICAL PHYSICS (BLTP)

**Theory of
Fundamental
Interactions**

**Theory
of Atomic
Nucleus**

**Theory of
Condensed
Matter**

**Modern
Mathematical
Physics**

Interlaboratory cooperation

VBLHEP Hot and dense nuclear matter in heavy-ion collisions

DLNP

Neutrino physics

MLIT

Lattice QCD calculations

FLNR

Superheavy and exotic nuclei

DLNP *Few-body systems,
Exotic nuclei*

MLIT Computational methods for
nuclear physics and quantum chemistry

FLNP

Condensed Matter,
New materials

FLNR

Nanoporous 2D membranes,
Ion irradiation

*Research and
educational project*

DIAS-TH

“Dubna International
Advanced School of
Theoretical Physics”

Human strategy:

- ☐ Attraction of leading scientists
- ☐ Attraction of young researchers
- ☐ Stimulation of scientific activity

Scientific strategy:

- ☐ Extension of international collaboration
- ☐ Keeping up with current scientific trends
- ☐ Interplay of research and education

NICA Complex





2017

NICA Project Development in 2017-2023

HILac commissioning

2018



Booster commissioning with beam

2020

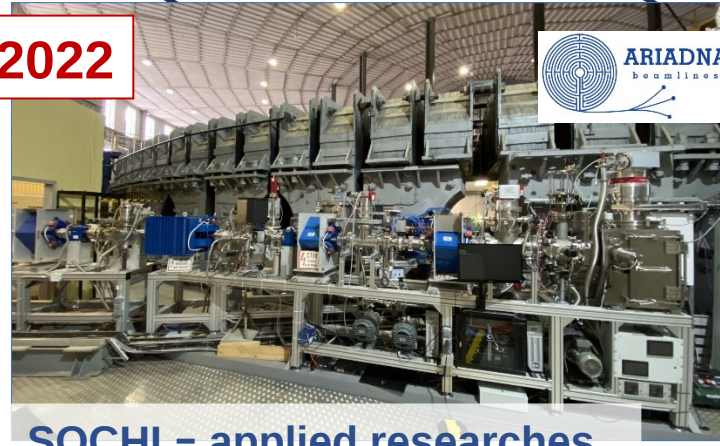


4th Technical Run (2022-2023):
HILac + Booster + Nuclotron



2021-2022

NICA collider tunnel



SOCHI - applied researches



**Commissioning of the
NICA injector complex!**

2024



2023

40MW - now available

In this period staff members of the Accelerator Division have published **500+** Scientific papers and presented **250+** reports at various conferences.

March 2025: First run at NICA collider, technological run

November-December 2025:
Cooling of the collider, Nuclotron-Collider beam transfer line

International cooperation: Catalytic Role of NICA Detector Collaborations



MPD Collaboration

12 countries
44 institutes/universities
>500 participants (485 authors)

5 physics working groups:

- global observables;
- light flavour & hypernuclei;
- correlations & fluctuations;
- electromagnetic probes;
- heavy flavor.

BM@N Collaboration

10 countries
19 institutes/universities
255 participants

Extended physics
programme

of the ongoing experiment:

- short-range correlations;
- hyperons & hypernuclei;
- heavy ion physics, etc.

SPD Collaboration

10 countries
23 institutes/universities
~300 authors + individuals

Physics goals:

- gluon content in p and d;
- charmonia;
- open charm;
- prompt photons.

Low-energy testing facility
for electronic devices



High-energy testing facility
for electronic devices



Target station for biological samples

ARIADNA Infrastructure for Applied Research at NICA Facility



ARIADNA beamlines



Target station for
long-term exposure

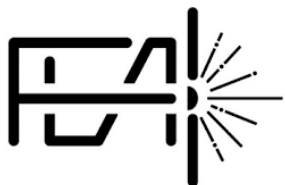
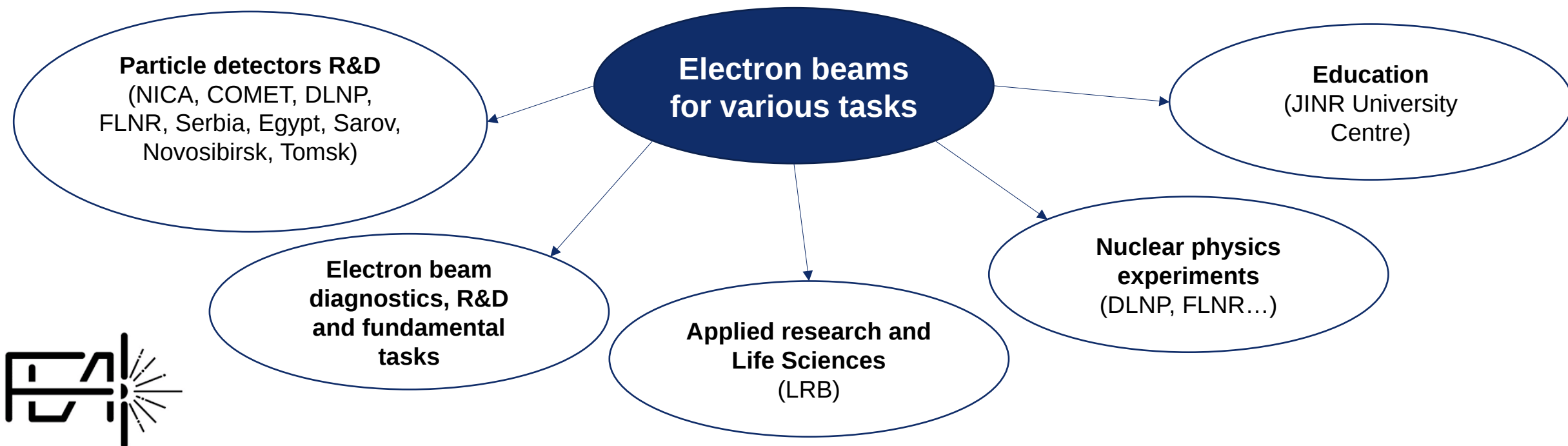


Sample preparation room

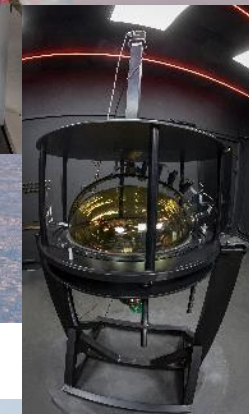
LINAC-200: New JINR DLNP Basic Facility



LINAC-200 (up to 400 MeV at 2026 and 800 MeV further)



Baikal-GVD Project



Baikal, 13 March, 2021. The ceremonial launch of the Baikal-GVD, the largest deep underwater neutrino telescope in the northern hemisphere, and the signing of a Memorandum of understanding between the Ministry of Education and Science of Russia and JINR for the development of the Baikal deep underwater neutrino telescope

