I. General considerations

The Scientific Council welcomes the comprehensive report presented by JINR Director A. Sissakian on the implementation of the recommendations made at the 103rd session of the Scientific Council and on the preparation of a Seven-Year Plan for the Development of JINR for 2010–2016.

The Scientific Council is pleased to note that 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 successfully implemented.

The Scientific Council appreciates the intention of the JINR Directorate to prepare a plan for the development of JINR for the years 2010–2016 in view of the completion, next year, of the current seven-year "Programme of the Scientific Research and Development of JINR". The new plan will be based on the budget estimates for the future period and on the strategic provisions of the JINR road map, and will include such aspects as the realization of the proposed scientific, educational, and innovation programmes, the development of the engineering infrastructure, as well as staffing and social issues. The Working Group, set up by the Directorate, is commissioned to prepare the first draft of the new seven-year plan by 1 January 2009 and to make it available for discussions.

The Scientific Council welcomes the decision of the Committee of Plenipotentiaries to address the governments of the Member States with a proposal to make provisions for an increase of the JINR budget in 2011–2015 (tentatively 2.5 times by the year 2015 relative to the level of the year 2010) with a view to creating an in-house facility base attractive to the Member States and the world scientific community. These facilities will include the Nuclotron-M and NICA/MPD, a third-generation DRIBs facility (DRIBs-III), and a complex of state-of-the-art neutron spectrometers for the modernized reactor IBR-2M. The Scientific Council believes that this suite of advanced instruments provides compelling justification for the proposed increase in budget in 2011–2015.

The Scientific Council is pleased to learn about the visit to JINR, on 18 April 2008, of the President of the Russian Federation, D. Medvedev. Together with leaders of government agencies and regions of the host country, the President was presented with information on the research work of the Flerov Laboratory of Nuclear Reactions; in particular on the discovery of superheavy elements, and on other areas of the Institute's activity. This visit took place on the occasion of the meeting, held in Dubna, of the State Council of the Russian Federation, which was chaired by President D. Medvedev and was

dedicated to the “Development of the National Innovation System in the Russian Federation”.

The Scientific Council notes with satisfaction that President D. Medvedev highly appreciated the results of JINR’s basic research and underlined the role of science in the innovation process; that he supported the proposals of the JINR Directorate for the establishment in Dubna of an International Innovation Centre for Nanotechnology and of a Centre for Radiation Medicine with JINR’s participation. The President also expressed his positive attitude to the plans for the increase of the JINR budget in 2011–2015.

The Scientific Council notes the operation since May 2008 of JINR’s new Laboratory — the Veksler and Baldin Laboratory of High Energy Physics (VBLHEP), which was established by the decision of the JINR Directorate in order to utilize better the human and financial resources in implementing the programme for the upgrade of the Nuclotron accelerator complex and for the realization of the NICA/MPD project, and of the appointment of Professor V. Kekelidze as Acting Director of VBLHEP.

II. Award of the title “Honorary Doctor of JINR”

The Scientific Council congratulates Professor N. Kroó (Hungarian Academy of Sciences) on the award of the title “Honorary Doctor of JINR”, and thanks him for his impressive scientific presentation.

The Scientific Council endorses the JINR Directorate’s proposal to award the title “Honorary Doctor of JINR” to Professor T. Inagaki (KEK, Japan), in recognition of his outstanding contributions to the advancement of science and the education of young scientists. The Scientific Council congratulates Professor T. Inagaki on these highly significant achievements.

III. Considerations concerning JINR’s scientific programme

The Scientific Council appreciates the progress towards realization of the primary tasks of JINR in accordance with the JINR road map in the fields of particle physics and relativistic nuclear physics, in nuclear physics, and condensed matter physics, as presented in the reports by Vice-Directors R. Lednický and M. Itkis.

The Scientific Council takes note of the progress reports on current activities: “Status of modernization of the IBR-2 reactor” presented by FLNP Director A. Belushkin, “Construction of Phase I of the IREN facility” presented by FLNP Deputy Director V. Shvetsov, “Activity for the DRIBs project” presented by FLNR Director S. Dmitriev, “Progress towards realization of the Nuclotron-M project” presented by JINR Deputy Chief

Engineer G. Trubnikov, “Activity for the NICA project” presented by VBLHEP Acting Director V. Kekelidze, and “Educational Programme of JINR” presented by UC Director D. Fursaev.

IV. Recommendations in connection with the PACs

The Scientific Council concurs with the recommendations made by the PACs at their June 2008 meetings as reported at this session by Professors J. Nassalski, W. Greiner, and W. Nawrocik.

Particle Physics Issues

The Scientific Council welcomes the appointment of the Machine Advisory Committee (MAC), comprised of independent experts, for the Nuclotron-M/NICA accelerator complex, and looks forward to the results of its next meeting at the end of 2008 when the committee will carry out an in-depth critical review of the NICA draft technical design report before its publication.

