



# JOINT INSTITUTE FOR NUCLEAR RESEARCH

International Intergovernmental Organization

**Information on the Resolution of the JINR Scientific Council**

136th session, 12–13 September 2024

and

**on the decisions of the JINR Committee of Plenipotentiaries**

15-16 November 2024, Minsk

# Information on the Resolution of the JINR Scientific Council

136<sup>th</sup> session, 12–13 September 2024

<https://indico.jinr.ru/event/4771/>

Co-chaired by **Grigory Trubnikov** and by **Sergei Kilin**



# PROGRAMME

**12 September 2024**

<i>Opening of the session</i>	<i>G. Trubnikov</i>
<i>Approval of the session Programme</i>	<i>S. Kilin</i>
<i>Report by the JINR Director</i>	<i>G. Trubnikov</i>
<i>Discussion of the Director's report</i>	<i>S. Kilin</i>
<i>Appointment of the Editing Board for drafting the Resolution of the SC Council</i>	<i>S. Kilin</i>
<i>Appointment of the Committee for the election of Director of the LRB</i>	<i>S. Kilin</i>
<i>Recommendations of the PAC's taken at the meetings in June 2024:</i>	
– <i>PAC for Particle Physics</i>	<i>I. Tserruya</i>
– <i>PAC for Nuclear Physics</i>	<i>V. Nesvizhevsky</i>
– <i>PAC for Condensed Matter Physics</i>	<i>D. L. Nagy</i>
<i>Memberships of the PACs</i>	<i>G. Trubnikov</i>
<i>Scientific report "The Search for Quark-Gluon Plasma at the LHC: What is Next?"</i>	<i>Raghunath Sahoo</i>
<i>Election of Director of LRB:</i>	<i>S. Kilin</i>
- <i>recommendations of the Election Committee</i>	<i>Election Committee</i>
- <i>presentation by the candidate for the position of Director of LRB</i>	
- <i>discussion of the candidate</i>	
- <i>voting, counting of votes, announcement of the voting results</i>	<i>A. Bugay</i>

## **13 September 2024**

*Reports by young scientists as recommended by the PACs:*

- “Study of  $\Lambda$ -hyperon production in carbon collisions with solid targets in BM@N”* *K. Alishina*
- “Real-time follow-up of multimessenger alerts at the Baikal-GVD telescope”* *V. Dik*
- “Pressure effect on crystal, magnetic structure and vibrational properties of van der Waals materials”* *O. Lis*

*Jury’s recommendations on the award of the V. Dzhelepov Prize* *N. Russakovich*

*Jury’s recommendations on the award of the G. Flerov Prize* *Yu. Oganessian*

*Jury’s recommendations on the award of the Oganesson Prize* *G. Trubnikov*

*Jury’s recommendations on the award of the N. N. Bogoliubov Prize* *V. Matveev*

*Award of the N. N. Bogoliubov Prize*

*Presentation by the laureate of the N. N. Bogoliubov Prize* *Á. de Rújula*

*Presentation of diplomas to the winners of JINR annual prizes for best scientific, methodological, technological, & applied research papers* *G. Trubnikov*  
*S. Nedelko*

*General discussion. Adoption of the Resolution of the Scientific Council* *S. Kilin*

*Closing of the session* *G. Trubnikov*

# 136<sup>th</sup> Session of the JINR Scientific Council

12–13 September 2024, Dubna



**G. Trubnikov** presented a comprehensive report highlighting the decisions of the **CP** (March session), the results of the implementation of the **7-Year Plan** for the Development of JINR for **2024–30**, the progress in the realization of the **Topical Plan**, & recent events.

The **SC** noted with gratitude the **high level** of attention of the **RF** to the maintenance & development of **favourable & fruitful conditions** for the work of **JINR**.

The **SC** appreciated the **CERN Council** decision not to terminate the **cooperation** with the **JINR** & expresses confidence on mutually beneficial cooperation despite the geopolitical complications.

The **SC** highly welcomed the signing of a high-level agreement between **JINR** & the **Ministry of Science & Technology** of **China** on the beginning of implementation of **8 joint projects**, & strongly supports the ongoing strengthening of cooperation with **Mexico, Brazil, & India**.

After the Director's report the members of the SC noted with great satisfaction the successful fulfilment of the current **7-Year Plan**, obtained remarkable results in scientific research & the development of research infrastructure, as well as the positive dynamics of all important indicators of the JINR development.