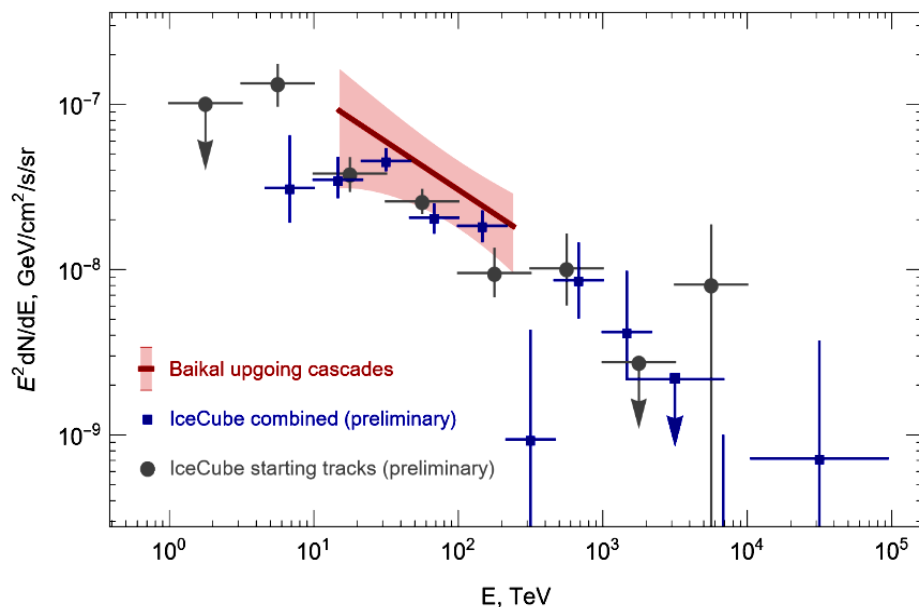


Status of the Neutrino Detector Baikal-GVD



Total: 4 284 OM + 8 laser stations

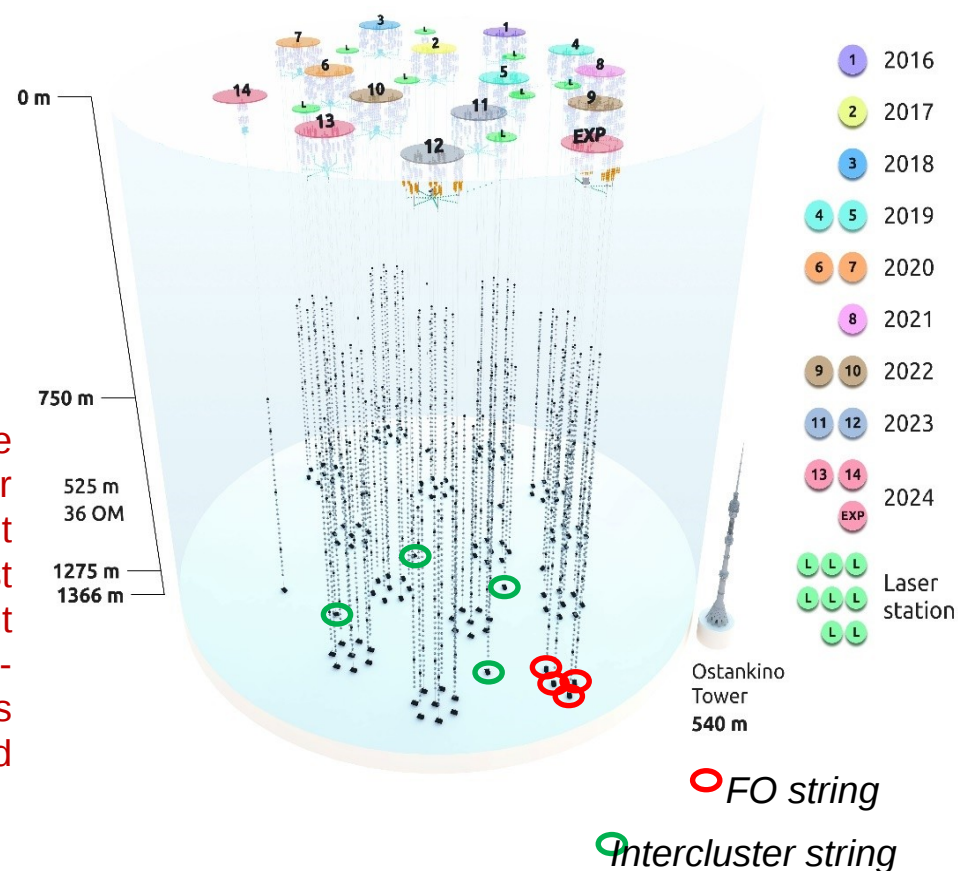
- Currently, the deployment of the Baikal-GVD neutrino telescope is successfully underway. 14 full clusters are installed. The underwater structure of the installation contains about 4 300 photodetectors;
- The production and technical base of the Baikal project ensures the deployment of **two clusters annually**;
- GVD has **developed shore infrastructure**: control centre, laboratories, workshops, deployment tools, living quarters;
- GVD is **testing ground** for the development the systems for next-generation telescope:
 - 4 strings with fiber-optic DAQ;
 - 4 inter-cluster strings.



The accuracy of determining the direction of neutrino arrival is four times as good as in the largest IceCube telescope. For the first time in an independent experiment, the existence of high-energy astrophysical neutrinos was confirmed, their flux and spectrum were measured.

Nearest plans:

- About 600 optical modules are going to be assembled for deployment in 2026;
- The collaboration is planning to install additional 2 new clusters, 2 garlands with new DAQ system and additional inter-cluster strings and one full prototype string for the next generation detector in case a good external conditions (weather and ice).



Development of DRIBs-3 Complex

DC-280 @ SHE Factory

Intensity: ^{48}Ca ~7 pA, ^{50}Ti ~3 pA, ^{54}Cr ~4 pA;
Energy: 5 - 8 A-MeV;
Smooth energy variation;
Efficiency: ~50%.

U-400M Modernization: close to completion

Main directions of research: physics of light nuclei at the borders of nucleon stability.

DC-140: new facility for applied research

Purpose:

- Electronic components testing;
- Track membranes research and production;

Status: assembling has been started.

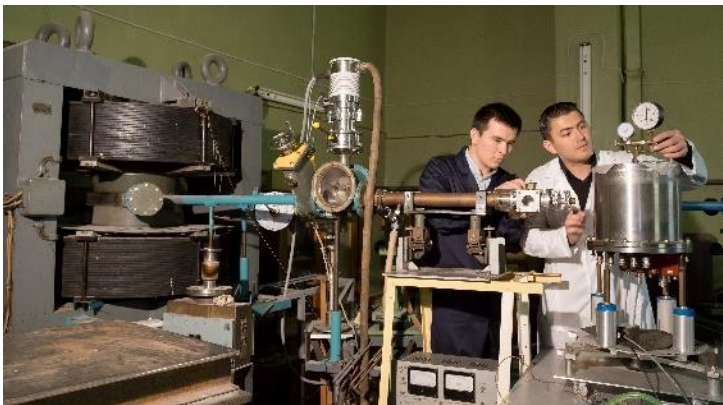
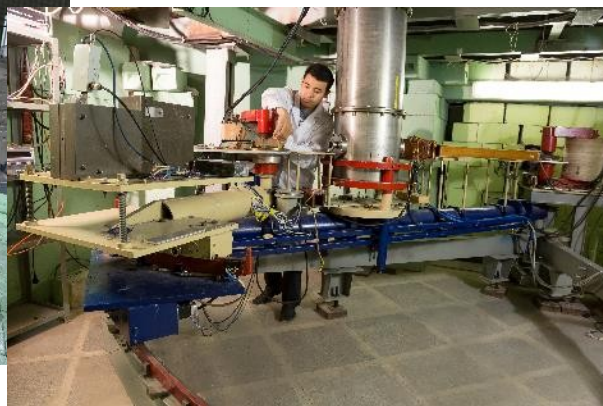
U-400R: Dec. 2023 start of construction

June 2025

Purpose:

- New experimental hall;
- Modernized cyclotron;
- New physical set-ups.

Neutron Research



In 2020, the Institute celebrated the 60th anniversary of the launch of the IBR pulse reactor start-up (IBR) — the only reactor in the world operating with a variable level of criticality. The implementation of the international user programme on the neutron beams of the IBR-2 reactor continues. The project of a new neutron pulse source of the 4th generation is being developed in partnership with leading scientific organizations.

Neutron Nuclear Physics and Condensed Matter Research @ JINR

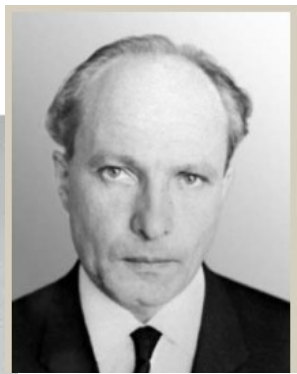
- UCN physics;
 - Neutron lifetime;
 - Weak equivalence principle check. EDM?
 - Neutron quantum states in gravitational field;
- Neutron scattering for condensed matter studies @ IBR-2;
 - Diffraction at high pressure;
 - Soft matter;
 - Nanostructured magnetic materials;
 - Energy selective neutron radiography and tomography;
- Nuclear physics with neutrons @ IREN, IBR-2 & external sources;
 - Nuclear data for engineering and astrophysics;
 - Fundamental symmetries violation in neutron-nucleus interaction;
 - Applied research;



I.M. Frank



D.I. Blokhintsev



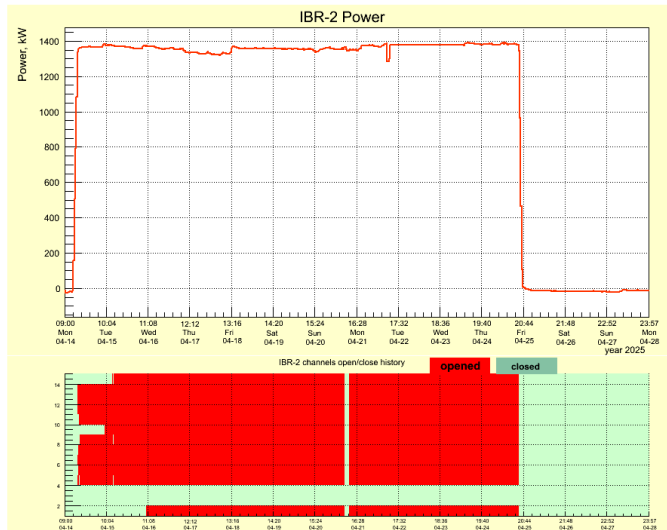
F.L. Shapiro

Frank Laboratory of Neutron Physics

I cycle 2025: 17 February – 7 March

II cycle 2025: 17 March – 24 March

III cycle 2025*: 14 April – 25 April



At present:

