

**I. General considerations**

The Scientific Council takes note of the comprehensive report presented by JINR Director A. Sissakian on the implementation of the recommendations made at the 99th and 100th sessions of the Scientific Council and on the main directions of JINR's strategic development.

The Scientific Council is pleased to note that most of its recommendations to the JINR Directorate concerning the Scientific Programme of JINR, the operation and upgrade of the basic facilities, and the construction of new facilities are being implemented.

The Scientific Council highly appreciates the success of the XXXIII International Conference on High Energy Physics (Moscow, 26 July – 2 August 2006) whose co-organizer was JINR. This Rochester Conference was one of the major recent events in the life of the Institute. JINR physicists presented 17 reports at parallel sessions and one plenary report; several scientists of the Institute were session leaders. JINR also provided the majority of the technical and logistical support needed for the success of this premier international conference.

The Scientific Council recognizes the efforts of the JINR Directorate aimed at intensification of regular interactions with official bodies and scientific communities of the Member States. These activities have already resulted in a substantial increase of the planned JINR budget for the year 2007. The Scientific Council strongly supports further efforts to increase the Institute budget to secure implementation of the long-term development programme of JINR, which is justified by the interest of the scientific programme and the approach to scientific management taken by the new Directorate.

It is essential for the future vitality of JINR to increase the level of salary support and the availability of affordable housing for young scientists. The Scientific Council appreciates the decision of the JINR Directorate that a substantial increase of salaries will have high priority for the use of the increased JINR budget.

The Scientific Council also highly appreciates the fruitful work of the Directorate on the involvement of new countries, in particular the Republic of South Africa, into the JINR orbit, and the new initiatives towards the restoration of the membership of the People's Republic of China at JINR.

The Scientific Council reiterates its previous recommendations on the central importance of the JINR basic facilities for the future development of the Institute, and notes with satisfaction the results achieved in the DRIBs and IREN projects, the ongoing

modernization of the IBR-2 reactor, and the conceptual foundation being laid for a future Nuclotron-NICA project.

## **II. Considerations concerning the current JINR scientific programme**

1. The Scientific Council takes note of the results of activity in 2006 presented in the reports by V. Voronov, Deputy Director of BLTP, A. Olchevski, Director of DLNP, M. Itkis, Director of FLNR, A. Belushkin, Director of FLNP, V. Ivanov, Director of LIT, A. Malakhov, Director of VBLHE, V. Kekelidze, Director of LPP, E. Krasavin, Director-Organizer of LRB, and D. Fursaev, Director of UC.

The Scientific Council recognizes the significant scientific accomplishments of JINR scientists in 2006 in the fields of particle physics, nuclear physics, and condensed matter physics, and looks forward to new achievements and major advances in the future.

2. The Scientific Council endorses “The JINR Topical Plan of Research and International Cooperation for 2007”, presented by Vice-Directors M. Itkis and R. Lednický, which has been developed by the Directorate in line with the main provisions of the JINR road map and the recommendations of the PACs.

The Scientific Council welcomes the Directorate’s intention to implement a new approach to the contents and template of the JINR Topical Plan of Research and International Cooperation. This approach, based on three-year planning, is intended to be fully consistent with the actual limitations of the JINR budget. The Scientific Council appreciates the Directorate’s efforts towards streamlining the research programme of the Institute and establishing milestones against which progress can be tracked each year.

Considering that there are a large number of high-priority projects, the Scientific Council recommends that the Directorate clarify the procedure used in order to establish the priorities within the laboratories so that strategic decisions are made transparent to the users.

The Scientific Council reiterates its recommendation that the University Centre should be given more financial support. At the same time the Member States should reinforce their involvement in the UC activity with a view to broader participation in the educational programme.

## **III. Recommendations in connection with the PACs**

The Scientific Council concurs with the recommendations made by the PACs at their November 2006 meetings as reported at this session by Professors T. Hallman, N. Janeva, and W. Nawrocik.