The SC appreciated the Institute recent achievements, in particular:

- *progress of the **NICA Collider** technological tests, including installation of the magnetic cryostat system, **2 RF stations** & **Final Focusing** lenses, the merging of the **West & East arcs** high-vacuum volumes, installation of **cryogenic** equipment & **Power Supplies** in the collider building, connection of **power lines** & **energy evacuation** systems;*
- *striving to achieve the goal of detecting the first **Xe**-beams collisions in the **MPD** in Aug. **2025**;*
- *progress in the **analysis** of  **$\Lambda$**  &  **$K^0$** s production & **flow of protons** in **Xe+Csl** interactions by the **BM@N** Collaboration & publication of the **BM@N** detector paper in **NIM A**;*
- *successful cooling of the **MPD solenoid** down to **72 K**, preparations for the analysis of the **first data sets** in **fixed-target** mode;*
- *finalization of the updated **SPD TDR** & its **approval** by the **PAC** in June, progress in the development of **detector prototypes**;*
- *development of the **ARIADNA** Collaboration & its research programme, preparation for the **biosatellite experiment** scheduled in **2025**;*

- progress in developing the **Baikal-GVD** telescope in **2024**: total number of installed optical modules reached **4104** & **8** laser stations, significant improvement of the **on-shore infrastructure**;
- successful continuation of experiments at the **Superheavy Element Factory** aimed at preparing the synthesis of elements **119** & **120** with  $^{54}\text{Cr}$  &  $^{50}\text{Ti}$  beams. The known region of the **nuclear chart** has been **enlarged** by the discovered isotopes  $^{288}\text{Lv}$ ,  $^{289}\text{Lv}$  synthesized in the  $^{50}\text{Ti}+^{242}\text{Pu}$  &  $^{54}\text{Cr}+^{238}\text{U}$  reactions. The testing of a new large **48** cm-diameter **target** will significantly **speed up** upcoming experiments on the spectroscopy of superheavy nuclei due to a **twice larger beam current** on a target. The **first experiments** on isotopes of element **114** & their decay products synthesized in the  $^{48}\text{Ca}+^{242}\text{Pu}$  reaction are scheduled for **autumn 2024**;
- completion of the **U-400M upgrade**, acceleration & transportation of  $^{16}\text{O}$ ,  $^{40}\text{Ar}$ ,  $^{132}\text{Xe}$  ion beams, continuation of work to reach the **design parameters** & preparation for the **first experiments** scheduled for **autumn 2024**;
- rapid progress in the construction of the **new experimental hall** of **U-400R**, & completion of the **gallery construction** from the **U-400 hall** to the **new experimental hall**;
- preparatory work underway to **start** the **IBR-2** reactor after a long shutdown. A **license** for the operation was recently obtained. **One** of the two **air heat exchangers** has been replaced, work is underway to replace the second one. The **technical readiness** of the **IBR-2** for its start-up is scheduled for **Nov. 2024**. **Experimental work on external beams** is scheduled for **spring 2025**;

- *important results in fundamental & applied areas of research related to **materials science & ecology**, & in the field of **life sciences** due to the development of the **interlaboratory** research programme;*
- *interesting results in the field of **theoretical physics** of elementary particles, atomic nuclei, condensed matter physics, & advanced mathematical physics, aimed, in particular, at supporting the **JINR experimental programme**;*
- *successful operation & development of the **Multifunctional Information & Computing Complex**, increase in the power of the **Govorun** supercomputer, the **JINR grid site** function extension with the inclusion of resources in the system for modelling, processing & storage of the **BM@N, MPD & SPD** experimental data, the tape storage capacity increase from **50 PB** to **90 PB**, & ranking the **JINR Tier1** centre first among **Tier1** centres for **CMS** by the processed **CPU** time;*
- *successful participation in the collaborations at **CERN**, including the **II phase** of the **ATLAS, CMS & ALICE** upgrade, & **new results** in the experiments at **CERN-SPS**;*
- *efficient participation of the JINR group in the first phase of the **COMET** experiment at **J-PARC**.*



## Recommendations of the Programme Advisory Committees

**Particle physics.** *The **SC** appreciated the **PAC**'s support for the plans of the **Directorate** to ensure full-fledged cooperation of scientists & specialists from the **JINR Member States** with **CERN**, & the efforts undertaken to enhance ongoing cooperation & establish new scientific connections with **China, India, Mexico, & Brazil**. The **SC** acknowledged the **successful completion** of the **first stage** of the megascience project **NICA**. The **SC** appreciated the contributions of the **JINR teams** participating in the **LHC** experiments in **physics analyses & detector upgrades**.*