- Scheduled preventive maintenance
- Equipment maintenance
- Preparation of the reactor for operation

Scheduled reactor operation:

IV cycle 2025*: 13 October – 24 October

V cycle 2025*: 5 November – 16 November

VI cycle 2025*: 24 November – 5 December

VII cycle 2025*: 15 December – 26 December

*with both cryogenic moderators

The main conclusions are:

- The reactor started operating in regular cycles after the long shutdown;
- Its condition has not deteriorated during the long shutdown;
- The reactor is stable at a power of up to 1.5 MW;
- The possible increase of the power above 1.5 MW requires further investigation;
- Most beam instruments are ready for measurements (3 of them are temporarily unavailable for external users due to technical reasons).

Yu.N.Pepelyshev, A.V.Dolgikh, A.D.Rogov, S.Davaasuren, Ts.Tsogtsaikhan. "The IBR-2M reactor launch after a long shutdown. Reactor dynamics", FLNP Seminar on 22 May, 2025.

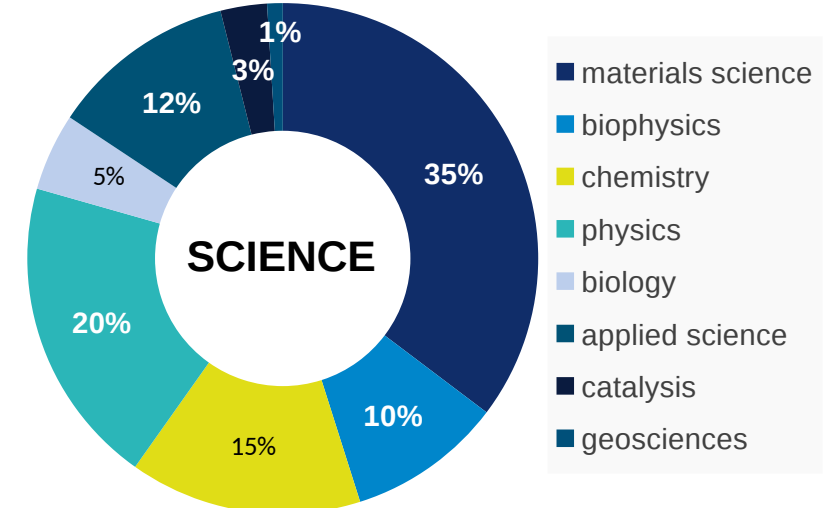
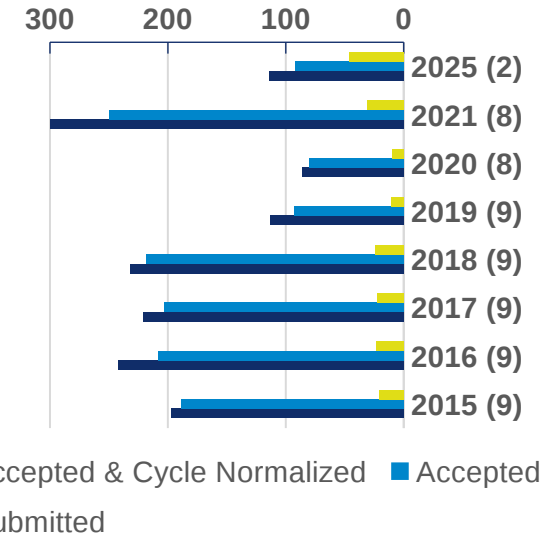
A new round of proposals started on 1 September, 2025.

113 new users registered in 2025



Number of Proposals

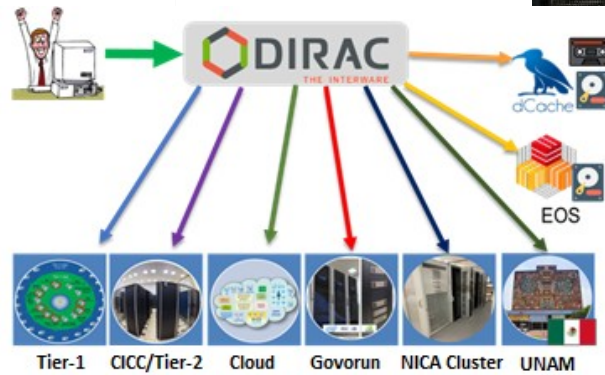
(the number of IBR-2 cycles in brackets)



Information Technologies



The Govorun supercomputer is being continuously upgraded



Scheme of the Integration of geographically distributed heterogeneous resources based on the DIRAC Interware



JINR Multifunctional Information and Computing Centre

Multifunctional Information and Computing Complex



MICC

DIRAC, PanDA, etc.

Tier1
23240
cores
15 PB

Tier2/CICC
10364
cores
5.65 PB

Govorun
2.2 Pf
10.6 PB

Cloud
5470
Cores
6.2 PB

DATA STORAGE 130 PB

NETWORK 4x100 Gbps

POWER@COOLING 800 kVA@1400 kW

Four advanced software and hardware components

- Tier1 grid site (distributed data processing)
- Tier2 grid site (distributed data processing)
- hyperconverged “Govorun” supercomputer
- cloud infrastructure

Distributed multi-layer data storage system

- Disks
- Robotized tape library

Engineering infrastructure

- Power
- Cooling

Network

- Wide Area Network
- Local Area Network



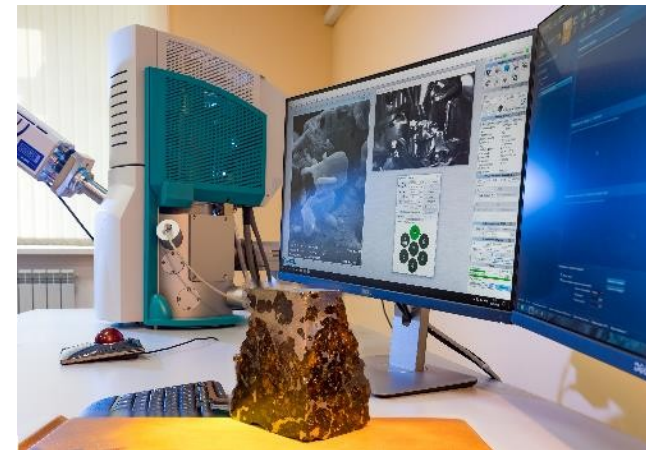
micc.jinr.ru

The main objective of the project is to ensure multifunctionality, scalability, high performance, reliability and availability in 24x7x365 mode for different user groups that carry out scientific studies within the JINR Topical Plan

Radiobiological Research



Academicians V. Matveev, M. Ostrovsky, A. Rozanov, corresponding member E. Krasavin at the discussion of the scientific programme of the LRB JINR



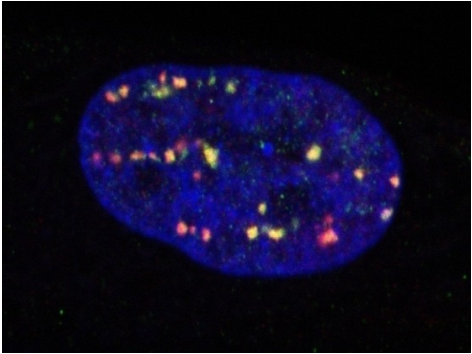
The Laboratory of Radiation Biology (LRB) conducts unique experiments on mammals and primates to assess the radiation risks of CNS (central nervous system) disorders and carcinogenesis.