### Particle Physics Issues

The Scientific Council endorses the main lines of the JINR Programme of Particle and Relativistic Nuclear Physics Research for the period 2007–2009. The Scientific Council supports the ongoing efforts of the PAC and the Directorate to streamline this programme. It requests at its next session a presentation of the vision for future activities in these areas.

The Scientific Council notes the importance of an urgent consideration by the PAC of a fully developed proposal for experimental studies of the mixed phase of strongly interacting matter at the Nuclotron. The Scientific Council concurs with the PAC that the scientific merit of this research is high, and that a timely research programme initiated prior to the start of the programme at the Facility for Antiproton and Ion Research (FAIR, Darmstadt) will be competitive and attract international interest.

The Scientific Council supports the PAC's recommendation concerning the preparation of the Nuclotron upgrade project. Recognizing the importance of this upgrade for the ongoing and future particle physics programme at JINR, the Scientific Council shares the PAC's recommendation on the creation of a project plan showing, in full detail, the cost and schedule for this project, as well as the resources available to carry it out. This plan should be reviewed by an independent, international, expert committee, charged with assessing the robustness of the plan to successfully accomplish the planned upgrade.

The Scientific Council supports the PAC's recommendation to hear a report at its next meeting concerning the main areas of scientific activity at the FAIR facility that JINR plans to contribute to. It looks forward to a report from the Directorate presenting a comprehensive plan for the JINR future activities in relativistic ion physics, including FAIR, the Nuclotron and NICA.

The Scientific Council supports the PAC's recommendation on plans for JINR's participation in technical R&D for the International Linear Collider project, and the PAC's recommendation on the new project "Preparation of proposals for JINR's participation in the design, manufacturing and testing of the Linear Collider element prototypes". It also encourages the JINR team to become centrally involved in ongoing activities focused on plans for the civil construction at a future ILC site near Dubna.

The Scientific Council reiterates the importance for JINR of exploiting its investment in the LHC, and urges that adequate investment in computing infrastructure be made.

### Nuclear Physics Issues

The Scientific Council endorses the main lines of the JINR Programme of Nuclear Physics Research for the period 2007–2009.

The Scientific Council is impressed by the results that have been achieved: discovery of new superheavy elements and investigation of their nuclear and chemical properties, studies of reactions induced by stable and radioactive ion beams, nuclear spectroscopy of heaviest isotopes, production and structure studies of exotic light radioactive nuclei.

The Scientific Council notes this remarkable achievement of the Flerov Laboratory and strongly encourages further developments in radiochemical studies of superheavy elements at this Laboratory.

Recognizing JINR's experience in extremely low-background physics, the Scientific Council reiterates its high estimate of the prominence of the scientific programme of fundamental interactions in nuclei (fundamental properties of electron (anti)neutrino, neutrinoless double-beta decay, dark matter), and the study of nucleus and particle interactions at intermediate energies (rare processes, nuclear reaction mechanisms).

The Scientific Council supports the PAC's opinion about the high quality of the proposed research activities in the field of nuclear physics with neutrons.

The Scientific Council is pleased to hear that the construction of Phase I of the IREN facility is progressing on schedule and looks forward to the commissioning of IREN in late 2007. It would like to hear more about the scientific opportunities presented by Phase I of IREN.

The Scientific Council supports the PAC's conclusion about the high scientific and practical importance of the SAD project, and appreciates the strong efforts of the project's management to seek the adequate funding for the project, including negotiations with European partners and the Russian Federal Agency for Atomic Energy.

The Scientific Council requests for its next session a presentation of the vision for future activities in nuclear physics.

#### Condensed Matter Physics Issues

The Scientific Council endorses the main lines of the JINR Programme of Condensed Matter Physics Research for the period 2007–2009.

The Scientific Council notes that the IBR-2 reactor, the main facility of JINR in the field of condensed matter physics, completed its successful operation in December 2006, after approximately 50 thousand hours of operation. The construction of the IBR-2M — fundamentally a new reactor — has begun. The Scientific Council expects the JINR and FLNP Directorates to take all necessary measures to ensure the continuation of the work for the IBR-2 modernization, including the implementation of cold moderators, according to schedule.