The Scientific Council appreciates the ongoing effort to further develop the scientific programme for the NICA/MPD project as an important means to attract and retain young scientists and engineers to JINR. The Scientific Council concurs with the PAC that the scientific observables for the mixed phase and potential future spin physics programmes should be sharpened by detailed simulations to document the requirements for the success of this scientific research in a forthcoming white paper on this topic.

The Scientific Council notes the progress for ongoing developments at JINR related to the ILC, in particular, the recent visit to JINR of the ILC GDE where information concerning possible siting of the ILC in the Moscow Region was actively discussed. The Scientific Council concurs with the PAC that to build credibility as a potential host laboratory for the ILC, adequate resources from the JINR Directorate will be necessary to allow technical developments and contributions at the international level to the ILC development.

The Scientific Council encourages the PAC for Particle Physics to review JINR activity on CLIC R&D with a view to optimizing JINR’s work related to linear collider developments.

The Scientific Council appreciates the readiness of the JINR groups taking part in the ALICE, ATLAS, and CMS experiments to obtain first physics results at the time of LHC start-up, and recommends that these teams continue their active participation in these experiments. It looks forward at a future meeting to hearing from the PAC for Particle Physics the report it has commissioned on the first experience with detector performance and LHC data analysis at JINR. The important contribution of the JINR team to the LHC damping system is also appreciated.

The Scientific Council notes the discussion at the PAC meeting by the physics community concerning their experience in using the JINR Central Information and Computing Centre (CICC). The feedback from the users is very essential for the development of the JINR computing and network infrastructure. The Scientific Council recommends that the LIT Directorate have regular meetings with the CICC users and the leaders of JINR's ongoing and future projects where the strategy for the further upgrade of the CICC and the allocation of existing resources can be discussed.

The Scientific Council supports the PAC's recommendation on the new project "JINR's participation in the Daya Bay neutrino experiment", emphasizing the importance of the participation in this promising experiment and the positive impact that it will have on further development of the scientific relations between China and JINR.

The Scientific Council notes with satisfaction the important contributions of JINR physicists to the COMPASS, D0, and CDF experiments.

Nuclear Physics Issues

The Scientific Council endorses the activity of the Flerov Laboratory of Nuclear Reactions, in line with the previous recommendations of the PAC and the Scientific Council, aimed at modernizing the cyclotrons and extending the experimental potential of the Laboratory. However, taking into account the need of a new perspective of studies of both neutron-rich light nuclei and superheavy nuclei, the Scientific Council invites the Laboratory to work out a long-range programme of further developments of the accelerator complex and of state-of-the-art experimental facilities of the next generation. The main purpose is the quantitative increase of the efficiency of experiments as a whole by at least one order of magnitude to allow the Laboratory to keep its leadership during the next decades.

The Scientific Council strongly recommends starting a detailed consideration of a long-term plan for the development of the FLNR accelerator complex and experimental facilities for presentation to the PAC at its next meeting.

The Scientific Council highly appreciates the efforts of the JINR Directorate and the laboratories involved in the implementation of the IREN project, in particular the efforts of the FLNP Nuclear Physics Department on the preparation of the experimental infrastructure at IREN Phase I. The Scientific Council supports the PAC's recommendations that the theme "Construction of the IREN facility" be finished in 2008, and the financial resources for the maintenance, operation and development of the IREN facility be kept within the theme "Nuclear Physics with Neutrons — Fundamental and Applied Investigations". It further supports the PAC's recommendation that the available

human, financial and technical resources of the FLNP Nuclear Physics Department be concentrated mainly on the realization of the proposed scientific programme for IREN-1 and on the development and preparation of the programme for the full-scale IREN facility.

Condensed Matter Physics Issues

The Scientific Council is pleased to note that work for the modernization of the IBR-2 reactor is proceeding well and according to schedule. It looks forward to the continuation of the comprehensive support of the modernization programme that is being given by the FLNP and JINR directorates.

The Scientific Council notes the progress in the planning of the further development of the neutron spectrometer complex for the future modernized reactor IBR-2M. The first priority will be given to the implementation of two new spectrometers, DN-6 and GRAINS, and to the comprehensive upgrade of the SKAT/EPSILON spectrometers. The existing suite of instruments should receive the funding necessary for efficient operation. Future projects should include improvements to instruments which can contribute to the study of nanomaterials.

The Scientific Council appreciates the high level of activities in condensed-matter science pursued by the research groups at FLNP, BLTP, and FLNR, and the important scientific results presented in the PAC's report.

The Scientific Council also appreciates the progress in implementing the scientific programme of the Laboratory of Radiation Biology. It notes with much interest the development, jointly with other JINR laboratories, of a new cancer cell control method using nanotechnology and super-high frequency penetrating electromagnetic radiation. Another new important aspect of the LRB activity is the implementation of a unique, powerful confocal Coherent Anti-Stokes Raman Scattering microscope as a basic facility that allows achieving the front line of biological studies at the cellular level.