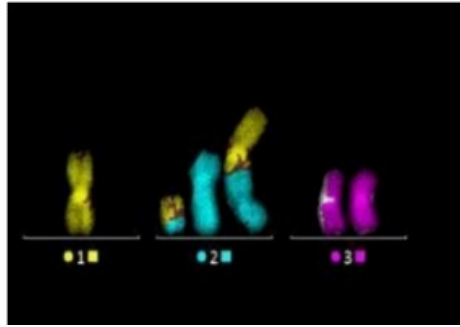
RADIATION RESEARCH IN LIFE SCIENCES

MAIN RESEARCH FIELDS:

Molecular Radiobiology



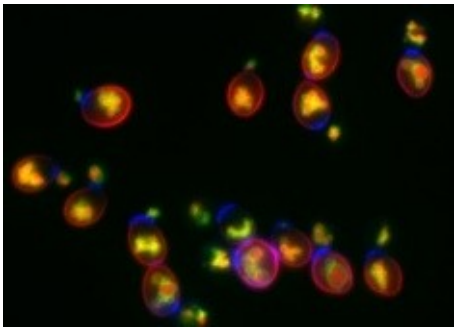
Radiation Cytogenetics



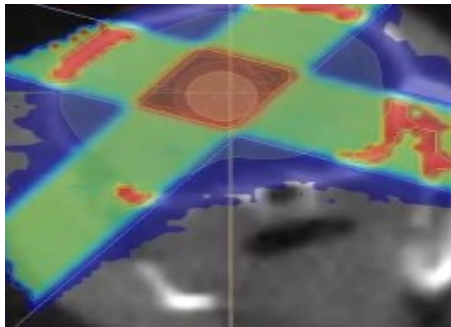
Radiation Physiology



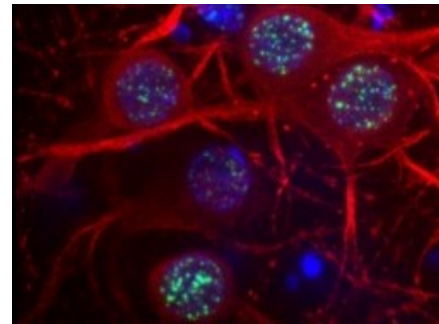
Radiation Genetics



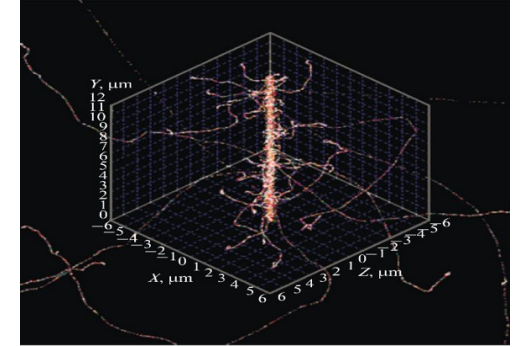
Clinical Radiobiology



Radiation Neuroscience



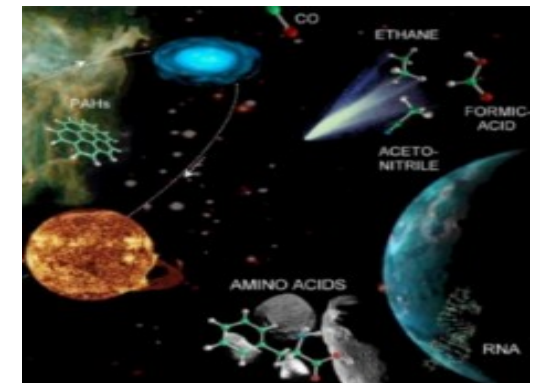
Mathematical Modeling



Radiation Research



Astrobiology



JINR's radiation sources for radiobiological studies

IBR-2, IREN: neutrons



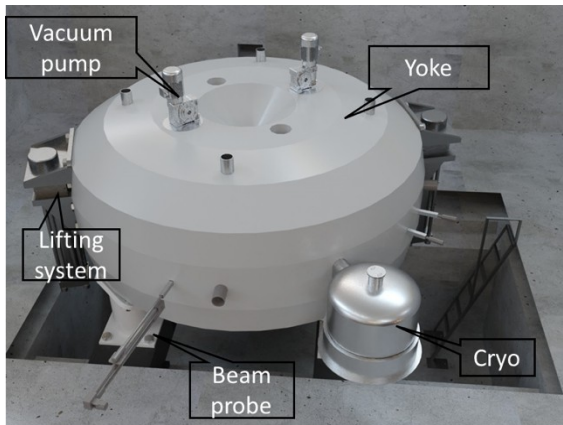
**U-400M cyclotron:
heavy ions 50 MeV/u (Li-Ne)**



Nuclotron: heavy ions 0.3-1 GeV/u (H – Kr)



**cyclotron MSC230
(since 2024):
protons up to 230 MeV**



SARRP: X-ray

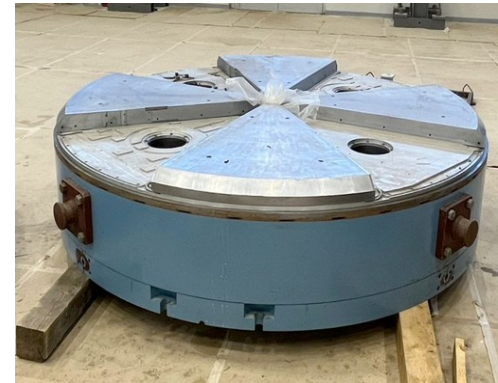
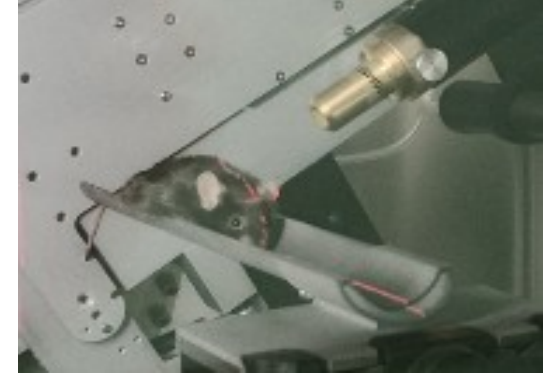


**Linac200:
electrons 20-200 MeV**

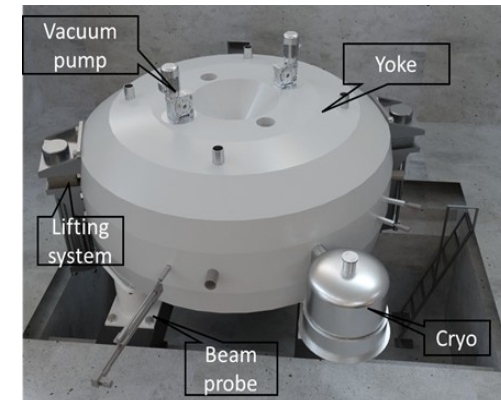


INNOVATIONS: INTERNATIONAL CENTRE FOR NUCLEAR TECHNOLOGIES RESEARCH

- **Radiation Biology @ LRB**, OMICS, neuro-RB studies, radiation neuroscience. Approaches to increase radiosensitivity: pharmaceuticals, transgene systems, targeted delivery and radionuclide;
- **ARIADNA**. Applied beams@NICA: radiobiological studies (400-800 MeV/n); irradiation of electronics and material science (3; 150-350 MeV/n); nuclear physics (1-4.5 GeV/n);
- **DC140 cyclotron**: Space electronics testing, radiation material science, new generation of track membranes;
- **MSC230 cyclotron**: research and beam therapy: treatment planning; radiomodifiers for g- and p- therapy, flash-therapy, pencil beam (10 μ A, >5 Gr/l @ 50 ms pulse).
- **Radiochemical Laboratory Class-I** for production of radioisotopes (Ac^{225} , $^{99\text{m}}\text{Tc}$), nuclear medicine R&D in photonuclear reactions @ 40MeV e-accelerator.