**Nuclear physics.** *The **SC** noted the extensive work on the **U-400M upgrade**. The **SC** noted that the experiment with the  $^{54}\text{Cr}$  beam is an important step for setting up the synthesis of elements with **Z>118**. The **SC** noted the important results obtained in the analysis of the first experiments carried out at the commissioned **ACCULINNA-2** fragment separator. The **SC** highly appreciated the radiochemical research carried out at **DLNP**, its high-quality & high-precision results, & notes of its significant contribution to nuclear medicine, spectrometry & astrophysics.*

**Condensed matter physics.** *The **SC** welcomed the efforts of the **FLNP** in the development of the **new neutron** source & supported this activity. The **SC** welcomed the **FLNP Directorate** intention to restart the **IBR-2 research facility** operation in **2024–25** & resume the **User Programme** in **2025**. The **SC** endorsed the progress of **instrument modernization** at the **IBR-2** & noted the active preparations of **instruments** for the reactor start-up at the end of **2024**. The **SC** was pleased with the current state of the **DN-6 diffractometer** for the study of materials at ultrahigh pressures.*

## Reports by Young Scientists

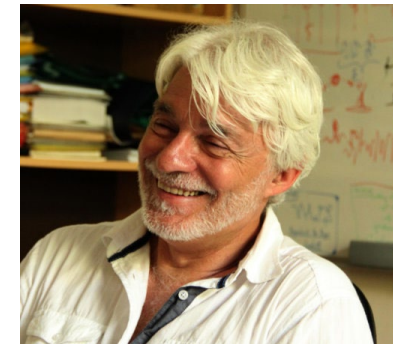
The **SC** followed with interest the reports by **young scientists**, selected by the **PACs** for presentations: “Study of  $\Lambda$ -hyperon production in carbon collisions with solid targets in BM@N experiment” by **K. Alishina** (VBLHEP), “Real-time follow-up of multi-messenger alerts at the Baikal-GVD telescope” by **V. Dik** (DLNP), & “Pressure effect on crystal, magnetic structure & vibrational properties of van der Waals materials” by **O. Lis** (FLNP). The **SC** thanked the speakers & welcomed such selected reports in the future.



## Memberships of the PACs

On the proposal by the **JINR Director** the **SC** appointed:

- **Amaresh Jaiswal** (NISER, Bhubaneshwar, India),
  - **Leandar Litov** (Sofia University “St. Kliment Ohridski”, Bulgaria),
  - **Gobinda Majumder** (TIFR, Mumbai, India),
- as members of the **PAC** for **PP** for a term of **3** years;
- **Ravi Kumar N V** (IIT Madras, Chennai, India), as a member of the **PAC** for **CMP** for a term of **3** years.



## Scientific Report

The **SC** heard with interest the report “The Search for Quark-Gluon Plasma at the Large Hadron Collider: What is Next?” presented by **Raghunath Sahoo** (IIT Indore, India) & thanked the speaker.

## Awards and Prizes

The **SC** approved the Jury's recommendations on the award of the **V. Dzhelepov Prize** to **M. Frontasyeva** (FLNP) for her significant contribution to the development of international programme on the assessment of air quality using neutron activation analysis.



The Jury composed of:  
N. Russakovich  
E. Yakushev  
S. Dmitriev  
L. Kostov  
E. ...

The **SC** approved the Jury's recommendations on the award of the **G. Flerov Prize** to:

- Academician **R. Ilkaev** (VNIIEF), co-author of the discovery of **element 114** (flerovium), for his great contribution to the synthesis & study of the properties of superheavy nuclei;
- **E. D. Donets & E. E. Donets** (VBLHEP, JINR), **Zhao Hongwei** (Institute of Modern Physics, CAS) for the development of sources of highly charged ions to produce intense accelerated beams of medium & high energies.



The **SC** approved the Jury's recommendations on the award of the **N.N. Bogoliubov Prize** to **Á. de Rújula** (CERN) & **I. Todorov** (INRNE, BAS) for their outstanding achievements in theoretical & mathematical physics & promoting international cooperation. The **SC** thanked **Á. de Rújula** for his brilliant presentation.