Common Issues

The Scientific Council appreciates the impressive progress of the JINR Educational Programme, pursued by the University Centre (UC) during the last 10 years, in particular the increased number of students and JINR-based university departments, the successful organization of the international practice for students of JINR Member States, and the creation of educational infrastructure. The Scientific Council supports the proposal by the UC Director concerning the increase of the budget required to complete the creation of student laboratories and to enlarge the number of PhD students. The lecture programmes for school teachers at JINR should also be funded. The possibility of accreditation of PhD status for students who participate in the Educational Programme should be explored,

especially for the Member States.

The Scientific Council welcomes the efforts taken by the JINR Directorate for the establishment at Dubna of a Centre for Radiation Medicine as well as the collaboration with the Belgian company IBA in the development of advanced technologies in the hadron therapy field. The Scientific Council supports the PAC's recommendation that clinical research using the DLNP Phasotron proton beams should be continued until the Centre for Radiation Medicine has been commissioned.

V. Memberships of the PACs

The Scientific Council takes note of the report concerning the current memberships of the PACs and the rotation of members in the PACs, presented by Vice-Director M. Itkis.

As proposed by the JINR Directorate, the Scientific Council appoints Professor V. Kantser (ASM, Chisinau, Moldova) as Chairperson of the PAC for Condensed Matter Physics for a term of three years. The Scientific Council thanks Professor W. Nawrocik for his very successful work as Chairperson of this PAC.

The Scientific Council also appoints Professors G. Eckold (IPC, Göttingen, Germany) and H. Fuess (IMS, Darmstadt, Germany) as new members of the PAC for Condensed Matter Physics for a term of three years. The Scientific Council thanks the outgoing members Professors H. Lauter and H. Tietze-Jaensch for their very successful work in this PAC.

As proposed by the JINR Directorate, the Scientific Council appoints Professor Y. Wang (IHEP, Beijing, China) as a new member of the PAC for Particle Physics for a term of three years.

VI. Scientific report

The Scientific Council thanks Professor A. Frank for his outstanding scientific report "Precise UCN Spectroscopy with Fabry – Perot Interferometers".

VII. General discussion

The Scientific Council highly appreciates the JINR Directorate's intensive ongoing effort to upgrade the JINR basic facilities in order to produce a suite of world-class instruments for basic research, competitive with the most advanced programmes in the world and attractive to the Member States and other countries.

The Scientific Council endorses the Directorate's effort to continue to examine its future role in relation to such international programmes, and to identify and invest in those

scientific and technical areas where it anticipates having unquestioned leadership in a world view. In addition, the Scientific Council recommends a continued concerted effort by the Directorate and members of the scientific bodies such as the Scientific Council and the PACs to communicate the uniqueness of the scientific and technical opportunities afforded by participation in the JINR programme to national agencies which support this activity, especially in the Member States and other countries.

The Scientific Council looks forward to a presentation by the JINR Directorate at its next session of the rules and responsibilities for membership and associate membership in the Joint Institute for Nuclear Research.

In this regard, the Scientific Council recognizes the highly competitive programme afforded by the upgraded IBR-2M, IREN, Nuclotron-M/NICA and DRIBs-III facilities. The Scientific Council notes that the success of the Nuclotron-M/NICA project will depend critically on the creation of a well-developed, detailed plan for realization, and looks forward to a report on progress in this direction from the Chairperson of the MAC for Nuclotron-M/NICA at a future session. The Scientific Council also strongly supports increased effort to internationalize the construction and the scientific programme of Nuclotron-M/NICA.

The Scientific Council notes the critical necessity to continue efforts to rejuvenate the scientific and technical staff of JINR as an essential investment to safeguard the long-term future of the Institute, and encourages the Directorate to continue progress on essential reforms which advance this important activity.

VIII. JINR prizes

The Scientific Council congratulates the laureates of the JINR prizes for 2007 — winners of the annual scientific research competition in the fields of theoretical physics, experimental physics, physics instruments and methods, and applied physics.

IX. Elections and announcement of vacancies in the directorates of JINR Laboratories

The Scientific Council elected by ballot Professor A. Olshevskiy as Director of the Dzhelepov Laboratory of Nuclear Problems for a term of five years.

The Scientific Council announces the vacancies of the positions of Deputy Directors of the Dzhelepov Laboratory of Nuclear Problems and of the Laboratory of Information Technologies, and of a Deputy Director of the Frank Laboratory of Neutron Physics. The elections for these positions will take place at the 105th session of the Scientific Council.

The Scientific Council announces the vacancies of the positions of the Directors of the Veksler and Baldin Laboratory of High Energy Physics and of the Laboratory of Radiation Biology. The elections for these positions will take place at the 106th session of the Scientific Council.

X. In Memory of Yuri Osipian

The Scientific Council deeply regrets the sad loss of Academician Yu. Osipian, Scientific Leader of the Institute of Solid State Physics (Chernogolovka, Russia) and member of the JINR Scientific Council, who has made an outstanding contribution to the development of scientific collaboration between JINR and physics research centres of the Russian Academy of Sciences.

XI. Next session of the Scientific Council

The 105th session of the Scientific Council will be held on 19–20 February 2009.

A. Sissakian
Chairman of the Scientific Council

I. Wilhelm
Co-chairman of the Scientific Council

N. Russakovich
Secretary of the Scientific Council