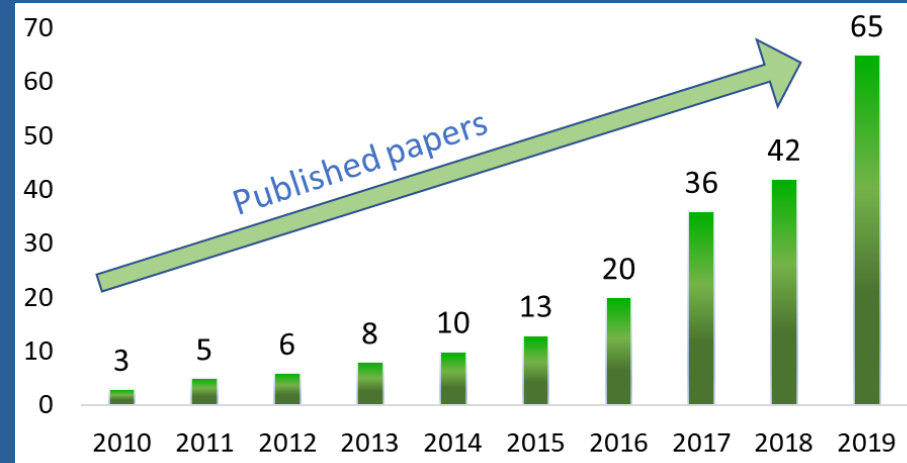
DC-140 (construction phase)



MSC-230 (general view)

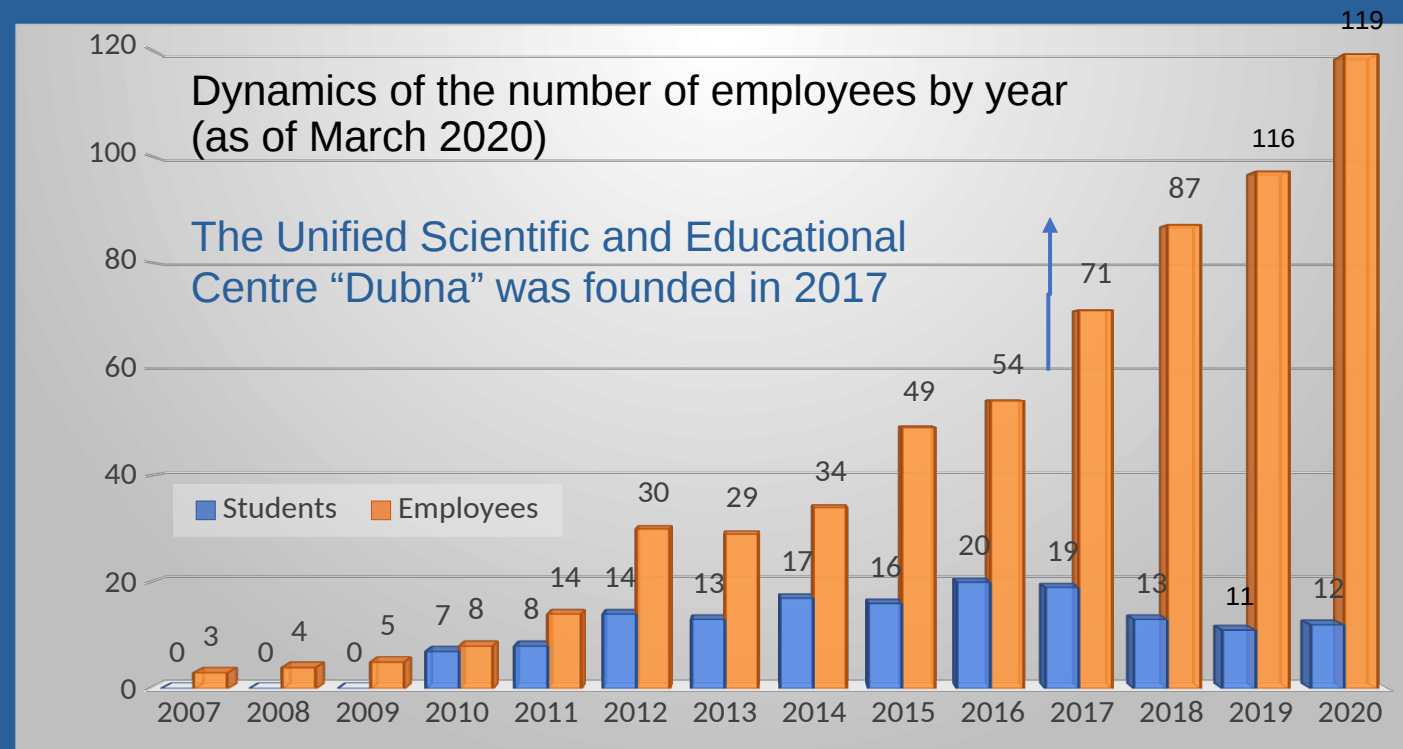
Creation of Scientific Infrastructure in the Member States: DC-60 Cyclotron Complex in Kazakhstan

The Unified Scientific and Educational Centre “Dubna” was founded in 2016/2017.

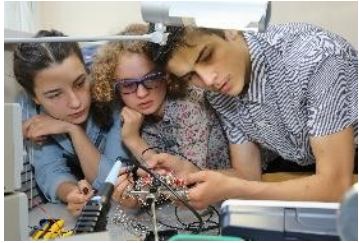


Main research topics:

- Solid State Physics;
- Nanotechnology;
- Nuclear physics;
- Chemistry;
- Catalysis;
- Polymers;
- Biology;
- Pharmacology;
- Medicine;
- Theoretical physics.



JINR Educational Programme



International Training Programmes

3

stages of international student practice take place every year

About
100

project topics in the main areas of JINR research are offered to students



Over
150

students participate in international introductory practices annually

Students from **23** countries come to JINR for internships and practices

Over
30

participants in long-term student programmes and internships annually

Students from **8** countries have been on excursions to JINR over the past 5 years

Programmes for students and young scientists

- Bachelor's, Master's and PhD theses;
- INTEREST – INTERNATIONAL REMOTE Student Training at JINR; Student Online Practice; interest.jinr.ru
- International student practices; uc.jinr.ru/ru/isp
- Summer Student Programme; students.jinr.ru
- Conferences and schools for young scientists and specialists. ayss.jinr.ru

Scientific informational infrastructure

Natural Science Review: progress over a year of work

An international online peer-reviewed scientific journal on natural and technical sciences



nsr.jinr.int

- Four published issues, fifth issue is in progress
 - **25** published papers at the moment in total
 - **929** pages in sum, from **9** up to **325** A4 pages per article
- Fully operational journal
- Obligatory registration procedures in Russia were passed
 - Preparing application to Scopus and WoS

Journal structure:

- Advisory Board: **21** person representing **16** organizations from **10** countries and JINR
- Editorial Board: **17** people representing **4** organizations from Russia and JINR
- Technical team: **14** people

First Advisory Board meeting: 16 September 2025



Strengthening International Cooperation



Member States



10–16 May 2025

In Hanoi, representatives of VBLHEP, FLNP, FLNR, MLIT, and the University Centre of the Joint Institute participated in a number of meetings on **education and personnel training** with universities and scientific centres of Vietnam.



The JINR delegation visited a number of universities. Round tables on JINR's scientific and educational opportunities, meetings with the administration, teachers, and young scientists of relevant students of specialized faculties were held. In addition, the soft opening of a JINR Information Centre took place in the format of a seminar at the Institute of Physics of the VAST.

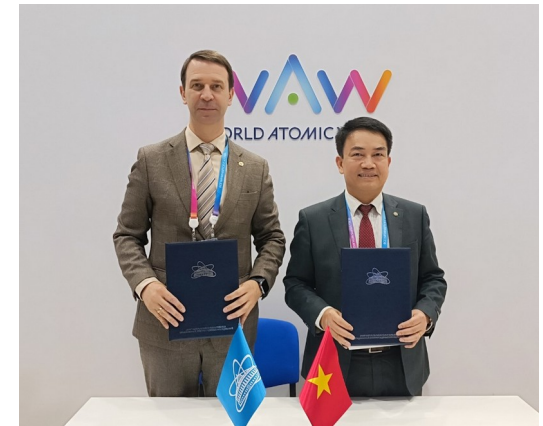
1 October 2025

A **delegation from VAST** visited JINR to discuss the issues of strengthening Vietnam–JINR cooperation in science and technology as well as to get acquainted with the unique research infrastructure of the Institute. The delegation included heads and employees of key organizations of VAST.



26 September 2025

JINR delegation participated in the “Neutron flux symphony as a score of progress: how a research reactor “sounds” in daily life” panel session of the **World Atomic Week**, organized by the Rosatom State Corporation, took place in Moscow. At the event, the heads of JINR and the Vietnam Atomic Energy Institute (VINATOM) signed a document on cooperation in personnel training.





Deepening Ties with Latin America



23 September 2025

A delegation from the **Embassy of the Federative Republic of Brazil** in the Russian Federation, headed by **Ambassador Extraordinary and Plenipotentiary Sérgio Rodrigues dos Santos**, visited JINR. The purpose of the visit was to become familiar with JINR's scientific infrastructure and research programme.



Sérgio Rodrigues dos Santos confirmed the Brazilian scientific community's interest in deepening cooperation with the Joint Institute, describing the current model of collaboration with JINR as highly promising and mutually beneficial. He expressed the Embassy's support for the practical implementation of the agreements reached and emphasized the importance of a rapid transition to concrete projects with clear objectives and the necessary funding.