Although the modernization of IBR-2 is the most important task for FLNP, the

scientific and educational activities at this Laboratory should be kept at the current high-quality level. The Scientific Council appreciates the well-structured plan for research at external neutron sources for the period of the IBR modernization, as well as of the development of upgrades for the spectrometers for the future IBR-2M reactor.

The Scientific Council expects JINR to set up a group of its own and external experts to carry out the ranking of the spectrometer upgrade projects taking into account the foreseen construction of the broad-band moderators and current trends in modern condensed matter physics. The Scientific Council would also support JINR's efforts to invest adequate resources in detectors to exploit more effectively the neutron facilities.

The Scientific Council is pleased to note that, after being refurbished, the operation of the Phasotron has restarted. This is especially important for the hadron therapy programme. The Scientific Council shares the opinion expressed by the PAC that JINR has personnel and technique advantages in biomedical applications of ion-beam facilities. The Scientific Council reiterates the need for coordination of all activities in biomedical physics at JINR.

The Scientific Council notes that the agenda of the PAC's last two meetings included poster presentations by young scientists working in the fields of condensed matter studies, radiobiology, and life sciences. This aspect of the PAC's activity is appreciated.

The Scientific Council requests for its next session a presentation of the vision for future activities in condensed matter physics.

#### **IV. Memberships of the PACs**

The Scientific Council thanks Professor N. Janeva for her very successful work as Chairperson of the PAC for Nuclear Physics.

As proposed by the JINR Directorate, the Scientific Council appoints Professor W. Greiner (FIAS, Frankfurt, Germany) as Chairperson of the PAC for Nuclear Physics, Professor E. Vardaci (University, Naples, Italy) as a new member of the PAC for Nuclear Physics, Professor E. Burzo (University, Cluj-Napoca, Romania) as a new member of the PAC for Condensed Matter Physics, and Professor L. Riccati (INFN, Turin, Italy) as a new member of the PAC for Particle Physics for a term of three years.

The Scientific Council reiterates its support for regular rotation of PAC members.

#### **V. JINR prizes**

1. The Scientific Council approves the Jury's recommendations on the JINR prizes for 2006 (Appendix).

2. The Scientific Council congratulates Professor A. Suzuki (KEK, Japan) on being awarded the 2006 B. Pontecorvo Prize for the discovery of reactor antineutrino oscillations and the detection of geoantineutrinos in the KamLAND experiment.

The Scientific Council thanks Professor A. Suzuki for his impressive scientific presentation.

## **VI. Nominations**

1. The Scientific Council agrees with the proposal of the JINR Directorate to postpone the election of the Directors of the Laboratory of Particle Physics and of the Laboratory of Radiation Biology till the 103rd session of the Scientific Council.

2. The Scientific Council elected by ballot V. Voronov as Director of the Bogoliubov Laboratory of Theoretical Physics, A. Belushkin as Director of the Frank Laboratory of Neutron Physics, V. Kekelidze as Director of the Veksler and Baldin Laboratory of High Energies, and S. Dmitriev as Director of the Flerov Laboratory of Nuclear Reactions for a term of five years.

The Scientific Council thanks Professors A. Sissakian, A. Belushkin, A. Malakhov, M. Itkis, and V. Kekelidze for their very successful work as Director of BLTP, Director of FLNP, Director of VBLHE, Director of FLNR, and Director of LPP, respectively. Their outstanding contributions to the development of the scientific research in these Laboratories are highly appreciated.

3. The Scientific Council announces vacancies of the Deputy Directors of BLTP, FLNP, VBLHE, and FLNR. The election for these positions will take place at the 102nd session of the Scientific Council.

## **VII. Next session of the Scientific Council**

The 102nd session of the Scientific Council will be held on 27–28 September 2007.

A. Sissakian

Chairman of the Scientific Council

I. Wilhelm

Co-chairman of the Scientific Council

N. Russakovich

Secretary of the Scientific Council