*The **SC** welcomed the Jury's decision presented by JINR Director to award the **Oganesson Prize** to **T. Chernigovskaya, G. Knyazheva, A. Nurmukhanbetova, Z. Vilakazi, & Yu. Zolotov.***

**The SC congratulated the winners of JINR annual prizes for best scientific, methodological, technological, & applied research papers.**



**Election & announcement of vacancies in the directorates of JINR Laboratories:**

*The **SC** elected **A. Bugay** as **Director** of the **Laboratory of Radiation Biology** for a second term of **5** years.*

*The **SC** announced the vacancies of positions of **LRB Deputy Directors.** The endorsement of appointments will take place at the **137th** session of the **Scientific Council** in **Feb. 2025.***

# THE SESSION OF THE JINR COMMITTEE OF PLENIPOTENTIARIES 15-16 November 2024, Minsk

**Chair of the Committee of Plenipotentiaries** — representative of Georgia **A. Khvedelidze**

*Plenipotentiary representatives of 10 JINR Member States attended the meeting of the CP sessions in person, representatives of other member states attended online. The meeting was attended by representatives of associated member states - Italy, Serbia & South Africa and international organizations - IAEA & the Arab Atomic Energy Agency.*



# AGENDA

1. Report by the **JINR Director - G. Trubnikov**

2. On the progress of work on launching the basic configuration of the **NICA Complex** & decisions of the **NICA Project**

**Supervisory Board - V. Kekelidze**

3. Draft budget of JINR for the year **2025**, provisional contributions of the **Member States** for the years **2026, 2027, 2028** - **N. Kalinin**

4. Results of the meeting of the **JINR Finance Committee** - **A. Omelchuk**

5. On approval of the **List of JINR officials** - **A. Khvedelidze**

6. Recommendations of the **136th** session of the **Scientific Council** - **S. Nedelko**

7. Changes in the membership of the **Scientific Council** - **G. Trubnikov**

8. Scientific report "Institute for Nuclear Problems, Belarusian State University: main research directions & potential for cooperation" - **S. Maksimenko**

9. Awards



## Main results

*CP took note with satisfaction of the information about the implementation of **the current 7-year Plan for the Development of JINR**, the **new scientific & technological results** obtained. CP endorsed the systematic activities of JINR to strengthen **cooperation with research organizations of the JINR Member States & Associate Members**.*

*CP noted with gratitude **the high level of attention of the RF to the creation of favourable conditions** for the JINR & the implementation of the international **mega-science project NICA**.*

*CP accepted with satisfaction **the decision of the CERN Council** not to terminate the agreement on international cooperation with JINR, & to express hope for the earliest possible resumption of full-scale participation of JINR in CERN activities.*

*Particular satisfaction was expressed with the signing of the agreement between JINR & the **Ministry of Science & Technology of the People's Republic of China** on the launch of **8 joint projects**, & to strongly support the strengthening of cooperation with government bodies, scientific organizations, & universities in **Mexico & India**. To welcome the signing of a cooperation agreement between the **National Nuclear Energy Commission (CNEN) of Brazil & JINR**.*

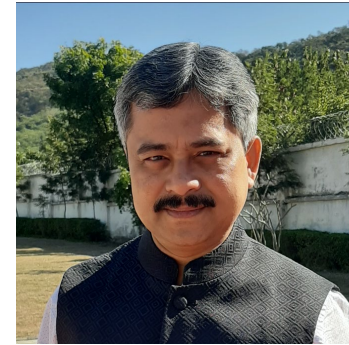
**CP reviewed & approved the recommendations of the 136th sessions of the JINR Scientific Council.**

The **Topical Plan for JINR Research & International Cooperation for 2025** was approved.

**CP agreed to determine the amount of contributions of the Member States for 2025-2030 by annually increasing the contribution of each Member State by 5%.**

**The JINR budget for 2025, along with the indicative contributions of the Member States for 2026-28, was approved.**

**CP agreed with the presented working schedule for the construction & launch of the basic configuration of the NICA Complex.**



**Prof. Raghunath Sahoo (Indian Institute of Technology Indore) & Prof. Song Yuntao (Director General of the Institute of Plasma Physics of the CAS) were elected as members of the JINR SC.**

**The List of JINR Officials to be incorporated as annex to the Agreement between the Government of the RF & the JINR on the Location & Terms of Activity of the JINR in the RF was approved.**

**CP endorsed the opening of the new scientific journal “Natural Science Review”, published by JINR, & recommended that JINR Member States & partners provide proactive assistance to the Directorate in popularizing this journal by all means available to them.**

**CP approved the Director’s initiative to organize a programme for the support of interlaboratory innovative projects with the aim of stimulating applied scientific research & innovative developments.**



Thank you  
for your attention!



2025

**С НОВЫМ ГОДОМ!**