17 September 2025

A representative of the **Embassy of the Republic of Cuba** to the Russian Federation **Alberto Turro Breff** and a specialist in education and science **Delis Sevila Rodríguez** visited JINR. At top of agenda were discussions of the development of scientific cooperation, as well as the exchange of experience in education and training of new specialists.





Associate Members



27 March 2025

One of the State Secretaries of the Ministry of Science, Technological Development and Innovation of Serbia, **Miroslav Trajanović**, met with the JINR Directorate. The parties discussed the prospects of JINR–Serbia cooperation and outlined the next steps to implement joint initiatives and projects. Representatives of the Serbian delegation participated in the JINR Committee of Plenipotentiaries session and visited the Institute's laboratories, where they got acquainted with the modern scientific



The State Secretary of the Ministry of Science introduced Deputy Director of the Vinča Institute **Marija Janković** as the new coordinator of Serbia–JINR cooperation. She said that the result of S.Dimović's visit to JINR was the prompt establishment of a special committee for the development of accelerator projects at the Vinča Institute, which will work together with the JINR expert group.

20–23 May 2025

The 67th International Fair of Technics and Technical Achievements has taken place in Belgrade with the participation of a Joint Institute for Nuclear Research delegation. The JINR booth presents information on the Institute's main facilities, projects, and educational programmes, along with the results of joint research with partners from Serbia.



One of the elements that the JINR delegation presented is a prototype of a preparative system for tangential flow filtration of solutions, developed by the Centre of Applied Physics at the JINR Laboratory of Nuclear Reactions.





Scientific Cooperation with South Africa



16–20 June 2025

South Africa Days at JINR: 20 years of international cooperation

Days of the Republic of South Africa at JINR were held in Dubna, dedicated to the 20th anniversary of the strategic scientific partnership between the Joint Institute for Nuclear Research and the Republic. Meeting of the South Africa–JINR Joint Coordinating Committee was held on 18 June.



31 October 2025

A delegation from the Republic of South Africa visited JINR.

The delegation included representatives of the Department of Science, Technology and Innovation of South Africa (DSTI), the National Research Foundation (NRF), the Technological Innovation Agency (TIA), the National Space Agency of South Africa (SANSA) and the research organization MINTEK. The delegation was headed by **Cecil Masoka**, Acting Chief Director for International Bilateral Cooperation at DSTI.





International Cooperation



24 October 2025

JINR hosted the third meeting of the JINR–Ministry of Science and Technology of the People's Republic of China (MSTC) Joint Coordinating Committee (JCC). The Committee operates in accordance with the Protocol on Strengthening Cooperation in the Field of Basic Scientific Research between the Ministry of Science and Higher Education of the Russian Federation, the Chinese Academy of Sciences, MSTC and JINR.

The Co-Chairs of the Committee were JINR Director **Grigory Trubnikov** and MSTC Vice Minister **Chen Jiachang**.



Following the meeting, the Committee adopted a number of decisions:

- confirmed the successful implementation of the first eight joint projects and approved their continuation
- agreed to the proposal to support the second stage of seven new projects for a period of three years with the possibility of extension
- approved the updated composition of the Expert Working Group
- noted the importance of creating a dedicated communication channel between JINR and scientific centers in China
- agreed to hold the fourth meeting of the Committee in 2026 in China

The final minutes of the meeting were signed by the Co-Chairs of the Committee, Grigory Trubnikov and Chen Jiachang.





International Cooperation



13 May 2025

A delegation of the **French Embassy in the Russian Federation**, headed by **Minister-Counsellor Zacharie Gross**, visited JINR to get acquainted with its scientific infrastructure and research projects.

At the end of the meeting, representatives of the embassy visited the sites of the Superheavy Element Factory at the Laboratory of Nuclear Reactions, the IBR-2 Research Reactor at the Laboratory of Neutron Physics, and the NICA Accelerator Complex at the Laboratory of High Energy Physics.



17 August 2025

Deputy Minister of Finance of the Russian Federation Pavel Kadochnikov visited JINR. The programme included meetings with JINR's Directorate and excursions to the sites of the VBLHEP and FLNR flagship projects.



During a working meeting with JINR Director, Academician Grigory Trubnikov, Pavel Kadochnikov discussed issues related to the participation of the Russian Federation as the country JINR is based in and the most active partner in the implementation of the Seven-Year Plan for the Development of JINR for 2024–2030, in particular, the further development of JINR's social and research infrastructure.



JINR Delegation in Japan



19–21 May 2025

Representatives of the Joint Institute for Nuclear Research visited Japan. A delegation led by JINR Director, Academician **G.Trubnikov** took part in working meetings at major national research centres: **KEK (High Energy Accelerator Research Organization)** and **J-PARC (Japan Proton Accelerator Research Complex)**.

Meeting with KEK Director **Shoji Asai**, Director of the KEK Institute of Particle and Nuclear Studies **Naohito Saito**, and COMET Project Manager **Satoshi Mihara**



During the visit, bilateral negotiations aimed at deepening the partnership between the JINR and Japanese organizations in science and collaborative studies took place. The parties discussed promising areas of physics research and opportunities for cooperation in JINR, KEK, and J-PARC projects. The participants of the negotiations expressed mutual interest and noted they were willing to update the current Memorandum of Understanding.

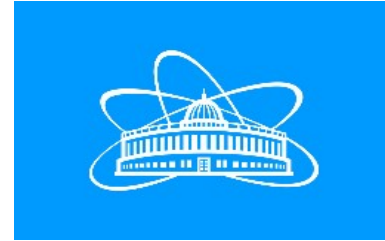
Meeting with J-PARC Director **Takashi Kobayashi**, J-PARC Deputy Director **Takeshi Komatsubara**, Head of the J-PARC Materials and Life Science Division **Toshiya Otomo**, Professor at the J-PARC Particle and Nuclear Physics Division **Takeshi Nakadaira**, and COMET Project Manager **Satoshi Mihara**



For several years, JINR scientists have been actively involved in the projects of the J-PARC scientific centre, particularly the COMET and T2K experiments, making a significant contribution to creating and developing detector systems, along with conducting experimental data analysis. The KEK and J-PARC leadership highly appreciated the achievements of the JINR specialists and noted the potential for their participation in the future international Hyper-Kamiokande Project. In addition, the parties expressed mutual interest in involving Japanese scientists in experiments carried out at JINR's main facilities, and also highlighted the importance of academic mobility for theoretical and experimental physicists, as it will contribute not only to strengthening scientific ties, but also to actively exchanging knowledge and practical experience in priority areas of research.



India and JINR



Long History of JINR-India Cooperation

The Joint Institute for Nuclear Research maintains fruitful and mutually beneficial relations with many Indian research centres and universities; for many years it has been hosting Indian scientists in its laboratories as scholars, and more recently as employees.



A. Ramakrishnan, an Indian physicist and the founder of the Institute of Mathematical Sciences (Matscience) in Chennai, at the XII International Conference on High Energy Physics, Dubna



1964



1981

V. P. Perehygin, Director of LNR Academician G. N. Flerov, D. S. Yadav and Professor A. P. Sharma discuss the programme of joint research



1972

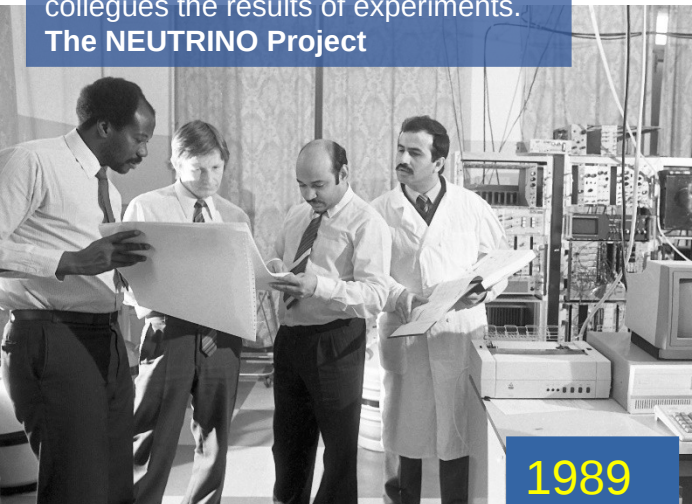
The first meeting with Russian snow. JINR Indian Scholar Dr. D. Nadkarni with his wife in Dubna



1981

Professor V. B. Shrikatan, D. S. Yadav and Corresponding Member of the USSR Academy of Sciences N. N. Govorun

Laboratory of Nuclear Problems. Chhotu Lal Kathat discusses with colleagues the results of experiments. The NEUTRINO Project



1989



2007

V. Sahni (India) at the 101st session of the JINR Scientific Council, Dubna

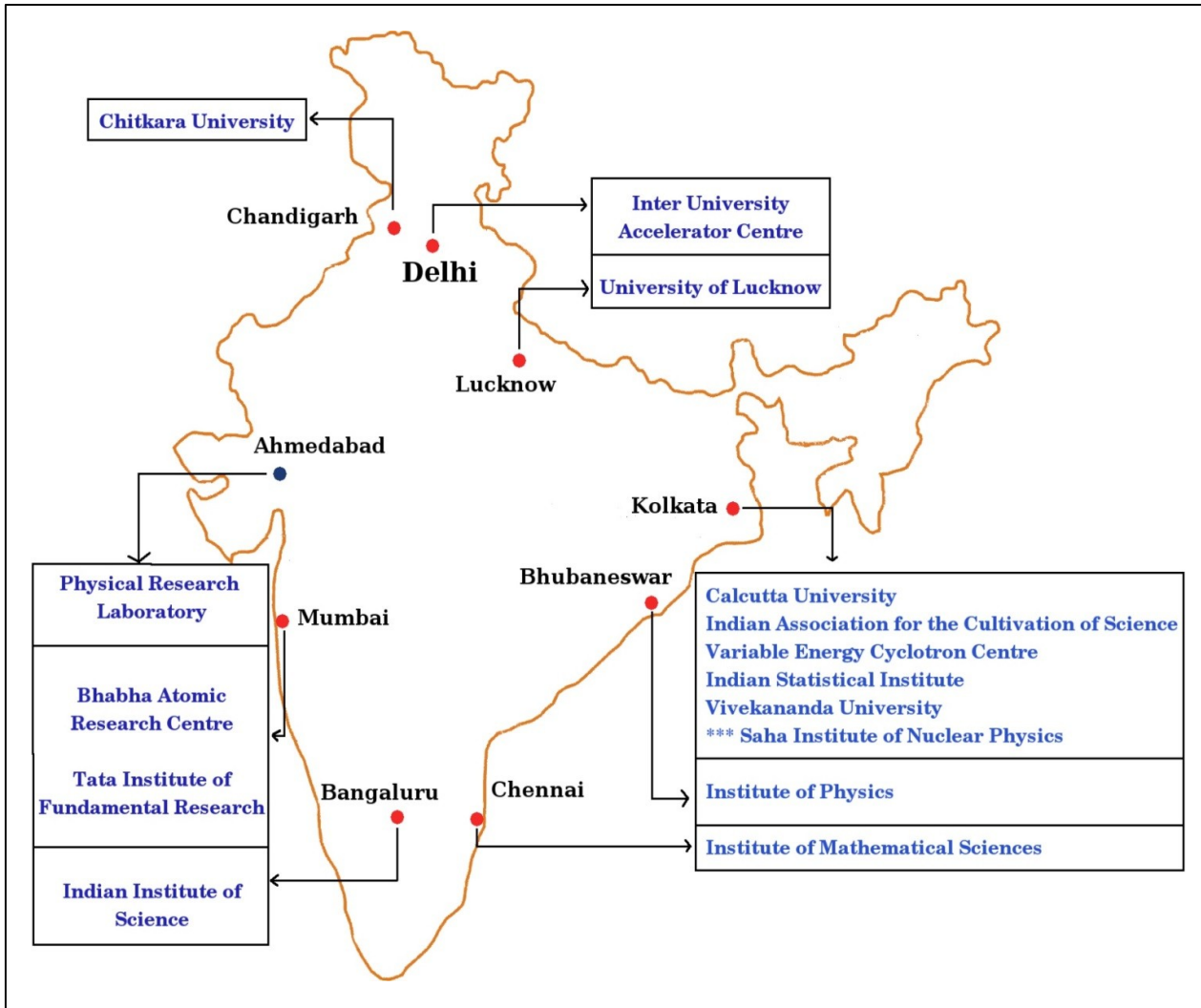
Extremely valuable contribution to the India-JINR cooperation belongs to a prominent scientist and organizer of science, **Prof. Dr. Bikash Sinha (Variable Energy Cyclotron Centre, Kolkata).**



2015

One of the strongest supporters of NICA, in 2015, during a visit to Dubna, he spoke at the BLTP seminar with the report "India in Mega-Science Worldwide and at Home".

India-JINR Forum «Frontiers in Nuclear, Elementary Particle and Condensed Matter Physics» 16-20 June 2014



Very large potential for enhancement of cooperation between India and JINR was indicated

Participants: more than 80 leading researchers from India and JINR.

There were plenary meetings and parallel workshops in the JINR Laboratories: VBLHEP, BLTP, FLNR, FLNP, DLNP where more 57 talks were given



Major Indian centers for elementary particle, nuclear and condensed matter physics were represented at the Forum.



During the Forum, the participants were acquainted with the structure of JINR and some principles of its organization. They also concluded that the best way to perform above mentioned cooperation activities would be an associate membership of India in JINR.

We feel that mutual collaboration in selected areas mentioned in fields of mutual interest, via either the proposed associate membership or suitable DAE/DST projects will be especially beneficial.

Dubna, Russia
June 20, 2014

- Nuclear reactions and spectroscopy, heavy ion physics (FLNR)
 - Neutrino physics (DLNP: JINR Projects & India-based Neutrino Observatory)
 - Neutron applications in condensed matter and nuclear physics
 - (FLNP: IBR-2 and spectrometer complex)
 - High energy physics and relativistic heavy ion physics (VBLHEP: NICA-MPD/SPD)
 - Information technologies (LIT: GRID)
 - Education (The University Center of JINR)
- Besides the listed topics, the participants mentioned the opportunities to cooperate in radiation biology, nanotechnologies, applied researches.*



MINUTES
of the India-JINR Forum
"Frontiers in Elementary Particle, Nuclear and Condensed Matter Physics"
held on 16-20 June 2014 at the Joint Institute for Nuclear Research
in Dubna, Russian Federation

More than 60 leading researchers from JINR Member States and 20 Indian scientists participated in the Forum aimed at strengthening the existing scientific contacts and establishing new ones between leading scientific research institutions of India and the Joint Institute for Nuclear Research. The mission of the Forum was to find new possible focal areas of cooperation, leading to new forms and next steps of cooperation.

JINR is a large multidisciplinary scientific research institute with a unique set of basic research instruments executing its programme on the basis of broad international cooperation, including 150 institutes and universities of the Russian Federation. Thus JINR could serve as a "bridge" connecting Russian organizations with institutes and universities of India, facilitating mutually beneficial cooperation of Russian and Indian scientists.

During three plenary sessions 19 review talks were given. The talks exposed the wide spectrum of directions and the structure of fundamental research in India and JINR. Reviews of more specific

During the Forum the participants were acquainted with the structure of JINR and some principles of its organization. They also concluded that the best way to perform above mentioned cooperation activities would be an associate membership of India in JINR.

We feel that mutual collaboration in selected areas mentioned in fields of mutual interest, via either the proposed associate membership or suitable DAE/DST projects will be especially beneficial.

Dubna, Russia
June 20, 2014

For the Indian delegation

Biswas Prof. D.C. Biswas, Bhabha Atomic Research Centre

R. Mukhopadhyay Prof. R. Mukhopadhyay, Bhabha Atomic Research Centre

T.V. Ramakrishnan Prof. T.V. Ramakrishnan, Indian Institute of Science

Raychaudhuri Prof. A. Raychaudhuri, University of Calcutta

R. Sinha Prof. R. Sinha, The Institute of Mathematical Sciences

A. Srivastava Prof. A. Srivastava, Institute of Physics

For JINR, Organizing committee

Russakovich Prof. N. Russakovich, Chairman

D. Kamanin Dr. D. Kamanin, Vice-chairman

Joint Workshop “India-JINR: Frontiers of Basic and Applied Research”

This four-day hybrid (both online and offline) workshop, **October 16-20, 2023** covered the theoretical and experimental aspects of the studies of particle and nuclear physics, condensed matter physics, nuclear methods in life sciences, material science, IT, and some other related areas. The workshop received an overwhelming response from both the sides, and there were **202 participants. 128 participants were affiliated to Indian institutes** like VECC (Kolkata), TIFR (Mumbai), NISER (Bhubaneswar), IITs (Delhi, Bhilai, Bombay, Indore, Kanpur, Madras), NITs (Jalandhar, Patna), universities (Delhi University; Panjab University; Banaras Hindu University; Cotton University, Assam), and many institutions representing almost every geographical region of India.



16 October 2023

Ambassador Extraordinary and Plenipotentiary of the Republic of India to the Russian Federation H. E. Pavan Kapoor visited JINR to take part in the **forum** and meet with JINR Director Grigory Trubnikov, as well as with Indian employees of JINR.

On 23 January 2025, Ambassador Extraordinary and Plenipotentiary of the Republic of India to the Russian Federation **Vinay Kumar** visited the Joint Institute for Nuclear Research. The visit's programme included a meeting with the group of Indian JINR employees and a visit to the NICA Accelerator Complex at the Laboratory of High Energy Physics and enterprises of the Dubna Special Economic Zone. Plans to further strengthen the JINR–India relations were discussed at a meeting at the JINR Directorate.



The delegation included First Secretary of the Embassy **Vivek Singh**, Advisors to Ambassador **Ramkumar Thangaraj** (Economic and Commercial Wing of the Embassy) and **Anand Kamavisdar** (Science and Technology Wing).



March 25 2025, Adviser to the Department of Science and Technology of the Embassy of India in the Russian Federation **Dr. Anand Kamavisdar** attended the Committee of Plenipotentiary Representatives of the Governments of the JINR Member States.



Current status of JINR-India cooperation

Year	Cities India	Institutes India	JINR Topical Plan Themes with participation of Indian organizations
2025	18	25	13
2024	18	25	13
2023	18	25	13
2022	17	24	12
2021	17	24	12
2020	16	21	11
2019	14	21	12

Indian citizens employed at JINR, 2025 - 14

JINR Laboratory	Indian employees - researchers
Bogoliubov Laboratory of Theoretical Physics	3
Dzhelepov Laboratory of Nuclear Problems	2
Flerov Laboratory of Nuclear Reactions	3
Veksler and Baldin Laboratory of High Energy Physics	4
Frank Laboratory of Neutron Physics	2

Theoretical Physics

Elementary Particle Physics and Relativistic Nuclear Physics

Nuclear Physics

Condensed Matter Physics

Life and material sciences

Accelerator and detector technologies



Joint India-JINR publications

Publication statistics Web of Science	JINR	CERN	JINR & India	CERN & India	JINR & India without CERN	CERN & India without JINR
Total 2016-2025	13 812	13 962	2 444	1 914	930	398
2025	904	912	134	99	65	30
2024	1365	1493	279	189	134	42
2023	1320	1360	281	207	113	39
2022	1160	1181	219	145	113	39
2021	1273	1268	243	175	122	54
2020	1480	1558	259	198	99	38
2019	1676	1668	344	254	128	38
2018	1663	1489	260	226	62	28
2017	1471	1535	224	197	51	24
2016	1500	1498	201	224	43	66

High-level meetings on the sidelines of international forums

68th session of the IAEA General Conference September 16 – 20, 2024, Vienna

JINR delegation and Indian delegation headed by Prof. Ajit Kumar Mohanty (chairman, Atomic Energy Commission & Secretary, Department of Atomic Energy)



66th session, September 26 – 30, 2022, Vienna

JINR delegation headed by vice-director Latchezar Kostov with the Head of the Institutional Collaboration & Programs Section, Department of Atomic Energy Mr. Sunil Ganju



69th session of the IAEA General Conference September 15 – 18, 2025, Vienna

JINR delegation (Prof. Latchezar Kostov, vice-director; Academician Prof. Boris Sharkov, Prof. Sergey Kulikov) and Indian delegation: Prof. Ajit Kumar Mohanty (chairman, Atomic Energy Commission & Secretary, DAE), Shri Vivek Bhasin (Director, BARC), Dr. Pranesh Sengupta (Embassy of India)



Multilateral Cooperation of JINR and India within the BRICS Working Group on Research Infrastructure and Megascience Projects

2–3 July 2024

JINR hosted the 6th meeting of the BRICS Working Group on Research Infrastructures and Megascience Projects.

Representatives of all BRICS countries, including the new member states of this organization, attended the event.

The high level of JINR

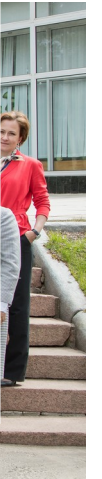
cooperation with India, the full membership of Russia and Egypt, the associate membership of South Africa, and the state-level JCC with China and Brazil open up a unique opportunity to share JINR's almost 70 years of experience in organizing multilateral scientific cooperation within the framework of BRICS+.

2 July 2017

The high level of JINR

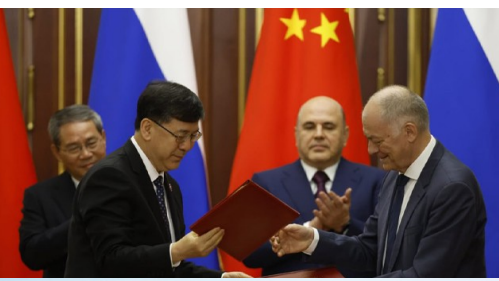
cooperation with India, the full membership of Russia and Egypt, the associate membership of South Africa, and the state-level JCC with China and Brazil open up a unique opportunity to share JINR's almost 70 years of experience in organizing multilateral scientific cooperation within the framework of BRICS+.

working
s and





In recent years, especially in 2024-2025, JINR and the BRICS countries have been cooperating in a wide range of scientific areas based on a large research infrastructure. **Two counter processes are observed: The BRICS member states are steadily increasing their formal status in JINR and, at the same time, in the process of expanding the BRICS, the traditional JINR member states and associate members are becoming member and partner countries of BRICS+.**



JINR -BRICS	2017-2025 WoS without CERN
JINR (total)	9 873 (12 400)
BRICS+	3 019 (8 721)
Brazil	322
India	889
China	1257
South Africa	204
Iran	49
Egypt	295
Russia	5 702

Researchers employed at JINR (Jul 2025)	
India	14
China	9
South Africa	3
Iran	2
Egypt	19

Country / Field of Research (PTP-2025)	LRI	Theor. Phys.	Particle Phys.	Nucl. Phys	Cond. Mat. Phys.	Radio-biology	IT	Applied Res.	Education	Number of Org.
Brazil		+	+	+	+			+	+	14
Russia	+	+	+	+	+	+	+	+	+	212
India	+	+	+	+	+					25
China	+	+	+	+						24
South Africa	+	+	+	+		+	+	+	+	14
Iran		+	+							4
Egypt	+	+	+	+	+	+	+		+	11

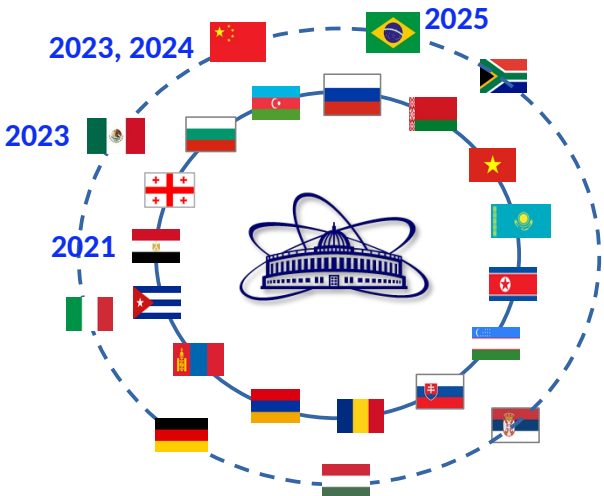
BRICS+ Member States and partners in JINR

As a matter of fact, JINR acts as an intergovernmental organizational and legal platform for the institutionalization of multilateral multidisciplinary scientific cooperation between the BRICS+ countries based on a multidisciplinary large research infrastructure.

The BRICS+ member and partner countries are represented in the JINR Committee of Plenipotentiaries (6) and/or the JINR Scientific Council and Program Advisory Committees (10).

BRICS+ scientific organizations and universities participate in:

- development of a large JINR infrastructure (NICA, BAIKAL-GVD, DRIBS-III, IBR-2), as well as in other BRICS+ countries (JUNO, BES-III), and conducting research on its basis, including within the framework of the NICA-MPD, SPD, BM@N collaborations, ARIADNA and BAIKAL-GVD
- scientific and educational programs based at JINR UC
- joint scientific conferences and schools, including special scientific meetings of JINR and individual BRICS member and partner countries, as well as protocol events.



Welcome



Danke

Rahmat

Շնորհակալություն

Благодаря

감사합니다

شكرًا جزيلاً

Mulțumesc

Ďakujem

Спасибо

Gracias

Thank you

Mulțumesc

Рақмет

Grazie

Дзякуй

谢谢

Çox sağ ol

Cảm ơn

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Хвала

